CORRECTIVE ACTION PLAN ADDENDUM
INACTIVE FAIRFAX FACILITY #26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA
DEQ PC # 2010-3028

OCTOBER 2, 2014

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A Report Prepared for:

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October 1, 2014
Kleinfelder Project No. 109816

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CORRECTIVE ACTION PLAN ADDENDUM

INACTIVE FAIRFAX FACILITY #26140

9901 GEORGETOWN PIKE

GREAT FALLS, VIRGINIA

DEQ PC # 2010-3028

1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder), on behalf of Fairfax Petroleum Realty, LLC (Fairfax), has prepared this Corrective Action Plan Addendum (CAPA) to the Virginia Department of Environmental Quality (DEQ) Petroleum Storage Tank Program for Inactive Fairfax Facility #26140 (Site). The CAPA is provided as requested by the DEQ in a letter dated January 24, 2014 (**Appendix A**). Kleinfelder, on behalf of Fairfax, has been in regular contact with the DEQ regarding the submission of the CAPA to accommodate additional investigation activities as presented in the DEQ August 12, 2014 letter. In the August 12, 2014 letter, the DEQ approved an extension for submission of this report to October 3, 2014 and the requirements of letter were satisfied and documented in correspondence to the DEQ on August 29, 2014.

The report documents the methods and results of additional investigation activities, provides an update to the Site Conceptual Model (SCM) and risk assessment, a determination of proposed remediation endpoints, a description of the ongoing corrective action through the operation of the soil vapor extraction (SVE) and groundwater recovery and treatment systems, and recommendations for future activities. The investigation activities and CAPA were completed in general accordance with the DEQ Storage Tank Technical Manual (Guidance Document 01-2024D) and the requirements of the DEQ letters dated December 10, 2009, July 20, 2011, November 1, 2013, and January 24, 2014, and August 12, 2014.

The DEQ assigned pollution complaint (PC) number 2010-3028 in August 2009 following the identification of dissolved phase hydrocarbons and fuel oxygenates during a Phase II Environmental Site Assessment (ESA) by Exxon Mobil Corporation (ExxonMobil). Previous potable well sampling and environmental investigations by others have identified the presence of chlorinated ethenes, including tetrachlorethylene (PCE), trichloroethylene (TCE), and cis-1,2 dichloroethylene (DCE), in the groundwater of Great Falls dating back to 1992. Chlorinated ethenes have been identified in shallow and deep monitoring wells on and off-site and in off-site potable wells. The presence of the chlorinated ethenes in groundwater has been attributed to

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unknown sources and a known dry cleaner release from the Great Falls Center. This CAPA was prepared solely to satisfy the requirements of the DEQ Petroleum Storage Tanks Program for petroleum related constituents of concern (COCs) including methyl tertiary butyl ether (MTBE).

The structure of the report is described below.

- **Section 2 – Site Assessment Summary**
  This section provides a summary of the Site, area, potential receptors, and activities completed.
- **Section 3 – Geology and Hydrogeology**
  The Site setting, topography, geology and hydrogeology are presented in this section.
- **Section 4 – Supplemental Investigation Activities and Methods**
  This section describes activities which were completed since the June 2014.
- **Section 5 – Site Conceptual Model Update**
  This section provides a description of the SCM update for the Site.
- **Section 6 – Fate and Transport**
  This section provides a description and results of fate and transport modeling.
- **Section 7 – Risk Assessment**
  This section provides an updated risk assessment for the Site and vicinity.
- **Section 8 – Proposed Remediation Endpoints**
  This section provides the proposed remediation endpoints.
- **Section 9 –Corrective Action Summary**
  This section provides a summary of the corrective action implementation.
- **Section 10 – Post Operational Monitoring Schedule**
  The post operational monitoring schedule is presented in this section.
- **Section 11 – Estimated Timeframe to Achieve Endpoints**
  The estimated timeframe to achieve the proposed endpoints is presented in this section.
- **Section 12– Project Costs to Achieve Endpoints**
  The estimated costs to achieve the proposed endpoints are presented in this section.
- **Section 13 – Public Notification**
  This section provides a summary of the public notification efforts.

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- **Section 14 – Conclusions and Recommendations**

  Overall conclusions and recommendations are presented in this section.

- **Section 15 – References**

  The references cited in this report are presented in this section.

- **Section 16 – Limitations**

  The limitations of this report are presented in this section.

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2 SITE ASSESSMENT SUMMARY

The following sections present a summary of the Site location and features and a summary of activities associated with PC# 2010-3028.

2.1 SITE DESCRIPTION

The Site is an inactive retail service station located on the southwest corner of the intersection of Georgetown Pike and Walker Road at 9901 Georgetown Pike, Great Falls, Fairfax County, Virginia (**Figure 1**). The Site is approximately 27,430 square feet (0.63 acre) and is a single parcel (Legal Code 0131 01 0005A). The service station was constructed in 1969 and is developed with a station building with a convenience store and three service bays and a canopy. The Site is serviced with municipal water service. A potable well (PW-1), located in the northeastern corner of the Site, was removed from service in August 2009 and is now utilized as a monitoring well. A septic system is located behind the station building in the southern portion of the Site. The approximate locations of the Site features are depicted on **Figure 2**.

In August 2012, Fairfax contracted the removal of the underground storage tank (UST) system. The former UST system was reportedly installed in 1989 and upgraded in 1994. This former UST system consisted of four dispensers and the tank field contained one 12,000-gallon gasoline UST and two 10,000-gallon gasoline USTs. The USTs were constructed of single walled fiberglass and the product lines were GEOFLEX® doubled walled piping. The former UST system is depicted on **Figure 2**.

2.2 AREA DESCRIPTION

The Site is located in an area containing commercial businesses and residential properties. A local area map is provided as **Figure 3** and is summarized below:

North: The Site is bordered to the north by Georgetown Pike followed by a commercial multi-tenant building consisting of a deli, convenience store and a dry cleaner. The Great Falls Professional Building is located to the northeast of the Site followed by the Leo Santabella Park.

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South: The Site is bordered to the south by the Great Falls Crossroads office building and to the southwest by the Great Falls Village Centre.

East: The Site is bordered to the east by Walker Road followed by an Exxon branded service station (former Shell station) and the Great Falls Shopping Center. The Shell station was rebranded to Exxon on September 6, 2013 and will be referenced in this report as the Exxon (former Shell) station.

West: The Site is bordered to the west by commercial multi-tenant buildings and a bank branch.

Residential areas are located beyond the commercial businesses in all directions at distances of approximately 700 feet from the Site.

2.3 POTENTIAL RECEPTORS

The following sections summarize the identification and description of potential receptors in the vicinity of the Site.

2.3.1 Surface Water

Based on the United States Geological Survey (USGS) topographic map for the Site area (Vienna, Virginia), the nearest surface body of water is an ephemeral or intermittent stream with headwaters represented by a storm water retention basin located approximately 600 feet south of the Site (**Figure 1**). This intermittent stream is discussed further in **Section 6.0**. An unnamed intermittent stream located approximately 1000 feet north of the Site joins Mine Run northeast of the Site. Captain Hickory Run lies approximately 2500 feet west of the Site, and flows south to join Difficult Run located two miles south of the Site.

2.3.2 Private Drinking Water Wells

Many of the properties surrounding the Site are served by municipal water provided by Fairfax Water Authority; however, some properties utilize potable wells. According to the Fairfax County Department of Health, approximately 36 private drinking water wells are located within approximately one quarter of a mile radius of the Site. Further investigation and Fairfax Water Authority records indicate 22 properties use wells as a sole drinking water source. The

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approximate locations of the identified private drinking water wells and municipal water service area are depicted on **Figure 3**.

2.3.3 Utilities and Subsurface Structures

The Site and surrounding areas are generally serviced with electric, telephone, natural gas, telecommunications, water and storm sewer services. Overhead utility lines are located along both Georgetown Pike and Walker Road. Municipal sanitary sewer services are not available in Great Falls and developed properties utilize septic systems. The approximate locations of the utilities are depicted on **Figure 2**.

The Great Falls Crossroads building located adjacent to and south of the Site contains a one-level below grade parking structure along Walker Road and an elevator in the center of the building. The parking area of the Great Falls Crossroads building is open to the atmosphere as entrance and exit doors contain grates and no sumps were observed within the parking garage. The remaining structures within 500 feet of the Site are constructed slab on grade.

2.3.4 Public Use Areas

The Leo Santabella and Great Falls Grange Parks are located approximately 350 to 700 feet northeast of the Site. The Great Falls Public Library is located approximately 400 feet northeast of the Site. The Great Falls Elementary School is located approximately 1,365 feet to the northwest of the Site. The Great Falls Village Green Day School and Great Falls Swim and Tennis Club (GFSTC) are located approximately 1,050 feet south and southeast of the Site, respectively. These public use areas are serviced with municipal water. The Great Falls Grange is located approximately 800 feet east of the Site and, according to Fairfax Water, is serviced with municipal water.

2.4 SUMMARY OF ACTIVITIES TO DATE

This section provides a summary of significant environmental activities completed at the Site since the submission of the CAP on November 22, 2013. Monitoring well construction details are included in **Table 1** and the well locations are depicted on **Figure 2**. The boring and well construction logs for the newly installed wells since the June 2014 are included as **Appendix B**.

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The soil analytical data is included in **Table 2** and the groundwater analytical data for the shallow and deep wells is included in **Tables 3** and **4**. The activities summarized below were reported to the DEQ in the Aquifer Testing and Interim Remedial Measures Report and CAP Monitoring Reports (Kleinfelder, 2014).

- In February 2014, soil vapor extraction wells SVE-1 through SVE-5, were installed. Well SVE-2 is a replacement well for MW-8 abandoned in 2013.
- In March 2014, recovery well RW-1 and off-site deep well MW-19D were installed.
- From March 31 through April 7, 2014, off-site monitoring wells (MW-21S/I, MW-22) and one off-site bedrock open borehole (MW-20D) on the Great Falls Shopping Center and monitoring well MW-24 on the Great Falls Crossroads Building property were installed.
- In March 2014, the SVE system, associated piping, and the connections of the piping to the SVE wells were installed. The newly installed SVE wells SVE-1 through SVE-5, as well as monitoring well MW-14 were connected to the temporary SVE system.
- In April 9 and 10, 2014, continuous multichannel tubing (CMT) was installed in the deep monitoring well MW-17D (**Table 1**).
- On April 17, 2014, the DEQ approved the discontinuation of bottled water service to 809 Constellation Drive.
- On April 28 through May 2, 2014, monitoring well MW-23D was installed on the Great Falls Crossroads Building property.
- On April 29, 2014, an aquifer step drawdown pumping test was completed on recovery well RW-1 to assess yield and pumping rates for the design of an aquifer test.
- From May 13 through 15, 2014, a 48-hour constant-rate pumping test was completed on recovery well RW-1.
- On June 5, 2014, the DEQ approved the discontinuation of bottled water service to 808 Golden Arrow Street.
- On June 17, 2014, the SVE system received electrical service and was activated.
- In July 2014, two out of service potable wells were sampled at the direction of the DEQ. The former potable well located at the GFTSC, which was removed from service in 1997 due to the presence of chlorinated volatile organic compounds (VOCs) was sampled. In March 2014, a 260-foot deep potable well was installed as part of the construction of a new residence at 805 Constellation Drive and the potable well has not yet been put into service. Petroleum related COCs were not detected in the groundwater samples from these wells. The locations of these wells are depicted on **Figure 3**.

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3 GEOLOGY AND HYDROGEOLOGY

The Site is located on the United States Geological Survey (USGS) Vienna, Virginia topographic quadrangle map at 39.998 North latitude and 77.288 West longitude (NAD83) at an approximate elevation of 335 feet (NAVD29) in Fairfax County, Virginia (**Figure 1**).

The Site is located in the Piedmont Physiographic Province of Virginia. Reviews of the Geologic Map of the Vienna Quadrangle, Fairfax County, Virginia, and Montgomery County, Maryland (Drake and Lee, 1989) and the Geologic Map of the Seneca Quadrangle, Montgomery County, Maryland, and Fairfax and Loudoun Counties, Virginia (Drake et al, 1999) indicate that the predominant rock type in the vicinity of the Site is polydeformed and highly metamorphosed crystalline bedrock of the Precambrian to Cambrian aged Mathers Gorge Formation. The Mathers Gorge Formation is characterized by quartz-rich schist and locally is deeply weathered to a clay-rich silty saprolite. The transition from schist saprolite to competent rock varies throughout the Site and is likely not represented by a single contact, but instead by a continuum of the weathering profile. The regional strike of fractures and foliations is generally north-northwest to south-southeast. The strike of features observed in the saprolite and bedrock encountered during the investigation are generally consistent with the regional mapping.

To date, a total of 38 boreholes have been advanced in the vicinity of the Site for the purpose of locating the source and extent of dissolved phase contamination associated with the Site. The logs of these borings, together with borehole geophysical surveys, surficial geophysical surveys, pumping tests, and studies of area bedrock outcrops have further informed the understanding of the local geological setting of the Site. The mean strike of all open fractures observed at the Site is 181 degrees (north-northeast by south-southwest) with a mean dip of 68 degrees east. Both east dipping (31 total) and west dipping (22 total) fractures were observed. Together these features make up the “fracture zone” identified on the surface geophysical survey described below and included as **Appendix C**. **Appendix D** includes a stereogram and table summarizing the observed strike and dip of open fractures within Site bedrock wells as determined by the borehole geophysics contractor.

Available records of the completed depths and groundwater elevation in area drinking water wells provided by DEQ suggest that bedrock elevations generally decrease from the west and

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east towards the area of Walker Road. Boring logs and surficial geophysical surveys conducted in 2009, 2013, and 2014, support this conceptual model. A fracture zone approximately 30 feet wide striking north-northeast has been observed to run through the Site. While directly observed on the surficial geophysical logs, the orientation of this zone is consistent with:

1. Bedrock elevations noted in drinking water well drilling logs
2. Open fracture strikes documented in borehole geophysical logs
3. The strike of outcrop foliation planes previously measured
4. Area topography

The static groundwater depth prior to the initiation of soil vapor or groundwater extraction in the shallow on-site monitoring wells was measured at depths ranging from 20.22 to 37.33 feet below the top of casing (TOC) (**Table 3**). The June 2014 gauging data indicates that the potentiometric gradient (and apparent groundwater flow direction) within the overburden under static conditions is to the southeast under an estimated hydraulic gradient of approximately 0.028 foot per foot (ft/ft). This is consistent with previous events and groundwater contour maps for the December 2011, June 2012, February 2013, June 2013, December 2013, and March 2014 gauging events as reported in the Corrective Action Plan and CAP Monitoring Reports. A groundwater contour map generated from September 8, 2014 gauging of selected shallow wells and with the effect of groundwater recovery from RW-1 is included as **Figure 4** and the gauging data is included in **Table 5**.

The static groundwater depth in the deep monitoring wells is at depths ranging from 2.63 (MW-26D) to 43.36 (MW-19D) feet below the TOC (**Table 4**). The June 2014 gauging data indicates that the potentiometric gradient (and apparent groundwater flow direction) in the bedrock under static conditions is also to the southeast under an estimated hydraulic gradient of approximately 0.029 ft/ft. The distribution of MTBE at the Site in groundwater samples collected from bedrock wells also indicates a component of southerly MTBE transport. Measurement of groundwater elevations at wells oriented along this flow path under static conditions indicate that a hydraulic gradient of 0.008 ft/ft exists within the fracture zone noted above. A groundwater contour map generated from September 8, 2014 gauging of the deep wells and with the effect of groundwater recovery from RW-1 is included as **Figure 5** and the gauging data is included in **Table 5**.

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Vertical gradients were measured in MW-17D on June 11 and September 2, 2014. In both cases the gradient was downward, with magnitudes of 0.04 and 0.03, respectively. The vertical gradient was also measured at MW-10/MW-24/MW-23D on June 18 and September 3, 2014. In both cases the gradient was downward, with magnitudes of 0.014 and 0.018, respectively. Note that the increased vertical gradient on September 3, 2014 for MW-10/MW-24/MW-23D is likely the result of the operation of the groundwater recovery system. On June 18, 2014, the vertical gradient between was measured between MW-6S and MW-6D was measured to be 0.03 downward (**Tables 3** and **4**).

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4 SUPPLEMENTAL INVESTIGATION ACTIVITIES AND METHODS

Supplemental investigation activities completed as part of the CAPA development include a surface geophysical survey, installation of additional groundwater monitoring wells, and groundwater gauging and sampling. The subsections below describe the methods that were employed and provide references to various tables, figures and appendices where additional information is located.

4.1 SURFACE GEOPHYSICS

On July 24, July 31, and August 13, 2014, a surface geophysical survey was conducted to the south and southeast of the Site. The purpose of the survey was to identify changes in bedrock density which may be indicative of deeper weathering zones in the bedrock. These zones may be related to fracture networks or other structural features such as bedding planes, joint sets, or lithologic changes in bedrock composition. At this Site, such a zone may be acting as a pathway for groundwater movement to the south of the Site. The surveys conducted consisted of two geophysical surveys that included seismic refraction and multi-channel analysis of seismic waves (MASW), and an electrical resistivity survey. Details of each survey method are included in **Appendix C**.

An analysis of borehole geophysical data indicate that the predominant strike of fractures at the Site is to the north-northeast – south-southwest, with the dominant fracture set dipping to the east and a subordinate fracture set dipping to the west (**Appendix D**). The west to east orientation of geophysical survey areas were selected to intersect the predominantly north to south strike orientation of the fractures at approximately 90 degrees.

On July 24, 2014, three seismic refraction / MASW lines (SR Lines 1 through 3, **Figure 1** of **Appendix C**) were completed from west to east. On July 31, 2014, two additional seismic refraction / MASW lines were completed (SR Lines 4 and 5, **Figure 1** of **Appendix C**). Upon securing access to the property located at the southwest corner of Walker Road and Columbine Street (790 Walker Road, The Village Green Day School), two additional seismic refraction lines were conducted from west to east. In addition to seismic refraction, electrical resistivity was used to augment the seismic survey in the place of the MASW methodology.

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Analysis of the seismic and later resistivity surveys were used to determine the optimal location for the installation of deep monitoring wells to assess the potential migration of MTBE to the south of the Site.

4.2 MONITORING WELL INSTALLATION

On August 14, 2014, Kleinfelder contracted the services of a private utility locating firm to locate and identify underground utilities in the vicinity of potential boring locations of MW-25D, MW-26D and MW-27S/I (**Figure 2**). The boring locations of MW-25D and MW-26D were selected as a result of the analysis of the surface geophysical survey results described in **Section 4.1**.

Following the identification and location of underground utilities, monitoring well MW-25D was installed on the Village Centre property on August 16 and 17, 2014 (**Figure 2**). The boring location was selected to target the fracture zone identified in SR Line 1 shown on Figure 1 of **Appendix C**. On August 16, 2014, the boring location of monitoring well MW-25D was cleared to 7.5 feet below grade via air knife / vacuum excavation to verify the absence of utilities. Upon clearing the boring location, a 10-inch boring was advanced approximately seven feet into competent rock, encountered at 58 feet below grade, and a six inch steel casing was installed. A Portland cement and bentonite grout was installed in the annulus of the boring. After allowing the grout to cure overnight the boring was advanced to a terminal depth of approximately 101 feet below grade on August 17, 2014 (**Appendix B**). Upon reaching the terminal depth, the borehole was developed via air lift technology until the water discharged was of minimal visual turbidity. Water generated during drilling and development was containerized within a vacuum truck and taken for off-site disposal as non-hazardous waste (**Appendix E**).

The boring location of MW-26D was selected to intersect the fracture identified on SR Line 6 and ER Line 6 in the surface geophysical report included as **Appendix C**. On August 20, 2014, a 10-inch diameter boring was advanced approximately six feet into competent rock and a six inch steel casing was installed. A Portland cement and bentonite grout was installed in the annulus of the boring. After allowing the grout to cure overnight the boring was advanced to a terminal depth of approximately 104 feet below grade on August 21, 2014 (**Appendix B**). Upon reaching the terminal depth, the borehole was developed via air lift technology until the water discharged was of minimal visual turbidity.

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The boring location for the nested monitoring well pair MW-27I and MW-27S was selected to fill the potential data gap to the southeast of the Site between monitoring wells W-6 and MW-22 (**Figure 2**). On August 16, 2014, the boring location was cleared to eight feet below grade via air knife / vacuum excavation technology to verify the absence of utilities. On August 20, 2014, the boring for the nested well pair was advanced to the top of bedrock at 65 feet below grade. The nested monitoring well pair MW-27I and MW-27S was installed in a 10-inch diameter boring drilled via hollow stem auger. Monitoring well MW-21I was installed to the top of competent bedrock in the transition zone with a screen interval of 55 feet to 65 feet below grade. A number 2 sand pack installed around monitoring well MW-27I was extended approximately two feet above the screened interval. A bentonite seal was then installed to hydraulically separate the screened intervals of the shallow and deep well pairs. A one-foot sand pack was installed between the base of monitoring well MW-27S and the bentonite seal to prevent the bentonite seal from expanding into the screened interval of the well. Monitoring well MW-27S was installed across the groundwater interface with a screen interval of 20 feet to 40 feet below grade. The boring log and well construction diagram is included within **Appendix B**. The monitoring wells were developed using a submersible pump until the water discharged was of minimal visual turbidity.

The existing 6-inch diameter open borehole of MW-20D well was modified for collection of discrete interval groundwater samples with the installation of 1-inch diameter 0.020 slot size PVCs screens at specific intervals (73 – 83, 90- 100 and 132- 142 feet below TOC). Number 2 well sand was added to the bottom of the borehole and the borehole annulus at specified intervals above and below the screened intervals followed by coated bentonite pellets to seal between intervals. Coated bentonite pellets were also added to a depth of 50 feet below grade and a Portland cement / bentonite grout was added via tremie from 50 feet below ground to the surface to seal the borehole.

Drill cuttings generated during the installation of the monitoring wells were containerized in 55-gallon drums and moved to the Site. The cuttings were then stockpiled with soil generated during trench installation for the groundwater recovery system. The soil and drill cuttings were then removed for off-site disposal (**Appendix E**).

The TOC elevations of the newly installed monitoring well network were surveyed on September 4, 2014, and incorporated into the Site monitoring well network.

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4.3 GROUNDWATER GAUGING AND SAMPLING

Groundwater gauging and sampling was conducted on new and existing monitoring wells during the Third Quarter 2014. Groundwater samples were submitted under chain of custody protocol to Lancaster Laboratories for analysis of VOCs and fuel oxygenates (MTBE, tertiary amyl methyl ether (TAME), tertiary butyl alcohol (TBA), ethyl tertiary butyl ether (ETBE), and di-Isopropyl ether (DIPE)) using Environmental Protection Agency (EPA) Method 8260B for the newly installed wells MW-25D and MW-26D and to establish pre-remediation baseline data for wells MW-23D and RW-1. The groundwater samples from the remaining wells were submitted for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX) and fuel oxygenates using EPA Method 8260B. A select group of wells in the monitoring well network were also sampled for the monitored natural attenuation geochemical indicator parameters nitrate using EPA Method 353.2, ferrous iron using EPA Method SM 3500-Fe B modified, sulfate using EPA Method 300.0, and methane using EPA Method 8015B. A summary of groundwater sampling results of the shallow wells are included in **Table 3**, while a summary of groundwater samples analytical results of the deep wells are included in **Table 4**. Natural attenuation and select water quality parameters are summarized in **Table 6**. The groundwater analytical data and MTBE isoconcentrations for the shallow wells are depicted on **Figures 4** and **6**; respectively. The groundwater analytical data and MTBE isoconcentrations for the deeps wells are depicted on **Figures 5** and **7**; respectively. The Lancaster Laboratory Analysis Reports for samples collected from the monitoring well network are included in **Appendix F**.

Following the installation of the bedrock monitoring wells MW-20D on August 16 and 17, 2014; and MW-26D and the nested monitoring well pair MW-27S/I August 20 through August 21, 2014, the wells were sampled via low flow methodology.

Three groundwater samples were collected from MW-20D on August 20, 2014 with the pump intake placement in the well coinciding with three water producing zones identified during drilling. Similarly, three groundwater samples utilizing low flow sampling methodologies were collected on August 26, 2014 from MW-26D. During this sampling event the pump intake also situated to coincide with three water producing intervals identified during drilling. The newly installed nested monitoring well pair MW-27S/I was also sampled by low flow methodology on August 26, 2014. For each well, the pump intake was situated approximately in the center of the saturated screen length. In addition to the newly installed wells, monitoring well MW-23D and

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the recovery well RW-1 was also sampled on August 20, 2014 to establish a baseline concentration prior to the start of groundwater recovery.

Groundwater monitoring of monitoring well network was conducted from September 2 through 22, 2014. Key wells in the Site monitoring well network were gauged on September 8, 2014 as summarized on **Table 5** for the development of the potentiometric surface maps (**Figures 4** and **5**). Certain monitoring wells, which have historically had petroleum COCs below laboratory detection limits or 20 micrograms per liter (µg/L), were not sampled in September 2014. As the result of the operation of the groundwater recovery system, an insufficient volume of water (i.e. less than two feet) was present within monitoring wells MW-1, MW-3 and MW-7 to collect groundwater samples from these wells. The remaining monitoring wells were sampled via low flow, parameter stabilization methodology. During low-flow groundwater sampling activities, water quality data was obtained from the wells and upon observing stabilized parameters, groundwater samples were collected for laboratory analysis.

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5 SITE CONCEPTUAL MODEL UPDATE

The source of groundwater impact beneath the Site is attributed to small-volume releases of gasoline or vapor from the former UST system; this determination is supported by multiple lines of evidence presented in the CAP. Although the actual mechanisms by which MTBE was released have not been specifically identified, minor liquid and/or vapor releases are plausible.

The dissolved-phase MTBE plume(s) within the overburden and saprolite is essentially limited to the southern portion of the intersection with Georgetown Pike and Walker Road beneath commercial properties, which include the Site and the Exxon (former Shell) service station (**Figures 4** and **6**). Existing wells (W-1 through W-7) on the Exxon (former Shell) station were incorporated into the Site monitoring well network to assess the overburden groundwater flow direction and extent of MTBE in 2013. Similar to the Site, this service station has been in operation since the late 1960s. The wells on the Exxon (former Shell) station were installed between the mid-1990s and 2003 and petroleum COCs including MTBE indicative of release(s) of gasoline have been documented on the Exxon (former Shell) station since that time. Some degree of MTBE in groundwater at the Shell station is a pre-existing condition (see 2003 – 2008 results in **Table 3**) and the detection of MTBE on this property cannot solely be attributed to the migration from the Site.

Comparison of the October 2009, June 2013, and September 2014 MTBE isoconcentration contour maps (**Figure 6**) indicates that the perimeter of the overburden plume has contracted. Additionally, the area of source strength (>100,000 µg/L) has diminished, which is attributed to removal of the USTs, the discontinued use of PW-1 as a supply well, and the natural advection and attenuation within the limits of the plume.

The results of the aquifer tests, borehole geophysics, surface geophysics, structural analyses, and the distribution of MTBE at the Site indicate that the bedrock structure includes fractures or a fracture zone trending approximately 1-10 degrees North on the Site.

Borehole geophysical data has been tabulated to determine the overall geometry of open fractures located at the Site at wells MW-6D, MW-12D, MW-16D, and MW-17D (**Appendix D)**.

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Of 53 open fractures identified, 31 were observed to have an easterly component of dip and 22 a westerly component of dip. The mean strike of the east dipping open fractures is 189.7 degrees, north-northeast to south-southwest. The mean dip angle of these fractures is 51.7 degrees and range from approximately 45 degrees to 85 degrees. Similarly, the mean strike of the west-dipping open fractures is 343.1 degrees (north-northwest to south-southeast, and the mean dip angle is 59.1 degrees with a range of approximately 50 to 85 degrees. Together, this set of fractures delineates a fracture zone approximately 30 to 50 feet wide beneath the Site, trending overall in a nearly north-south direction, sub-parallel to Walker Road. This trend is expressed on a larger scale by the depths to bedrock encountered during the drilling of area drinking water wells, and on an even larger scale by the arrangement of geologic formations through the Vienna Quadrangle.

A result of the presence of this fracture zone there appears to be an area of enhanced weathering and saprolite formation which extends deeper along this north-south trend than to areas immediately east or west. The mechanism by which this fracture zone was formed is not known, but may presumably be related to the interaction of tectonic forces and the area lithology, overprinted by subsequent weathering of the bedrock.

Bedrock competency, as measured by the depth of observed fractures, increases below 100 feet below grade. This is supported by the lack of flow and transmissivity values estimated during borehole testing of well MW-17D and is consistent with the SCM presented in the CAP.

This approximate 30-50 foot wide (on the Site) fracture zone is characterized by relatively high diffusivity (T/S) compared to areas to the west (MW-5, MW-6S) and east (MW-21S, MW-21I, MW-20D). The small storage coefficients evidenced by clear propagation of the ‘signal’ caused by groundwater extraction at RW-1 indicate that there is very little water storage capacity within the bedrock, consistent with a network of fractures, rather than a broad and deep weathered area. The fracture zone is evident on the surface geophysical survey, interpreted as areas of relatively low seismic velocity, as compared to the competent bedrock, approximately 30 feet wide, which are evident on the various geophysical transects surveyed at the Site.

Evaluation of the borehole geophysical surveys conducted in April 2013 at wells MW-16D and MW-17D identified an open fracture in MW-17D which intercepted this well at a depth of 87.8 feet below grade, striking 10 degrees east of north, and dipping 75 degrees east. The depth of

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this fracture corresponds with the 79-89 foot interval isolated during the packer testing performed in April 2013 and also corresponds to the CMT-3 (86-90) sampling interval in MW-17D. The anticipated depth and location at which this fracture would be encountered near the location of wells MW-10 and MW-24 was estimated geometrically at approximately 100 feet below grade. The top of competent bedrock at the location of MW-23D was encountered at 67 feet below grade. A fracture was encountered at 93 feet below grade and MW-23D screened from 90 to 100 feet below grade.

While MTBE in the overburden is transported by the flow of groundwater to the east-southeast as measured in the monitoring wells, MTBE has also been carried vertically downward to a depth of approximately 100 feet below grade within the fracture zone, as measured at wells PW-1, MW-16D, MW-17D and MW-23D. This likely occurred during the period when PW-1 was operated as a supply well for the Site.

The documented downward vertical gradient measured at wells MW-17D, MW-10/24/23D, and MW-6S/6D suggests that natural groundwater gradients caused by infiltration of precipitation may also have caused vertical migration of MTBE into the fracture zone, water in this zone then moves southward along the fracture zone to lower topographic elevations, albeit under a markedly lower hydraulic gradient than is measured in the overburden or in the bedrock where groundwater flow is toward the southeast.

Groundwater samples collected from MW-17D have exhibited detectable concentrations of MTBE greater than would be expected given the lack of groundwater transmission in bedrock below approximately 90 feet below grade. The detection of MTBE in the 117, 129.75, and 147 foot intervals is considered the result of the artificial hydraulic gradient created during the packer testing of MW-17D. This gradient, which was greater than 1 ft/ft, as opposed to 0.03 ft/ft measured under ambient conditions, may have resulted in water passing the packer seals, or through fractures which due to low transmissivity, do not otherwise transmit water. For example, the groundwater in the 127 – 137 foot interval was drawn down to a depth of approximately 136 feet below grade. The isolated interval was then allowed to sit overnight to recharge. The following morning, after approximately 16 hours, the measured depth to water in the interval was 115.94.

By drawing the water level in the 127 – 137 foot interval down to 136 feet below grade and allowing the interval to recharge overnight, a significant downward vertical hydraulic gradient

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was created between the test interval and the overburden. This gradient remained higher than under ambient conditions for a prolonged period. This may have drawn groundwater with MTBE concentrations consistent with those found contemporaneously in monitoring well MW-1, MW-7, or in more shallow portions of MW-17D to be drawn into the narrow, poorly transmissive fractures located in the 127 to 137 foot interval. Within this packer interval, three fractures identified during the borehole geophysics have attitudes that, if projected to the ground surface, would pass through the shallow portion of the aquifer within 100 feet on monitoring well MW-17D.

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6 FATE AND TRANSPORT

In order to develop remediation endpoints of MTBE at the Site, which are protective of area drinking water wells, a detailed examination the fate and transport of MTBE was conducted. This study was undertaken through evaluation of several factors.

The first factor was the overall plume stability as evaluated through the non-parametric Mann-Kendall method. This factor is estimated by determining a statistic which expresses whether concentrations MTBE are increasing, decreasing, or unchanging at each sampling point. The Mann-Kendall method is well suited for environmental data, as it can manage non-detect values, makes no assumption regarding the underlying probability distribution of the data, and is appropriate for uneven time intervals between sampling. The Mann-Kendall method is also robust, as only empirical data is used to evaluate concentrations trends, and there is no interpolation or assumption regarding spatial distribution.

The second factor is spatial and temporal first-order attenuation rates. These rates provided information on the rate of decrease of the source area “strength” with time prior to the commencement of source removal through groundwater recovery, and indicate how quickly MTBE was attenuated once leaving the source area under ambient conditions. As such, these rates are conservative considering the fact that the groundwater recovery system is removing source area MTBE and has reversed the area hydraulic gradient towards, rather than away from, the Site.

These two methods are complementary in providing both a retrospective and predictive evaluation of the attenuation of the MTBE concentrations at the Site.

The third factor is the geochemical indicators of natural attenuation. Biodegradation of MTBE has been noted under anaerobic and anaerobic conditions (Bradley et al. 2001, ITRC 2005, and US EPA 2005). Changes in electron acceptors (oxygen, nitrate, sulfate), electron donors (ferric iron), and TBA concentrations were each evaluated to determine whether attenuative capacity exists in the Site aquifer, and whether direct evidence of biological attenuation is present.

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The rate that contaminants are leaving the Site is the fourth factor considered in the remedial endpoint development. Because the transport of MTBE has been shown at the Site to be directed both east-southeast through the overburden, and south-southwest within a bedrock fracture zone, independent estimates of the mass flux (mass of MTBE per time) in both directions and strata were developed. Mass flux estimates were developed using the *Mass Flux Toolkit*, developed by Groundwater Services, Inc. of Houston, Texas, under the Environmental Security Technology Certification Program (ESTCP) of the United States Department of Defense (DoD). Similar approaches to calculating mass flux have been submitted to, and accepted by DEQ for retail petroleum release sites.

6.1 FIRST-ORDER ATTENUATION

In order to evaluate natural attenuation processes characterization of plume trends, and to estimate the time to achieve remediation goals, two different first-order rate constants were estimated for the Site. These rates provide an understanding of the persistence of the “strength” of the remaining source area with time, and to characterize the distribution of MTBE mass within space at the current time.

6.1.1 Distance

This rate constant incorporates all attenuation parameters (sorption, dispersion, and biodegradation) for MTBE as it leaves the Site. It provides information on how quickly dissolved phase MTBE is attenuated once it leaves the source area. It is not used to estimate the potential persistence of the plume.

The rate of attenuation with distance along the hydraulic gradient and flow direction in the overburden was calculated as described by Newell et al. (2002). The natural log of the highest recorded MTBE concentration from samples collected from wells MW-1, MW-11, MW-7, W-2, W-1, MW-21I, MW-21S, MW-22, and GFSCMW-2 were plotted against the relative distance from MW-1. Where all reported concentrations were non-detect, a value of one-half of the detection limit was used.

The slope of a best fit line to the data, as shown Chart 1 (**Appendix G**), multiplied by the groundwater seepage velocity provides a quantitative estimation of the reduction in dissolved

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phase petroleum impact to overburden groundwater with distance from the source area. The seepage velocity is estimated as the product of the average hydraulic gradient (0.028) and the hydraulic conductivity (estimated as the geometric mean of the hydraulic conductivities calculated for wells east of Walker Road, 52.6 feet per day) divided by the effective porosity of 0.45 (geotechnical testing on soil samples from MW-17D and MW-18D). The seepage velocity is estimated to be 3.3 feet per day. The resultant distance attenuation rate is 0.07.

6.1.2 Time

This rate constant is used to estimate the rate of attenuation of the source area of dissolved phase impact at the Site. When the rate of attenuation of the source is less than the rate of attenuation with distance, concentration profiles tend to retreat backward toward the source over time. A first-order rate of attenuation with time was calculated only for the source area wells, the balance of the plume is addressed through the non-parametric technique described below.

The rate of attenuation with time within the source area in the overburden was also calculated as described by Newell et al. (2002). The natural log of the recorded MTBE concentrations from samples collected from wells MW-1, MW-2, MW-8, MW-11, and MW-14 were plotted against the sampling date. Where reported concentrations were non-detect, a value of one-half of the detection limit was used.

The slope of a best fit line to the data, as shown on Chart 2 of **Appendix G**, provides a quantitative estimation of the reduction in dissolved phase petroleum impact to overburden groundwater with time at each well within the source area. As shown below, for wells MW-1, MW-2, MW-8, MW-10, and MW-14 the slopes ranged from 0.0011 to 0.0096 which equates to half-lives of 1.7 to 0.2 years. Inspection of the most recent samples indicates that the rate of attenuation may be increasing (i.e., faster degradation). The average slope for all five wells is 0.0032, which equates to a half-life of 0.6 years; this is shown on Chart 2, **Appendix G**.

The calculated first-order rate of attenuation with distance, 0.07, is approximately 21 times greater than the average calculated first-order rate of attenuation of the source area with time, 0.0032. In general, when the rate of attenuation of the source over time is slower than the rate of attenuation along the flow path (i.e. with distance), the area of dissolved-phase impact will

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appear to recede back to the source area over time. This effect has been previously noted on MTBE isoconcentration maps produced for this Site (**Figure 6**).

6.2 NON-PARAMETRIC TESTS FOR TREND

The Mann-Kendall non-parametric test for trend (Helsel and Hirsch, 2002) was used to evaluate the change with time of COC concentrations for Site-related monitoring wells. The data is ranked by x, in this case the sample date, and the monotonic dependence of y (concentrations) on x is computed. This dependence is termed “S”, and S is calculated by subtracting the number of times y decreases as x increases from the number of times y increases as x increases. The S statistic is included on **Tables 3** and **4**, which also present the groundwater analytical data for the Site.

The Mann-Kendall S was negative for all wells with more than four (4) sampling events with detectable concentrations, with the exception of wells MW-7, MW-16D, PW-1 (65), W-1, and W-2. This indicates that the overall area of dissolved phase impact is decreasing in both area and concentration. At wells MW-7, PW-1(65), and MW-16D (95), the detected concentrations of MTBE in the groundwater samples collected on December 19, 2013 were higher than the proceeding sampling dates. These increases apparently represented a temporary increase, as detected concentrations subsequently decreased. Similarly, the groundwater samples collected from wells W-1 and W-2 on June 7, 2013 exhibited concentrations of MTBE greater than those collected in the previous sampling round conducted by others for Shell in August 5, 2008. As presented in the CAP and SCM, some degree of MTBE in groundwater at the Exxon (former Shell) station is a pre-existing condition and the increase in MTBE concentration from 2008 to 2013 in wells W-1 and W-2 on this property cannot solely be attributed to the migration from the Site. The results from the remaining monitoring wells indicate decreases in concentrations or no detectable concentrations (**Tables 3** and **4**).

These results indicate that the boundaries of the area of dissolved phase impact in the overburden were contracting, and that the concentrations in the core of the area of dissolved phase impact were decreasing due to natural attenuation prior to the activation of the groundwater recovery system.

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6.3 SECONDARY INDICATORS OF NATURAL ATTENUATION

As shown on **Table 6**, in December 2013 and September 2014, dissolved oxygen, oxidation-reduction potential (ORP), pH, specific conductance, nitrate, ferrous iron (Iron II), sulfate, nitrate / nitrite, and methane were analyzed in water samples collected from monitoring wells upgradient (MW-5, MW-6S), within (MW-1, MW-11, MW-14, MW-16D), downgradient (W-1, W-2, W-7,MW-27S. MW-23D, MW-25D), and crossgradient (W-3, W-6, MW-24, and MW-10) of the area of dissolved phase impact at the Site. For the purpose of evaluating the average concentrations of these analytes in different areas of the Site, analytical results reported as non-detect were assigned a value of one-half the applicable detection limit.

Oxygen, nitrate, and sulfate are utilized as electron acceptors during biologically-mediated attenuation of petroleum and other contaminants in the subsurface. As such, there concentrations are anticipated to decline within the footprint of the area of dissolved phase impact if they are being utilized to metabolize petroleum hydrocarbons and oxygenates. Concentrations of oxygen measured at the Site were reduced from an average of 2.85 milligrams per liter (mg/L) upgradient to 2.25mg/L within the source area, and remained lower than the upgradient concentration in downgradient overburden wells (1.46 mg/L). Similarly, nitrate concentrations were reduced from an average of 6.77 mg/L upgradient, to 5.98 mg/L within the source area, to 3.52 mg/L downgradient.

The average sulfate concentration was also reduced within the source area, from 9.43 mg/L upgradient to 4.78 mg/L within the source area. The average sulfate concentration downgradient was 15.52 mg/L; this average was affected by concentrations of greater than 40 mg/L detected in groundwater samples collected from W-2. The median downgradient sulfate concentration was 9.7 mg/L. The decrease in average electron receptor concentration in the source area is indicative of ongoing bacterial degradation of petroleum COCs at the Site.

This evidence is augmented by measured concentrations of ferrous iron. At this Site average ferrous iron concentrations increased from 0.64 mg/L in the upgradient area to 20.5 mg/L in the source area. As groundwater exits the source area, the average concentration of ferrous iron is reduced to 1.38 mg/L. The source and downgradient area averages are affected by the detected concentrations of ferrous iron from bedrock wells, the median values being 0.39 mg/L and 0.76 mg/L respectively.

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Oxidation reduction potential (ORP) is exclusively positive at relatively elevated values in upgradient monitoring wells whereas negative values have been measured in other locations where petroleum COCs have been detected. Additionally, methane, which indicates strong reducing conditions, was only detected in the source area.

TBA is the primary degradation product of biological attenuation of MTBE. It may also be present is gasoline that is released. EPA (2005) estimated that if present as a primary released contaminant, it would be present in groundwater at concentrations between 2 and 10% those of MTBE. EPA also documented that frequently TBA was present at greater relative concentrations, indicating that biodegradation of MTBE increased TBA concentrations in groundwater at sites in the Eastern United States and California. In monitoring wells associated with the Site, detectable concentrations of TBA are approximately 40% of detectable MTBE concentrations, where both analytes were measured (**Chart 4**, **Appendix G**). This is direct evidence of biodegradation of MTBE in Site groundwater.

6.4 MASS FLUX ESTIMATES

The calculated mass flux from three transects situated approximately perpendicular to groundwater flow in the overburden, and one transect situated perpendicular to the bedrock fracture zone, as existed prior to the beginning of operation of the groundwater extraction and treatment system, was evaluated using the approach presented by Buscheck (2002).

A contaminant mass flux model was used to establish on-Site groundwater cleanup goals. For this project, Mass Flux Toolkit, a Microsoft Excel-based software tool was utilized. The tool allows calculation of mass flux using the transect method, an established methodology previously used on sites in Virginia and throughout the United States. In addition to site-specific mass flux estimation, the tool also provides capability for estimating the degree of uncertainty associated with the mass flux estimates.

The mass flux approach utilizes groundwater concentration data, hydraulic conductivity estimates, and hydraulic gradient measurements to calculated the mass of a compound traversing a transect situated perpendicular to the direction of groundwater flow per time. In this instance, the mass flux estimates are quantified in grams per day (g/day). As the most

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widespread dissolved phase compound, MTBE fluxes were determined. The fluxes were determined at a total of four transects. Transect A, B, and C represent mass flux through the soil and saprolite ("the overburden") in an east-southeast direction towards drinking water wells located along Georgetown Pike approximately one-quarter mile from the Site. Transect D represents mass flux to the south within the fracture zone demarcated by aquifer testing, borehole geophysics and surficial geophysical surveys. The locations of the selected transects are included on **Figure 8**.

Mass flux calculations were not performed on transect west (upgradient) or north of the Site as the distribution of MTBE in groundwater samples collected these areas does not indicate transport of fuel oxygenates in those directions.

6.4.1 Overburden

Transect A-A' was established perpendicular to overburden groundwater flow direction through the source area of the Site. Monitoring wells MW-10, MW-24, MW-7, RW-1, MW-1, MW-11, MW-14, MW-2, and MW-9 were included in this transect. Transect B-B' was established perpendicular to overburden groundwater flow direction through the Exxon station (former Shell) located on the east side of Walker Road. Monitoring wells W-1, W-2, W-3, W-6, MW-21S, and MW-21I were included in Transect B-B'. Transect C-C' was established perpendicular to overburden groundwater flow direction through the Great Falls Shopping Center and monitoring wells W-4, W-5, W-7, MW-22, and MW-27S were included in this transect. The current mass flux through Transect C-C' was based on an estimated concentration of 0.01 µg/L MTBE at each well (half the detection limit) with the exception MW-27S (1 µg/L).

The identified MTBE within the fracture zone in bedrock are evaluated separately in Transect D-D'. **Appendix H** presents all the data entry screens, interpolation step results, and mass fluxes calculated for each transect at each time.

The mass flux was calculated for each overburden transect twice. The first estimate used the average concentration of MTBE detected in all groundwater samples collected from each well since 2009. The second estimate used the June 2014 (prior to the groundwater recovery system operation) concentration of MTBE detected in groundwater samples from each well.

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Current MTBE flux from the Site (Transect A-A') has declined 95 percent from the historical average from 1,190 g/day to 51.7 g/day. This decrease in flux is attributable to decreases MTBE concentrations in on-Site wells, as hydraulic gradient has been consistent and hydraulic conductivity would not be expected to change over time. MTBE flux on the east side of Walker Road (Transect B-B') has declined 16 percent compared to the historical average from 1,160 g/day to 979 g/day. The mass flux through the eastern-most Transect (C-C') declined 99 percent from the historical average from 1.26 g/day to 0.0049 g/day.

The estimated fluxes through each transect are consistent with the Fate and Transport model presented in Appendix K of the CAP (Kleinfelder 2013), which stated that the pulse source model indicated that MTBE is not expected to migrate beyond the downgradient shopping plaza at concentrations greater than 0.004 mg/L (4 µg/L), and that could take up to 20 years from the time of the release, and that predictive continuous source modeling indicated that MTBE is not expected to migrate beyond the downgradient shopping plaza at concentrations greater than 0.001 mg/L (1 µg/L) in the overburden.

6.4.2 Bedrock

Transect D-D' was established perpendicular to the groundwater flow direction from the source area of the Site along the identified fracture zone. The transect passes through wells MW-10, MW-24, and MW-23D, and is 30 feet long, based on the apparent with of the fracture zone identified on the surficial geophysical survey. Should the fracture zone be a discrete fracture of limited aperture the mass flux estimate is conservatively protective as it is biased high based on a commensurately larger flow cross section.

The mass flux was calculated for Transect D-D' once based on the last round of groundwater sampling prior to the startup of the groundwater recovery system. The MTBE flux from the Site through Transect D-D' is estimated at 0.358 g/day. The lower flux estimated at Transect D-D' when compared to the overburden transects is a function of the smaller hydraulic gradient, the lower hydraulic conductivity values determined during aquifer testing in 2014, and the lower concentration of MTBE as compared to source area wells. **Appendix H** presents all the data entry screens, interpolation step results, and mass flux calculated for Transect D-D'.

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6.4.3 Vertical Flux into Bedrock

Transect E-E' was established perpendicular to the downward vertical groundwater flow gradient from the source area of the Site into the identified fracture zone. The transect encompasses wells MW-1, MW-2, MW-7, MW-11, MW-14 and MW-15, and is approximately 30 feet wide east to west, based on the apparent width of the fracture zone identified on the surficial geophysical survey. The included wells extend approximately 110 feet along strike, and a 120-foot long transect was applied. Should the fracture zone be a discrete fracture of limited aperture the mass flux estimate would be protectively biased high as it is based on a commensurately larger flow cross section. The mass flux was calculated for Transect E-E' once based on the last round of groundwater sampling prior to startup of the groundwater recovery system (i.e. June 2014). Based on the June 2014 analytical data, MTBE flux from the Site through Transect E-E' is estimated at 0.471 g/day. The lower flux estimated at Transect E-E' when compared to the overburden transects is a function of the smaller hydraulic gradient, the lower hydraulic conductivity values determined during aquifer testing in 2014, and the lower concentration of MTBE. **Appendix H** presents all the data entry screens, interpolation step results, and mass flux calculated for Transect E-E'. The estimated mass flux vertically (0.471 g/day) is approximately 1% the estimated mass flux horizontally through the overburden (57.1 g/day) at the Site.

6.5 FUTURE MTBE DISTRIBUTION

The results presented above indicate that, in the overburden, the area of groundwater impacted by MTBE and the concentrations of MTBE have been decreasing over time. The evaluation of first-order attenuation parameters indicate that MTBE concentrations have been attenuating over distance at a greater magnitude than over time within the source area. This balance of attenuation factors has been shown to lead to "contracting" areas of dissolved phase impact at other sites.

In conjunction with the estimated rates of attenuation of MTBE concentrations with time and distance, the mass flux of MTBE from the Site through the overburden has also decreased with time. The first order attenuation rate and mass flux estimates indicate that residual MTBE mass on the Site is insufficient to maintain a stable area of dissolved phase impact, and that both off-site and on-site concentrations in the overburden and bedrock will continue to decrease with time. With the commencement of operation of the groundwater recovery system, the

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groundwater gradient in the overburden and bedrock has been altered so that area groundwater as distant from the Site as wells MW-5, MW-19D, W-3, MW-21S/I, and MW-25D is now flowing towards recovery well RW-1 (**Figures 4** and **5**).

This reversal of groundwater flow has reduced mass flux from the Site to less than zero, as mass formerly moving south in the bedrock and east-southeast in the overburden is now moving north and west-northwest, respectively. Additionally, mass removal and source strength reduction are actively occurring as the MTBE mass is being removed from the Site as presented in Section 9.0. As such, the area of dissolved phase impact in overburden and bedrock is anticipated to contract faster than previously observed.

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7 RISK ASSESSMENT

An updated risk assessment using the data obtained since submission of the CAP has been completed. An exposure assessment and interpretation of the data collected as part of this investigation is presented in the following sections.

7.1 CURRENT AND FUTURE SITE AND SURROUNDING PROPERTY USAGE

The Site is an inactive retail service station located in a commercial and residential area. A service station operated at the Site from approximately 1969 to August 2012 when the UST system was removed. The Site was acquired by Fairfax from ExxonMobil in February 2010. It is our understanding there is a proposal to lease the Site for redevelopment as a bank branch and a zoning application for a drive-in financial institution has been submitted to the Fairfax County Planning Commission. The Fairfax County Inspection Database Online (FIDO) identified an application was processed for Permit # 201300070 - Special Exception Development Plat Analysis for Application # SE.

A review of the Fairfax Comprehensive Plan for the Upper Potomac and Hickory Planning Districts which encompass Great Falls was reviewed for proposed changes in future land use. There is a recommendation in the plan to "*Replace the existing mini-library on Georgetown Pike with a community library near the intersection of Georgetown Pike and Walker Road*". No significant plans for development or land use changes in the vicinity were identified in the Fairfax Comprehensive Plan.

The FIDO system was reviewed for existing and proposed plans for development and potential changes in zoning within 1,500 feet of the Site from December 1, 2013 to September 29, 2014. There are applications for preliminary sewage disposal, interior alterations, installation of propane tanks, electrical or heating / cooling system upgrades and ventilation equipment installation for multiple properties. Applications for the installation of potable wells were not identified within 1,500 feet of the Site beyond the Health Well Permit for 805 Constellation Drive previously discussed. Since no permits were found for alterations or zoning changes for the area of the Site, it is assumed that the future area land use will remain similar to current conditions.

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7.2 IDENTIFICATION OF POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS

Exposure is defined as the contact of an organism (receptor) with a chemical or physical agent. Therefore, an exposure pathway or a potential risk is considered complete if the following components are present:

- Source and receiving medium
- Transporting mechanism or medium
- Exposure point with a receptor
- Exposure route (ingestion, inhalation, direct contact) at the exposure point

The following list presents potential human and environmental receptors that may be exposed to the chemicals of concern through potentially complete exposure pathways:

- Future on-site commercial employees;
- Off-site commercial workers;
- Off-site residents;
- Construction workers; and
- Environmental impact to nearby streams

Although on- and off-Site customers and visitors are potential human receptors to the Site and surrounding commercial areas, a customer and visitor exposure would be much more limited than an employee and further evaluation is not considered warranted.

7.3 ON-SITE POTENTIALLY COMPLETE PATHWAYS

The Site is currently an inactive service station with no UST system. It is our understanding that the Site will be redeveloped in 2015 with a drive-in financial institution. The future use of the Site is restricted through the Special Warranty Deed dated February 1, 2010 and registered with Fairfax County. An overview of the Special Warranty Deed indicates that the use of the Site is restricted for 30 years from residences of any type, places of worship, bed and breakfast facilities, hospitals, nursing home, child care, recreational, agricultural or educational use. No potable wells and underground storage or utility space with the exception of vapor tight utility

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conduits are permitted and any new building foundation must have an impervious liner to act as an effective vapor barrier. An evaluation of the on-site exposure pathways under the current use and anticipated future use scenarios for commercial and construction workers is presented below:

- The Site is serviced with municipal water and the current and future ingestion of groundwater exposure pathway is considered incomplete.

- Due to the depth of impacted soil and groundwater identified at the Site (**Tables 2** and **3**), the exposure pathway for soil ingestion, dermal contact and inhalation and incidental contact with groundwater pathways for commercial and construction workers are considered incomplete.

- The March 2014 sampling results of the soil vapor points located on the Site indicate that soil vapor concentrations as presented in **Table 7** are below the DEQ Tier III vapor intrusion screening levels for inhalation while in a trench by a construction worker (Table 2.14) and future commercial workers (Table 2.11) (VRP, 2014).

7.4 OFF-SITE POTENTIALLY COMPLETE PATHWAYS

An evaluation of the off-site exposure pathways under the current use and anticipated future use scenarios for commercial workers, construction workers, and residents is presented below:

- The commercial properties in the vicinity of the Site are connected to the municipal water service and the current and future ingestion of groundwater exposure pathway for these properties is considered incomplete (**Figure 3**).

- Due to the depth of groundwater identified off-site (**Table 3**), the exposure pathway for soil ingestion, dermal contact and incidental contact with groundwater pathways for commercial and construction workers are considered incomplete.

- The Great Falls Crossroads building is located hydraulically crossgradient to the Site and the building contains a one level below grade parking structure and an elevator near the center of the structure. As presented in the CAP, the parking structure was not

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- visually verified to contain sumps and the elevator shaft does not intersect the groundwater interface. The MTBE concentrations in the overburden wells (MW-10 and MW-24) installed adjacent to the building are below the DEQ Tier III vapor intrusion based screening level for groundwater of 19,700 µg/L (Table 2.10, VRP 2014); therefore, the risk for the indoor air inhalation of vapors pathway for commercial workers in the Great Falls Crossroads and adjacent Bank of America buildings are below DEQ guidelines. Although MTBE has been detected in groundwater samples collected from bedrock well MW-23D at a maximum concentration of 11,000 µg/L, the groundwater represented in this well is located beneath groundwater at both MW-10 and MW-24, and does not pose a soil vapor impact concern.

- The Great Falls Shopping Center is located hydraulically downgradient of the Site and MTBE has been detected in groundwater beneath the Exxon (former Shell) station. Dissolved phase MTBE is not detected above the DEQ Tier III vapor intrusion based screening level for groundwater (Table 2.10) in any wells on the property (**Figure 4**); therefore, the risk for the indoor air inhalation of vapors pathway for commercial workers is below DEQ guidelines and no further vapor intrusion evaluation is considered warranted at this time. Dissolved phase BTEX constituents have been historically detected in W-5 which is located adjacent to the former USTs on the Exxon (former Shell) station (**Table 3**). The dissolved phase BTEX constituents have not been considered in this pathway evaluation as these constituents are not associated with the MTBE release from the Site.

- Residential properties with drinking water wells are located within 1,500 feet of the Site. Residential properties with drinking water wells, including a newly installed and not yet in service 260-foot deep potable well at 805 Constellation Drive, are located approximately 1,500 feet south and southwest of the Site. The in service potable wells are among the properties that have been regularly sampled by the DEQ since late 2009 and petroleum COCs have not been detected in these wells. As previously presented, petroleum COCs were not detected in multiple water samples collected from the drinking water well at 805 Constellation Drive in July 2014.

- Based on the sampling results of the drinking water wells, the risk for the ingestion of groundwater pathway is currently below DEQ guidelines. The mass flux and first-order

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- attenuation calculations indicate that the area of dissolved-phase MTBE is contracting due to attenuation, and MTBE is unlikely to affect area drinking water wells in the future. This pathway is evaluated further below and in the development of the remediation endpoints.

- The subsurface utilities in the area of the Site are located at depths less than five feet below grade. Based upon the measured depth to utilities and the depth to groundwater as observed in the monitoring wells (greater than 30 feet below grade), the utilities located at or adjacent to the Site are not considered potential receptors.

- As presented in the SCM, the Site exists at the upper reaches of a topographic valley which trends in a south-southeast direction (**Figure 1**). This valley may influence groundwater flow to the southeast; however, the water table is not projected to intercept the land surface of the valley within 2,000 feet of the Site. This projection in conjunction with the localized distribution of dissolved phase MTBE as depicted on **Figures 4** and **5** indicates that the discharge of groundwater containing MTBE to surface water is not expected. Further evaluation of this pathway is not considered warranted at this time.

7.5 ESTIMATE OF MAXIMUM CONCENTRATIONS AT DRINKING WATER WELLS

Using total mass flux and the drinking water well pumping rate data, the maximum concentration of MTBE can be estimated for the drinking water well. The method presented by Einarson and Mackay (2001) divides the mass flux rate through the transect examined by the pumping rate of the drinking water well. Einarson and Mackay state that this methodology must be used with caution with MTBE as MTBE plumes can become separated from the source areas in some hydrogeological settings and the flux measurement biased downward if an appropriate location for the measurement of mass flux is not used. This condition has not observed in the data obtained from the Site.

For the Site, the use of three transects at varying downgradient distances from the source area has assisted in the determination that the maximum flux in overburden is occurring along Transect B-B', located in the area of the branded Exxon (former Shell) UST system. As Transect C-C' is located downgradient of Transect B-B', it is an appropriate location to evaluate from the Site to the drinking water wells located to the east-southeast.

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There are 13 drinking water wells located east-southeast of the Site, the nearest is approximately one-quarter mile away at 9803 Georgetown Pike. It our understanding based on data provided by the DEQ, the average known depths of shallow (less than 100 feet deep) area drinking water wells is 51 feet. For the purpose of this evaluation, it is assumed the drinking water wells are completed in overburden at a depth of 50 to 60 feet below grade.

Average well pumping rates are estimated at 300 gallons per day (US EPA), or 0.208 gallons per minute (gpm). As the drinking water wells are located approximately ¼ mile from the Site, but on average 300 feet from one another, this analysis is treating the cluster of wells as a single receptor, approximating the combined flow rate of 2.71 gpm as a single well pumping at that rate.

The MTBE mass flux rate through Transect C-C' has been estimated as 0.0049 g/day. The estimated combined pumping rate of the drinking water wells to the east-southeast is 2.71 gpm.

$$C_{sw} = \left(\frac{M_d}{Q_{sw}}\right) cf$$

Where:

C_{sw} is the maximum concentration of MTBE in water extracted from the drinking water well (µg/L)

M_d is the MTBE mass flux through Transect C-C'

Q_{sw} is the supply well extraction rate (gpm)

Cf is the units conversion factor of 184 (µg-gal-day/g-L-minute)

The estimated maximum concentration of MTBE in water extracted from the drinking water wells is 0.6 µg/L. This estimate is conservative for multiple reasons. It is based on the assumption that although the analytical results for MTBE in Transect C-C' are non-detect with the exception of MW-27S/I (1 µg/L), that MTBE is present at one-half the detection limit. This estimate does not account for degradation, dilution, sorption, or dispersion of MTBE over the approximately one-quarter mile travel distance, processes demonstrated to be occurring at and downgradient of the Site which reduce both the concentration in groundwater and the mass flux rate through the overburden. It assumes that all water entering the drinking water wells is derived from area overburden groundwater, and does not account for precipitation which falls and infiltrates the

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overburden between the Site and the drinking water wells, nor for wells completed within the bedrock which extract water from the bedrock. This calculated concentration is lower than the Limit of Quantification (LOQ) of 1 µg/L for MTBE.

The current mass flux through Transect B-B' is not considered to pose an risk to area drinking water wells above DEQ guidelines based on the current flux through Transect C-C'; therefore, the average MTBE concentrations at wells W-1, W-2, W-3, W-6, MW-21S, and MW-21I (5,438 µg/L) is protective of the drinking water wells located east-southeast of the Site. Similarly, the mass flux and average concentrations of MTBE (5,662 µg/L) in Transect A-A' (MW-10, MW-24, MW-7, RW-1, MW-1, MW-11, MW-14, MW-2, and MW-9), are also not considered to pose a risk above DEQ guidelines to drinking water wells located east-southeast of the Site.

There are 14 drinking water wells located to the south of the Site, the nearest is approximately one-quarter mile away at 805 Constellation Drive. According to records provided by Fairfax County Health Department, the majority of these wells are less than 60 feet deep, with the exception of the drinking water wells at 804 and 805 Constellation Drive which are 405 feet and 260 feet deep, respectively.

Average well pumping rates are estimated at 300 gallons per day (US EPA), or 0.208 gpm. As the drinking water wells are located approximately ¼ mile from the Site, but on average 200 feet from one another, this analysis is treating the cluster of wells as a single receptor, approximating the combined flow rate of 2.92 gpm as a single well pumping at that rate.

Using the equation presented above, the estimated maximum concentration of MTBE in water extracted from the drinking water wells is 22.6 µg/L. As with the above estimate for the overburden, this estimate is conservative and does not account for degradation, dilution, sorption, or dispersion of MTBE over the approximately one-quarter mile travel distance, processes demonstrated to be occurring at and downgradient of the Site which reduce both the concentration in groundwater and the mass flux rate through the bedrock. The equation assumes that all water entering the drinking water wells is derived from area bedrock groundwater, which is not the case as most of the existing wells are completed to depths of less than 60 feet, and does not account for precipitation which falls and infiltrates between the Site and the drinking water wells. In addition to the limited depth of most of the existing drinking water wells, these wells are located west of the fracture zone (delineated through geophysical,

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hydrogeological, and intrusive methods) which further limits the likelihood of this scenario. The closest and deepest wells to the west of the fracture zone are 804 and 805 Constellation Drive and MTBE has not been detected in these wells. Lastly, MTBE has not been detected in both wells MW-25D and MW-26D, installed within the fracture zone, and these wells serve as sentinel monitoring wells protective of the area drinking water wells.

In order to evaluate the risk to a hypothetical drinking water well that could be installed in bedrock south of the Site in the future, intersecting the same fracture zone as MW-16D, MW-17D, MW-23D, MW-25D, and MW-26D, and receiving the total flux from Transect D-D', the equation above was applied, the anticipated flow rate was reduced to 0.21 gpm (300 gpd), and the MTBE mass flux kept constant. The resultant maximum concentration in this hypothetical well is 316 µg/L. This estimate is conservative for multiple reasons. Primarily it presumes a drinking well is installed within the identified bedrock fracture zone, which extends through the Village Centre and Village Green Day School properties, although these properties are connected to the municipal water supply. Secondly, this estimate does not account for degradation, dilution, sorption, or dispersion of MTBE over the distance from monitoring well MW-23D to the hypothetical well, processes demonstrated to be occurring at the Site which reduces both the concentration in groundwater and the mass flux rate through the bedrock. It assumes that all water entering the hypothetical well is derived from area bedrock groundwater, and does not account for precipitation which falls and infiltrates the overburden between the Site and the hypothetical well.

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8 PROPOSED REMEDIATION ENDPOINTS

Remedial activities will be considered complete when defined remedial endpoints are achieved for liquid, adsorbed, dissolved, and vapor phase hydrocarbons. The following sections discuss the proposed remedial endpoints which are protective of area drinking water wells.

8.1 LIQUID PHASE HYDROCARBON ENDPOINT

Liquid phase hydrocarbon (LPH) has not been detected in the wells. The endpoint will be an LPH thickness of <0.01 feet. Compliance with this endpoint has been achieved.

8.2 ADSORBED PHASE HYDROCARBON ENDPOINT

The current and future exposure pathways associated with soil are considered incomplete. The adsorbed phase concentrations of MTBE, which are located at and below the groundwater interface, are a source for dissolved phase concentrations. A specific adsorbed phase hydrocarbon endpoint will not be established, but will instead be linked to the endpoints for dissolved and vapor phase hydrocarbons.

8.3 DISSOLVED PHASE HYDROCARBON ENDPOINT

As per Item 10 of the CAP approval letter from the DEQ, a remedial endpoint for MTBE will be established that is protective of area drinking water wells (**Appendix A**). MTBE is the primary petroleum COC detected at the Site while other petroleum COCs, particularly fuel oxygenates DIPE and TAME and MTBE degradation product TBA, are detected in groundwater at lower concentrations. Due to the chemical properties, the spatial distribution and magnitude of concentrations detected at the Site, the use of the MTBE endpoint for the other petroleum COCs detected at the Site is considered conservative and appropriate for this Site.

In order to be protective of current and potential future drinking water use in the Site area, two dissolved phase hydrocarbon endpoints are proposed. The use of two endpoints is

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recommended based on the differences in hydrogeologic characteristics of the overburden and bedrock at the Site.

The data analysis presented in **Section 6.0** suggests that the MTBE detected in the overburden, prior to activation of the groundwater recovery system, are protective of area drinking water wells. As municipal water service is available along Georgetown Pike to the east, Walker Road to the south, and Thunderhill Court to the southeast of the Site (**Figure 3**), it is also unlikely that a drinking water well will be installed in the overburden between the existing wells and the Site. The average MTBE concentration of groundwater samples collected from overburden wells with a detection of MTBE in June 2014 (prior to activation of the groundwater recovery system) is 5,775 µg/L. Based on the determination of mass flux from the Exxon (former Shell) / Great Falls Shopping Center property (Transect C- C'), this average MTBE overburden concentration is protective to current and hypothetical drinking water receptors. Modelling of pulse and continuous type contaminant sources in 2013 demonstrated that, at the greater concentrations then present, MTBE was not anticipated to be detected in groundwater beyond the east boundary of the Great Falls Shopping Center. Additionally, attenuation of concentrations of MTBE with time and distance has been demonstrated in this CAPA. Therefore, an overburden concentration of 5,000 µg/L MTBE is proposed as a remedial endpoint. For the purposes of the endpoint, RW-1, which is fully screened through the overburden and into in the weathered bedrock, is considered an overburden well.

The additional site characterization data obtained since the CAP and analysis presented suggests that the MTBE concentrations detected in the bedrock, prior to activation of the groundwater recovery system, are protective of area drinking water wells located south-southwest of the Site in the area of Constellation Drive. This is due to the position of these existing drinking water wells west of the fracture zone delineated through geophysical, hydrogeological, and intrusive methods. These statements are further demonstrated by the absence of MTBE in groundwater samples collected from wells MW-25D and MW-26D installed within the fracture zone, and the new drinking water well located at 805 Constellation Drive which is the closest and deepest drinking water well to the fracture zone. Evaluation of first order-attenuation rates indicates that the area of dissolved phase impact is anticipated to decrease with time. Permanent mass removal and source strength reduction effected by the removal of the former UST system and operation of the groundwater recovery system further reduces the risk to current or potential future drinking water wells. Additionally, the current operation of the groundwater recovery system is producing a capture zone which extends south

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of MW-25D (**Figures 5** and **9**) and the reduction of MTBE concentrations within the fracture zone has been noted in MW-23D after less than 30 days of system operation (**Table 3**).

Evaluation of recent (i.e. prior to groundwater recovery) mass flux 0.358 g/day of MTBE through Transect D-D' to a hypothetical well indicates that the flux may result in a maximum detected concentration of MTBE of 316 µg/L. In order to reduce maximum detected concentrations of MTBE in the hypothetical well to less than the Virginia Department of Health, Office of Water Programs trigger level of 15 µg/L, and the maximum detected concentration of MTBE at existing wells located southwest of the Site to less than 1 µg/L (i.e. the LOQ for MTBE), the mass flux through Transect D-D' would need to be reduced to 0.016 g/day. This reduction in flux equates to a concentration of MTBE at MW-23D of approximately 474 µg/L. Considering the conservative nature and assumptions of the hypothetical drinking water well concentration model as described above, the delineation of MTBE within the fracture zone, the lack of an actual drinking water well within the fracture zone, and the lack of an actual drinking water well within 900 feet of MW-23D, a bedrock remediation endpoint of 474 µg/L MTBE is considered protective of area drinking water wells. This endpoint would be applied to the bedrock sampling points (MW-6D, MW-12D, MW-16D, MW-18D, MW-19D, PW-1, MW-20D, and MW-23D). Monitoring well MW-17D contains discrete 6-inch long sampling intervals where individual or sets of fractures where noted. The use of a discrete sample interval for determination of compliance with the MTBE endpoint is not considered appropriate and the use of the average MTBE concentration of the transmissive upper zones of MW-17D (75, 81, 87.75, and 92) is proposed. This remedial endpoint will not apply to the bottom intervals of MW-17D (117), MW-17D (129.75), and MW-17D (147) as these samples represent trapped water from the overburden, and do not serve as a source for continuing MTBE to Site groundwater as presented in the SCM. As the estimated mass flux from overburden to bedrock is approximately 1%, it is anticipated that the proposed overburden remedial endpoint of 5,000 µg/L will not results in MTBE concentrations in groundwater collected from bedrock greater than 474 µg/L.

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8.4 VAPOR PHASE HYDROCARBON ENDPOINT

The on-site MTBE risk based vapor phase hydrocarbon endpoint for future commercial workers will be linked to the DEQ Tier III vapor intrusion based screening levels for deep soil gas (Table 2.11). Prior to the initiation of SVE, baseline soil vapor analytical samples were collected from the soil vapor points in March 2014 and the analytes were not detected above laboratory reporting limits (**Table 7**) and the reporting limits are below the DEQ Tier III deep soil gas screening levels. Additionally, per the Special Warranty Deed, a vapor barrier is required for any future building constructed on-Site.

The off-site risk based vapor phase hydrocarbon endpoint for commercial workers will solely be for MTBE as the detection of petroleum constituents such as BTEX in off-site well(s) (i.e. W-5) are not related to the release from the Site. The off-site MTBE risk based vapor phase hydrocarbon endpoint for commercial workers will be linked to the DEQ Tier III vapor intrusion based screening level for groundwater (Table 2.10). If MTBE is detected above this groundwater screening level adjacent to a building in an overburden monitoring well, a vapor intrusion investigation will be completed in accordance with the procedures outlined in the Virginia Voluntary Remediation Program Vapor Intrusion Screening Fact Sheet (2008).

Per the CAP, the establishment of asymptotic vapor phase hydrocarbon recovery rates is proposed as the remediation endpoint for shutdown of the SVE system.

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9 CORRECTIVE ACTION SUMMARY

The CAP proposed the implementation of SVE and groundwater recovery for the remediation of MTBE associated with the Site. Following connection of the remedial system to the local power supply by Dominion Virginia Power, the SVE system was started on June 17, 2014. Following equipment delivery and initial testing, the groundwater recovery and treatment system commenced operation August 28, 2014.

9.1 SOIL VAPOR EXTRACTION SYSTEM

As presented in the Aquifer Testing and Interim Remedial Measures Report, the SVE system was installed in March 2014 and started on June 17, 2014. Soil vapors are extracted from six extraction wells [SVE-1 through SVE-5, and monitoring well MW-14] utilizing a rotary claw pump. Recovered soil vapors from the SVE system are discharged directly to the atmosphere without treatment in accordance with the air permit exemption approved by the DEQ Northern Regional Office on January 24, 2014.

Remediation system vapor monitoring, performance data, and system operation and maintenance visits are summarized in **Table 8**. For the Third Quarter 2014, the SVE system run time was 73% and the downtime was associated with an electrical disruption from a thunderstorm, trip and reset of the claw pump motor starter and the accumulation of entrained water within the SVE lines, wells, and moisture separator. The SVE lines were blown back and SVE wells were purged of standing water. Additionally, the applied vacuum was lowered on the wells near the former tank field to reduce the entry of perched water into the system prior to the activation of the groundwater recovery system. During the reporting period, the average applied vacuum has been 10.9 inches mercury (in Hg) with an average flow rate measured at 145 cubic feet per minute (cfm). The SVE effluent was field screened regularly using a photoionization detector (PID) and responses up to 2.0 parts per million (ppm) have been measured.

SVE effluent samples were collected for laboratory analysis in August and September 2014. The samples were analyzed for BTEX, MTBE, TPH carbon range C1-C4, and TPH carbon range >C4-C10 using EPA Methods 18 and 25. The TPH >C4-C10 data is summarized in

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Table 8 and the Lancaster Laboratories Analysis Reports are included within **Appendix I**. Constituents of concern were not detected above the laboratory reporting limits in the SVE effluent samples. Using half the detection limited for TPH >C4-C10, an estimated 15 pounds of total VOCs have been recovered. The lack of vapor phase recovery at the Site is not unexpected given 1) the UST system has been removed and the tank field area was unpaved for approximately two years, 2) petroleum hydrocarbons and MTBE were detected at low to non-detectable concentrations in soil samples collected from the vadose zone; and 3) petroleum hydrocarbons and MTBE in the soil vapor samples collected in March 2014 were below laboratory detection limits. The continued absence of recovered mass from the SVE system and the lack of quantifiable hydrocarbons in the soil vapor samples suggest limited vapor phase hydrocarbons remain in the vadose zone at the Site.

Wellhead vacuum readings were collected during system checks on August 14th and September 22, 2014 and the data is summarized in **Table 5**. A review of **Table 5** indicates that significant vacuum influence (1% of applied vacuum at the nearest SVE well-heads) was observed in monitoring wells north and south of the former tank field (MW-1, MW-2, and MW-11) in both events and significant vacuum influence was observed in MW-13 in September 2014. The September 22, 2014 data represents the first set of vacuum influence readings since the activation of the groundwater recovery system (i.e. dewatering) and a slightly increased radius of vacuum influence was measured in the field.

9.2 GROUNDWATER RECOVERY AND TREATMENT SYSTEM

The groundwater recovery well network consists of RW-1 and MW-16D (**Figure 2**). Recovery well RW-1 is constructed with 6-inch diameter casing and PVC screen from above the groundwater interface to approximately 91 feet below grade. Recovery well RW-1 was incorporated into the groundwater recovery network based on the wells location within the source area and intersection of the fracture zone on the Site. Additionally, the aquifer testing results indicate that pumping from RW-1 at a nominal rate results 1) in significant drawdown within the fracture zone, and 2) a capture zone encompassing at least MW-19D to the north, MW-20D to the east MW-23D to the south, and MW-5 to the west.

Monitoring well MW-16D, which is a 6-inch diameter open borehole from 85 – 110 feet below grade, is also incorporated into the recovery well network to aid groundwater extraction from the fracture zone.

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In August 2014, Kleinfelder personnel oversaw the installation of the groundwater recovery and treatment system, associated piping, and the connections of the piping to wells RW-1 and MW-16D and the remediation system. The recovery wells were connected to the remediation system via 2-inch schedule 40 PVC piping as groundwater return lines and electrical conduit and wiring to power the electric pumps installed in below grade trenches. Following the trenching and piping activities, the trenches were resurfaced with asphalt. During system installation activities, the excavated soil was managed in accordance with Virginia solid waste management regulations. Non-hazardous waste manifests for disposal of soil generated during well installation and trenching activities are included in **Appendix E**.

Groundwater recovery is facilitated by submersible electric pumps installed within wells RW-1 and MW-16D and the groundwater recovery rate is controlled with the use of variable frequency drives (VFD) for each pump. The remediation equipment is housed within an 8 feet wide by 16 feet trailer for compliance with Fairfax County Zoning restrictions on the property. The interior of the building is rated for Class 1, Division 2 hazardous locations as defined by the National Electric Code. The trailer includes a heater, exhaust fan, and lighting; all rated for hazardous locations. The groundwater treatment train consists of an equalization tank, transfer pump, tray-style air stripper with associated blower, bag filters, liquid phase granular activated carbon (LGAC) vessels, and appurtenant control, safety, telemetry, and electronic components.

The recovered groundwater is treated through the air stripper and four liquid phase GAC units in series. The groundwater treatment piping is fitted with sample ports to allow influent and effluent sampling. The treated groundwater is sampled and discharged to a storm sewer along the west side of the property in accordance with the requirements of Virginia Pollutant Discharge Elimination System (VPDES) Permit VAG830477. The effluent from the air stripper is discharged directly to the atmosphere without treatment in accordance with the air permit exemption approved by the DEQ Northern Regional Office on August 7, 2014.

After critical safety device and wet testing with potable water, the groundwater recovery and treatment system commenced operation on August 28, 2014. To evaluate treatment system efficiency and with the expected higher influent MTBE concentrations during startup, the treated groundwater from the system was containerized within 21,000 gallon fractionation tanks (equipped with a high water level alarm) and verified for compliance with the VPDES permit before the water was discharged until September 10, 2014. During this time period when the

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remediation system was operated in this manner (i.e. batch process) the pumping rate was adjusted accordingly to maximize the available holding capacity. For example, the pumping rate was adjusted to three gpm over the Labor Day holiday weekend. Through September 30, 2014, the system run time was 89% and the downtime was associated with planned modifications and maintenance associated with routine remediation system startup procedures. Unplanned system downtime was associated with an electrical disruption from a thunderstorm the weekend of September 6th. The system has operated at an average flow rate of 7.75 gpm and a total of approximately 327,195 gallons of water have been recovered and treated (**Table 9**). Note that the system recovery flow rate has averaged 8.77 gpm since September 14, 2014.

Due to a replacement of a fitting at RW-1, the initial operation of the system utilized MW-16D and an influent MTBE concentration of 4,200 µg/L was obtained during the first day of startup. On August 29, 2014, the system operation was switched to RW-1 and influent MTBE concentrations have decreased from 60,000 µg/L to 21,000 µg/L (September 22, 2014) with an average influent MTBE concentration of 36,600 µg/L. The Lancaster Laboratory Analysis Reports for groundwater system samples collected since startup are included in **Appendix J**. Based on the influent MTBE concentrations and flow rate, an estimated 77.8 pounds of MTBE has been recovered and treated through the system at an average of 2.74 pounds per day (**Table 9**).

To evaluate the effects of groundwater recovery on the MTBE distribution within the fracture zone, groundwater samples were collected from MW-23D on September 3, 2014 and September 22, 2014 for laboratory analysis. The laboratory analytical results indicate that MTBE concentrations decreased from 10,000 µg/L prior to groundwater recovery operations (August 20, 2014) to 9,300 µg/L after 5 days of pumping (September 3, 2014) and 4,600 µg/L after 25 days of pumping (September 22, 2014) (**Table 3**).

The current groundwater elevation drawdown within RW-1 is approximately 16 feet at a pumping rate of approximately 8.5 gpm. Prior to and during the first two weeks of system operation, the water level in deep wells MW-18D, MW-23D, MW-25D, and MW-26D was continually monitored with pressure transducers. The pressure data was converted to corrected groundwater elevation for the wells and drawdown / recharge correlated with the system operations are clearly observed in wells MW-18D, MW-23D, and MW-25D shown on Chart 5, **Appendix G**. The potentiometric surface using the data collected on September 8, 2014 for

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shallow and deep wells (**Figures 4** and **5**) matches with the conditions observed and reported in the Aquifer Testing and Interim Remedial Measures Report with the observed extent of groundwater capture to at least MW-19D to the north, MW-20D and MW-21S/I in the east, MW-25D in the south, and MW-5 in the west. In order to evaluate the change in the capture zone of the recovery system using one well (RW-1) over time, certain shallow and deep monitoring wells were gauged on September 22, 2014 (**Table 5**) and the resulting potentiometric surface maps are included as **Figures 9** and **10**. As presented on these maps and as of September 22nd, the area of groundwater capture encompasses the extent of MTBE impacted groundwater both on and off-site and the capture zone extends at least 900 feet to the north and south and 350 feet east to west. The capture zone will continue to increase in size until a steady state is achieved and determination of the steady state extent requires additional temporal groundwater elevation monitoring data. If new data is obtained that demonstrates the existence of MTBE in groundwater in areas that requires remediation outside the capture zone of RW-1 (or MW-16D), additional recovery wells may be added to the groundwater recovery system.

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10 POST OPERATION MONITORING SCHEDULE

Pending the DEQ approval of remediation system temporary shutdown, monitoring will begin for a minimum period of one year. Post operational monitoring will consist of quarterly groundwater sampling of select wells during this trial shutdown period. Post operational monitoring will include a rebound study that will monitor constituents of concern including TBA and of geochemical indicators associated with natural attenuation in order to determine if additional corrective actions or natural attenuation monitoring are necessary. If it is determined that the remediation endpoints have been achieved at the end of the post operational monitoring period, Kleinfelder, on behalf of Fairfax, will request no further action (NFA) and permanent removal of remediation equipment.

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11 ESTIMATED TIMEFRAME TO ACHIEVE ENDPOINTS

As presented in **Section 8.0**, a dissolved phase endpoints for MTBE of 5,000 µg/L and 474 µg/L, which are protective of area drinking water wells, have been proposed for the overburden and bedrock wells, respectively.

Based on the recovery and flow rates and radii of influence observed during feasibility testing conducted in 2011 (i.e. prior to the UST removal), it was estimated in the CAP that approximately one to two years of SVE system operation would be needed to achieve asymptotic conditions. Data obtained from the March 2014 soil vapor sampling event and the analytical results from SVE system operation indicate the mass of MTBE vapor has attenuated significantly since the removal of the UST system and the vapor phase hydrocarbon endpoints have been achieved.

The estimation of the timeframe to achieve the proposed remedial endpoints in groundwater are subject to revision based on continued monitoring of the operation of the remedial system, measurement of concentrations of MTBE in Site groundwater, and the effect of source removal. In bedrock, evaluation of the detected concentrations of MTBE at MW-23D from August 20, 2014 (10,000 µg/L) through September 22, 2014 (4,600 µg/L), indicate that the first order attenuation rate under pumping conditions is -0.0264 per day. Further sampling of this well and others post groundwater recovery is required to validate the attenuation rate. The anticipated time required to reach the requested remedial endpoint is given as:

$$\boldsymbol{t = (-LN(Cgoal/Cstart))/k_point}$$

Where t is time in days, C_{goal} is the remedial endpoint in µg/L, C_{start} is the current concentrations, and k_{point} is the first-order time attenuation rate (Newell et al; 2002). The estimated time to achieve the remedial endpoint in bedrock at MW-23D, based on an attenuation rate of 0.037 is 82 days from August 20, 2014. The estimated time to achieve the remedial endpoint at other bedrock sampling points such as PW-1 or MW-16D where concentrations have not yet declined may be estimated in the future following collection of sufficient analytical data to establish a time-dependent attenuation rate under the groundwater recovery system operation.

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In the overburden, the proposed remedial endpoint of 5,000 µg/L has been achieved at all monitoring wells except MW-1 and W-1. Monitoring well MW-1 has not been sampled since the startup of the groundwater recovery system. Evaluation of attenuation at MW-1 from December 2013 through June 2014 was performed as for MW-23D. At MW-1, the estimated time to achieve the remedial endpoint is 180 days from June 20, 2014. Further groundwater monitoring since the startup of the groundwater recovery system is required for such an evaluation of W-1 and to evaluate if the well is affected by residual MTBE contamination from historic Shell operations.

Using the methodology described above, the estimated timeframe to achieve the proposed remediation endpoints is less than one year. The groundwater recovery systems will be operated using performance data such as dissolved phase recovery rates and groundwater monitoring data versus the established remediation endpoints. Using this performance data, decisions and recommendations can be made to either continue system operation, shut down the system to initiate rebound monitoring, or to evaluate supplemental remedial actions to accelerate reductions in dissolved phase concentrations. The remediation system will remain on-site during the proposed rebound monitoring period in the event that rebound occurs and additional remediation system operation is necessary. Post-remediation monitoring will be conducted for a minimum of one year following termination of active remediation to confirm ongoing natural attenuation and maintenance of the endpoints. The timeframe to achieve the remediation endpoints may be re-evaluated following corrective action implementation if the selected remediation technique is not considered effective.

The estimation of the timeframe to achieve the proposed remedial endpoints for dissolved phase MTBE is considered an approximation that is based on interpretation of a discrete number of analytical samples, interpolation of areas from multiple lines of investigatory data, and assumptions. The intended purpose of this estimate is to inform remediation decision making and to aid in development of an estimated cleanup cost projection. Kleinfelder makes no representation, guarantee or warranty, express or implied, regarding the accuracy of the estimated timeframe to achieve the proposed remedial endpoints.

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12 PROJECTED COSTS TO ACHIEVE ENDPOINTS

Based the estimated timeframe to achieve the proposed MTBE remediation endpoints in Section 11 of approximately one year and a minimum of one year post-operational monitoring schedule, the projected costs for endpoint achievement is approximately $350,000. The projected costs include the relocation of the rental groundwater recovery and treatment system to another location on-Site in early 2015 to facilitate the property redevelopment and estimated site closure costs such as abandonment of the wells and equipment removal. The actual costs may vary based on multiple factors, including, but not limited to, system performance, duration of system operation, results of proposed rebound testing, scope and duration of the post-operational monitoring period, and Site constraints. Kleinfelder makes no representation, guarantee or warranty, express or implied, regarding the accuracy of the projected costs to achieve the proposed remedial endpoints.

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13 PUBLIC NOTIFICATION

In accordance with public participation requirements of the DEQ Storage Tank Program Technical Manual section 5.7.3.1.2, owners or operators of USTs are required to provide notice to the public for all releases of petroleum where a CAP is mandated by the regulatory agency. The DEQ recommends that public notice be initiated during CAP development to enable interested members of the public constituency to review the report concurrently with DEQ personnel. Accordingly, Kleinfelder, on behalf of Fairfax, arranged for publication of the public notice for the CAPA in the Great Falls Connections – Legal Notices section. A copy of the aforementioned publication will be submitted to the DEQ under separate cover. Additionally, a copy of this report will be provided to the GFCA and the Great Falls Public Library.

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14 CONCLUSIONS AND RECOMMENDATIONS

Kleinfelder has been retained by Fairfax Petroleum Realty, LLC to prepare a CAPA for the Inactive Fairfax Facility #26140 located at 9901 Georgetown Pike, Great Falls, Virginia. The following section provides the conclusions of this CAPA, as well recommendations for further activities.

- The Site is located in a mixed use commercial and residential area. Municipal water service is located within the immediate vicinity of the Site; however, certain residential properties utilize potable wells within approximately 1,500 feet of the Site. These properties have been regularly sampled by the DEQ since late 2009 and petroleum COCs have not been detected.

- Utilizing additional investigation results detailed in **Section 4.0**, an updated SCM was developed for the Site. The SCM presented a hydrogeologic framework of the Site that the more transmissive zones of the aquifer, those located at depths less than approximately 110 feet below grade, dominate the Site transport of dissolved phase petroleum COCs, as estimated by mass flux methodology. Approximately 1 % of mass flux at the Site is directed downward, with a resultant distribution of dissolved phase petroleum COCs within a bedrock fracture zone which extends north and south through the Site. The Site hydrogeology and the vertical delineation of MTBE indicate that the majority of MTBE impact is limited to the shallow, more productive zone of the aquifer.

- The potentiometric surface observed at the Site indicates a hydraulic gradient to the southeast / east in both the shallow and deep zones. Some component of flow within the bedrock fracture zone is to the south. Delineation of dissolved phase constituents in the overburden portion of the aquifer is considered complete to the north (MW-3 and MW-9), south (MW-10 and MW-24), east (W-3, W-4, W-5, W-6, W-7, MW-22, MW-27S/I) and west (MW-5) of the Site. Delineation of the dissolved phase constituents in the deep portion of the aquifer is considered complete to the north (MW-19D), south (MW-25D and MW-26D), east (MW-18D and MW-20D) and west (MW-6D). Further site characterization of dissolved phase constituents in these directions is not considered warranted.

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- Evaluation of first-order attenuation rates, secondary indicators of natural attenuation, and relative proportion of degradation products (TBA), indicate that natural attenuation is occurring at the Site, and the area and average concentration of dissolved phase impacts will continue to decrease with time.

- Current and future exposure pathways for on and off-site commercial workers and construction workers are considered either incomplete or the risk is below DEQ guidelines. Private potable wells within 1,500 feet of the Site have been sampled regularly by the DEQ since late 2009 and petroleum COCs have not been detected above the laboratory method detection limits. Therefore, the risk for the ingestion of groundwater pathway is currently below the DEQ guidelines.

- The SVE system has been operating since June 17, 2014. An estimated 15 pounds of vapor phase hydrocarbons have been recovered and asymptotic concentrations of hydrocarbons in the influent stream have been reached.

- The groundwater recovery system has been operating since August 28, 2014 and a total of approximately 327,195 gallons of groundwater have been recovered and treated. Influent MTBE concentrations from RW-1 have ranged from 21,000 to 60,000 µg/L, and a total estimated mass of 78 pounds of MTBE has been removed from Site groundwater.

- As presented on potentiometric surface maps, the area of groundwater capture encompasses the extent of MTBE impacted groundwater both on and off-site and the capture zone extends at least 900 feet to the north and south and 350 feet east to west. At this time, there is no anticipated benefit of including additional groundwater recovery wells into the system.

- The attainment of the proposed remedial endpoints for liquid phase hydrocarbon, soil and soil vapor has been achieved.

- A dissolved phase MTBE endpoint of 5,000 µg/L in the overburden and 474 µg/L in the bedrock has been proposed.

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- The MTBE remedial endpoint for bedrock will not apply to the bottom intervals of MW-17D (117), MW-17D (129.75), and MW-17D (147) as these samples represent trapped water from the overburden, and do not serve as a source for continuing MTBE to Site groundwater as presented in the SCM.

Based on the updated SCM and data obtained since the submission of the CAP, the following recommendations are provided:

- Continued operation of the groundwater recovery and treatment system to achieve the proposed overburden and bedrock remediation endpoints for MTBE.

- As asymptotic vapor phase hydrocarbon recovery rates have been observed. The continued operation of the SVE system through October 30, 2014 (i.e. 60 days from the start of groundwater recovery) is proposed and if vapor phase hydrocarbons remain at current levels the SVE system operations will be terminated.

- The DEQ should include the new potable well at 805 Constellation Drive into the annual sampling program.

- A modified groundwater monitoring schedule will be implemented for select monitoring wells. Monitoring wells that typically display MTBE concentrations significantly below the proposed MTBE remediation endpoints will be monitored annually with the exception of key delineation wells. The wells will be sampled via low flow methodology and the proposed monitoring schedule and laboratory analyses using EPA Method 8260 are provided as **Table 10**.

- Considering the age and groundwater quality data from wells W-1 and W-2 in comparison to recently installed wells such as MW-27S, wells W-1 and W-2 will be redeveloped prior to the next groundwater sampling event.

- Based on the absence of petroleum COCs at MW-19D and MW-12D and apparent deep groundwater flow to the south / southeast groundwater flow, future monitoring or sampling of MW-12D is not considered warranted and abandonment of the well is proposed.

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- Petroleum related COCs have not been detected in MW-18D and the Virginia Department of Transportation (VDOT) Land Use Permit for this well will expire in February 19, 2015, and cannot be renewed; therefore the abandonment of MW-18D is proposed.

- The Right of Entry License with the Fairfax County Park Authority for the two shallow monitoring wells on the Great Falls Grange property (GFGPMW-4 and GFGPMW-5) will expire in February 25, 2015. As the overburden MTBE plume is limited to the Site and across Walker Road on the Exxon (former Shell) station and based on the March 2014 monitoring results from these wells, future monitoring or sampling of these shallow monitoring wells is not considered warranted and their abandonment is proposed.

- The attainment of the proposed remedial endpoints for soil vapor has been achieved and the SVE system recovery is asymptotic. As such, future soil vapor sampling is not considered warranted and the removal of the vapor points is proposed.

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16 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

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Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties.

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FIGURES

0 350 700 1,400 Feet

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N

LEGEND

APPROXIMATE SITE LOCATION

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PROJECT NO.	121473
DRAWN:	9/09/13
DRAWN BY:	AJP
CHECKED BY:	PW
FILE NAME: 26140_RAM_022210.mxd	

REGIONAL AREA MAP

INACTIVE FAIRFAX FACILITY # 26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA

FIGURE

1

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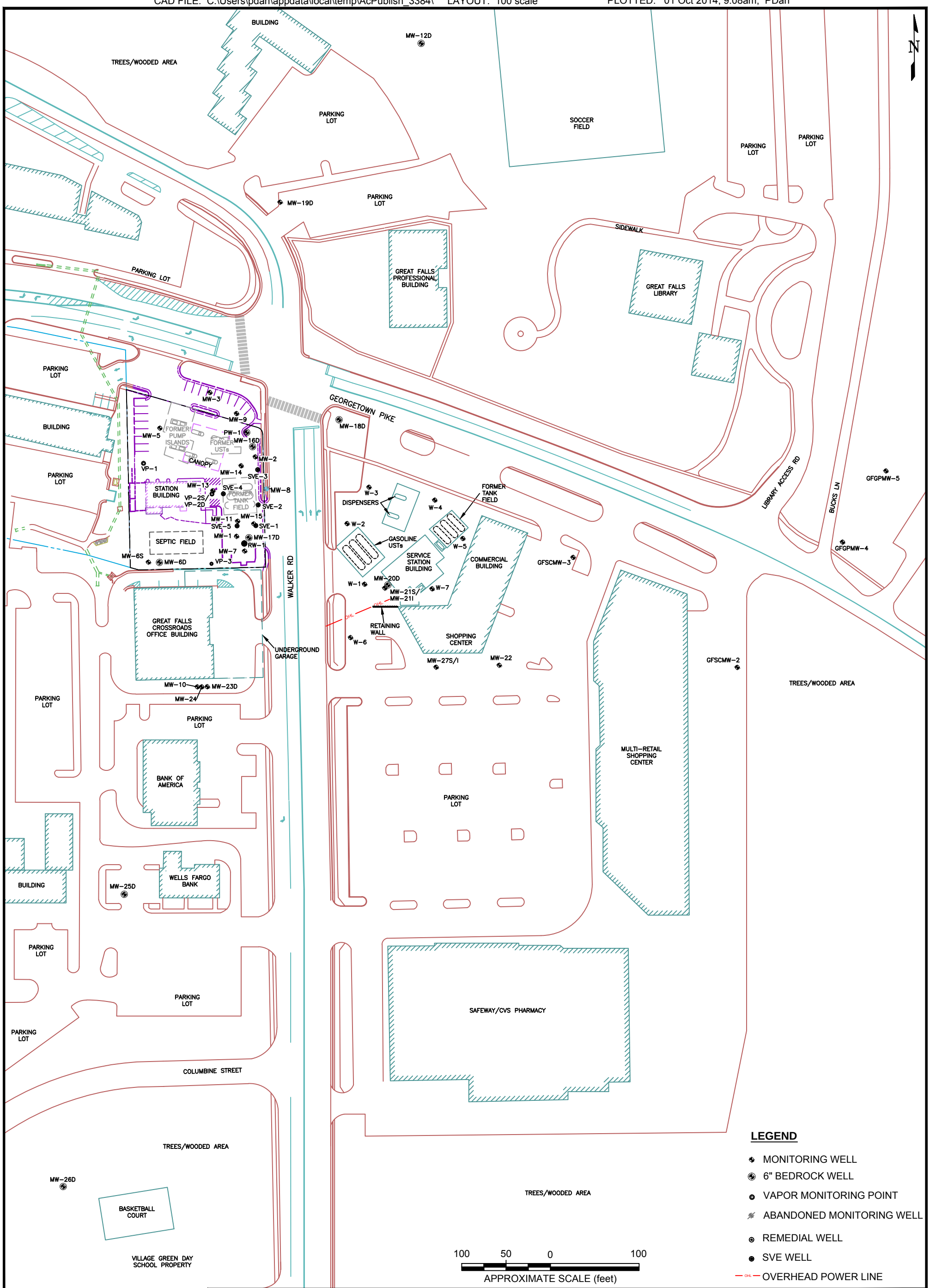

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FILE NAME:	26140_SP_14.dwg

SITE PLAN

INACTIVE FAIRFAX FACILITY #26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA

FIGURE
2

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0 175 350 700 Feet

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FILE NAME:	26140_LAM_07_14.mxd

LOCAL AREA MAP

INACTIVE FAIRFAX FACILITY # 26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA

FIGURE
3

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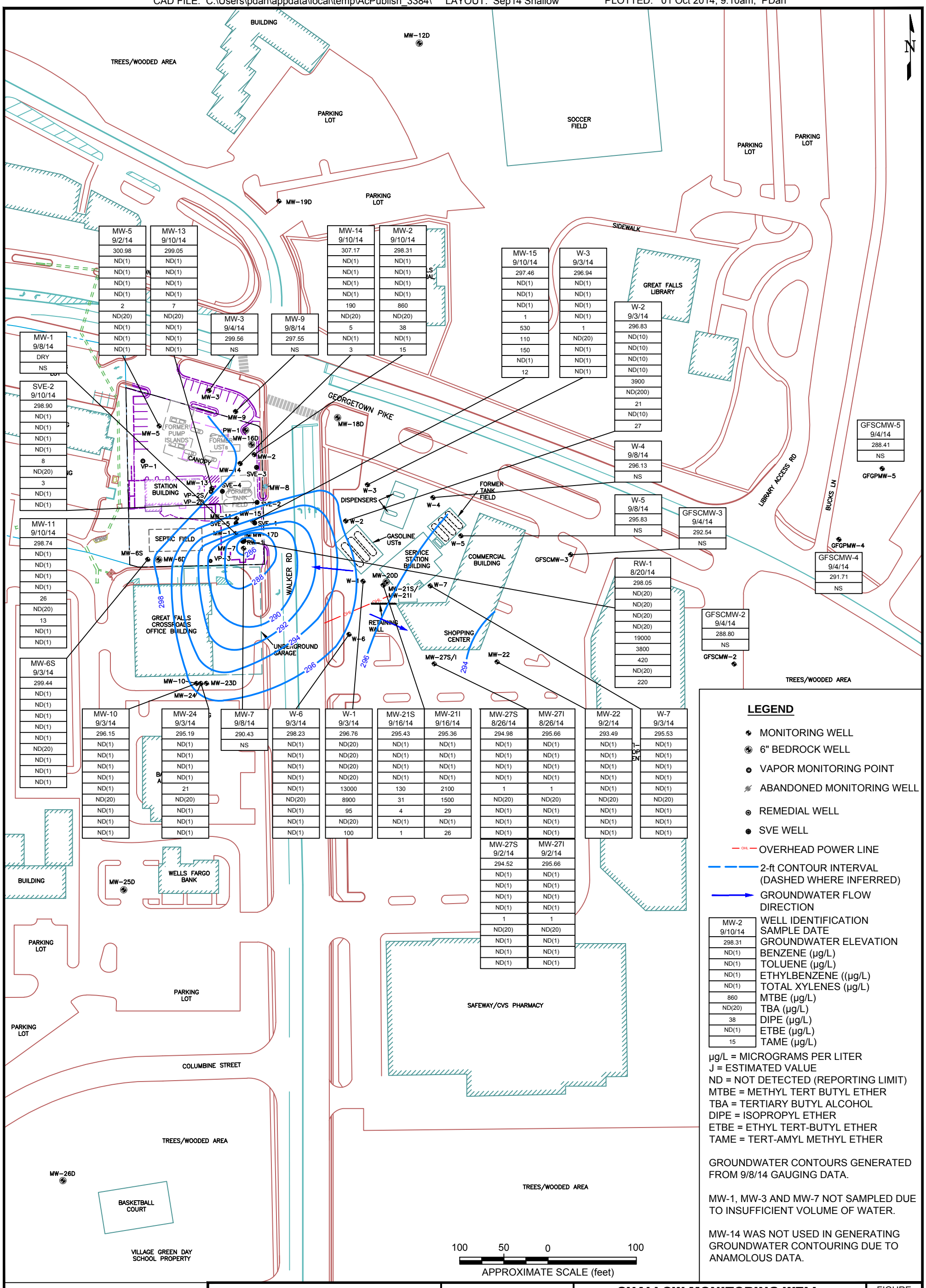

MW-5 9/2/14
300.98
ND(1)
ND(1)
ND(1)
ND(1)
2
ND(20)
ND(1)
ND(1)
ND(1)

MW-13 9/10/14
299.05
ND(1)
ND(1)
ND(1)
ND(1)
7
ND(20)
ND(1)
ND(1)
ND(1)

MW-14 9/10/14
307.17
ND(1)
ND(1)
ND(1)
ND(1)
190
ND(20)
5
ND(1)
3

MW-2 9/10/14
298.31
ND(1)
ND(1)
ND(1)
ND(1)
860
ND(20)
38
ND(1)
15

MW-15 9/10/14
297.46
ND(1)
ND(1)
ND(1)
1
530
110
150
ND(1)
12

W-3 9/3/14
296.94
ND(1)
ND(1)
ND(1)
ND(1)
1
ND(20)
ND(1)
ND(1)
ND(1)

W-2 9/3/14
296.83
ND(10)
ND(10)
ND(10)
ND(10)
3900
ND(200)
21
ND(10)
27

MW-1 9/8/14
DRY
NS

MW-3 9/4/14
299.56
NS

MW-9 9/8/14
297.55
NS

SVE-2 9/10/14
298.90
ND(1)
ND(1)
ND(1)
ND(1)
8
ND(20)
3
ND(1)
ND(1)

W-4 9/8/14
296.13
NS

W-5 9/8/14
295.83
NS

GFSCMW-5 9/4/14
288.41
NS

GFSCMW-3 9/4/14
292.54
NS

GFSCMW-4 9/4/14
291.71
NS

MW-11 9/10/14
298.74
ND(1)
ND(1)
ND(1)
ND(1)
26
ND(20)
13
ND(1)
ND(1)

RW-1 8/20/14
298.05
ND(20)
ND(20)
ND(20)
ND(20)
ND(20)
19000
3800
420
ND(20)
220

GFSCMW-2 9/4/14
288.80
NS

MW-6S 9/3/14
299.44
ND(1)
ND(1)
ND(1)
ND(1)
ND(1)
ND(1)
ND(20)
ND(1)
ND(1)
ND(1)

MW-10 9/3/14
296.15
ND(1)
ND(1)
ND(1)
ND(1)
ND(1)
ND(1)
ND(20)
ND(1)
ND(1)
ND(1)

MW-24 9/3/14
295.19
ND(1)
ND(1)
ND(1)
ND(1)
21
ND(20)
ND(1)
ND(1)
ND(1)

MW-7 9/8/14
290.43
NS

W-6 9/3/14
298.23
ND(1)
ND(1)
ND(1)
ND(1)
ND(1)
ND(20)
ND(1)
ND(1)
ND(1)

W-1 9/3/14
296.76
ND(20)
ND(20)
ND(20)
ND(20)
13000
8900
95
ND(20)
100

MW-21S 9/16/14
295.43
ND(1)
ND(1)
ND(1)
ND(1)
130
31
4
ND(1)
1

MW-21I 9/16/14
295.36
ND(1)
ND(1)
ND(1)
ND(1)
2100
1500
29
ND(1)
26

MW-27S 8/26/14
294.98
ND(1)
ND(1)
ND(1)
ND(1)
1
ND(20)
ND(1)
ND(1)
ND(1)

MW-27I 8/26/14
295.66
ND(1)
ND(1)
ND(1)
ND(1)
1
ND(20)
ND(1)
ND(1)
ND(1)

MW-22 9/2/14
293.49
ND(1)
ND(1)
ND(1)
ND(1)
ND(1)
ND(20)
ND(1)
ND(1)
ND(1)

W-7 9/3/14
295.53
ND(1)
ND(1)
ND(1)
ND(1)
ND(1)
ND(20)
ND(1)
ND(1)
ND(1)

MW-27S 9/2/14
294.52
ND(1)
ND(1)
ND(1)
ND(1)
1
ND(20)
ND(1)
ND(1)
ND(1)

MW-27I 9/2/14
295.66
ND(1)
ND(1)
ND(1)
ND(1)
1
ND(20)
ND(1)
ND(1)
ND(1)

LEGEND

- MONITORING WELL
- 6" BEDROCK WELL
- VAPOR MONITORING POINT
- ABANDONED MONITORING WELL
- REMEDIAL WELL
- SVE WELL
- OVERHEAD POWER LINE
- 2-ft CONTOUR INTERVAL (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION

MW-2	WELL IDENTIFICATION
9/10/14	SAMPLE DATE
298.31	GROUNDWATER ELEVATION
ND(1)	BENZENE (µg/L)
ND(1)	TOLUENE (µg/L)
ND(1)	ETHYLBENZENE ((µg/L)
ND(1)	TOTAL XYLENES (µg/L)
860	MTBE (µg/L)
ND(20)	TBA (µg/L)
38	DIPE (µg/L)
ND(1)	ETBE (µg/L)
15	TAME (µg/L)

µg/L = MICROGRAMS PER LITER
J = ESTIMATED VALUE
ND = NOT DETECTED (REPORTING LIMIT)
MTBE = METHYL TERT BUTYL ETHER
TBA = TERTIARY BUTYL ALCOHOL
DIPE = ISOPROPYL ETHER
ETBE = ETHYL TERT-BUTYL ETHER
TAME = TERT-AMYL METHYL ETHER

GROUNDWATER CONTOURS GENERATED FROM 9/8/14 GAUGING DATA.

MW-1, MW-3 AND MW-7 NOT SAMPLED DUE TO INSUFFICIENT VOLUME OF WATER.

MW-14 WAS NOT USED IN GENERATING GROUNDWATER CONTOURING DUE TO ANAMOLOUS DATA.

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SHALLOW MONITORING WELL GROUNDWATER CONTOUR / HYDROCARBON DISTRIBUTION MAP AUG. 20 THROUGH SEPT. 16, 2014

INACTIVE FAIRFAX FACILITY #26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA

FIGURE
4

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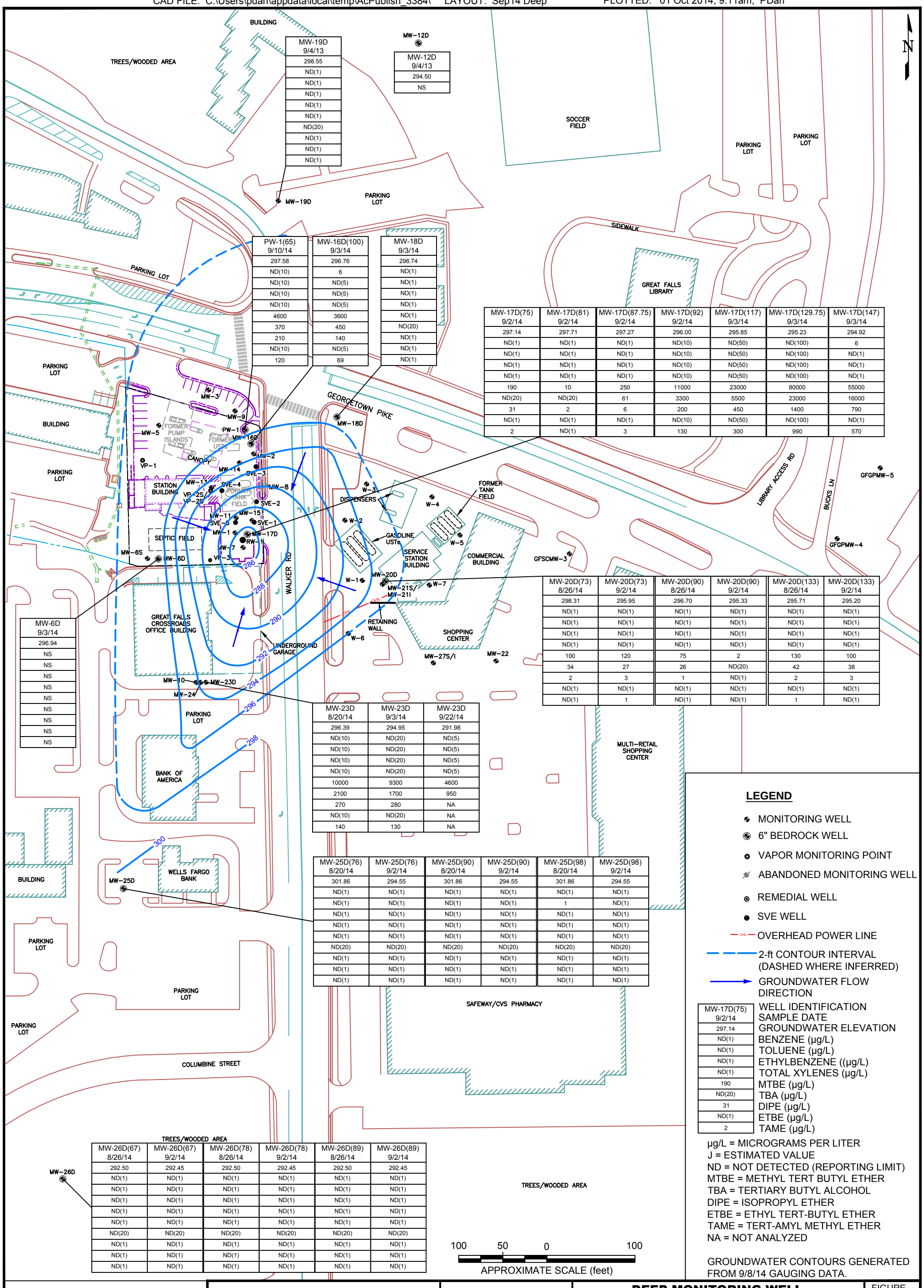

MW-19D 9/4/13
298.55
ND(1)
ND(1)
ND(1)
ND(1)
ND(1)
ND(20)
ND(1)
ND(1)
ND(1)

MW-12D 9/4/13
294.50
NS

PW-1(65) 9/10/14	MW-16D(100) 9/3/14	MW-18D 9/3/14
297.58	296.76	296.74
ND(10)	6	ND(1)
ND(10)	ND(5)	ND(1)
ND(10)	ND(5)	ND(1)
ND(10)	ND(5)	ND(1)
4600	3600	ND(1)
370	450	ND(20)
210	140	ND(1)
ND(10)	ND(5)	ND(1)
120	69	ND(1)

MW-17D(75) 9/2/14	MW-17D(81) 9/2/14	MW-17D(87.75) 9/2/14	MW-17D(92) 9/2/14	MW-17D(117) 9/3/14	MW-17D(129.75) 9/3/14	MW-17D(147) 9/3/14
297.14	297.71	297.27	296.00	295.85	295.23	294.92
ND(1)	ND(1)	ND(1)	ND(10)	ND(50)	ND(100)	6
ND(1)	ND(1)	ND(1)	ND(10)	ND(50)	ND(100)	ND(1)
ND(1)	ND(1)	ND(1)	ND(10)	ND(50)	ND(100)	ND(1)
ND(1)	ND(1)	ND(1)	ND(10)	ND(50)	ND(100)	ND(1)
190	10	250	11000	23000	80000	55000
ND(20)	ND(20)	61	3300	5500	23000	16000
31	2	6	200	450	1400	790
ND(1)	ND(1)	ND(1)	ND(10)	ND(50)	ND(100)	ND(1)
2	ND(1)	3	130	300	990	570

MW-20D(73) 8/26/14	MW-20D(73) 9/2/14	MW-20D(90) 8/26/14	MW-20D(90) 9/2/14	MW-20D(133) 8/26/14	MW-20D(133) 9/2/14
298.31	295.95	296.70	295.33	295.71	295.20
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
100	120	75	2	130	100
34	27	26	ND(20)	42	38
2	3	1	ND(1)	2	3
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	1	ND(1)	ND(1)	1	ND(1)

MW-6D 9/3/14
296.94
NS
NS
NS
NS
NS
NS
NS
NS
NS

MW-23D 8/20/14	MW-23D 9/3/14	MW-23D 9/22/14
296.39	294.95	291.98
ND(10)	ND(20)	ND(5)
ND(10)	ND(20)	ND(5)
ND(10)	ND(20)	ND(5)
ND(10)	ND(20)	ND(5)
10000	9300	4600
2100	1700	950
270	280	NA
ND(10)	ND(20)	NA
140	130	NA

MW-25D(76) 8/20/14	MW-25D(76) 9/2/14	MW-25D(90) 8/20/14	MW-25D(90) 9/2/14	MW-25D(98) 8/20/14	MW-25D(98) 9/2/14
301.86	294.55	301.86	294.55	301.86	294.55
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	1	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)

TREES/WOODED AREA

MW-26D(67) 8/26/14	MW-26D(67) 9/2/14	MW-26D(78) 8/26/14	MW-26D(78) 9/2/14	MW-26D(89) 8/26/14	MW-26D(89) 9/2/14
292.50	292.45	292.50	292.45	292.50	292.45
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(20)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)

MW-26D

100 50 0 100
APPROXIMATE SCALE (feet)

LEGEND

- MONITORING WELL
- 6" BEDROCK WELL
- VAPOR MONITORING POINT
- ABANDONED MONITORING WELL
- REMEDIAL WELL
- SVE WELL
- OVERHEAD POWER LINE
- 2-ft CONTOUR INTERVAL (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION

MW-17D(75) 9/2/14	WELL IDENTIFICATION SAMPLE DATE
297.14	GROUNDWATER ELEVATION
ND(1)	BENZENE (µg/L)
ND(1)	TOLUENE (µg/L)
ND(1)	ETHYLBENZENE ((µg/L)
ND(1)	TOTAL XYLENES (µg/L)
190	MTBE (µg/L)
ND(20)	TBA (µg/L)
31	DIPE (µg/L)
ND(1)	ETBE (µg/L)
2	TAME (µg/L)

µg/L = MICROGRAMS PER LITER
J = ESTIMATED VALUE
ND = NOT DETECTED (REPORTING LIMIT)
MTBE = METHYL TERT BUTYL ETHER
TBA = TERTIARY BUTYL ALCOHOL
DIPE = ISOPROPYL ETHER
ETBE = ETHYL TERT-BUTYL ETHER
TAME = TERT-AMYL METHYL ETHER
NA = NOT ANALYZED

GROUNDWATER CONTOURS GENERATED FROM 9/8/14 GAUGING DATA.

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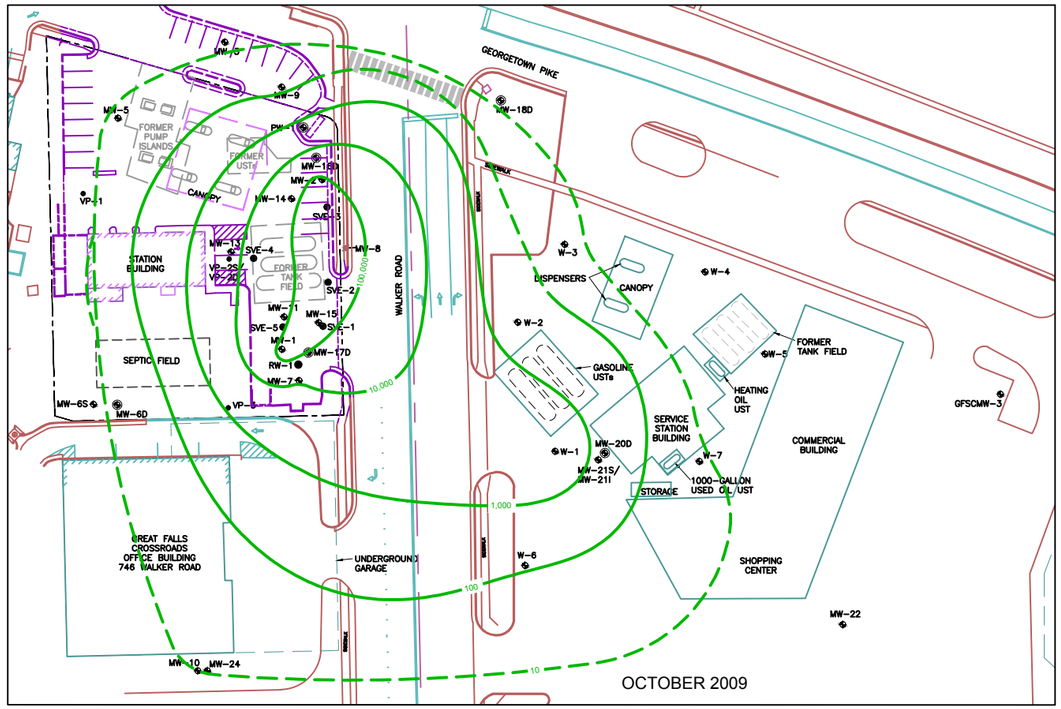
FILE NAME: 26140_SP_14.dwg

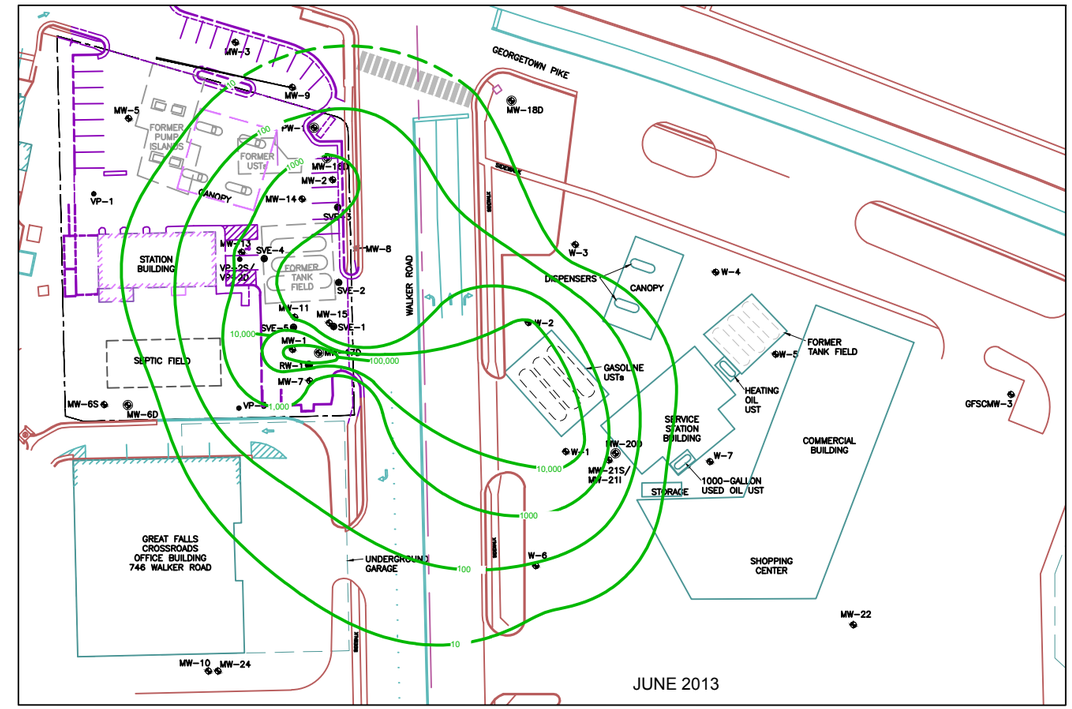
DEEP MONITORING WELL GROUNDWATER CONTOUR / HYDROCARBON DISTRIBUTION MAP AUG. 26 THROUGH SEPT. 22, 2014

INACTIVE FAIRFAX FACILITY #26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA

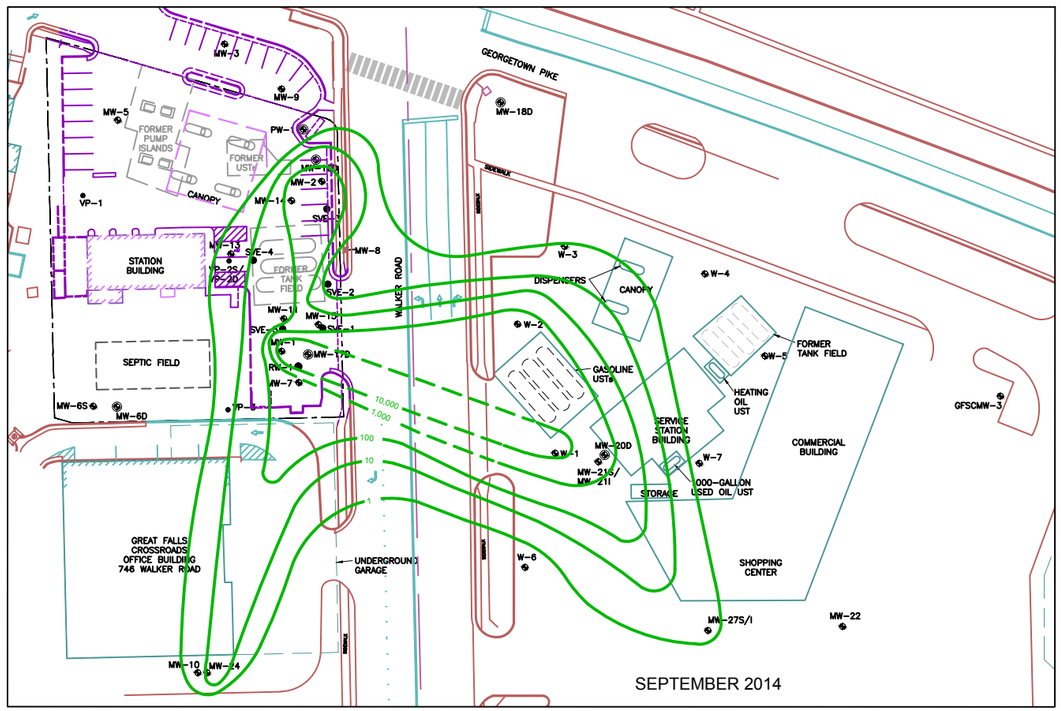
FIGURE
5



OCTOBER 2009



JUNE 2013



SEPTEMBER 2014

LEGEND

- MONITORING WELL
- 6" BEDROCK WELL
- VAPOR MONITORING POINT
- ABANDONED MONITORING WELL
- REMEDIAL WELL
- SVE WELL
- OCTOBER 2009 THROUGH SEPTEMBER 2014 MTBE LOG_{10} ISOCONCENTRATION CONTOUR (DASHED WHERE INFERRED) IN µg/L

NOTE:
(µg/L) - MICROGRAMS PER LITER
MTBE - METHYL TERT BUTYL ETHER

N

80 40 0 80
APPROXIMATE SCALE (feet)

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FILE NAME:	26140_SP_14_MTBE.dwg

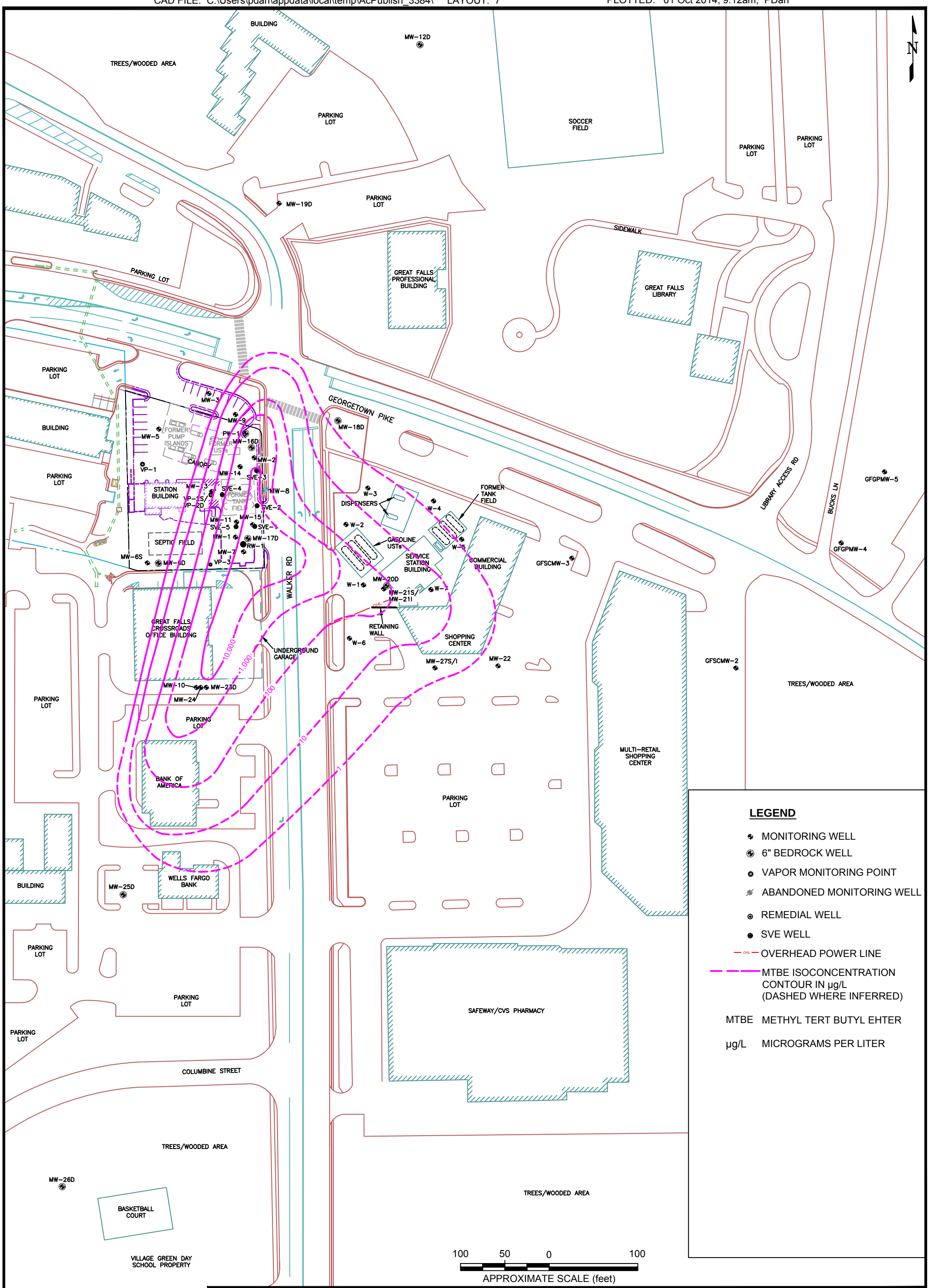
HISTORICAL MTBE ISOCONCENTRATION MAPS - SHALLOW WELLS OCTOBER 2009 , JUNE 2013, AND SEPTEMBER 2014

INACTIVE FAIRFAX FACILITY #26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA

FIGURE
6

PLOTTED: 01 Oct 2014, 9:26am, PDan
LAYOUT: 6
CAD FILE: C:\Users\pdan\appdata\local\temp\AcPublish_3384\
XRef: X-Exst-S107520
ATTACHED IMAGES:
ATTACHED XREFS:
ALBUQUERQUE, NM

ATTACHED IMAGES:
ATTACHED XREFS: XRef: X-Exst-S107520: XRef: Eng-B_11x17_P_StyleA
CAD FILE: C:\Users\pdan\appdata\local\temp\AcPublish_3384\ LAYOUT: 7 PLOTTED: 01 Oct 2014, 9:12am, PDan



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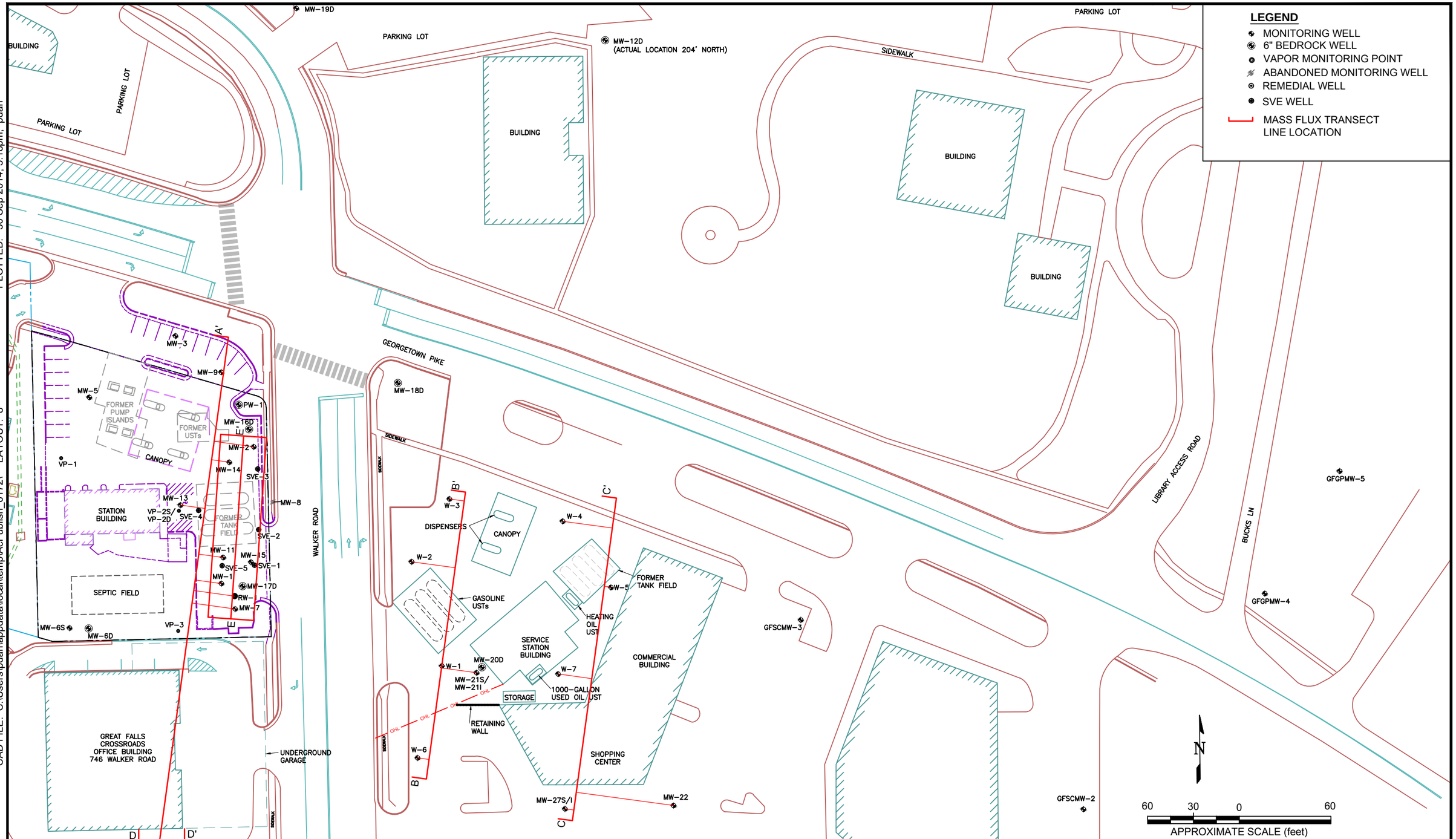
DRAWN BY:	PD
CHECKED BY:	PW
FILE NAME:	26140_SP_14.dwg

MTBE ISOCONCENTRATION MAP
DEEP MONITORING WELLS
SEPTEMBER 2 THROUGH 10, 2014

INACTIVE FAIRFAX FACILITY #26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA

FIGURE
7



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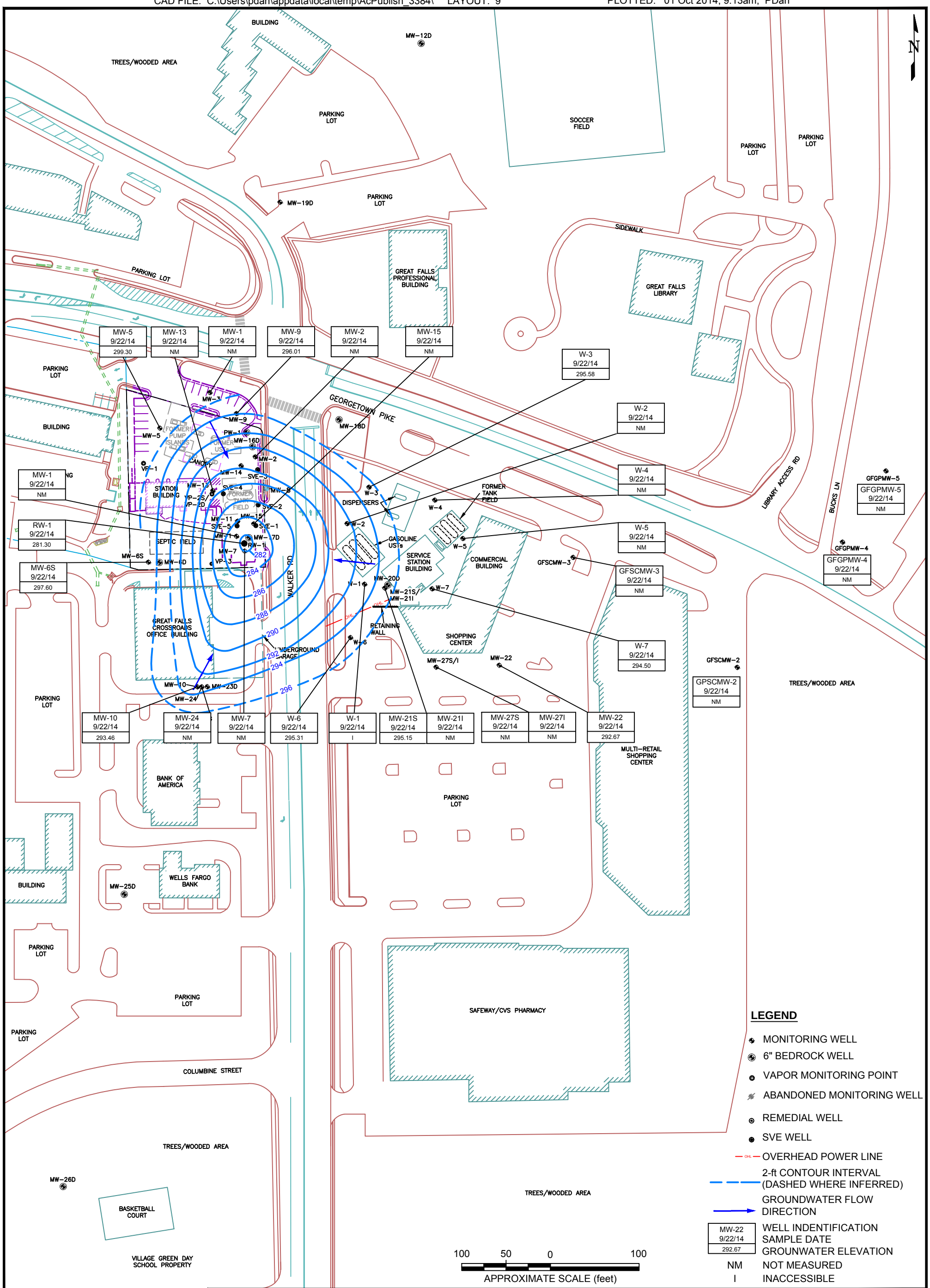
MASS FLUX TRANSECT LOCATION MAP

INACTIVE FAIRFAX FACILITY #26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA

FIGURE
8

PLOTTED: 30 Sep 2014, 5:18pm, pdan
LAYOUT: 8
XRef: X-Exst-S107520: XRef: Eng-B_11x17_P_StyleA
CAD FILE: C:\Users\pdan\appdata\local\temp\AcPublish_6172\
ATTACHED IMAGES:
ATTACHED XREFS:
ALBUQUERQUE, NM

ATTACHED IMAGES:
ATTACHED XREFS: XRef: X-Exst-S107520: XRef: Eng-B_11x17_P_StyleA
CAD FILE: C:\Users\pdan\appdata\local\temp\AcPublish_3384\ LAYOUT: 9 PLOTTED: 01 Oct 2014, 9:13am, PDan



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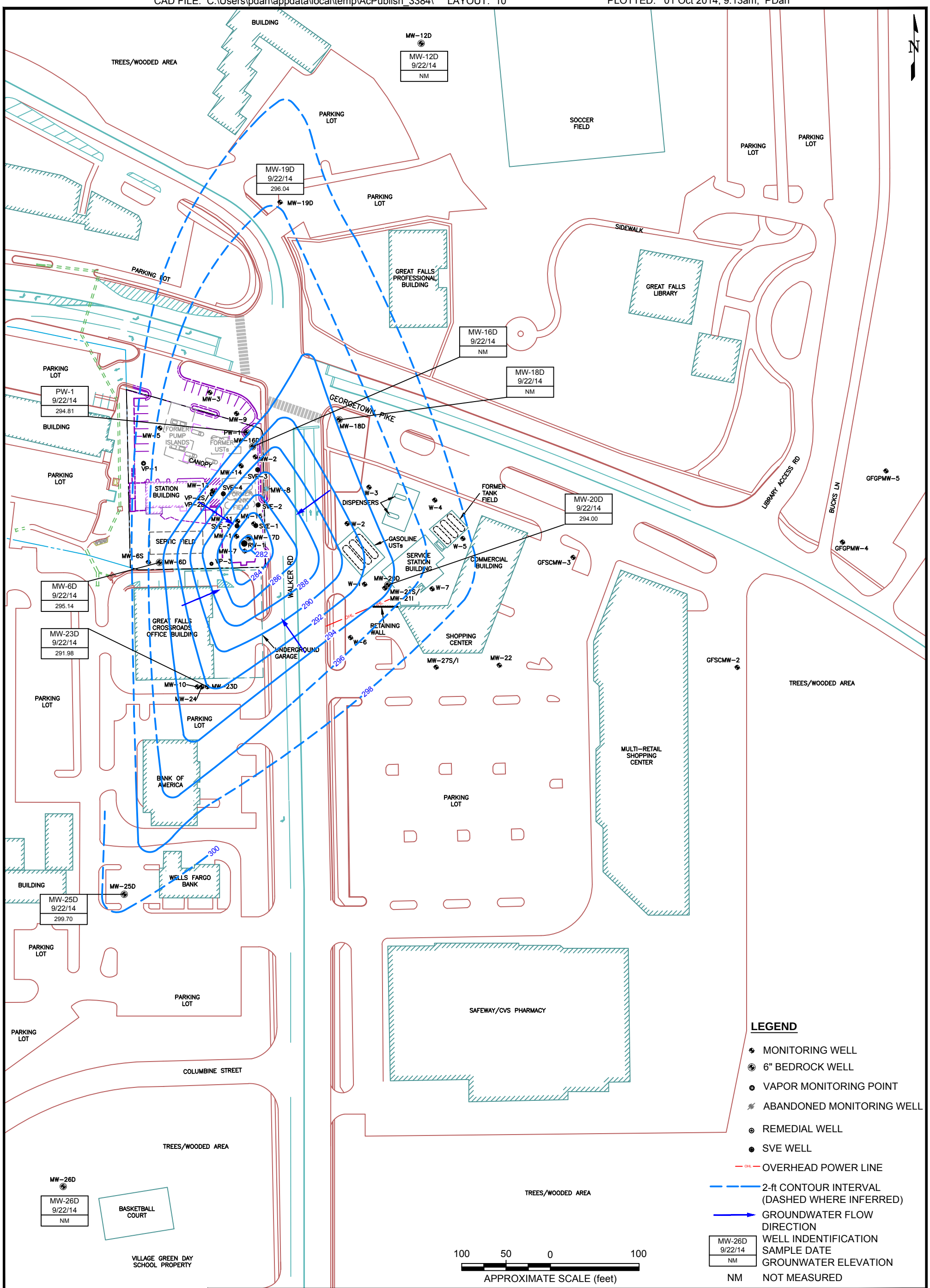
PROJECT NO.	138529
DRAWN:	09/24/14
DRAWN BY:	PD
CHECKED BY:	PW
FILE NAME:	26140_SP_14.dwg

SHALLOW MONITORING WELL POTENTIOMETRIC SURFACE MAP SEPTEMBER 22, 2014

INACTIVE FAIRFAX FACILITY #26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA

FIGURE
9

ATTACHED IMAGES:
ATTACHED XREFS: XRef: X-Exst-S107520: XRef: Eng-B_11x17_P_StyleA
CAD FILE: C:\Users\pdan\appdata\local\temp\AcPublish_3384\ LAYOUT: 10 PLOTTED: 01 Oct 2014, 9:13am, PDan



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PROJECT NO. 138529
DRAWN: 09/24/14
DRAWN BY: PD
CHECKED BY: PW
FILE NAME: 26140_SP_14.dwg

DEEP MONITORING WELL POTENTIOMETRIC SURFACE MAP SEPTEMBER 22, 2014

INACTIVE FAIRFAX FACILITY #26140
9901 GEORGETOWN PIKE
GREAT FALLS, VIRGINIA

FIGURE
10

TABLES

TABLE 1
Monitoring Well Construction Details

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia

Monitoring Well	Installation Date	Well Type	Well Diameter (inch)	Top of Casing Elevation (feet)	Riser / Casing Length (feet)	Screen Length / Open Interval (feet)	Total Borehole Depth (feet below grade)	Screen / Open Interval (feet below grade)	Comments
MW-1	7/20/2009	Monitoring	2	328.99	20	17	37	20-37	
MW-2	7/21/2009	Monitoring	2	332.05	25	15	42	25-40	
MW-3	7/22/2009	Monitoring	2	333.98	25	10	35	25-35	
MW-5	7/22/2009	Monitoring	2	332.35	30	10	42	30-40	
MW-6S	9/11/2009	Monitoring	4	321.85	20	15	35	20-35	
MW-6D	9/11/2009	Deep Monitoring	6	323.09	70	50	120	70-120	Open borehole after 70 feet
MW-7	10/16/2009	Monitoring	2	327.96	15	25	40	15-40	
MW-8	10/8/2009	Monitoring	2	330.54	25	20	45	25-45	Abandoned 9/19/2013
MW-9	10/9/2009	Monitoring	2	333.46	25	20	45	25-45	
MW-10	10/12/2009	Monitoring	2	324.17	10	30	40	10-40	
MW-11	10/14/2009	Monitoring	2	329.64	10	30	40	10-40	
MW-12D	1/11/2011	Deep Monitoring	6	326.43	100	60	160	100-160	Open borehole after 100 feet
MW-13	8/18/2011	Monitoring	4	332.00	25	20	45	25-45	
MW-14	8/18/2011	Monitoring	4	331.81	25	20	45	25-45	
MW-15	8/18/2011	Monitoring	4	328.95	25	20	45	25-45	
MW-16D	11/22/2011	Monitoring	6	332.90	85	25	110	85-110	Open borehole after 85 feet.
MW-17D	4/9/2013	Deep Monitoring	6	328.99	68	82	150	68-150	Converted to CMT on 4/9/2014.

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TABLE 1
Monitoring Well Construction Details

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia

Monitoring Well	Installation Date	Well Type	Well Diameter (inch)	Top of Casing Elevation (feet)	Riser / Casing Length (feet)	Screen Length / Open Interval (feet)	Total Borehole Depth (feet below grade)	Screen / Open Interval (feet below grade)	Comments
MW-17D (CMT-1)	4/9/2014	Discrete Interval Monitoring	0.4	328.84	71	6	150	71-77	The Continuous Multichannel Tubing (CMT) screens are approximately six inches in length. The Screen Length / Open Interval and Screen / Open Interval columns refer to the sand pack installed in the borehole annulus surrounding the CMT port.
MW-17D (CMT-2)	4/9/2014	Discrete Interval Monitoring	0.4	328.84	79	4	150	79-83	
MW-17D (CMT-3)	4/9/2014	Discrete Interval Monitoring	0.4	328.84	86	4	150	86-90	
MW-17D (CMT-4)	4/9/2014	Discrete Interval Monitoring	0.4	328.84	91	2	150	91-93	
MW-17D (CMT-5)	4/9/2014	Discrete Interval Monitoring	0.4	328.84	114	6	150	114-120	
MW-17D (CMT-6)	4/9/2014	Discrete Interval Monitoring	0.4	328.84	126	6	150	126-132	
MW-17D (CMT-7)	4/9/2014	Discrete Interval Monitoring	0.38	328.84	146	4	150	146-150	
MW-18D	11/22/2011	Deep Monitoring	6	334.88	97	58	136	92-150	Open borehole after 92 feet. Borehole blocked by rock at 101 feet during testing on 4/30/13.
MW-19D	3/8/2014	Deep Monitoring	2	341.91	80	20	100	80-100	
MW-20D	4/7/2014	Deep Monitoring	6	329.80	70	72	142	70-142	Open borehole after 70 feet.
MW-21I	4/1/2014	Monitoring	2	329.71	56	10	66	56-66	Part of a nested well pair including MW-21S
MW-21S	4/1/2014	Monitoring	2	329.69	26	20	46	26-46	Part of a nested well pair including MW-21I
MW-22	4/3/2014	Monitoring	2	320.97	20	20	40	20-40	
MW-23D	5/1/2014	Deep Monitoring	2	324.81	90	10	100	90-100	
MW-24	4/3/2014	Monitoring	2	324.49	50	10	60	50-60	
MW-25D	8/17/2014	Deep Monitoring	6	323.92	65	36	101	36-101	Open borehole after 65 feet.
MW-26D	8/21/2014	Deep Monitoring	6	295.13	57	47	104	57-104	Open borehole after 57 feet.
MW-27I	8/21/2014	Monitoring	2	323.35	55	10	65	55-65	Part of a nested well pair including MW-27S

TABLE 1
Monitoring Well Construction Details

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia

Monitoring Well	Installation Date	Well Type	Well Diameter (inch)	Top of Casing Elevation (feet)	Riser / Casing Length (feet)	Screen Length / Open Interval (feet)	Total Borehole Depth (feet below grade)	Screen / Open Interval (feet below grade)	Comments
MW-27S	8/21/2014	Monitoring	2	323.40	20	20	40	20-40	Part of a nested well pair including MW-27I
PW-1	Unknown	Deep Monitoring	6	334.54	55	20	75	55 - 75	Former potable well. Partially abandoned in November 2011. Original well depth was approximately 116 feet.
RW-1	3/13/2014	Recovery	6	328.31	21	70	91	21-91	Total drilled depth was 100 feet; borehole collapsed to 91 feet during the installation of screen and casing.
SVE-1	2/17/2014	Soil Vapor Extraction	4	NSVD	15	20	35	15-35	
SVE-2	2/18/2014	Soil Vapor Extraction	4	329.64	25	20	45	25-45	Designed to serve as a SVE well and monitoring well to replace the abandoned MW-8
SVE-3	2/19/2014	Soil Vapor Extraction	4	NSVD	15	20	35	15-35	
SVE-4	2/19/2014	Soil Vapor Extraction	4	NSVD	15	20	35	15-35	
SVE-5	2/18/2014	Soil Vapor Extraction	4	NSVD	15	20	35	15-35	

Notes:
NSVD - Not Surveyed to Vertical Datum
CMT - Continuous Multichannel Tubing

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Table 2
Soil Analytical Data
Inactive Fairfax Facility # 26140
9901 Georgetown Pike
Great Falls, VA

Monitoring Well	Sample Interval (ft)	Date	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Xylene (total) mg/kg	Methyl Tert Butyl Ether mg/kg	Tert Butyl Alcohol mg/kg	tert-Amyl Methyl Ether mg/kg	Di-Isopropyl Ether mg/kg	ETBE mg/kg	TPH-GRO mg/kg	TPH-DRO mg/kg
MW-1	35	7/21/2009	ND (0.022)	ND (0.012)	ND (0.0074)	ND (0.012)	7.06	NA	NA	NA	NA	5.81 J	ND (12)
MW-2	35	7/21/2009	ND (0.034)	ND (0.018)	ND (0.011)	ND (0.019)	14.2	NA	NA	NA	NA	8.45	ND (13)
MW-3	30	7/22/2009	ND (0.047)	ND (0.025)	ND (0.015)	ND (0.026)	ND (0.023)	NA	NA	NA	NA	ND (7.0)	ND (17)
MW-5	40	7/22/2009	ND (0.030)	ND (0.016)	ND (0.010)	ND (0.017)	ND (0.015)	NA	NA	NA	NA	ND (4.5)	ND (14)
MW-6S	22 - 24	9/11/2009	ND (0.0045)	NS (0.0039)	ND (0.0049)	ND (0.0062)	ND (0.0038)	NA	NA	NA	NA	NA	NA
MW-7	28 - 30	10/6/2009	ND (0.00040)	ND (0.00034)	ND (0.00043)	ND (0.00055)	0.0031	ND (0.017)	ND (0.00050)	ND (0.00025)	ND (0.00082)	NA	NA
MW-8	36 - 38	10/8/2009	ND (0.00049)	ND (0.00042)	ND (0.00053)	ND (000067)	3.00	6.24	0.0134	0.0089	ND (0.001)	NA	NA
MW-9	12 - 14	10/9/2009	ND (0.022)	ND (0.019)	ND (0.024)	ND(0.031)	ND (0.018)	ND (0.940)	ND (0.028)	ND (0.014)	ND (0.046)	NA	NA
MW-10	8 - 10	10/12/2009	ND (0.00042)	ND (0.00036)	ND (0.00046)	ND (0.00058)	ND (0.00035)	ND (0.018)	ND (0.00053)	ND (0.00026)	ND (0.00087)	NA	NA
MW-11	32 - 34	10/14/2009	ND (0.001)	ND (0.0089)	ND (0.0011)	ND (0.0014)	9.60	39	0.0212	0.0017 J	ND (0.0021)	18.4	ND (3.7)
	38 - 40	10/14/2009	ND (0.0056)	ND (0.0048)	ND (0.0061)	ND (0.0078)	1.94	8.77	0.00074 J	0.0024 J	ND (0.0012)	ND (1.6)	ND (3.8)
MW-12	45	1/11/2011	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	NA	NA	NA	NA	ND (1.2)	ND (13)
MW-13	27-29	8/23/2011	ND (0.30)	ND (0.30)	ND (0.30)	ND (0.30)	36	NA	NA	NA	NA	13	NA
MW-14	29-31	8/23/2011	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	7.7	NA	NA	NA	NA	2.3	NA
MW-15	33-35	8/23/2011	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	0.69	NA	NA	NA	NA	ND (0.9)	NA
S-1	10	8/29/2012	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.11)	ND (0.006)	ND (0.006)	ND (0.006)	ND (1.1)	NA
S-2	10	8/29/2012	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.12)	ND (0.006)	ND (0.006)	ND (0.006)	ND (1.2)	NA
S-3	9	8/29/2012	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.007)	0.012	ND (0.14)	ND (0.007)	ND (0.007)	ND (0.007)	ND (1.3)	NA
S-4	10	8/29/2012	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.12)	ND (0.006)	ND (0.006)	ND (0.006)	ND(1.2)	NA
T-1	16	8/29/2012	0.018	0.22	0.019	0.13	0.009	ND (0.12)	ND (0.006)	ND (0.006)	ND (0.006)	2.7	NA
T-2	16	8/29/2012	ND (0.007)	0.059	ND (0.007)	0.074	0.030	0.25	ND (0.007)	0.008	ND (0.007)	ND (1.5)	NA
T-3	16	8/29/2012	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	0.028	0.72	ND (0.006)	ND (0.006)	ND (0.006)	ND (1.3)	NA
T-4	16	8/29/2012	0.013	0.034	ND (0.006)	0.16	0.056	1.4	0.011	ND (0.006)	ND (0.006)	2.2	NA
T-5	16	8/29/2012	ND (0.006)	0.008	ND (0.006)	0.025	0.013	0.63	ND (0.006)	ND (0.006)	ND (0.006)	7.4	NA
T-6	16	8/29/2012	0.016	0.084	0.008	0.11	0.019	0.73	ND (0.006)	ND (0.006)	ND (0.006)	4.5	NA
T-7	16	8/29/2012	0.037	0.04	0.014	0.19	0.028	2.6 E	0.007	ND (0.007)	ND (0.007)	21	NA
T-8	16	8/29/2012	ND (0.28)	ND (0.28)	ND (0.28)	0.51	ND (0.28)	ND (5.6)	ND (0.28)	ND (0.28)	ND (0.28)	34	NA
T-9	16	8/29/2012	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.11)	ND (0.005)	ND (0.005)	ND (0.005)	ND (1.4)	NA
P-1	5	8/29/2012	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND (0.006)	ND(0.12)	ND (0.006)	ND (0.006)	ND (0.006)	ND (1.3)	NA
P-2	4.5	8/29/2012	ND (0.27)	ND (0.27)	0.52	0.39	ND (0.27)	ND (5.4)	ND (0.27)	ND (0.27)	ND (0.27)	59	NA
D-1	4.5	8/29/2012	ND (0.007)	0.013	ND (0.007)	ND (0.007)	ND (0.007)	ND (0.15)	ND (0.007)	ND (0.007)	ND (0.007)	ND (1.0)	NA
D-2	4	8/29/2012	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.10)	ND (0.005)	ND (0.005)	ND (0.005)	ND (1.0)	NA
D-3	4	8/29/2012	0.012	0.079	ND (0.005)	0.009	0.009	ND (0.11)	ND (0.005)	ND (0.005)	ND (0.005)	ND (1.2)	NA
D-4	4.5	8/29/2012	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.11)	ND (0.005)	ND (0.005)	ND (0.005)	ND (1)	NA

NOTES
mg/Kg = Milligrams per Kilogram
ft = Feet
TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics
TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics
J = Indicates an estimated value
NA - Not analyzed
ND (0.006) - Not detected (laboratory reporting limit)
E - Concentration exceeds the calibration range of the instrument

Table 3

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-1	07/24/2009	100.00	30.45	ND	ND	69.55	13.3	<1.0	0.53	24	193000	NA	NA	NA	NA	Screened from 20-37'
	08/18/2009	328.99	NM	NM	NM	NM	ND(200)	ND(200)	ND(200)	ND(200)	138000	NA	NA	NA	NA	
	10/15/2009	328.99	31.88	ND	ND	297.11	ND(200)	ND(200)	ND(200)	ND(200)	139000	47000	4070	ND(1000)	2130	
	06/22/2010	328.99	28.65	ND	ND	300.34	ND(5)	ND(7)	ND(8)	ND(8)	13000	NA	NA	NA	NA	
	09/30/2010	328.99	31.11	ND	ND	297.88	ND(50)	ND(70)	ND(80)	110	240000	NA	NA	NA	NA	
	12/16/2010	328.99	30.93	ND	ND	298.06	ND(100)	ND(140)	ND(160)	ND(160)	220000	NA	NA	NA	NA	
	02/17/2011	328.99	31.46	ND	ND	297.53	ND(250)	ND(350)	ND(400)	ND(400)	190000	NA	NA	NA	NA	
	05/24/2011	328.99	30.24	ND	ND	298.75	ND(50)	ND(70)	ND(80)	ND(80)	140000	NA	NA	NA	NA	
	09/02/2011	328.99	32.92	ND	ND	296.07	ND(50)	ND(70)	ND(80)	ND(80)	160000	NA	NA	NA	NA	
	12/29/2011	328.99	30.99	ND	ND	298.00	ND(50)	ND(70)	ND(80)	ND(80)	160000	NA	NA	NA	NA	
	06/01/2012	328.99	31.47	ND	ND	297.52	ND(50)	ND(70)	ND(80)	ND(80)	140000	NA	NA	NA	NA	
	02/25/2013	328.99	32.84	ND	ND	296.15	ND(250)	ND(250)	ND(250)	ND(250)	120000	15000	3700	ND(250)	1700	
	06/06/2013	328.99	32.14	ND	ND	296.85	ND(50)	ND(70)	ND(80)	ND(80)	150000	NA	NA	NA	NA	
	12/19/2013	328.99	33.06	ND	ND	295.93	ND(250)	ND(250)	ND(250)	ND(250)	84000	6900	2200	ND(250)	1100	
	03/25/2014	328.99	31.04	ND	ND	297.95	ND(500)	ND(500)	ND(500)	ND(500)	71000	ND(8000)	1200	ND(500)	850	
	06/20/2014	328.99	29.43	ND	ND	299.56	ND(20)	ND(20)	ND(20)	ND(20)	20000	ND(400)	490	ND(20)	210	
	09/08/2014	328.99	DRY	DRY	DRY	DRY	NS	NS	NS	NS	NS	NS	NS	NS	NS	Insufficent volume to sample
Mann-Kendall Statistic							0	0	0	-8	-35	-9	-10	0	-10	

Kleinfelder
1340 Charwood Road Suite I, Hanover, MD

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-2	07/24/2009	102.90	33.19	ND	ND	69.71	70.2	8.0	1.0	131	107000	NA	NA	NA	NA	Screened from 25-40'
	08/18/2009	332.05	NM	NM	NM	NM	ND(100)	ND(100)	ND(100)	ND(100)	87100	NA	NA	NA	NA	
	10/15/2009	332.05	34.41	ND	ND	297.64	ND(200)	ND(200)	ND(200)	ND(200)	122000	ND(5000)	6130	ND(1000)	2420	
	07/01/2010	332.05	31.63	ND	ND	300.42	ND(100)	91.3	ND(100)	ND(100)	52400	NA	NA	NA	NA	
	09/30/2010	332.05	32.96	ND	ND	299.09	ND(25)	ND(35)	ND(40)	ND(40)	37000	NA	NA	NA	NA	
	12/16/2010	332.05	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	Well inaccessible
	02/17/2011	332.05	34.15	ND	ND	297.90	ND(100)	ND(140)	ND(160)	ND(160)	140000	NA	NA	NA	NA	
	05/24/2011	332.05	32.92	ND	ND	299.13	ND(25)	ND(35)	ND(40)	ND(40)	54000	NA	NA	NA	NA	
	09/02/2011	332.05	35.53	ND	ND	296.52	ND(50)	ND(70)	ND(80)	ND(80)	160000	NA	NA	NA	NA	
	12/29/2011	332.05	33.64	ND	ND	298.41	ND(25)	ND(35)	ND(40)	ND(40)	49000	NA	NA	NA	NA	
	06/01/2012	332.05	34.16	ND	ND	297.89	ND(50)	ND(70)	ND(80)	ND(80)	100000	NA	NA	NA	NA	
	02/25/2013	332.05	35.47	ND	ND	296.58	ND(250)	ND(250)	ND(250)	ND(250)	71000	4600	1900	ND(250)	1100	
	06/06/2013	332.05	34.91	ND	ND	297.14	ND(3)	ND(4)	ND(4)	ND(4)	3500	NA	NA	NA	NA	
	12/19/2013	332.05	35.50	ND	ND	296.55	ND(130)	ND(130)	ND(130)	ND(130)	19000	6800	710	ND(130)	280	
	03/25/2014	332.05	33.30	ND	ND	298.75	ND(50)	ND(50)	ND(50)	ND(50)	7500	2500	310	ND(50)	110	
	06/20/2014	332.05	31.27	ND	ND	300.78	ND(1)	ND(1)	ND(1)	ND(1)	450	ND(20)	29	ND(1)	7	
	09/10/2014	332.05	33.74	ND	ND	298.31	ND(1)	ND(1)	ND(1)	ND(1)	860	ND(20)	38	ND(1)	15	
Mann-Kendall Statistic							0	-10	0	0	-53	-4	-13	0	-13	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-3	07/24/2009	104.99	33.67	ND	ND	71.32	<0.50	<1.0	<1.0	ND	5.7	NA	NA	NA	NA	Screened from 25-35'
	08/18/2009	333.98	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	10/15/2009	333.98	34.51	ND	ND	299.47	NS	NS	NS	NS	NS	NS	NS	NS	NS	Insufficent volume to sample
	07/01/2010	333.98	32.39	ND	ND	301.59	ND(2)	ND(2)	ND(2)	ND(2)	1.9	NA	NA	NA	NA	
	09/30/2010	333.98	DRY	DRY	DRY	DRY	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	12/16/2010	333.98	DRY	DRY	DRY	DRY	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	02/17/2011	333.98	DRY	DRY	DRY	DRY	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	05/24/2011	333.98	33.63	ND	ND	300.35	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	2 J	NA	NA	NA	NA	
	09/02/2011	333.98	DRY	DRY	DRY	DRY	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	12/29/2011	333.98	DRY	DRY	DRY	DRY	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/01/2012	333.98	34.56	ND	ND	299.42	NS	NS	NS	NS	NS	NS	NS	NS	NS	Insufficient water for sample
	02/25/2013	333.98	DRY	DRY	DRY	DRY	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/06/2013	333.98	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	12/18/2013	333.98	DRY	DRY	DRY	DRY	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	03/24/2014	333.98	34.25	ND	ND	299.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/19/2014	333.98	32.09	ND	ND	301.89	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/04/2014	333.98	34.42	ND	ND	299.56	NS	NS	NS	NS	NS	NS	NS	NS	NS	Insufficent volume to sample
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-5	07/24/2009	103.43	30.72	ND	ND	72.71	<0.50	<1.0	<1.0	ND	1.3	NA	NA	NA	NA	Screened from 30-40'
	08/18/2009	332.35	NM	NM	NM	NM	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.48	NA	NA	NA	NA	
	10/15/2009	332.35	32.51	ND	ND	299.84	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	11.4	ND(25)	0.46	ND(5.0)	ND(5.0)	
	06/22/2010	332.35	29.40	ND	ND	302.95	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	09/30/2010	332.35	32.30	ND	ND	300.05	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1	NA	NA	NA	NA	
	12/16/2010	332.35	32.12	ND	ND	300.23	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	12	NA	NA	NA	NA	
	02/17/2011	332.35	32.31	ND	ND	300.04	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	2 J	NA	NA	NA	NA	
	05/24/2011	332.35	30.84	ND	ND	301.51	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.9 J	NA	NA	NA	NA	
	09/02/2011	332.35	33.39	ND	ND	298.96	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.9 J	NA	NA	NA	NA	
	12/29/2011	332.35	31.36	ND	ND	300.99	ND(0.5)	1 J	ND(0.8)	1 J	7	NA	NA	NA	NA	
	06/01/2012	332.35	31.93	ND	ND	300.42	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.8 J	NA	NA	NA	NA	
	02/25/2013	332.35	33.28	ND	ND	299.07	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	06/06/2013	332.35	32.55	ND	ND	299.80	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	12/18/2013	332.35	33.92	ND	ND	298.43	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	03/24/2014	332.35	31.32	ND	ND	301.03	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/19/2014	332.35	29.30	ND	ND	303.05	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/02/2014	332.35	31.37	ND	ND	300.98	ND(1)	ND(1)	ND(1)	ND(1)	2	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	3	0	3	-19	0	-3	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-6S	09/24/2009	NM	NM	NM	NM	NM	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.8	ND(25)	2.1	ND(5.0)	ND(5.0)	Screened from 20-35'
	10/15/2009	321.85	23.35	ND	ND	298.50	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.8	ND(25)	1.3	ND(5.0)	ND(5.0)	
	06/22/2010	321.85	20.22	ND	ND	301.63	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	2	NA	NA	NA	NA	
	09/30/2010	321.85	23.00	ND	ND	298.85	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.9	NA	NA	NA	NA	
	12/16/2010	321.85	22.82	ND	ND	299.03	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1	NA	NA	NA	NA	
	02/17/2011	321.85	23.02	ND	ND	298.83	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	05/24/2011	321.85	21.66	ND	ND	300.19	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	09/02/2011	321.85	24.04	ND	ND	297.81	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	12/29/2011	321.85	22.15	ND	ND	299.70	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	2 J	NA	NA	NA	NA	
	06/01/2012	321.85	22.72	ND	ND	299.13	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.8 J	NA	NA	NA	NA	
	02/25/2013	321.85	24.03	ND	ND	297.82	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	06/06/2013	321.85	23.49	ND	ND	298.36	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	12/17/2013	321.85	24.63	ND	ND	297.22	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	03/24/2014	321.85	22.19	ND	ND	299.66	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/19/2014	321.85	20.01	ND	ND	301.84	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/03/2014	321.85	22.41	ND	ND	299.44	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	0	0	0	-49	0	-1	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-7	10/15/2009	327.96	31.21	ND	ND	296.75	2.7	ND(10)	ND(10)	ND(10)	10600	2650	232	ND(50)	217	Screened from 15-40'
	06/22/2010	327.96	28.00	ND	ND	299.96	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	87	NA	NA	NA	NA	
	09/30/2010	327.96	30.24	ND	ND	297.72	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	12/16/2010	327.96	30.15	ND	ND	297.81	2	ND(1)	ND(2)	ND(2)	2100	NA	NA	NA	NA	
	02/17/2011	327.96	30.75	ND	ND	297.21	ND(10)	ND(14)	ND(16)	ND(16)	9700	NA	NA	NA	NA	
	05/24/2011	327.96	29.56	ND	ND	298.40	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	130	NA	NA	NA	NA	
	09/02/2011	327.96	32.21	ND	ND	295.75	11 J	ND(14)	ND(16)	ND(16)	16000	NA	NA	NA	NA	
	12/29/2011	327.96	30.24	ND	ND	297.72	ND(1)	ND(1)	ND(2)	ND(2)	1600	NA	NA	NA	NA	
	06/01/2012	327.96	30.74	ND	ND	297.22	ND(5)	ND(7)	ND(8)	ND(8)	6700	NA	NA	NA	NA	
	02/25/2013	327.96	32.23	ND	ND	295.73	ND(250)	ND(250)	ND(250)	ND(250)	61000	14000	1700	ND(250)	940	
	06/06/2013	327.96	31.49	ND	ND	296.47	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	950	NA	NA	NA	NA	
	12/18/2013	327.96	32.79	ND	ND	295.17	ND(250)	ND(250)	ND(250)	ND(250)	140000	29000	3000	ND(250)	1600	
	03/28/2014	327.96	30.35	ND	ND	297.61	ND(1)	ND(1)	ND(1)	ND(1)	430	ND(20)	13	ND(1)	6	
	06/20/2014	327.96	28.19	ND	ND	299.77	ND(1)	ND(1)	ND(1)	ND(1)	72	35	9	ND(1)	ND(1)	
	09/08/2014	327.96	37.53	ND	ND	290.43	NS	NS	NS	NS	NS	NS	NS	NS	NS	Insufficent volume to sample
Mann-Kendall Statistic							-20	0	0	0	5	0	0	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-8	10/15/2009	330.54	34.01	ND	ND	296.53	ND(500)	ND(500)	ND(500)	ND(500)	226000	30800	6250	ND(2500)	3080	Screened from 25-45'
	06/22/2010	330.54	30.91	ND	ND	299.63	ND(5)	ND(7)	ND(8)	ND(8)	15000	NA	NA	NA	NA	
	09/30/2010	330.54	32.97	ND	ND	297.57	11	ND(14)	ND(16)	ND(16)	44000	NA	NA	NA	NA	
	12/16/2010	330.54	32.85	ND	ND	297.69	ND(25)	ND(35)	ND(40)	ND(40)	49000	NA	NA	NA	NA	
	02/17/2011	330.54	33.62	ND	ND	296.92	ND(25)	ND(35)	ND(40)	ND(40)	41000	NA	NA	NA	NA	
	05/24/2011	330.54	32.44	ND	ND	298.10	ND(5)	ND(7)	ND(8)	ND(8)	8400	NA	NA	NA	NA	
	09/02/2011	330.54	35.18	ND	ND	295.36	ND(10)	ND(14)	ND(16)	ND(16)	15000	NA	NA	NA	NA	
	12/29/2011	330.54	33.23	ND	ND	297.31	ND(3)	ND(4)	ND(4)	ND(4)	1800	NA	NA	NA	NA	
	06/01/2012	330.54	33.73	ND	ND	296.81	3 J	ND(1)	ND(2)	4 J	1200	NA	NA	NA	NA	
	02/25/2013	330.54	35.27	ND	ND	295.27	ND(5)	ND(5)	ND(5)	ND(5)	180	280	220	ND(5)	ND(5)	
	06/06/2013	330.54	34.49	ND	ND	296.05	0.7 J	ND(0.7)	ND(0.8)	ND(0.8)	160	NA	NA	NA	NA	
	09/19/2013	330.54	36.01	ND	ND	294.53	ND(5)	ND(5)	ND(5)	ND(5)	170	NA	NA	NA	NA	Abandoned (9/19/2013)
Mann-Kendall Statistic							4	0	0	5	-53	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
SVE-2	03/25/2014	329.69	31.32	ND	ND	298.37	ND(1)	ND(1)	ND(1)	ND(1)	600	76	44	ND(1)	11	Screened from 25-45'
	06/19/2014	329.69	27.45	ND	ND	302.24	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/10/2014	329.69	30.79	ND	ND	298.90	ND(1)	ND(1)	ND(1)	ND(1)	8	ND(20)	3	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-9	10/15/2009	333.46	35.60	ND	ND	297.86	ND(1.0)	0.33	ND(1.0)	0.38	64.7	ND(25)	125	ND(5.0)	2.9	Screened from 25-45'
	06/22/2010	333.46	32.32	ND	ND	301.14	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	22	NA	NA	NA	NA	
	09/30/2010	333.46	34.85	ND	ND	298.61	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	52	NA	NA	NA	NA	
	12/16/2010	333.46	34.73	ND	ND	298.73	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	81	NA	NA	NA	NA	
	02/17/2011	333.46	35.28	ND	ND	298.18	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	48	NA	NA	NA	NA	
	05/24/2011	333.46	34.04	ND	ND	299.42	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	26	NA	NA	NA	NA	
	09/02/2011	333.46	36.86	ND	ND	296.60	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	80	NA	NA	NA	NA	
	12/29/2011	333.46	34.68	ND	ND	298.78	ND(0.5)	2 J	ND(0.8)	1 J	58	NA	NA	NA	NA	
	06/01/2012	333.46	35.17	ND	ND	298.29	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	190	NA	NA	NA	NA	
	02/25/2013	333.46	36.65	ND	ND	296.81	ND(5)	ND(5)	ND(5)	ND(5)	55	ND(80)	17	ND(5)	ND(5)	
	06/06/2013	333.46	35.98	ND	ND	297.48	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	20	NA	NA	NA	NA	
	12/18/2013	333.46	37.33	ND	ND	296.13	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	03/24/2014	333.46	34.67	ND	ND	298.79	ND(5)	ND(5)	ND(5)	ND(5)	12	ND(80)	6	ND(5)	ND(5)	
	06/19/2014	333.46	32.56	ND	ND	300.90	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/08/2014	333.46	35.91	ND	ND	297.55	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Mann-Kendall Statistic							0	-9	0	-9	-22	0	0	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-10	10/15/2009	324.17	28.77	ND	ND	295.40	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	10.3	ND(25)	ND(5.0)	ND(5.0)	ND(5.0)	Screened from 10-40'
	06/22/2010	324.17	25.80	ND	ND	298.37	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	4	NA	NA	NA	NA	
	12/16/2010	324.17	27.72	ND	ND	296.45	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	10	NA	NA	NA	NA	
	02/17/2011	324.17	28.05	ND	ND	296.12	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	7	NA	NA	NA	NA	
	05/24/2011	324.17	27.04	ND	ND	297.13	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	3 J	NA	NA	NA	NA	
	09/02/2011	324.17	29.60	ND	ND	294.57	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	8	NA	NA	NA	NA	
	12/29/2011	324.17	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	Well inaccessible
	06/01/2012	324.17	28.17	ND	ND	296.00	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	4 J	NA	NA	NA	NA	
	02/25/2013	324.17	29.45	ND	ND	294.72	ND(5)	ND(5)	ND(5)	ND(5)	7	ND(80)	ND(5)	ND(5)	ND(5)	
	06/06/2013	324.17	28.87	ND	ND	295.30	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	12/18/2013	324.17	30.04	ND	ND	294.13	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	03/24/2014	324.17	27.24	ND	ND	296.93	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/18/2014	324.17	25.67	ND	ND	298.50	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/03/2014	324.17	28.02	ND	ND	296.15	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	0	0	0	-24	0	0	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-11	10/16/2009	NM	NM	NM	NM	NM	15.3	ND(10)	ND(10)	10.9	38400	23300	1290	ND(50)	464	Screened from 10-40'
	06/22/2010	329.64	29.00	ND	ND	300.64	ND(50)	ND(70)	ND(80)	ND(80)	170000	NA	NA	NA	NA	
	09/30/2010	329.64	31.42	ND	ND	298.22	ND(50)	ND(70)	ND(80)	ND(80)	130000	NA	NA	NA	NA	
	12/16/2010	329.64	31.22	ND	ND	298.42	ND(25)	ND(35)	ND(40)	ND(40)	41000	NA	NA	NA	NA	
	02/17/2011	329.64	31.81	ND	ND	297.83	ND(10)	ND(14)	ND(16)	ND(16)	23000	NA	NA	NA	NA	
	05/24/2011	329.64	30.56	ND	ND	299.08	ND(13)	ND(18)	ND(20)	ND(20)	16000	NA	NA	NA	NA	
	09/02/2011	329.64	33.22	ND	ND	296.42	4 J	ND(4)	ND(4)	ND(4)	7400	NA	NA	NA	NA	
	12/29/2011	329.64	31.29	ND	ND	298.35	ND(10)	ND(14)	ND(16)	ND(16)	9000	NA	NA	NA	NA	
	06/01/2012	329.64	31.77	ND	ND	297.87	7 J	21 J	ND(8)	34 J	4200	NA	NA	NA	NA	
	02/25/2013	329.64	33.03	ND	ND	296.61	ND(10)	ND(10)	ND(10)	ND(10)	1400	180	530	ND(10)	22	
	06/06/2013	329.64	32.46	ND	ND	297.18	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	770	NA	NA	NA	NA	
	12/18/2013	329.64	33.91	ND	ND	295.73	ND(5)	ND(5)	ND(5)	7	140	ND(80)	130	ND(5)	ND(5)	
	03/24/2014	329.64	31.19	ND	ND	298.45	ND(5)	ND(5)	ND(5)	ND(5)	41	ND(80)	25	ND(5)	ND(5)	
	06/20/2014	329.64	28.93	ND	ND	300.71	ND(1)	ND(1)	ND(1)	ND(1)	27	ND(20)	6	ND(1)	ND(1)	
	09/10/2014	329.64	30.90	ND	ND	298.74	ND(1)	ND(1)	ND(1)	ND(1)	26	ND(20)	13	ND(1)	ND(1)	
Mann-Kendall Statistic							-15	2	0	-5	-97	0	0	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-13	09/02/2011	332.00	34.37	ND	ND	297.63	5	ND(0.7)	ND(0.8)	5	6800	NA	NA	NA	NA	Screened from 25-45'
	12/29/2011	332.00	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	Well inaccessible
	06/01/2012	332.00	32.88	ND	ND	299.12	ND(5)	ND(7)	ND(8)	ND(8)	5700	NA	NA	NA	NA	
	02/25/2013	332.00	33.80	ND	ND	298.20	ND(25)	ND(25)	ND(25)	ND(25)	5300	ND(400)	150	ND(25)	80	
	06/06/2013	332.00	33.33	ND	ND	298.67	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1300	NA	NA	NA	NA	
	12/19/2013	332.00	34.43	ND	ND	297.57	ND(5)	ND(5)	ND(5)	ND(5)	1100	ND(80)	43	ND(5)	18	
	03/24/2014	332.00	32.29	ND	ND	299.71	ND(5)	ND(5)	ND(5)	ND(5)	21	ND(80)	ND(5)	ND(5)	ND(5)	
	06/19/2014	332.00	30.07	ND	ND	301.93	ND(1)	ND(1)	ND(1)	ND(1)	3	ND(20)	ND(1)	ND(1)	ND(1)	
	09/10/2014	332.00	32.95	ND	ND	299.05	ND(1)	ND(1)	ND(1)	ND(1)	7	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							-6	0	0	-6	-21	0	0	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-14	09/02/2011	331.81	35.02	ND	ND	296.79	54	ND(4)	ND(4)	55	170000	NA	NA	NA	NA	Screened from 25-45'
	12/29/2011	331.81	33.36	ND	ND	298.45	ND(50)	ND(70)	ND(80)	ND(80)	99000	NA	NA	NA	NA	
	06/01/2012	331.81	33.90	ND	ND	297.91	ND(50)	ND(70)	ND(80)	ND(80)	91000	NA	NA	NA	NA	
	02/25/2013	331.81	35.07	ND	ND	296.74	ND(50)	ND(50)	ND(50)	ND(50)	29000	2500	1100	ND(50)	450	
	06/06/2013	331.81	34.35	ND	ND	297.46	ND(1)	ND(1)	ND(2)	ND(2)	3600	NA	NA	NA	NA	
	12/19/2013	331.81	35.15	ND	ND	296.66	ND(5)	ND(5)	ND(5)	ND(5)	33	ND(80)	11	ND(5)	ND(5)	
	03/24/2014	331.82	32.91	ND	ND	298.91	ND(5)	ND(5)	ND(5)	ND(5)	14	ND(80)	ND(5)	ND(5)	ND(5)	
	06/19/2014	331.82	27.27	ND	ND	304.55	ND(1)	ND(1)	ND(1)	ND(1)	62	ND(20)	14	ND(1)	2	
	09/10/2014	331.82	24.65	ND	ND	307.17	ND(1)	ND(1)	ND(1)	ND(1)	190	ND(20)	5	ND(1)	3	
Mann-Kendall Statistic							-8	0	0	-8	-26	0	0	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-15	09/02/2011	328.95	33.06	ND	ND	295.89	ND(0.5)	ND(0.7)	ND(0.8)	1 J	21000	NA	NA	NA	NA	Screened from 25-45'
	12/29/2011	328.95	31.10	ND	ND	297.85	ND(1)	ND(1)	ND(2)	ND(2)	1100	NA	NA	NA	NA	
	06/01/2012	328.95	31.64	ND	ND	297.31	ND(10)	ND(14)	ND(16)	ND(16)	14000	NA	NA	NA	NA	
	02/25/2013	328.95	33.10	ND	ND	295.85	ND(10)	ND(10)	ND(10)	ND(10)	1800	300	140	ND(10)	28	
	06/06/2013	328.95	32.32	ND	ND	296.63	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	120	NA	NA	NA	NA	
	12/18/2013	328.95	33.86	ND	ND	295.09	ND(10)	ND(10)	ND(10)	14	1700	260	210	ND(10)	27	
	03/25/2014	328.95	30.90	ND	ND	298.05	ND(5)	ND(5)	ND(5)	ND(5)	350	ND(80)	50	ND(5)	5	
	06/20/2014	328.95	28.74	ND	ND	300.21	ND(1)	ND(1)	ND(1)	ND(1)	42	ND(20)	17	ND(1)	ND(1)	
	09/10/2014	328.95	31.49	ND	ND	297.46	ND(1)	ND(1)	ND(1)	1	530	110	150	ND(1)	12	
Mann-Kendall Statistic							0	0	0	2	-20	0	0	0	0	

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1340 Charwood Road Suite I, Hanover, MD

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-21S	04/11/2014	329.69	33.65	ND	ND	296.04	ND(10)	ND(10)	ND(10)	ND(10)	7500	6200	79	ND(10)	78	Screened from 26-46'
	06/18/2014	329.69	31.42	ND	ND	298.27	ND(1)	ND(1)	ND(1)	ND(1)	53	ND(20)	1	ND(1)	ND(1)	
	09/16/2014	329.69	34.26	ND	ND	295.43	ND(1)	ND(1)	ND(1)	ND(1)	130	31	4	ND(1)	1	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-21I	04/11/2014	329.71	33.71	ND	ND	296.00	ND(2)	ND(2)	ND(2)	ND(2)	2500	1700	31	ND(2)	28	Screened from 56-66'
	06/18/2014	329.71	31.52	ND	ND	298.19	ND(1)	ND(1)	ND(1)	ND(1)	1700	910	26	ND(1)	18	
	09/16/2014	329.71	34.35	ND	ND	295.36	ND(1)	ND(1)	ND(1)	ND(1)	2100	1500	29	ND(1)	26	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-22	04/11/2014	320.97	28.55	ND	ND	292.42	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	Screened from 20-40'
	06/18/2014	320.97	25.75	ND	ND	295.22	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/02/2014	320.97	27.48	ND	ND	293.49	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-24	04/11/2014	324.49	27.66	ND	ND	296.83	ND(1)	1	ND(1)	ND(1)	29	ND(20)	1	ND(1)	ND(1)	Screened from 50-60'
	06/18/2014	324.49	26.39	ND	ND	298.10	ND(1)	ND(1)	ND(1)	ND(1)	21	ND(20)	ND(1)	ND(1)	ND(1)	
	09/03/2014	324.49	29.30	ND	ND	295.19	ND(1)	ND(1)	ND(1)	ND(1)	21	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-27S	08/26/2014	323.40	28.42	ND	ND	294.98	ND(1)	ND(1)	ND(1)	ND(1)	1	ND(20)	ND(1)	ND(1)	ND(1)	
	09/02/2014	323.40	28.88	ND	ND	294.52	ND(1)	ND(1)	ND(1)	ND(1)	1	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-27I	08/26/2014	323.35	28.26	ND	ND	295.09	ND(1)	ND(1)	ND(1)	ND(1)	1	ND(20)	ND(1)	ND(1)	ND(1)	
	09/02/2014	323.35	27.69	ND	ND	295.66	ND(1)	ND(1)	ND(1)	ND(1)	1	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
W-1	01/18/2003	328.53	33.83	ND	ND	294.70	ND(5)	ND(5)	ND(5)	ND(10)	13000	9100	81	ND(5)	240	Screened from 10-40'
	08/05/2008	328.53	34.81	ND	ND	293.72	9.6	ND(5.0)	ND(5.0)	ND(5.0)	5200	NA	NA	NA	NA	
	06/07/2013	328.53	34.52	ND	ND	294.01	ND(10)	ND(14)	ND(16)	ND(16)	26000	NA	NA	NA	NA	
	12/19/2013	328.53	36.11	ND	ND	292.42	ND(100)	ND(100)	ND(100)	ND(100)	13000	6900	150	ND(100)	130	
	03/25/2014	328.53	33.50	ND	ND	295.03	ND(25)	ND(25)	ND(25)	ND(25)	16000	15000	170	ND(25)	170	
	06/19/2014	328.53	29.91	ND	ND	298.62	ND(50)	ND(50)	ND(50)	ND(50)	15000	13000	130	ND(50)	140	
	09/03/2014	328.53	31.77	ND	ND	296.76	ND(20)	ND(20)	ND(20)	ND(20)	13000	8900	95	ND(20)	100	
Mann-Kendall Statistic							-4	0	0	0	2	1	3	0	-1	

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Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
W-2	01/18/2003	329.47	34.56	ND	ND	294.91	ND(5)	ND(5)	ND(5)	ND(10)	100	ND(100)	ND(5)	ND(5)	ND(5)	Screened from 10-40'
	08/05/2008	329.47	35.53	ND	ND	293.94	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	320	NA	NA	NA	NA	
	06/07/2013	329.47	35.30	ND	ND	294.17	ND(5)	ND(7)	ND(8)	ND(8)	14000	NA	NA	NA	NA	
	12/19/2013	329.47	36.82	ND	ND	292.65	ND(50)	ND(50)	ND(50)	ND(50)	7700	ND(800)	130	ND(50)	74	
	03/25/2014	329.47	34.26	ND	ND	295.21	ND(100)	ND(100)	ND(100)	ND(100)	7000	ND(1600)	130	ND(100)	ND(100)	
	06/19/2014	329.47	30.74	ND	ND	298.73	ND(10)	ND(10)	ND(10)	ND(10)	5000	ND(200)	39	ND(10)	38	
	09/03/2014	329.47	32.64	ND	ND	296.83	ND(10)	ND(10)	ND(10)	ND(10)	3900	ND(200)	21	ND(10)	27	
Mann-Kendall Statistic							0	0	0	0	1	0	2	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
W-3	01/18/2003	330.14	35.88	ND	ND	294.26	ND(5)	ND(5)	ND(5)	ND(10)	ND(5)	ND(100)	ND(5)	ND(5)	ND(5)	Screened from 10-45'
	08/05/2008	330.14	35.92	ND	ND	294.22	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	22	NA	NA	NA	NA	
	06/07/2013	330.14	35.84	ND	ND	294.30	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	2 J	NA	NA	NA	NA	
	12/18/2013	330.14	37.22	ND	ND	292.92	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	03/24/2014	330.14	34.57	ND	ND	295.57	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/19/2014	330.14	31.08	ND	ND	299.06	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/03/2014	330.14	33.20	ND	ND	296.94	ND(1)	ND(1)	ND(1)	ND(1)	1	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	0	0	0	-1	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
W-4	01/18/2003	327.67	34.12	ND	ND	293.55	71	920	850	8700	55	790	ND(5)	ND(5)	ND(5)	Screened from 10-40'
	08/05/2008	327.67	34.25	ND	ND	293.42	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	22	NA	NA	NA	NA	
	06/07/2013	327.67	34.08	ND	ND	293.59	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	12/18/2013	327.67	35.91	ND	ND	291.76	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	03/24/2014	327.67	33.24	ND	ND	294.43	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/19/2014	327.67	29.62	ND	ND	298.05	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/08/2014	327.67	31.54	ND	ND	296.13	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Mann-Kendall Statistic							-3	-3	-3	-3	-5	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
W-5	08/05/2008	327.81	35.93	ND	ND	291.88	320	3000	3000	16000	ND(5.0)	NA	NA	NA	NA	Interval not available
	06/07/2013	327.81	35.30	ND	ND	292.51	180	96	270	11000	ND(0.5)	NA	NA	NA	NA	
	12/18/2013	327.81	37.46	ND	ND	290.35	290	160	860	6000	ND(13)	ND(200)	ND(13)	ND(13)	ND(13)	
	03/24/2014	327.81	34.75	ND	ND	293.06	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/19/2014	327.81	31.23	ND	ND	296.58	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/08/2014	327.81	31.98	ND	ND	295.83	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
W-6	08/05/2008	325.21	31.63	ND	ND	293.58	ND(5.0)	ND(5.0)	ND(5.0)	18.6	16	NA	NA	NA	NA	Interval not available
	06/07/2013	325.21	31.12	ND	ND	294.09	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	6	NA	NA	NA	NA	
	12/18/2013	325.21	32.12	ND	ND	293.09	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	03/25/2014	325.21	29.37	ND	ND	295.84	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	06/18/2014	325.21	26.56	ND	ND	298.65	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/03/2014	325.21	26.98	ND	ND	298.23	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	0	0	-5	-9	0	0	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
W-7	08/05/2008	329.77	37.35	ND	ND	292.42	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)	16	NA	NA	NA	NA	Interval not available
	06/06/2013	329.77	37.04	ND	ND	292.73	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	12/18/2013	329.77	38.24	ND	ND	291.53	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	03/24/2014	329.77	35.60	ND	ND	294.17	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	06/18/2014	329.77	32.49	ND	ND	297.28	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/03/2014	329.77	34.24	ND	ND	295.53	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	0	0	0	-5	0	0	0	0	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
GFSCMW-2	03/24/2014	316.79	30.18	ND	ND	286.61	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	Interval not available
	06/19/2014	316.79	29.12	ND	ND	287.67	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/04/2014	316.79	27.99	ND	ND	288.80	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
GFSCMW-3	03/24/2014	319.78	29.14	ND	ND	290.64	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	Interval not available
	06/19/2014	319.78	28.42	ND	ND	291.36	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/04/2014	319.78	27.24	ND	ND	292.54	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
GFGPMW-4	03/24/2014	310.10	18.87	ND	ND	291.23	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	Screened from 5.5-20.5'
	06/19/2014	310.10	17.21	ND	ND	292.89	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/04/2014	310.10	18.39	ND	ND	291.71	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
GFGPMW-5	03/24/2014	310.72	DRY	DRY	DRY	DRY	NS	NS	NS	NS	NS	NS	NS	NS	NS	Screened from 5-25'
	06/19/2014	310.72	DRY	DRY	DRY	DRY	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	09/04/2014	310.72	22.31	ND	ND	288.41	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 3 (Continued)

Groundwater Monitoring & Analytical Data – Shallow Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
January 18, 2003 through September 16, 2014

Notes:

µg/L - micrograms per liter (µg/L)
CMT - Continuous Multichannel Tubing
DIPE - Isopropyl ether
ETBE - Ethyl tert-butyl ether
GW - Groundwater
J - Indicates an estimated value
MTBE - Methyl Tertiary Butyl Ether
NA - Not analyzed
ND - Not detected
ND(5.0) - Not detected at or above the laboratory reporting limit, laboratory reporting limit included.
NM - Not monitored
NS - Not sampled
NSVD - Not surveyed to vertical datum
TAME - Tert-Amyl methyl ether
TBA - Tert-Butyl alcohol

Table 4

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-6D(65)	06/22/2010	323.09	26.69	ND	ND	296.40	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1	NA	NA	NA	NA	Open from 70-120'
	09/30/2010	323.09	26.52	ND	ND	296.57	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1	NA	NA	NA	NA	
	12/16/2010	323.09	25.92	ND	ND	297.17	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1	NA	NA	NA	NA	
	02/17/2011	323.09	26.14	ND	ND	296.95	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	05/24/2011	323.09	25.83	ND	ND	297.26	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	09/02/2011	323.09	27.45	ND	ND	295.64	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.9 J	NA	NA	NA	NA	
	12/22/2011	323.09	25.47	ND	ND	297.62	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.8 J	NA	NA	NA	NA	
	06/01/2012	323.09	25.95	ND	ND	297.14	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.8 J	NA	NA	NA	NA	
	02/25/2013	323.09	27.13	ND	ND	295.96	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	06/06/2013	323.09	26.66	ND	ND	296.43	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	12/17/2013	323.09	27.85	ND	ND	295.24	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	03/24/2014	323.09	25.24	ND	ND	297.85	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/18/2014	323.09	23.37	ND	ND	299.72	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/08/2014	323.09	26.15	ND	ND	296.94	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Mann-Kendall Statistic							0	0	0	0	-33	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-6D(75)	09/24/2009	NM	NM	NM	NM	NM	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.0	ND(25)	0.56	ND(5.0)	ND(5.0)	
	10/15/2009	323.09	26.69	ND	ND	296.40	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.8	ND(25)	0.49	ND(5.0)	ND(5.0)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-6D(85)	06/22/2010	323.09	26.69	ND	ND	296.40	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1	NA	NA	NA	NA	
	09/30/2010	323.09	26.51	ND	ND	296.58	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1	NA	NA	NA	NA	
	12/16/2010	323.09	25.92	ND	ND	297.17	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	6	NA	NA	NA	NA	
	02/17/2011	323.09	26.14	ND	ND	296.95	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	05/24/2011	323.09	25.83	ND	ND	297.26	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	09/02/2011	323.09	27.45	ND	ND	295.64	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.9 J	NA	NA	NA	NA	
	12/22/2011	323.09	25.47	ND	ND	297.62	ND(0.5)	1 J	ND(0.8)	ND(0.8)	0.8 J	NA	NA	NA	NA	
	06/01/2012	323.09	25.95	ND	ND	297.14	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.8 J	NA	NA	NA	NA	
	02/25/2013	323.09	27.13	ND	ND	295.96	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	06/06/2013	323.09	26.66	ND	ND	296.43	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	06/18/2014	323.09	23.37	ND	ND	299.72	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	2	0	0	-41	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-6D(105)	06/22/2010	323.09	26.69	ND	ND	296.40	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	2 J	NA	NA	NA	NA	
	09/30/2010	323.09	26.52	ND	ND	296.57	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1	NA	NA	NA	NA	
	12/16/2010	323.09	25.92	ND	ND	297.17	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1	NA	NA	NA	NA	
	02/17/2011	323.09	26.14	ND	ND	296.95	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	05/24/2011	323.09	25.83	ND	ND	297.26	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	1 J	NA	NA	NA	NA	
	09/02/2011	323.09	27.45	ND	ND	295.64	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.9 J	NA	NA	NA	NA	
	12/22/2011	323.09	25.47	ND	ND	297.62	ND(0.5)	1 J	ND(0.8)	ND(0.8)	0.9 J	NA	NA	NA	NA	
	06/01/2012	323.09	25.95	ND	ND	297.14	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	0.9 J	NA	NA	NA	NA	
	02/25/2013	323.09	27.13	ND	ND	295.96	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	06/06/2013	323.09	26.66	ND	ND	296.43	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	06/18/2014	323.09	23.37	ND	ND	299.72	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	2	0	0	-43	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-6D(110)	09/24/2009	NM	NM	NM	NM	NM	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.0	ND(25)	0.57	ND(5.0)	ND(5.0)	
	10/15/2009	323.09	26.69	ND	ND	296.40	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.8	ND(25)	0.50	ND(5.0)	ND(5.0)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-12D(110)	05/24/2011	326.43	28.12	ND	ND	298.31	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	Open from 100-160'
	09/02/2011	326.43	32.37	ND	ND	294.06	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	12/22/2011	326.43	29.63	ND	ND	296.80	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	06/01/2012	326.43	29.75	ND	ND	296.68	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	02/25/2013	326.43	30.86	ND	ND	295.57	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	06/06/2013	326.43	30.59	ND	ND	295.84	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	12/17/2013	326.43	31.51	ND	ND	294.92	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	03/24/2014	326.43	29.33	ND	ND	297.10	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/18/2014	326.43	25.98	ND	ND	300.45	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	0	0	0	0	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-12D(153)	05/24/2011	326.43	28.12	ND	ND	298.31	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	Open from 100-160'
	09/02/2011	326.43	32.37	ND	ND	294.06	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	06/01/2012	326.43	29.75	ND	ND	296.68	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	02/25/2013	326.43	30.86	ND	ND	295.57	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	
	06/06/2013	326.43	30.59	ND	ND	295.84	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	06/18/2014	326.43	25.98	ND	ND	300.45	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	0	0	0	0	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-16D(89)	12/22/2011	332.90	34.88	ND	ND	298.02	ND(3)	ND(4)	ND(4)	ND(4)	2600	NA	NA	NA	NA	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-16D(95)	06/01/2012	332.90	35.33	ND	ND	297.57	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	140	NA	NA	NA	NA	Abandoned to 110' (April 2011)
	02/25/2013	332.90	36.83	ND	ND	296.07	ND(100)	ND(100)	ND(100)	ND(100)	9800	ND(1600)	360	ND(100)	200	Open from 85-110'
	06/06/2013	332.90	36.15	ND	ND	296.75	18 J	ND(7)	ND(8)	ND(8)	11000	NA	NA	NA	NA	
	12/19/2013	332.90	37.13	ND	ND	295.77	ND(130)	ND(130)	ND(130)	ND(130)	19000	2800	770	ND(130)	390	
	03/25/2014	332.90	34.64	ND	ND	298.26	25	ND(25)	ND(25)	ND(25)	14000	2000	520	ND(25)	300	
	06/19/2014	332.90	32.75	ND	ND	300.15	28	ND(20)	ND(20)	ND(20)	13000	1100	660	ND(20)	280	
	09/03/2014	332.90	36.14	ND	ND	296.76	6	ND(5)	ND(5)	ND(5)	3600	450	140	ND(5)	69	
Mann-Kendall Statistic							10	0	0	0	5	1	1	0	1	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-16D(110)	12/22/2011	332.90	34.88	ND	ND	298.02	ND(3)	ND(4)	ND(4)	ND(4)	2600	NA	NA	NA	NA	Abandoned to 110' (April 2011)
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-16D(125)	12/22/2011	332.90	34.88	ND	ND	298.02	ND(3)	ND(4)	ND(4)	ND(4)	2500	NA	NA	NA	NA	Abandoned to 110' (April 2011)
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-17D(75)	04/25/2014	328.84	30.77	ND	ND	298.07	ND(100)	ND(100)	ND(100)	ND(100)	120000	39000	2000	ND(100)	1900	CMT
	06/11/2014	328.84	29.81	ND	ND	299.03	ND(1)	ND(1)	ND(1)	ND(1)	20	ND(20)	2	ND(1)	ND(1)	
	09/02/2014	328.84	31.70	ND	ND	297.14	ND(1)	ND(1)	ND(1)	ND(1)	190	ND(20)	31	ND(1)	2	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-17D(81)	04/25/2014	328.84	28.89	ND	ND	299.95	ND(100)	ND(100)	ND(100)	ND(100)	92000	23000	1700	ND(100)	1400	CMT
	06/11/2014	328.84	30.72	ND	ND	298.12	ND(10)	ND(10)	ND(10)	ND(10)	5000	1800	70	ND(10)	60	
	09/02/2014	328.84	31.13	ND	ND	297.71	ND(1)	ND(1)	ND(1)	ND(1)	10	ND(20)	2	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-17D(87.75)	04/25/2014	328.84	30.93	ND	ND	297.91	ND(50)	ND(50)	ND(50)	ND(50)	40000	11000	700	ND(50)	620	CMT
	06/11/2014	328.84	29.96	ND	ND	298.88	ND(25)	ND(25)	ND(25)	ND(25)	12000	2600	240	ND(25)	170	
	09/02/2014	328.84	31.57	ND	ND	297.27	ND(1)	ND(1)	ND(1)	ND(1)	250	61	6	ND(1)	3	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-17D(92)	04/25/2014	328.84	30.94	ND	ND	297.90	ND(25)	ND(25)	ND(25)	ND(25)	15000	3200	370	ND(25)	270	CMT
	06/10/2014	328.84	29.95	ND	ND	298.89	ND(10)	ND(10)	ND(10)	ND(10)	11000	2200	320	ND(10)	200	
	09/02/2014	328.84	32.84	ND	ND	296.00	ND(10)	ND(10)	ND(10)	ND(10)	11000	3300	200	ND(10)	130	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-17D(117)	04/25/2014	328.84	31.35	ND	ND	297.49	ND(100)	ND(100)	ND(100)	ND(100)	120000	31000	2300	ND(100)	1800	CMT
	06/10/2014	328.84	30.58	ND	ND	298.26	ND(50)	ND(50)	ND(50)	ND(50)	54000	14000	1000	ND(50)	740	
	09/03/2014	328.84	32.99	ND	ND	295.85	ND(50)	ND(50)	ND(50)	ND(50)	23000	5500	450	ND(50)	300	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-17D(129.75)	04/25/2014	328.84	32.77	ND	ND	296.07	ND(100)	ND(100)	ND(100)	ND(100)	120000	30000	2300	ND(100)	1800	CMT
	06/10/2014	328.84	31.59	ND	ND	297.25	ND(50)	ND(50)	ND(50)	ND(50)	49000	17000	830	ND(50)	690	
	09/03/2014	328.84	33.61	ND	ND	295.23	ND(100)	ND(100)	ND(100)	ND(100)	80000	23000	1400	ND(100)	990	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-17D(147)	04/25/2014	328.84	33.41	ND	ND	295.43	ND(100)	ND(100)	ND(100)	ND(100)	98000	30000	2000	ND(100)	1500	CMT
	06/11/2014	328.84	31.96	ND	ND	296.88	ND(100)	ND(100)	ND(100)	ND(100)	82000	22000	1500	ND(100)	1200	
	09/03/2014	328.84	33.92	ND	ND	294.92	6	ND(1)	ND(1)	ND(1)	55000	16000	790	ND(1)	570	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-18D	05/10/2013	334.88	40.57	ND	ND	294.31	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)	ND(80)	ND(5)	ND(5)	ND(5)	Open from 97-136'
	06/06/2013	334.88	40.69	ND	ND	294.19	ND(0.5)	ND(0.7)	ND(0.8)	ND(0.8)	ND(0.5)	NA	NA	NA	NA	
	12/18/2013	334.88	41.60	ND	ND	293.28	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	03/24/2014	334.88	38.94	ND	ND	295.94	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	06/18/2014	334.88	36.04	ND	ND	298.84	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/03/2014	334.88	38.14	ND	ND	296.74	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	0	0	0	0	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-19D	03/28/2014	341.91	43.16	ND	ND	298.75	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	06/20/2014	341.91	41.11	ND	ND	300.80	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/04/2014	341.91	43.36	ND	ND	298.55	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-20D(73-83)	04/11/2014	329.57	NM	NM	NM	NM	ND(1)	ND(1)	ND(1)	ND(1)	72	32	2	ND(1)	ND(1)	
	07/10/2014	329.57	NM	NM	NM	NM	ND(1)	ND(1)	ND(1)	ND(1)	100	28	3	ND(1)	ND(1)	
	08/26/2014	329.57	31.26	ND	ND	298.31	ND(1)	ND(1)	ND(1)	ND(1)	100	34	2	ND(1)	ND(1)	
	09/02/2014	329.57	33.62	ND	ND	295.95	ND(1)	ND(1)	ND(1)	ND(1)	120	27	3	ND(1)	1	
Mann-Kendall Statistic							0	0	0	0	5	-2	2	0	3	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-20D(90-100)	04/11/2014	329.58	NM	NM	NM	NM	ND(1)	ND(1)	ND(1)	ND(1)	55	24	1	ND(1)	ND(1)	
	07/10/2014	329.58	NM	NM	NM	NM	ND(1)	ND(1)	ND(1)	ND(1)	73	21	2	ND(1)	ND(1)	
	08/26/2014	329.58	32.88	ND	ND	296.70	ND(1)	ND(1)	ND(1)	ND(1)	75	26	1	ND(1)	ND(1)	
	09/02/2014	329.58	34.25	ND	ND	295.33	ND(1)	ND(1)	ND(1)	ND(1)	2	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							0	0	0	0	0	-2	-3	0	0	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-20D(110)	04/11/2014	329.80	NM	NM	NM	NM	ND(1)	ND(1)	ND(1)	ND(1)	37	ND(20)	ND(1)	ND(1)	ND(1)	Hydrasleeve
	07/10/2014	329.80	NM	NM	NM	NM	ND(1)	ND(1)	ND(1)	ND(1)	43	ND(20)	1	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
MW-20D(132-142)	04/11/2014	329.56	NM	NM	NM	NM	ND(1)	ND(1)	ND(1)	ND(1)	32	ND(20)	ND(1)	ND(1)	ND(1)	
	07/10/2014	329.56	NM	NM	NM	NM	ND(1)	ND(1)	ND(1)	ND(1)	55	ND(20)	1	ND(1)	ND(1)	
	08/26/2014	329.56	33.85	ND	ND	295.71	ND(1)	ND(1)	ND(1)	ND(1)	130	42	2	ND(1)	1	
	09/02/2014	329.56	34.36	ND	ND	295.20	ND(1)	ND(1)	ND(1)	ND(1)	100	38	3	ND(1)	ND(1)	
Mann-Kendall Statistic							0	0	0	0	4	3	6	0	1	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-23D	05/19/2014	324.81	27.72	ND	ND	297.09	ND(10)	ND(10)	ND(10)	ND(10)	8000	1800	260	ND(10)	120	Screened from 90-100'
	06/10/2014	324.81	27.34	ND	ND	297.47	ND(20)	ND(20)	ND(20)	ND(20)	11000	2200	340	ND(20)	180	
	06/19/2014	324.81	27.19	ND	ND	297.62	ND(10)	ND(10)	ND(10)	ND(10)	5100	ND(200)	130	ND(10)	57	
	08/20/2014	324.81	28.42	ND	ND	296.39	ND(10)	ND(10)	ND(10)	ND(10)	10000	2100	270	ND(10)	140	
	09/03/2014	324.81	29.86	ND	ND	294.95	ND(20)	ND(20)	ND(20)	ND(20)	9300	1700	280	ND(20)	130	
	09/22/2014	324.81	32.83	ND	ND	291.98	ND(5)	ND(5)	ND(5)	ND(5)	4600	950	NA	NA	NA	
Mann-Kendall Statistic							0	0	0	0	-5	-5	2	0	0	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-25D(76)	08/20/2014	323.92	22.06	ND	ND	301.86	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	Open from 65-101'
	09/02/2014	317.18	22.63	ND	ND	294.55	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-25D(90)	08/20/2014	323.92	22.06	ND	ND	301.86	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/02/2014	317.18	22.63	ND	ND	294.55	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-25D(98)	08/20/2014	323.92	22.06	ND	ND	301.86	ND(1)	1	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/02/2014	317.18	22.63	ND	ND	294.55	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-26D(67)	08/26/2014	295.13	2.63	ND	ND	292.50	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	Open from 57-104'
	09/02/2014	295.13	2.68	ND	ND	292.45	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-26D(78)	08/26/2014	295.13	2.63	ND	ND	292.50	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/02/2014	295.13	2.68	ND	ND	292.45	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
MW-26D(89)	08/26/2014	295.13	2.63	ND	ND	292.50	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
	09/02/2014	295.13	2.68	ND	ND	292.45	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Depth to Hydro-carbon (feet)	Hydro-carbon Thickness (feet)	Corrected GW Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Comments
PW-1(65)	08/17/2009	334.54	NM	NM	NM	NM	0.76	ND(0.50)	ND(0.50)	0.46 J	1320	80.9	148	ND(0.50)	36.8	Abandoned to 75' (Nov 2011)
	10/16/2009	334.54	NM	NM	NM	NM	8	ND	ND	8.4	2520	NA	NA	NA	NA	Open from 55-75'
	06/22/2010	334.54	34.47	ND	ND	300.07	8	ND(0.7)	ND(0.8)	7	1600	NA	NA	NA	NA	
	09/30/2010	334.54	36.84	ND	ND	297.70	9	ND(0.7)	ND(0.8)	5	1600	NA	NA	NA	NA	
	12/16/2010	334.54	36.51	ND	ND	298.03	6	ND(1)	ND(2)	5	1700	NA	NA	NA	NA	
	05/24/2011	334.54	35.87	ND	ND	298.67	8 J	ND(4)	ND(4)	4 J	2100	NA	NA	NA	NA	
	09/02/2011	334.54	38.61	ND	ND	295.93	6	ND(0.7)	ND(0.8)	3 J	1800	NA	NA	NA	NA	Abandoned to 75' (Nov 2011)
	12/22/2011	334.54	36.37	ND	ND	298.17	4 J	ND(4)	ND(4)	ND(4)	1300	NA	NA	NA	NA	
	06/01/2012	334.54	36.82	ND	ND	297.72	3 J	ND(1)	ND(2)	ND(2)	860	NA	NA	NA	NA	
	02/25/2013	334.54	38.28	ND	ND	296.26	ND(5)	ND(5)	ND(5)	ND(5)	800	110	140	ND(5)	51	
	06/06/2013	334.54	37.41	ND	ND	297.13	3 J	ND(0.7)	ND(0.8)	ND(0.8)	1200	NA	NA	NA	NA	
	12/19/2013	334.54	38.60	ND	ND	295.94	ND(25)	ND(25)	ND(25)	ND(25)	4700	630	280	ND(25)	140	
	03/25/2014	334.54	36.19	ND	ND	298.35	ND(10)	ND(10)	ND(10)	ND(10)	6900	1000	290	ND(10)	180	
	06/19/2014	334.54	34.23	ND	ND	300.31	ND(5)	ND(5)	ND(5)	ND(5)	3300	420	170	ND(5)	76	
	09/10/2014	334.54	36.96	ND	ND	297.58	ND(10)	ND(10)	ND(10)	ND(10)	4600	370	210	ND(10)	120	
Mann-Kendall Statistic							-64	0	0	-64	20	0	0	0	0	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
PW-1(85)	06/22/2010	334.54	34.47	ND	ND	300.07	8	ND(0.7)	ND(0.8)	5	2000	NA	NA	NA	NA	
	09/30/2010	334.54	36.85	ND	ND	297.69	9	ND(0.7)	ND(0.8)	6	1700	NA	NA	NA	NA	
	12/16/2010	334.54	36.51	ND	ND	298.03	8	ND(0.7)	ND(0.8)	6	1900	NA	NA	NA	NA	
	05/24/2011	334.54	35.87	ND	ND	298.67	6 J	ND(1)	ND(2)	3 J	2100	NA	NA	NA	NA	
	09/02/2011	334.54	38.61	ND	ND	295.93	5 J	ND(0.7)	ND(0.8)	2 J	1600	NA	NA	NA	NA	Abandoned to 75' (Nov 2011)
Mann-Kendall Statistic							-7	0	0	-5	-2	N/A	N/A	N/A	N/A	

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Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
PW-1(105)	10/16/2009	334.54	NM	NM	NM	NM	5.8	ND	ND	4.1	1180	NA	NA	NA	NA	
	06/22/2010	334.54	34.47	ND	ND	300.07	5	ND(1)	ND(2)	3	2300	NA	NA	NA	NA	
	09/30/2010	334.54	36.85	ND	ND	297.69	9	ND(0.7)	ND(0.8)	5	1800	NA	NA	NA	NA	
	12/16/2010	334.54	36.51	ND	ND	298.03	8	ND(1)	ND(2)	5	1700	NA	NA	NA	NA	
	05/24/2011	334.54	35.87	ND	ND	298.67	5 J	ND(1)	ND(2)	2 J	1900	NA	NA	NA	NA	
	09/02/2011	334.54	38.61	ND	ND	295.93	3 J	ND(0.7)	ND(0.8)	1 J	1400	NA	NA	NA	NA	Abandoned to 75' (Nov 2011)
Mann-Kendall Statistic							-6	0	0	-6	-1	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
RW-1	03/24/2014	328.31	30.91	ND	ND	297.40	NS	NS	NS	NS	NS	NS	NS	NS	NS	Screened from 21-91'
	06/19/2014	328.31	28.14	ND	ND	300.17	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	08/20/2014	328.31	30.26	ND	ND	298.05	ND(20)	ND(20)	ND(20)	ND(20)	19000	3800	420	ND(20)	220	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

		Gauging Data					Analytical Data									
Well ID	**Date**	**Top of Casing Elevation (feet)**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Benzene (µg/L)**	**Toluene (µg/L)**	**Ethyl-benzene (µg/L)**	**Total Xylenes (µg/L)**	**MTBE (µg/L)**	**TBA (µg/L)**	**DIPE (µg/L)**	**ETBE (µg/L)**	**TAME (µg/L)**	**Comments**
GFSTPW-1	07/10/2014	NSVD	NM	NM	NM	NM	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(20)	ND(1)	ND(1)	ND(1)	
Mann-Kendall Statistic							N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

Table 4 (Continued)

Groundwater Monitoring & Analytical Data – Deep Wells

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia
August 17, 2009 through September 22, 2014

Notes:

µg/L - micrograms per liter (µg/L)
CMT - Continuous Multichannel Tubing
DIPE - Isopropyl ether
ETBE - Ethyl tert-butyl ether
GW - Groundwater
J - Indicates an estimated value
MTBE - Methyl Tertiary Butyl Ether
NA - Not analyzed
ND - Not detected
ND(5.0) - Not detected at or above the laboratory reporting limit, laboratory reporting limit included.
NM - Not monitored
NS - Not sampled
NSVD - Not surveyed to vertical datum
TAME - Tert-Amyl methyl ether
TBA - Tert-Butyl alcohol

TABLE 5

Monitoring Well Gauging Data Summary - September 2014
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia

September 8 and September 22, 2014

		Gauging Data					
Well ID	**Date**	**Top of Casing Elevation**	**Depth to Water (feet)**	**Depth to Hydro-carbon (feet)**	**Hydro-carbon Thickness (feet)**	**Corrected GW Elevation (feet)**	**Comments**
MW-1	9/8/2014	328.99	DRY	ND	ND	DRY	
MW-2	9/8/2014	332.05	34.52	ND	ND	298.31	
MW-5	9/8/2014	332.35	32.68	ND	ND	300.98	
	9/22/2014	332.35	33.05	ND	ND	299.30	
MW-6S	9/8/2014	321.85	22.79	ND	ND	299.06	
	9/22/2014	321.85	24.25	ND	ND	297.60	
MW-6D	9/8/2014	323.09	26.15	ND	ND	296.94	
	9/22/2014	323.09	27.95	ND	ND	295.14	
MW-7	9/8/2014	327.96	37.53	ND	ND	290.43	
MW-9	9/8/2014	333.46	35.91	ND	ND	297.55	
	9/22/2014	333.46	37.45	ND	ND	296.01	
MW-10	9/8/2014	324.17	29.02	ND	ND	295.15	
	9/22/2014	324.17	30.71	ND	ND	293.46	
MW-13	9/8/2014	332.00	33.47	ND	ND	298.53	
MW-15	9/8/2014	328.95	33.76	ND	ND	295.19	
MW-16D	9/8/2014	332.90	37.10	ND	ND	295.80	
MW-18D	9/8/2014	334.88	38.62	ND	ND	296.26	
MW-19D	9/8/2014	341.91	43.59	ND	ND	298.32	
	9/22/2014	341.91	45.87	ND	ND	296.04	
MW-20D	9/8/2014	329.80	34.81	ND	ND	294.99	
	9/22/2014	329.80	35.80	ND	ND	294.00	
MW-21S	9/8/2014	329.69	33.67	ND	ND	296.02	
	9/22/2014	329.69	34.54	ND	ND	295.15	
MW-21I	9/8/2014	329.71	33.77	ND	ND	295.94	
MW-22	9/8/2014	320.97	27.73	ND	ND	293.24	
	9/22/2014	320.97	28.30	ND	ND	292.67	
MW-23D	9/8/2014	324.81	31.45	ND	ND	293.36	
	9/22/2014	324.81	32.83	ND	ND	291.98	
MW-24	9/8/2014	324.49	30.50	ND	ND	293.99	
MW-25D	9/8/2014	323.92	23.26	ND	ND	300.66	
	9/22/2014	323.92	24.22	ND	ND	299.70	
MW-26D	9/8/2014	295.13	2.60	ND	ND	292.53	
MW-27S	9/8/2014	323.40	29.16	ND	ND	294.24	
MW-27I	9/8/2014	323.35	29.05	ND	ND	294.30	
PW-1	9/8/2014	334.54	38.23	ND	ND	296.31	
W-1	9/8/2014	328.53	32.21	ND	ND	296.32	
W-2	9/8/2014	329.47	33.04	ND	ND	296.43	
W-3	9/8/2014	330.14	33.58	ND	ND	296.56	
	9/22/2014	330.14	34.56	ND	ND	295.58	
W-4	9/8/2014	327.67	31.54	ND	ND	296.13	
W-5	9/8/2014	327.81	31.98	ND	ND	295.83	
W-6	9/8/2014	325.21	28.90	ND	ND	296.31	
	9/22/2014	325.21	29.90	ND	ND	295.31	
W-7	9/8/2014	329.77	34.49	ND	ND	295.28	
	9/22/2014	329.77	35.27	ND	ND	294.50	
PW-1	9/8/2014	334.54	38.23	ND	ND	296.31	
	9/22/2014	334.54	39.73	ND	ND	294.81	
RW-1	9/8/2014	328.31	43.70	ND	ND	284.61	
	9/22/2014	328.31	47.01	ND	ND	281.30	

Notes:
GW - Groundwater
ND - Not detected

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Table 6

Groundwater Natural Attentuation Parameters & Analytical Data
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia

December 17, 2013 through September 10, 2014

	Sample ID	Date	Dissolved Oxygen (mg/L)	ORP (mV)	pH	Specific Conductance (mS/cm)	Nitrate Nitrogen (mg/L)	Nitrite Nitrogen	Ferrous Iron (mg/L)	Sulfate (mg/L)	Methane (mg/L)
			Field Parameter	Field Parameter	Field Parameter	Field Parameter	EPA 353.2	EPA 353.2	SM 3500	EPA 300.0	SW-846 8015B modified
Upgradient	MW-5	12/18/2013	6.89	169.5	4.95	1.376	8.5	NA	ND(0.10)	12.1	ND(0.0050)
		9/2/2014	0.68	107.2	6.12	0.431	6.3	ND(0.050)	ND(0.050)	10.8	ND(0.0050)
	MW-6S	12/17/2013	1.56	121.6	5.53	0.355	5.5	NA	0.64	5.4	ND(0.0050)
		9/3/2014	2.37	121.3	6.68	0.627	NA	NA	NA	NA	NA
Source Area	MW-1	12/19/2013	1.32	209.2	4.95	0.355	13.8	NA	0.35	ND(5.0)	ND(0.0050)
		3/25/2014	0.91	-123.2	11.56	0.425	NA	NA	NA	NA	NA
		6/20/2014	0.56	219.8	4.59	0.692	NA	NA	NA	NA	NA
	MW-11	12/18/2013	4.27	162.6	4.86	0.587	2.4	NA	0.17	ND(5.0)	0.0086
		3/24/2014	2.09	-117.6	10.09	0.806	NA	NA	NA	NA	NA
		6/20/2014	2.71	-86.4	10.62	0.729	NA	NA	NA	NA	NA
		9/10/2014	0.66	85.2	6.80	0.304	NA	NA	NA	NA	NA
	MW-14	12/19/2013	3.53	192.3	5.29	0.877	5.7	NA	0.43	ND(5.0)	ND(0.0050)
		3/24/2014	3.59	-106.4	9.75	0.809	NA	NA	NA	NA	NA
		6/19/2014	3.81	-114.8	8.47	0.832	NA	NA	NA	NA	NA
		9/10/2014	7.08	-84.2	6.12	0.340	6.1	ND(0.050)	0.11	16.2	ND(0.0050)
	MW-16D	12/19/2013	0.34	-67.6	6.52	0.521	0.46	NA	60.4	ND(5.0)	0.130
		9/3/2014	NA	NA	NA	NA	7.4	NA	61.3	ND(5.0)	0.011
	MW-16D (95)	3/25/2014	0.26	-112.3	11.56	0.858	NA	NA	NA	NA	NA
		6/19/2014	0.37	-71.7	6.38	0.894	NA	NA	NA	NA	NA
Downgradient	W-1	12/19/2013	0.57	206.7	5.30	1.178	6.6	NA	0.21	7.4	ND(0.0050)
		3/25/2014	0.72	197.3	5.35	1.011	NA	NA	NA	NA	NA
		6/19/2014	0.72	219.6	5.12	0.932	NA	NA	NA	NA	NA
		9/3/2014	0.84	-64.1	5.18	1.261	6.0	NA	0.16	9.7	ND(0.0050)
	W-2	12/19/2013	3.64	135.4	5.68	0.452	1.3	NA	1.5	40.6	ND(0.0050)
		3/25/2014	2.98	144.8	5.75	0.473	NA	NA	NA	NA	NA
		6/19/2014	2.85	197.8	6.13	0.420	NA	NA	NA	NA	NA
		9/3/2014	1.34	-85.7	5.46	1.042	ND(0.10)	NA	0.099	40.2	ND(0.0050)
	W-7	12/18/2013	0.80	69.6	6.12	0.401	ND(0.10)	NA	1.3	6.2	ND(0.0050)
		3/24/2014	0.99	77.3	6.03	0.392	NA	NA	NA	NA	NA
		6/18/2014	1.43	60.2	6.08	0.384	NA	NA	NA	NA	NA
		9/3/2014	0.59	-167.1	5.69	0.431	0.16	NA	5.0	6.8	0.170
	MW-23D	6/19/2014	1.48	-95.1	8.91	0.694	NA	NA	NA	NA	NA
		9/3/2014	0.72	-195.0	5.77	0.799	11.0	NA	ND(0.050)	ND(5.0)	ND(0.0050)
	MW-24	4/11/2014	6.28	212.6	5.71	0.639	NA	NA	NA	NA	NA
		6/18/2014	6.61	215.2	5.88	0.589	NA	NA	NA	NA	NA
		9/3/2014	5.70	-127.6	4.83	0.553	12.3	NA	0.63	ND(5.0)	ND(0.0050)
	MW-25D (90)	9/2/2014	0.49	-244.4	6.17	0.649	7.9	0.42	10.4	ND(5.0)	ND(0.0050)
	MW-27S	9/2/2014	0.38	-251.3	5.78	0.420	1.2	ND(0.050)	2.6	23.8	ND(0.0050)
Crossgradient	W-3	12/18/2013	8.79	161.3	5.00	0.485	5.9	NA	0.44	ND(5.0)	ND(0.0050)
		9/3/2014	5.32	-107.9	4.42	0.639	7.1	NA	ND(0.050)	ND(5.0)	ND(0.0050)
	W-6	12/18/2013	6.02	159.3	5.12	0.115	0.49	NA	0.17	ND(5.0)	ND(0.0050)
		3/25/2014	5.87	179.6	5.21	0.124	NA	NA	NA	NA	NA
		6/18/2014	5.68	122.6	5.65	0.169	NA	NA	NA	NA	NA
		9/3/2014	4.70	-123.8	4.90	0.146	0.41	NA	1.2	ND(5.0)	ND(0.0050)

Notes:
ND(5.0) - Not Detected at or above the laboratoy reporting limit, laboratory reporting limit included.
mg/L - miligrams per liter
µg/L - micrograms per liter
mV - milivolt
mS/cm - milisiemens per centimeter
NA - Not Analyzed

TABLE 7

Soil Vapor Analytical Data
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia

October 15, 2009 through March 28, 2014

Vapor Monitoring Point ID	Vapor Monitoring Point Depth	Date	Benzene µg/m^3	Toulene µg/m^3	Ethylbenzene µg/m^3	Total Xylenes µg/m^3	MTBE µg/m^3
VP-1	8 Feet	10/15/2009	2.7	9.8	4.3	15	115
		3/28/2014	ND(2.6)	ND(3.0)	ND(3.5)	ND(3.5)	ND(2.9)
VP-2S	8 Feet	10/15/2009	12	4.1	4.1	16	12,300
		3/28/2014	ND(2.6)	ND(3.0)	ND(3.5)	ND(3.5)	ND(2.9)
VP-2D	4 Feet	10/15/2009	984	ND(680)	ND(780)	ND(780)	113,000
		3/28/2014	ND(2.6)	ND(3.0)	ND(3.5)	ND(3.5)	ND(2.9)
VP-3	8 Feet	10/15/2009	5.1	9.4	ND(3.5)	4.1	9.7
		3/28/2014	ND(2.6)	ND(3.0)	ND(3.5)	ND(3.5)	ND(2.9)

NOTES:

µg/m^3 - micrograms per cubic meter

MTBE - Methyl Tertiary Butyl Ether

ND(5.0) - Not detected at or above the laboratory reporting limit, laboratory reporting limit included

TABLE 8

SVE System Monitoring and Performance

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia

July 10, 2014 through September 30, 2014

MONITORING DATA:

Date	SVE System Hour Meter (hr)	Total Hours	Total Days	Total Days Since Previous	Operating Wells	Blower Vacuum (inches Hg)	Effluent Air Velocity (fpm)	Air Flow (cfm)	Blower Effluent PID (ppm)	Hydrocarbon Mass Recovered (TPH >C_4-C_{10}) Beg. Conc. (mg/m^3)	End Conc. (mg/m^3)	Avg. Conc. (mg/m^3)	Recovery Rate (lbs/hr)	Mass Recovered in Period (lbs)	Cumulative Recovery (lbs)
6/17/2014	9,037	0	0.0	0.0	SVE-1 through SVE-5, MW-14	6.5	6,736	229.6	1.3	-	17.5	17.5	0.0	0.0	0.0
6/24/2014	9,201	164	6.8	6.8	SVE-1 through SVE-5, MW-14	7.0	510	17.4	1.1	17.5	17.5	17.5	0.0	0.2	0.2
7/10/2014	9,465	428	17.8	11.0	SVE-1 through SVE-5, MW-14	14.3	8,846	301.5	0.5	17.5	17.5	17.5	0.0	8.5	8.6
7/24/2014	9,474	437	18.2	0.4	SVE-1, SVE-3, SVE-5, MW-14	18.0	915	31.2	0.7	--	--	--	--	--	--
7/31/2014	9,514	478	19.9	1.7	SVE-1, SVE-3, SVE-5, MW-14	19.0	873	29.8	0.0	--	--	--	--	--	--
8/11/2014	9,545	509	21.2	1.3	SVE-1, SVE-3, SVE-5, MW-14	5.0	--	--	--	--	--	--	--	--	--
8/13/2014	9,572	536	22.3	1.1	SVE-1, SVE-3, SVE-5, MW-14	10.0	--	--	--	--	--	--	--	--	--
8/14/2014	9,604	568	23.6	1.3	SVE-1 through SVE-5, MW-14	10.0	624	21.3	0.6	--	--	--	--	--	--
8/27/2014	9,909	872	36.3	12.7	SVE-1 through SVE-5, MW-14	9.0	1,312	44.7	2.0	17.5	17.5	17.5	0.0	2.6	11.2
9/12/2014	10,224	1,188	49.5	13.1	SVE-1 through SVE-5, MW-14	8.0	8,797	299.9	0.0	--	--	--	--	--	--
9/16/2014	10,316	1,279	53.3	3.8	SVE-1 through SVE-5, MW-14	7.5	--	--	0.1	17.5	17.5	17.5	0.0	3.7	15.0
9/22/2014	10,460	1,424	59.3	9.8	SVE-1 through SVE-5, MW-15	9.5	6,100	207.9	0.1	--	--	--	--	--	--
9/30/2014	10,652	1,616	67.3	8.0	SVE-1 through SVE-5, MW-15	10.0	6,600	225.0	0.0	--	--	--	--	--	--

Third Quarter (July 10, 2014 through September 30, 2014)
Vapor Recovery Summary:

Total Days Operating	49.5
Total Days in Period	68
Percent Run Time	73%
Average Flow Rate this Period (cfm)	145.2
Estimated Mass Recovered this Period (lbs)	15.0

Flow (cfm) x (1 lb/453,592.37 mg) x (1 m^3/35.314 ft^3) x TPH mg/m^3 x 60 min/hr = Recovery Rate (lbs/hr)
Recovery Rate (lbs/hr) x (Operating Hours) = Mass Recovered for period (lbs)

TABLE 8

SVE System Monitoring and Performance

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia

July 10, 2014 through September 30, 2014

Vacuum Influence Summary:

		July 24, 2014		August 14, 2014		September 22, 21014	
Well	**Distance from Closest SVE Well (feet)**	**Vacuum ("H20)**	**Normalized Vacuum Influence**	**Vacuum ("H20)**	**Normalized Vacuum Influence**	**Vacuum ("H20)**	**Normalized Vacuum Influence**
SVE-1		271	--	109	--	89	--
SVE-2		OFF	--	122	--	5	--
SVE-3		258	--	122	--	80	--
SVE-4		OFF	--	109	--	20	--
SVE-5		258	--	109	--	85	--
MW-14		271	--	116	--	90	--
MW-1	11.8	81.60	30.9%	38	33.2%	13.0	21.1%
MW-2	14.5	4.40	1.7%	3.0	2.6%	0.7	1.1%
MW-7	29.4	2.20	0.8%	0.2	0.2%	0.5	0.8%
MW-9	59.6	NM	NM	0.1	0.1%	0.1	0.2%
MW-11	5.2	19.50	7.4%	7.5	6.6%	12.0	19.5%
MW-13	12.0	0.46	0.2%	0.5	0.4%	1.5	2.4%
MW-15	3.1	0.19	0.1%	8.0	7.0%	0.5	0.8%

Notes:

Operating days are from the last monitoring event of the previous month to last monitoring event of the current month.

Flow (cfm) x (1 lb/453,592.37 mg) x (1 m^3/35.314 ft^3) x TPH mg/m^3 x 60 min/hr = Recovery Rate (lbs/hr)

Recovery Rate (lbs/hr) x (Operating Hours) = Mass Recovered for period (lbs)

TPH = Total Petroluem Hydrocarbons

MTBE = methyl tert-butyl ether

BTEX = benzene, toluene, ethylbenzene,

fpm = feet per minute

cfm = cubic feet per minute

mg / m^3 = milligrams per cubic meter

lbs / hr = pounds per hour

lbs = pounds

ppm = parts per million

PID = photoionization detector

NM = not measured

NC = not calculated

Hg = mercury

hr = hour

Pipe Diameter for velocity measurements = 2.5 inches.

If TPH is below the laboratory recordable limit, then half of the sum of the detection limit is used in calculating hydrocarbon mass recovery.

"H2O = inches of water column

Vacuum for SVE-1 through SVE-5 and MW-14 and monitoring wells measured at the wellhead.

Normalized Vacuum Influence = Wellhead Vacuum/The average vacuum observed at the operating SVE wellheads * 100%

-- = Not Applicable

TABLE 9

Groundwater Recovery System Monitoring and Performance

Inactive Fairfax Facility #26140
9901 Georgetown Pike,
Great Falls, Virginia

SYSTEM OPERATING DATA:

Date	RW-1 Influent Totalizer Reading (gallons)	RW-1 Runtime (hours)	MW-16D Influent Totalizer Reading (gallons)	MW-16D Runtime (hours)	Effluent Totalizer Reading (gallons)	Gallons Treated during Period	Operating Days during Period	Average Flow (gpm)	Average Flow (gpd)	MTBE Beg. Conc. (µg/L)	MTBE End Conc. (µg/L)	Avg. Influent Total MTBE (µg/L)	MTBE Recovery Rate (lbs/hr)	MTBE Mass Recovered (lbs) during Period	MTBE Cumulative Mass Recovered (lbs)
8/28/2014	84	0	97	0	582	--	0.0	--	--	--	40,000	--	--	--	--
8/28/2014[1]	1,338	3	97	0	NR	NR	0.1	8.35	1,338	40,000	40,000	40,000	0.17	0.45	0.45
8/29/2014[2]	1,338	3	10,869	20	12,884	12,302	0.8	9.06	10,869	4,200	4,200	4,200	0.02	0.38	0.83
8/29/2014	1,361	6	10,869	20	13,599	715	0.1	4.21	6,064	40,000	60,000	50,000	0.11	0.30	1.13
9/2/2014	19,950	97	10,869	20	32,320	18,721	3.8	3.41	4,910	60,000	60,000	60,000	0.10	9.37	10.50
9/3/2014	24,901	111	10,869	20	37,020	4,700	0.6	5.60	8,057	60,000	29,000	44,500	0.12	1.75	12.24
9/4/2014	41,155	143	10,869	20	53,274	16,254	1	8.40	12,096	29,000	33,000	31,000	0.13	4.20	16.45
9/12/2014	106,698	286	10,869	20	118,402	81,382	6	9.49	13,659	33,000	33,000	33,000	0.16	22.41	38.86
9/16/2014	154,200	362	10,869	20	165,065	46,663	3.7	8.74	12,583	33,000	21,000	27,000	0.12	10.51	49.37
9/22/2014	228,617	506	10,869	20	238,365	73,300	6.0	8.48	12,217	21,000	21,000	21,000	0.09	12.84	62.22
9/30/2014	317802	684	10869	20	327,777	89,412	7.4	8.37	12,056	21,000	21,000	21,000	0.09	15.67	77.88

Third Quarter (August 28 through September 30, 2014)

Groundwater Treated/Discharged this Period (gal)	327,195
Total Operating Days	29
Total Days in Period	33
Run Time (%)	89%
Average Flow (gpm)	7.75
Average Flow (gpd)	11,154
Total MTBE Mass Recovered this Period (lbs)	77.88

HYDROCARBON RECOVERY & DISCHARGE CALCULATION:

Mass discharged/recovery rate (lbs/hr) = (conc.)(3.785 L/gal)(1 lb/453600000 µg)(flow rate-gpm)(60 min/hr)
Mass discharged/recovery (lbs) = (conc.)(3.785 L/gal)(1 lb/453600000 µg)(flow rate-gpd)(days operating)

Notes:
gal = gallons
gpm = gallons per minute
gpd = gallons per day
µg/l = micrograms per liter
lbs / hr = pounds per hour
lbs = pounds
MTBE = methyl tertiary butyl ether
If compounds were detected below the laboratory recordable limits, then half of the sum of the detection limits for each compound are used in calculating hydrocarbon mass recovery.
System readings were taken upon departure.
1 - Data representative of RW-1 pumping from 0800 - 1040 on 8/28/14. RW-1 pump turned off and MW-16D pump turned on at 1040 on 8/28/14.
2 - Data representative of MW-16D pumping from 1030 on 8/28/14 - 0630 on 8/29/14. MW-16D pump turned off and RW-1 pump turned on at 0630 on 8/29/14.

Kleinfelder
1340 Charwood Road, Suite I, Hanover, MD

APPENDIX A

DEQ Correspondence

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

January 24, 2014

Ms. Megan Tingley
Fairfax Petroleum Realty, LLC
6820-B Commercial Drive
Springfield, VA 22151

RE: **PC#2010-3028**; Former Great Falls Exxon
9901 Georgetown Pike, Great Falls, Fairfax County 22066
Corrective Action Plan (CAP) received November 22, 2013
CAP Approval, **CAP #505**

Dear Ms. Tingley:

The Northern Virginia Regional Office (NRO) of the Virginia Department of Environmental Quality (DEQ) has completed review of the referenced Corrective Action Plan (CAP) prepared for Fairfax Petroleum Realty, LLC (Fairfax Petroleum) by Kleinfelder. The proposed remediation strategy complies with the Virginia DEQ Storage Tank Program Technical Manual. CAP Tracking Number 505 is issued for the approved corrective action. Approval to begin the proposed corrective action is hereby granted based on Fairfax Petroleum:

1. Installing and beginning operation of a Soil Vapor Extraction (SVE) system at 9901 Georgetown Pike (on the former Great Falls Exxon property) before **March 21, 2014**, subject to the availability of a connection to a permanent local power supply;

2. Monitoring soil vapor during the implementation of the SVE corrective action;

3. Constructing additional groundwater monitoring wells within the shallow (saprolite), intermediate (transition), and the deep (bedrock) zones to further characterize and evaluate the relationship of the groundwater within and between each zone;

4. Installing one monitoring well to the north, two wells to the south, and four wells to the southeast of the former Great Falls Exxon, subject to obtaining the necessary offsite access;

5. Reconstructing at least one of the existing deep bedrock wells to allow different depths to be sampled in a reliable and consistent manner;

6. Completing pump tests in a recovery well to allow final design of a groundwater pump and treat system and to assess the radial influence of such a well;

7. Sampling the groundwater for petroleum contaminants and indicators of natural attenuation in appropriate monitoring wells. If accessible and useable, pre-existing monitoring wells constructed for other pollution complaint cases should be included;

8. Including dissolved phase MTBE concentration maps in each CAP Monitoring Report;

9. Conducting further evaluation of the vapor intrusion pathway if offsite groundwater monitoring indicates that MTBE concentrations under nearby buildings are above the Virginia Voluntary Remediation Program (VRP) Tier III concentration for vapor intrusion from groundwater;

10. Submitting a CAP Addendum and a schedule for Public Notice of the Addendum by **August 1, 2014**. The Addendum will propose remedial endpoints for MTBE in the groundwater that are protective of the private drinking water supply wells in the area. The Addendum will also include the final design of the pump and treat/soil vapor extraction system, or other technology as appropriate, that will achieve those remedial endpoints;

11. Registering for a General Virginia Permit Discharge Elimination System (VPDES) Permit (VPDES Permit for Discharges from Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests) and obtaining an Air Permit (Minor NSR Permit) or an exemption letter for the referenced corrective action;

12. Designing an appropriate vapor barrier for any proposed future construction on the former Great Falls Exxon property.

Fairfax Petroleum shall submit quarterly CAP Monitoring Reports to the NRO no later than 31 days after the end of the quarter, beginning with the quarterly CMR due **January 31, 2014**. Fairfax Petroleum shall submit the CAP Addendum to DEQ no later than **August 1, 2014.**

Please feel free to contact **Alex Wardle**, the case manager for the referenced release, via e-mail at alexander.wardle@deq.virginia.gov or by telephone at (703) 583-3822 if you have any questions.

Respectfully,

Cynthia A. Sale

Cynthia A. Sale
Environmental Manager
Remediation

cc: File
Kleinfelder: MCsteele@kleinfelder.com
GFCA: m.eric.knudsen@gmail.com; gsjoblom@cox.net; what00now@yahoo.com
Fairfax County: John.Foust@fairfaxcounty.gov; benjamin.wiles@fairfaxcounty.gov

enclosures: Responses to Comments on Draft CAP
CAP Approval Memo

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
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Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

August 12, 2014

Ms. Megan Tingley
Fairfax Petroleum Realty LLC
6820-B Commercial Drive
Springfield, VA 22151

RE: **PC#2010-3028**; Former Great Falls Exxon
9901 Georgetown Pike, Great Falls, Fairfax County 22066
Corrective Action Plan extension request dated July 28, 2014
CAP Approval, **CAP #505**

Dear Ms. Tingley:

The Northern Virginia Regional Office of the Virginia Department of Environmental Quality (DEQ) has completed review of the referenced Corrective Action Plan (CAP) Extension Request prepared for Fairfax Petroleum Realty, LLC (Fairfax Petroleum) by Kleinfelder.

DEQ acknowledges the substantial completion of the majority of CAP preparation activities requested in DEQ's CAP approval letter of January 22, 2014, and that the need to further characterize the movement of MTBE in groundwater to the south has required additional tasks to be completed. DEQ therefore approves the CAP extension request to October 3, 2014, but expects that in the interim the following tasks will be completed in accordance with the following schedule:

- The groundwater pump and treat system described in the August 1, 2014 CAP implementation report will be mobilized to the site, installed, tested and made active between August 11th and August 29th, 2014, with the system operational before September 1, 2014;

- Additional bedrock monitoring wells to the south, at the Wells Fargo bank and toward the Village Green Day School, will be completed and sampled by September 2nd, 2014;

- A shallow monitoring well will be installed between W6 and MW-22 and MW20D will be constructed as a nested well by September 1st, 2014

Please feel free to contact me via e-mail at alexander.wardle@deq.virginia.gov or by telephone at (703) 583-3822 if you have any questions concerning this matter.

Sincerely,

Alexander Wardle
Environmental Geologist

cc: File
Kleinfelder: MCsteele@kleinfelder.com
GFCA: m.eric.knudsen@gmail.com; gsjoblom@cox.net; what00now@yahoo.com
Fairfax County: John.Foust@fairfaxcounty.gov; benjamin.wiles@fairfaxcounty.gov

Paxton Wertz

From: Mark Steele
Sent: Friday, August 29, 2014 5:23 PM
To: Wardle, Alexander (DEQ)
Cc: Glen Sjoblom; Amy Stephan; mark eric knudsen; John.Foust@fairfaxcounty.gov; benjamin.wiles@fairfaxcounty.gov; Sale, Cynthia (DEQ); Paxton Wertz; mtingley@capitolpetro.com; Nathan Stevens
Subject: RE: Great Falls CAP extension request approval letter
Attachments: 20103028-capextension request-2014-8-12.pdf; 2010-3028.GCRP.2014-08-29(Village Green).pdf; 2010-3028.GCRP.2014-08-29(Village Center).pdf; VPDES VAG830477 - Operations Notification and MS4 Notice.pdf

Alex – This email is to notify the DEQ that the requirements of the attached August 12th letter for PC #2010-3028 have been satisfied. The off-site monitoring wells on the Village Centre, Village Green Day School, and Great Falls Shopping Center were completed and sampled between August 16 – 26th. The results letters for the bedrock monitoring wells installed south of the site on the Village Centre and Village Green Day School are attached and petroleum related compounds were not detected in the submitted groundwater samples. Confirmation samples will be collected from these two wells the week of September 1st. The sampling results for MW-20D modified and new well between W-6 and MW-22 are pending and will be reported in the CAP Addendum. As per yesterday's notification to the DEQ (attached), the groundwater recovery and treatment system is operational as of August 28th.

Regards,

Mark C. Steele
Senior Program Manager
1340 Charwood Drive, Suite I
Hanover, MD 21076
t| 866.862.9760
o| 410-850-0404 x 0789
m| 443-745-4101
f| 410-850-0049

KLEINFELDER
Bright People. Right Solutions.

From: Wardle, Alexander (DEQ) [mailto:Alexander.Wardle@deq.virginia.gov]
Sent: Tuesday, August 12, 2014 12:48 PM
To: mtingley@capitolpetro.com
Cc: Mark Steele; Glen Sjoblom; Amy Stephan; mark eric knudsen; John.Foust@fairfaxcounty.gov; benjamin.wiles@fairfaxcounty.gov; Sale, Cynthia (DEQ)
Subject: Great Falls CAP extension request approval letter

Do not hesitate to contact me with any questions,

Regards

Alex Wardle, Environmental Geologist

Virginia Department of Environmental Quality

Northern Virginia Regional Office: Remediation

13901 Crown Court, Woodbridge, VA 22193

Ph. 703-583-3822; Fax 703 583 3821

e-mail: Alexander.Wardle@deq.virginia.gov

APPENDIX B

Boring and Well Construction Logs

KLEINFELDER
Bright People. Right Solutions.

1340 Charwood Road
Suite I
Hanover, MD 21076

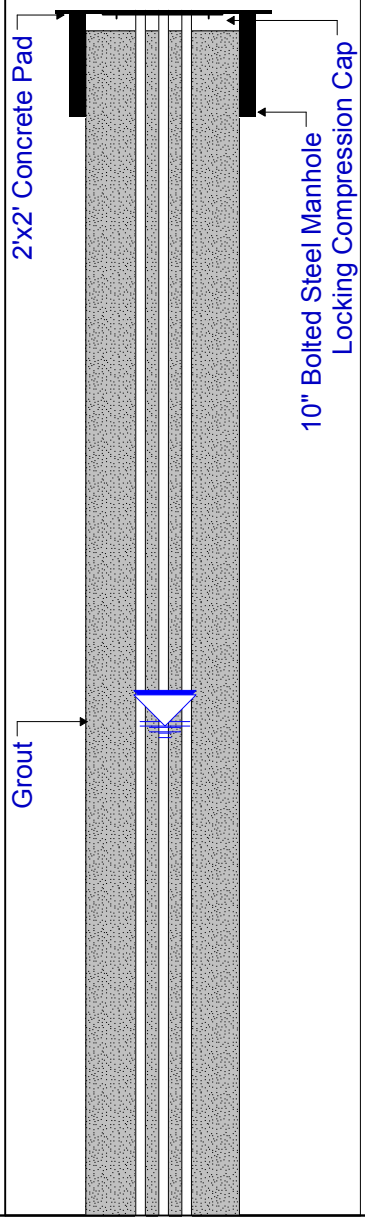
DRILLING LOG
Well No. MW-20D

Project Name: Inactive Fairfax Facility 26140
Site Location: 9901 Georgetown Pike, Great Falls, VA
Kleinfelder Project No: 20143589.001A
Client: Fairfax Petroleum Realty, LLC.
Drilling Company: Allied Well Drilling
Driller: Tim Moyer
Drill Rig Type: Drilltech D25KW
Drilling Method: Air Rotary
Sampling Method: Cuttings

Start Date: 04/01/2014
End Date: 04/07/2014
Total Hole Depth: 142'
Hole Diameter: 10"/6"
Depth to Bedrock: ~63'
Top-Of-Casing Elevation: 329.80'
Water Level (Initial): ~30'
Water Level (Static): 34.23'
Logged By (Geol.): PW

Permit No.: NA
License No.: NA
Checked By: MCS
Notes: Nested wells were installed on 08/20/2014.

SUBSURFACE PROFILE			SAMPLE				Well Completion Details	
Depth (feet)	Graphic Log	USCS Code Soil/Geologic Description	Sample ID	Blows/6"	Penetration / Recovery	VOC (ppm) 0 – 2000		Depth (feet)
0		Ground Surface						0
1		Asphalt				0.0		1
2–3		Red brown, moist, clayey SILT, loose, homogeous, micaceous, fill				0.0		2–3
4–13		Red orange, moist, fine SAND with silt				0.0, 0.1, 0.0		4–13
14–29		Olive yellow, SCHIST, saprolite				0.0, 0.0		14–29
30–49		Yellowish brown, SCHIST, saprolite; Fracture @ 35' bgs				0.1, 1.8		30–49
50–55		Olive, SCHIST, saprolite						50–55



VOC - Volatile Organic Compound
NA - Not Applicable
NS - Not Sampled
NR - Not Recorded
NM - Not Measured
NE - Not Encountered
bgs - below ground surface

USCS - Unified Soil Classification System
WOR - weight of rod
WOH - weight of hammer
ppm - parts per million

1340 Charwood Road
Suite I
Hanover, MD 21076

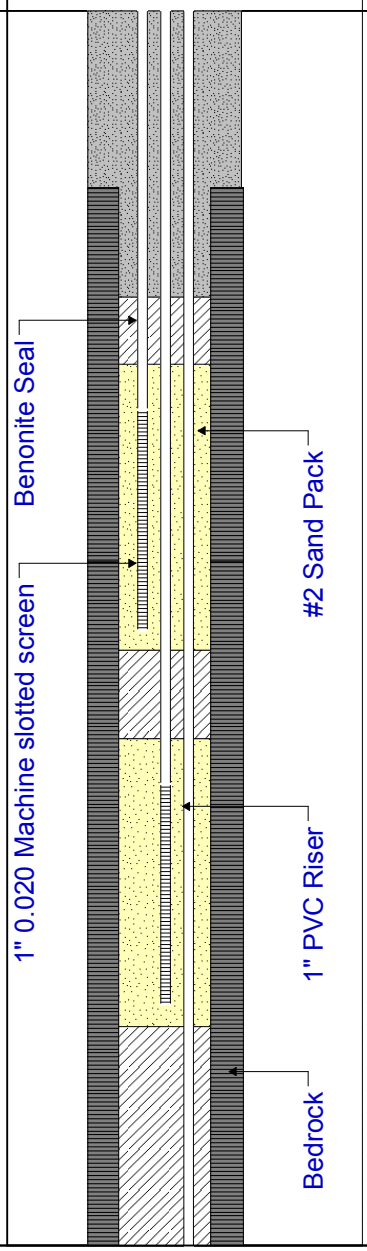
DRILLING LOG
Well No. MW-20D

Project Name: Inactive Fairfax Facility 26140
Site Location: 9901 Georgetown Pike, Great Falls, VA
Kleinfelder Project No: 20143589.001A
Client: Fairfax Petroleum Realty, LLC.
Drilling Company: Allied Well Drilling
Driller: Tim Moyer
Drill Rig Type: Drilltech D25KW
Drilling Method: Air Rotary
Sampling Method: Cuttings

Start Date: 04/01/2014
End Date: 04/07/2014
Total Hole Depth: 142'
Hole Diameter: 10"/6"
Depth to Bedrock: ~63'
Top-Of-Casing Elevation: 329.80'
Water Level (Initial): ~30'
Water Level (Static): 34.23'
Logged By (Geol.): PW

Permit No.: NA
License No.: NA
Checked By: MCS
Notes: Nested wells were installed on 08/20/2014.

SUBSURFACE PROFILE			SAMPLE				Well Completion Details	
Depth (feet)	Graphic Log	USCS Code Soil/Geologic Description	Sample ID	Blows/6"	Penetration / Recovery	VOC (ppm) 0 – 2000		Depth (feet)
56–59								56–59
60						0.4		60
61–62		Light brownish gray, SCHIST, saprolite						61–62
63		Gray, SCHIST						63
64–79							Benonite Seal	64–79
80		Yellowish brown, SCHIST						80
81–90							1" 0.020 Machine slotted screen	81–90
91–103							1" PVC Riser	91–103
104–110							Bedrock	104–110



VOC - Volatile Organic Compound
NA - Not Applicable
NS - Not Sampled
NR - Not Recorded
NM - Not Measured
NE - Not Encountered
bgs - below ground surface

USCS - Unified Soil Classification System
WOR - weight of rod
WOH - weight of hammer
ppm - parts per million

KLEINFELDER
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1340 Charwood Road
Suite I
Hanover, MD 21076

DRILLING LOG
Well No. MW-20D

Project Name: Inactive Fairfax Facility 26140
Site Location: 9901 Georgetown Pike, Great Falls, VA
Kleinfelder Project No: 20143589.001A
Client: Fairfax Petroleum Realty, LLC.
Drilling Company: Allied Well Drilling
Driller: Tim Moyer
Drill Rig Type: Drilltech D25KW
Drilling Method: Air Rotary
Sampling Method: Cuttings

Start Date: 04/01/2014
End Date: 04/07/2014
Total Hole Depth: 142'
Hole Diameter: 10"/6"
Depth to Bedrock: ~63'
Top-Of-Casing Elevation: 329.80'
Water Level (Initial): ~30'
Water Level (Static): 34.23'
Logged By (Geol.): PW

Permit No.: NA
License No.: NA
Checked By: MCS
Notes: Nested wells were installed on 08/20/2014.

SUBSURFACE PROFILE			SAMPLE				Well Completion Details	
Depth (feet)	Graphic Log	USCS Code Soil/Geologic Description	Sample ID	Blows/6"	Penetration / Recovery	VOC (ppm) 0 2000		Depth (feet)
111		Dark gray, SCHIST						111
112								112
113								113
114								114
115								115
116								116
117								117
118								118
119								119
120								120
121								121
122								122
123								123
124								124
125								125
126								126
127								127
128								128
129								129
130								130
131								131
132								132
133								133
134								134
135								135
136								136
137								137
138		Water bearing zone @ 138' bgs						138
139								139
140								140
141								141
142								142
143		End of Borehole						143
144								144
145								145
146								146
147								147
148								148
149								149
150								150
151								151
152								152
153								153
154								154
155								155
156								156
157								157
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161								161
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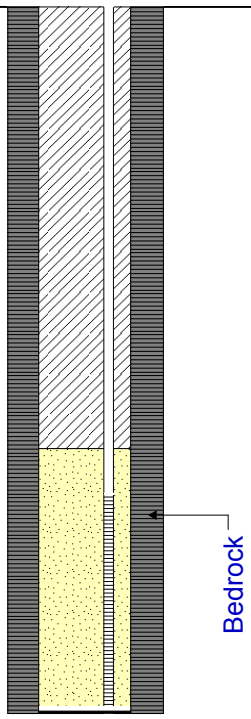
163								163
164								164
165								165



VOC - Volatile Organic Compound
NA - Not Applicable
NS - Not Sampled
NR - Not Recorded
NM - Not Measured
NE - Not Encountered
bgs - below ground surface

USCS - Unified Soil Classification System
WOR - weight of rod
WOH - weight of hammer
ppm - parts per million

KLEINFELDER
Bright People. Right Solutions.

1340 Charwood Road
Suite I
Hanover, MD 21076

DRILLING LOG
Well No. MW-25D

Project Name: Inactive Fairfax Facility 26140
Site Location: 9901 Georgetown Pike, Great Falls, VA
Kleinfelder Project No: 20143589.001A
Client: Fairfax Petroleum Realty, LLC.
Drilling Company: Eichelbergers, Inc.
Driller: C. Brenneman/C. Kurtz
Drill Rig Type: Schramm 450WS
Drilling Method: Air Rotary
Sampling Method: Cuttings

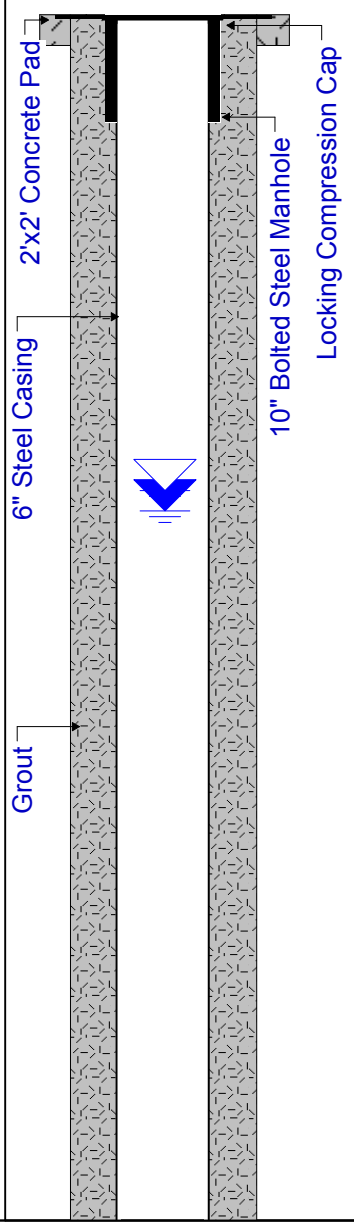
Start Date: 08/16/2014
End Date: 08/17/2014
Total Hole Depth: 101'
Hole Diameter: 10"/6"
Depth to Bedrock: 58'
Top-Of-Casing Elevation: 323.92'
Water Level (Initial): ~23'
Water Level (Static): 22.06'
Logged By (Geol.): PW

Permit No.: NA
License No.: NA
Checked By: MCS
Notes: Cleared to 7.5' bgs

SUBSURFACE PROFILE | **SAMPLE**

Depth (feet)	USCS Code / Soil/Geologic Description	Sample ID	Blows/6"	Penetration / Recovery	VOC (ppm) 0–2000
0	Ground Surface				
1	Asphalt				
2	Fill crushed stone				
3–7	Brown, SILT with gravel				
8–15	Red mottled brown, moist, silty CLAY, medium plasticity				0.0
15–55	Olive yellow, SCHIST, saprolite				
19–20	Fracture at 20-21.5' bgs				0.0
29–30					0.0
39–40					0.0
42–55	Fracture 43.5 - 47.5' bgs				
49–50					0.0

Well Completion Details



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Water Level (Static): 22.06'
Logged By (Geol.): PW

Permit No.: NA
License No.: NA
Checked By: MCS
Notes: Cleared to 7.5' bgs

SUBSURFACE PROFILE			SAMPLE					
Depth (feet)	Graphic Log	USCS Code Soil/Geologic Description	Sample ID	Blows/6"	Penetration / Recovery	VOC (ppm) 0 2000	Well Completion Details	Depth (feet)
58		Light gray, wet, competent SCHIST, saprolite				0.0	6" Steel Casing; Grout	
69						0.0	Bedrock	
76		water producing fracture at 76' bgs						
78		Dark gray, SCHIST				0.0	6" Open Borehole	
89		water producing fracture at 90' bgs				0.0		
97		water producing fracture at 98' bgs						
99						0.0		
101		End of Borehole						

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1340 Charwood Road
Suite I
Hanover, MD 21076

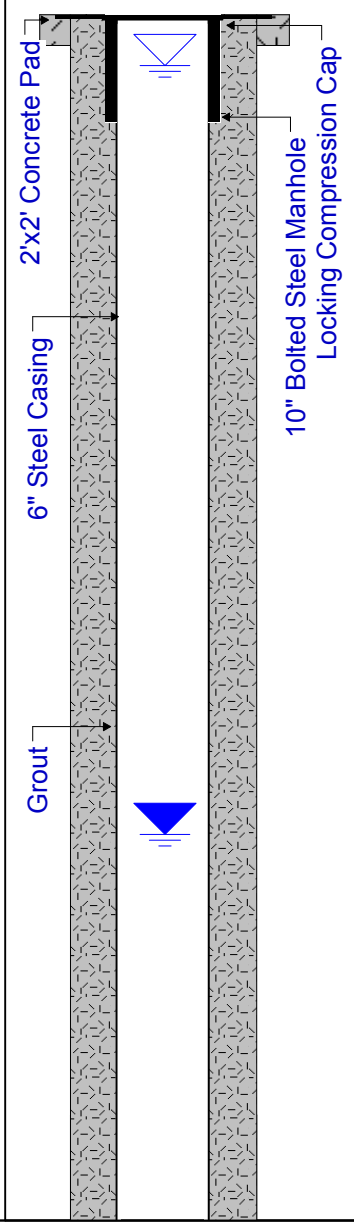
DRILLING LOG
Well No. MW-26D

Project Name: Inactive Fairfax Facility 26140
Site Location: 9901 Georgetown Pike, Great Falls, VA
Kleinfelder Project No: 20143589.001A
Client: Fairfax Petroleum Realty, LLC.
Drilling Company: Allied Well Drilling, Inc.
Driller: J. Hess
Drill Rig Type: Schramm 450GS
Drilling Method: Air Rotary
Sampling Method: Cuttings

Start Date: 08/20/2014
End Date: 08/21/2014
Total Hole Depth: 104'
Hole Diameter: 10"/6"
Depth to Bedrock: 51'
Top-Of-Casing Elevation: 295.13'
Water Level (Initial): ~38'
Water Level (Static): 2.63'
Logged By (Geol.): PW

Permit No.: NA
License No.: NA
Checked By: MCS
Notes:

SUBSURFACE PROFILE			SAMPLE				
Depth (feet)	Graphic Log	USCS Code Soil/Geologic Description	Sample ID	Blows/6"	Penetration / Recovery	VOC (ppm) 0 – 2000	Well Completion Details
0		Ground Surface					
1		Topsoil					
2–8		Brown, moist, silty CLAY, low plasticity, some gravel					
9–51		Olive yellow, SCHIST, saprolite				0.0 (9); 0.0 (19); 0.0 (29); 0.0 (39); 0.0 (49)	
37		water producing fracture at 38' bgs					
41		water producing fracture at 42' bgs					
51–55		Light gray, wet, competent SCHIST					



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DRILLING LOG
Well No. MW-26D

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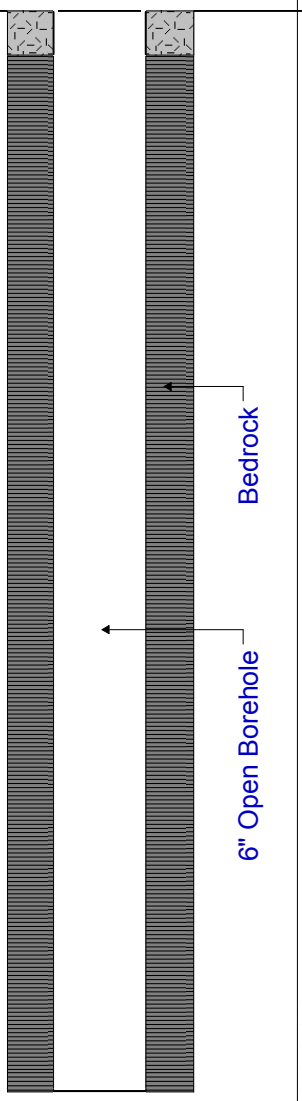
Top-Of-Casing Elevation: 295.13'
Water Level (Initial): ~38'
Water Level (Static): 2.63'
Logged By (Geol.): PW

Permit No.: NA
License No.: NA
Checked By: MCS
Notes:

SUBSURFACE PROFILE			SAMPLE				
Depth (feet)	Graphic Log	USCS Code Soil/Geologic Description	Sample ID	Blows/6"	Penetration / Recovery	VOC (ppm) 0 – 2000	Well Completion Details
56–58		Light gray, dry, competent SCHIST					
59–74		Light gray, wet, competent SCHIST water bearing fracture at 67' bgs				0.0 0.0	
75–77		Yellowish brown, weathered SCHIST water producing fracture at 75-78' bgs					
78–104		Light gray, competent SCHIST fracture at 89' bgs				0.0 0.0 0.0	
105–110		End of Borehole					



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1340 Charwood Road
Suite I
Hanover, MD 21076

DRILLING LOG
Well No. MW-27S/MW-27I

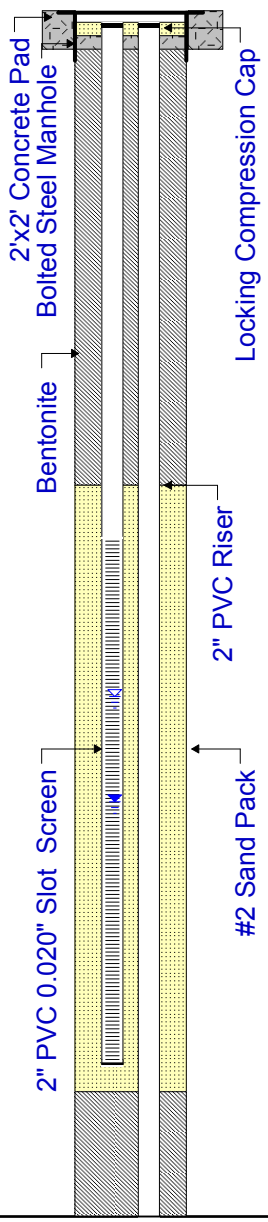
Project Name: Inactive Fairfax Facility 26140
Site Location: 9901 Georgetown Pike, Great Falls, VA
Kleinfelder Project No: 20143589.001A
Client: Fairfax Petroleum Realty, LLC
Drilling Company: Odyssey Environmental Services, Inc.
Driller: JZ
Drill Rig Type: CME-75
Drilling Method: Hollow-stem auger
Sampling Method: Split Spoon

Start Date: 08/20/2014
End Date: 08/21/2014
Total Hole Depth: 65'
Hole Diameter: 6.25"
Depth to Bedrock: 65'
Top-Of-Casing Elevation: S=323.40'/I=323.35'
Water Level (Initial): ~30'
Water Level (Static): 26.01'
Logged By (Geol.): TB

Permit No.: NA
License No.: NA
Checked By: PW
Notes: Cleared to 8' bgs

SUBSURFACE PROFILE | **SAMPLE**

Depth (feet)	USCS Code / Soil/Geologic Description	Sample ID	Blows/6"	Penetration / Recovery	VOC (ppm) 0–2000
0	Ground Surface				
0	Asphalt				
0–7	No sample taken for soil classification				
8	Olive brown, SCHIST, saprolite, black mineralization, highly weathered				0.0
9–17			18-19-20-20	24/24	
18					0.0
19–27			2-5-7-9	24/24	
28	Brown, highly weathered SCHIST, saprolite				0.0
29–45			6-9-9-17	24/24	



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Well No. MW-27S/MW-27I

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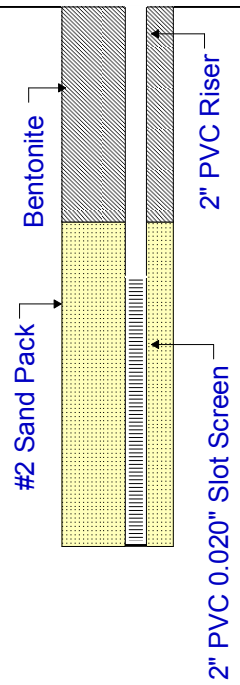
Water Level (Initial): ~30'
Water Level (Static): 26.01'
Logged By (Geol.): TB

Permit No.: NA
License No.: NA
Checked By: PW
Notes: Cleared to 8' bgs

SUBSURFACE PROFILE			SAMPLE				Well Completion Details	
Depth (feet)	Graphic Log	USCS Code Soil/Geologic Description	Sample ID	Blows/6"	Penetration / Recovery	VOC (ppm) 0 2000		Depth (feet)
46–64								46–64
65								65
66		End of Borehole						66
67–90								67–90



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APPENDIX C

Surficial Geophysical Report

Geophysical Survey
Former Exxon Service Station
9901 Georgetown Pike
Great Falls, Virginia

Prepared For:

Kleinfelder

1340 Charwood Road, Suite I
Hanover, Maryland 21076

Prepared By:

Forrest Environmental Services, Inc.
3057 Crosen Court
Oak Hill, Virginia 20171
(703) 648-9090

August 2014

FES Project No. 14168

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A ER Cross-Sections 6 and 7
B MASW Cross-Sections 1 through 5
C SR Cross-Sections 1 through 7

1.0 Introduction

Forrest Environmental Services, Inc. (FES) performed a geophysical survey southof the former Exxon Service Station located on 9901 Georgetown Pike in Great Falls, Virginia on the 31st July 2014, 1st and 12th August 2014. The investigation consisted of an electric resistivity (ER) imaging survey, a Multi-Channel Analysis of Seismic Waves (MASW) survey, and a seismic refraction survey to locate saturated fractures that indicate the major groundwater flow paths for monitor/remedial well installation.

Two electric resistivity lines were conducted south of the former Exxon service station (Figure 1). The ER survey covered approximately 550 linear feet and approximately 3,000 soundings were collected. The electrode spacing (dipole size) was 2 meters (6.6 feet) to 3 meters (10 feet) and used 32 to 35 electrodes for ER lines 1 and 2 for a total distance of 210 feet to 335 feet during collection.

Five MASW lines were conducted south of the former Exxon service station (Figure 1). The MASW survey covered approximately 1,500 linear feet.

Seven seismic refraction lines were conducted south of the former Exxon service station (Figure 1). The SR survey covered approximately 2,100 linear feet.

The geophone spacing was 10 feet and used 24 geophones for the MASW and SR lines 1 through 7. The total distance of MASW and SR lines 1 through 7 was approximately 250 feet during collection.

The site is located the Piedmont physiographic province of Virginia. The site geology includes the Mather Gorge Formation that consists of a quartz-rich schist and mica gneiss.

Topographically, the site slopes to the south. The site consists of grass areas, asphalt parking lot, and driveway. Survey locations and physical features are shown in
Figure 1.

Details of the geophysical survey are described in the following sections.

Photo 1 - MASW/SR Line 3

2.0 Equipment and Procedures

ER

The geophysical survey instrument used during this survey was an earth resistivity meter that maps the resistivity changes in the earth. Resistivity is a fundamental parameter of the material that describes how easily the material can transmit electrical current. High values of resistivity imply that the material is very resistant to the flow of electricity, and low values of resistivity imply that the material transmits electrical current very easily.

The primary factors affecting the resistivity of earth materials are porosity, water saturation, clay content, and ionic strength of the pore water. The minerals making up soil and rock generally do not readily conduct electric current. Most of the current flow takes place through the material's pore water in which the resistivity decreases with increasing porosity and water saturation. Clay minerals are conductive because of the availability of free ions in the sheet structure of the clay particles in which resistivity decreases with increasing clay content. Similarly, higher salinity in groundwater makes the water more conductive to electrical current and resistivity decreases. Hard competent bedrock, such as limestone or granite, generally has a high resistivity in the absence of fracture or other permeable features.

The geophysical survey instrument used during this survey was a Sting R8 earth resistivity meter (Sting) connected to a Swift automatic electrode system (Swift). The Sting measures the electrical resistivity of the earth and the Swift automates the resistivity measurement process using the multi-electrode system.

The Swift was connected to the Sting and SMART electrodes to optimize survey efficiency by gathering maximum information with a minimum of electrodes. Each SMART electrode is numbered by a computer chip located within the electrode. The Swift selects which electrodes to employ as the current and receiver. For example for this ER survey, the first sounding uses electrodes 1 and 2 as the transmitter and electrodes 3 and 4 as the receiver. The next sounding uses electrodes 2 and 3 as the transmitter and electrodes 4 and 5 as the receiver. The Swift also uses redundancies in the data set to reduce the effects of lateral

heterogeneities in the earth and to calculate uncertainties in the data. The survey was conducted automatically using the Sting/Swift dipole-dipole array system.

The earth resistivity meter works by introducing a measured current into the earth through two electrodes; the resultant voltage is then measured across two different electrodes. At the low currents used, the voltage is proportional to the current. The resistivity meter calculates the voltage/current ratio or resistance in ohms. The resistance is then converted to resistivity using an algorithm which is a function of the electrode array configuration. Measured differences in the electrical resistivity of various earth materials are then used to map the geology and character of the soil and rock materials. For example, clays generally have low resistivities and limestones have high resistivities.

A contact resistance test was conducted before the Sting/Swift dipole-dipole survey commenced. The contact resistance test ensures the stake has good contact with the ground. The Sting produces a current between the first two stakes and measures the voltage. The instrument measures the resistance between the first and second stakes and the ground. The contact resistance is also checked for the measurements consistent for all of the 35 electrodes.

The Swift cable resistance checks the voltage difference signal between two electrodes. Four leads of the Swift cable using two electrodes send a current through a 1 ohm resistor in the Swift box. The test is checked before the first ER survey and after the last ER line for each day.

The Swift switch relays test is performed to check the Swift cable is continuous and the relays in the electrodes are working properly. A current is sent through each lead in the Swift cable to make sure the relays are functioning properly and there is no leakage between leads, and to test the relays for sticking. The test is checked before the first ER survey and after the last ER line for each day.

The depth of investigation by Sting is a function of the total distance of the electrode layout was from 240 feet to 335 feet. The Sting has an effective analysis depth of approximately 45 to 60 feet using a 2-meter to 3-meter electrode spacing. This depth is considered sufficient to locate saturated fractures at the former Exxon service station.

MASW

MASW soundings use the travel times of shear sound waves (S-Waves) to determine velocities of subsurface materials. The seismic sounding produces three types of waves that include the compressional wave (P-wave), shear wave (S-wave) and surface waves (Rayleigh waves or ground roll) measuring the arrival travel time from the sound source to the geophone. The frequency versus phase velocity is plotted and the data is inverted into a model of subsurface velocities.

The active method in collection of the MASW survey used a Geometrics Geode Seismograph which collected data from a geophone spread consisting of 24 4 ½ -Hertz geophones at 10 foot intervals. The source was a 12-pound hammer striking an aluminum plate and stacked 6 to 8 times. Sources were placed at each end and at 10 foot centers.

SR

Seismic refraction theory is based upon the physical characteristics of compressional waves as they travel through the subsurface. The velocity of these waves is dependant upon the density of the travel medium.

Seismic refraction measures density, thickness, and depth of geological strata using sound (acoustic) waves transmitted into the subsurface. Sound waves travel at different velocities in various soils and rocks and are refracted at the interface between layers. Geophones receive the vibrations of the sound energy and translate them to electrical signals. The signals are displayed on a seismograph.

Refraction soundings use the travel times of compressional sound waves (P-Waves) to determine depth to bedrock, the thicknesses, and velocities of subsurface materials. Refraction sounding is based on measuring the first-arrival travel time from the sound source to the geophone. The first-arrival time versus distance to the geophone is plotted and the data is inverted into a model of subsurface velocities.

The seismic refraction survey used a 24-channel Geode Seismograph that was connecting to a laptop which collected data from a geophone spread consisting of 24 10-Hertz geophones. The source was a 10-pound hammer striking an aluminum plate and stacked 4 to 6 times at five different positions per array. SR lines 1 through 7 used geophones at 10 foot intervals. Sources were placed at 10 feet from each end at stations 0 feet and 250 feet and three sources at middle of the seismic array at stations 65 feet, 125 feet, and 185 feet.

SR lines 1 and 5 used multiple arrays longer that the geophone layout at the site that consists of two cables consisting of 12 electrodes per cable. The profile lines were measured in the roll-along method such as in a leapfrogging fashion. At first, the two geophone cables are laid out with consecutive numbering (electrodes' 1 through 24). The overlap of the cables was limited because one lane of the road had to be open throughout the survey. After the data is collected, the cable is moved ahead to station 60 was the next shot point. Data were collected at SR Line 1 used two roll-along setups and at SR Line 5 used one roll-along setup.

3.0 Interpretation Methods

ER

The ER data was converted into a resistivity depth model using Rapid 2D resistivity inversion model and the least-squares method (RES2DINV). Soundings from each line were modeled to produce the measured apparent resistivity pseudo-sections. The model calculated the apparent resistivity pseudo-sections using finite-difference forward modeling. The least-squares optimization technique was used for the inversion routine that calculated the modeled resistivity section. The profiles include cross-sections that consist of the inverse model resistivity cross-section. The horizontal and vertical scales are in feet.

The cross-section is the inverse model resistivity pseudo-section. The ER data was converted into a resistivity depth model (RES2DINV) using a resistivity inversion model by the least-squares method and is topographically corrected. The ground surface elevations were determined from interpolating contours from a USGS topographic quadrangle contour map. RES2DINV confirms the model reliability by calculating the modeled data into empirical data or the calculated resistivity pseudo-section. The difference between the measured and calculated data is the root mean square percent error. The modeled calculated mean root square error was approximately 10 rms error which is considered accurate.

Low resistive materials can be caused by certain conductive soils such as clay. High resistive materials are caused generally by bedrock, sand, wood, and air. Low ER values represent the thickening overburden. Lower ER anomalies are generally found at saturated or semi-saturated sinkholes, or fractures in the rock.

Typical resistivities of the overburden (clay) and saturated zones are approximately 50 ohm meters (dark blue). Saprolite resistivities typically range from 50 (blue) to 100 (green) ohm meters. Hard bedrock typically measure greater than 200 ohm meters (yellow).

MASW

In most surface seismic surveys that use a vertical seismic source like a sledge hammer, more than two-thirds of total seismic energy generated is imparted into Rayleigh-type surface

waves, the principal component of ground roll. Assuming vertical velocity variation, each frequency component (f) of the surface waves have different propagation velocity (called phase velocity, C), providing a different wavelength (λ_f) for each frequency propagated. This property is called dispersion. Although ground roll is considered noise on bodywave surveys (i.e., reflection or refraction profiling), its dispersive properties can be utilized to infer near-surface elastic properties. One of the most common ways to use the dispersive properties of surface waves is the construction of a shear (S)-wave velocity (Vs) profile through the analysis of plane-wave, fundamental mode Rayleigh waves.

The entire process classically used to produce a Vs profile involves three steps: acquisition of ground roll, construction of dispersion curve (a plot of phase velocity vs. f), and backcalculation (inversion) of the Vs profile from the calculated dispersion curve. Broadband ground roll must be produced and recorded with minimal noise to allow accurate determination of the Vs profile. A variety of techniques can be used to calculate the dispersion curve. Backcalculation of the Vs profile (inversion of the dispersion curve) is accomplished iteratively, using the measured dispersion curve as a reference for either forward modeling or a least-squares approach). Usually values for Poisson's ratio and density are estimated during this step. Although surface waves can be generated relatively easy and usually take the strongest energy, complications often arise due to inclusion of noise. Signal is defined as planar fundamental mode of Rayleigh wave, whereas everything else as noise. Noise may include random ambient noise (e.g., traffic and machinery noise), source-generated body waves (e.g., direct, refracted, scattered, and reflected compressional waves), and higher-mode surface waves. Effectiveness of a particular surface-wave method, therefore, is evaluated mainly in its capability to handle the noise inclusion during data acquisition and processing stages.

Filters, sampling intervals, etc., were all performed in field. The raw data was reduced and interpreted using SeisImagerSW (Geometrics). SeisimagerSW aids in determining frequency versus phase velocity graph for SR/MASW lines 1 through 5, and determines 2-D Shear wave velocity versus depth graph.

SR

The seismic refraction method is based on three important assumptions:

- Acoustic velocity increases with depth;
- Sufficient acoustic velocity contrast exists between layers to allow differentiation between adjacent strata of interest; and
- The layers have sufficient thickness to permit detection.

Time versus distance plots of the first-arrival sound waves were used to locate depth of bedrock. The inverse of the slope of the time versus distance curves is the velocity of the strata.

Filters, sampling intervals, etc., were all performed in field. The raw data was reduced and interpreted using WinSIP Software (Rimrock Geophysics, Inc.). WinSIP aids in determining "first picks". Rayfract Seismic Refraction Tomography Software (Intelligent Resources, Inc.) was used to calculate arrival times, constructing time vs. distance graphs, and forming seismic cross-sections. The ground surface elevations were determined by interpolating between contours from a USGS topographic quandrangle contour map.

Typical seismic overburden seismic velocities are approximately less than 2,500 feet/second (purple). Weathered or soft rock seismic velocities typically range from 2,500 to 7,000 feet per second (blue). Bedrock velocities typically measure greater than 7,500 feet per second (yellow to red).

4.0 Survey Results and Conclusions

ER

The objective of the ER survey was to determine depth to bedrock and bedrock stratigraphy. ER cross-sections are provided in Appendix A. The horizontal scale is in feet. The vertical scale is in approximate feet above sea level.

ER Line 1 indicates one conductive anomaly centered at approximately 90 feet East about 50 feet below ground surface. The conductive anomaly appears to be a saturated fracture.

ER Line 2 indicates depth to bedrock appears to be about 40 feet below ground surface.

MASW

The objective of the MASW survey was to locate fractures within the bedrock. SR cross-sections are provided in Appendix B. The horizontal scale is in feet. The vertical scale is in approximate feet above sea level.

MASW Line 1 indicates an anomaly centered at 260 East about 100 feet below ground surface. The anomaly appears to be a fracture.

MASW Line 3 indicates an anomaly centered at 220 East about 60 feet below ground surface. The anomaly appears to be a fracture.

MASW Line 4 indicates an anomaly centered at 150 feet East about 80 feet below ground surface. The anomalies appear to be fractures.

MASW Line 5 indicates an anomaly centered at 220 East about 80 feet below ground surface. The anomaly appears to be a fracture.

SR

The objective of the SR survey was to locate fractures within the bedrock. SR cross-sections are provided in Appendix C. The horizontal scale is in feet. The vertical scale is in approximate feet above sea level.

SR Line 1 indicates an anomaly centered at 300 East about 100 feet below ground surface. The anomaly appears to be a fracture.

SR Line 2 indicates an anomaly centered at 45 East about 60 feet below ground surface. The anomaly appears to be a fracture.

SR Line 3 indicates an anomaly centered at 220 East about 60 feet below ground surface. The anomaly appears to be a fracture.

SR Line 4 indicates two anomalies centered at 70 East and 170 feet East about 60 feet below ground surface. The anomalies appear to be fractures.

SR Line 5 indicates an anomaly centered at 170 East about 80 feet below ground surface. The anomaly appears to be a fracture.

SR Line 6 indicates an anomaly centered at 110 East about 60 feet below ground surface. The anomaly appears to be a fracture.

SR Line 7 indicates depth to saprolite about 5 to 10 feet below ground surface.

The geophysical survey indicated six anomalies south of the former Exxon service station. The anomalies appear to be fractures. The geophysical survey indicated one linear mostly north-south fracture south of the former Exxon service station. The linear fracture appears to be 60 to 100 feet below ground surface.

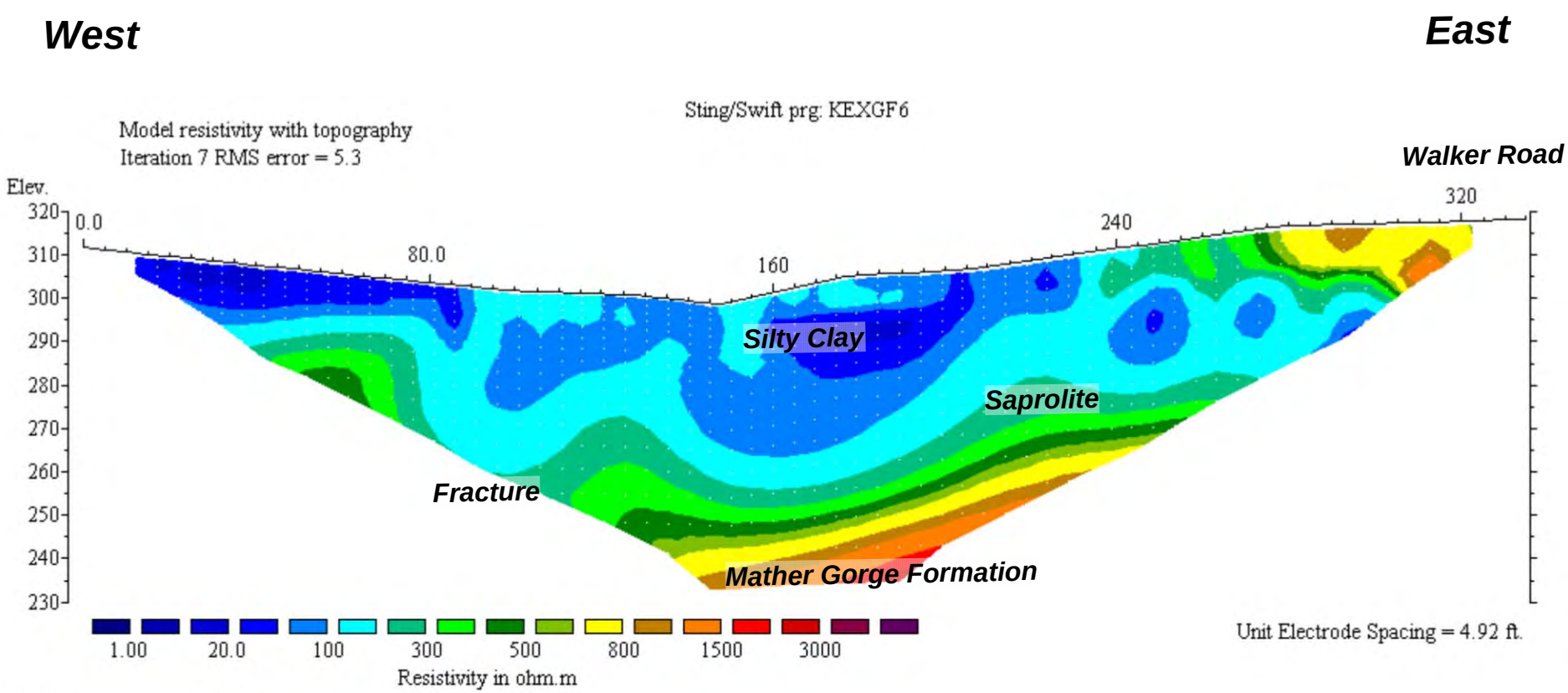
Forrest Environmental Services, Inc.

Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: August 2014	SCALE: 1 inch ~ 200 ft	TITLE: *Geophysical Site Map* *Former Exxon Service Station* *9901 Georgetown Pike* *Great Falls, Virginia*	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901SRF1	CLIENT: Kleinfelder	FIGURE: 1

Appendix A

ER Cross-Sections 1 and 2

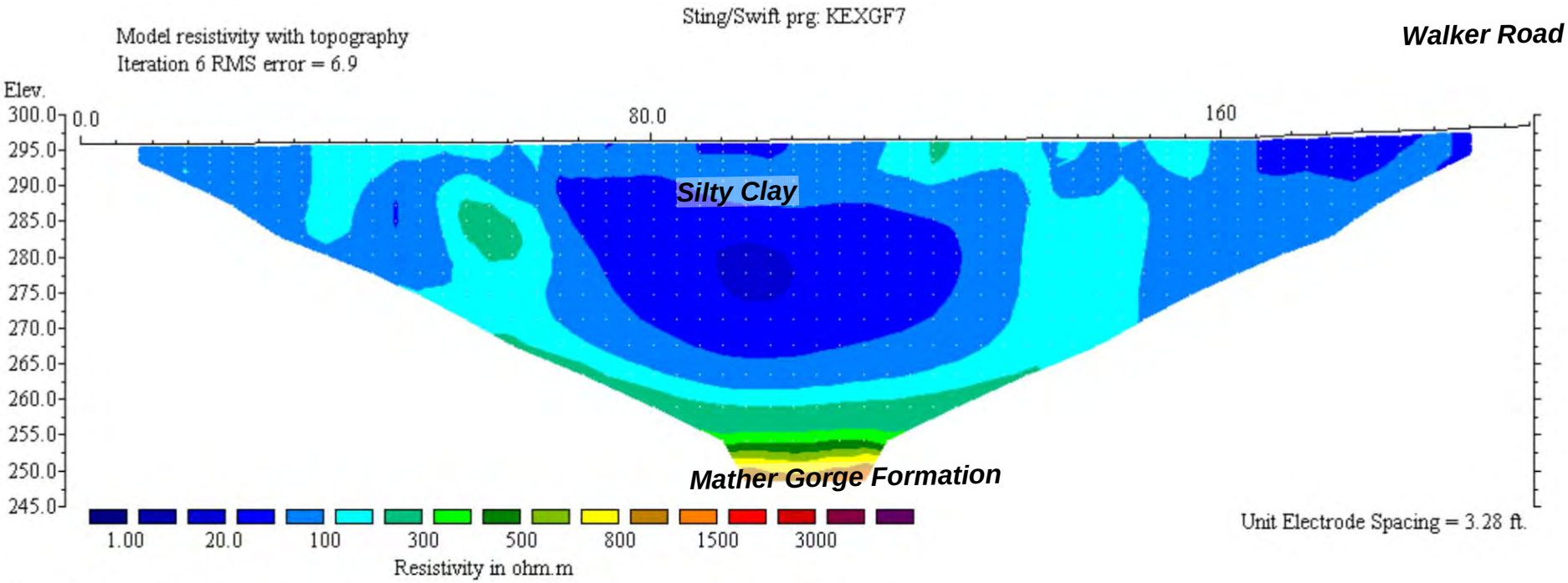


Horizontal scale is 13.87 pixels per unit spacing
Vertical exaggeration in model section display = 1.00
First electrode is located at 0.0 ft.
Last electrode is located at 334.6 ft.

Forrest Environmental Services, Inc.
Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: August 2014	SCALE: shown	TITLE: ***ER Line 6*** ***Former Exxon Service Station*** ***9901 Georgetown Pike*** ***Great Falls, Virginia***	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901ER-6	CLIENT: Kleinfelder	FIGURE

West **East**



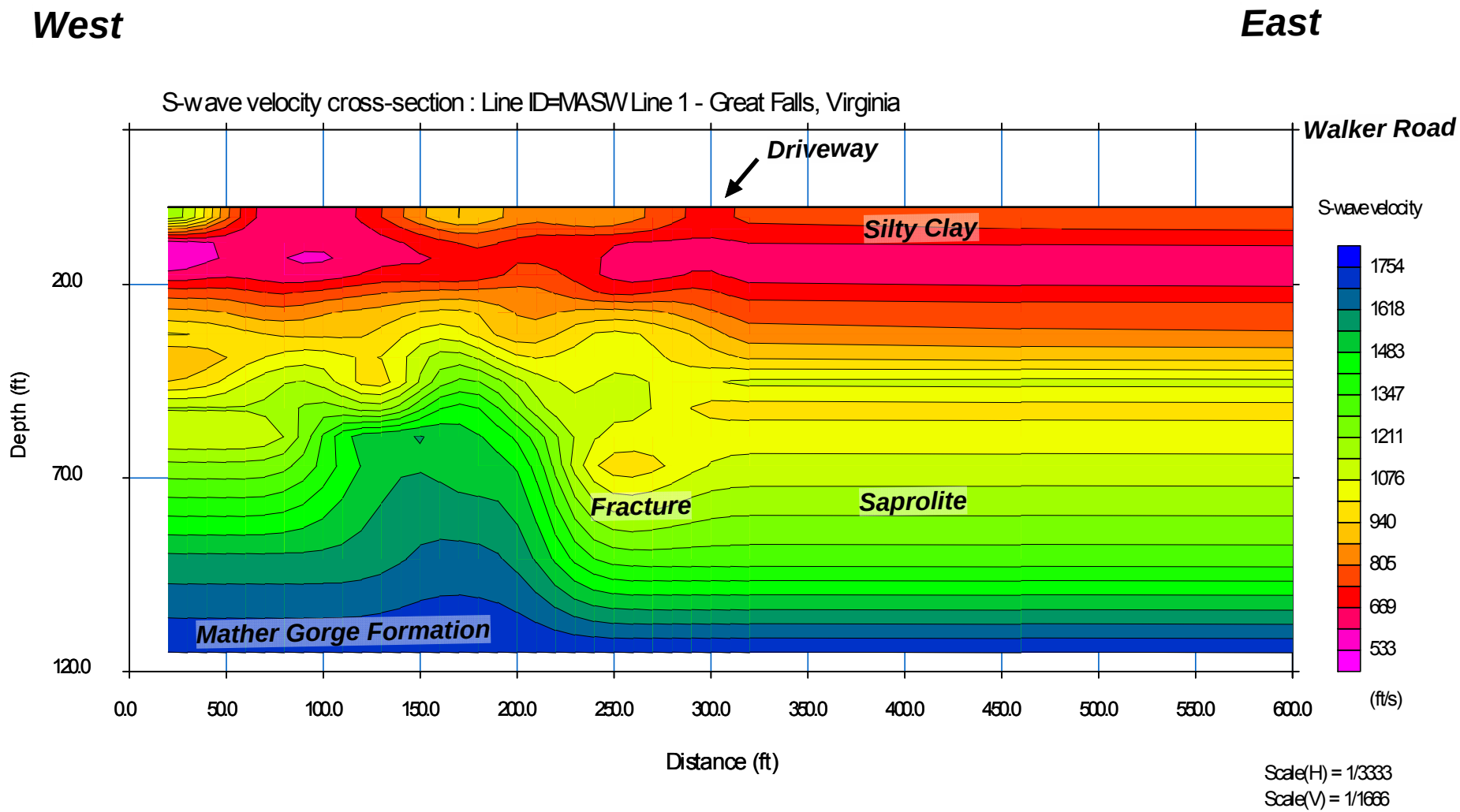
Horizontal scale is 15.21 pixels per unit spacing
Vertical exaggeration in model section display = 1.00
First electrode is located at 0.0 ft.
Last electrode is located at 203.4 ft.

Forrest Environmental Services, Inc.
Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: August 2014	SCALE: shown	TITLE: ***ER Line 7*** ***Former Exxon Service Station*** ***9901 Georgetown Pike*** ***Great Falls, Virginia***	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901ER-7	CLIENT: Kleinfelder	FIGURE

Appendix B

MASW Cross-Sections 1 Through 5

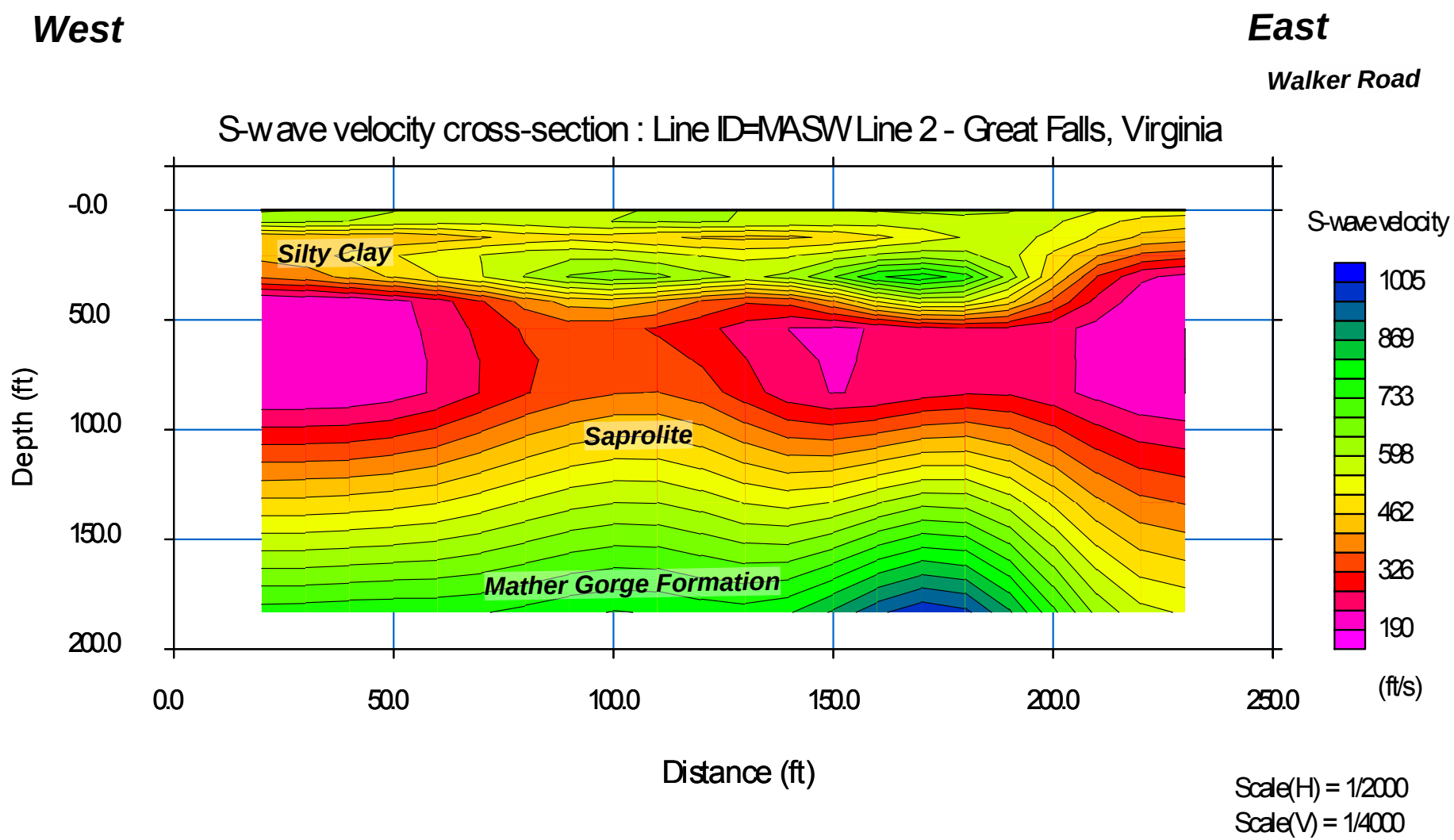


Forrest Environmental Services, Inc.

Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

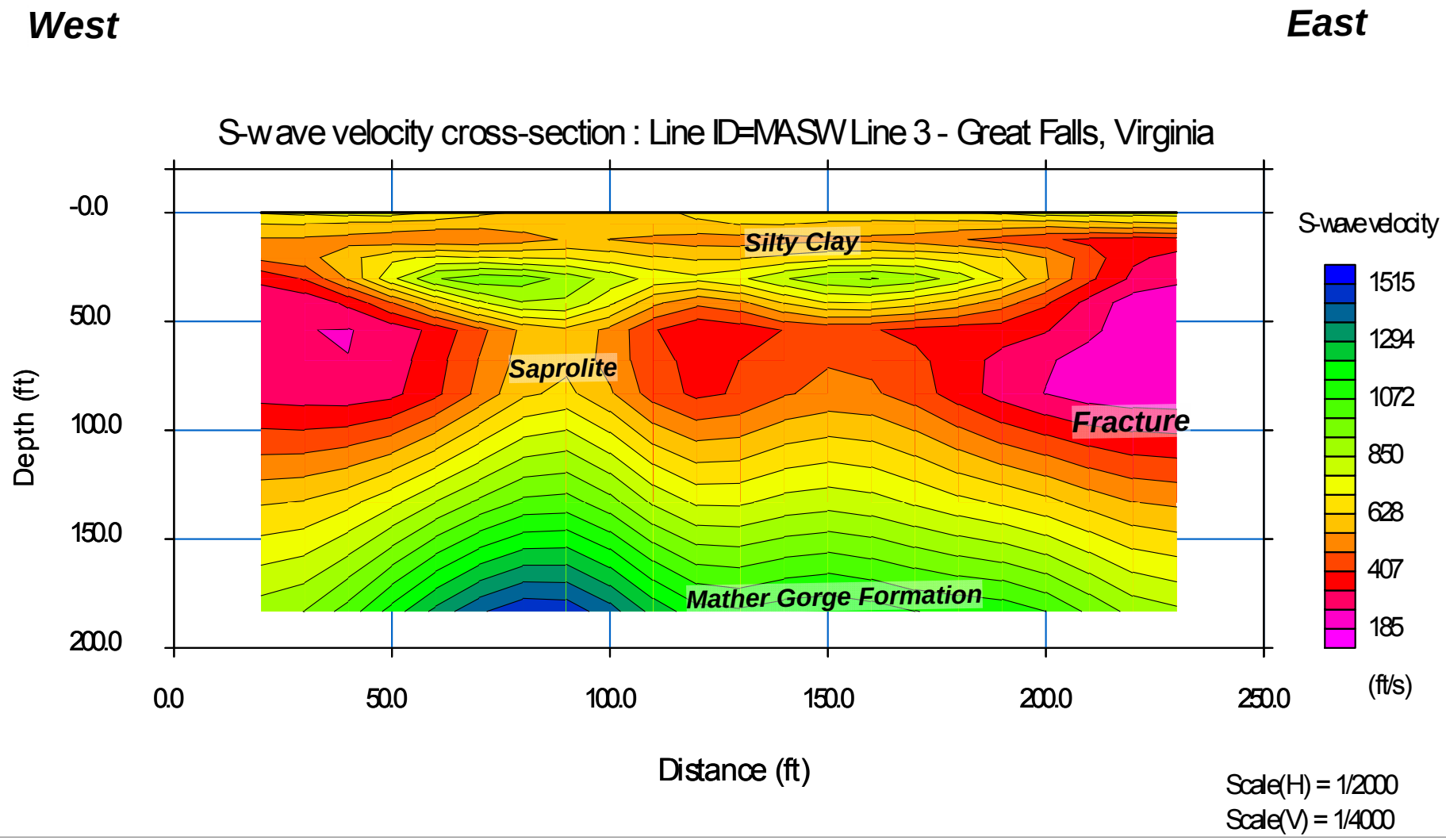
DATE: July 2014	SCALE: shown	TITLE: ***MASW Line 1*** ***Former Exxon Service Station*** ***9901 Georgetown Pike*** ***Great Falls, Virginia***	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901MASW-1	CLIENT: Kleinfelder	FIGURE

SR Line 2, 20 WET iterations, RMS error 2.4 %, 1D-Gradient smooth initial model, Version 3.31



Forrest Environmental Services, Inc.
Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

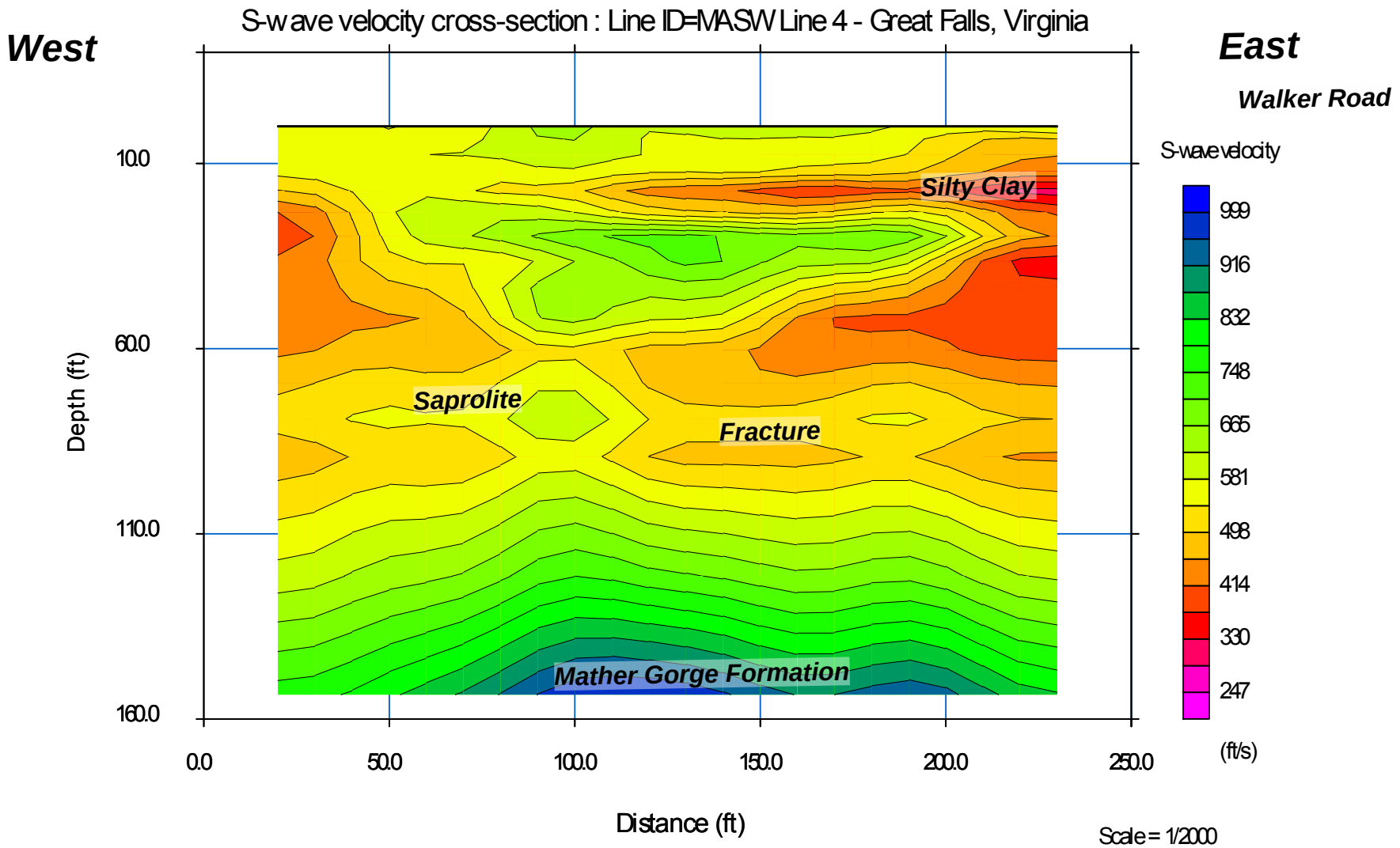
DATE: July 2014	SCALE: shown	TITLE: ***MASW Line 2*** ***Former Exxon Service Station*** ***9901 Georgetown Pike*** ***Great Falls, Virginia***	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901MASW2	CLIENT: Kleinfelder	FIGURE



Forrest Environmental Services, Inc.

Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

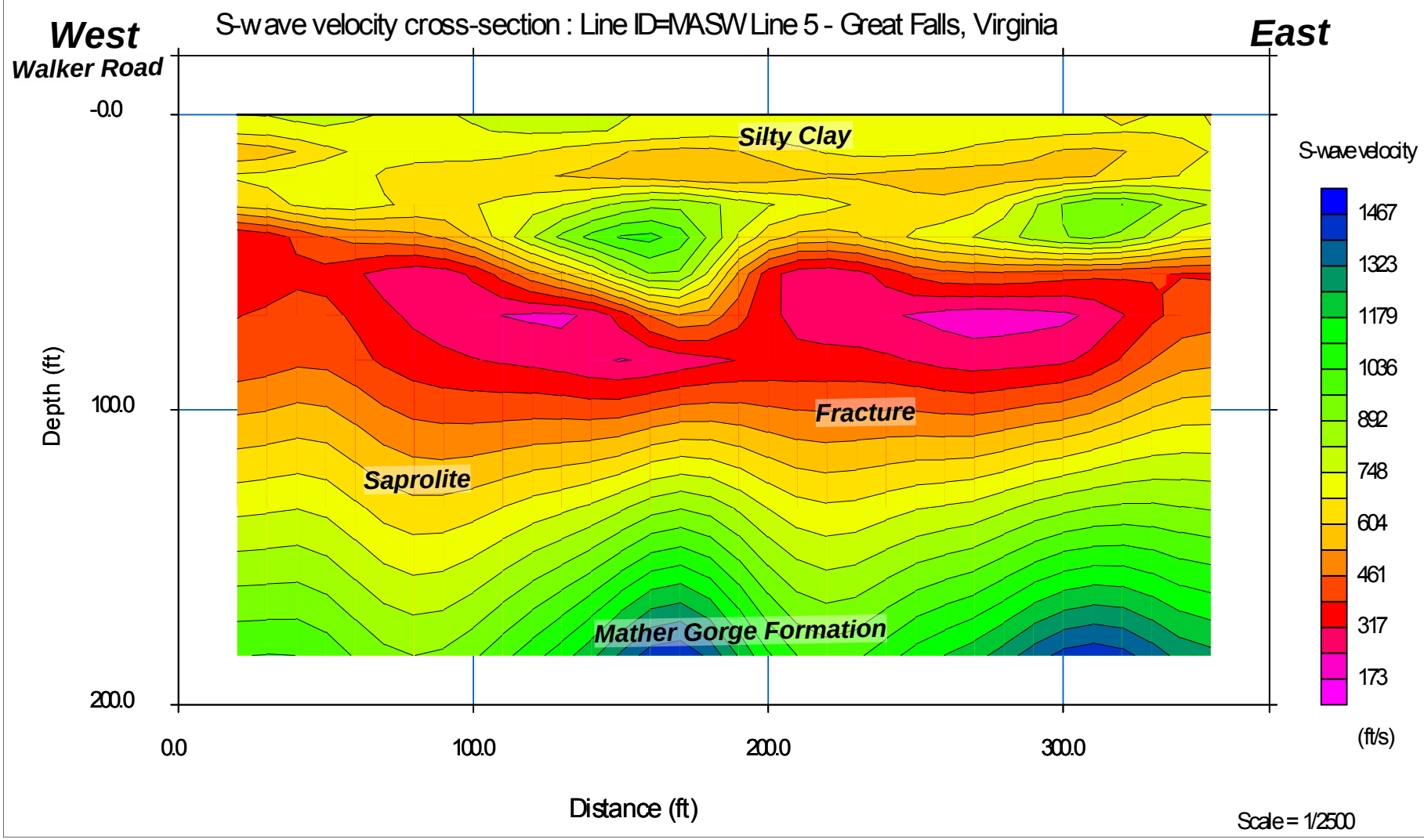
DATE: July 2014	SCALE: shown	TITLE: *MASW Line 3* *Former Exxon Service Station* *9901 Georgetown Pike* *Great Falls, Virginia*	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901MASW3	CLIENT: Kleinfelder	FIGURE



Forrest Environmental Services, Inc.

Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: July 2014	SCALE: shown	TITLE: ***MASW Line 4*** ***Former Exxon Service Station*** ***9901 Georgetown Pike*** ***Great Falls, Virginia***	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901MASW4	CLIENT: Kleinfelder	FIGURE



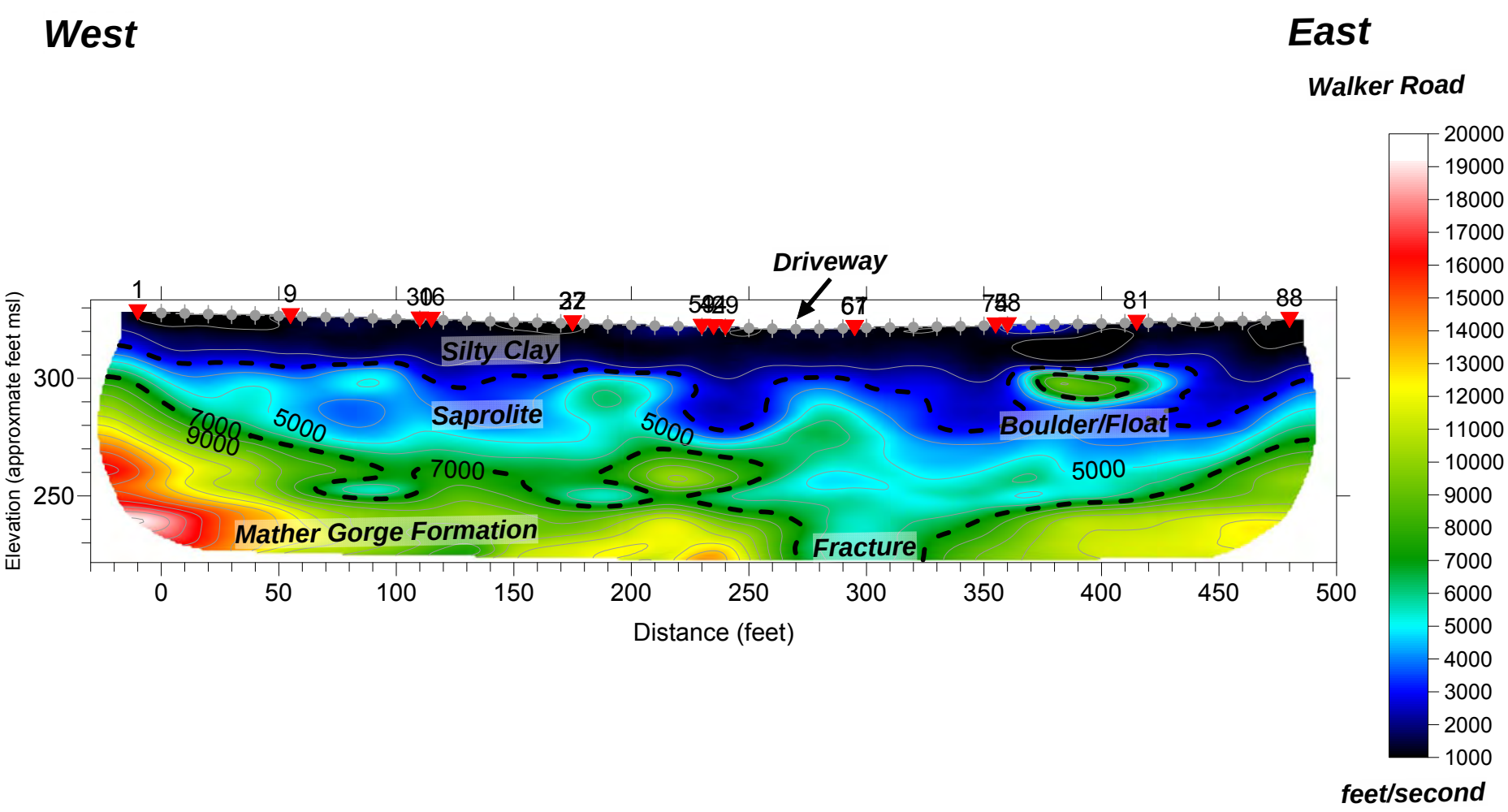
Forrest Environmental Services, Inc.
Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: July 2014	SCALE: shown	TITLE: ***MASW Line 5*** ***Former Exxon Service Station*** ***9901 Georgetown Pike*** ***Great Falls, Virginia***	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901MASW5	CLIENT: Kleinfelder	FIGURE

Appendix C

SR Cross-Sections 1 Through 7

SR Line 1, 20 WET iterations, RMS error 2.9 %, 1D-Gradient smooth initial model, Version 3.31

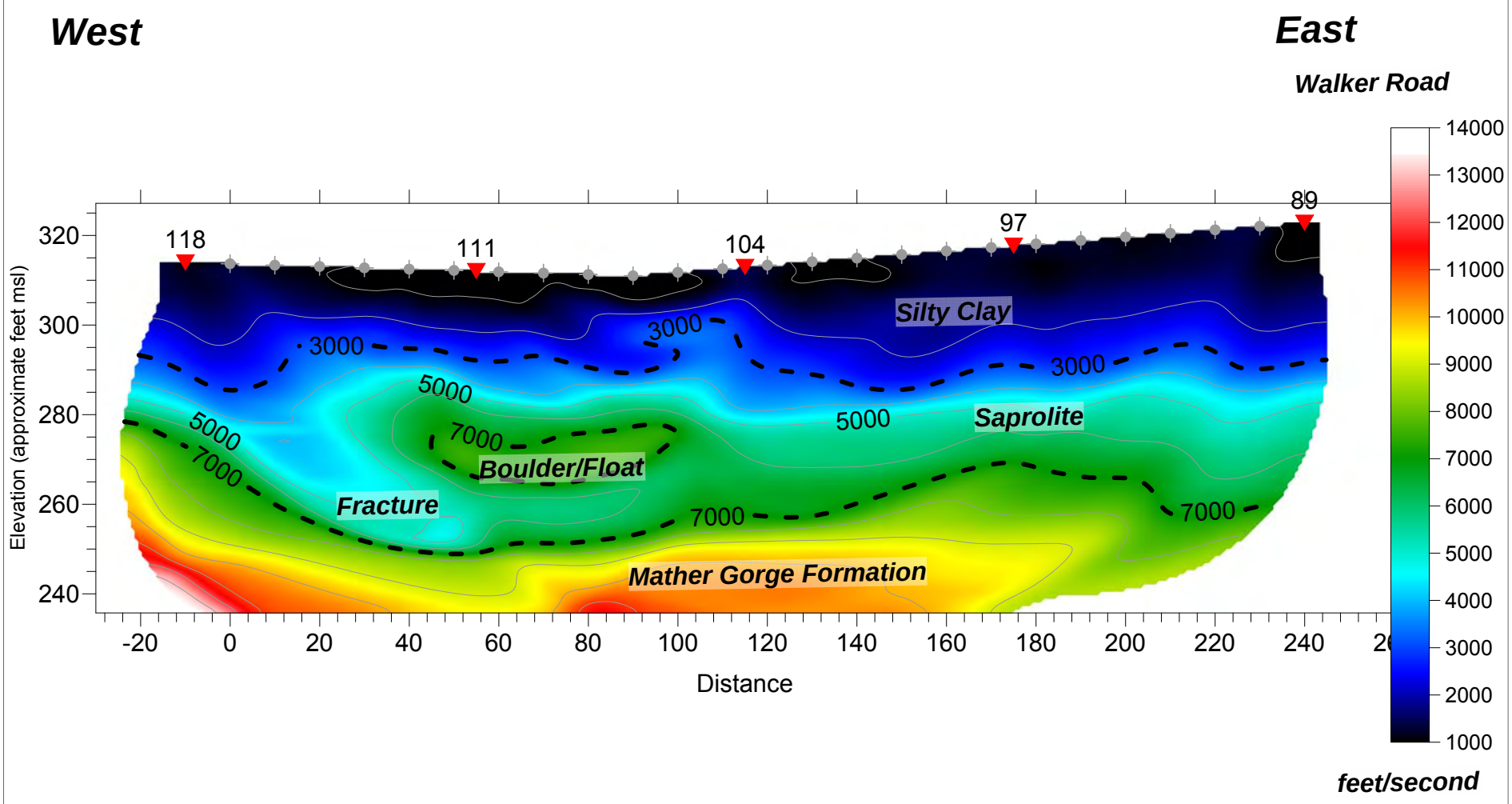


Forrest Environmental Services, Inc.

Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: July 2014	SCALE: shown	TITLE: *SR Line 1* *Former Exxon Service Station* *9901 Georgetown Pike* *Great Falls, Virginia*	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901SR-1	CLIENT: Kleinfelder	FIGURE

SR Line 2, 20 WET iterations, RMS error 2.4 %, 1D-Gradient smooth initial model, Version 3.31

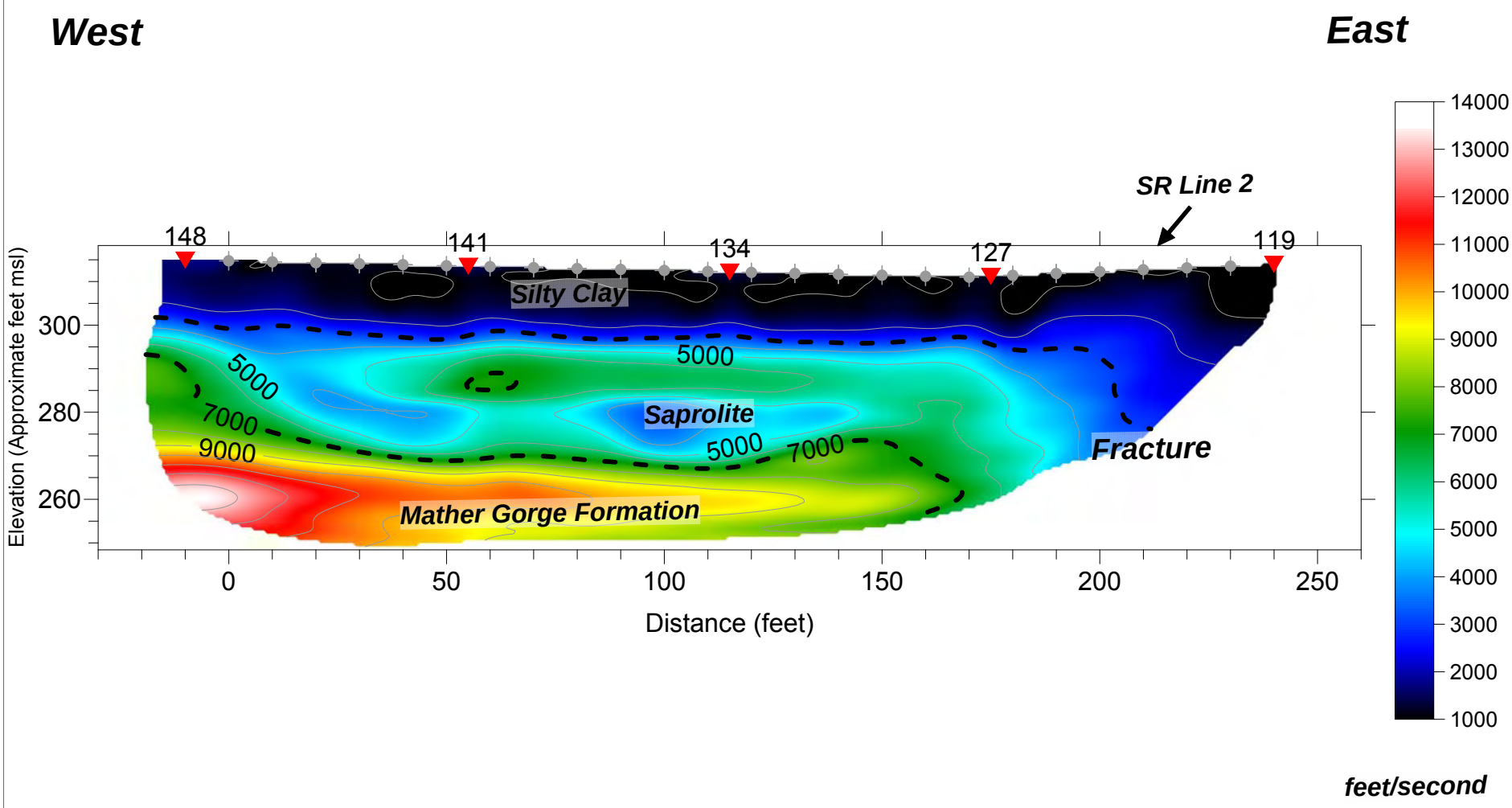


Forrest Environmental Services, Inc.

Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: July 2014	SCALE: shown	TITLE: *SR Line 2* *Former Exxon Service Station* *9901 Georgetown Pike* *Great Falls, Virginia*	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901SR-2	CLIENT: Kleinfelder	FIGURE

SR Line 3, 20 WET iterations, RMS error 1.5 %, 1D-Gradient smooth initial model, Version 3.31

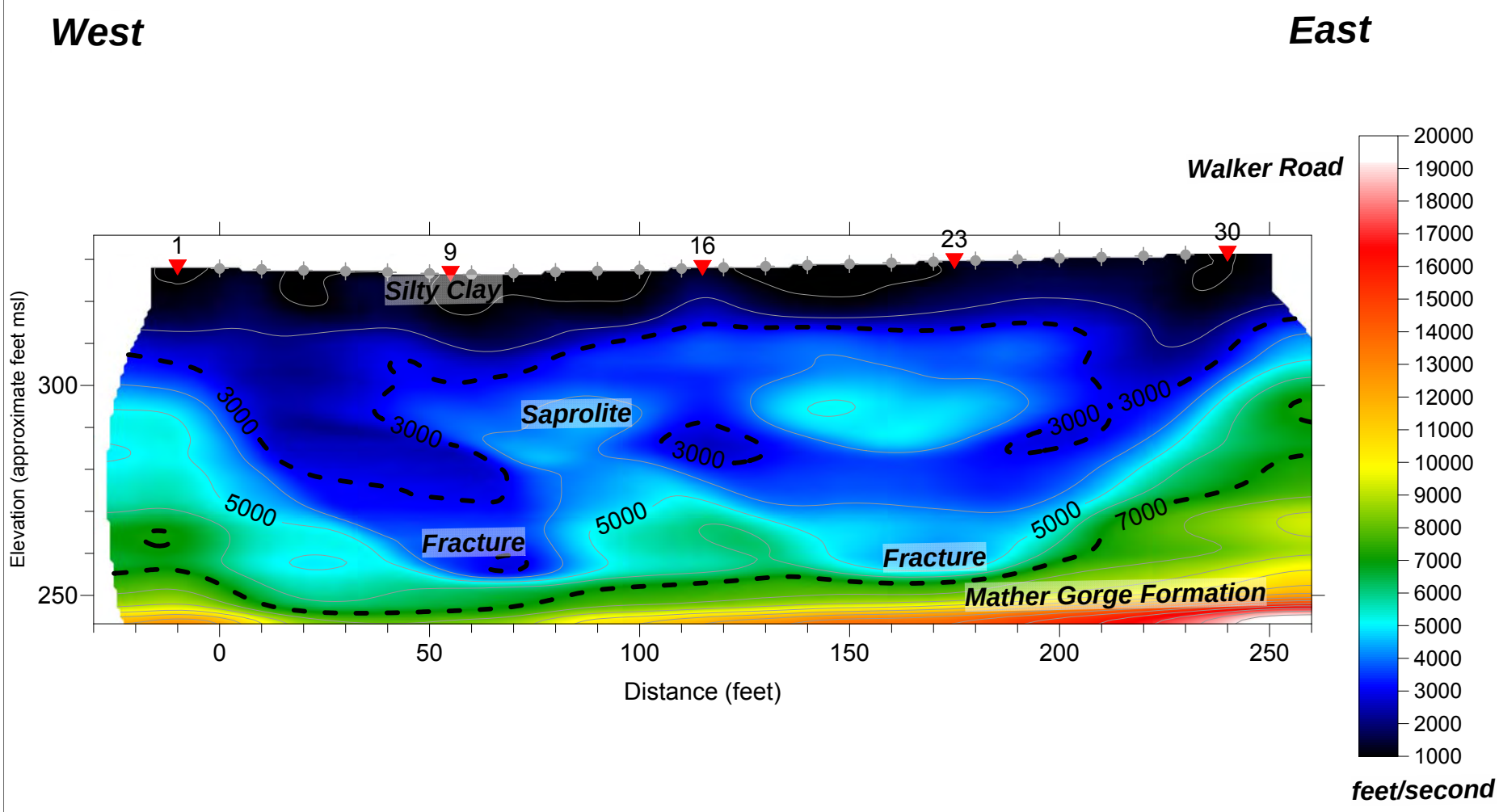


Forrest Environmental Services, Inc.

Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: July 2014	SCALE: shown	TITLE: *SR Line 3* *Former Exxon Service Station* *9901 Georgetown Pike* *Great Falls, Virginia*	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901SR-3	CLIENT: Kleinfelder	FIGURE

Seismic Line 4, 20 WET iterations, RMS error 3.8 %, 1D-Gradient smooth initial model, Version 3.31

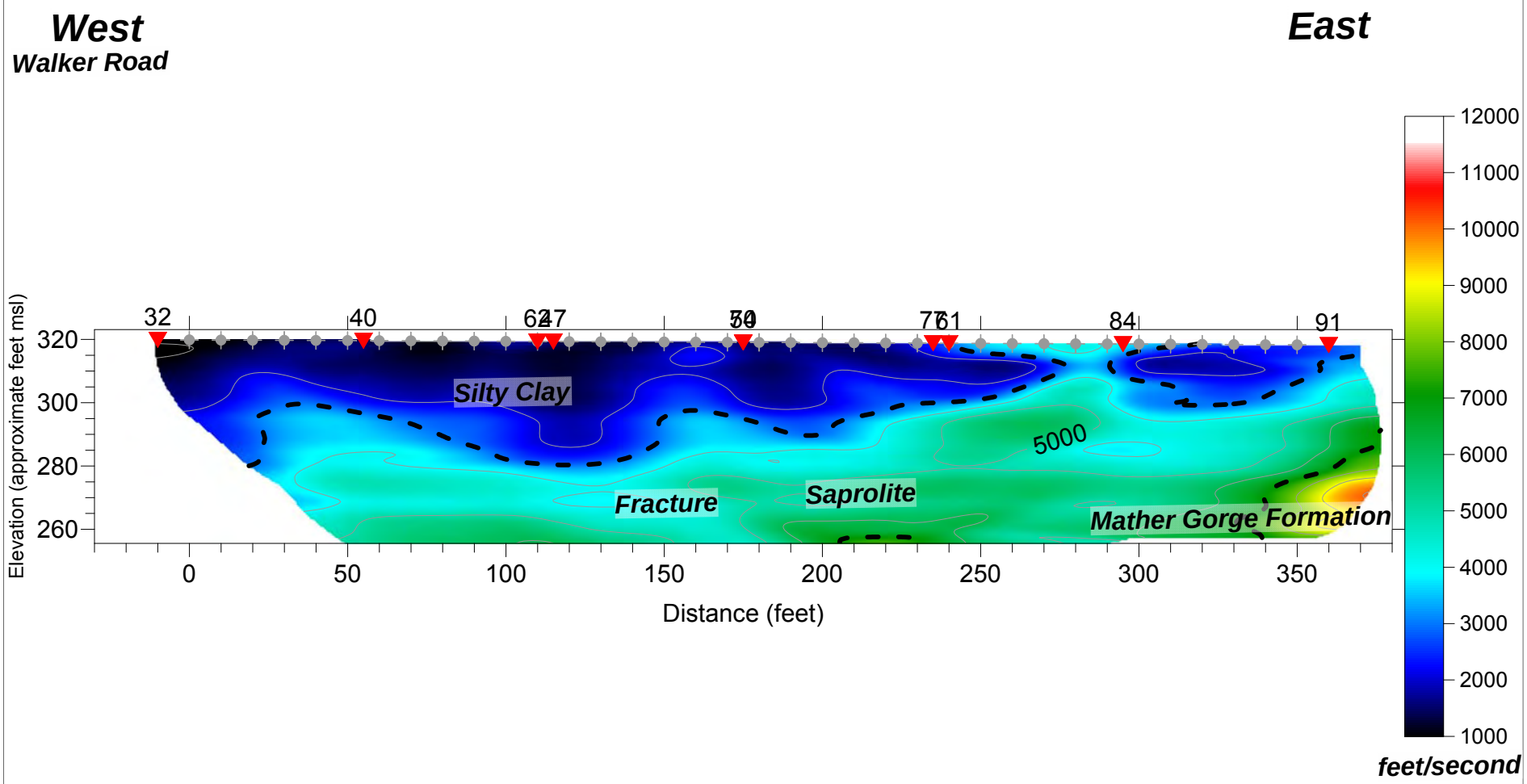


Forrest Environmental Services, Inc.

Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: July 2014	SCALE: shown	TITLE: *SR Line 4* *Former Exxon Service Station* *9901 Georgetown Pike* *Great Falls, Virginia*	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901SR-4	CLIENT: Kleinfelder	FIGURE

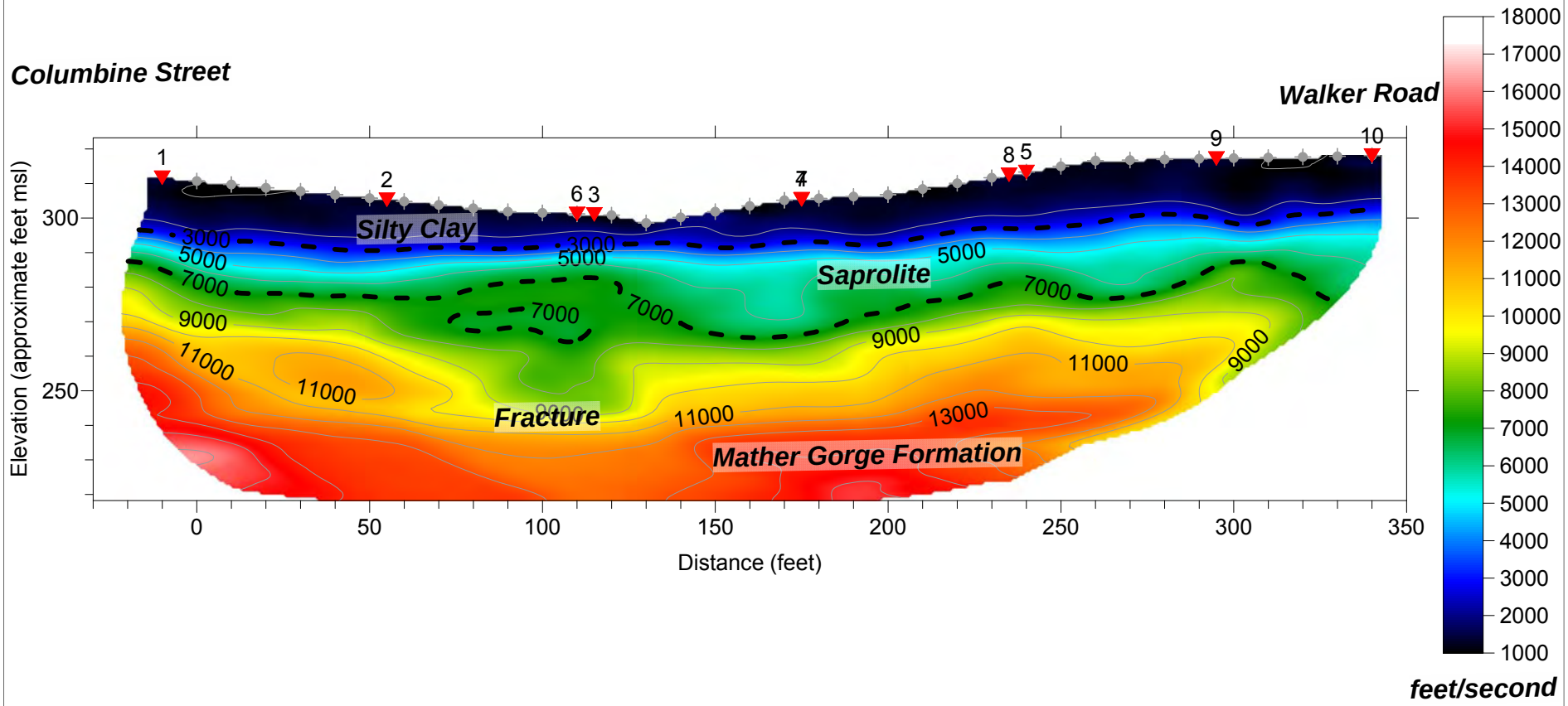
SR Line 5, 20 WET iterations, RMS error 3.2 %, 1D-Gradient smooth initial model, Version 3.31



Forrest Environmental Services, Inc.
Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: July 2014	SCALE: shown	TITLE: *SR Line 5* *Former Exxon Service Station* *9901 Georgetown Pike* *Great Falls, Virginia*	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901SR-5	CLIENT: Kleinfelder	FIGURE

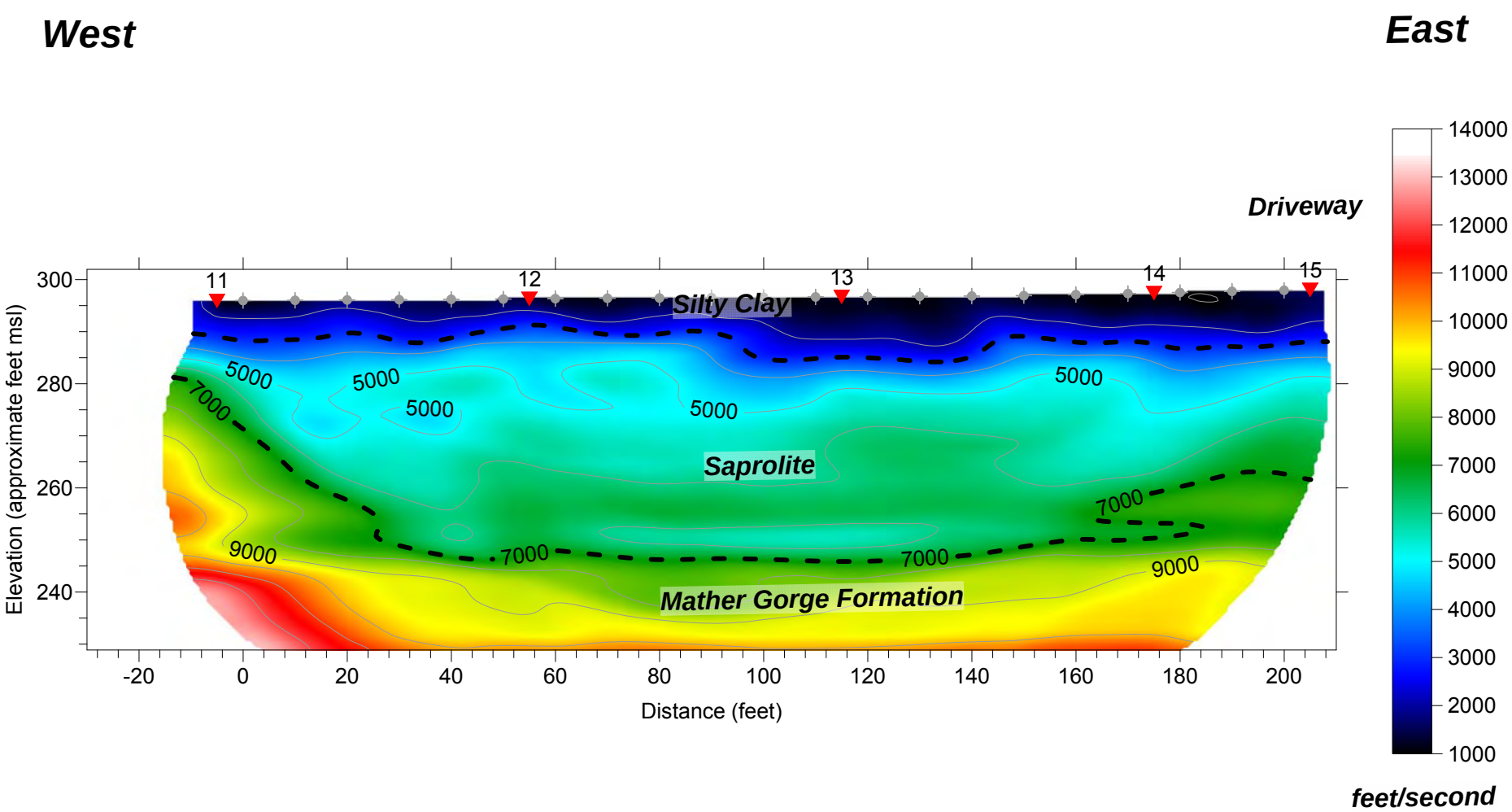
SR Line 6, 20 WET iterations, RMS error 2.1 %, 1D-Gradient smooth initial model, Version 3.31



Forrest Environmental Services, Inc.
Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: August 2014	SCALE: shown	TITLE: *SR Line 6* *Former Exxon Service Station* *9901 Georgetown Pike* *Great Falls, Virginia*	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901SR-6	CLIENT: Kleinfelder	FIGURE

SR Line 7, 20 WET iterations, RMS error 1.8 %, 1D-Gradient smooth initial model, Version 3.31



Forrest Environmental Services, Inc.

Oak Hill, Virginia
(703) 648-9090
www.fesinc.net

DATE: August 2014	SCALE: shown	TITLE: *SR Line 7* *Former Exxon Service Station* *9901 Georgetown Pike* *Great Falls, Virginia*	
DRAWN BY	APPROVED BY		
JOB NO.: 14168	DWG. NO./ REV. NO.: K9901SR-7	CLIENT: Kleinfelder	FIGURE

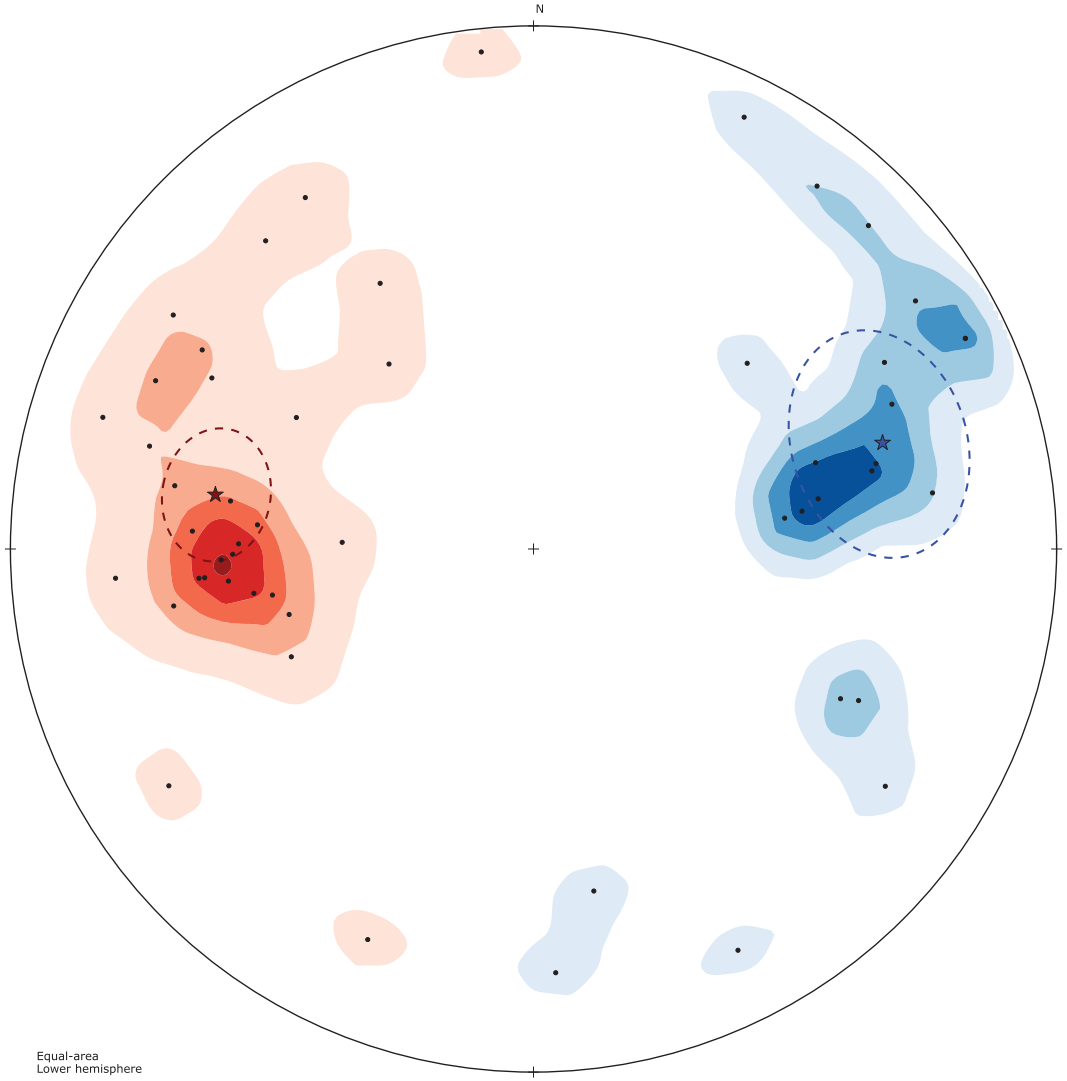
APPENDIX D

Steroenet

Steronet of Borehole Geophysical Survey Open Fractures

Inactive Fairfax Facility 26140

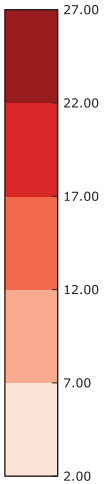
9901 Georgetown Pike,
Great Falls, Virginia



- [P(dd)] east_dipping_open_fractures.txt (poles to planes) n=31
- [P(dd)] west_dipping_open_fractures.txt (poles to planes) n=22
- [P(dd)] east_dipping_open_fractures.txt (eigenvector 1)
- [P(dd)] west_dipping_open_fractures.txt (eigenvector 1)
- [P(dd)] east_dipping_open_fractures.txt 95% confidence cone
- [P(dd)] west_dipping_open_fractures.txt 95% confidence cone

East Dipping Open Fractures

Density (%)



Poles to Planes
[P(dd)] east_dipping_open_fractures.txt

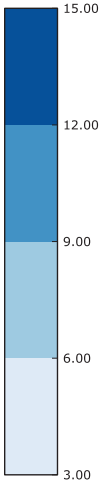
Maximum density: 23.7 %
at 266.7/39.8 (pole)
86.7/50.2 (plane)

Grid detail: Low

Counting method:
Fisher Distribution

West Dipping Open Fractures

Density (%)



Poles to Planes
[P(dd)] west_dipping_open_fractures.txt

Maximum density: 14.7 %
at 82.5/45.7 (pole)
262.5/44.3 (plane)

Grid detail: Low

Counting method:
Fisher Distribution

Summary of Borehole Geophysical Survey Open Fractures Analysis

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia

Dataset	Number of Fractures in Dataset	Eigenvector 1 (Direction)	Eigenvector 1 (Angle)	Mean Dip Direction	Mean Strike	Mean Dip
Open Fractures	53	271	22	91	181	68
Open East Dipping Fractures	31	279.7	38.3	99.7	189.7	51.7
Open West Dipping Fractures	22	73.1	30.9	253.1	343.1	59.1

Notes:

Datasets represent fracture attitudes reported from borehole geophysical surveys from monitoring wells MW-6D, MW-12D, MW-16D, and MW-17D.
The direction and angle of Eigenvector 1 represent a line that is orthogonal to the mean plane, presented as dip direction and dip angle, of the dataset.
Fractures with down dip directions greater than 0 degrees and less than or equal to 180 degrees are classified as east dipping.
Fractures with down dip directions greater than 180 degrees and less than or equal to 360 degrees are classified as west dipping.
All directions and angles are in degrees.

Kleinfelder
1340 Charwood Road, Suite I, Hanover, MD 21076

APPENDIX E

Waste Manifests

Water Depot, Inc.

1301 Avondale Rd., New Windsor, MD 21776 • (P) 410-857-967 • (F) 410-857-2814 • www.oilwaterdisposal.com

NON-HAZARDOUS WASTE MANIFEST/BILL OF LADING TRACKING NUMBER: SC081714A

Generator Name: Fairfax Petroleum Realty LLC			Site Name (if different):		
Address: 9901 Georgetown Pike			Address:		
City: Great Falls	State: Va	Zip: 22066	City:	State:	Zip:
Phone:	Contact:		Phone	Contact:	

Purchase Order No: 511-41-259335

Transporter 1 Company Name: [X] Water Depot, Inc. [ ] Subsurface Technologies, Inc.

Transporter 2 Company Name:

Designated Facility Name: **Water Depot, Inc.**			Other:
Address: **1301 Avondale Rd.**			
City: **New Windsor**	State: **MD**	Zip: **21776**	
Phone: **410-857-9670**			

Shipping Name & Description

Non-hazardous/Non-regulated Material:	Gallons:	Non-hazardous/Non-regulated Material:	Gallons:
Petroleum-Contaminated Water	286	Combustible Liquids, N.O.S., (fuel oil & water for recycling), 3, NA 1993, PGIII	
Petroleum-Contaminated Sludge		Combustible Liquids, N.O.S., (fuel oil & water for recycling), 2, NA 1993, PGIII	
Oil for Recycling			
Oil & Water for Recycling		Glycol & Water for Recycling	

Other:	Containers		Quantity	Volume/Units
	No	Type		
Other:	Containers		Quantity	Volume/Units
	No	Type		

Special handling instructions or additional information

Generator/Shipper Certification Statement

As the generator or shipper, I hereby certify that this material is properly classified and does not contain Polychlorinated Biphenyls (PCBs). To the best of my knowledge it has not been mixed, combined or blended in any amount with any other material defined as hazardous waste under applicable law. Generator/Shipper agrees to indemnify and hold Water Depot, Inc. or Subsurface Technologies, Inc. harmless for any damages arising from or in any way relating to a breach of this Certification Statement.

X Generator Authorized Agent Printed Name: Paxton Weeks For: Fairfax Petroleum Realty LLC	X Signature: For Fairfax Petroleum Realty LLC	Date: 8/19/14
X Transporter 1 Printed Name: Stephen Crotty	X Signature: Stephen Crotty	Date: 8/19/14
X Transporter 2 Printed Name	X Signature	Date: / /

Discrepancy Indication Space

Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in discrepancy indication space.

Printed Name: Erin Hoon	Acceptance Signature	Date: 8/17/14

White-Original Yellow-Transporter 1 Blue-Transporter 2 Pink-Facility Gold-Customer

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

Log Number 91

289063

GENERATOR

Generator Name Fairfax Petroleum Realty, LLC

Address 9901 GEORGETOWN PIKE
GREAT FALLS, VA

Phone No.

Shipping Location

Address

Phone No.

Approval Number	Description of Material		
3487	Non-Regulated Petroleum Contaminated Soil Non DOT/RCRA Regulated	GROSS 38.55 T TARE 12.10 T NET 26.45 T 09:27AM 09/12/2014	GROSS TARE NET TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Paxton Waste for Fairfax Petroleum Realty LLC — Generator Authorized Agent Name

[signature] for Fairfax Petroleum Realty LLC — Signature

9/12/14 — Shipment Date

TRANSPORTER

Transporter Name I.O.J

Address Bowie, MD

Driver Name (Print) Calvin Cofield

Vehicle License No./State 247558

Truck Number I-7

I hereby certify that the above named material was picked up at the generator site listed above.

C Cofield — Driver Signature

9-12-14 — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

C Cofield — Driver Signature

9-12-14 — Delivery Date

DESTINATION

Site Name Brandywine

Phone No. 301-782-3036

Address 16001 Mattawoman Drive, Brandywine, Md. 20613

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

~~Paxton Waste for Fairfax Petroleum Realty, LLC~~ — Name of Authorized Agent

~~[signature] for Fairfax Petroleum Realty LLC~~ — Signature

~~9/12/14~~ 9/12/14 — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

Log Number 92

269911

GENERATOR

Generator Name Fairfax Petroleum Realty, LLC

Address

Phone No.

Shipping Location Exxon

Address 9901 Georgetown Pike
Great Falls, VA

Phone No.

Approval Number W-5 3487

Description of Material

Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

GROSS	35.49 T	GROSS
TARE	13.44 T	TARE
NET	22.05 T	NET
09:31AM 09/12/2014		TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Paxton Wertz For Fairfax Petroleum Realty LLC — Generator Authorized Agent Name

For Fairfax Petroleum Realty LLC — Signature

9-12-14 — Shipment Date

TRANSPORTER

Transporter Name TMT/IOS

Address

Driver Name (Print) TRAVIS

Vehicle License No./State 166ED01

Truck Number T-1

I hereby certify that the above named material was picked up at the generator site listed above.

Yvonne Meadows 9-12-14
Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Yvonne Meadows 9-12-14
Driver Signature — Delivery Date

DESTINATION

Site Name Brandywine

Phone No. 301-782-3036

Address 16001 Mattawoman Drive, Brandywine, Md. 20613

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent — Signature — 9/12/14 Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

SOIL SAFE, INC.

NON-HAZARDOUS MATERIAL MANIFEST

Log Number 125

289064

GENERATOR

Generator Name Fairfax Petroleum Realty LLC

Address 9901 Georgetown Pl Ave
Great Falls VA

Phone No.

Shipping Location

Address

Phone No.

Approval Number 3487

Description of Material

Non-Regulated Petroleum Contaminated Soil

Non DOT/RCRA Regulated

GROSS	35.18 T	GROSS
TARE	12.57 T	TARE
NET	22.61 T	NET
10:27AM 09/12/2014		TONNAGE

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Pantom Waite for Fairfax Petroleum Realty LLC — For Fairfax Petroleum Realty LLC — 9/12/14

Generator Authorized Agent Name — Signature — Shipment Date

TRANSPORTER

Transporter Name Evans Trucking

Address

Driver Name (Print) Michael J. Anderson JR

Vehicle License No./State 232540

Truck Number E-1

I hereby certify that the above named material was picked up at the generator site listed above.

Anderson JR — 9/12/14

Driver Signature — Shipment Date

I hereby certify that the above named material was delivered without incident to the destination listed below.

Anderson JR — 9/12/14

Driver Signature — Delivery Date

DESTINATION

Site Name Brandywine

Phone No. 301-782-3036

Address 16001 Mattawoman Drive, Brandywine, Md. 20613

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

9/12/14

Name of Authorized Agent — Signature — Receipt Date

White - Facility Green - Facility Yellow - Generator Pink - Broker Goldenrod - Contractor Blue - Trucking Co.

APPENDIX F

Laboratory Analytical Report - Groundwater

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

August 22, 2014

Project: Fairfax 26140

Submittal Date: 08/21/2014
Group Number: 1497610
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
RW-1 Grab Water	7572802

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: RW-1 Grab Water
Fairfax 26140

LL Sample # WW 7572802
LL Group # 1497610
Account # 12152

Project Name: Fairfax 26140

Collected: 08/20/2014 12:16 by PW

Submitted: 08/21/2014 09:05
Reported: 08/22/2014 10:11

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

RW-1-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 400	400	20
10335	Acrolein	107-02-8	< 2,000	2,000	20
10335	Acrylonitrile	107-13-1	< 400	400	20
10335	**t-Amyl methyl ether**	994-05-8	**220**	20	20
10335	Benzene	71-43-2	< 20	20	20
10335	Bromodichloromethane	75-27-4	< 20	20	20
10335	Bromoform	75-25-2	< 80	80	20
10335	Bromomethane	74-83-9	< 20	20	20
10335	**2-Butanone**	78-93-3	**950**	200	20
10335	**t-Butyl alcohol**	75-65-0	**3,800**	400	20
10335	n-Butylbenzene	104-51-8	< 100	100	20
10335	sec-Butylbenzene	135-98-8	< 100	100	20
10335	Carbon Tetrachloride	56-23-5	< 20	20	20
10335	Chlorobenzene	108-90-7	< 20	20	20
10335	Chloroethane	75-00-3	< 20	20	20
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 200	200	20
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 20	20	20
10335	Chloromethane	74-87-3	< 20	20	20
10335	Dibromochloromethane	124-48-1	< 20	20	20
10335	1,2-Dichlorobenzene	95-50-1	< 100	100	20
10335	1,3-Dichlorobenzene	541-73-1	< 100	100	20
10335	1,4-Dichlorobenzene	106-46-7	< 100	100	20
10335	1,1-Dichloroethane	75-34-3	< 20	20	20
10335	1,2-Dichloroethane	107-06-2	< 20	20	20
10335	1,1-Dichloroethene	75-35-4	< 20	20	20
10335	cis-1,2-Dichloroethene	156-59-2	< 20	20	20
10335	trans-1,2-Dichloroethene	156-60-5	< 20	20	20
10335	1,2-Dichloropropane	78-87-5	< 20	20	20
10335	cis-1,3-Dichloropropene	10061-01-5	< 20	20	20
10335	trans-1,3-Dichloropropene	10061-02-6	< 20	20	20
10335	Ethyl t-butyl ether	637-92-3	< 20	20	20
10335	Ethylbenzene	100-41-4	< 20	20	20
10335	**di-Isopropyl ether**	108-20-3	**420**	20	20
10335	Isopropylbenzene	98-82-8	< 100	100	20
10335	p-Isopropyltoluene	99-87-6	< 100	100	20
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**19,000**	200	200
10335	Methylene Chloride	75-09-2	< 60	60	20
10335	Naphthalene	91-20-3	< 100	100	20
10335	n-Propylbenzene	103-65-1	< 100	100	20
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 20	20	20
10335	Tetrachloroethene	127-18-4	< 20	20	20
10335	Toluene	108-88-3	< 20	20	20
10335	1,1,1-Trichloroethane	71-55-6	< 20	20	20
10335	1,1,2-Trichloroethane	79-00-5	< 20	20	20
10335	Trichloroethene	79-01-6	< 20	20	20
10335	Trichlorofluoromethane	75-69-4	< 20	20	20
10335	1,2,4-Trimethylbenzene	95-63-6	< 100	100	20

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Analysis Report

Sample Description: RW-1 Grab Water
Fairfax 26140

LL Sample # WW 7572802
LL Group # 1497610
Account # 12152

Project Name: Fairfax 26140

Collected: 08/20/2014 12:16 by PW

Submitted: 08/21/2014 09:05
Reported: 08/22/2014 10:11

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

RW-1-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	1,3,5-Trimethylbenzene	108-67-8	< 100	100	20
10335	Vinyl Chloride	75-01-4	< 20	20	20
10335	Xylene (Total)	1330-20-7	< 20	20	20

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142331AA	08/22/2014 00:23	Andrea E Lando	20
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142331AA	08/22/2014 00:47	Andrea E Lando	200
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142331AA	08/22/2014 00:23	Andrea E Lando	20
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N142331AA	08/22/2014 00:47	Andrea E Lando	200

Quality Control Summary

Client Name: Kleinfelder Group Number: 1497610
Reported: 08/22/14 at 10:11 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142331AA	Sample number(s): 7572802							
Acetone	< 20	20.	ug/l	101	104	55-129	3	30
Acrolein	< 100	100.	ug/l	84	83	59-120	1	30
Acrylonitrile	< 20	20.	ug/l	98	100	62-120	2	30
t-Amyl methyl ether	< 1	1.	ug/l	94	97	75-120	3	30
Benzene	< 1	1.	ug/l	101	102	78-120	1	30
Bromodichloromethane	< 1	1.	ug/l	104	105	73-120	0	30
Bromoform	< 4	4.	ug/l	100	99	61-120	0	30
Bromomethane	< 1	1.	ug/l	98	100	53-130	2	30
2-Butanone	< 10	10.	ug/l	103	106	54-133	3	30
t-Butyl alcohol	< 20	20.	ug/l	104	102	75-120	2	30
n-Butylbenzene	< 5	5.	ug/l	89	91	68-120	2	30
sec-Butylbenzene	< 5	5.	ug/l	94	96	75-120	2	30
Carbon Tetrachloride	< 1	1.	ug/l	111	114	74-130	2	30
Chlorobenzene	< 1	1.	ug/l	103	102	80-120	1	30
Chloroethane	< 1	1.	ug/l	93	94	56-120	0	30
2-Chloroethyl Vinyl Ether	< 10	10.	ug/l	84	87	62-128	3	30
Chloroform	< 1	1.	ug/l	106	108	80-122	2	30
Chloromethane	< 1	1.	ug/l	88	91	63-120	3	30
Dibromochloromethane	< 1	1.	ug/l	98	100	72-120	1	30
1,2-Dichlorobenzene	< 5	5.	ug/l	100	101	80-120	0	30
1,3-Dichlorobenzene	< 5	5.	ug/l	100	102	80-120	2	30
1,4-Dichlorobenzene	< 5	5.	ug/l	101	102	80-120	1	30
1,1-Dichloroethane	< 1	1.	ug/l	100	100	80-120	0	30
1,2-Dichloroethane	< 1	1.	ug/l	112	112	65-135	0	30
1,1-Dichloroethene	< 1	1.	ug/l	100	102	76-124	2	30
cis-1,2-Dichloroethene	< 1	1.	ug/l	105	106	80-120	1	30
trans-1,2-Dichloroethene	< 1	1.	ug/l	106	108	80-120	2	30
1,2-Dichloropropane	< 1	1.	ug/l	100	99	80-120	1	30
cis-1,3-Dichloropropene	< 1	1.	ug/l	101	104	80-120	3	30
trans-1,3-Dichloropropene	< 1	1.	ug/l	94	95	76-120	0	30
Ethyl t-butyl ether	< 1	1.	ug/l	93	95	69-120	2	30
Ethylbenzene	< 1	1.	ug/l	101	101	79-120	0	30
di-Isopropyl ether	< 1	1.	ug/l	92	93	61-132	2	30
Isopropylbenzene	< 5	5.	ug/l	100	101	80-120	2	30
p-Isopropyltoluene	< 5	5.	ug/l	93	95	76-120	2	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	98	100	75-120	2	30
Methylene Chloride	< 3	3.	ug/l	98	99	80-120	1	30
Naphthalene	< 5	5.	ug/l	79	84	47-126	6	30
n-Propylbenzene	< 5	5.	ug/l	98	98	80-120	0	30
1,1,2,2-Tetrachloroethane	< 1	1.	ug/l	96	95	70-120	1	30
Tetrachloroethene	< 1	1.	ug/l	105	107	80-120	2	30
Toluene	< 1	1.	ug/l	103	102	80-120	1	30
1,1,1-Trichloroethane	< 1	1.	ug/l	105	105	66-126	0	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 08/22/14 at 10:11 AM

Group Number: 1497610

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	< 1	1.	ug/l	101	102	80-120	1	30
Trichloroethene	< 1	1.	ug/l	108	109	80-120	0	30
Trichlorofluoromethane	< 1	1.	ug/l	101	100	58-135	0	30
1,2,4-Trimethylbenzene	< 5	5.	ug/l	101	101	80-120	0	30
1,3,5-Trimethylbenzene	< 5	5.	ug/l	101	101	80-120	1	30
Vinyl Chloride	< 1	1.	ug/l	96	97	63-120	1	30
Xylene (Total)	< 1	1.	ug/l	102	103	80-120	0	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: N142331AA	Sample number(s): 7572802 UNSPK: P569294								
Acetone	102	100	35-144	2	30				
Acrolein	86	85	39-136	1	30				
Acrylonitrile	100	100	51-125	1	30				
t-Amyl methyl ether	98	100	65-117	3	30				
Benzene	110	111	72-134	0	30				
Bromodichloromethane	111	109	73-125	2	30				
Bromoform	101	100	48-118	1	30				
Bromomethane	116	112	47-129	4	30				
2-Butanone	102	103	44-135	1	30				
t-Butyl alcohol	103	105	67-119	2	30				
n-Butylbenzene	99	99	74-134	0	30				
sec-Butylbenzene	105	104	74-137	0	30				
Carbon Tetrachloride	129	130	75-148	1	30				
Chlorobenzene	113	111	87-124	2	30				
Chloroethane	108	108	55-130	0	30				
2-Chloroethyl Vinyl Ether	85	85	10-151	0	30				
Chloroform	117	116	81-134	1	30				
Chloromethane	99	102	61-125	2	30				
Dibromochloromethane	103	102	74-116	0	30				
1,2-Dichlorobenzene	107	105	84-119	1	30				
1,3-Dichlorobenzene	107	104	86-121	3	30				
1,4-Dichlorobenzene	109	107	85-121	2	30				
1,1-Dichloroethane	108	108	84-129	0	30				
1,2-Dichloroethane	118	117	63-142	1	30				
1,1-Dichloroethene	115	116	79-137	1	30				
cis-1,2-Dichloroethene	114	114	80-141	0	30				
trans-1,2-Dichloroethene	117	117	86-131	0	30				
1,2-Dichloropropane	106	106	83-124	0	30				
cis-1,3-Dichloropropene	107	107	70-116	0	30				
trans-1,3-Dichloropropene	100	100	74-119	0	30				
Ethyl t-butyl ether	95	98	74-122	3	30				
Ethylbenzene	111	110	71-134	1	30				
di-Isopropyl ether	95	98	70-129	3	30				
Isopropylbenzene	110	110	75-128	0	30				
p-Isopropyltoluene	103	101	76-123	2	30				
Methyl Tertiary Butyl Ether	100	102	72-126	3	30				
Methylene Chloride	106	105	78-133	0	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1497610
Reported: 08/22/14 at 10:11 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Naphthalene	77	82	52-125	6	30				
n-Propylbenzene	108	106	74-134	2	30				
1,1,2,2-Tetrachloroethane	101	98	72-128	3	30				
Tetrachloroethene	119	118	80-128	1	30				
Toluene	113	112	80-125	1	30				
1,1,1-Trichloroethane	121	121	69-140	0	30				
1,1,2-Trichloroethane	108	105	71-141	3	30				
Trichloroethene	119	119	88-133	1	30				
Trichlorofluoromethane	123	123	63-163	1	30				
1,2,4-Trimethylbenzene	109	108	72-130	2	30				
1,3,5-Trimethylbenzene	110	108	65-132	1	30				
Vinyl Chloride	119	117	66-133	1	30				
Xylene (Total)	113	111	79-125	2	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142331AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7572802	105	102	97	93
Blank	108	102	97	93
LCS	104	105	101	102
LCSD	103	103	99	101
MS	105	106	101	103
MSD	103	103	100	101
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: _____
Group #: _____ Sample #: _____

12152 / 1497610 / 7572802

Client:	Fairfax Petroleum	Acct. #:	
Project Name/#:	26140 Great Falls, VA	PWSID #:	
Project Manager:	Mark C. Steele	P.O. #:	51141-299197
Sampler:	Paxton Wertz	Quote #:	
Name of State where samples were collected:	Virginia		

For Lab Use Only
FSC: _____
SCR#: _____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	Total # of Containers	Analyses Requested / Preservation Codes: Full List VOCs, Including Oxygenates (8260B) (H)	Remarks	Temperature of samples upon receipt (if requested)
RW-1	8/20/14	1216	X			X		3	X		
[redacted]											

Remarks: cooler

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 8/22/2014
Rush results requested by (please circle): Phone Fax E-mail
Phone #: _____ Fax #: _____
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplecate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/20/14	1600	FedEx	8/20/14	1600
			[signature]	8/21/14	905

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

1 of 1

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

August 22, 2014

Project: Fairfax 26140

Submittal Date: 08/21/2014
Group Number: 1497611
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-23D Grab Water	7572803

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: MW-23D Grab Water
Fairfax 26140

LL Sample # WW 7572803
LL Group # 1497611
Account # 12152

Project Name: Fairfax 26140

Collected: 08/20/2014 10:50

Submitted: 08/21/2014 09:05
Reported: 08/22/2014 10:12

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

MW23D

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**140**	10	10
10335	Benzene	71-43-2	< 10	10	10
10335	**t-Butyl alcohol**	75-65-0	**2,100**	200	10
10335	Ethyl t-butyl ether	637-92-3	< 10	10	10
10335	Ethylbenzene	100-41-4	< 10	10	10
10335	**di-Isopropyl ether**	108-20-3	**270**	10	10
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**10,000**	100	100
10335	Toluene	108-88-3	< 10	10	10
10335	Xylene (Total)	1330-20-7	< 10	10	10

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142331AA	08/22/2014 01:10	Andrea E Lando	10
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142331AA	08/22/2014 01:34	Andrea E Lando	100
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142331AA	08/22/2014 01:10	Andrea E Lando	10
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N142331AA	08/22/2014 01:34	Andrea E Lando	100

Quality Control Summary

Client Name: Kleinfelder Group Number: 1497611
Reported: 08/22/14 at 10:12 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142331AA	Sample number(s): 7572803							
t-Amyl methyl ether	< 1	1.	ug/l	94	97	75-120	3	30
Benzene	< 1	1.	ug/l	101	102	78-120	1	30
t-Butyl alcohol	< 20	20.	ug/l	104	102	75-120	2	30
Ethyl t-butyl ether	< 1	1.	ug/l	93	95	69-120	2	30
Ethylbenzene	< 1	1.	ug/l	101	101	79-120	0	30
di-Isopropyl ether	< 1	1.	ug/l	92	93	61-132	2	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	98	100	75-120	2	30
Toluene	< 1	1.	ug/l	103	102	80-120	1	30
Xylene (Total)	< 1	1.	ug/l	102	103	80-120	0	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: N142331AA	Sample number(s): 7572803 UNSPK: P569294								
t-Amyl methyl ether	98	100	65-117	3	30				
Benzene	110	111	72-134	0	30				
t-Butyl alcohol	103	105	67-119	2	30				
Ethyl t-butyl ether	95	98	74-122	3	30				
Ethylbenzene	111	110	71-134	1	30				
di-Isopropyl ether	95	98	70-129	3	30				
Methyl Tertiary Butyl Ether	100	102	72-126	3	30				
Toluene	113	112	80-125	1	30				
Xylene (Total)	113	111	79-125	2	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142331AA

Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 08/22/14 at 10:12 AM

Group Number: 1497611

Surrogate Quality Control

7572803	104	101	97	91
Blank	108	102	97	93
LCS	104	105	101	102
LCSD	103	103	99	101
MS	105	106	101	103
MSD	103	103	100	101
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: _____
Group #: _____ Sample #: _____

12152/1497611/7572803

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 Great Falls, VA | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	Total # of Containers	Analyses Requested / Preservation Codes: BTEX, MTBE, ETBE, TBA, DIPE, and TAME (8260) H									Remarks	Temperature of samples upon receipt (if requested)
MW-23D	8/20/14	1050	X			X		3	X									water	

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 8/22/2014
Rush results requested by (please circle): Phone Fax E-mail
Phone #: _____ Fax #: _____
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/20/14	1600	FedEx	8/20/14	1600
			[signature]	8/21/14	905

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

1 of 1

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

August 22, 2014

Project: Fairfax 26140

Submittal Date: 08/21/2014
Group Number: 1497612
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-25D (76) Grab Water	7572804
MW-25D (90) Grab Water	7572805
MW-25D (98) Grab Water	7572806

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

Sample Description: MW-25D (76) Grab Water
Fairfax 26140

LL Sample # WW 7572804
LL Group # 1497612
Account # 12152

Project Name: Fairfax 26140

Collected: 08/20/2014 09:29 by PW

Submitted: 08/21/2014 09:05
Reported: 08/22/2014 10:12

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

25D-1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	**Chloroform**	67-66-3	**2**	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	**cis-1,2-Dichloroethene**	156-59-2	**1**	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	**Tetrachloroethene**	127-18-4	**2**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: MW-25D (76) Grab Water
Fairfax 26140

LL Sample # WW 7572804
LL Group # 1497612
Account # 12152

Project Name: Fairfax 26140

Collected: 08/20/2014 09:29 by PW

Submitted: 08/21/2014 09:05
Reported: 08/22/2014 10:12

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

25D-1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142331AA	08/21/2014 23:10	Andrea E Lando	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142331AA	08/21/2014 23:10	Andrea E Lando	1

Sample Description: MW-25D (90) Grab Water
Fairfax 26140

LL Sample # WW 7572805
LL Group # 1497612
Account # 12152

Project Name: Fairfax 26140

Collected: 08/20/2014 08:50 by PW

Submitted: 08/21/2014 09:05
Reported: 08/22/2014 10:12

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

25D-2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	**Chloroform**	67-66-3	**2**	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	**cis-1,2-Dichloroethene**	156-59-2	**1**	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	**Tetrachloroethene**	127-18-4	**2**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: MW-25D (90) Grab Water
Fairfax 26140

LL Sample # WW 7572805
LL Group # 1497612
Account # 12152

Project Name: Fairfax 26140

Collected: 08/20/2014 08:50 by PW

Submitted: 08/21/2014 09:05
Reported: 08/22/2014 10:12

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

25D-2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142331AA	08/21/2014 23:34	Andrea E Lando	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142331AA	08/21/2014 23:34	Andrea E Lando	1

Sample Description: MW-25D (98) Grab Water
Fairfax 26140

LL Sample # WW 7572806
LL Group # 1497612
Account # 12152

Project Name: Fairfax 26140

Collected: 08/20/2014 08:24 by PW

Submitted: 08/21/2014 09:05
Reported: 08/22/2014 10:12

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

25D-3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	**Chloroform**	67-66-3	**2**	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	**cis-1,2-Dichloroethene**	156-59-2	**1**	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	**Tetrachloroethene**	127-18-4	**2**	1	1
10335	**Toluene**	108-88-3	**1**	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: MW-25D (98) Grab Water
Fairfax 26140

LL Sample # WW 7572806
LL Group # 1497612
Account # 12152

Project Name: Fairfax 26140

Collected: 08/20/2014 08:24 by PW

Submitted: 08/21/2014 09:05
Reported: 08/22/2014 10:12

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

25D-3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142331AA	08/21/2014 23:58	Andrea E Lando	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142331AA	08/21/2014 23:58	Andrea E Lando	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1497612
Reported: 08/22/14 at 10:12 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142331AA	Sample number(s): 7572804-7572806							
Acetone	< 20	20.	ug/l	101	104	55-129	3	30
Acrolein	< 100	100.	ug/l	84	83	59-120	1	30
Acrylonitrile	< 20	20.	ug/l	98	100	62-120	2	30
t-Amyl methyl ether	< 1	1.	ug/l	94	97	75-120	3	30
Benzene	< 1	1.	ug/l	101	102	78-120	1	30
Bromodichloromethane	< 1	1.	ug/l	104	105	73-120	0	30
Bromoform	< 4	4.	ug/l	100	99	61-120	0	30
Bromomethane	< 1	1.	ug/l	98	100	53-130	2	30
2-Butanone	< 10	10.	ug/l	103	106	54-133	3	30
t-Butyl alcohol	< 20	20.	ug/l	104	102	75-120	2	30
n-Butylbenzene	< 5	5.	ug/l	89	91	68-120	2	30
sec-Butylbenzene	< 5	5.	ug/l	94	96	75-120	2	30
Carbon Tetrachloride	< 1	1.	ug/l	111	114	74-130	2	30
Chlorobenzene	< 1	1.	ug/l	103	102	80-120	1	30
Chloroethane	< 1	1.	ug/l	93	94	56-120	0	30
2-Chloroethyl Vinyl Ether	< 10	10.	ug/l	84	87	62-128	3	30
Chloroform	< 1	1.	ug/l	106	108	80-122	2	30
Chloromethane	< 1	1.	ug/l	88	91	63-120	3	30
Dibromochloromethane	< 1	1.	ug/l	98	100	72-120	1	30
1,2-Dichlorobenzene	< 5	5.	ug/l	100	101	80-120	0	30
1,3-Dichlorobenzene	< 5	5.	ug/l	100	102	80-120	2	30
1,4-Dichlorobenzene	< 5	5.	ug/l	101	102	80-120	1	30
1,1-Dichloroethane	< 1	1.	ug/l	100	100	80-120	0	30
1,2-Dichloroethane	< 1	1.	ug/l	112	112	65-135	0	30
1,1-Dichloroethene	< 1	1.	ug/l	100	102	76-124	2	30
cis-1,2-Dichloroethene	< 1	1.	ug/l	105	106	80-120	1	30
trans-1,2-Dichloroethene	< 1	1.	ug/l	106	108	80-120	2	30
1,2-Dichloropropane	< 1	1.	ug/l	100	99	80-120	1	30
cis-1,3-Dichloropropene	< 1	1.	ug/l	101	104	80-120	3	30
trans-1,3-Dichloropropene	< 1	1.	ug/l	94	95	76-120	0	30
Ethyl t-butyl ether	< 1	1.	ug/l	93	95	69-120	2	30
Ethylbenzene	< 1	1.	ug/l	101	101	79-120	0	30
di-Isopropyl ether	< 1	1.	ug/l	92	93	61-132	2	30
Isopropylbenzene	< 5	5.	ug/l	100	101	80-120	2	30
p-Isopropyltoluene	< 5	5.	ug/l	93	95	76-120	2	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	98	100	75-120	2	30
Methylene Chloride	< 3	3.	ug/l	98	99	80-120	1	30
Naphthalene	< 5	5.	ug/l	79	84	47-126	6	30
n-Propylbenzene	< 5	5.	ug/l	98	98	80-120	0	30
1,1,2,2-Tetrachloroethane	< 1	1.	ug/l	96	95	70-120	1	30
Tetrachloroethene	< 1	1.	ug/l	105	107	80-120	2	30
Toluene	< 1	1.	ug/l	103	102	80-120	1	30
1,1,1-Trichloroethane	< 1	1.	ug/l	105	105	66-126	0	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 08/22/14 at 10:12 AM

Group Number: 1497612

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	< 1	1.	ug/l	101	102	80-120	1	30
Trichloroethene	< 1	1.	ug/l	108	109	80-120	0	30
Trichlorofluoromethane	< 1	1.	ug/l	101	100	58-135	0	30
1,2,4-Trimethylbenzene	< 5	5.	ug/l	101	101	80-120	0	30
1,3,5-Trimethylbenzene	< 5	5.	ug/l	101	101	80-120	1	30
Vinyl Chloride	< 1	1.	ug/l	96	97	63-120	1	30
Xylene (Total)	< 1	1.	ug/l	102	103	80-120	0	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: N142331AA	Sample number(s): 7572804-7572806 UNSPK: P569294								
Acetone	102	100	35-144	2	30				
Acrolein	86	85	39-136	1	30				
Acrylonitrile	100	100	51-125	1	30				
t-Amyl methyl ether	98	100	65-117	3	30				
Benzene	110	111	72-134	0	30				
Bromodichloromethane	111	109	73-125	2	30				
Bromoform	101	100	48-118	1	30				
Bromomethane	116	112	47-129	4	30				
2-Butanone	102	103	44-135	1	30				
t-Butyl alcohol	103	105	67-119	2	30				
n-Butylbenzene	99	99	74-134	0	30				
sec-Butylbenzene	105	104	74-137	0	30				
Carbon Tetrachloride	129	130	75-148	1	30				
Chlorobenzene	113	111	87-124	2	30				
Chloroethane	108	108	55-130	0	30				
2-Chloroethyl Vinyl Ether	85	85	10-151	0	30				
Chloroform	117	116	81-134	1	30				
Chloromethane	99	102	61-125	2	30				
Dibromochloromethane	103	102	74-116	0	30				
1,2-Dichlorobenzene	107	105	84-119	1	30				
1,3-Dichlorobenzene	107	104	86-121	3	30				
1,4-Dichlorobenzene	109	107	85-121	2	30				
1,1-Dichloroethane	108	108	84-129	0	30				
1,2-Dichloroethane	118	117	63-142	1	30				
1,1-Dichloroethene	115	116	79-137	1	30				
cis-1,2-Dichloroethene	114	114	80-141	0	30				
trans-1,2-Dichloroethene	117	117	86-131	0	30				
1,2-Dichloropropane	106	106	83-124	0	30				
cis-1,3-Dichloropropene	107	107	70-116	0	30				
trans-1,3-Dichloropropene	100	100	74-119	0	30				
Ethyl t-butyl ether	95	98	74-122	3	30				
Ethylbenzene	111	110	71-134	1	30				
di-Isopropyl ether	95	98	70-129	3	30				
Isopropylbenzene	110	110	75-128	0	30				
p-Isopropyltoluene	103	101	76-123	2	30				
Methyl Tertiary Butyl Ether	100	102	72-126	3	30				
Methylene Chloride	106	105	78-133	0	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1497612
Reported: 08/22/14 at 10:12 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Naphthalene	77	82	52-125	6	30				
n-Propylbenzene	108	106	74-134	2	30				
1,1,2,2-Tetrachloroethane	101	98	72-128	3	30				
Tetrachloroethene	119	118	80-128	1	30				
Toluene	113	112	80-125	1	30				
1,1,1-Trichloroethane	121	121	69-140	0	30				
1,1,2-Trichloroethane	108	105	71-141	3	30				
Trichloroethene	119	119	88-133	1	30				
Trichlorofluoromethane	123	123	63-163	1	30				
1,2,4-Trimethylbenzene	109	108	72-130	2	30				
1,3,5-Trimethylbenzene	110	108	65-132	1	30				
Vinyl Chloride	119	117	66-133	1	30				
Xylene (Total)	113	111	79-125	2	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142331AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7572804	109	105	96	92
7572805	108	105	96	93
7572806	109	105	97	92
Blank	108	102	97	93
LCS	104	105	101	102
LCSD	103	103	99	101
MS	105	106	101	103
MSD	103	103	100	101
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: _____
Group #: _____ Sample #: _____

12152 / 1497612 / 7572804-06

Client:	Fairfax Petroleum	Acct. #:	
Project Name/#:	26140 Great Falls, VA	PWSID #:	
Project Manager:	Mark C. Steele	P.O. #:	51141-299197
Sampler:	Paxton Wertz	Quote #:	
Name of State where samples were collected:	Virginia		

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	Total # of Containers	Analyses Requested / Preservation Codes: Full List VOCs, Including Oxygenates (8260B) H									Remarks	Temperature of samples upon receipt (if requested)
MW-25D (76)	8/20/14	0929	X			X		3	X										
MW-25D (90)	8/20/14	0850	X			X		3	X										
MW-25D (98)	8/20/14	0824	X			X		3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 8/22/2014
Rush results requested by (please circle): Phone Fax E-mail
Phone #: _____ Fax #: _____
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplecate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/20/14	1600	FedEx	8/20/14	1600
			[signature]	8/21/14	905

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

August 28, 2014

Project: Fairfax 26140

Submittal Date: 08/27/2014
Group Number: 1498962
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-20D (73) Grab Water	7579038
MW-20D (90) Grab Water	7579039
MW-20D (133) Grab Water	7579040

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW-20D (73) Grab Water
Fairfax 26140

LL Sample # WW 7579038
LL Group # 1498962
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 14:32 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:16

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

20D73

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	**t-Butyl alcohol**	75-65-0	**34**	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**2**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**100**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142393AA	08/28/2014 04:03	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142393AA	08/28/2014 04:03	Stephanie A Selis	1

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Analysis Report

Sample Description: MW-20D (90) Grab Water
Fairfax 26140

LL Sample # WW 7579039
LL Group # 1498962
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 15:04 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:16

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

20D90

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	**t-Butyl alcohol**	75-65-0	**26**	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**1**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**75**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142393AA	08/28/2014 04:27	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142393AA	08/28/2014 04:27	Stephanie A Selis	1

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Analysis Report

Sample Description: MW-20D (133) Grab Water
Fairfax 26140

LL Sample # WW 7579040
LL Group # 1498962
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 15:38 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:16

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

20D33

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**1**	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	**t-Butyl alcohol**	75-65-0	**42**	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**2**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**130**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142393AA	08/28/2014 04:51	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142393AA	08/28/2014 04:51	Stephanie A Selis	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1498962
Reported: 08/28/14 at 03:16 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142393AA	Sample number(s): 7579038-7579040							
t-Amyl methyl ether	< 1	1.	ug/l	99	99	75-120	0	30
Benzene	< 1	1.	ug/l	99	98	78-120	1	30
t-Butyl alcohol	< 20	20.	ug/l	109	108	75-120	0	30
Ethyl t-butyl ether	< 1	1.	ug/l	95	96	69-120	2	30
Ethylbenzene	< 1	1.	ug/l	103	101	79-120	2	30
di-Isopropyl ether	< 1	1.	ug/l	94	94	61-132	0	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	98	99	75-120	1	30
Toluene	< 1	1.	ug/l	105	102	80-120	2	30
Xylene (Total)	< 1	1.	ug/l	104	103	80-120	2	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: N142393AA	Sample number(s): 7579038-7579040 UNSPK: P573293								
t-Amyl methyl ether	101	102	65-117	0	30				
Benzene	107	106	72-134	1	30				
t-Butyl alcohol	103	107	67-119	3	30				
Ethyl t-butyl ether	98	99	74-122	0	30				
Ethylbenzene	110	109	71-134	1	30				
di-Isopropyl ether	97	98	70-129	0	30				
Methyl Tertiary Butyl Ether	100	99	72-126	1	30				
Toluene	112	112	80-125	0	30				
Xylene (Total)	111	110	79-125	0	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142393AA

Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 08/28/14 at 03:16 PM

Group Number: 1498962

Surrogate Quality Control

7579038	103	101	97	94
7579039	103	102	97	93
7579040	104	103	97	93
Blank	104	104	97	93
LCS	102	102	101	100
LCSD	100	101	100	101
MS	102	100	101	102
MSD	102	102	101	102
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 4498962 Sample #: 7579035-040

Client:	Fairfax Petroleum	Acct. #:	
Project Name/#:	26140	PWSID #:	
Project Manager:	Mark C. Steele	P.O. #:	51141-299197
Sampler:	Tim Boswell	Quote #:	
Name of State where samples were collected:	Virginia		

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Potable Water	Matrix: NPDES Water	Matrix: Other	Total # of Containers	BTEX, MTBE (8260)	TAME, TBA, ETBE, DIPE (8260)									Remarks	Temperature of samples upon receipt (if requested)
										H	H										
MW-20D (73)	8/26/14	1432	X			X			3	X	X									water	
MW-20D (90)	8/26/14	1504	X			X			3	X	X										
MW-20D (133)	8/26/14	1538	X			X			3	X	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 24 hour TAT, Results 8/28/14
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/26/14	1630	UPS	8/26/14	1630
			[signature]	8/27/14	940

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

August 28, 2014

Project: Fairfax 26140

Submittal Date: 08/27/2014
Group Number: 1498966
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-27S Grab Water	7579053
MW-27I Grab Water	7579054

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW-27S Grab Water
Fairfax 26140

LL Sample # WW 7579053
LL Group # 1498966
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 14:02 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:15

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

27S--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**1**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142393AA	08/28/2014 05:15	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142393AA	08/28/2014 05:15	Stephanie A Selis	1

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Analysis Report

Sample Description: MW-27I Grab Water
Fairfax 26140

LL Sample # WW 7579054
LL Group # 1498966
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 13:28 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:15

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

27-I-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**1**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142393AA	08/28/2014 05:39	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142393AA	08/28/2014 05:39	Stephanie A Selis	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1498966
Reported: 08/28/14 at 03:15 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142393AA	Sample number(s): 7579053-7579054							
t-Amyl methyl ether	< 1	1.	ug/l	99	99	75-120	0	30
Benzene	< 1	1.	ug/l	99	98	78-120	1	30
t-Butyl alcohol	< 20	20.	ug/l	109	108	75-120	0	30
Ethyl t-butyl ether	< 1	1.	ug/l	95	96	69-120	2	30
Ethylbenzene	< 1	1.	ug/l	103	101	79-120	2	30
di-Isopropyl ether	< 1	1.	ug/l	94	94	61-132	0	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	98	99	75-120	1	30
Toluene	< 1	1.	ug/l	105	102	80-120	2	30
Xylene (Total)	< 1	1.	ug/l	104	103	80-120	2	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: N142393AA	Sample number(s): 7579053-7579054 UNSPK: P573293								
t-Amyl methyl ether	101	102	65-117	0	30				
Benzene	107	106	72-134	1	30				
t-Butyl alcohol	103	107	67-119	3	30				
Ethyl t-butyl ether	98	99	74-122	0	30				
Ethylbenzene	110	109	71-134	1	30				
di-Isopropyl ether	97	98	70-129	0	30				
Methyl Tertiary Butyl Ether	100	99	72-126	1	30				
Toluene	112	112	80-125	0	30				
Xylene (Total)	111	110	79-125	0	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142393AA

Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 08/28/14 at 03:15 PM

Group Number: 1498966

Surrogate Quality Control

7579053	105	104	96	94
7579054	103	103	96	94
Blank	104	104	97	93
LCS	102	102	101	100
LCSD	100	101	100	101
MS	102	100	101	102
MSD	102	102	101	102
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 14989666 Sample #: 75 79053 54

Client:	Fairfax Petroleum	Acct. #:	
Project Name/#:	26140	PWSID #:	
Project Manager:	Mark C. Steele	P.O. #:	51141-299197
Sampler:	Tim Boswell	Quote #:	
Name of State where samples were collected:	Virginia		

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	Total # of Containers	BTEX, MTBE (8260) (H)	TAME, TBA, DIPE, ETBE (8260) (H)								Remarks	Temperature of samples upon receipt (if requested)
MW-27S	8/26/14	1402	X			X		3	X	X									
MW-27I	8/26/14	1328	X			X		3	X	X								1 cooler	

73 73

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: Results 8/28/14 24 hr TAT
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/26/14	1640	UPS	8/26/14	1640
			[signature]	8/27/14	940

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

1 of 1

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

August 28, 2014

Project: Fairfax 26140

Submittal Date: 08/27/2014
Group Number: 1498975
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-26D (67) Grab Water	7579072
MW-26D (78) Grab Water	7579073
MW-26D (89) Grab Water	7579074

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

Sample Description: MW-26D (67) Grab Water
Fairfax 26140

LL Sample # WW 7579072
LL Group # 1498975
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 12:42 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:17

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

26D67

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: MW-26D (67) Grab Water
Fairfax 26140

LL Sample # WW 7579072
LL Group # 1498975
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 12:42 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:17

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

26D67

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142393AA	08/28/2014 02:50	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142393AA	08/28/2014 02:50	Stephanie A Selis	1

Sample Description: MW-26D (78) Grab Water
Fairfax 26140

LL Sample # WW 7579073
LL Group # 1498975
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 12:20 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:17

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

26D78

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: MW-26D (78) Grab Water
Fairfax 26140

LL Sample # WW 7579073
LL Group # 1498975
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 12:20 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:17

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

26D78

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142393AA	08/28/2014 03:14	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142393AA	08/28/2014 03:14	Stephanie A Selis	1

Sample Description: MW-26D (89) Grab Water
Fairfax 26140

LL Sample # WW 7579074
LL Group # 1498975
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 11:58 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:17

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

26D89

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: MW-26D (89) Grab Water
Fairfax 26140

LL Sample # WW 7579074
LL Group # 1498975
Account # 12152

Project Name: Fairfax 26140

Collected: 08/26/2014 11:58 by TB

Submitted: 08/27/2014 09:40
Reported: 08/28/2014 15:17

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

26D89

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142393AA	08/28/2014 03:38	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142393AA	08/28/2014 03:38	Stephanie A Selis	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1498975
Reported: 08/28/14 at 03:17 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142393AA	Sample number(s): 7579072-7579074							
Acetone	< 20	20.	ug/l	96	100	55-129	3	30
Acrolein	< 100	100.	ug/l	91	90	59-120	2	30
Acrylonitrile	< 20	20.	ug/l	97	98	62-120	1	30
t-Amyl methyl ether	< 1	1.	ug/l	99	99	75-120	0	30
Benzene	< 1	1.	ug/l	99	98	78-120	1	30
Bromodichloromethane	< 1	1.	ug/l	101	99	73-120	2	30
Bromoform	< 4	4.	ug/l	97	97	61-120	0	30
Bromomethane	< 1	1.	ug/l	84	85	53-130	0	30
2-Butanone	< 10	10.	ug/l	103	105	54-133	2	30
t-Butyl alcohol	< 20	20.	ug/l	109	108	75-120	0	30
n-Butylbenzene	< 5	5.	ug/l	92	93	68-120	0	30
sec-Butylbenzene	< 5	5.	ug/l	97	97	75-120	0	30
Carbon Tetrachloride	< 1	1.	ug/l	101	99	74-130	2	30
Chlorobenzene	< 1	1.	ug/l	104	103	80-120	2	30
Chloroethane	< 1	1.	ug/l	80	79	56-120	1	30
2-Chloroethyl Vinyl Ether	< 10	10.	ug/l	93	95	62-128	3	30
Chloroform	< 1	1.	ug/l	103	102	80-122	1	30
Chloromethane	< 1	1.	ug/l	79	79	63-120	0	30
Dibromochloromethane	< 1	1.	ug/l	98	99	72-120	0	30
1,2-Dichlorobenzene	< 5	5.	ug/l	103	103	80-120	0	30
1,3-Dichlorobenzene	< 5	5.	ug/l	103	103	80-120	0	30
1,4-Dichlorobenzene	< 5	5.	ug/l	105	105	80-120	0	30
1,1-Dichloroethane	< 1	1.	ug/l	94	94	80-120	1	30
1,2-Dichloroethane	< 1	1.	ug/l	105	105	65-135	0	30
1,1-Dichloroethene	< 1	1.	ug/l	90	88	76-124	2	30
cis-1,2-Dichloroethene	< 1	1.	ug/l	101	101	80-120	0	30
trans-1,2-Dichloroethene	< 1	1.	ug/l	99	99	80-120	1	30
1,2-Dichloropropane	< 1	1.	ug/l	100	99	80-120	1	30
cis-1,3-Dichloropropene	< 1	1.	ug/l	101	102	80-120	1	30
trans-1,3-Dichloropropene	< 1	1.	ug/l	96	96	76-120	0	30
Ethyl t-butyl ether	< 1	1.	ug/l	95	96	69-120	2	30
Ethylbenzene	< 1	1.	ug/l	103	101	79-120	2	30
di-Isopropyl ether	< 1	1.	ug/l	94	94	61-132	0	30
Isopropylbenzene	< 5	5.	ug/l	101	101	80-120	0	30
p-Isopropyltoluene	< 5	5.	ug/l	96	96	76-120	1	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	98	99	75-120	1	30
Methylene Chloride	< 3	3.	ug/l	92	92	80-120	0	30
Naphthalene	< 5	5.	ug/l	86	89	47-126	4	30
n-Propylbenzene	< 5	5.	ug/l	101	101	80-120	0	30
1,1,2,2-Tetrachloroethane	< 1	1.	ug/l	105	106	70-120	1	30
Tetrachloroethene	< 1	1.	ug/l	104	103	80-120	1	30
Toluene	< 1	1.	ug/l	105	102	80-120	2	30
1,1,1-Trichloroethane	< 1	1.	ug/l	106	105	66-126	1	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 08/28/14 at 03:17 PM

Group Number: 1498975

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	< 1	1.	ug/l	103	104	80-120	1	30
Trichloroethene	< 1	1.	ug/l	106	104	80-120	1	30
Trichlorofluoromethane	< 1	1.	ug/l	89	86	58-135	2	30
1,2,4-Trimethylbenzene	< 5	5.	ug/l	104	102	80-120	1	30
1,3,5-Trimethylbenzene	< 5	5.	ug/l	103	104	80-120	1	30
Vinyl Chloride	< 1	1.	ug/l	83	84	63-120	0	30
Xylene (Total)	< 1	1.	ug/l	104	103	80-120	2	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: N142393AA	Sample number(s): 7579072-7579074 UNSPK: P573293								
Acetone	111	111	35-144	0	30				
Acrolein	87	87	39-136	0	30				
Acrylonitrile	95	94	51-125	1	30				
t-Amyl methyl ether	101	102	65-117	0	30				
Benzene	107	106	72-134	1	30				
Bromodichloromethane	108	105	73-125	3	30				
Bromoform	100	100	48-118	0	30				
Bromomethane	98	97	47-129	1	30				
2-Butanone	106	106	44-135	0	30				
t-Butyl alcohol	103	107	67-119	3	30				
n-Butylbenzene	99	100	74-134	0	30				
sec-Butylbenzene	105	105	74-137	0	30				
Carbon Tetrachloride	119	116	75-148	3	30				
Chlorobenzene	109	108	87-124	1	30				
Chloroethane	99	94	55-130	4	30				
2-Chloroethyl Vinyl Ether	93	94	10-151	1	30				
Chloroform	111	109	81-134	2	30				
Chloromethane	93	93	61-125	0	30				
Dibromochloromethane	104	102	74-116	2	30				
1,2-Dichlorobenzene	105	105	84-119	0	30				
1,3-Dichlorobenzene	106	106	86-121	0	30				
1,4-Dichlorobenzene	107	108	85-121	1	30				
1,1-Dichloroethane	102	102	84-129	1	30				
1,2-Dichloroethane	109	106	63-142	2	30				
1,1-Dichloroethene	102	101	79-137	1	30				
cis-1,2-Dichloroethene	110	108	80-141	1	30				
trans-1,2-Dichloroethene	110	108	86-131	2	30				
1,2-Dichloropropane	104	104	83-124	0	30				
cis-1,3-Dichloropropene	108	106	70-116	2	30				
trans-1,3-Dichloropropene	100	98	74-119	1	30				
Ethyl t-butyl ether	98	99	74-122	0	30				
Ethylbenzene	110	109	71-134	1	30				
di-Isopropyl ether	97	98	70-129	0	30				
Isopropylbenzene	109	110	75-128	1	30				
p-Isopropyltoluene	103	103	76-123	0	30				
Methyl Tertiary Butyl Ether	100	99	72-126	1	30				
Methylene Chloride	97	96	78-133	0	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1498975
Reported: 08/28/14 at 03:17 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Naphthalene	91	94	52-125	3	30				
n-Propylbenzene	107	107	74-134	0	30				
1,1,2,2-Tetrachloroethane	92	93	72-128	1	30				
Tetrachloroethene	206*	204*	80-128	1	30				
Toluene	112	112	80-125	0	30				
1,1,1-Trichloroethane	119	118	69-140	1	30				
1,1,2-Trichloroethane	104	105	71-141	1	30				
Trichloroethene	121	121	88-133	1	30				
Trichlorofluoromethane	116	113	63-163	3	30				
1,2,4-Trimethylbenzene	109	109	72-130	0	30				
1,3,5-Trimethylbenzene	108	109	65-132	1	30				
Vinyl Chloride	102	101	66-133	1	30				
Xylene (Total)	111	110	79-125	0	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142393AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7579072	104	105	97	92
7579073	102	104	97	92
7579074	103	103	97	93
Blank	104	104	97	93
LCS	102	102	101	100
LCSD	100	101	100	101
MS	102	100	101	102
MSD	102	102	101	102
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 1498975 Sample #: 757907-74

Client:	Fairfax Petroleum	Acct. #:	
Project Name/#:	26140	PWSID #:	
Project Manager:	Mark C. Steele	P.O. #:	51141-299197
Sampler:	Tim Boswell	Quote #:	
Name of State where samples were collected:	Virginia		

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Potable	Matrix: NPDES	Matrix: Water	Matrix: Other	Total # of Containers	Analyses Requested / Preservation Codes: Full list VOCs + Oxygenates (8260D) H	H								Remarks
MW-26D (67)	8/26/14	1242	X					X		3	X									
MW-26D (78)	8/26/14	1220	X					X		3	X									Cooler
MW-26D (89)	8/26/14	1158	X					X		3	X									
23																				24

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Temperature of samples upon receipt (if requested)

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 24 hour TAT Results 8/28/14
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/26/14	1640	UPS	8/26/14	1640

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

1 of 1 940

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

September 10, 2014

Project: Fairfax 26140

Submittal Date: 09/03/2014
Group Number: 1500485
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-17D(75) Grab Water	7585873
MW-17D(81) Grab Water	7585874
MW-17D(87.75) Grab Water	7585875
MW-17D(92) Grab Water	7585876
MW-5 Grab Water	7585877

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW-17D(75) Grab Water
Fairfax 26140

LL Sample # WW 7585873
LL Group # 1500485
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 10:10 by TB

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 15:41

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F4075

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**t-Amyl methyl ether**	994-05-8	**2**	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**31**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**190**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 08:10	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 08:10	Anita M Dale	1

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Analysis Report

Sample Description: MW-17D(81) Grab Water
Fairfax 26140

LL Sample # WW 7585874
LL Group # 1500485
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 12:40 by TB

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 15:41

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F4081

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**2**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**10**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 15:59	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 15:59	Anita M Dale	1

Sample Description: MW-17D(87.75) Grab Water
Fairfax 26140

LL Sample # WW 7585875
LL Group # 1500485
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 14:10 by TB

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 15:41

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F4087

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**3**	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	**t-Butyl alcohol**	75-65-0	**61**	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**6**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**250**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142471AA	09/04/2014 16:11	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142471AA	09/04/2014 16:11	Linda C Pape	1

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Analysis Report

Sample Description: MW-17D(92) Grab Water
Fairfax 26140

LL Sample # WW 7585876
LL Group # 1500485
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 15:30 by TB

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 15:41

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F4092

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**130**	10	10
10335	Benzene	71-43-2	< 10	10	10
10335	**t-Butyl alcohol**	75-65-0	**3,300**	200	10
10335	Ethyl t-butyl ether	637-92-3	< 10	10	10
10335	Ethylbenzene	100-41-4	< 10	10	10
10335	**di-Isopropyl ether**	108-20-3	**200**	10	10
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**11,000**	100	100
10335	Toluene	108-88-3	< 10	10	10
10335	Xylene (Total)	1330-20-7	< 10	10	10

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 08:33	Anita M Dale	10
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 08:57	Anita M Dale	100
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 08:33	Anita M Dale	10
01163	GC/MS VOA Water Prep	SW-846 5030B	2	W142471AA	09/04/2014 08:57	Anita M Dale	100

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Analysis Report

Sample Description: MW-5 Grab Water
Fairfax 26140

LL Sample # WW 7585877
LL Group # 1500485
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 11:40 by TB

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 15:41

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F40M5

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**2**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	**Sulfate**	14808-79-8	**10.8**	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**6.3**	0.50	5
00219	Nitrite Nitrogen	14797-65-0	< 0.050	0.050	1
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	Ferrous Iron	n.a.	< 0.050	0.050	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142471AA	09/04/2014 16:35	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142471AA	09/04/2014 16:35	Linda C Pape	1
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142480006A	09/05/2014 19:38	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14246347601B	09/03/2014 16:44	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106101A	09/08/2014 12:35	Joseph E McKenzie	5
00219	Nitrite Nitrogen	EPA 353.2	1	14246105101A	09/03/2014 23:16	James S Mathiot	1
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14246834401A	09/03/2014 23:25	Daniel S Smith	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500485
Reported: 09/10/14 at 03:41 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142471AA	Sample number(s): 7585875,7585877							
t-Amyl methyl ether	< 1	1.	ug/l	102	104	75-120	2	30
Benzene	< 1	1.	ug/l	100	103	78-120	3	30
t-Butyl alcohol	< 20	20.	ug/l	108	109	75-120	1	30
Ethyl t-butyl ether	< 1	1.	ug/l	99	101	69-120	2	30
Ethylbenzene	< 1	1.	ug/l	98	99	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	95	97	61-132	2	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	103	104	75-120	2	30
Toluene	< 1	1.	ug/l	102	105	80-120	3	30
Xylene (Total)	< 1	1.	ug/l	99	100	80-120	1	30
Batch number: W142471AA	Sample number(s): 7585873-7585874,7585876							
t-Amyl methyl ether	< 1	1.	ug/l	103	99	75-120	4	30
Benzene	< 1	1.	ug/l	112	112	78-120	1	30
t-Butyl alcohol	< 20	20.	ug/l	111	106	75-120	4	30
Ethyl t-butyl ether	< 1	1.	ug/l	101	102	69-120	1	30
Ethylbenzene	< 1	1.	ug/l	104	103	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	116	114	61-132	1	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	105	104	75-120	2	30
Toluene	< 1	1.	ug/l	112	113	80-120	1	30
Xylene (Total)	< 1	1.	ug/l	106	106	80-120	0	30
Batch number: 142480006A	Sample number(s): 7585877							
Methane	< 5.0	5.0	ug/l	111		85-115		
Batch number: 14246105101A	Sample number(s): 7585877							
Nitrite Nitrogen	< 0.050	0.050	mg/l	101		90-110		
Batch number: 14246347601B	Sample number(s): 7585877							
Sulfate	< 1.0	1.0	mg/l	103		90-110		
Batch number: 14251106101A	Sample number(s): 7585877							
Nitrate Nitrogen	< 0.10	0.10	mg/l	93		90-110		
Batch number: 14246834401A	Sample number(s): 7585877							
Ferrous Iron	< 0.050	0.050	mg/l	102		93-105		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500485
Reported: 09/10/14 at 03:41 PM

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 142480006A	Sample number(s): 7585877 UNSPK: 7585877								
Methane	102	104	46-129	3	20				
Batch number: 14246105101A	Sample number(s): 7585877 UNSPK: P585675 BKG: P585675								
Nitrite Nitrogen	99		90-110			< 0.050	< 0.050	0 (1)	20
Batch number: 14246347601B	Sample number(s): 7585877 UNSPK: P585695 BKG: P585695								
Sulfate	120*		90-110			18.6	18.8	1 (1)	20
Batch number: 14251106101A	Sample number(s): 7585877 UNSPK: P585236 BKG: P585236								
Nitrate Nitrogen	90		90-110			1.2	1.3	2	2
Batch number: 14246834401A	Sample number(s): 7585877 UNSPK: P586642 BKG: P586642								
Ferrous Iron	93	97	73-111	2	6	92.7	94.3	2 (1)	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142471AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7585875	102	101	98	93
7585877	104	102	98	92
Blank	103	103	98	94
LCS	102	103	101	102
LCSD	101	101	100	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 8260 VOCs
Batch number: W142471AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7585873	94	102	99	94
7585874	99	103	97	92
7585876	94	96	97	92
Blank	93	99	100	96
LCS	95	97	101	100
LCSD	94	97	102	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 142480006A

	Propene
7585877	81
Blank	100
LCS	97

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 09/10/14 at 03:41 PM

Group Number: 1500485

Surrogate Quality Control

MS	81
MSD	82
Limits:	47-116

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: _____ Sample #: _____
1500485 75858 73-77

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Tim Boswell | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (Potable / NPDES)	Other	Total # of Containers	BTEX + Oxygenates 8260 (H)	Nitrate 353.2 (N)	Ferrous Fe-3500 Fe B (N)	Sulfate-3000 (N)	Methane 8015B (N)					Remarks	Temperature of samples upon receipt (if requested)
MW-170 (75)	9/2/14	1010	X			X		3	X									1 cooler	
MW-170 (81)	9/2/14	1240	X			X		3	X										
MW-170 (87.75)	9/2/14	1410	X			X		3	X										
MW-170 (92)	9/2/14	1530	X			X		3	X										
MW-5	9/2/14	1140	X			X		10	X	X	X	X	X						
212																			

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: _____
Rush results requested by (please circle): Phone Fax E-mail
Phone #: _____ Fax #: _____
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9/2/14	1600	UPS	9/2/14	1600
			[signature]	9.3	0815

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

1 of 1

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 10, 2014

Project: Fairfax 26140

Submittal Date: 09/03/2014
Group Number: 1500486
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-26D(89) Grab Water	7585878
MW-26D(78) Grab Water	7585879
MW-26D(67) Grab Water	7585880

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: MW-26D(89) Grab Water
Fairfax 26140

LL Sample # WW 7585878
LL Group # 1500486
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 11:30 by CL

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 10:26

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

40268

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142471AA	09/04/2014 16:58	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142471AA	09/04/2014 16:58	Linda C Pape	1

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Analysis Report

Sample Description: MW-26D(78) Grab Water
Fairfax 26140

LL Sample # WW 7585879
LL Group # 1500486
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 12:10 by CL

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 10:26

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

40267

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142471AA	09/04/2014 17:23	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142471AA	09/04/2014 17:23	Linda C Pape	1

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Analysis Report

Sample Description: MW-26D(67) Grab Water
Fairfax 26140

LL Sample # WW 7585880
LL Group # 1500486
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 12:45 by CL

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 10:26

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

40266

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 09:20	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 09:20	Anita M Dale	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500486
Reported: 09/10/14 at 10:26 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142471AA	Sample number(s): 7585878-7585879							
t-Amyl methyl ether	< 1	1.	ug/l	102	104	75-120	2	30
Benzene	< 1	1.	ug/l	100	103	78-120	3	30
t-Butyl alcohol	< 20	20.	ug/l	108	109	75-120	1	30
Ethyl t-butyl ether	< 1	1.	ug/l	99	101	69-120	2	30
Ethylbenzene	< 1	1.	ug/l	98	99	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	95	97	61-132	2	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	103	104	75-120	2	30
Toluene	< 1	1.	ug/l	102	105	80-120	3	30
Xylene (Total)	< 1	1.	ug/l	99	100	80-120	1	30
Batch number: W142471AA	Sample number(s): 7585880							
t-Amyl methyl ether	< 1	1.	ug/l	103	99	75-120	4	30
Benzene	< 1	1.	ug/l	112	112	78-120	1	30
t-Butyl alcohol	< 20	20.	ug/l	111	106	75-120	4	30
Ethyl t-butyl ether	< 1	1.	ug/l	101	102	69-120	1	30
Ethylbenzene	< 1	1.	ug/l	104	103	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	116	114	61-132	1	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	105	104	75-120	2	30
Toluene	< 1	1.	ug/l	112	113	80-120	1	30
Xylene (Total)	< 1	1.	ug/l	106	106	80-120	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142471AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7585878	104	103	98	94
7585879	104	103	97	94
Blank	103	103	98	94
LCS	102	103	101	102
LCSD	101	101	100	100
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 09/10/14 at 10:26 AM

Group Number: 1500486

Surrogate Quality Control

Analysis Name: 8260 VOCs
Batch number: W142471AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7585880	96	104	99	95
Blank	93	99	100	96
LCS	95	97	101	100
LCSD	94	97	102	100
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: _____ Sample #: _____
1500486 7585878-80

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Charlie Low | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (Potable / NPDES)	Other	Total # of Containers	BTEX + Oxygenates	Nitrate-353.2	Ferrous Fe-3500 Fe B	Sulfate-300.0	Methane-8015B					Remarks	Temperature of samples upon receipt (if requested)
MW-26D (89)	9/2/14	1130	X			X		3	X										
MW-26D (78)	9/2/14	1210	X			X		3	X										
MW-26D (67)	9/2/14	1245	X			X		3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9-2-14	1600	[signature]	9/2/14	1600
			[signature]	9 3	0815

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Explanation of Symbols and Abbreviations

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IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

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U.S. EPA CLP Data Qualifiers:

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A	TIC is a possible aldol-condensation product
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B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
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N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
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+	Correlation coefficient for MSA <0.995

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

September 10, 2014

Project: Fairfax 26140

Submittal Date: 09/03/2014
Group Number: 1500487
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-22 Grab Water	7585881

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW-22 Grab Water
Fairfax 26140

LL Sample # WW 7585881
LL Group # 1500487
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 13:55 by CL

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 10:26

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F4022

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 09:44	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 09:44	Anita M Dale	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500487
Reported: 09/10/14 at 10:26 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: W142471AA	Sample number(s): 7585881							
t-Amyl methyl ether	< 1	1.	ug/l	103	99	75-120	4	30
Benzene	< 1	1.	ug/l	112	112	78-120	1	30
t-Butyl alcohol	< 20	20.	ug/l	111	106	75-120	4	30
Ethyl t-butyl ether	< 1	1.	ug/l	101	102	69-120	1	30
Ethylbenzene	< 1	1.	ug/l	104	103	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	116	114	61-132	1	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	105	104	75-120	2	30
Toluene	< 1	1.	ug/l	112	113	80-120	1	30
Xylene (Total)	< 1	1.	ug/l	106	106	80-120	0	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: W142471AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7585881	97	103	98	92
Blank	93	99	100	96
LCS	95	97	101	100
LCSD	94	97	102	100
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: _____ Sample #: _____
1500487 7585881

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Charlie Low | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	Total # of Containers	BTEX + Oxygenates	Nitrate - 353.2	Ferrous Fe - 3500 Fe B	Sulfate - 300.0	Methane - 8015 B					Remarks	Temperature of samples upon receipt (if requested)
MW-22	9/2/14	1355	X			X		3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9/2/14	1600	USP	9/2/14	1600
			[signature]	9.3	0815

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

1 of 1

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 10, 2014

Project: Fairfax 26140

Submittal Date: 09/03/2014
Group Number: 1500488
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-25D(98) Grab Water	7585882
MW-25D(90) Grab Water	7585883
MW-25D(76) Grab Water	7585884

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW-25D(98) Grab Water
Fairfax 26140

LL Sample # WW 7585882
LL Group # 1500488
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 08:30 by CL

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 15:40

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

40259

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 10:07	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 10:07	Anita M Dale	1

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Analysis Report

Sample Description: MW-25D(90) Grab Water
Fairfax 26140

LL Sample # WW 7585883
LL Group # 1500488
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 09:10 by CL

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 15:40

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

40250

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	Sulfate	14808-79-8	< 5.0	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**7.9**	0.50	5
00219	**Nitrite Nitrogen**	14797-65-0	**0.42**	0.050	1
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	**Ferrous Iron**	n.a.	**10.4**	2.5	50

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 10:31	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 10:31	Anita M Dale	1
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142480006A	09/05/2014 20:50	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14246347601B	09/03/2014 17:00	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106101B	09/08/2014 12:37	Joseph E McKenzie	5
00219	Nitrite Nitrogen	EPA 353.2	1	14246105101B	09/03/2014 23:17	James S Mathiot	1
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14246834401A	09/03/2014 23:25	Daniel S Smith	50

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Analysis Report

Sample Description: MW-25D(76) Grab Water
Fairfax 26140

LL Sample # WW 7585884
LL Group # 1500488
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 09:50 by CL

Submitted: 09/03/2014 08:15
Reported: 09/10/2014 15:40

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

40257

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 10:54	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 10:54	Anita M Dale	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500488
Reported: 09/10/14 at 03:40 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: W142471AA	Sample number(s): 7585882-7585884							
t-Amyl methyl ether	< 1	1.	ug/l	103	99	75-120	4	30
Benzene	< 1	1.	ug/l	112	112	78-120	1	30
t-Butyl alcohol	< 20	20.	ug/l	111	106	75-120	4	30
Ethyl t-butyl ether	< 1	1.	ug/l	101	102	69-120	1	30
Ethylbenzene	< 1	1.	ug/l	104	103	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	116	114	61-132	1	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	105	104	75-120	2	30
Toluene	< 1	1.	ug/l	112	113	80-120	1	30
Xylene (Total)	< 1	1.	ug/l	106	106	80-120	0	30
Batch number: 142480006A	Sample number(s): 7585883							
Methane	< 5.0	5.0	ug/l	111		85-115		
Batch number: 14246105101B	Sample number(s): 7585883							
Nitrite Nitrogen	< 0.050	0.050	mg/l	101		90-110		
Batch number: 14246347601B	Sample number(s): 7585883							
Sulfate	< 1.0	1.0	mg/l	103		90-110		
Batch number: 14251106101B	Sample number(s): 7585883							
Nitrate Nitrogen	< 0.10	0.10	mg/l	93		90-110		
Batch number: 14246834401A	Sample number(s): 7585883							
Ferrous Iron	< 0.050	0.050	mg/l	102		93-105		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 142480006A	Sample number(s): 7585883 UNSPK: P585877								
Methane	102	104	46-129	3	20				
Batch number: 14246105101B	Sample number(s): 7585883 UNSPK: P585957 BKG: P585957								
Nitrite Nitrogen	107		90-110			< 0.050	< 0.050	0 (1)	20
Batch number: 14246347601B	Sample number(s): 7585883 UNSPK: P585695 BKG: P585695								
Sulfate	120*		90-110			18.6	18.8	1 (1)	20

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500488
Reported: 09/10/14 at 03:40 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 14251106101B	Sample number(s): 7585883 UNSPK: 7585883 BKG: 7585883								
Nitrate Nitrogen	86*		90-110			8.3	8.2	2	2
Batch number: 14246834401A	Sample number(s): 7585883 UNSPK: P586642 BKG: P586642								
Ferrous Iron	93	97	73-111	2	6	92.7	94.3	2 (1)	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: W142471AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7585882	97	101	96	92
7585883	98	101	98	94
7585884	97	100	97	92
Blank	93	99	100	96
LCS	95	97	101	100
LCSD	94	97	102	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 142480006A

	Propene
7585883	87
Blank	100
LCS	97
MS	81
MSD	82
Limits:	47-116

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: _____ Sample #: _____
1500488 7585882-84

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Charlie Low | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable	NPDES	Water	Other	Total # of Containers	BTEX+Oxygenates (H)	Nitrate-353.2	Ferrous Fe-3500 Fe-FeB	Sulfate-300.0	Methane-8015B					Remarks	Temperature of samples upon receipt (if requested)
MW-25D (98)	9/2/14	0830	X					X		3	X										
MW-25D (90)	9/2/14	0910	X					X		10	X	X	X	X	X						
MW-25D (76)	9/2/14	0950	X					X		3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
Charlie Low	9-2-14	1600	UPS	9/2/14	1600

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
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1 of 1

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 16, 2014

Project: Fairfax 26140

Submittal Date: 09/03/2014
Group Number: 1500489
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-20D (133) Grab Water	7585885
MW-20D (90) Grab Water	7585886
MW-20D (73) Grab Water	7585887
MW-27I Grab Water	7585888
MW-27S Grab Water	7585889

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW-20D (133) Grab Water
Fairfax 26140

LL Sample # WW 7585885
LL Group # 1500489
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 07:45 by TB

Submitted: 09/03/2014 08:15
Reported: 09/16/2014 12:06

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F400D

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	**t-Butyl alcohol**	75-65-0	**38**	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**3**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**100**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 11:18	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 11:18	Anita M Dale	1

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Analysis Report

Sample Description: MW-20D (90) Grab Water
Fairfax 26140

LL Sample # WW 7585886
LL Group # 1500489
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 08:30 by TB

Submitted: 09/03/2014 08:15
Reported: 09/16/2014 12:06

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F400I

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**2**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 11:41	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 11:41	Anita M Dale	1

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Analysis Report

Sample Description: MW-20D (73) Grab Water
Fairfax 26140

LL Sample # WW 7585887
LL Group # 1500489
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 09:15 by TB

Submitted: 09/03/2014 08:15
Reported: 09/16/2014 12:06

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F400S

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**1**	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	**t-Butyl alcohol**	75-65-0	**27**	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**3**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**120**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142471AA	09/04/2014 12:04	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 12:04	Anita M Dale	1

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Analysis Report

Sample Description: MW-27I Grab Water
Fairfax 26140

LL Sample # WW 7585888
LL Group # 1500489
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 14:45 by TB

Submitted: 09/03/2014 08:15
Reported: 09/16/2014 12:06

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F407I

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethanol	64-17-5	< 250	250	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**1**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys + EtOH	SW-846 8260B	1	W142471AA	09/04/2014 12:28	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 12:28	Anita M Dale	1

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Analysis Report

Sample Description: MW-27S Grab Water
Fairfax 26140

LL Sample # WW 7585889
LL Group # 1500489
Account # 12152

Project Name: Fairfax 26140

Collected: 09/02/2014 15:25 by TB

Submitted: 09/03/2014 08:15
Reported: 09/16/2014 12:06

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San Diego CA 92101

F407S

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethanol	64-17-5	< 250	250	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**1**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	**Sulfate**	14808-79-8	**23.8**	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**1.2**	0.10	1
00219	Nitrite Nitrogen	14797-65-0	< 0.050	0.050	1
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	**Ferrous Iron**	n.a.	**2.6**	0.50	10

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys + EtOH	SW-846 8260B	1	W142471AA	09/04/2014 12:51	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142471AA	09/04/2014 12:51	Anita M Dale	1
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142480006A	09/05/2014 21:08	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14246347601B	09/03/2014 17:16	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106101B	09/08/2014 12:43	Joseph E McKenzie	1
00219	Nitrite Nitrogen	EPA 353.2	1	14246105101B	09/03/2014 23:19	James S Mathiot	1
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14246834401A	09/03/2014 23:25	Daniel S Smith	10

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500489
Reported: 09/16/14 at 12:06 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: W142471AA	Sample number(s): 7585885-7585889							
t-Amyl methyl ether	< 1	1.	ug/l	103	99	75-120	4	30
Benzene	< 1	1.	ug/l	112	112	78-120	1	30
t-Butyl alcohol	< 20	20.	ug/l	111	106	75-120	4	30
Ethanol	< 250	250.	ug/l	94	93	58-139	1	30
Ethyl t-butyl ether	< 1	1.	ug/l	101	102	69-120	1	30
Ethylbenzene	< 1	1.	ug/l	104	103	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	116	114	61-132	1	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	105	104	75-120	2	30
Toluene	< 1	1.	ug/l	112	113	80-120	1	30
Xylene (Total)	< 1	1.	ug/l	106	106	80-120	0	30
Batch number: 142480006A	Sample number(s): 7585889							
Methane	< 5.0	5.0	ug/l	111		85-115		
Batch number: 14246105101B	Sample number(s): 7585889							
Nitrite Nitrogen	< 0.050	0.050	mg/l	101		90-110		
Batch number: 14246347601B	Sample number(s): 7585889							
Sulfate	< 1.0	1.0	mg/l	103		90-110		
Batch number: 14251106101B	Sample number(s): 7585889							
Nitrate Nitrogen	< 0.10	0.10	mg/l	93		90-110		
Batch number: 14246834401A	Sample number(s): 7585889							
Ferrous Iron	< 0.050	0.050	mg/l	102		93-105		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 142480006A	Sample number(s): 7585889 UNSPK: P585877								
Methane	102	104	46-129	3	20				
Batch number: 14246105101B	Sample number(s): 7585889 UNSPK: P585957 BKG: P585957								
Nitrite Nitrogen	107		90-110			< 0.050	< 0.050	0 (1)	20
Batch number: 14246347601B	Sample number(s): 7585889 UNSPK: P585695 BKG: P585695								

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500489
Reported: 09/16/14 at 12:06 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Sulfate	120*		90-110			18.6	18.8	1 (1)	20
Batch number: 14251106101B	Sample number(s): 7585889 UNSPK: P585883 BKG: P585883								
Nitrate Nitrogen	86*		90-110			8.3	8.2	2	2
Batch number: 14246834401A	Sample number(s): 7585889 UNSPK: P586642 BKG: P586642								
Ferrous Iron	93	97	73-111	2	6	92.7	94.3	2 (1)	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: W142471AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7585885	98	104	97	92
7585886	97	102	97	93
7585887	95	99	98	95
7585888	102	100	97	92
7585889	101	104	96	94
Blank	93	99	100	96
LCS	95	97	101	100
LCSD	94	97	102	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 142480006A

	Propene
7585889	92
Blank	100
LCS	97
MS	81
MSD	82
Limits:	47-116

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: _____ Sample #: _____
1500489/7585885-89

Client: Fairfax Petroleum
Acct. #:
Project Name/#: 26140
PWSID #:
Project Manager: Mark C. Steele
P.O. #: 51141-299197
Sampler: Tim Boswell
Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (Potable)	Water (NPDES)	Other	Total # of Containers	BTEX + OXY (8260) H	Ethanol (8260) H	Nitrate (353.2)	Ferrous FE (3500)	Sulfate (300.0)	Methane (8015B)				Remarks	Temperature of samples upon receipt (if requested)
MW-20D (73)	9/2/14	0915	X			X			3	X										
MW-20D (90)	9/2/14	0830	X			X			3	X										
MW-20D (133)	9/2/14	0745	X			X			3	X										
MW-27I	9/2/14	1445	X			X			3	X	X									
MW-27S	9/2/14	1525	X			X			10	X	X	X	X	X	X					

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9/2/14	1600	UPS	9/2/14	1600
			[signature]	9.3.14	0815

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

TR 9-16-14

Revised COC received via email from P. Wertz on 9/16/14. LF 9/16/14

4886.01

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 11, 2014

Project: Fairfax 26140

Submittal Date: 09/04/2014
Group Number: 1500782
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-17D(117) Grab Water	7587064
MW-6S Grab Water	7587065
MW-17D(129.75) Grab Water	7587066
MW-16D Grab Water	7587067
MW-17D(147) Grab Water	7587068

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW-17D(117) Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587064
LL Group # 1500782
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 08:30 by TB

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:30

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

-117-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**300**	50	50
10335	Benzene	71-43-2	< 50	50	50
10335	**t-Butyl alcohol**	75-65-0	**5,500**	1,000	50
10335	Ethyl t-butyl ether	637-92-3	< 50	50	50
10335	Ethylbenzene	100-41-4	< 50	50	50
10335	**di-Isopropyl ether**	108-20-3	**450**	50	50
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**23,000**	500	500
10335	Toluene	108-88-3	< 50	50	50
10335	Xylene (Total)	1330-20-7	< 50	50	50

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: t-butyl alcohol.

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 06:21	Stephanie A Selis	50
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 06:45	Stephanie A Selis	500
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142473AA	09/05/2014 06:21	Stephanie A Selis	50
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N142473AA	09/05/2014 06:45	Stephanie A Selis	500

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Analysis Report

Sample Description: MW-6S Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587065
LL Group # 1500782
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 09:55 by TB

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:30

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

-6S--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 04:21	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142473AA	09/05/2014 04:21	Stephanie A Selis	1

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Analysis Report

Sample Description: MW-17D(129.75) Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587066
LL Group # 1500782
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:20 by TB

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:30

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

-129-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**990**	100	100
10335	Benzene	71-43-2	< 100	100	100
10335	**t-Butyl alcohol**	75-65-0	**23,000**	2,000	100
10335	Ethyl t-butyl ether	637-92-3	< 100	100	100
10335	Ethylbenzene	100-41-4	< 100	100	100
10335	**di-Isopropyl ether**	108-20-3	**1,400**	100	100
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**80,000**	1,000	1000
10335	Toluene	108-88-3	< 100	100	100
10335	Xylene (Total)	1330-20-7	< 100	100	100

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: t-butyl alcohol.

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 07:09	Stephanie A Selis	100
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 07:33	Stephanie A Selis	1000
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142473AA	09/05/2014 07:09	Stephanie A Selis	100
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N142473AA	09/05/2014 07:33	Stephanie A Selis	1000

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Analysis Report

Sample Description: MW-16D Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587067
LL Group # 1500782
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 11:30 by TB

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:30

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San Diego CA 92101

-16D-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**t-Amyl methyl ether**	994-05-8	**69**	5	5
10335	**Benzene**	71-43-2	**6**	5	5
10335	**t-Butyl alcohol**	75-65-0	**450**	100	5
10335	Ethyl t-butyl ether	637-92-3	< 5	5	5
10335	Ethylbenzene	100-41-4	< 5	5	5
10335	**di-Isopropyl ether**	108-20-3	**140**	5	5
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**3,600**	50	50
10335	Toluene	108-88-3	< 5	5	5
10335	Xylene (Total)	1330-20-7	< 5	5	5

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: t-butyl alcohol.

GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	**Methane**	74-82-8	**11**	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	Sulfate	14808-79-8	< 5.0	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**7.4**	0.50	5
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	**Ferrous Iron**	n.a.	**61.3**	5.0	100

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 07:58	Stephanie A Selis	5
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 08:22	Stephanie A Selis	50
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142473AA	09/05/2014 07:58	Stephanie A Selis	5
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N142473AA	09/05/2014 08:22	Stephanie A Selis	50
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142520024A	09/10/2014 02:15	Elizabeth J Marin	1

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Analysis Report

Sample Description: MW-16D Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587067
LL Group # 1500782
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 11:30 by TB

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:30

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

-16D-

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	14247347601B	09/04/2014 12:41	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106101B	09/08/2014 12:45	Joseph E McKenzie	5
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14247834401A	09/04/2014 19:25	Daniel S Smith	100

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Analysis Report

Sample Description: MW-17D(147) Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587068
LL Group # 1500782
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 14:30 by TB

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:30

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San Diego CA 92101

-147-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**t-Amyl methyl ether**	994-05-8	**570**	500	500
10335	**Benzene**	71-43-2	**6**	1	1
10335	**t-Butyl alcohol**	75-65-0	**16,000**	10,000	500
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**790**	500	500
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**55,000**	500	500
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 04:45	Stephanie A Selis	1
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142481AA	09/05/2014 18:43	Angela D Sneeringer	500
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142473AA	09/05/2014 04:45	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N142481AA	09/05/2014 18:43	Angela D Sneeringer	500

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500782
Reported: 09/11/14 at 04:30 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142473AA	Sample number(s): 7587064-7587068							
t-Amyl methyl ether	< 1	1.	ug/l	110	113	75-120	2	30
Benzene	< 1	1.	ug/l	107	107	78-120	0	30
t-Butyl alcohol	< 20	20.	ug/l	121*	120	75-120	0	30
Ethyl t-butyl ether	< 1	1.	ug/l	107	109	69-120	2	30
Ethylbenzene	< 1	1.	ug/l	108	109	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	102	103	61-132	1	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	109	110	75-120	1	30
Toluene	< 1	1.	ug/l	110	110	80-120	1	30
Xylene (Total)	< 1	1.	ug/l	109	109	80-120	0	30
Batch number: N142481AA	Sample number(s): 7587068							
t-Amyl methyl ether	< 1	1.	ug/l	103		75-120		
t-Butyl alcohol	< 20	20.	ug/l	114		75-120		
di-Isopropyl ether	< 1	1.	ug/l	96		61-132		
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	103		75-120		
Batch number: 142520024A	Sample number(s): 7587067							
Methane	< 5.0	5.0	ug/l	106		85-115		
Batch number: 14247347601B	Sample number(s): 7587067							
Sulfate	< 1.0	1.0	mg/l	102		90-110		
Batch number: 14251106101B	Sample number(s): 7587067							
Nitrate Nitrogen	< 0.10	0.10	mg/l	93		90-110		
Batch number: 14247834401A	Sample number(s): 7587067							
Ferrous Iron	< 0.050	0.050	mg/l	99		93-105		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: N142481AA	Sample number(s): 7587068 UNSPK: P588145								
t-Amyl methyl ether	100	96	65-117	4	30				
t-Butyl alcohol	101	94	67-119	7	30				
di-Isopropyl ether	96	93	70-129	3	30				
Methyl Tertiary Butyl Ether	102	97	72-126	4	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500782
Reported: 09/11/14 at 04:30 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 142520024A	Sample number(s): 7587067 UNSPK: P583047								
Methane	-3230 (2)	-3163 (2)	46-129	1	20				
Batch number: 14247347601B	Sample number(s): 7587067 UNSPK: 7587067 BKG: 7587067								
Sulfate	103		90-110			< 5.0	< 5.0	0 (1)	20
Batch number: 14251106101B	Sample number(s): 7587067 UNSPK: P585883 BKG: P585883								
Nitrate Nitrogen	86*		90-110			8.3	8.2	2	2
Batch number: 14247834401A	Sample number(s): 7587067 UNSPK: P587312 BKG: P587312								
Ferrous Iron	93	91	73-111	1	6	30.1	28.9	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142473AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7587064	104	100	98	95
7587065	106	102	98	93
7587066	104	100	98	94
7587067	104	99	99	96
7587068	97	98	98	98
Blank	103	101	98	95
LCS	102	102	100	101
LCSD	102	101	100	101
Limits:	80-116	77-113	80-113	78-113

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 142520024A

	Propene
7587067	74
Blank	92
LCS	91
MS	88
MSD	83
Limits:	47-116

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 09/11/14 at 04:30 PM

Group Number: 1500782

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 150082 Sample #: 7587064-68

Client: Fairfax Petroleum
Acct. #:
Project Name/#: 26140
PWSID #:
Project Manager: Mark Steele
P.O. #: 51141-299197
Sampler: Tim Boswell
Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	Total # of Containers	BTEX + oxygenates 8260	Nitrate 353.2	Ferrous Fe 3500	Sulfate 375.4	Methane 8015		Remarks	Temperature of samples upon receipt (if requested)
								Preservation Codes	H							
MW-170(117)	9/3/14	0830	X			X		3	X							
MW-6S	9/3/14	0955	X			X		3	X						Water	
MW-170(129.75)	9/3/14	1020	X			X		3	X							
MW-16D	9/3/14	1130	X			X		10	X	X	X	X	X			
MW-170(147)	9/3/14	1430	X			X		3	X							

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 5 Day TAT
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
	9-3-14	1500	UPS	9-3-14	1500

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

1 of 1

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 11, 2014

Project: Fairfax 26140

Submittal Date: 09/04/2014
Group Number: 1500783
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
W-3 Grab Water	7587069
W-6 Grab Water	7587070
W-7 Grab Water	7587071
MW-18D Grab Water	7587072
W-1 Grab Water	7587073
W-2 Grab Water	7587074

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: W-3 Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587069
LL Group # 1500783
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 07:15 by CL

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:31

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

W3---

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**1**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	Sulfate	14808-79-8	< 5.0	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**7.1**	0.50	5
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	Ferrous Iron	n.a.	< 0.050	0.050	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142481AA	09/05/2014 19:07	Angela D Sneeringer	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142481AA	09/05/2014 19:07	Angela D Sneeringer	1
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142520024A	09/10/2014 02:33	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14247347601B	09/04/2014 13:30	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106101B	09/08/2014 12:47	Joseph E McKenzie	5
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14247834401A	09/04/2014 19:25	Daniel S Smith	1

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Analysis Report

Sample Description: W-6 Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587070
LL Group # 1500783
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 08:40 by CL

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:31

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W6---

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	Sulfate	14808-79-8	< 5.0	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**0.41**	0.10	1
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	**Ferrous Iron**	n.a.	**1.2**	0.25	5

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 05:33	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142473AA	09/05/2014 05:33	Stephanie A Selis	1
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142520024A	09/10/2014 02:51	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14247347601B	09/04/2014 13:46	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106101B	09/08/2014 12:48	Joseph E McKenzie	1
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14247834401A	09/04/2014 19:25	Daniel S Smith	5

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Analysis Report

Sample Description: W-7 Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587071
LL Group # 1500783
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 09:35 by CL

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:31

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550 West C Street, Suite 1200
San Diego CA 92101

W7---

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	**Methane**	74-82-8	**170**	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	**Sulfate**	14808-79-8	**6.8**	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**0.16**	0.10	1
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	**Ferrous Iron**	n.a.	**5.0**	0.50	10

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142472AA	09/04/2014 22:28	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142472AA	09/04/2014 22:28	Sara E Johnson	1
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142520024A	09/10/2014 03:09	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14247347601B	09/04/2014 14:02	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106101B	09/08/2014 11:31	Joseph E McKenzie	1
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14247834401A	09/04/2014 19:25	Daniel S Smith	10

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Analysis Report

Sample Description: MW-18D Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587072
LL Group # 1500783
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:25 by CL

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:31

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San Diego CA 92101

18D--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 05:57	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142473AA	09/05/2014 05:57	Stephanie A Selis	1

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Analysis Report

Sample Description: W-1 Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587073
LL Group # 1500783
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 12:40 by CL

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:31

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W1---

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**t-Amyl methyl ether**	994-05-8	**100**	20	20
10335	Benzene	71-43-2	< 20	20	20
10335	**t-Butyl alcohol**	75-65-0	**8,900**	400	20
10335	Ethyl t-butyl ether	637-92-3	< 20	20	20
10335	Ethylbenzene	100-41-4	< 20	20	20
10335	**di-Isopropyl ether**	108-20-3	**95**	20	20
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**13,000**	200	200
10335	Toluene	108-88-3	< 20	20	20
10335	Xylene (Total)	1330-20-7	< 20	20	20

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: t-butyl alcohol.

GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	**Sulfate**	14808-79-8	**9.7**	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**6.0**	0.50	5
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	**Ferrous Iron**	n.a.	**0.16**	0.050	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 08:46	Stephanie A Selis	20
10335	BTEX + 5 Oxys	SW-846 8260B	1	N142473AA	09/05/2014 09:10	Stephanie A Selis	200
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142473AA	09/05/2014 08:46	Stephanie A Selis	20
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N142473AA	09/05/2014 09:10	Stephanie A Selis	200
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142520024A	09/10/2014 03:27	Elizabeth J Marin	1

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Analysis Report

Sample Description: W-1 Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587073
LL Group # 1500783
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 12:40 by CL

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:31

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550 West C Street, Suite 1200
San Diego CA 92101

W1---

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	14247347601B	09/04/2014 14:18	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106102A	09/08/2014 12:49	Joseph E McKenzie	5
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14247834401A	09/04/2014 19:25	Daniel S Smith	1

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Analysis Report

Sample Description: W-2 Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587074
LL Group # 1500783
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 13:40 by CL

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:31

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W2---

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**t-Amyl methyl ether**	994-05-8	**27**	10	10
10335	Benzene	71-43-2	< 10	10	10
10335	t-Butyl alcohol	75-65-0	< 200	200	10
10335	Ethyl t-butyl ether	637-92-3	< 10	10	10
10335	Ethylbenzene	100-41-4	< 10	10	10
10335	**di-Isopropyl ether**	108-20-3	**21**	10	10
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**3,900**	100	100
10335	Toluene	108-88-3	< 10	10	10
10335	Xylene (Total)	1330-20-7	< 10	10	10
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	**Sulfate**	14808-79-8	**40.2**	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	Nitrate Nitrogen	14797-55-8	< 0.10	0.10	1
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	**Ferrous Iron**	n.a.	**0.099**	0.050	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142472AA	09/04/2014 23:38	Sara E Johnson	10
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142472AA	09/05/2014 00:01	Sara E Johnson	100
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142472AA	09/04/2014 23:38	Sara E Johnson	10
01163	GC/MS VOA Water Prep	SW-846 5030B	2	W142472AA	09/05/2014 00:01	Sara E Johnson	100
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142520024A	09/10/2014 03:45	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14247347601B	09/04/2014 14:34	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106102A	09/08/2014 12:53	Joseph E McKenzie	1
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14247834401A	09/04/2014 19:25	Daniel S Smith	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500783
Reported: 09/11/14 at 04:31 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142473AA	Sample number(s): 7587070,7587072-7587073							
t-Amyl methyl ether	< 1	1.	ug/l	110	113	75-120	2	30
Benzene	< 1	1.	ug/l	107	107	78-120	0	30
t-Butyl alcohol	< 20	20.	ug/l	121*	120	75-120	0	30
Ethyl t-butyl ether	< 1	1.	ug/l	107	109	69-120	2	30
Ethylbenzene	< 1	1.	ug/l	108	109	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	102	103	61-132	1	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	109	110	75-120	1	30
Toluene	< 1	1.	ug/l	110	110	80-120	1	30
Xylene (Total)	< 1	1.	ug/l	109	109	80-120	0	30
Batch number: N142481AA	Sample number(s): 7587069							
t-Amyl methyl ether	< 1	1.	ug/l	103		75-120		
Benzene	< 1	1.	ug/l	101		78-120		
t-Butyl alcohol	< 20	20.	ug/l	114		75-120		
Ethyl t-butyl ether	< 1	1.	ug/l	101		69-120		
Ethylbenzene	< 1	1.	ug/l	105		79-120		
di-Isopropyl ether	< 1	1.	ug/l	96		61-132		
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	103		75-120		
Toluene	< 1	1.	ug/l	107		80-120		
Xylene (Total)	< 1	1.	ug/l	106		80-120		
Batch number: W142472AA	Sample number(s): 7587071,7587074							
t-Amyl methyl ether	< 1	1.	ug/l	94	94	75-120	1	30
Benzene	< 1	1.	ug/l	109	111	78-120	1	30
t-Butyl alcohol	< 20	20.	ug/l	102	103	75-120	1	30
Ethyl t-butyl ether	< 1	1.	ug/l	95	96	69-120	1	30
Ethylbenzene	< 1	1.	ug/l	103	103	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	105	108	61-132	2	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	97	97	75-120	1	30
Toluene	< 1	1.	ug/l	111	111	80-120	0	30
Xylene (Total)	< 1	1.	ug/l	105	105	80-120	0	30
Batch number: 142520024A	Sample number(s): 7587069-7587071,7587073-7587074							
Methane	< 5.0	5.0	ug/l	106		85-115		
Batch number: 14247347601B	Sample number(s): 7587069-7587071,7587073-7587074							
Sulfate	< 1.0	1.0	mg/l	102		90-110		
Batch number: 14251106101B	Sample number(s): 7587069-7587071							
Nitrate Nitrogen	< 0.10	0.10	mg/l	93		90-110		
Batch number: 14251106102A	Sample number(s): 7587073-7587074							
Nitrate Nitrogen	< 0.10	0.10	mg/l	93		90-110		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500783
Reported: 09/11/14 at 04:31 PM

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 14247834401A	Sample number(s): 7587069-7587071,7587073-7587074							
Ferrous Iron	< 0.050	0.050	mg/l	99		93-105		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: N142481AA	Sample number(s): 7587069 UNSPK: P588145								
t-Amyl methyl ether	100	96	65-117	4	30				
Benzene	105	99	72-134	6	30				
t-Butyl alcohol	101	94	67-119	7	30				
Ethyl t-butyl ether	100	98	74-122	3	30				
Ethylbenzene	106	102	71-134	4	30				
di-Isopropyl ether	96	93	70-129	3	30				
Methyl Tertiary Butyl Ether	102	97	72-126	4	30				
Toluene	106	102	80-125	3	30				
Xylene (Total)	106	102	79-125	4	30				
Batch number: 142520024A	Sample number(s): 7587069-7587071,7587073-7587074 UNSPK: P583047								
Methane	-3230 (2)	-3163 (2)	46-129	1	20				
Batch number: 14247347601B	Sample number(s): 7587069-7587071,7587073-7587074 UNSPK: P587067 BKG: P587067								
Sulfate	103		90-110			< 5.0	< 5.0	0 (1)	20
Batch number: 14251106101B	Sample number(s): 7587069-7587071 UNSPK: P585883 BKG: P585883								
Nitrate Nitrogen	86*		90-110			8.3	8.2	2	2
Batch number: 14251106102A	Sample number(s): 7587073-7587074 UNSPK: 7587073 BKG: 7587073								
Nitrate Nitrogen	89*		90-110			6.1	6.2	2	2
Batch number: 14247834401A	Sample number(s): 7587069-7587071,7587073-7587074 UNSPK: P587312 BKG: P587312								
Ferrous Iron	93	91	73-111	1	6	30.1	28.9	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142473AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7587070	106	104	98	95
7587072	106	105	97	95
7587073	105	100	98	93

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 09/11/14 at 04:31 PM

Group Number: 1500783

Surrogate Quality Control

Blank	103	101	98	95
LCS	102	102	100	101
LCSD	102	101	100	101
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 8260 VOCs
Batch number: N142481AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7587069	108	103	97	96
Blank	106	103	97	95
LCS	103	101	102	103
MS	107	102	100	102
MSD	105	102	102	102
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 8260 VOCs
Batch number: W142472AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7587071	94	96	101	94
7587074	96	100	97	93
Blank	94	103	98	92
LCS	96	96	102	99
LCSD	93	99	101	99
Limits:	80-116	77-113	80-113	78-113

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 142520024A

	Propene
7587069	82
7587070	88
7587071	83
7587073	90
7587074	80
Blank	92
LCS	91
MS	88
MSD	83
Limits:	47-116

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 150783 Sample #: 75 87069-74

Client: Fairfax Petroleum
Project Name/#: Fairfax 26140
Project Manager: Mark Steele
Sampler: Charlie Low
Name of State where samples were collected: Virginia

Acct. #:
PWSID #:
P.O. #: 51147 - 299197
Quote #:

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Potable	Matrix: NPDES	Matrix: Water	Matrix: Other	Total # of Containers	BTEX + Oxy	Nitrate-353.2	Ferrous Fe-3500	Sulfate-300.0	Methane-8015B	Ethanol	Remarks	Temperature of samples upon receipt (if requested)
W-3	9-3-14	0715	X					X		10	X	X	X	X	X			
W-6	9-3-14	0840	X					X		10	X	X	X	X	X			
W-7	9-3-14	0935	X					X		10	X	X	X	X	X			
MW-18D	9-3-14	1025	X					X		3	X							
W-1	9-3-14	1240	X					X		10	X	X	X	X	X			
W-2	9-3-14	1340	X					X		10	X	X	X	X	X			

2 coolers

CL

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 5 Day TAT
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9-3-14	1500	UPS	9-3-14	1500
			[signature]	9-4-14	0810

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

1 of 1

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

September 11, 2014

Project: Fairfax 26140

Submittal Date: 09/04/2014
Group Number: 1500784
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-10 Grab Water	7587075
MW-24 Grab Water	7587076
MW-23D Grab Water	7587077

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW-10 Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587075
LL Group # 1500784
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 11:20 by CL

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:32

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

--M10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	Sulfate	14808-79-8	< 5.0	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**7.2**	0.50	5
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	Ferrous Iron	n.a.	< 0.25	0.25	5

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142472AA	09/04/2014 22:51	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142472AA	09/04/2014 22:51	Sara E Johnson	1
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142520024A	09/10/2014 04:03	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14247347601B	09/04/2014 14:50	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106102A	09/08/2014 12:54	Joseph E McKenzie	5
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14247834401A	09/04/2014 19:25	Daniel S Smith	5

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Analysis Report

Sample Description: MW-24 Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587076
LL Group # 1500784
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 12:10 by CL

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:32

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

--M24

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**21**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	Sulfate	14808-79-8	< 5.0	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**12.3**	1.0	10
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	**Ferrous Iron**	n.a.	**0.63**	0.050	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142472AA	09/04/2014 23:14	Sara E Johnson	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142472AA	09/04/2014 23:14	Sara E Johnson	1
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142520024A	09/10/2014 04:39	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14247347601B	09/04/2014 15:07	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106102A	09/08/2014 12:58	Joseph E McKenzie	10
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14247834401A	09/04/2014 19:25	Daniel S Smith	1

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Analysis Report

Sample Description: MW-23D Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7587077
LL Group # 1500784
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 12:50 by CL

Submitted: 09/04/2014 08:10
Reported: 09/11/2014 16:32

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

-M23D

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**t-Amyl methyl ether**	994-05-8	**130**	20	20
10335	Benzene	71-43-2	< 20	20	20
10335	**t-Butyl alcohol**	75-65-0	**1,700**	400	20
10335	Ethyl t-butyl ether	637-92-3	< 20	20	20
10335	Ethylbenzene	100-41-4	< 20	20	20
10335	**di-Isopropyl ether**	108-20-3	**280**	20	20
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**9,300**	200	200
10335	Toluene	108-88-3	< 20	20	20
10335	Xylene (Total)	1330-20-7	< 20	20	20
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	Sulfate	14808-79-8	< 5.0	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**11.0**	1.0	10
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	Ferrous Iron	n.a.	< 0.050	0.050	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142472AA	09/05/2014 00:25	Sara E Johnson	20
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142472AA	09/05/2014 00:48	Sara E Johnson	200
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142472AA	09/05/2014 00:25	Sara E Johnson	20
01163	GC/MS VOA Water Prep	SW-846 5030B	2	W142472AA	09/05/2014 00:48	Sara E Johnson	200
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142520024A	09/10/2014 04:57	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14247347601B	09/04/2014 15:55	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14251106102A	09/08/2014 12:59	Joseph E McKenzie	10
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14247834401A	09/04/2014 19:25	Daniel S Smith	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500784
Reported: 09/11/14 at 04:32 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: W142472AA	Sample number(s): 7587075-7587077							
t-Amyl methyl ether	< 1	1.	ug/l	94	94	75-120	1	30
Benzene	< 1	1.	ug/l	109	111	78-120	1	30
t-Butyl alcohol	< 20	20.	ug/l	102	103	75-120	1	30
Ethyl t-butyl ether	< 1	1.	ug/l	95	96	69-120	1	30
Ethylbenzene	< 1	1.	ug/l	103	103	79-120	1	30
di-Isopropyl ether	< 1	1.	ug/l	105	108	61-132	2	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	97	97	75-120	1	30
Toluene	< 1	1.	ug/l	111	111	80-120	0	30
Xylene (Total)	< 1	1.	ug/l	105	105	80-120	0	30
Batch number: 142520024A	Sample number(s): 7587075-7587077							
Methane	< 5.0	5.0	ug/l	106		85-115		
Batch number: 14247347601B	Sample number(s): 7587075-7587077							
Sulfate	< 1.0	1.0	mg/l	102		90-110		
Batch number: 14251106102A	Sample number(s): 7587075-7587077							
Nitrate Nitrogen	< 0.10	0.10	mg/l	93		90-110		
Batch number: 14247834401A	Sample number(s): 7587075-7587077							
Ferrous Iron	< 0.050	0.050	mg/l	99		93-105		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 142520024A	Sample number(s): 7587075-7587077 UNSPK: P583047								
Methane	-3230 (2)	-3163 (2)	46-129	1	20				
Batch number: 14247347601B	Sample number(s): 7587075-7587077 UNSPK: P587067 BKG: P587067								
Sulfate	103		90-110			< 5.0	< 5.0	0 (1)	20
Batch number: 14251106102A	Sample number(s): 7587075-7587077 UNSPK: P587073 BKG: P587073								
Nitrate Nitrogen	89*		90-110			6.1	6.2	2	2
Batch number: 14247834401A	Sample number(s): 7587075-7587077 UNSPK: P587312 BKG: P587312								

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500784
Reported: 09/11/14 at 04:32 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Ferrous Iron	93	91	73-111	1	6	30.1	28.9	4	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: W142472AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7587075	96	99	99	95
7587076	96	100	99	94
7587077	97	102	97	94
Blank	94	103	98	92
LCS	96	96	102	99
LCSD	93	99	101	99
Limits:	80-116	77-113	80-113	78-113

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 142520024A

	Propene
7587075	84
7587076	79
7587077	84
Blank	92
LCS	91
MS	88
MSD	83
Limits:	47-116

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 1500784 Sample #: 7587075-77

Client: Fairfax Petroleum
Project Name/#: Fairfax 26140
Project Manager: Mark Steele
Sampler: Charlie Low
Name of State where samples were collected: Virginia

Acct. #:
PWSID #:
P.O. #: 51141-299197
Quote #:

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Potable	Matrix: NPDES	Matrix: Water	Matrix: Other	Total # of Containers	BTEX + Oxy	Nitrate - 353.2	Ferrous Fe - 3500	Sulfate - 300.0	Methane - 8015B			Remarks	Temperature of samples upon receipt (if requested)
MW-10	9-3-14	1120	X					X		10	X	X	X	X	X				
MW-24	9-3-14	1210	X					X		10	X	X	X	X	X				
MW-23D	9-3-14	1250	X					X		10	X	X	X	X	X				

Water

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 5 Day TAT
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9-3-14	1500	UPS	9-3-14	1500
			[signature]	9-4-14	0810

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

September 12, 2014

Project: Fairfax 26140

Submittal Date: 09/05/2014
Group Number: 1501182
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-19D Grab Water	7588821

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW-19D Grab Water
Fairfax 26140

LL Sample # WW 7588821
LL Group # 1501182
Account # 12152

Project Name: Fairfax 26140

Collected: 09/04/2014 06:40 by CL

Submitted: 09/05/2014 09:30
Reported: 09/12/2014 09:57

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

19D--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142502AA	09/07/2014 18:49	Sarah A Guill	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T142502AA	09/07/2014 18:49	Sarah A Guill	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1501182
Reported: 09/12/14 at 09:57 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: T142502AA	Sample number(s): 7588821							
t-Amyl methyl ether	< 1	1.	ug/l	101	102	75-120	1	30
Benzene	< 1	1.	ug/l	100	101	78-120	0	30
t-Butyl alcohol	< 20	20.	ug/l	105	106	75-120	1	30
Ethyl t-butyl ether	< 1	1.	ug/l	103	104	69-120	0	30
Ethylbenzene	< 1	1.	ug/l	101	103	79-120	2	30
di-Isopropyl ether	< 1	1.	ug/l	109	109	61-132	0	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	102	101	75-120	0	30
Toluene	< 1	1.	ug/l	98	99	80-120	1	30
Xylene (Total)	< 1	1.	ug/l	96	97	80-120	2	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: T142502AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7588821	113	100	99	101
Blank	104	99	101	102
LCS	105	102	100	99
LCSD	104	101	98	102
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 150118L Sample #: 7588821

Client:	Fairfax Petroleum	Acct. #:	
Project Name/#:	26140	PWSID #:	
Project Manager:	Mark C. Steele	P.O. #:	51141-299197
Sampler:	Charlie Low	Quote #:	
Name of State where samples were collected:	Virginia		

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Potable	Matrix: NPDES	Matrix: Water	Matrix: Other	Total # of Containers	BTEX + OXY									Remarks	Temperature of samples upon receipt (if requested)
MW-19D	9-4-14	0640	X					X		3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9-4-14	1530	UPS	9-4-14	1530
			[signature]	9-5-14	1930

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Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

September 16, 2014

Project: Fairfax 26140

Submittal Date: 09/11/2014
Group Number: 1502514
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-14 Grab Water	7595139
MW-13 Grab Water	7595140
MW-2 Grab Water	7595141
SVE-2 Grab Water	7595142
PW-1(65) Grab Water	7595143
MW-15 Grab Water	7595144
MW-11 Grab Water	7595145

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: MW-14 Grab Water
Fairfax 26140

LL Sample # WW 7595139
LL Group # 1502514
Account # 12152

Project Name: Fairfax 26140

Collected: 09/10/2014 10:30 by TB

Submitted: 09/11/2014 09:10
Reported: 09/16/2014 15:25

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

14---

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**t-Amyl methyl ether**	994-05-8	**3**	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**5**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**190**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1
GC Miscellaneous	**SW-846 8015B modified**		**ug/l**	**ug/l**	
07105	Methane	74-82-8	< 5.0	5.0	1
Wet Chemistry	**EPA 300.0**		**mg/l**	**mg/l**	
00228	**Sulfate**	14808-79-8	**16.2**	5.0	5
	EPA 353.2		**mg/l**	**mg/l**	
00220	**Nitrate Nitrogen**	14797-55-8	**6.1**	0.50	5
00219	Nitrite Nitrogen	14797-65-0	< 0.050	0.050	1
	SM 3500-Fe B modified-1997		**mg/l**	**mg/l**	
08344	**Ferrous Iron**	n.a.	**0.11**	0.050	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142542AA	09/12/2014 02:53	Christopher G Torres	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T142542AA	09/12/2014 02:53	Christopher G Torres	1
07105	Dissolved Gases Methane	SW-846 8015B modified	1	142540027A	09/11/2014 19:47	Elizabeth J Marin	1
00228	Sulfate	EPA 300.0	1	14254347902A	09/11/2014 14:21	Sandra J Miller	5
00220	Nitrate Nitrogen	EPA 353.2	1	14256106101A	09/13/2014 12:53	Drew M Gerhart	5
00219	Nitrite Nitrogen	EPA 353.2	1	14254105102A	09/11/2014 16:45	Venia B McFadden	1

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Analysis Report

Sample Description: MW-14 Grab Water
Fairfax 26140

LL Sample # WW 7595139
LL Group # 1502514
Account # 12152

Project Name: Fairfax 26140

Collected: 09/10/2014 10:30 by TB

Submitted: 09/11/2014 09:10
Reported: 09/16/2014 15:25

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

14---

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08344	Ferrous Iron	SM 3500-Fe B modified-1997	1	14254834401A	09/11/2014 18:25	Daniel S Smith	1

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Analysis Report

Sample Description: MW-13 Grab Water
Fairfax 26140

LL Sample # WW 7595140
LL Group # 1502514
Account # 12152

Project Name: Fairfax 26140

Collected: 09/10/2014 09:54 by TB

Submitted: 09/11/2014 09:10
Reported: 09/16/2014 15:25

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

13---

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**7**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142542AA	09/12/2014 03:17	Christopher G Torres	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T142542AA	09/12/2014 03:17	Christopher G Torres	1

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Analysis Report

Sample Description: MW-2 Grab Water
Fairfax 26140

LL Sample # WW 7595141
LL Group # 1502514
Account # 12152

Project Name: Fairfax 26140

Collected: 09/10/2014 07:30 by TB

Submitted: 09/11/2014 09:10
Reported: 09/16/2014 15:25

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

2----

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**t-Amyl methyl ether**	994-05-8	**15**	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**38**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**860**	10	10
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142542AA	09/12/2014 04:51	Christopher G Torres	1
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142542AA	09/12/2014 05:15	Christopher G Torres	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T142542AA	09/12/2014 04:51	Christopher G Torres	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	T142542AA	09/12/2014 05:15	Christopher G Torres	10

Sample Description: SVE-2 Grab Water
Fairfax 26140

LL Sample # WW 7595142
LL Group # 1502514
Account # 12152

Project Name: Fairfax 26140

Collected: 09/10/2014 09:14 by TB

Submitted: 09/11/2014 09:10
Reported: 09/16/2014 15:25

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550 West C Street, Suite 1200
San Diego CA 92101

SVE2-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**3**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**8**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142542AA	09/12/2014 03:40	Christopher G Torres	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T142542AA	09/12/2014 03:40	Christopher G Torres	1

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Analysis Report

Sample Description: PW-1(65) Grab Water
Fairfax 26140

LL Sample # WW 7595143
LL Group # 1502514
Account # 12152

Project Name: Fairfax 26140

Collected: 09/10/2014 06:50 by TB

Submitted: 09/11/2014 09:10
Reported: 09/16/2014 15:25

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San Diego CA 92101

PW1--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**120**	10	10
10335	Benzene	71-43-2	< 10	10	10
10335	**t-Butyl alcohol**	75-65-0	**370**	200	10
10335	Ethyl t-butyl ether	637-92-3	< 10	10	10
10335	Ethylbenzene	100-41-4	< 10	10	10
10335	**di-Isopropyl ether**	108-20-3	**210**	10	10
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**4,600**	100	100
10335	Toluene	108-88-3	< 10	10	10
10335	Xylene (Total)	1330-20-7	< 10	10	10

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142542AA	09/12/2014 07:12	Christopher G Torres	10
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142542AA	09/12/2014 07:36	Christopher G Torres	100
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T142542AA	09/12/2014 07:12	Christopher G Torres	10
01163	GC/MS VOA Water Prep	SW-846 5030B	2	T142542AA	09/12/2014 07:36	Christopher G Torres	100

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Analysis Report

Sample Description: MW-15 Grab Water
Fairfax 26140

LL Sample # WW 7595144
LL Group # 1502514
Account # 12152

Project Name: Fairfax 26140

Collected: 09/10/2014 08:32 by TB

Submitted: 09/11/2014 09:10
Reported: 09/16/2014 15:25

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550 West C Street, Suite 1200
San Diego CA 92101

15---

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**t-Amyl methyl ether**	994-05-8	**12**	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	**t-Butyl alcohol**	75-65-0	**110**	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**150**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**530**	10	10
10335	Toluene	108-88-3	< 1	1	1
10335	**Xylene (Total)**	1330-20-7	**1**	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142542AA	09/12/2014 05:38	Christopher G Torres	1
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142542AA	09/12/2014 06:02	Christopher G Torres	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T142542AA	09/12/2014 05:38	Christopher G Torres	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	T142542AA	09/12/2014 06:02	Christopher G Torres	10

Sample Description: MW-11 Grab Water
Fairfax 26140

LL Sample # WW 7595145
LL Group # 1502514
Account # 12152

Project Name: Fairfax 26140

Collected: 09/10/2014 08:00 by TB

Submitted: 09/11/2014 09:10
Reported: 09/16/2014 15:25

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

11---

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**13**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**26**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142542AA	09/12/2014 04:04	Christopher G Torres	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T142542AA	09/12/2014 04:04	Christopher G Torres	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1502514
Reported: 09/16/14 at 03:25 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: T142542AA	Sample number(s): 7595139-7595145							
t-Amyl methyl ether	< 1	1.	ug/l	98		75-120		
Benzene	< 1	1.	ug/l	99		78-120		
t-Butyl alcohol	< 20	20.	ug/l	100		75-120		
Ethyl t-butyl ether	< 1	1.	ug/l	93		69-120		
Ethylbenzene	< 1	1.	ug/l	97		79-120		
di-Isopropyl ether	< 1	1.	ug/l	84		61-132		
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	100		75-120		
Toluene	< 1	1.	ug/l	97		80-120		
Xylene (Total)	< 1	1.	ug/l	95		80-120		
Batch number: 142540027A	Sample number(s): 7595139							
Methane	< 5.0	5.0	ug/l	104		85-115		
Batch number: 14254105102A	Sample number(s): 7595139							
Nitrite Nitrogen	< 0.050	0.050	mg/l	99		90-110		
Batch number: 14254347902A	Sample number(s): 7595139							
Sulfate	< 1.0	1.0	mg/l	105		90-110		
Batch number: 14256106101A	Sample number(s): 7595139							
Nitrate Nitrogen	< 0.10	0.10	mg/l	97		90-110		
Batch number: 14254834401A	Sample number(s): 7595139							
Ferrous Iron	< 0.050	0.050	mg/l	98	98	93-105	0	4

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: T142542AA	Sample number(s): 7595139-7595145 UNSPK: P594374								
t-Amyl methyl ether	103	106	65-117	3	30				
Benzene	111	110	72-134	2	30				
t-Butyl alcohol	98	103	67-119	4	30				
Ethyl t-butyl ether	100	101	74-122	1	30				
Ethylbenzene	108	109	71-134	1	30				
di-Isopropyl ether	92	95	70-129	3	30				
Methyl Tertiary Butyl Ether	108	109	72-126	1	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1502514
Reported: 09/16/14 at 03:25 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Toluene	107	106	80-125	1	30				
Xylene (Total)	103	104	79-125	1	30				
Batch number: 142540027A	Sample number(s): 7595139 UNSPK: 7595139								
Methane	82	89	46-129	9	20				
Batch number: 14254105102A	Sample number(s): 7595139 UNSPK: P594933 BKG: P594933								
Nitrite Nitrogen	99		90-110			< 0.050	< 0.050	0 (1)	20
Batch number: 14254347902A	Sample number(s): 7595139 UNSPK: P594936 BKG: P594936								
Sulfate	107		90-110			< 1.0	< 1.0	0 (1)	20
Batch number: 14256106101A	Sample number(s): 7595139 UNSPK: 7595139 BKG: 7595139								
Nitrate Nitrogen	113*		90-110			6.1	7.4	19*	2
Batch number: 14254834401A	Sample number(s): 7595139 BKG: 7595139								
Ferrous Iron						0.11	0.11	6* (1)	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: T142542AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7595139	109	102	97	97
7595140	111	103	97	98
7595141	109	103	96	99
7595142	107	104	95	97
7595143	111	100	97	99
7595144	112	103	95	101
7595145	109	104	96	99
Blank	109	102	97	98
LCS	107	99	96	98
MS	110	103	97	101
MSD	110	104	96	102
Limits:	80-116	77-113	80-113	78-113

Analysis Name: Volatile Headspace Hydrocarbon
Batch number: 142540027A

	Propene
7595139	95
Blank	98
LCS	103
MS	83

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 09/16/14 at 03:25 PM

Group Number: 1502514

Surrogate Quality Control

MSD	94
Limits:	47-116

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 1502514 Sample #: 7595139-45

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140-Great Falls, VA | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Tim Boswell | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (Potable / NPDES)	Other	Total # of Containers	BTEX + oxy (8260)	Nitrate (353.2)	Ferrous FE (3500)	Sulfate (300.0)	Methane (8015)					Remarks	Temperature of samples upon receipt (if requested)
									X		H								
MW-14	9/10/14	1030	X			X		10	X	X	X	X	X						
MW-13	9/10/14	0954	X			X		3	X										
MW-2	9/10/14	0730	X			X		3	X										
SVE-2	9/10/14	0914	X			X		3	X										
PW-1(65)	9/10/14	0650	X			X		3	X										
MW-15	9/10/14	0832	X			X		3	X										
MW-11	9/10/14	0800	X			X		3	X										

Water

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 12-Sep-14
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address: mcsteele@kleinfelder.com

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9/10/14	1115	UPS	9/10/14	1115
			[signature]	9/11/14	910

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

1 of 1

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 19, 2014

Project: Fairfax 26140

Submittal Date: 09/17/2014
Group Number: 1503923
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW-21S Grab Water	7602438
MW-21I Grab Water	7602439

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW-21S Grab Water
Fairfax 26140

LL Sample # WW 7602438
LL Group # 1503923
Account # 12152

Project Name: Fairfax 26140

Collected: 09/16/2014 08:20 by TD

Submitted: 09/17/2014 09:25
Reported: 09/19/2014 15:40

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F401S

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**1**	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	**t-Butyl alcohol**	75-65-0	**31**	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**4**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**130**	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142601AA	09/17/2014 17:57	Angela D Sneeringer	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142601AA	09/17/2014 17:57	Angela D Sneeringer	1

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Analysis Report

Sample Description: MW-21I Grab Water
Fairfax 26140

LL Sample # WW 7602439
LL Group # 1503923
Account # 12152

Project Name: Fairfax 26140

Collected: 09/16/2014 07:50 by TD

Submitted: 09/17/2014 09:25
Reported: 09/19/2014 15:40

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F401I

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**26**	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	**t-Butyl alcohol**	75-65-0	**1,500**	20	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**29**	1	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**2,100**	20	20
10335	Toluene	108-88-3	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142601AA	09/17/2014 18:21	Angela D Sneeringer	1
10335	BTEX + 5 Oxys	SW-846 8260B	1	W142601AA	09/17/2014 18:44	Angela D Sneeringer	20
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142601AA	09/17/2014 18:21	Angela D Sneeringer	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	W142601AA	09/17/2014 18:44	Angela D Sneeringer	20

Quality Control Summary

Client Name: Kleinfelder Group Number: 1503923
Reported: 09/19/14 at 03:40 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: W142601AA	Sample number(s): 7602438-7602439							
t-Amyl methyl ether	< 1	1.	ug/l	99		75-120		
Benzene	< 1	1.	ug/l	102		78-120		
t-Butyl alcohol	< 20	20.	ug/l	106		75-120		
Ethyl t-butyl ether	< 1	1.	ug/l	101		69-120		
Ethylbenzene	< 1	1.	ug/l	98		79-120		
di-Isopropyl ether	< 1	1.	ug/l	103		61-132		
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	100		75-120		
Toluene	< 1	1.	ug/l	101		80-120		
Xylene (Total)	< 1	1.	ug/l	98		80-120		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: W142601AA	Sample number(s): 7602438-7602439 UNSPK: P597933								
t-Amyl methyl ether	105	105	65-117	0	30				
Benzene	113	113	72-134	1	30				
t-Butyl alcohol	108	108	67-119	0	30				
Ethyl t-butyl ether	109	109	74-122	0	30				
Ethylbenzene	109	109	71-134	0	30				
di-Isopropyl ether	113	112	70-129	1	30				
Methyl Tertiary Butyl Ether	107	107	72-126	0	30				
Toluene	112	112	80-125	0	30				
Xylene (Total)	109	107	79-125	1	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: W142601AA

Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder
Reported: 09/19/14 at 03:40 PM

Group Number: 1503923

Surrogate Quality Control

7602438	98	102	99	99
7602439	97	101	99	99
Blank	100	102	99	99
LCS	100	105	101	100
MS	100	105	100	100
MSD	99	100	101	99
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 1503923 Sample #: 7602438-39

Client: Fairfax Petroleum
Acct. #:
Project Name/#: 26140
PWSID #:
Project Manager: Mark C. Steele
P.O. #: 51141-299197
Sampler: Travis Dugtad
Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected (2014)	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	Total # of Containers	Analyses Requested / Preservation Codes: BTEX + OXY (H)									Remarks	Temperature of samples upon receipt (if requested)
MW-21S	9/16/14	0820	X			X		3	X										
MW-21I	9/16/14	0750	X			X		3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: ~~17-Sep-14~~ 9/18/14 per M. Steele LF 9/17/14
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address: mcsteele@kleinfelder.com

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9/16/14	1500			
			[signature]	9/17/14	0925

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

September 26, 2014

Project: Fairfax 26140

Submittal Date: 09/23/2014
Group Number: 1505368
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
MW23D Grab Water	7609729

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: MW23D Grab Water
Fairfax 26140

LL Sample # WW 7609729
LL Group # 1505368
Account # 12152

Project Name: Fairfax 26140

Collected: 09/22/2014 08:30 by TD

Submitted: 09/23/2014 09:35
Reported: 09/26/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

FN23D

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	< 5	5	5
10943	**t-Butyl alcohol**	75-65-0	**950**	25	5
10943	Ethylbenzene	100-41-4	< 5	5	5
10943	**Methyl Tertiary Butyl Ether**	1634-04-4	**4,600**	5	5
10943	Toluene	108-88-3	< 5	5	5
10943	Xylene (Total)	1330-20-7	< 5	5	5

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	BTEX/MTBE/TBA 8260	SW-846 8260B	1	F142663AA	09/23/2014 19:37	Brett W Kenyon	5
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F142663AA	09/23/2014 19:37	Brett W Kenyon	5

Quality Control Summary

Client Name: Kleinfelder Group Number: 1505368
Reported: 09/26/14 at 01:20 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: F142663AA	Sample number(s): 7609729							
Benzene	< 1	1.	ug/l	90	93	78-120	3	30
t-Butyl alcohol	< 5	5.	ug/l	98	99	75-120	1	30
Ethylbenzene	< 1	1.	ug/l	91	94	79-120	3	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	97	97	75-120	0	30
Toluene	< 1	1.	ug/l	92	94	80-120	2	30
Xylene (Total)	< 1	1.	ug/l	93	96	80-120	3	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: UST BTEX, MTBE in Water
Batch number: F142663AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7609729	101	93	99	99
Blank	100	97	99	97
LCS	100	97	100	101
LCSD	100	96	99	100
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: _____ Sample #: _____
1505368 7609729

Client: Fairfax Petroleum
Acct. #:
Project Name/#: 26140
PWSID #:
Project Manager: Mark C. Steele
P.O. #: 51141-299197
Sampler: Travis Dugstad
Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected (2014)	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	Total # of Containers	BTEX, MTBE, TBA (8260) (H)									Remarks	Temperature of samples upon receipt (if requested)
MW23D	9/22	0830	X			X		3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address: mcsteele@kleinfelder.com

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9/22/14	1500			
			[signature]	9/23/14	935

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Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
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TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

APPENDIX G

Charts

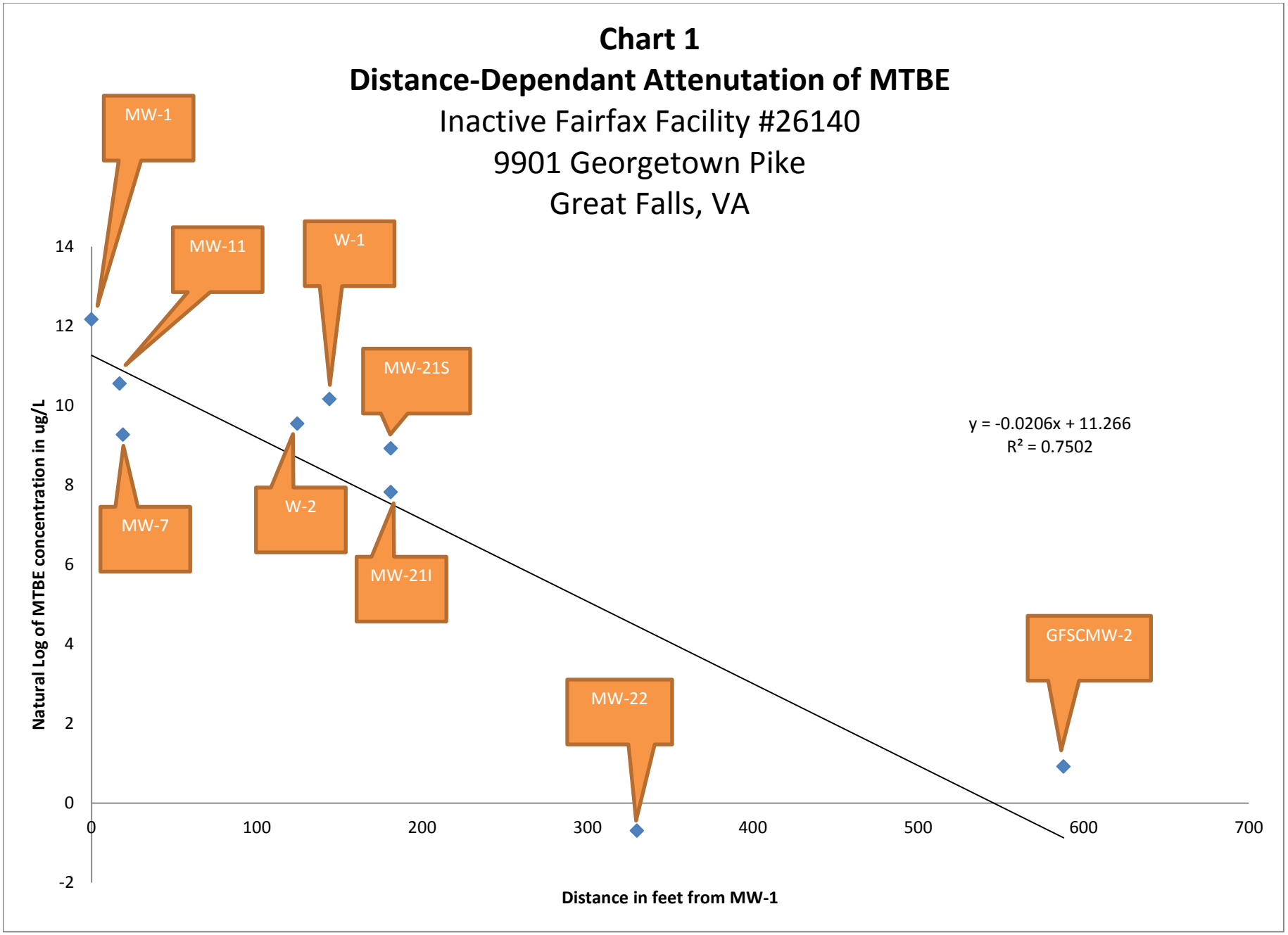


Chart 1
Distance-Dependant Attenutation of MTBE
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA
MW-1
MW-11
W-1
MW-21S
MW-7
W-2
MW-21I
MW-22
GFSCMW-2
y = -0.0206x + 11.266
R² = 0.7502
Natural Log of MTBE concentration in ug/L
Distance in feet from MW-1
14
12
10
8
6
4
2
0
-2
0
100
200
300
400
500
600
700

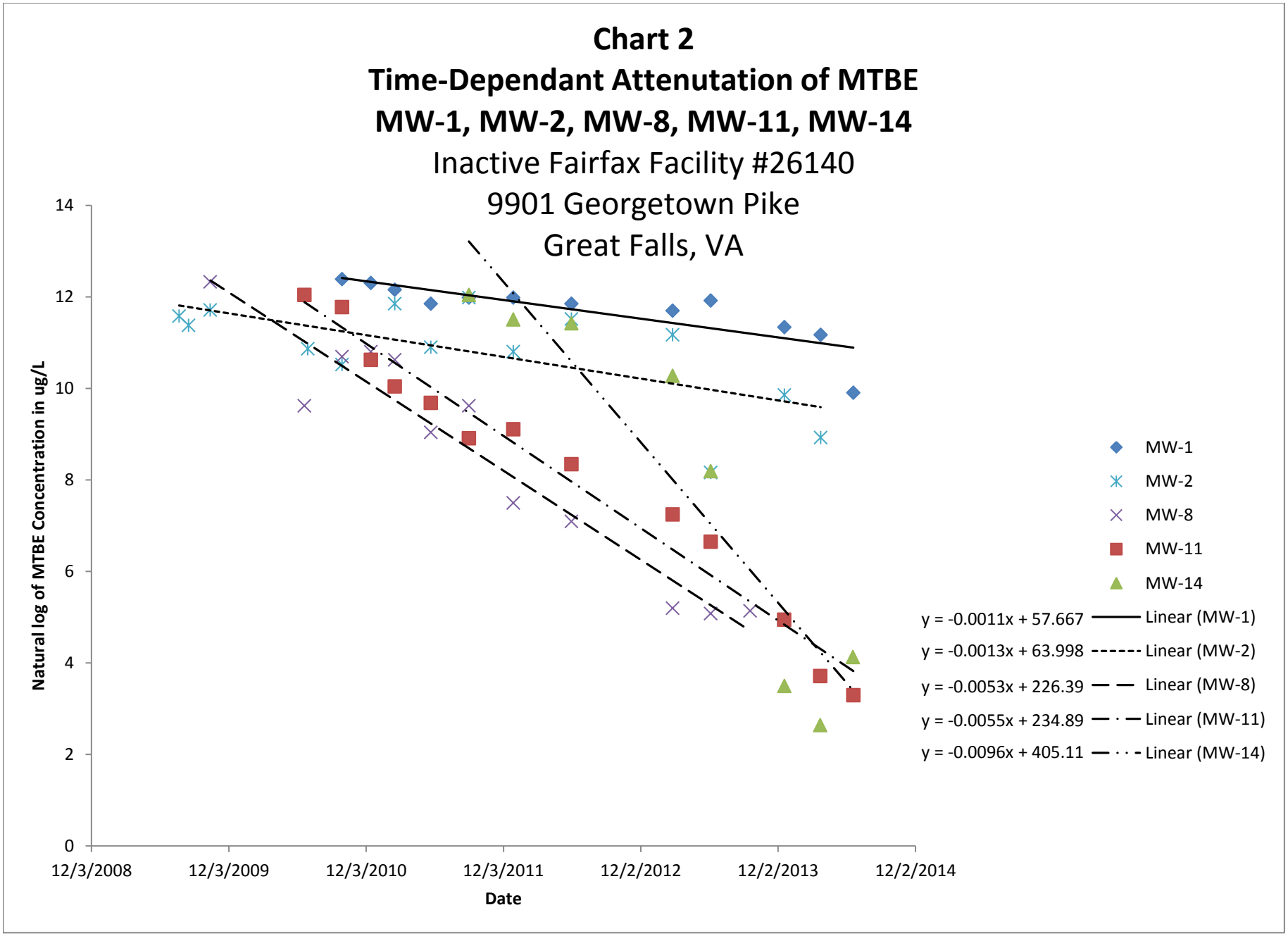


Chart 2
Time-Dependant Attenutation of MTBE
MW-1, MW-2, MW-8, MW-11, MW-14
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA
Natural log of MTBE Concentration in ug/L
14
12
10
8
6
4
2
0
12/3/2008
12/3/2009
12/3/2010
12/3/2011
12/2/2012
12/2/2013
12/2/2014
Date
MW-1
MW-2
MW-8
MW-11
MW-14
y = -0.0011x + 57.667 Linear (MW-1)
y = -0.0013x + 63.998 Linear (MW-2)
y = -0.0053x + 226.39 Linear (MW-8)
y = -0.0055x + 234.89 Linear (MW-11)
y = -0.0096x + 405.11 Linear (MW-14)

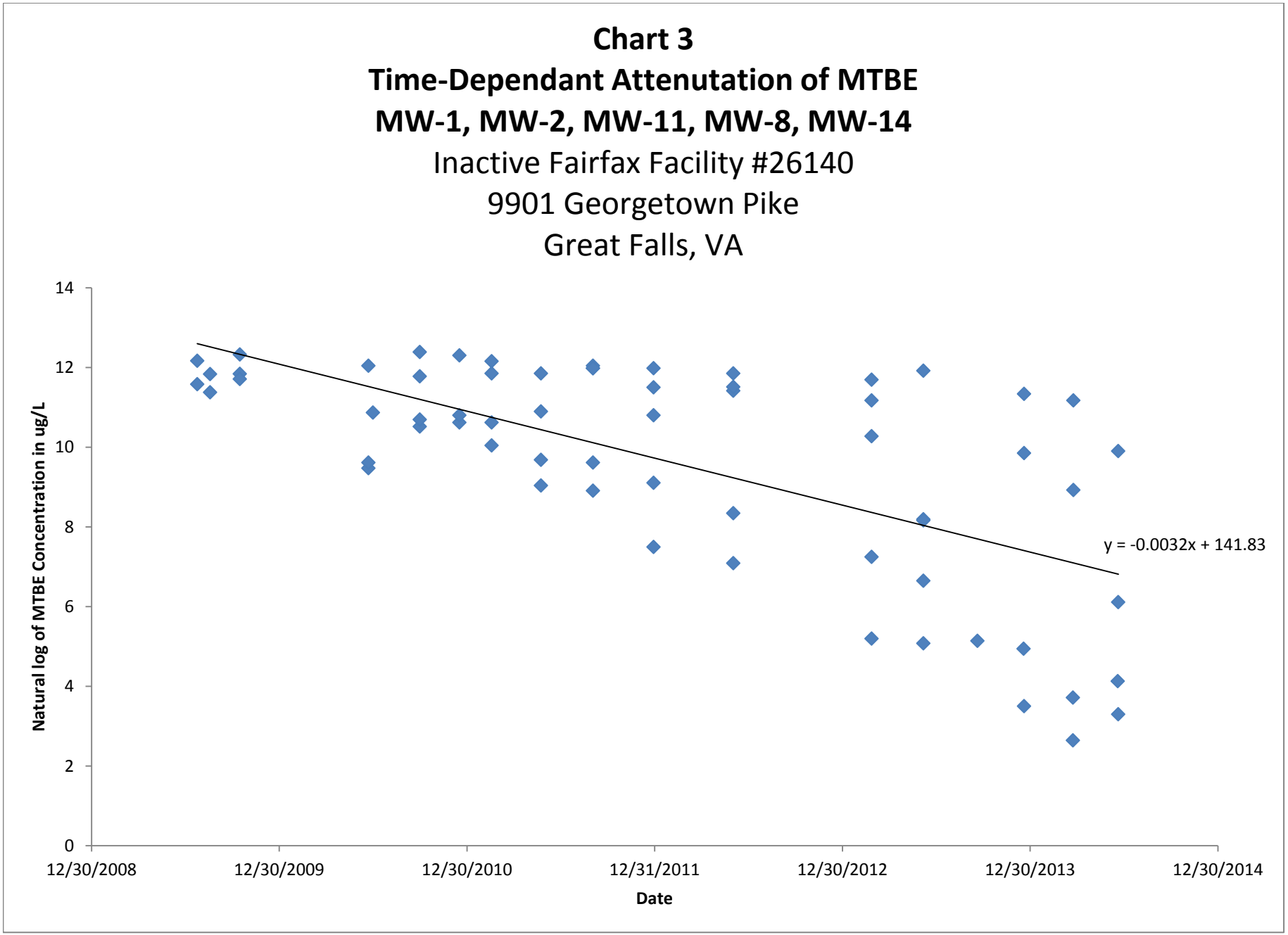


Chart 3
Time-Dependant Attenutation of MTBE
MW-1, MW-2, MW-11, MW-8, MW-14
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA
Natural log of MTBE Concentration in ug/L
14
12
10
8
6
4
2
0
12/30/2008
12/30/2009
12/30/2010
12/31/2011
12/30/2012
12/30/2013
12/30/2014
Date
y = -0.0032x + 141.83

Chart 4
MTBE and TBA in Groundwater
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

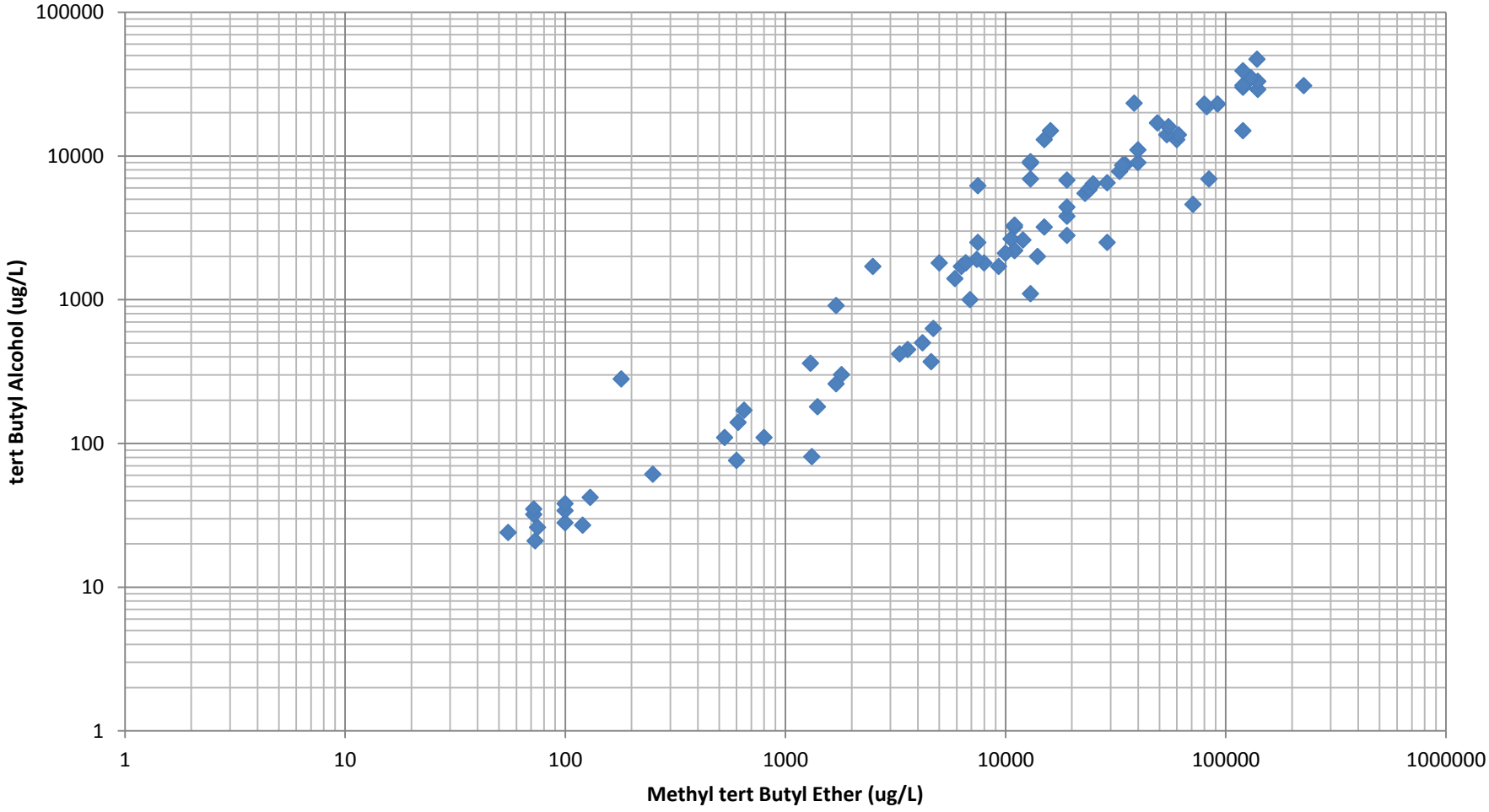


Chart 5
Deep Monitoring Well Groundwater Elevation During Interim Groundwater Pump and Treatment System Initiation

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls , Virginia

August 27, 2014 through September 12, 2014

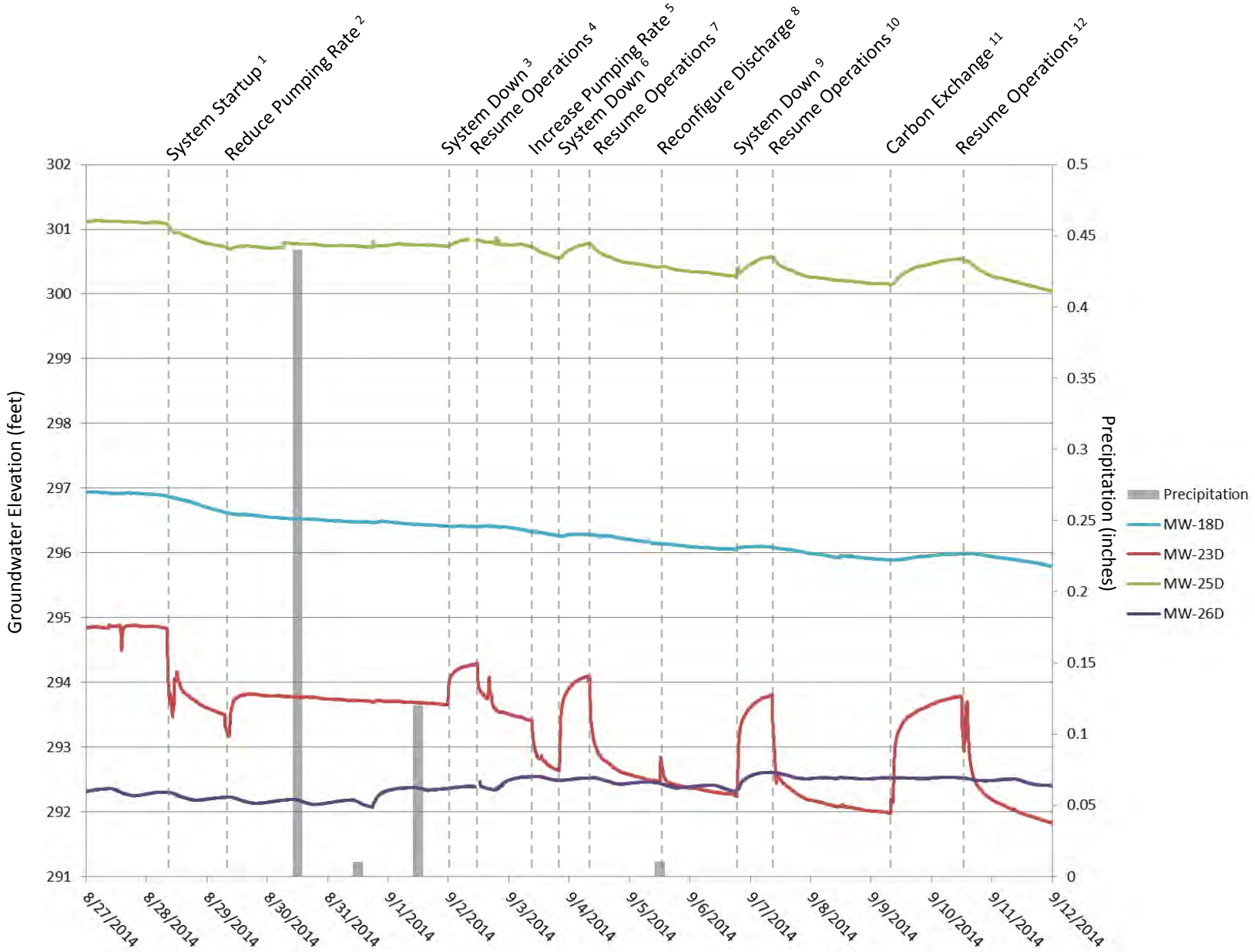


Chart 5

Deep Groundwater Elevation During Interim Groundwater Pump and Treatment Initiation

Event Table

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, Virginia

August 28 through September 10, 2014

Event Number	System Status	Date	Comment
1	System Startup	8/28/2014	Fitting from RW-1 needed repair, MW-16D acting as primary pump; treated water is being batched in 21,000 gallon frac tanks to confirm system performance.
2	Reduced Pumping Rate	8/29/2014	RW-1 repaired and acting as primary pump; MW-16D is shutdown; flow rate reduced to evaluate and optimize air stripper efficiency, and ensure operation through weekend while treated water is batched.
3	System Down	9/2/2014	System down due to high level and emergency stop alarms, and to update the programmable logic control circuit.
4	Resume Operations	9/2/2014	System alarms reset, programmable logic control circuit updated.
5	Increase Pumping Rate	9/3/2014	Flow rate increased following receipt of air stripper efficiency data.
6	System Down	9/3/2014	Pump motor overload.
7	Resume Operations	9/4/2014	Reset motor starter.
8	Reconfigure Discharge	9/5/2014	Following receipt of aqnalytical data from batched water, system breifly taken off-line to reconfigure for direct discharge.
9	System Down	9/6/2014	System down following electrical storm that engaged the emergency stop alarm.
10	Resume Operations	9/7/2014	System alarms reset, system restarted.
11	Carbon Exchange	9/9/2014	System taken off-line for granular activated carbon exhange.
12	Resume Operations	9/10/2014	Following carbon exchange and hydration, system brought on-line.

APPENDIX H

Mass Flux tool Kit Output

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

INTRODUCTION

Mass flux analysis of dissolved methyl tertiary butyl ether (MTBE) in groundwater provides an estimate of MTBE through transects. For this project, Mass Flux Toolkit, a Microsoft Excel-based software tool was utilized. The tool allows calculation of mass flux using the transect method, an established methodology previously used on sites in Virginia and throughout the United States. In addition to site-specific mass flux estimation, the tool also provides capability for estimating the degree of uncertainty associated with the mass flux estimates. In this analysis three transects through the overburden, one transect in the bedrock, and one transect between the overburden to the bedrock.

MASS FLUX ANALYSIS

Transect A-A' was established perpendicular to overburden groundwater flow direction through the source area of the Site. Monitoring wells MW-10, MW-24, MW-7, RW-1, MW-1, MW-11, MW-14, MW-2, and MW-9 were included in this transect. For each well, the assigned hydraulic gradient was 0.028, the average overburden hydraulic gradient over the last 2 years of monitoring. The hydraulic conductivity for each well was assigned based on either the results of the pump test performed in 2014, slug tests performed in 2010, or estimated as the geometric mean of hydraulic conductivity values for measured wells in the transect.

Transect B-B' was established perpendicular to overburden groundwater flow direction through the former Shell Station (now Exxon) located on the east side of Walker Road. Monitoring wells W-1, W-2, W-3, W-6, MW-21S, and MW-21I were included in this transect. For each well, the assigned hydraulic gradient was 0.028, the average overburden hydraulic gradient over the last 2 years of monitoring. The hydraulic conductivity for each well was assigned based on either the results of the pump test performed in 2014 or estimated as the geometric mean of hydraulic conductivity values for measured wells in the transect.

Transect C-C' was established perpendicular to overburden groundwater flow direction through the Shopping Center located on the east side of Walker Road. Monitoring wells W-4, W-5, W-7, MW-22, and MW-27S were included in this transect. For each well, the assigned hydraulic gradient was 0.028, the average overburden hydraulic gradient over the last 2 years of site monitoring. The hydraulic conductivity for each well was estimated as the geometric mean of hydraulic conductivity values for measured wells east of Walker Road. The current mass flux through Transect C-C' was based on an estimated concentration of 0.01 µg/L MTBE at each well except MW-27S, as the most recent groundwater sample analytical results for MTBE were non-detect.

The sampling interval assigned to each well was equivalent to the screened interval of the well. The top of the plume was assumed to be equal to the depth to the water table, 30 feet below grade. The bottom of the plume was assumed to be the top of competent bedrock, which is

estimated to average 60 feet below grade. Known impacts to water quality within fractures in bedrock are evaluated separately in Transect D-D'.

Within Mass Flux Toolkit, polygons are defined as the lateral distances separating wells multiplied by vertical distance between the sampling points. In the overburden, it is conservatively assumed that the concentration measured in the well is equivalent to the concentration at points vertically through the saturated zone (30 feet). For each polygon, the concentration, hydraulic conductivity, and hydraulic gradient is either assigned or interpolated. Concentrations of MTBE were assigned to each polygon based on the most recent groundwater sampling results. Hydraulic conductivity, measured or estimated as described above, was assigned to each well and assumed to be vertically constant. The same hydraulic gradient was assigned to all polygons.

Concentrations of MTBE were conservatively estimated to vary logarithmically through polygons with no assigned concentrations. Hydraulic conductivity was interpolated using nearest-neighbor scheme, where proximal assigned values were assumed to carry more weight that assigned values at greater distances. Hydraulic gradient was assumed to be uniform through all transects.

Values of specific discharge, calculated as hydraulic conductivity times hydraulic gradient, were calculated for each polygon. The contaminant mass flux for each polygon is then the product of the specific discharge, MTBE concentration, and polygon area. The sum of mass fluxes calculated for each polygon is the total mass flux for the transect. The following figures present all the data entry screens, interpolation step results, and mass fluxes calculated for each transect at each time.

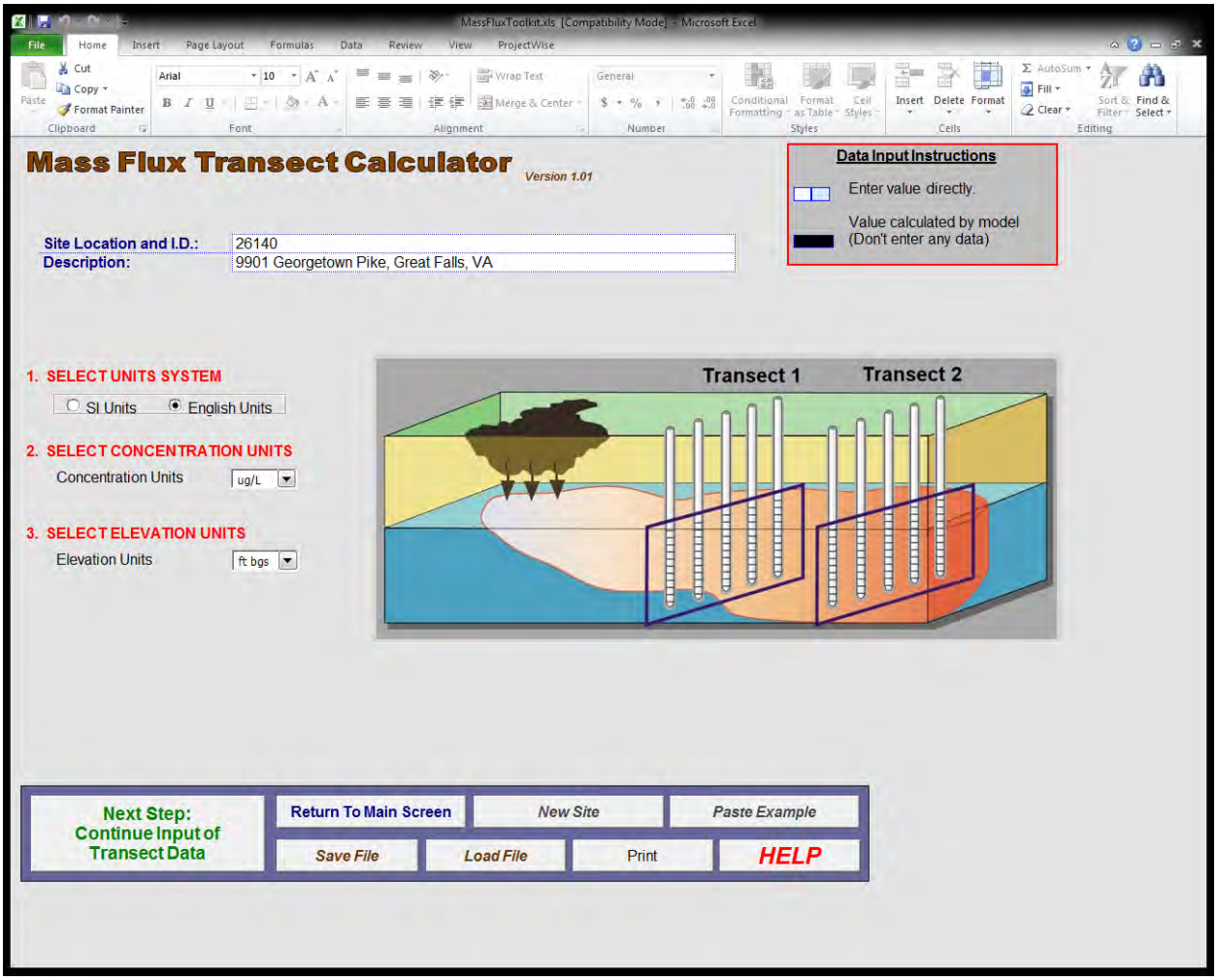
The mass flux was calculated for each overburden transect twice. The first estimate used the average concentration of MTBE detected in all groundwater samples collected from each well since 2009. The second estimate used the most recent (prior to remediation system operation) concentration of MTBE detected in groundwater samples from each well.

Current MTBE flux from the Site (Transect A-A') has declined 95 percent from the historical average, from 1,160 grams per day to 47.1 grams per day. This decrease in flux is attributable to decreases MTBE concentrations in on-Site wells, as hydraulic gradient has been consistent and hydraulic conductivity would not be expected to change over time. MTBE flux on the east side of Walker Road (Transect B-B') has declined 16 percent compared to the historical average, from 1,160 grams per day to 979 grams per day. The mass flux through the eastern-most transect (C-C') declined 99 percent from the historical average (1.26 grams per day to 0.0104 grams per day).

The estimated fluxes through each transect are consistent with the Fate and Transport model presented in Appendix K of the CAP (Kleinfelder 2013), which stated that the pulse source model indicated that MTBE is not expected to migrate beyond the downgradient shopping plaza

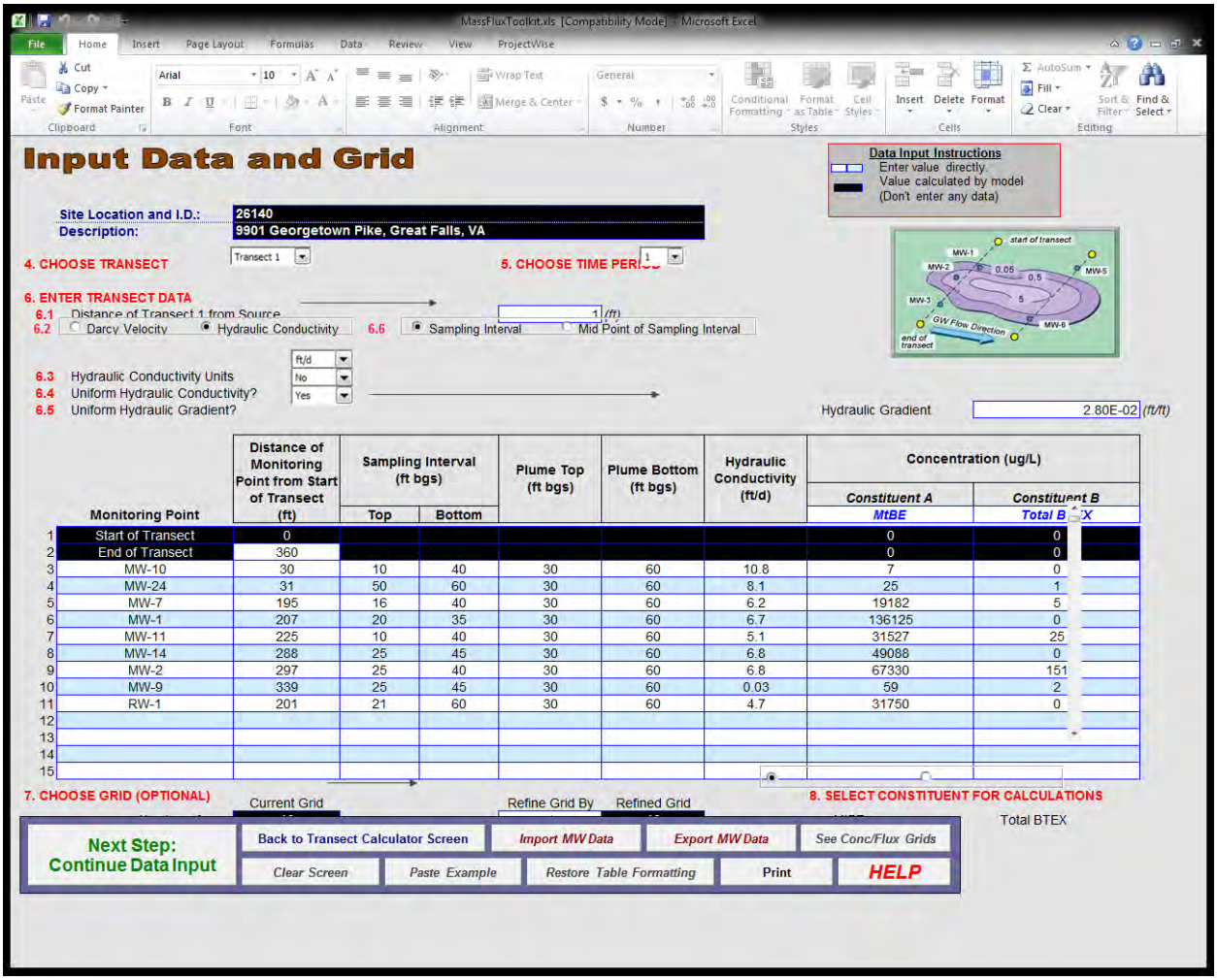
at concentrations greater than 0.004 mg/L (4 µg/L), and that could take up to 20 years from the time of the release, and that predictive continuous source modeling indicated that MTBE is not expected to migrate beyond the downgradient shopping plaza at concentrations greater than 0.001 mg/L (1 µg/L) in the overburden.

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Transect 1, Time 1 (A-A', Historical Average)



Input Data and Grid

Data Input Instructions
Enter value directly.
Value calculated by model
(Don't enter any data)

Site Location and I.D.: 26140
Description: 9901 Georgetown Pike, Great Falls, VA

4. CHOOSE TRANSECT: Transect 1
5. CHOOSE TIME PERIOD: 1

6. ENTER TRANSECT DATA
6.1 Distance of Transect 1 from Source: 1 (ft)
6.2 Darcy Velocity / Hydraulic Conductivity
6.6 Sampling Interval / Mid Point of Sampling Interval
6.3 Hydraulic Conductivity Units: ft/d
6.4 Uniform Hydraulic Conductivity?: No
6.5 Uniform Hydraulic Gradient?: Yes

Hydraulic Gradient: 2.80E-02 (ft/ft)

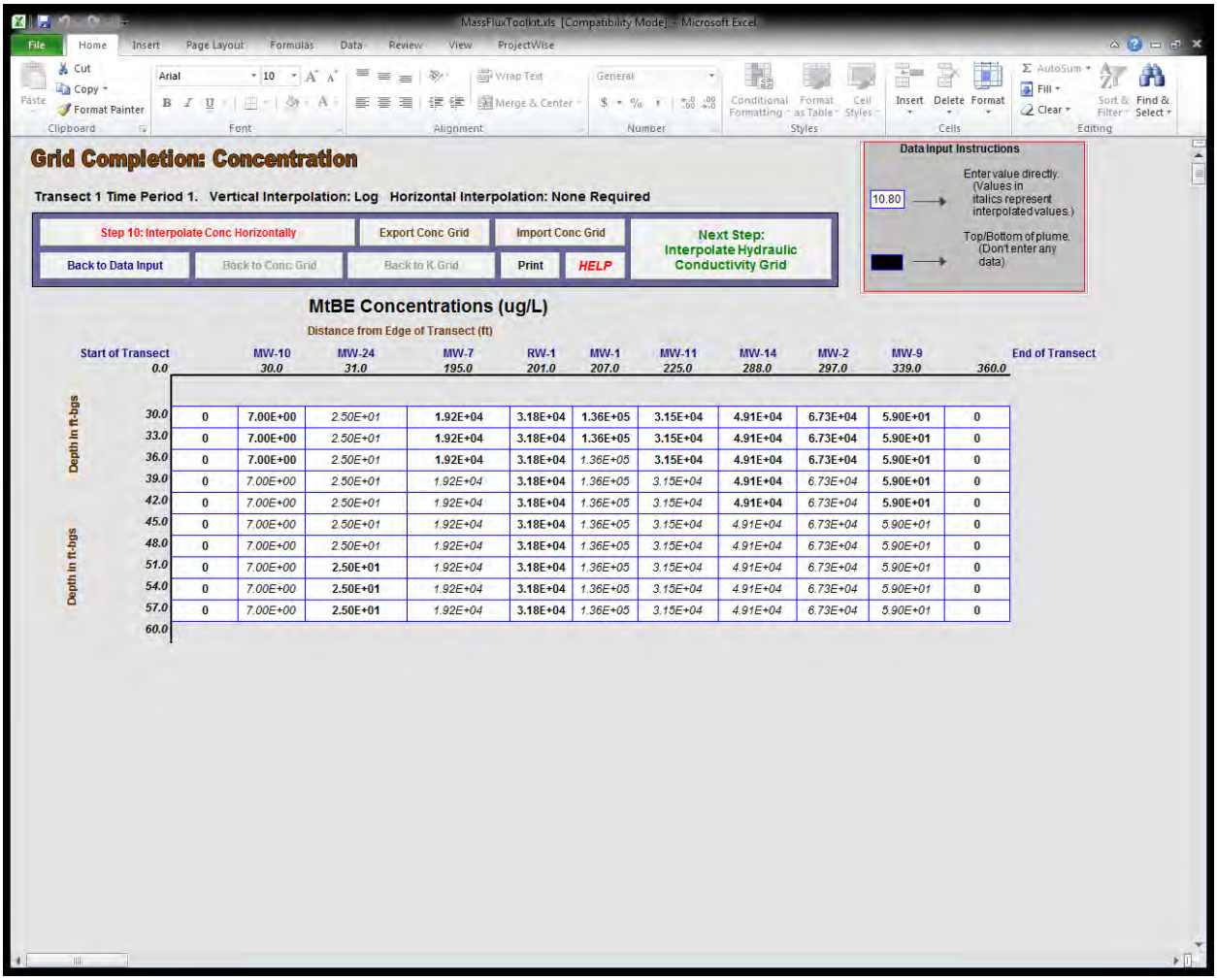
	Monitoring Point	Distance of Monitoring Point from Start of Transect (ft)	Sampling Interval (ft bgs) Top	Sampling Interval (ft bgs) Bottom	Plume Top (ft bgs)	Plume Bottom (ft bgs)	Hydraulic Conductivity (ft/d)	Concentration (ug/L) Constituent A MtBE	Concentration (ug/L) Constituent B Total BTEX
1	Start of Transect	0						0	0
2	End of Transect	360						0	0
3	MW-10	30	10	40	30	60	10.8	7	0
4	MW-24	31	50	60	30	60	8.1	25	1
5	MW-7	195	16	40	30	60	6.2	19182	5
6	MW-1	207	20	35	30	60	6.7	136125	0
7	MW-11	225	10	40	30	60	5.1	31527	25
8	MW-14	288	25	45	30	60	6.8	49088	0
9	MW-2	297	25	40	30	60	6.8	67330	151
10	MW-9	339	25	45	30	60	0.03	59	2
11	RW-1	201	21	60	30	60	4.7	31750	0
12									
13									
14									
15									

7. CHOOSE GRID (OPTIONAL): Current Grid; Refine Grid By; Refined Grid

8. SELECT CONSTITUENT FOR CALCULATIONS: Total BTEX

Next Step: Continue Data Input
Back to Transect Calculator Screen | Import MW Data | Export MW Data | See Conc/Flux Grids
Clear Screen | Paste Example | Restore Table Formatting | Print | HELP

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

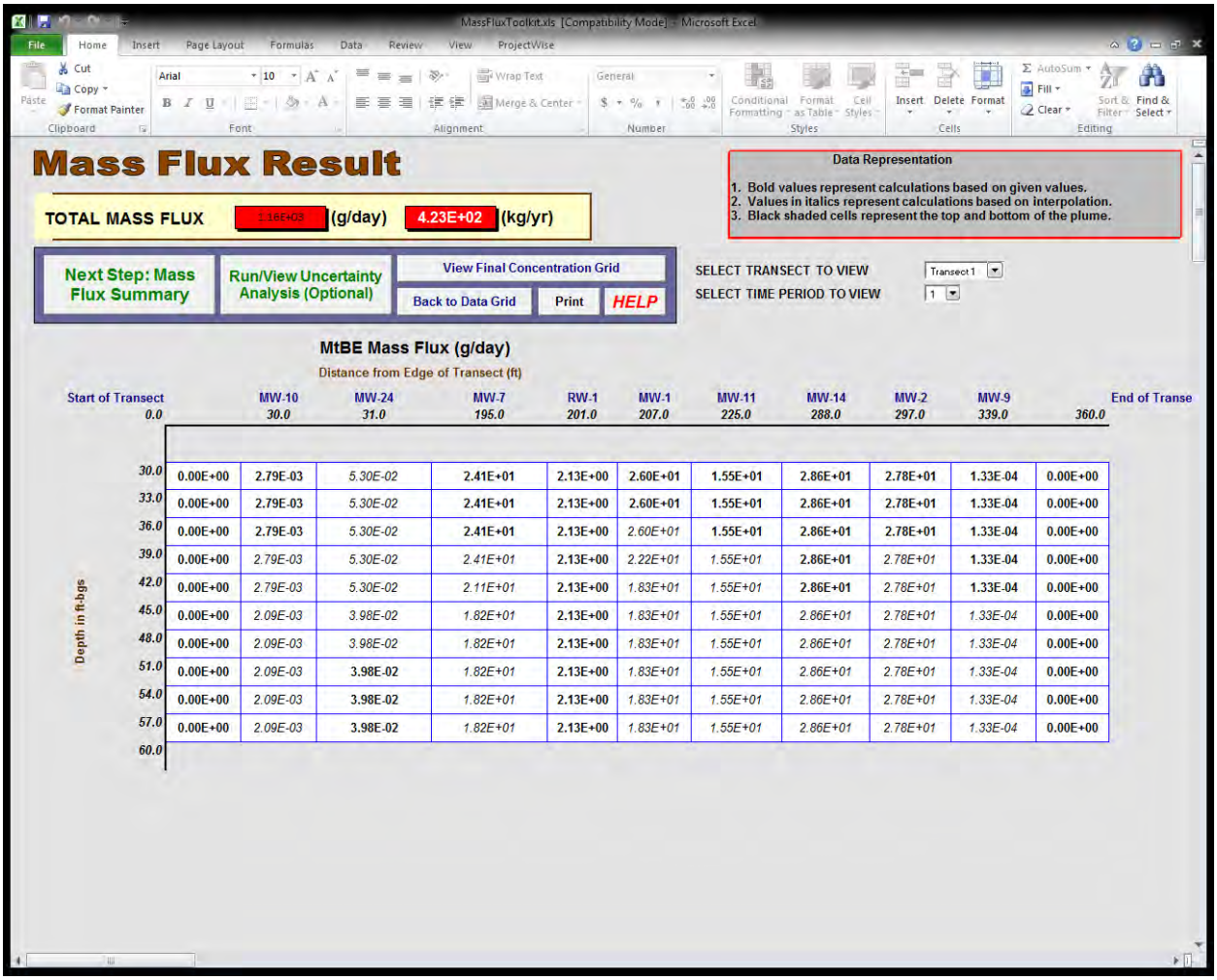


MtBE Concentrations (ug/L)

Distance from Edge of Transect (ft)

Depth in ft-bgs	Start of Transect 0.0	MW-10 30.0	MW-24 31.0	MW-7 195.0	RW-1 201.0	MW-1 207.0	MW-11 225.0	MW-14 288.0	MW-2 297.0	MW-9 339.0	End of Transect 360.0
30.0	0	7.00E+00	2.50E+01	1.92E+04	3.18E+04	1.36E+05	3.15E+04	4.91E+04	6.73E+04	5.90E+01	0
33.0	0	7.00E+00	2.50E+01	1.92E+04	3.18E+04	1.36E+05	3.15E+04	4.91E+04	6.73E+04	5.90E+01	0
36.0	0	7.00E+00	2.50E+01	1.92E+04	3.18E+04	1.36E+05	3.15E+04	4.91E+04	6.73E+04	5.90E+01	0
39.0	0	7.00E+00	2.50E+01	1.92E+04	3.18E+04	1.36E+05	3.15E+04	4.91E+04	6.73E+04	5.90E+01	0
42.0	0	7.00E+00	2.50E+01	1.92E+04	3.18E+04	1.36E+05	3.15E+04	4.91E+04	6.73E+04	5.90E+01	0
45.0	0	7.00E+00	2.50E+01	1.92E+04	3.18E+04	1.36E+05	3.15E+04	4.91E+04	6.73E+04	5.90E+01	0
48.0	0	7.00E+00	2.50E+01	1.92E+04	3.18E+04	1.36E+05	3.15E+04	4.91E+04	6.73E+04	5.90E+01	0
51.0	0	7.00E+00	2.50E+01	1.92E+04	3.18E+04	1.36E+05	3.15E+04	4.91E+04	6.73E+04	5.90E+01	0
54.0	0	7.00E+00	2.50E+01	1.92E+04	3.18E+04	1.36E+05	3.15E+04	4.91E+04	6.73E+04	5.90E+01	0
57.0	0	7.00E+00	2.50E+01	1.92E+04	3.18E+04	1.36E+05	3.15E+04	4.91E+04	6.73E+04	5.90E+01	0
60.0											

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



Mass Flux Result

TOTAL MASS FLUX 1.16E+03 (g/day) 4.23E+02 (kg/yr)

Data Representation

1. Bold values represent calculations based on given values.
2. Values in italics represent calculations based on interpolation.
3. Black shaded cells represent the top and bottom of the plume.

Next Step: Mass Flux Summary | Run/View Uncertainty Analysis (Optional) | View Final Concentration Grid | Back to Data Grid | Print | HELP

SELECT TRANSECT TO VIEW: Transect 1
SELECT TIME PERIOD TO VIEW: 1

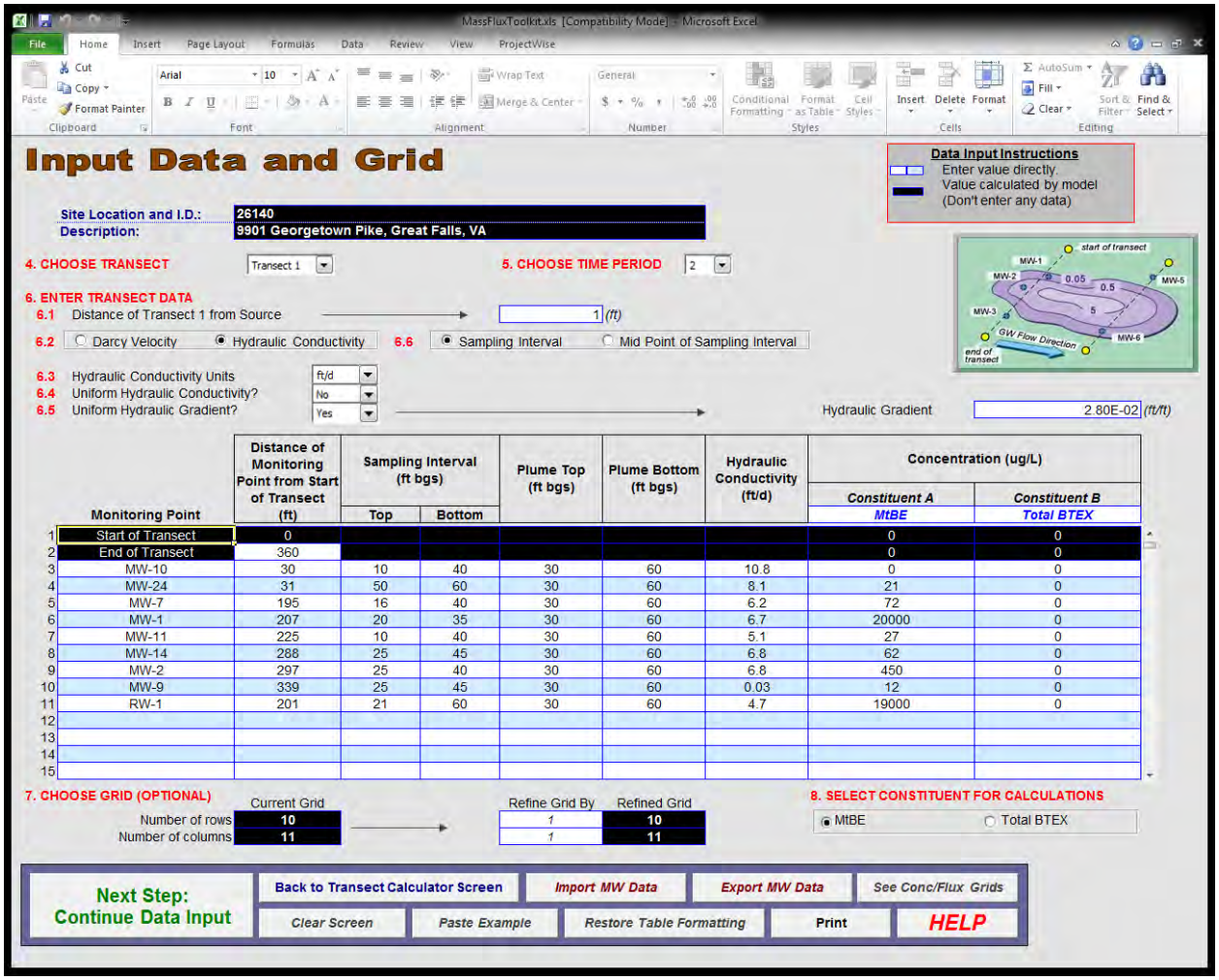
MtBE Mass Flux (g/day)

Distance from Edge of Transect (ft)

Depth in ft-bgs	Start of Transect 0.0	MW-10 30.0	MW-24 31.0	MW-7 195.0	RW-1 201.0	MW-1 207.0	MW-11 225.0	MW-14 288.0	MW-2 297.0	MW-9 339.0	End of Transe 360.0
30.0	0.00E+00	2.79E-03	5.30E-02	2.41E+01	2.13E+00	2.60E+01	1.55E+01	2.86E+01	2.78E+01	1.33E-04	0.00E+00
33.0	0.00E+00	2.79E-03	5.30E-02	2.41E+01	2.13E+00	2.60E+01	1.55E+01	2.86E+01	2.78E+01	1.33E-04	0.00E+00
36.0	0.00E+00	2.79E-03	5.30E-02	2.41E+01	2.13E+00	2.60E+01	1.55E+01	2.86E+01	2.78E+01	1.33E-04	0.00E+00
39.0	0.00E+00	2.79E-03	5.30E-02	2.41E+01	2.13E+00	2.22E+01	1.55E+01	2.86E+01	2.78E+01	1.33E-04	0.00E+00
42.0	0.00E+00	2.79E-03	5.30E-02	2.11E+01	2.13E+00	1.83E+01	1.55E+01	2.86E+01	2.78E+01	1.33E-04	0.00E+00
45.0	0.00E+00	2.09E-03	3.98E-02	1.82E+01	2.13E+00	1.83E+01	1.55E+01	2.86E+01	2.78E+01	1.33E-04	0.00E+00
48.0	0.00E+00	2.09E-03	3.98E-02	1.82E+01	2.13E+00	1.83E+01	1.55E+01	2.86E+01	2.78E+01	1.33E-04	0.00E+00
51.0	0.00E+00	2.09E-03	3.98E-02	1.82E+01	2.13E+00	1.83E+01	1.55E+01	2.86E+01	2.78E+01	1.33E-04	0.00E+00
54.0	0.00E+00	2.09E-03	3.98E-02	1.82E+01	2.13E+00	1.83E+01	1.55E+01	2.86E+01	2.78E+01	1.33E-04	0.00E+00
57.0	0.00E+00	2.09E-03	3.98E-02	1.82E+01	2.13E+00	1.83E+01	1.55E+01	2.86E+01	2.78E+01	1.33E-04	0.00E+00
60.0											

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Transect 1, Time 2 (A-A', Last Sampling Event Before Groundwater Recovery System Start)



Input Data and Grid

Data Input Instructions
Enter value directly.
Value calculated by model
(Don't enter any data)

Site Location and I.D.: 26140
Description: 9901 Georgetown Pike, Great Falls, VA

4. CHOOSE TRANSECT: Transect 1
5. CHOOSE TIME PERIOD: 2

6. ENTER TRANSECT DATA
6.1 Distance of Transect 1 from Source: 1 (ft)
6.2 Darcy Velocity / Hydraulic Conductivity
6.6 Sampling Interval / Mid Point of Sampling Interval
6.3 Hydraulic Conductivity Units: ft/d
6.4 Uniform Hydraulic Conductivity?: No
6.5 Uniform Hydraulic Gradient?: Yes
Hydraulic Gradient: 2.80E-02 (ft/ft)

	Monitoring Point	Distance of Monitoring Point from Start of Transect (ft)	Sampling Interval (ft bgs) Top	Sampling Interval (ft bgs) Bottom	Plume Top (ft bgs)	Plume Bottom (ft bgs)	Hydraulic Conductivity (ft/d)	Concentration (ug/L) Constituent A MtBE	Concentration (ug/L) Constituent B Total BTEX
1	Start of Transect	0						0	0
2	End of Transect	360						0	0
3	MW-10	30	10	40	30	60	10.8	0	0
4	MW-24	31	50	60	30	60	8.1	21	0
5	MW-7	195	16	40	30	60	6.2	72	0
6	MW-1	207	20	35	30	60	6.7	20000	0
7	MW-11	225	10	40	30	60	5.1	27	0
8	MW-14	288	25	45	30	60	6.8	62	0
9	MW-2	297	25	40	30	60	6.8	450	0
10	MW-9	339	25	45	30	60	0.03	12	0
11	RW-1	201	21	60	30	60	4.7	19000	0
12									
13									
14									
15									

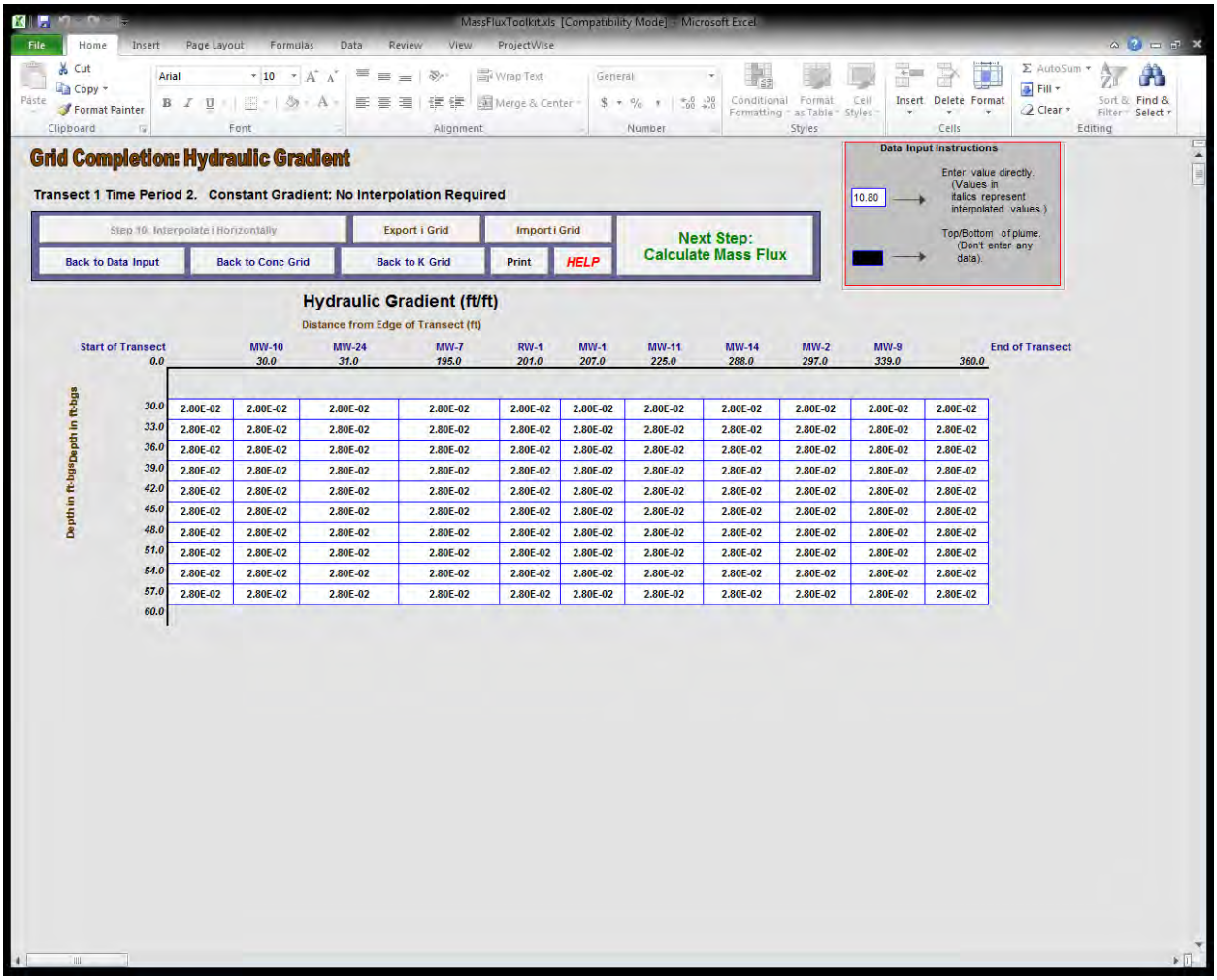
7. CHOOSE GRID (OPTIONAL)

	Current Grid	Refine Grid By	Refined Grid
Number of rows	10	1	10
Number of columns	11	1	11

8. SELECT CONSTITUENT FOR CALCULATIONS: MtBE / Total BTEX

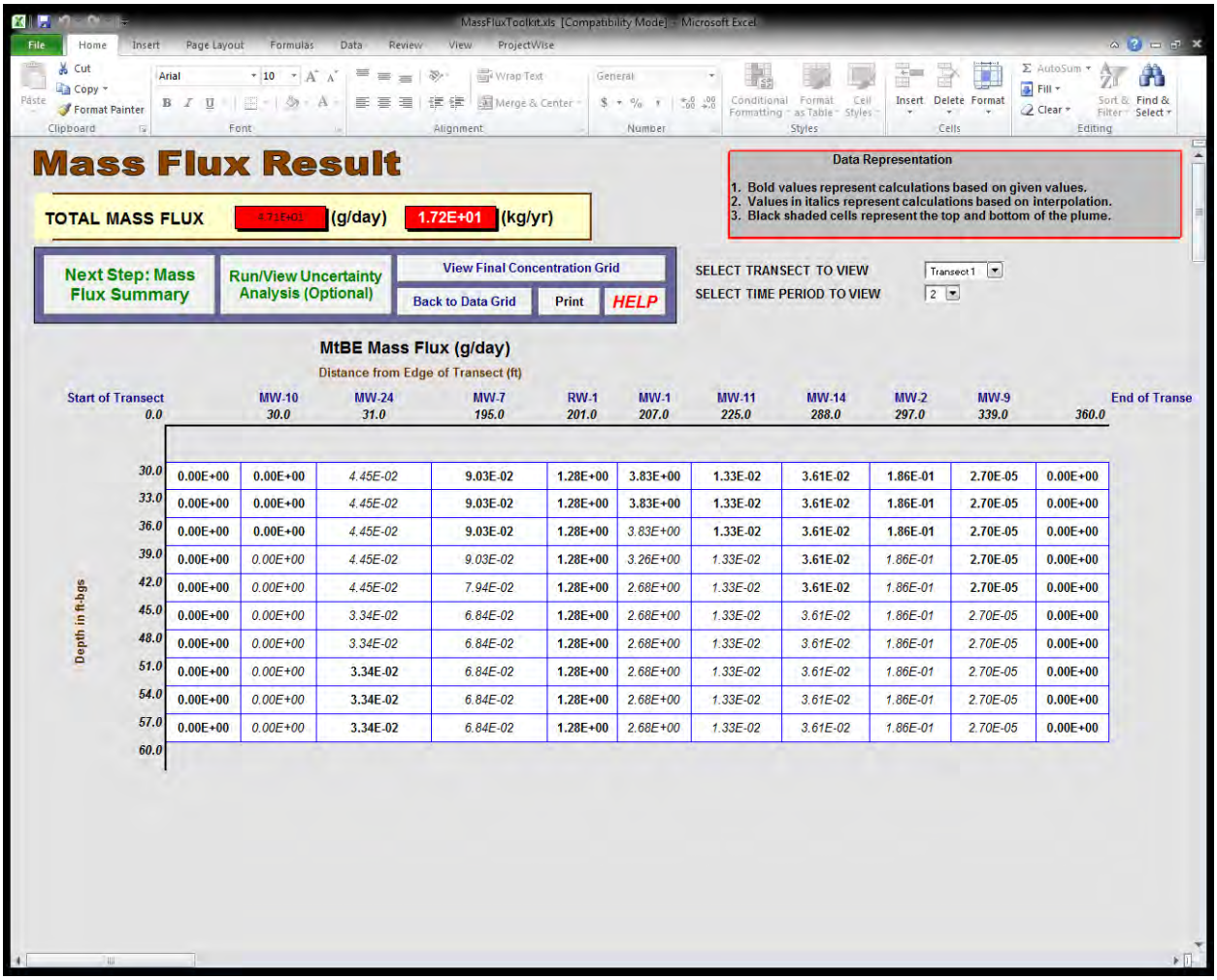
Next Step: Continue Data Input
Back to Transect Calculator Screen | Import MW Data | Export MW Data | See Conc/Flux Grids
Clear Screen | Paste Example | Restore Table Formatting | Print | HELP

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



Depth in ft-bgs	Start of Transect 0.0	MW-10 30.0	MW-24 31.0	MW-7 195.0	RW-1 201.0	MW-1 207.0	MW-11 225.0	MW-14 288.0	MW-2 297.0	MW-9 339.0	End of Transect 360.0
30.0	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02
33.0	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02
36.0	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02
39.0	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02
42.0	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02
45.0	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02
48.0	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02
51.0	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02
54.0	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02
57.0	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02	2.80E-02
60.0											

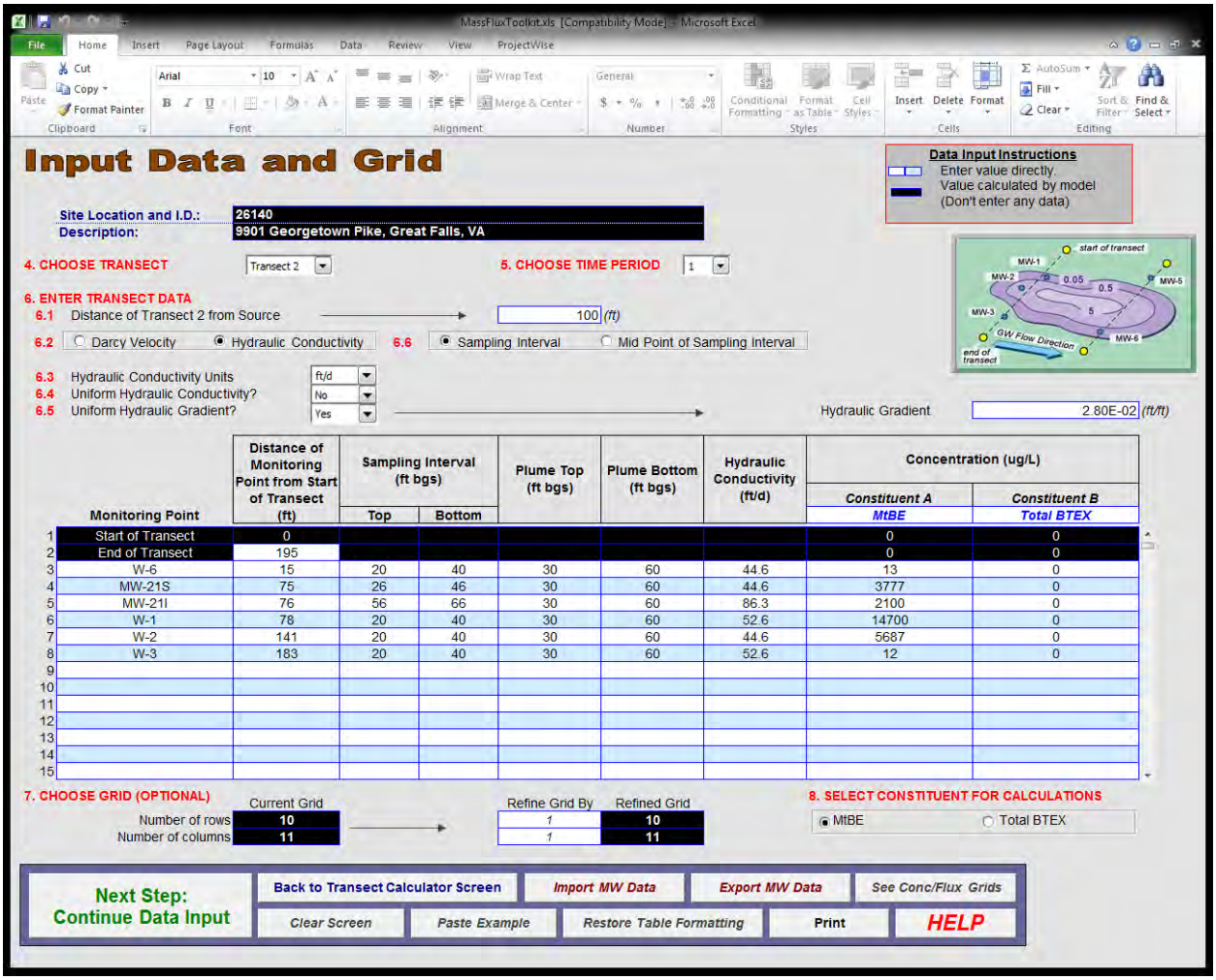
MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



Start of Transect	MW-10	MW-24	MW-7	RW-1	MW-1	MW-11	MW-14	MW-2	MW-9	End of Transe
0.0	30.0	31.0	195.0	201.0	207.0	225.0	288.0	297.0	339.0	360.0
30.0	0.00E+00	0.00E+00	4.45E-02	9.03E-02	1.28E+00	3.83E+00	1.33E-02	3.61E-02	1.86E-01	2.70E-05	0.00E+00
33.0	0.00E+00	0.00E+00	4.45E-02	9.03E-02	1.28E+00	3.83E+00	1.33E-02	3.61E-02	1.86E-01	2.70E-05	0.00E+00
36.0	0.00E+00	0.00E+00	4.45E-02	9.03E-02	1.28E+00	3.83E+00	1.33E-02	3.61E-02	1.86E-01	2.70E-05	0.00E+00
39.0	0.00E+00	0.00E+00	4.45E-02	9.03E-02	1.28E+00	3.26E+00	1.33E-02	3.61E-02	1.86E-01	2.70E-05	0.00E+00
42.0	0.00E+00	0.00E+00	4.45E-02	7.94E-02	1.28E+00	2.68E+00	1.33E-02	3.61E-02	1.86E-01	2.70E-05	0.00E+00
45.0	0.00E+00	0.00E+00	3.34E-02	6.84E-02	1.28E+00	2.68E+00	1.33E-02	3.61E-02	1.86E-01	2.70E-05	0.00E+00
48.0	0.00E+00	0.00E+00	3.34E-02	6.84E-02	1.28E+00	2.68E+00	1.33E-02	3.61E-02	1.86E-01	2.70E-05	0.00E+00
51.0	0.00E+00	0.00E+00	3.34E-02	6.84E-02	1.28E+00	2.68E+00	1.33E-02	3.61E-02	1.86E-01	2.70E-05	0.00E+00
54.0	0.00E+00	0.00E+00	3.34E-02	6.84E-02	1.28E+00	2.68E+00	1.33E-02	3.61E-02	1.86E-01	2.70E-05	0.00E+00
57.0	0.00E+00	0.00E+00	3.34E-02	6.84E-02	1.28E+00	2.68E+00	1.33E-02	3.61E-02	1.86E-01	2.70E-05	0.00E+00
60.0											

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Transect 2, Time 1 (B-B', Historical Average)



Input Data and Grid

Data Input Instructions
Enter value directly.
Value calculated by model
(Don't enter any data)

Site Location and I.D.: 26140
Description: 9901 Georgetown Pike, Great Falls, VA

4. CHOOSE TRANSECT Transect 2

5. CHOOSE TIME PERIOD 1

6. ENTER TRANSECT DATA

6.1 Distance of Transect 2 from Source → 100 (ft)

6.2 ○ Darcy Velocity ◉ Hydraulic Conductivity

6.6 ◉ Sampling Interval ○ Mid Point of Sampling Interval

6.3 Hydraulic Conductivity Units: ft/d

6.4 Uniform Hydraulic Conductivity?: No

6.5 Uniform Hydraulic Gradient?: Yes → Hydraulic Gradient 2.80E-02 (ft/ft)

	Monitoring Point	Distance of Monitoring Point from Start of Transect (ft)	Sampling Interval (ft bgs) Top	Sampling Interval (ft bgs) Bottom	Plume Top (ft bgs)	Plume Bottom (ft bgs)	Hydraulic Conductivity (ft/d)	Concentration (ug/L) Constituent A MtBE	Concentration (ug/L) Constituent B Total BTEX
1	Start of Transect	0						0	0
2	End of Transect	195						0	0
3	W-6	15	20	40	30	60	44.6	13	0
4	MW-21S	75	26	46	30	60	44.6	3777	0
5	MW-21I	76	56	66	30	60	86.3	2100	0
6	W-1	78	20	40	30	60	52.6	14700	0
7	W-2	141	20	40	30	60	44.6	5687	0
8	W-3	183	20	40	30	60	52.6	12	0
9									
10									
11									
12									
13									
14									
15									

7. CHOOSE GRID (OPTIONAL)

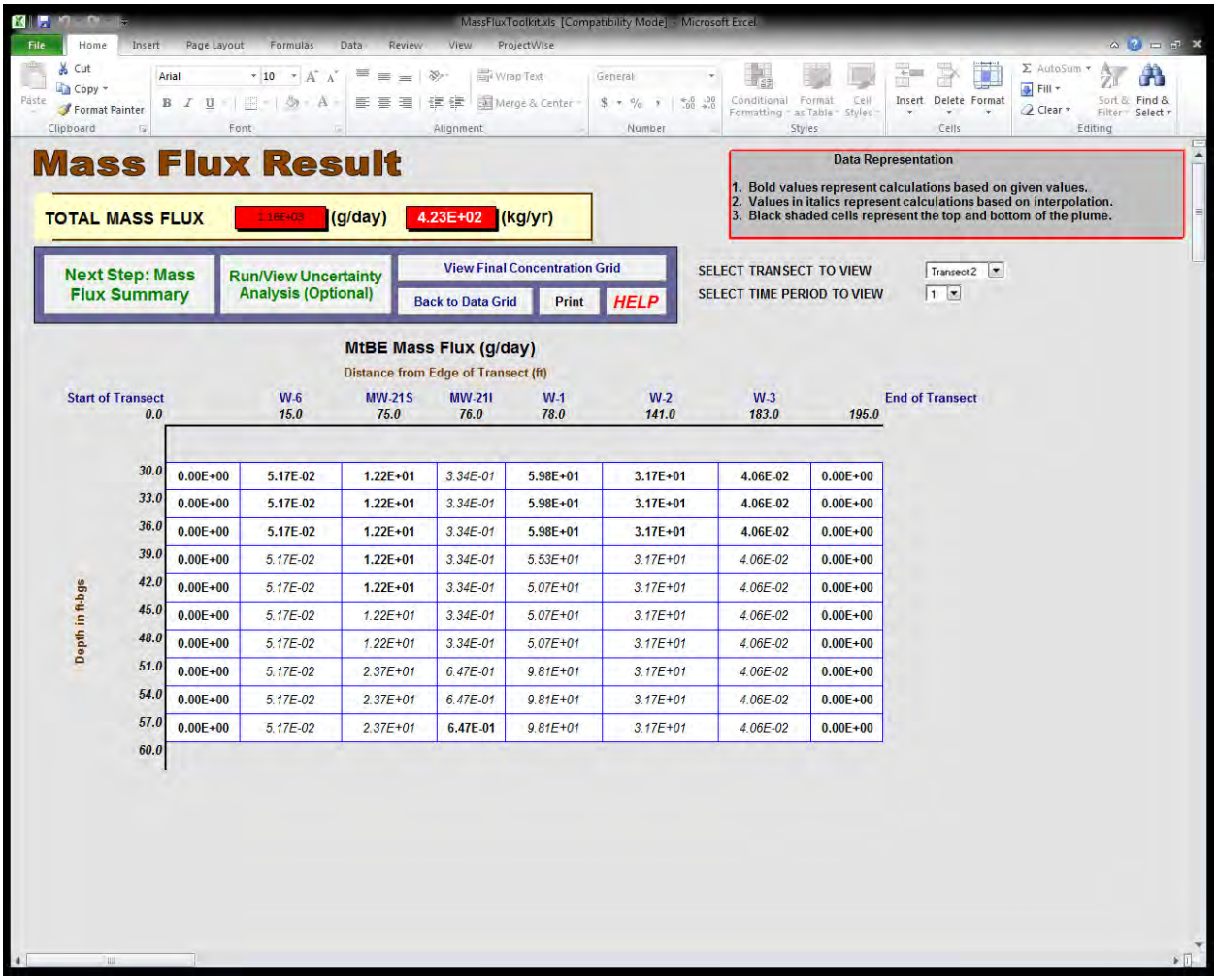
	Current Grid	Refine Grid By	Refined Grid
Number of rows	10	1	10
Number of columns	11	1	11

8. SELECT CONSTITUENT FOR CALCULATIONS
◉ MtBE ○ Total BTEX

Next Step: Continue Data Input

Back to Transect Calculator Screen | Import MW Data | Export MW Data | See Conc/Flux Grids
Clear Screen | Paste Example | Restore Table Formatting | Print | HELP

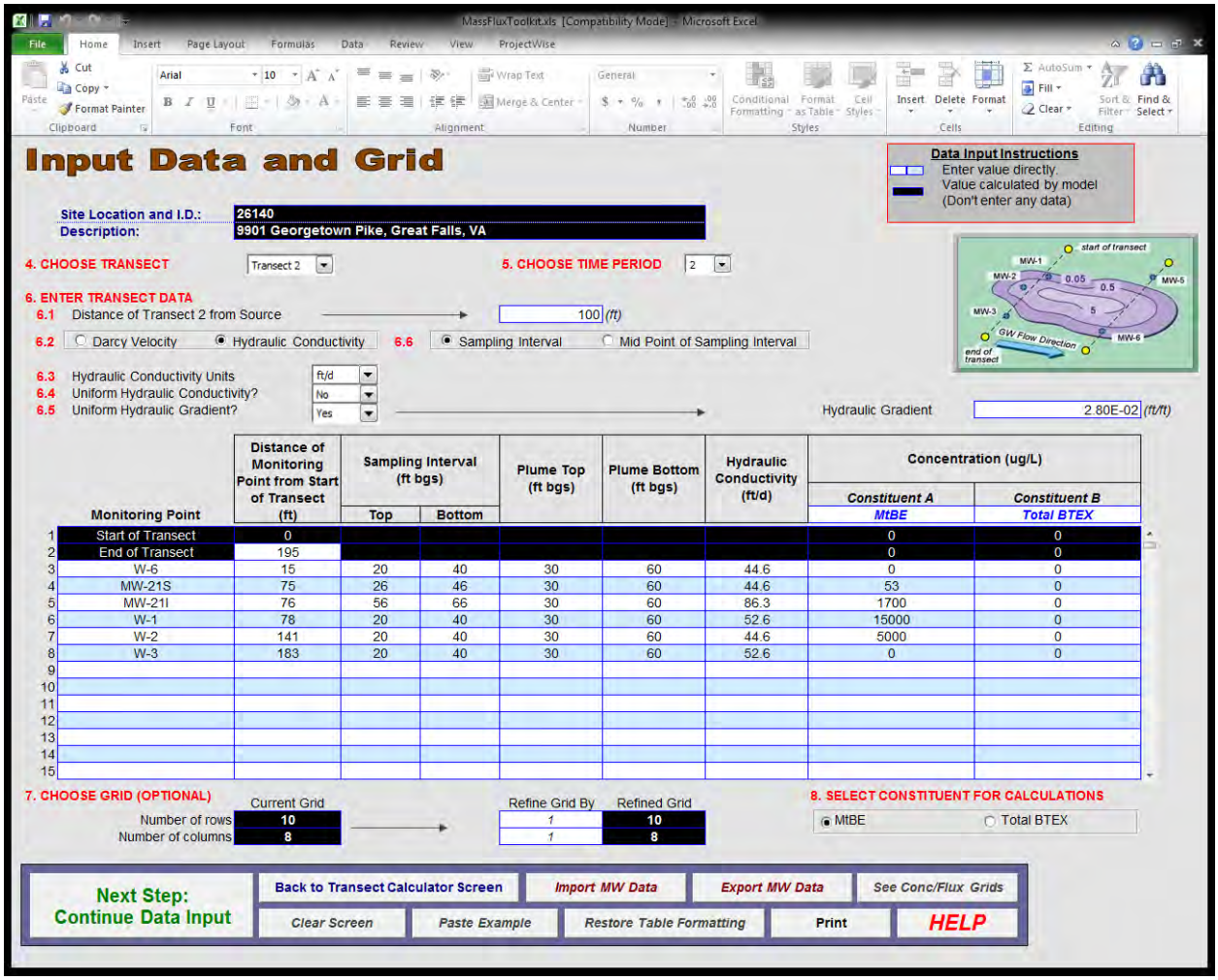
MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



Depth in ft-bgs	Start of Transect 0.0	W-6 15.0	MW-21S 75.0	MW-21I 76.0	W-1 78.0	W-2 141.0	W-3 183.0	End of Transect 195.0
30.0	0.00E+00	5.17E-02	1.22E+01	3.34E-01	5.98E+01	3.17E+01	4.06E-02	0.00E+00
33.0	0.00E+00	5.17E-02	1.22E+01	3.34E-01	5.98E+01	3.17E+01	4.06E-02	0.00E+00
36.0	0.00E+00	5.17E-02	1.22E+01	3.34E-01	5.98E+01	3.17E+01	4.06E-02	0.00E+00
39.0	0.00E+00	5.17E-02	1.22E+01	3.34E-01	5.53E+01	3.17E+01	4.06E-02	0.00E+00
42.0	0.00E+00	5.17E-02	1.22E+01	3.34E-01	5.07E+01	3.17E+01	4.06E-02	0.00E+00
45.0	0.00E+00	5.17E-02	1.22E+01	3.34E-01	5.07E+01	3.17E+01	4.06E-02	0.00E+00
48.0	0.00E+00	5.17E-02	1.22E+01	3.34E-01	5.07E+01	3.17E+01	4.06E-02	0.00E+00
51.0	0.00E+00	5.17E-02	2.37E+01	6.47E-01	9.81E+01	3.17E+01	4.06E-02	0.00E+00
54.0	0.00E+00	5.17E-02	2.37E+01	6.47E-01	9.81E+01	3.17E+01	4.06E-02	0.00E+00
57.0	0.00E+00	5.17E-02	2.37E+01	6.47E-01	9.81E+01	3.17E+01	4.06E-02	0.00E+00
60.0								

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Transect 2, Time 2 (B-B', Last Sampling Event Before Groundwater Recovery System Start)



Input Data and Grid

Data Input Instructions
Enter value directly
Value calculated by model
(Don't enter any data)

Site Location and I.D.: 26140
Description: 9901 Georgetown Pike, Great Falls, VA

4. CHOOSE TRANSECT Transect 2

5. CHOOSE TIME PERIOD 2

6. ENTER TRANSECT DATA

6.1 Distance of Transect 2 from Source → 100 (ft)

6.2 ○ Darcy Velocity ◉ Hydraulic Conductivity

6.6 ◉ Sampling Interval ○ Mid Point of Sampling Interval

6.3 Hydraulic Conductivity Units: ft/d

6.4 Uniform Hydraulic Conductivity? No

6.5 Uniform Hydraulic Gradient? Yes → Hydraulic Gradient 2.80E-02 (ft/ft)

	Monitoring Point	Distance of Monitoring Point from Start of Transect (ft)	Sampling Interval (ft bgs) Top	Sampling Interval (ft bgs) Bottom	Plume Top (ft bgs)	Plume Bottom (ft bgs)	Hydraulic Conductivity (ft/d)	Concentration (ug/L) Constituent A MtBE	Concentration (ug/L) Constituent B Total BTEX
1	Start of Transect	0						0	0
2	End of Transect	195						0	0
3	W-6	15	20	40	30	60	44.6	0	0
4	MW-21S	75	26	46	30	60	44.6	53	0
5	MW-21I	76	56	66	30	60	86.3	1700	0
6	W-1	78	20	40	30	60	52.6	15000	0
7	W-2	141	20	40	30	60	44.6	5000	0
8	W-3	183	20	40	30	60	52.6	0	0
9									
10									
11									
12									
13									
14									
15									

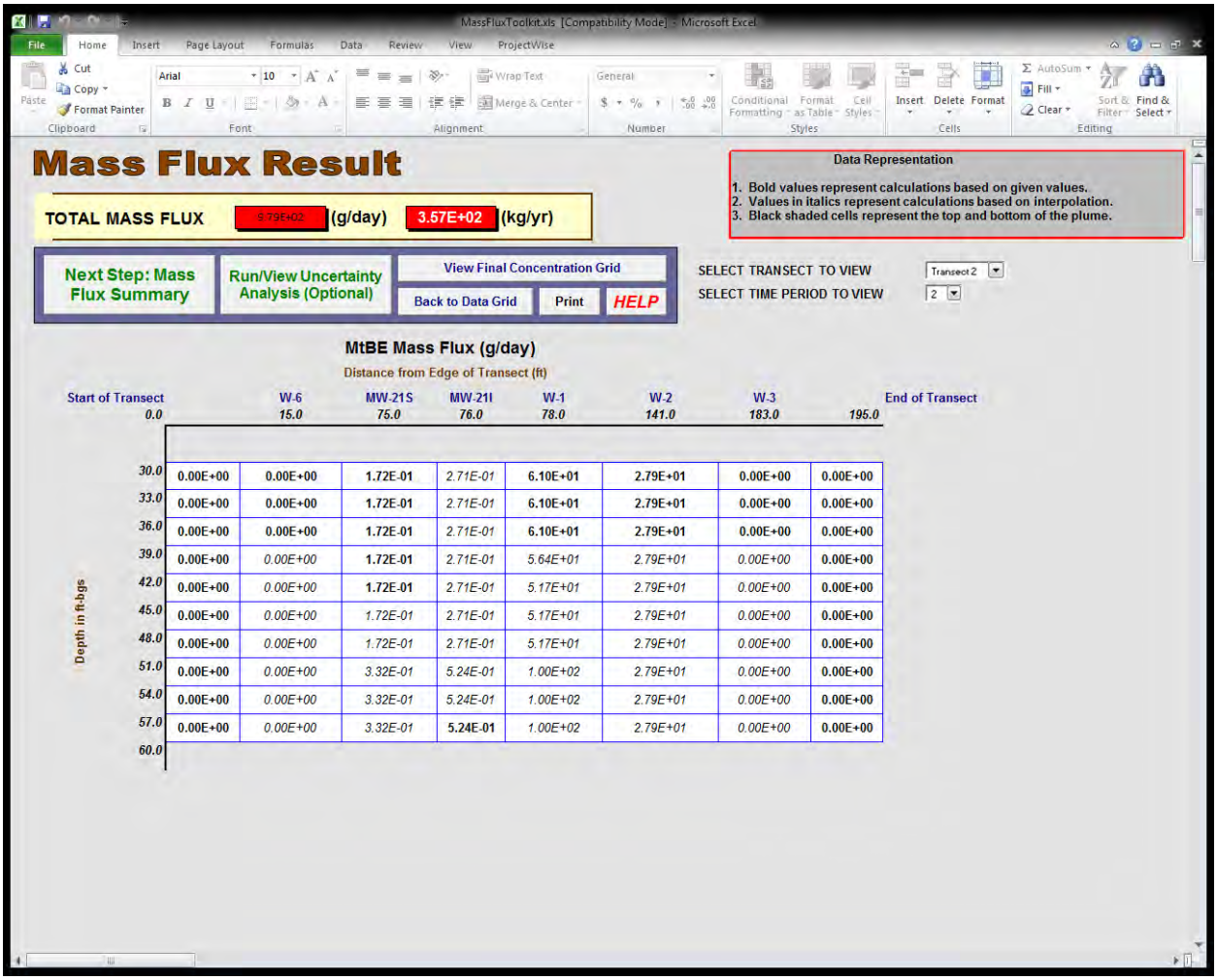
7. CHOOSE GRID (OPTIONAL)

	Current Grid	Refine Grid By	Refined Grid
Number of rows	10	1	10
Number of columns	8	1	8

8. SELECT CONSTITUENT FOR CALCULATIONS
◉ MtBE ○ Total BTEX

Next Step: Continue Data Input
Back to Transect Calculator Screen | Import MW Data | Export MW Data | See Conc/Flux Grids
Clear Screen | Paste Example | Restore Table Formatting | Print | HELP

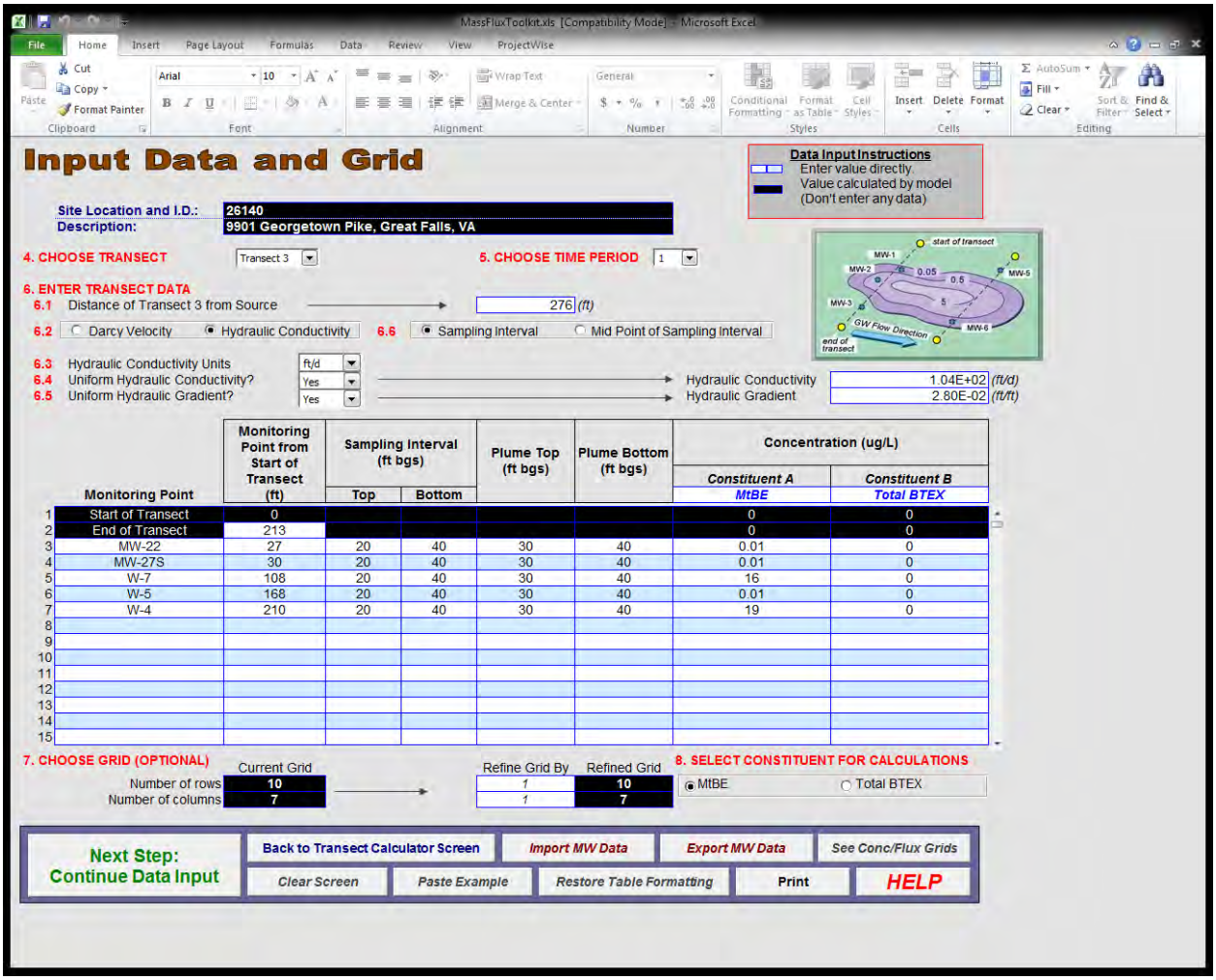
MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



Start of Transect 0.0	W-6 15.0	MW-21S 75.0	MW-21I 76.0	W-1 78.0	W-2 141.0	W-3 183.0	End of Transect 195.0
30.0	0.00E+00	0.00E+00	1.72E-01	2.71E-01	6.10E+01	2.79E+01	0.00E+00	0.00E+00
33.0	0.00E+00	0.00E+00	1.72E-01	2.71E-01	6.10E+01	2.79E+01	0.00E+00	0.00E+00
36.0	0.00E+00	0.00E+00	1.72E-01	2.71E-01	6.10E+01	2.79E+01	0.00E+00	0.00E+00
39.0	0.00E+00	0.00E+00	1.72E-01	2.71E-01	5.64E+01	2.79E+01	0.00E+00	0.00E+00
42.0	0.00E+00	0.00E+00	1.72E-01	2.71E-01	5.17E+01	2.79E+01	0.00E+00	0.00E+00
45.0	0.00E+00	0.00E+00	1.72E-01	2.71E-01	5.17E+01	2.79E+01	0.00E+00	0.00E+00
48.0	0.00E+00	0.00E+00	1.72E-01	2.71E-01	5.17E+01	2.79E+01	0.00E+00	0.00E+00
51.0	0.00E+00	0.00E+00	3.32E-01	5.24E-01	1.00E+02	2.79E+01	0.00E+00	0.00E+00
54.0	0.00E+00	0.00E+00	3.32E-01	5.24E-01	1.00E+02	2.79E+01	0.00E+00	0.00E+00
57.0	0.00E+00	0.00E+00	3.32E-01	5.24E-01	1.00E+02	2.79E+01	0.00E+00	0.00E+00
60.0							

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Transect 3, Time 1 (C-C', Historical Average)



Input Data and Grid

Data Input Instructions
Enter value directly.
Value calculated by model
(Don't enter any data)

Site Location and I.D.: 26140
Description: 9901 Georgetown Pike, Great Falls, VA

4. CHOOSE TRANSECT Transect 3

5. CHOOSE TIME PERIOD 1

6. ENTER TRANSECT DATA

6.1 Distance of Transect 3 from Source → 276 (ft)

6.2 ○ Darcy Velocity ◉ Hydraulic Conductivity

6.6 ◉ Sampling Interval ○ Mid Point of Sampling Interval

6.3 Hydraulic Conductivity Units: ft/d

6.4 Uniform Hydraulic Conductivity? Yes → Hydraulic Conductivity 1.04E+02 (ft/d)

6.5 Uniform Hydraulic Gradient? Yes → Hydraulic Gradient 2.80E-02 (ft/ft)

	Monitoring Point	Monitoring Point from Start of Transect (ft)	Sampling Interval (ft bgs) Top	Sampling Interval (ft bgs) Bottom	Plume Top (ft bgs)	Plume Bottom (ft bgs)	Concentration (ug/L) Constituent A MtBE	Concentration (ug/L) Constituent B Total BTEX
1	Start of Transect	0					0	0
2	End of Transect	213					0	0
3	MW-22	27	20	40	30	40	0.01	0
4	MW-27S	30	20	40	30	40	0.01	0
5	W-7	108	20	40	30	40	16	0
6	W-5	168	20	40	30	40	0.01	0
7	W-4	210	20	40	30	40	19	0
8								
9								
10								
11								
12								
13								
14								
15								

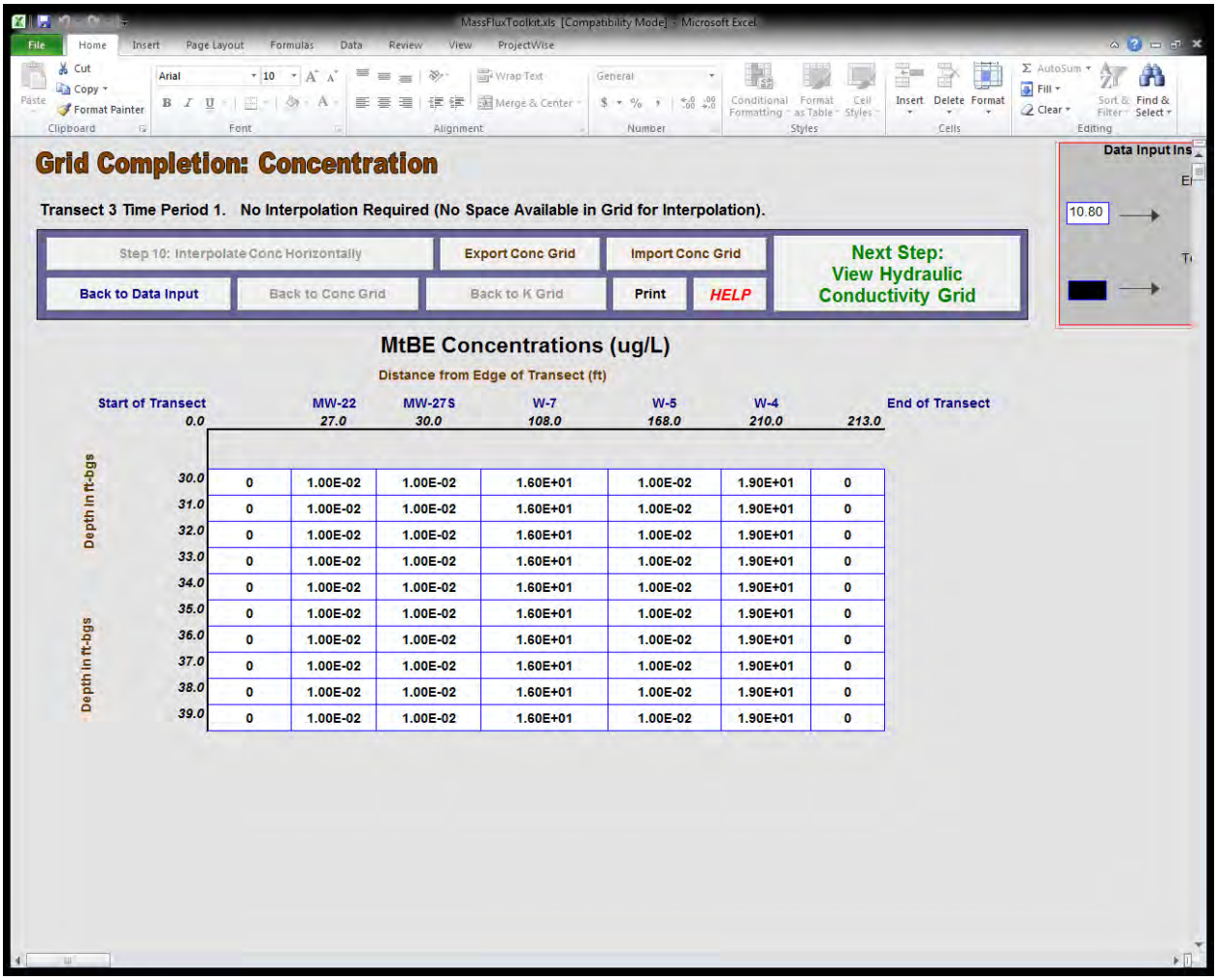
7. CHOOSE GRID (OPTIONAL)

	Current Grid		Refine Grid By	Refined Grid
Number of rows	10	→	1	10
Number of columns	7		1	7

8. SELECT CONSTITUENT FOR CALCULATIONS ◉ MtBE ○ Total BTEX

Next Step: Continue Data Input | Back to Transect Calculator Screen | Import MW Data | Export MW Data | See Conc/Flux Grids | Clear Screen | Paste Example | Restore Table Formatting | Print | HELP

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

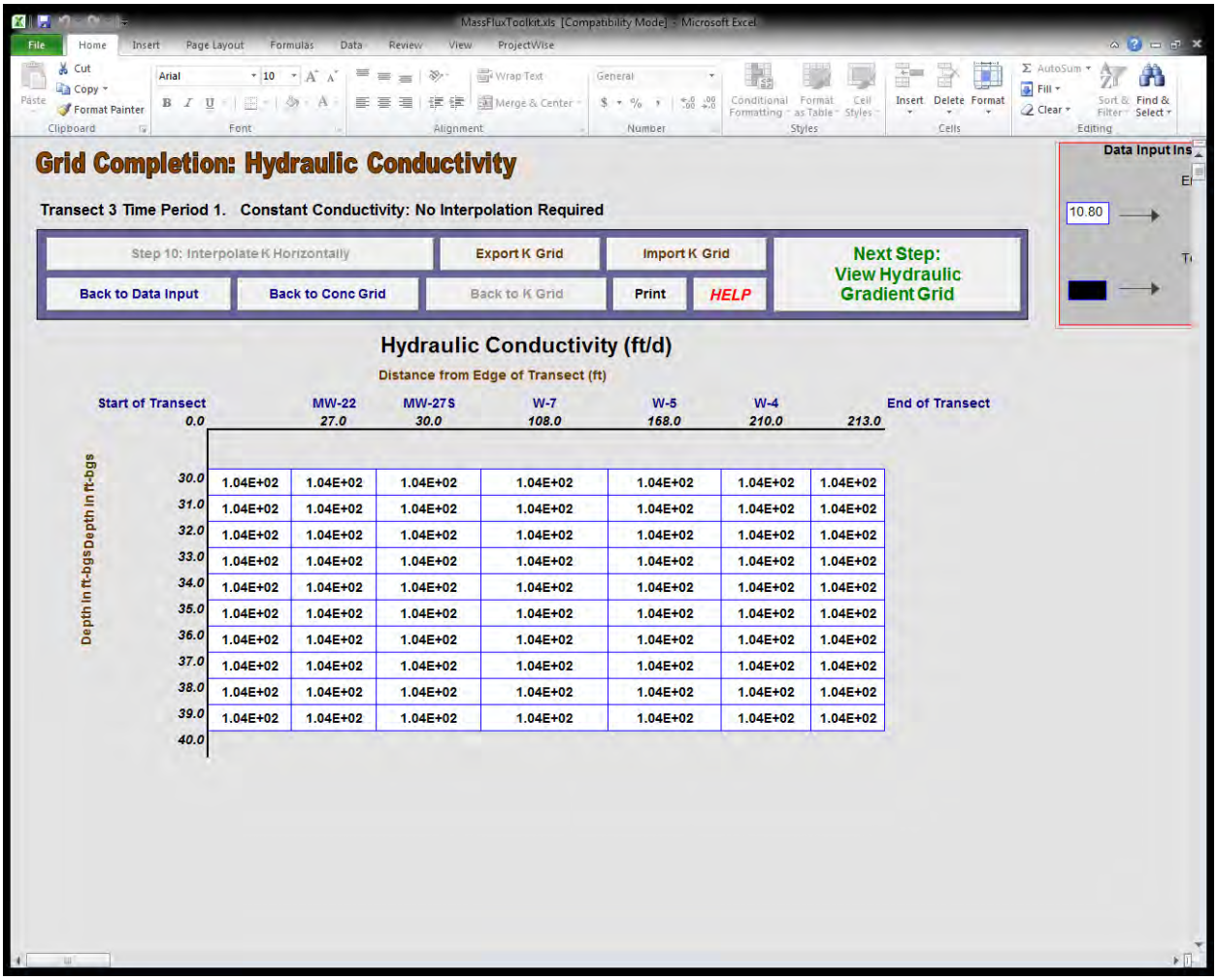


MtBE Concentrations (ug/L)

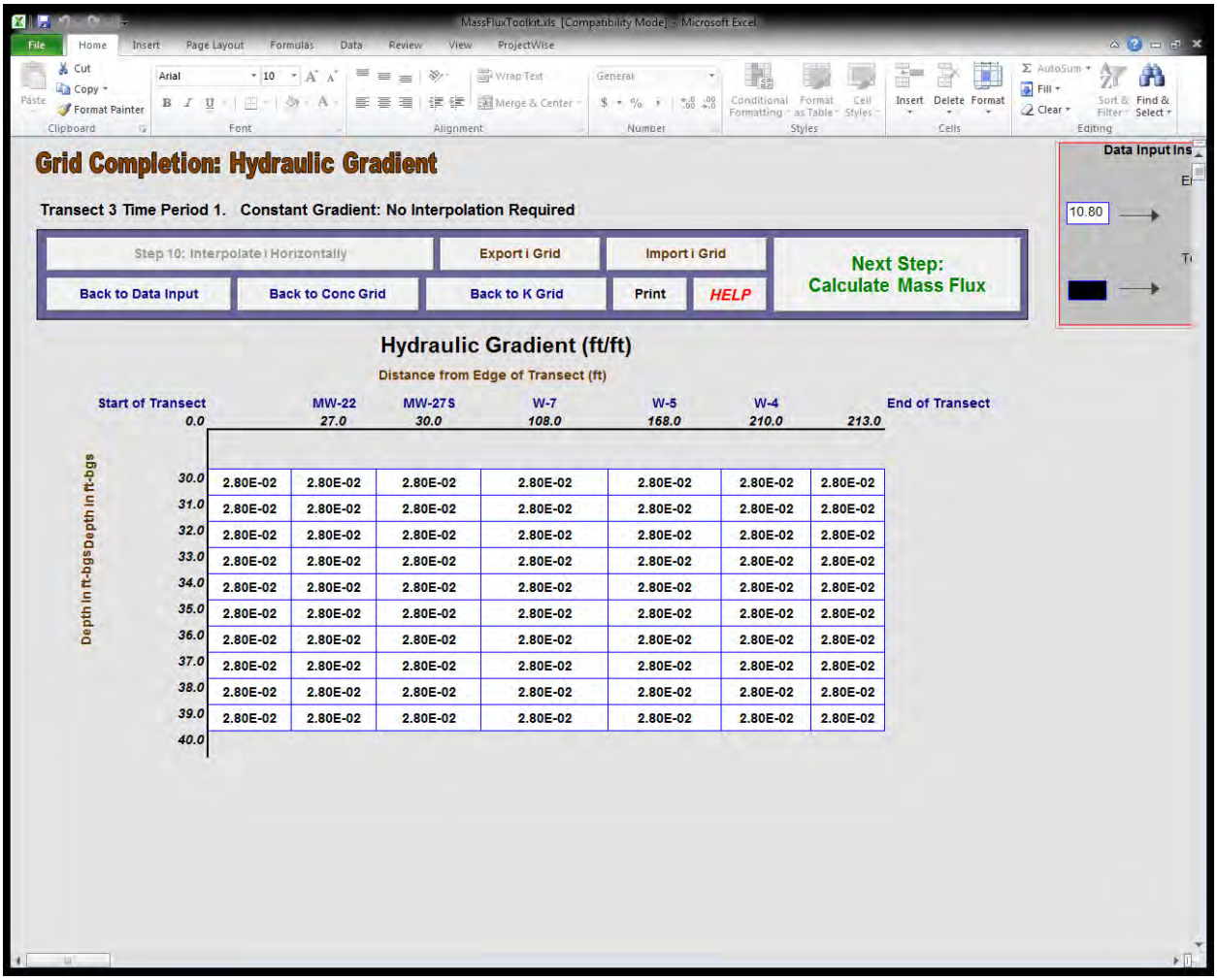
Distance from Edge of Transect (ft)

Depth in ft-bgs	Start of Transect 0.0	MW-22 27.0	MW-27S 30.0	W-7 108.0	W-5 168.0	W-4 210.0	End of Transect 213.0
30.0	0	1.00E-02	1.00E-02	1.60E+01	1.00E-02	1.90E+01	0
31.0	0	1.00E-02	1.00E-02	1.60E+01	1.00E-02	1.90E+01	0
32.0	0	1.00E-02	1.00E-02	1.60E+01	1.00E-02	1.90E+01	0
33.0	0	1.00E-02	1.00E-02	1.60E+01	1.00E-02	1.90E+01	0
34.0	0	1.00E-02	1.00E-02	1.60E+01	1.00E-02	1.90E+01	0
35.0	0	1.00E-02	1.00E-02	1.60E+01	1.00E-02	1.90E+01	0
36.0	0	1.00E-02	1.00E-02	1.60E+01	1.00E-02	1.90E+01	0
37.0	0	1.00E-02	1.00E-02	1.60E+01	1.00E-02	1.90E+01	0
38.0	0	1.00E-02	1.00E-02	1.60E+01	1.00E-02	1.90E+01	0
39.0	0	1.00E-02	1.00E-02	1.60E+01	1.00E-02	1.90E+01	0

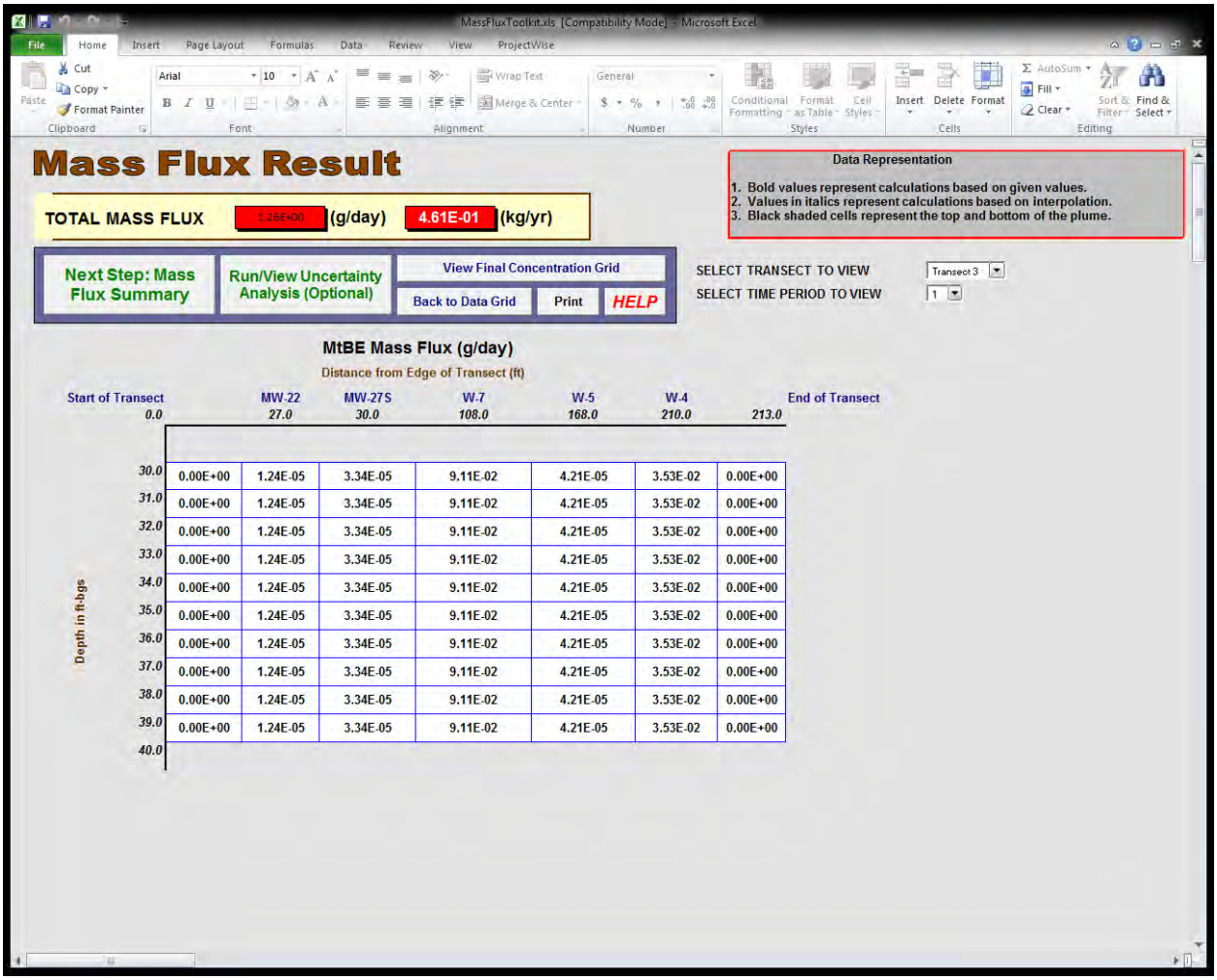
MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



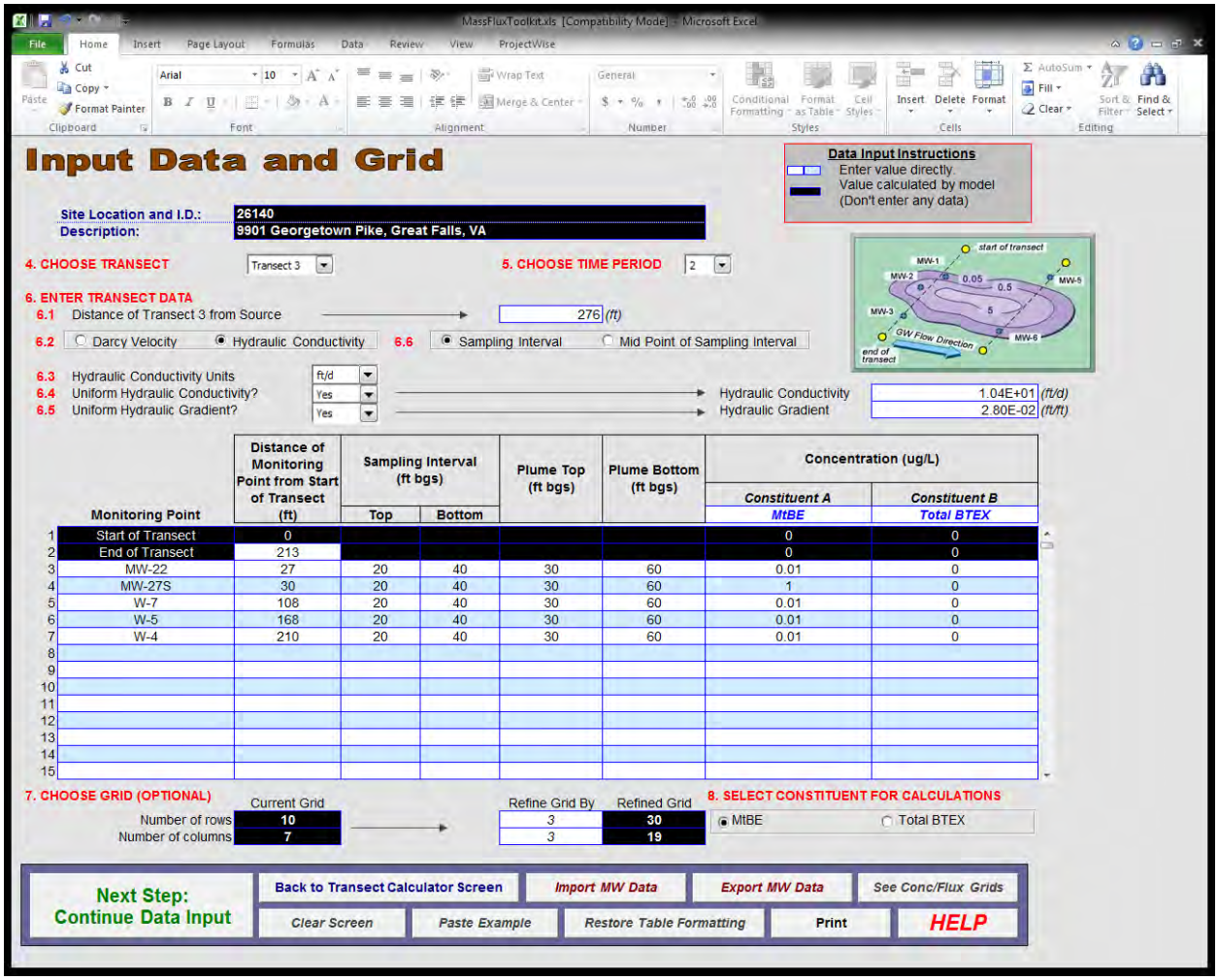
MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



Start of Transect 0.0	MW-22 27.0	MW-27S 30.0	W-7 108.0	W-5 168.0	W-4 210.0	End of Transect 213.0
30.0	0.00E+00	1.24E-05	3.34E-05	9.11E-02	4.21E-05	3.53E-02	0.00E+00
31.0	0.00E+00	1.24E-05	3.34E-05	9.11E-02	4.21E-05	3.53E-02	0.00E+00
32.0	0.00E+00	1.24E-05	3.34E-05	9.11E-02	4.21E-05	3.53E-02	0.00E+00
33.0	0.00E+00	1.24E-05	3.34E-05	9.11E-02	4.21E-05	3.53E-02	0.00E+00
34.0	0.00E+00	1.24E-05	3.34E-05	9.11E-02	4.21E-05	3.53E-02	0.00E+00
35.0	0.00E+00	1.24E-05	3.34E-05	9.11E-02	4.21E-05	3.53E-02	0.00E+00
36.0	0.00E+00	1.24E-05	3.34E-05	9.11E-02	4.21E-05	3.53E-02	0.00E+00
37.0	0.00E+00	1.24E-05	3.34E-05	9.11E-02	4.21E-05	3.53E-02	0.00E+00
38.0	0.00E+00	1.24E-05	3.34E-05	9.11E-02	4.21E-05	3.53E-02	0.00E+00
39.0	0.00E+00	1.24E-05	3.34E-05	9.11E-02	4.21E-05	3.53E-02	0.00E+00
40.0						

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Transect 3, Time 2 (C-C', Last Sampling Event Before Groundwater Recovery System Start)



Input Data and Grid

Data Input Instructions
Enter value directly
Value calculated by model
(Don't enter any data)

Site Location and I.D.: 26140
Description: 9901 Georgetown Pike, Great Falls, VA

4. CHOOSE TRANSECT: Transect 3

5. CHOOSE TIME PERIOD: 2

6. ENTER TRANSECT DATA

6.1 Distance of Transect 3 from Source → 276 (ft)

6.2 ○ Darcy Velocity ◉ Hydraulic Conductivity

6.6 ◉ Sampling Interval ○ Mid Point of Sampling Interval

6.3 Hydraulic Conductivity Units: ft/d

6.4 Uniform Hydraulic Conductivity? Yes → Hydraulic Conductivity 1.04E+01 (ft/d)

6.5 Uniform Hydraulic Gradient? Yes → Hydraulic Gradient 2.80E-02 (ft/ft)

	Monitoring Point	Distance of Monitoring Point from Start of Transect (ft)	Sampling Interval (ft bgs) Top	Sampling Interval (ft bgs) Bottom	Plume Top (ft bgs)	Plume Bottom (ft bgs)	Concentration (ug/L) Constituent A MtBE	Concentration (ug/L) Constituent B Total BTEX
1	Start of Transect	0					0	0
2	End of Transect	213					0	0
3	MW-22	27	20	40	30	60	0.01	0
4	MW-27S	30	20	40	30	60	1	0
5	W-7	108	20	40	30	60	0.01	0
6	W-5	168	20	40	30	60	0.01	0
7	W-4	210	20	40	30	60	0.01	0
8								
9								
10								
11								
12								
13								
14								
15								

7. CHOOSE GRID (OPTIONAL)

	Current Grid	Refine Grid By	Refined Grid
Number of rows	10	3	30
Number of columns	7	3	19

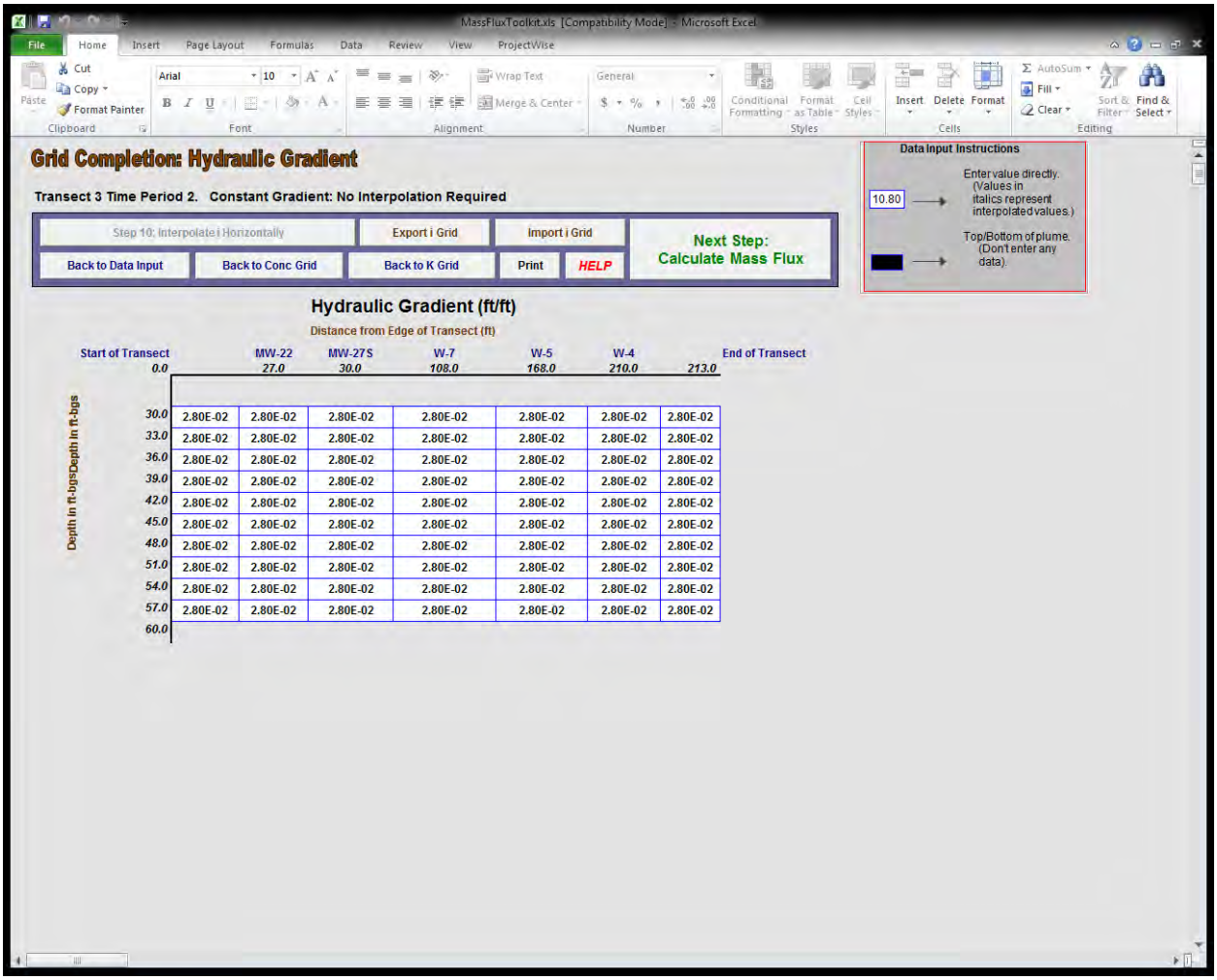
8. SELECT CONSTITUENT FOR CALCULATIONS: ◉ MtBE ○ Total BTEX

Next Step: Continue Data Input

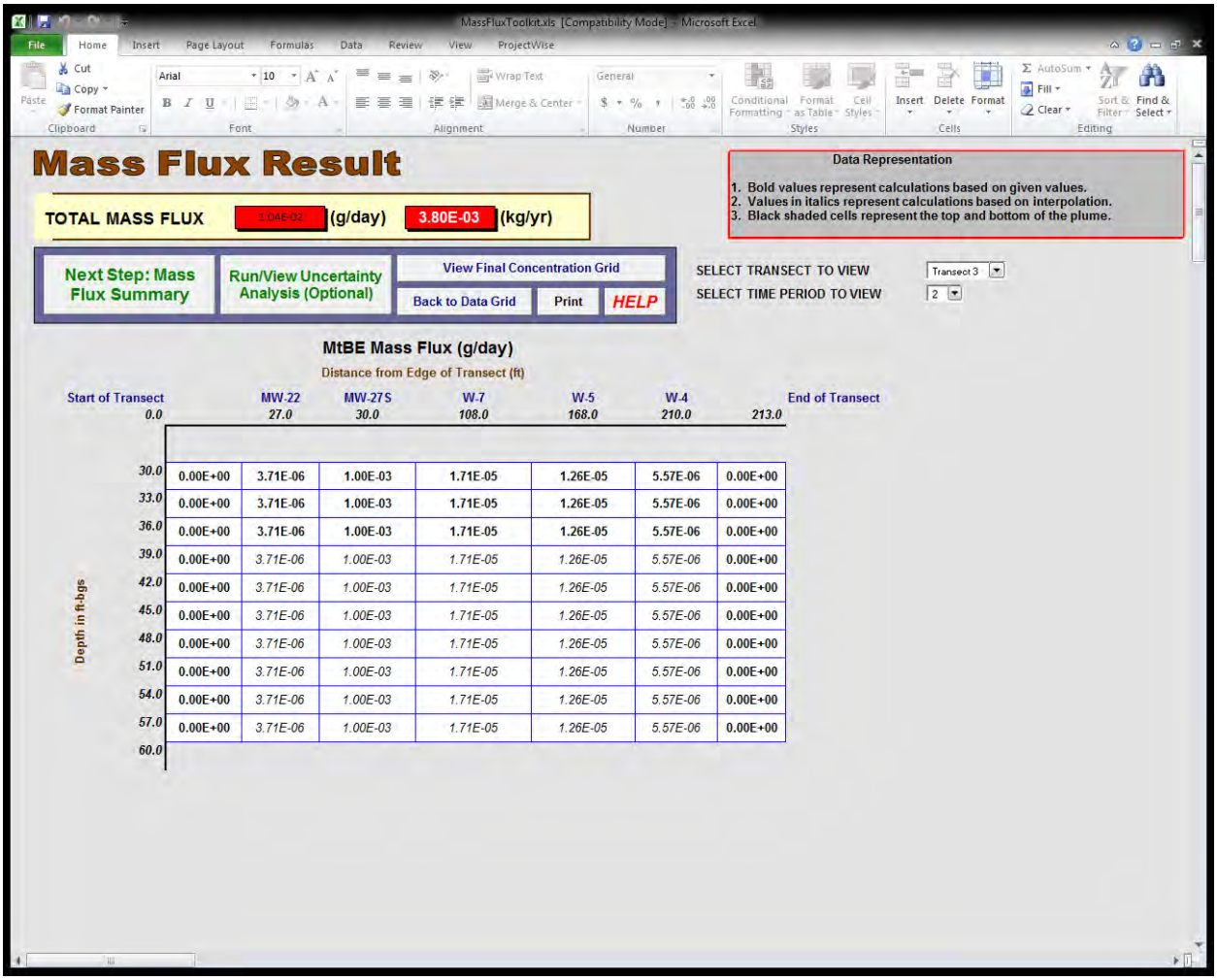
Back to Transect Calculator Screen | Import MW Data | Export MW Data | See Conc/Flux Grids

Clear Screen | Paste Example | Restore Table Formatting | Print | HELP

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



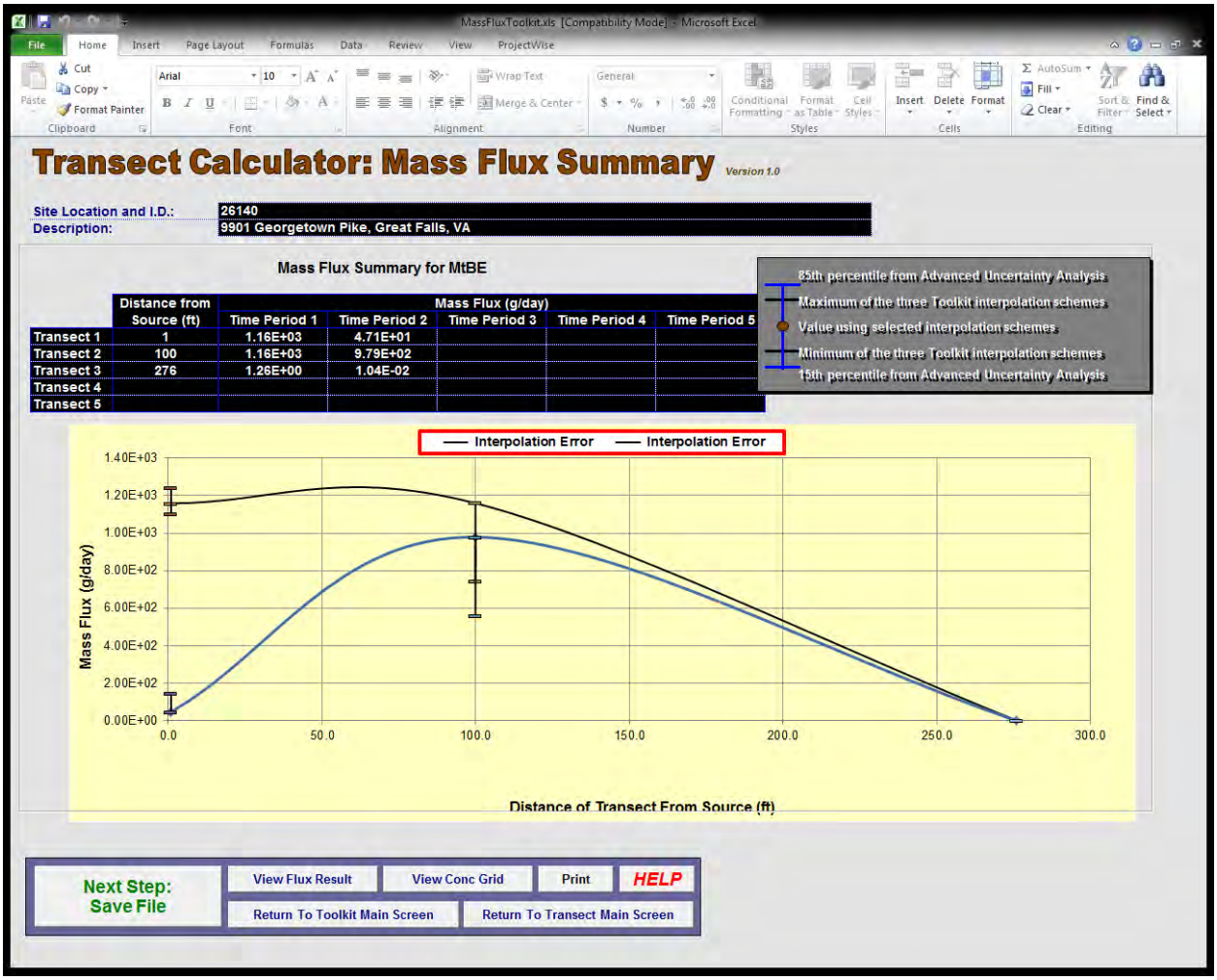
MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



Start of Transect 0.0	MW-22 27.0	MW-27S 30.0	W-7 108.0	W-5 168.0	W-4 210.0	End of Transect 213.0
30.0	0.00E+00	3.71E-06	1.00E-03	1.71E-05	1.26E-05	5.57E-06	0.00E+00
33.0	0.00E+00	3.71E-06	1.00E-03	1.71E-05	1.26E-05	5.57E-06	0.00E+00
36.0	0.00E+00	3.71E-06	1.00E-03	1.71E-05	1.26E-05	5.57E-06	0.00E+00
39.0	0.00E+00	3.71E-06	1.00E-03	1.71E-05	1.26E-05	5.57E-06	0.00E+00
42.0	0.00E+00	3.71E-06	1.00E-03	1.71E-05	1.26E-05	5.57E-06	0.00E+00
45.0	0.00E+00	3.71E-06	1.00E-03	1.71E-05	1.26E-05	5.57E-06	0.00E+00
48.0	0.00E+00	3.71E-06	1.00E-03	1.71E-05	1.26E-05	5.57E-06	0.00E+00
51.0	0.00E+00	3.71E-06	1.00E-03	1.71E-05	1.26E-05	5.57E-06	0.00E+00
54.0	0.00E+00	3.71E-06	1.00E-03	1.71E-05	1.26E-05	5.57E-06	0.00E+00
57.0	0.00E+00	3.71E-06	1.00E-03	1.71E-05	1.26E-05	5.57E-06	0.00E+00
60.0						

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Transect A-A', B-B', and C-C' Mass Flux Summary



	Distance from Source (ft)	Mass Flux (g/day) Time Period 1	Time Period 2	Time Period 3	Time Period 4	Time Period 5
Transect 1	1	1.16E+03	4.71E+01			
Transect 2	100	1.16E+03	9.79E+02			
Transect 3	276	1.26E+00	1.04E-02			
Transect 4						
Transect 5						

MTBE Mass Flux Analysis
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Great Falls, VA

Transect D-D' was established perpendicular to the groundwater flow direction from the source area of the Site along the identified fracture zone. The transect passes through wells MW-10, MW-24, and MW-23D, and is 30 feet long, based on the apparent with of the fracture zone identified on the surficial geophysical survey. Should the fracture zone be a discrete fracture of limited aperture the mass flux estimate is conservatively protective as it is biased high based on a commensurately larger flow cross section. For each well, the assigned hydraulic gradient was based on the gauging data acquired on June 18, 2014, and was 0.007 at MW-10 (to MW-1) and MW-24 (to MW-1), and 0.004 at MW-23D (to MW-17D 92). The hydraulic conductivity for each well was assigned based on the results of the pump test performed in 2014.

The sampling interval assigned to each well was equivalent to the screened interval of the well. The top of the overburden portion of the dissolved phase impact was assumed to be equal to the depth to the water table, 30 feet below grade, at competent rock 60 feet below grade. At MW-23D, the drilling logs indicated within the screened interval at 93 feet below grade. Although one fracture was noted, the top and bottom of dissolved phase impact was assumed to be coincident with the screened interval of the well, 90 to 100 feet below grade. The bottom of the plume was assumed to be 100 feet below grade based on the drilling logs of Site-related bedrock wells and the packer tests performed on MW-17D in 2013, which indicated a decrease in concentrations with depth, increased bedrock competence with depth, and diminished fracture transmissivity with depth.

In order to define the boundary of the fractured bedrock zone from 30 to 100 feet below grade, wells MW-X and MW-Y were defined as one foot from either end of the transect, with hydraulic gradients of 0.006 (the average hydraulic gradient of the overburden and bedrock wells in the transect), hydraulic conductivities of 7.6 (the geometric mean of hydraulic conductivity of the three actual wells), and concentrations of zero, representing a no-flux boundary condition at the lateral edges of the fracture zone.

Concentrations of MTBE were conservatively estimated to vary logarithmically through polygons with no assigned concentrations. Hydraulic conductivity was interpolated using nearest-neighbor scheme, where proximal assigned values were assumed to carry more weight that assigned values at greater distances. Hydraulic gradient was interpolated linearly to account for the difference in observed gradients in overburden and bedrock wells.

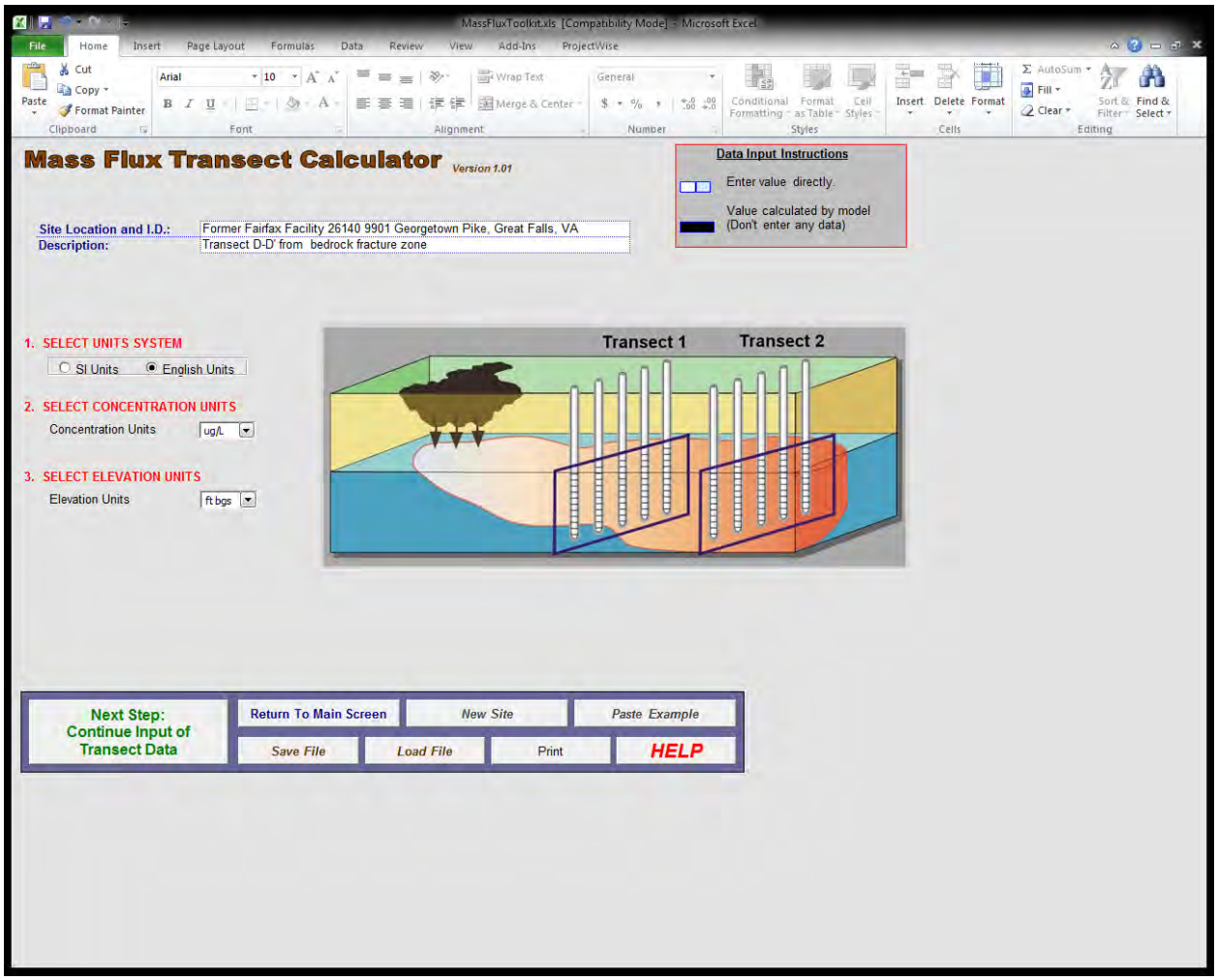
Values of specific discharge, calculated as hydraulic conductivity times hydraulic gradient, were calculated for each polygon. The contaminant mass flux for each polygon is then the product of the specific discharge, MTBE concentration, and polygon area. The sum of mass fluxes calculated for each polygon is the total mass flux for the transect.

The mass flux was calculated for D-D' once based on the last round of groundwater sampling prior to startup of the groundwater pump and treat remediation system. Current MTBE flux from the Site through transect D-D' is estimated at 0.358 grams per day. The lower flux estimated at D-D' when compared to the overburden transects is a function of the smaller hydraulic gradient,

the lower hydraulic conductivity values determined during pump testing in 2014, and the lower concentration of MTBE as compared to Source area wells. The flowing figures present all the data entry screens, interpolation step results, and mass flux calculated for transect D-D'.

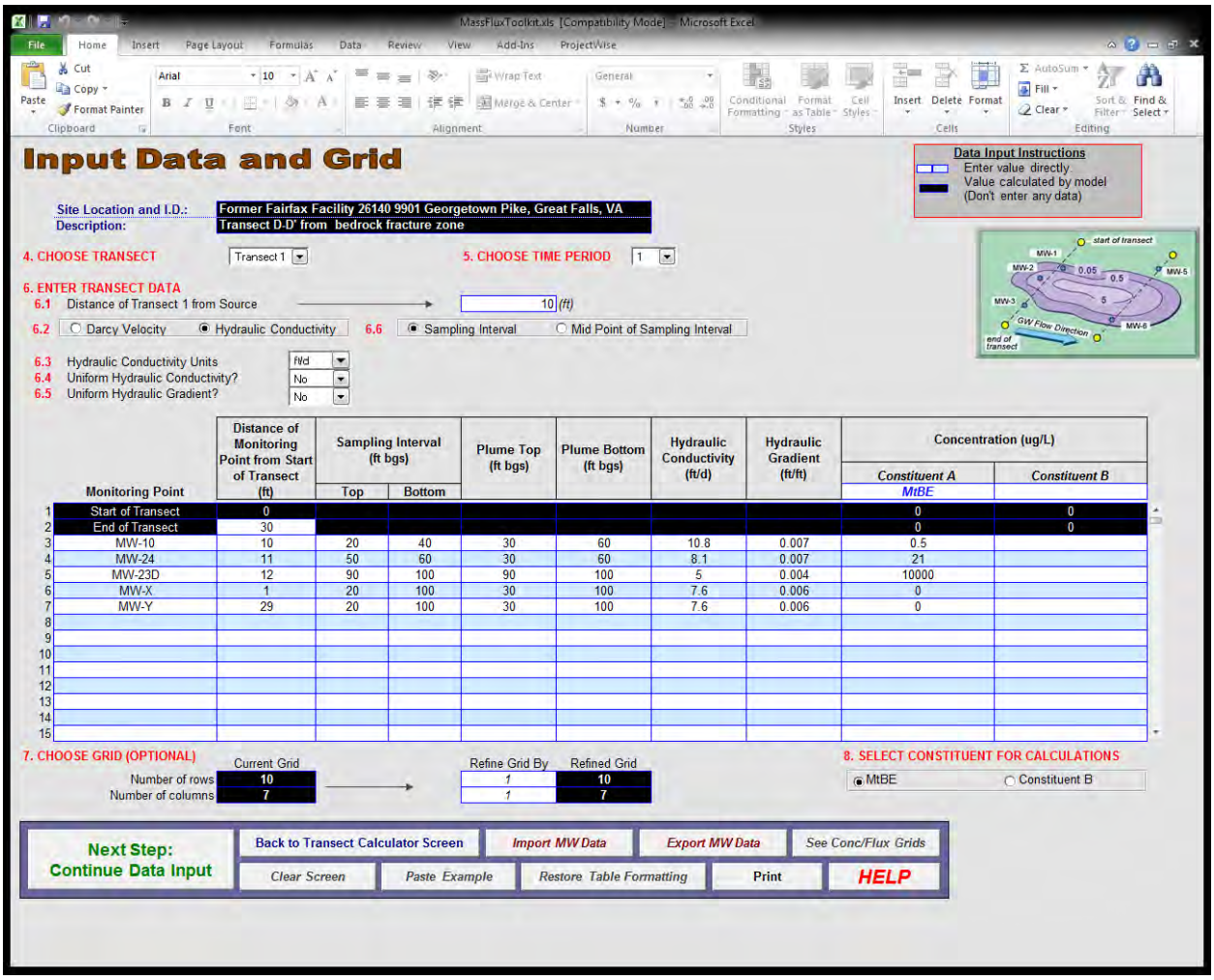
MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Transect 4, Time 2 (D-D', Last Sampling Event Before Groundwater Recovery System Start)



MTBE Mass Flux Analysis

Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



MassFluxToolkit.xls [Compatibility Mode] - Microsoft Excel

Input Data and Grid

Data Input Instructions
Enter value directly
Value calculated by model (Don't enter any data)

Site Location and I.D.: Former Fairfax Facility 26140 9901 Georgetown Pike, Great Falls, VA
Description: Transect D-D' from bedrock fracture zone

4. CHOOSE TRANSECT: Transect 1
5. CHOOSE TIME PERIOD: 1

6. ENTER TRANSECT DATA
6.1 Distance of Transect 1 from Source: 10 (ft)
6.2 Darcy Velocity / Hydraulic Conductivity
6.6 Sampling Interval / Mid Point of Sampling Interval
6.3 Hydraulic Conductivity Units: ft/d
6.4 Uniform Hydraulic Conductivity?: No
6.5 Uniform Hydraulic Gradient?: No

	Monitoring Point	Distance of Monitoring Point from Start of Transect (ft)	Sampling Interval (ft bgs) Top	Sampling Interval (ft bgs) Bottom	Plume Top (ft bgs)	Plume Bottom (ft bgs)	Hydraulic Conductivity (ft/d)	Hydraulic Gradient (ft/ft)	Concentration (ug/L) Constituent A MtBE	Concentration (ug/L) Constituent B
1	Start of Transect	0							0	0
2	End of Transect	30							0	0
3	MW-10	10	20	40	30	60	10.8	0.007	0.5	
4	MW-24	11	50	60	30	60	8.1	0.007	21	
5	MW-23D	12	90	100	90	100	5	0.004	10000	
6	MW-X	1	20	100	30	100	7.6	0.006	0	
7	MW-Y	29	20	100	30	100	7.6	0.006	0	
8										
9										
10										
11										
12										
13										
14										
15										

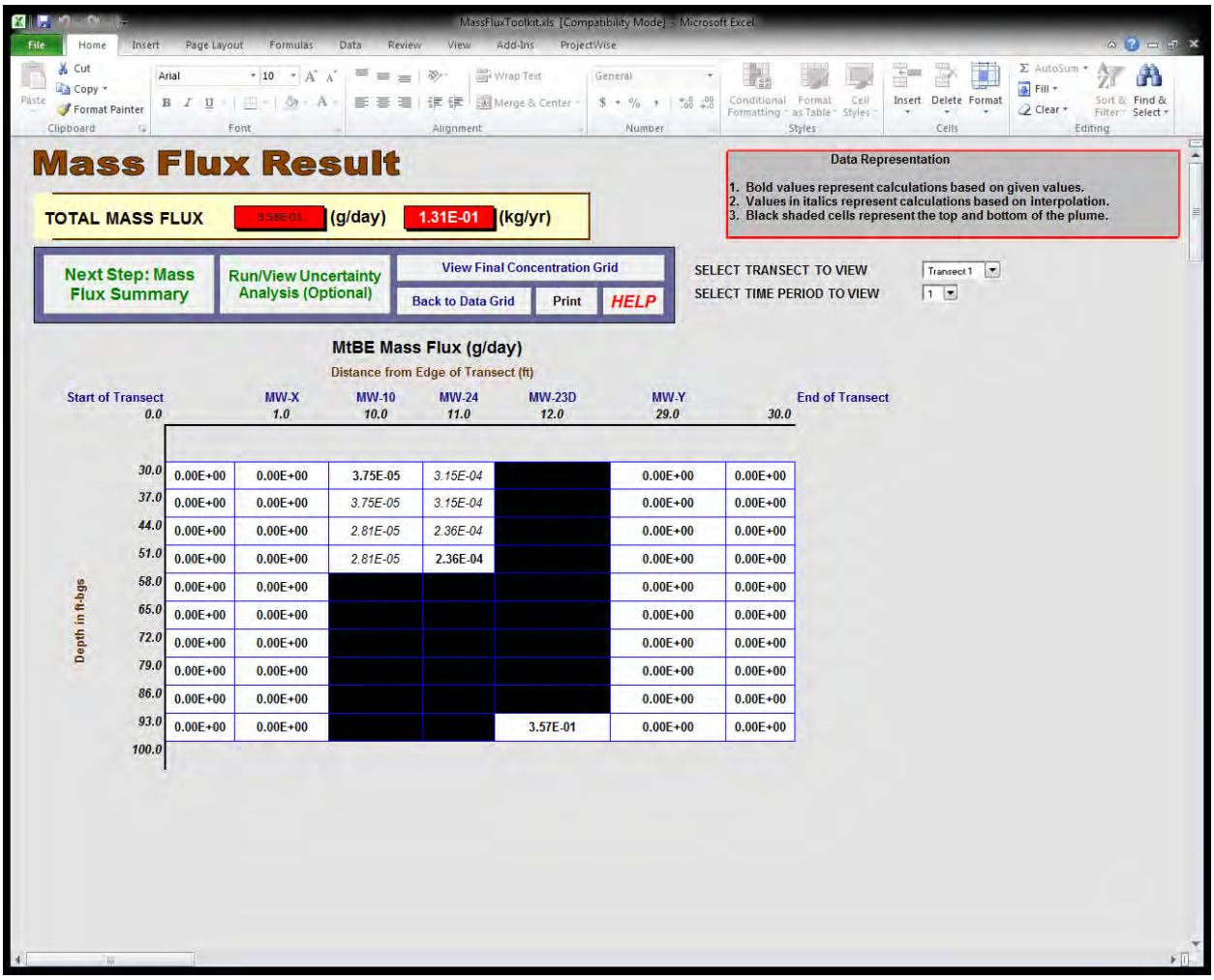
7. CHOOSE GRID (OPTIONAL)

	Current Grid	Refine Grid By	Refined Grid
Number of rows	10	1	10
Number of columns	7	1	7

8. SELECT CONSTITUENT FOR CALCULATIONS: MtBE / Constituent B

Next Step: Continue Data Input
Back to Transect Calculator Screen | Import MW Data | Export MW Data | See Conc/Flux Grids
Clear Screen | Paste Example | Restore Table Formatting | Print | HELP

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Transect E-E' was established perpendicular to the downward vertical groundwater flow gradient from the source area of the Site into the identified fracture zone. The transect encompasses MW-1, MW-2, MW-7, MW-11, MW-14 and MW-15, and is 30 feet wide, based on the apparent width of the fracture zone identified on the surficial geophysical survey. The included wells extend approximately 100 feet along strike, and a 120-foot long transect was applied. Should the fracture zone be a discrete fracture of limited aperture the mass flux estimate would be protectively biased high as it is based on a commensurately larger flow cross section. For each well, the assigned hydraulic gradient was 0.03, the average of the vertical hydraulic gradients observed at MW-17D and MW6S/6D. The vertical hydraulic conductivity for each well was estimated as one percent of the horizontal hydraulic conductivity. Similar values have been measured for mid-Atlantic saprolites (Ator, 2000). Horizontal hydraulic conductivity was assigned based on the results of the pump test performed in 2014. The vertical hydraulic conductivity of MW-14 was estimated as the geometric mean of the other five wells.

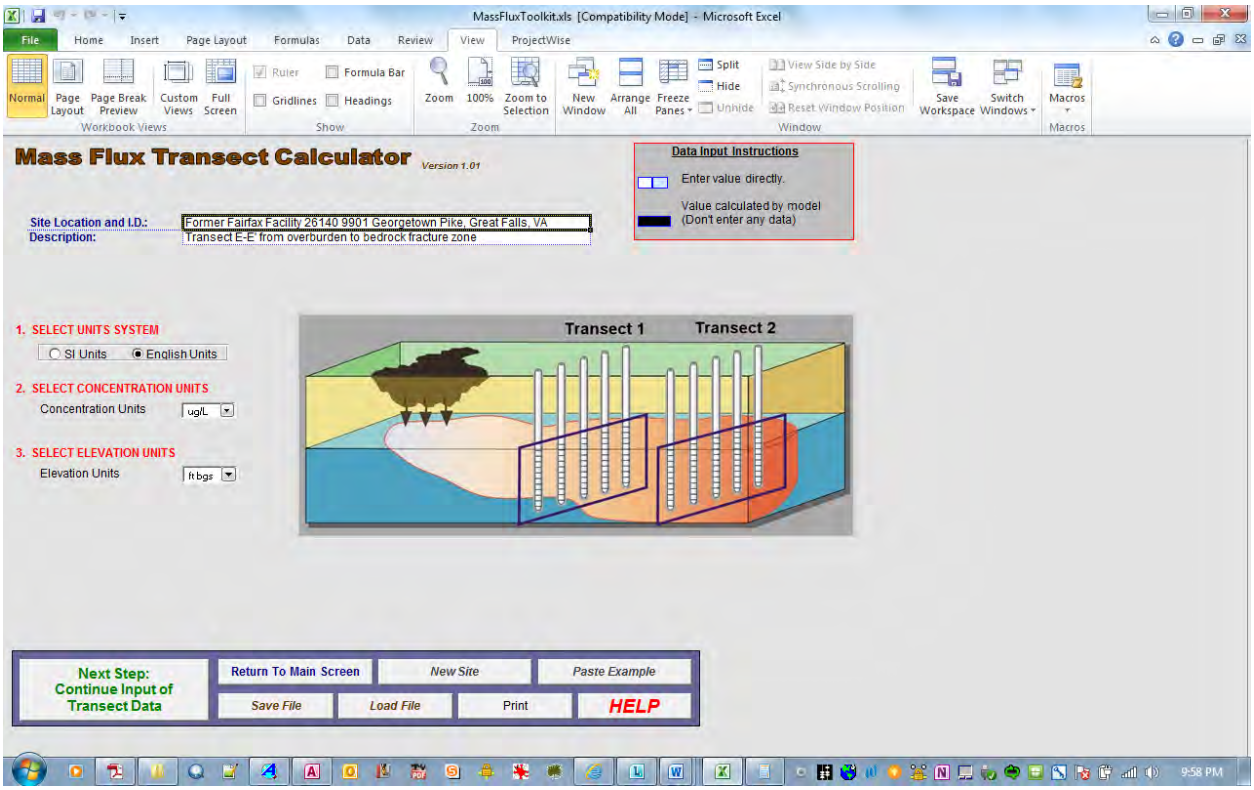
Concentrations of MTBE were conservatively estimated to vary logarithmically through polygons with no assigned concentrations. Hydraulic conductivity was interpolated using nearest-neighbor scheme, where proximal assigned values were assumed to carry more weight that assigned values at greater distances. Hydraulic gradient was assumed to be uniform through the transects.

Values of specific discharge, calculated as hydraulic conductivity times hydraulic gradient, were calculated for each polygon. The contaminant mass flux for each polygon is then the product of the specific discharge, MTBE concentration, and polygon area. The sum of mass fluxes calculated for each polygon is the total mass flux for the transect.

The mass flux was calculated for E-E' once based on the last round of groundwater sampling prior to startup of the groundwater pump and treat remediation system,. Current, June 2014, MTBE flux from the Site overburden through Transect E-E' is estimated at 0.471 grams per day. The lower flux estimated at E-E' when compared to the overburden transects is a function of the smaller hydraulic gradient and the lower hydraulic conductivity values based on horizontal hydraulic conductivity values determined during pump testing in 2014.. The following figures present the data entry screens, interpolation step results, and mass flux calculated for Transect E-E'.

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Transect 1, Time 1 (E-E', Last Sampling Event Before Groundwater Recovery System Start)



MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Microsoft Excel - MassFluxToolkit.xls [Compatibility Mode]

Input Data and Grid

Data Input Instructions
Enter value directly
Value calculated by model (Don't enter any data)

Site Location and I.D.: Former Fairfax Facility 26140 9901 Georgetown Pike, Great Falls, VA
Description: Transect E-E' from overburden to bedrock fracture zone

4. CHOOSE TRANSECT: Transect 1
5. CHOOSE TIME PERIOD: 1

6. ENTER TRANSECT DATA
6.1 Distance of Transect 1 from Source: 10 (ft)
6.2 Darcy Velocity / Hydraulic Conductivity
6.6 Sampling Interval / Mid Point of Sampling Interval
6.3 Hydraulic Conductivity Units: ft/d
6.4 Uniform Hydraulic Conductivity?: No
6.5 Uniform Hydraulic Gradient?: Yes
Hydraulic Gradient: 2.50E-02 (ft/ft)

	Monitoring Point	Distance of Monitoring Point from Start of Transect (ft)	Sampling Interval (ft bgs) Top	Sampling Interval (ft bgs) Bottom	Plume Top (ft bgs)	Plume Bottom (ft bgs)	Hydraulic Conductivity (ft/d)	Concentration (ug/L) Constituent A MtBE	Concentration (ug/L) Constituent B
1	Start of Transect	0						0	0
2	End of Transect	120						0	0
3	MW-2	10	0	30	0	30	0.0677	450	
4	MW-14	19	0	30	0	30	0.0588	62	
5	MW-11	81	0	30	0	30	0.0513	27	
6	MW-15	82	0	30	0	30	0.0483	42	
7	MW-1	97	0	30	0	30	0.0676	20000	
8	MW-7	114	0	30	0	30	0.0622	72	
9									
10									
11									
12									
13									
14									
15									

7. CHOOSE GRID (OPTIONAL)

	Current Grid	Refine Grid By	Refined Grid
Number of rows	10	1	10
Number of columns	8	1	8

8. SELECT CONSTITUENT FOR CALCULATIONS: MtBE / Constituent B

Next Step: Continue Data Input | Back to Transect Calculator Screen | Import MW Data | Export MW Data | See Conc/Flux Grids | Clear Screen | Paste Example | Restore Table Formatting | Print | HELP

MassFluxToolkit.xls [Compatibility Mode] - Microsoft Excel

Grid Completion: Concentration

Transect 1 Time Period 1. No Interpolation Required (No Space Available in Grid for Interpolation).

Step 10: Interpolate Conc Horizontally | Export Conc Grid | Import Conc Grid | Back to Data Input | Back to Conc Grid | Back to K Grid | Print | HELP | Next Step: View Hydraulic Conductivity Grid

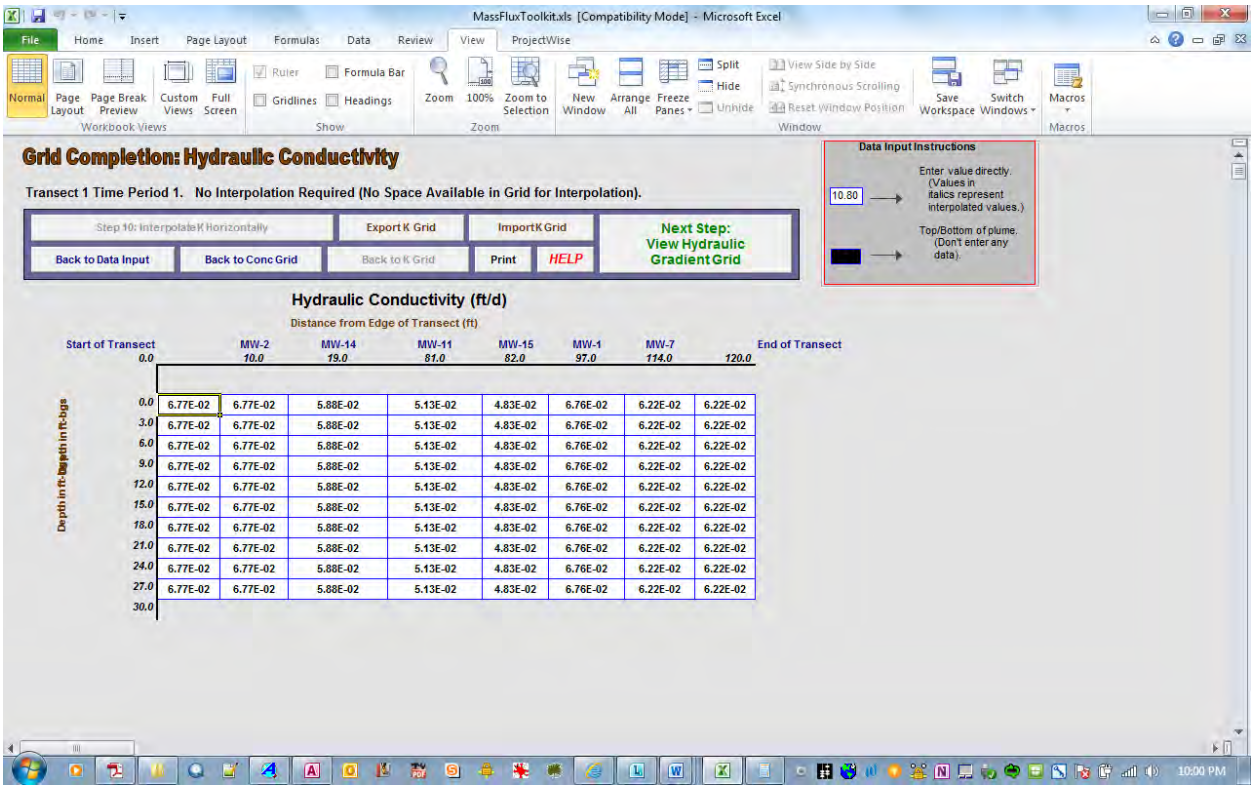
Data Input Instructions
10.80 → Enter value directly. (Values in italics represent interpolated values.)
Top/Bottom of plume. (Don't enter any data).

MtBE Concentrations (ug/L)

Distance from Edge of Transect (ft)

Depth in ft-bgs	Start of Transect 0.0	MW-2 10.0	MW-14 19.0	MW-11 81.0	MW-15 82.0	MW-1 97.0	MW-7 114.0	End of Transect 120.0
0.0	0	4.50E+02	6.20E+01	2.70E+01	4.20E+01	2.00E+04	7.20E+01	0
3.0	0	4.50E+02	6.20E+01	2.70E+01	4.20E+01	2.00E+04	7.20E+01	0
6.0	0	4.50E+02	6.20E+01	2.70E+01	4.20E+01	2.00E+04	7.20E+01	0
9.0	0	4.50E+02	6.20E+01	2.70E+01	4.20E+01	2.00E+04	7.20E+01	0
12.0	0	4.50E+02	6.20E+01	2.70E+01	4.20E+01	2.00E+04	7.20E+01	0
15.0	0	4.50E+02	6.20E+01	2.70E+01	4.20E+01	2.00E+04	7.20E+01	0
18.0	0	4.50E+02	6.20E+01	2.70E+01	4.20E+01	2.00E+04	7.20E+01	0
21.0	0	4.50E+02	6.20E+01	2.70E+01	4.20E+01	2.00E+04	7.20E+01	0
24.0	0	4.50E+02	6.20E+01	2.70E+01	4.20E+01	2.00E+04	7.20E+01	0
27.0	0	4.50E+02	6.20E+01	2.70E+01	4.20E+01	2.00E+04	7.20E+01	0

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA



MassFluxToolkit.xls [Compatibility Mode] - Microsoft Excel

Grid Completion: Hydraulic Conductivity

Transect 1 Time Period 1. No Interpolation Required (No Space Available in Grid for Interpolation).

Step 10: Interpolate K Horizontally | Export K Grid | Import K Grid | Next Step: View Hydraulic Gradient Grid

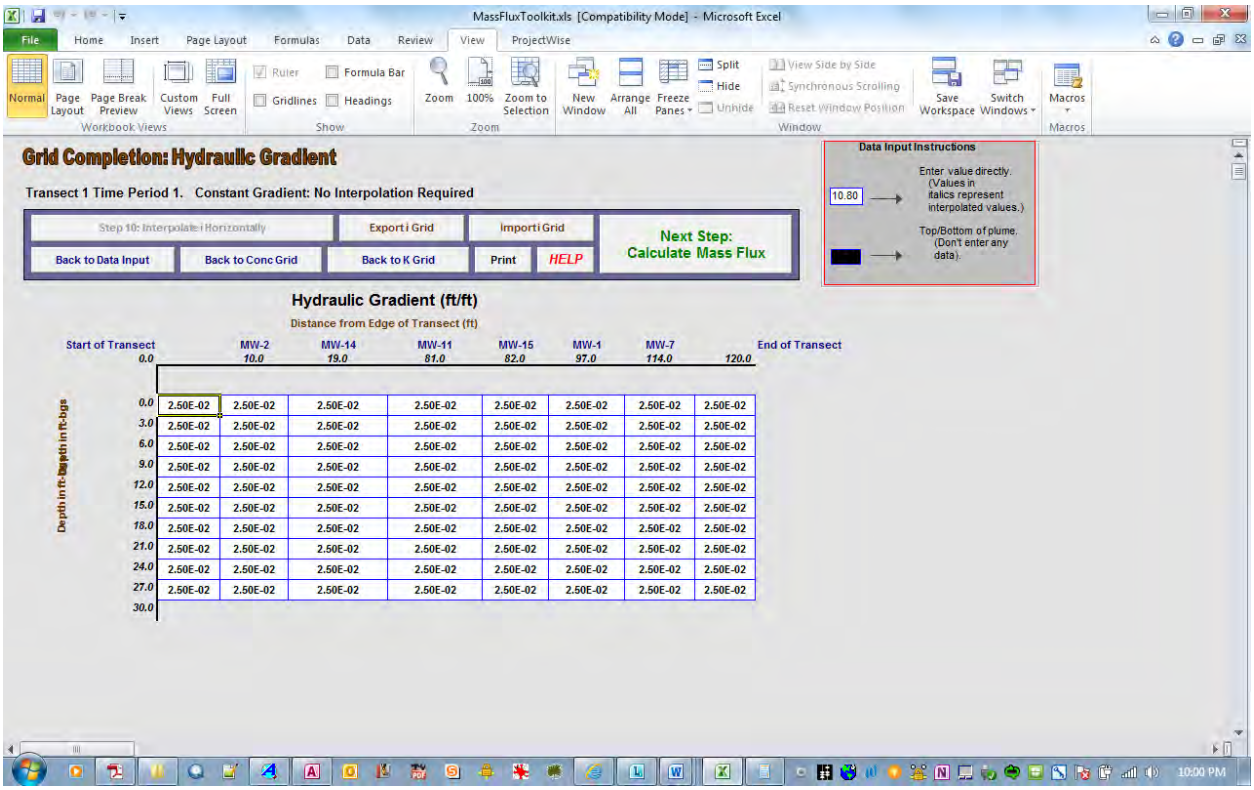
Back to Data Input | Back to Conc Grid | Back to K Grid | Print | HELP

Data Input Instructions: Enter value directly. (Values in italics represent interpolated values.) 10.80 → ; Top/Bottom of plume. (Don't enter any data). → ■

Hydraulic Conductivity (ft/d)

Distance from Edge of Transect (ft)

Depth in ft-bgs	Start of Transect 0.0	MW-2 10.0	MW-14 19.0	MW-11 81.0	MW-15 82.0	MW-1 97.0	MW-7 114.0	End of Transect 120.0
0.0	6.77E-02	6.77E-02	5.88E-02	5.13E-02	4.83E-02	6.76E-02	6.22E-02	6.22E-02
3.0	6.77E-02	6.77E-02	5.88E-02	5.13E-02	4.83E-02	6.76E-02	6.22E-02	6.22E-02
6.0	6.77E-02	6.77E-02	5.88E-02	5.13E-02	4.83E-02	6.76E-02	6.22E-02	6.22E-02
9.0	6.77E-02	6.77E-02	5.88E-02	5.13E-02	4.83E-02	6.76E-02	6.22E-02	6.22E-02
12.0	6.77E-02	6.77E-02	5.88E-02	5.13E-02	4.83E-02	6.76E-02	6.22E-02	6.22E-02
15.0	6.77E-02	6.77E-02	5.88E-02	5.13E-02	4.83E-02	6.76E-02	6.22E-02	6.22E-02
18.0	6.77E-02	6.77E-02	5.88E-02	5.13E-02	4.83E-02	6.76E-02	6.22E-02	6.22E-02
21.0	6.77E-02	6.77E-02	5.88E-02	5.13E-02	4.83E-02	6.76E-02	6.22E-02	6.22E-02
24.0	6.77E-02	6.77E-02	5.88E-02	5.13E-02	4.83E-02	6.76E-02	6.22E-02	6.22E-02
27.0	6.77E-02	6.77E-02	5.88E-02	5.13E-02	4.83E-02	6.76E-02	6.22E-02	6.22E-02
30.0								



MassFluxToolkit.xls [Compatibility Mode] - Microsoft Excel

Grid Completion: Hydraulic Gradient

Transect 1 Time Period 1. Constant Gradient: No Interpolation Required

Step 10: Interpolate i Horizontally | Export i Grid | Import i Grid | Next Step: Calculate Mass Flux

Back to Data Input | Back to Conc Grid | Back to K Grid | Print | HELP

Data Input Instructions: Enter value directly. (Values in italics represent interpolated values.) 10.80 → ; Top/Bottom of plume. (Don't enter any data). → ■

Hydraulic Gradient (ft/ft)

Distance from Edge of Transect (ft)

Depth in ft-bgs	Start of Transect 0.0	MW-2 10.0	MW-14 19.0	MW-11 81.0	MW-15 82.0	MW-1 97.0	MW-7 114.0	End of Transect 120.0
0.0	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02
3.0	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02
6.0	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02
9.0	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02
12.0	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02
15.0	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02
18.0	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02
21.0	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02
24.0	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02
27.0	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02
30.0								

MTBE Mass Flux Analysis
Inactive Fairfax Facility #26140
9901 Georgetown Pike
Great Falls, VA

Microsoft Excel - MassFluxToolkit.xls [Compatibility Mode]

Mass Flux Result

TOTAL MASS FLUX 4.71E-01 (g/day) 1.72E-01 (kg/yr)

Data Representation
1. Bold values represent calculations based on given values.
2. Values in italics represent calculations based on interpolation.
3. Black shaded cells represent the top and bottom of the plume.

Next Step: Mass Flux Summary | Run/View Uncertainty Analysis (Optional) | View Final Concentration Grid | Back to Data Grid | Print | HELP

SELECT TRANSECT TO VIEW: Transect 1
SELECT TIME PERIOD TO VIEW: 1

MtBE Mass Flux (g/day)

Distance from Edge of Transect (ft)

Depth in ft-bgs	Start of Transect 0.0	MW-2 10.0	MW-14 19.0	MW-11 81.0	MW-15 82.0	MW-1 97.0	MW-7 114.0	End of Transect 120.0
0.0	0.00E+00	6.15E-04	2.75E-04	9.27E-05	3.45E-05	4.60E-02	1.09E-04	0.00E+00
3.0	0.00E+00	6.15E-04	2.75E-04	9.27E-05	3.45E-05	4.60E-02	1.09E-04	0.00E+00
6.0	0.00E+00	6.15E-04	2.75E-04	9.27E-05	3.45E-05	4.60E-02	1.09E-04	0.00E+00
9.0	0.00E+00	6.15E-04	2.75E-04	9.27E-05	3.45E-05	4.60E-02	1.09E-04	0.00E+00
12.0	0.00E+00	6.15E-04	2.75E-04	9.27E-05	3.45E-05	4.60E-02	1.09E-04	0.00E+00
15.0	0.00E+00	6.15E-04	2.75E-04	9.27E-05	3.45E-05	4.60E-02	1.09E-04	0.00E+00
18.0	0.00E+00	6.15E-04	2.75E-04	9.27E-05	3.45E-05	4.60E-02	1.09E-04	0.00E+00
21.0	0.00E+00	6.15E-04	2.75E-04	9.27E-05	3.45E-05	4.60E-02	1.09E-04	0.00E+00
24.0	0.00E+00	6.15E-04	2.75E-04	9.27E-05	3.45E-05	4.60E-02	1.09E-04	0.00E+00
27.0	0.00E+00	6.15E-04	2.75E-04	9.27E-05	3.45E-05	4.60E-02	1.09E-04	0.00E+00
30.0								

APPENDIX I

Laboratory Analytical Report – SVE System

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

September 05, 2014

Project: Fairfax 26140

Submittal Date: 08/29/2014
Group Number: 1499818
PO Number: 51141-296452
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
Blower Effluent Grab Air	7582884

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: Blower Effluent Grab Air
Fairfax 26140

LL Sample # AQ 7582884
LL Group # 1499818
Account # 12152

Project Name: Fairfax 26140

Collected: 08/27/2014 09:00 by BB

Submitted: 08/29/2014 09:15
Reported: 09/05/2014 08:16

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

CAT No.	Analysis Name	CAS Number	As Received Final Result	LOQ	As Received Final Result	LOQ	DF
Volatiles in Air	**EPA 18 mod/EPA 25 mod**		**mg/m3**	**mg/m3**	**ppm(v)**	**ppm(v)**	
07090	Benzene	71-43-2	< 3	3	< 1	1	1
07090	C1-C4 Hydrocarbons as propane	n.a.	< 18	18	< 10	10	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	< 35	35	< 10	10	1
07090	Ethylbenzene	100-41-4	< 4	4	< 1	1	1
07090	MTBE	1634-04-4	< 4	4	< 1	1	1
07090	Toluene	108-88-3	< 4	4	< 1	1	1
07090	Xylene (total)	1330-20-7	< 9	9	< 2	2	1

LOQ = Limit of Quantitation

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07090	BTEX/MTBE/C1-C4/>C4-C10	EPA 18 mod/EPA 25 mod	1	M1424130AA	08/29/2014 16:25	Florida A Cimino	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1499818
Reported: 09/05/14 at 08:16 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: M1424130AA	Sample number(s): 7582884							
Benzene	< 3	3.	mg/m3	89	89	75-111	1	30
C1-C4 Hydrocarbons as propane	< 18	18.	mg/m3					
>C4-C10 Hydrocarbons hexane	< 35	35.	mg/m3					
Ethylbenzene	< 4	4.	mg/m3	90	92	76-135	2	30
MTBE	< 4	4.	mg/m3					
Toluene	< 4	4.	mg/m3	104	103	66-123	1	30
Xylene (total)	< 9	9.	mg/m3	95	96	70-134	1	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: _____ Sample #: _____
1499818 7582884

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-296452
Sampler: Brianne Baal | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable	NPDES	Water	Other	Total # of Containers	BTEX, MTBE (by EPA 18 mod/EPA 25 mod)	TPH-C1-C4 (by EPA 18 mod/ EOA 25 mod)	TPH - C5-C10 (by EPA 18 mod/EPA 25 mod)	Remarks	Temperature of samples upon receipt (if requested)
~~Blower Pump Effluent~~	~~8/27/14~~	~~900~~	~~X~~							~~2~~	~~X~~	~~X~~	~~X~~		
Blower Effluent Grab Air	8/27/14	900	X							2	X	X	X		

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplecate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/27/14	1600	sampleroom	8/27	1600
			[signature]	8-29	09 15

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

eurofins | Lancaster Laboratories Environmental

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

September 22, 2014

Project: Fairfax 26140

Submittal Date: 09/17/2014
Group Number: 1504135
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
Blower Effluent Grab Air	7603544

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: Blower Effluent Grab Air
Fairfax Petroleum 26140

LL Sample # AQ 7603544
LL Group # 1504135
Account # 12152

Project Name: Fairfax 26140

Collected: 09/16/2014 11:45 by TD

Submitted: 09/17/2014 17:10
Reported: 09/22/2014 13:23

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

CAT No.	Analysis Name	CAS Number	As Received Final Result	LOQ	As Received Final Result	LOQ	DF
Volatiles in Air	**EPA 18 mod/EPA 25 mod**		**mg/m3**	**mg/m3**	**ppm(v)**	**ppm(v)**	
07090	Benzene	71-43-2	< 3	3	< 1	1	1
07090	C1-C4 Hydrocarbons as propane	n.a.	< 18	18	< 10	10	1
07090	>C4-C10 Hydrocarbons hexane	n.a.	< 35	35	< 10	10	1
07090	Ethylbenzene	100-41-4	< 4	4	< 1	1	1
07090	MTBE	1634-04-4	< 4	4	< 1	1	1
07090	Toluene	108-88-3	< 4	4	< 1	1	1
07090	Xylene (total)	1330-20-7	< 9	9	< 2	2	1

LOQ = Limit of Quantitation

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07090	BTEX/MTBE/C1-C4/>C4-C10	EPA 18 mod/EPA 25 mod	1	M1426030AA	09/18/2014 01:36	Florida A Cimino	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1504135
Reported: 09/22/14 at 01:23 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: M1426030AA	Sample number(s): 7603544							
Benzene	< 3	3.	mg/m3	90	90	75-111	0	30
C1-C4 Hydrocarbons as propane	< 18	18.	mg/m3					
>C4-C10 Hydrocarbons hexane	< 35	35.	mg/m3					
Ethylbenzene	< 4	4.	mg/m3	102	110	76-135	8	30
MTBE	< 4	4.	mg/m3					
Toluene	< 4	4.	mg/m3	114	116	66-123	2	30
Xylene (total)	< 9	9.	mg/m3	108	119	70-134	10	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 1504135 Sample #: 7603544

Client: Fairfax Petroleum
Acct. #:
Project Name/#: 26140
PWSID #:
Project Manager: Mark C. Steele
P.O. #: 51141-299197
Sampler: Travis Dugsted
Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected (2014)	Time Collected	Grab	Composite	Soil	Water (Potable / NPDES)	Other (Air)	Total # of Containers	BTEX, MTBE (18/25) (H)	TPH C1-C4 (18/25) (H)	TPH C5-C10 (18/25)							Remarks	Temperature of samples upon receipt (if requested)
Blower Effluent	9/16	1145	X				X	2	X	X	X								

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplecate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9/16/14	1500	[signature]	9/17/14	13:30
[signature]	9/17/14	17:10			
			[signature]	9/17/14	1710

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Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

APPENDIX J

Laboratory Analytical Report – Groundwater Recovery System

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 02, 2014

Project: Fairfax 26140

Submittal Date: 08/29/2014
Group Number: 1499677
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
Influent 1 Grab Water	7582318
Air Stripper Effluent 1 Grab Water	7582319
LGAC1 Effluent 1 Grab Water	7582320
LGAC2 Effluent 1 Grab Water	7582321
LGAC3 Effluent 1 Grab Water	7582322
LGAC4 Effluent 1 Grab Water	7582323

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

Sample Description: Influent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582318
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:26 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

INF-1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**Acetone**	67-64-1	**2,800**	1,000	50
10335	Acrolein	107-02-8	< 5,000	5,000	50
10335	Acrylonitrile	107-13-1	< 1,000	1,000	50
10335	**t-Amyl methyl ether**	994-05-8	**600**	50	50
10335	Benzene	71-43-2	< 50	50	50
10335	Bromodichloromethane	75-27-4	< 50	50	50
10335	Bromoform	75-25-2	< 200	200	50
10335	Bromomethane	74-83-9	< 50	50	50
10335	**2-Butanone**	78-93-3	**4,900**	500	50
10335	**t-Butyl alcohol**	75-65-0	**9,000**	1,000	50
10335	n-Butylbenzene	104-51-8	< 250	250	50
10335	sec-Butylbenzene	135-98-8	< 250	250	50
10335	Carbon Tetrachloride	56-23-5	< 50	50	50
10335	Chlorobenzene	108-90-7	< 50	50	50
10335	Chloroethane	75-00-3	< 50	50	50
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 500	500	50
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 50	50	50
10335	Chloromethane	74-87-3	< 50	50	50
10335	Dibromochloromethane	124-48-1	< 50	50	50
10335	1,2-Dichlorobenzene	95-50-1	< 250	250	50
10335	1,3-Dichlorobenzene	541-73-1	< 250	250	50
10335	1,4-Dichlorobenzene	106-46-7	< 250	250	50
10335	1,1-Dichloroethane	75-34-3	< 50	50	50
10335	1,2-Dichloroethane	107-06-2	< 50	50	50
10335	1,1-Dichloroethene	75-35-4	< 50	50	50
10335	cis-1,2-Dichloroethene	156-59-2	< 50	50	50
10335	trans-1,2-Dichloroethene	156-60-5	< 50	50	50
10335	1,2-Dichloropropane	78-87-5	< 50	50	50
10335	cis-1,3-Dichloropropene	10061-01-5	< 50	50	50
10335	trans-1,3-Dichloropropene	10061-02-6	< 50	50	50
10335	Ethyl t-butyl ether	637-92-3	< 50	50	50
10335	Ethylbenzene	100-41-4	< 50	50	50
10335	**di-Isopropyl ether**	108-20-3	**1,100**	50	50
10335	Isopropylbenzene	98-82-8	< 250	250	50
10335	p-Isopropyltoluene	99-87-6	< 250	250	50
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**40,000**	500	500
10335	Methylene Chloride	75-09-2	< 150	150	50
10335	Naphthalene	91-20-3	< 250	250	50
10335	n-Propylbenzene	103-65-1	< 250	250	50
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 50	50	50
10335	Tetrachloroethene	127-18-4	< 50	50	50
10335	Toluene	108-88-3	< 50	50	50
10335	1,1,1-Trichloroethane	71-55-6	< 50	50	50
10335	1,1,2-Trichloroethane	79-00-5	< 50	50	50
10335	Trichloroethene	79-01-6	< 50	50	50
10335	Trichlorofluoromethane	75-69-4	< 50	50	50
10335	1,2,4-Trimethylbenzene	95-63-6	< 250	250	50

Sample Description: Influent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582318
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:26 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

INF-1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	1,3,5-Trimethylbenzene	108-67-8	< 250	250	50
10335	Vinyl Chloride	75-01-4	< 50	50	50
10335	Xylene (Total)	1330-20-7	< 50	50	50

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 20:54	Brett W Kenyon	50
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 21:17	Brett W Kenyon	500
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 20:54	Brett W Kenyon	50
01163	GC/MS VOA Water Prep	SW-846 5030B	2	W142421AA	08/30/2014 21:17	Brett W Kenyon	500

Sample Description: Air Stripper Effluent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582319
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:30 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

ASE-1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**Acetone**	67-64-1	**2,700**	200	10
10335	Acrolein	107-02-8	< 1,000	1,000	10
10335	Acrylonitrile	107-13-1	< 200	200	10
10335	**t-Amyl methyl ether**	994-05-8	**44**	10	10
10335	Benzene	71-43-2	< 10	10	10
10335	Bromodichloromethane	75-27-4	< 10	10	10
10335	Bromoform	75-25-2	< 40	40	10
10335	Bromomethane	74-83-9	< 10	10	10
10335	**2-Butanone**	78-93-3	**4,000**	100	10
10335	**t-Butyl alcohol**	75-65-0	**7,700**	200	10
10335	n-Butylbenzene	104-51-8	< 50	50	10
10335	sec-Butylbenzene	135-98-8	< 50	50	10
10335	Carbon Tetrachloride	56-23-5	< 10	10	10
10335	Chlorobenzene	108-90-7	< 10	10	10
10335	Chloroethane	75-00-3	< 10	10	10
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 100	100	10
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 10	10	10
10335	Chloromethane	74-87-3	< 10	10	10
10335	Dibromochloromethane	124-48-1	< 10	10	10
10335	1,2-Dichlorobenzene	95-50-1	< 50	50	10
10335	1,3-Dichlorobenzene	541-73-1	< 50	50	10
10335	1,4-Dichlorobenzene	106-46-7	< 50	50	10
10335	1,1-Dichloroethane	75-34-3	< 10	10	10
10335	1,2-Dichloroethane	107-06-2	< 10	10	10
10335	1,1-Dichloroethene	75-35-4	< 10	10	10
10335	cis-1,2-Dichloroethene	156-59-2	< 10	10	10
10335	trans-1,2-Dichloroethene	156-60-5	< 10	10	10
10335	1,2-Dichloropropane	78-87-5	< 10	10	10
10335	cis-1,3-Dichloropropene	10061-01-5	< 10	10	10
10335	trans-1,3-Dichloropropene	10061-02-6	< 10	10	10
10335	Ethyl t-butyl ether	637-92-3	< 10	10	10
10335	Ethylbenzene	100-41-4	< 10	10	10
10335	**di-Isopropyl ether**	108-20-3	**36**	10	10
10335	Isopropylbenzene	98-82-8	< 50	50	10
10335	p-Isopropyltoluene	99-87-6	< 50	50	10
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**3,400**	100	100
10335	Methylene Chloride	75-09-2	< 30	30	10
10335	Naphthalene	91-20-3	< 50	50	10
10335	n-Propylbenzene	103-65-1	< 50	50	10
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 10	10	10
10335	Tetrachloroethene	127-18-4	< 10	10	10
10335	Toluene	108-88-3	< 10	10	10
10335	1,1,1-Trichloroethane	71-55-6	< 10	10	10
10335	1,1,2-Trichloroethane	79-00-5	< 10	10	10
10335	Trichloroethene	79-01-6	< 10	10	10
10335	Trichlorofluoromethane	75-69-4	< 10	10	10
10335	1,2,4-Trimethylbenzene	95-63-6	< 50	50	10

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Analysis Report

Sample Description: Air Stripper Effluent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582319
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:30 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

ASE-1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	1,3,5-Trimethylbenzene	108-67-8	< 50	50	10
10335	Vinyl Chloride	75-01-4	< 10	10	10
10335	Xylene (Total)	1330-20-7	< 10	10	10

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 21:41	Brett W Kenyon	10
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 22:04	Brett W Kenyon	100
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 21:41	Brett W Kenyon	10
01163	GC/MS VOA Water Prep	SW-846 5030B	2	W142421AA	08/30/2014 22:04	Brett W Kenyon	100

Sample Description: LGAC1 Effluent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582320
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:34 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: LGAC1 Effluent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582320
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:34 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 16:36	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 16:36	Brett W Kenyon	1

Sample Description: LGAC2 Effluent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582321
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:38 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	**2-Butanone**	78-93-3	**13**	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: LGAC2 Effluent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582321
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:38 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 17:00	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 17:00	Brett W Kenyon	1

Sample Description: LGAC3 Effluent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582322
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:45 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: LGAC3 Effluent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582322
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:45 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 17:23	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 17:23	Brett W Kenyon	1

Sample Description: LGAC4 Effluent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582323
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:42 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: LGAC4 Effluent 1 Grab Water
Fairfax 26140

LL Sample # WW 7582323
LL Group # 1499677
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 08:42 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA14

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 17:47	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 17:47	Brett W Kenyon	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1499677
Reported: 09/02/14 at 01:20 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: W142421AA	Sample number(s): 7582318-7582323							
Acetone	< 20	20.	ug/l	101		55-129		
Acrolein	< 100	100.	ug/l	104		59-120		
Acrylonitrile	< 20	20.	ug/l	98		62-120		
t-Amyl methyl ether	< 1	1.	ug/l	95		75-120		
Benzene	< 1	1.	ug/l	106		78-120		
Bromodichloromethane	< 1	1.	ug/l	85		73-120		
Bromoform	< 4	4.	ug/l	71		61-120		
Bromomethane	< 1	1.	ug/l	94		53-130		
2-Butanone	< 10	10.	ug/l	97		54-133		
t-Butyl alcohol	< 20	20.	ug/l	98		75-120		
n-Butylbenzene	< 5	5.	ug/l	115		68-120		
sec-Butylbenzene	< 5	5.	ug/l	109		75-120		
Carbon Tetrachloride	< 1	1.	ug/l	89		74-130		
Chlorobenzene	< 1	1.	ug/l	101		80-120		
Chloroethane	< 1	1.	ug/l	97		56-120		
2-Chloroethyl Vinyl Ether	< 10	10.	ug/l	117		62-128		
Chloroform	< 1	1.	ug/l	96		80-122		
Chloromethane	< 1	1.	ug/l	102		63-120		
Dibromochloromethane	< 1	1.	ug/l	85		72-120		
1,2-Dichlorobenzene	< 5	5.	ug/l	99		80-120		
1,3-Dichlorobenzene	< 5	5.	ug/l	94		80-120		
1,4-Dichlorobenzene	< 5	5.	ug/l	96		80-120		
1,1-Dichloroethane	< 1	1.	ug/l	100		80-120		
1,2-Dichloroethane	< 1	1.	ug/l	95		65-135		
1,1-Dichloroethene	< 1	1.	ug/l	105		76-124		
cis-1,2-Dichloroethene	< 1	1.	ug/l	101		80-120		
trans-1,2-Dichloroethene	< 1	1.	ug/l	108		80-120		
1,2-Dichloropropane	< 1	1.	ug/l	105		80-120		
cis-1,3-Dichloropropene	< 1	1.	ug/l	92		80-120		
trans-1,3-Dichloropropene	< 1	1.	ug/l	91		76-120		
Ethyl t-butyl ether	< 1	1.	ug/l	97		69-120		
Ethylbenzene	< 1	1.	ug/l	98		79-120		
di-Isopropyl ether	< 1	1.	ug/l	110		61-132		
Isopropylbenzene	< 5	5.	ug/l	96		80-120		
p-Isopropyltoluene	< 5	5.	ug/l	102		76-120		
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	96		75-120		
Methylene Chloride	< 3	3.	ug/l	103		80-120		
Naphthalene	< 5	5.	ug/l	90		47-126		
n-Propylbenzene	< 5	5.	ug/l	103		80-120		
1,1,2,2-Tetrachloroethane	< 1	1.	ug/l	106		70-120		
Tetrachloroethene	< 1	1.	ug/l	96		80-120		
Toluene	< 1	1.	ug/l	108		80-120		
1,1,1-Trichloroethane	< 1	1.	ug/l	82		66-126		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1499677
Reported: 09/02/14 at 01:20 PM

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	< 1	1.	ug/l	101		80-120		
Trichloroethene	< 1	1.	ug/l	99		80-120		
Trichlorofluoromethane	< 1	1.	ug/l	91		58-135		
1,2,4-Trimethylbenzene	< 5	5.	ug/l	97		80-120		
1,3,5-Trimethylbenzene	< 5	5.	ug/l	97		80-120		
Vinyl Chloride	< 1	1.	ug/l	100		63-120		
Xylene (Total)	< 1	1.	ug/l	100		80-120		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: W142421AA	Sample number(s): 7582318-7582323 UNSPK: P581042								
Acetone	96	95	35-144	1	30				
Acrolein	104	106	39-136	2	30				
Acrylonitrile	99	98	51-125	1	30				
t-Amyl methyl ether	100	99	65-117	1	30				
Benzene	117	115	72-134	2	30				
Bromodichloromethane	90	90	73-125	0	30				
Bromoform	74	72	48-118	1	30				
Bromomethane	106	105	47-129	1	30				
2-Butanone	97	96	44-135	1	30				
t-Butyl alcohol	95	107	67-119	12	30				
n-Butylbenzene	128	127	74-134	1	30				
sec-Butylbenzene	127	124	74-137	2	30				
Carbon Tetrachloride	105	102	75-148	3	30				
Chlorobenzene	107	110	87-124	3	30				
Chloroethane	115	113	55-130	2	30				
2-Chloroethyl Vinyl Ether	0*	0*	10-151	0	30				
Chloroform	105	103	81-134	2	30				
Chloromethane	119	119	61-125	0	30				
Dibromochloromethane	88	89	74-116	1	30				
1,2-Dichlorobenzene	103	105	84-119	2	30				
1,3-Dichlorobenzene	105	103	86-121	2	30				
1,4-Dichlorobenzene	105	104	85-121	1	30				
1,1-Dichloroethane	113	111	84-129	2	30				
1,2-Dichloroethane	98	97	63-142	2	30				
1,1-Dichloroethene	119	119	79-137	0	30				
cis-1,2-Dichloroethene	111	109	80-141	1	30				
trans-1,2-Dichloroethene	117	116	86-131	1	30				
1,2-Dichloropropane	114	113	83-124	1	30				
cis-1,3-Dichloropropene	97	95	70-116	3	30				
trans-1,3-Dichloropropene	94	96	74-119	2	30				
Ethyl t-butyl ether	98	100	74-122	2	30				
Ethylbenzene	107	108	71-134	1	30				
di-Isopropyl ether	117	118	70-129	1	30				
Isopropylbenzene	105	106	75-128	2	30				
p-Isopropyltoluene	117	115	76-123	1	30				
Methyl Tertiary Butyl Ether	101	99	72-126	2	30				
Methylene Chloride	112	113	78-133	1	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1499677
Reported: 09/02/14 at 01:20 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Naphthalene	94	95	52-125	1	30				
n-Propylbenzene	116	114	74-134	2	30				
1,1,2,2-Tetrachloroethane	109	104	72-128	5	30				
Tetrachloroethene	107	107	80-128	0	30				
Toluene	114	114	80-125	0	30				
1,1,1-Trichloroethane	95	92	69-140	4	30				
1,1,2-Trichloroethane	103	105	71-141	1	30				
Trichloroethene	110	110	88-133	1	30				
Trichlorofluoromethane	114	113	63-163	1	30				
1,2,4-Trimethylbenzene	108	107	72-130	1	30				
1,3,5-Trimethylbenzene	107	107	65-132	1	30				
Vinyl Chloride	116	117	66-133	1	30				
Xylene (Total)	108	109	79-125	0	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: W142421AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7582318	95	100	99	94
7582319	95	100	98	97
7582320	93	102	99	94
7582321	95	101	99	94
7582322	95	98	100	94
7582323	95	100	99	94
Blank	92	98	99	93
LCS	93	99	102	100
MS	94	97	101	98
MSD	93	100	102	99
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: _____
Group #: _____ Sample #: _____

12152 / 1499677 / 7582318-23

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Brianne Baal | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable Water	NPDES Water	Other	Total # of Containers	Full List VOCs									Remarks	Temperature of samples upon receipt (if requested)
Influent 1	8/28/14	826	X			X			3	X										
Air Stripper Effluent 1		830	X			X			3	X										
LGAC1 Effluent 1		834	X			X			3	X										
LGAC2 Effluent 1		838	X			X			3	X										
LGAC3 Effluent 1		845	X			X			3	X										
LGAC4 Effluent 1		842	X			X			3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 2-Sep-14
Rush results requested by (please circle): Phone Fax E-mail
Phone #: 410-689-0813 Fax #:
E-mail address: MCSteele@kleinfelder.com

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplecate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/28/14	1600			
			[signature]	8-29-14	0800

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 02, 2014

Project: Fairfax 26140

Submittal Date: 08/29/2014
Group Number: 1499678
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
Influent 2 Grab Water	7582324
Air Stripper Effluent 2 Grab Water	7582325
LGAC1 Effluent 2 Grab Water	7582326
LGAC2 Effluent 2 Grab Water	7582327
LGAC3 Effluent 2 Grab Water	7582328
LGAC4 Effluent 2 Grab Water	7582329

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

Sample Description: Influent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582324
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:30 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

INF-2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 200	200	10
10335	Acrolein	107-02-8	< 1,000	1,000	10
10335	Acrylonitrile	107-13-1	< 200	200	10
10335	**t-Amyl methyl ether**	994-05-8	**81**	10	10
10335	**Benzene**	71-43-2	**13**	10	10
10335	Bromodichloromethane	75-27-4	< 10	10	10
10335	Bromoform	75-25-2	< 40	40	10
10335	Bromomethane	74-83-9	< 10	10	10
10335	2-Butanone	78-93-3	< 100	100	10
10335	**t-Butyl alcohol**	75-65-0	**500**	200	10
10335	n-Butylbenzene	104-51-8	< 50	50	10
10335	sec-Butylbenzene	135-98-8	< 50	50	10
10335	Carbon Tetrachloride	56-23-5	< 10	10	10
10335	Chlorobenzene	108-90-7	< 10	10	10
10335	Chloroethane	75-00-3	< 10	10	10
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 100	100	10
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 10	10	10
10335	Chloromethane	74-87-3	< 10	10	10
10335	Dibromochloromethane	124-48-1	< 10	10	10
10335	1,2-Dichlorobenzene	95-50-1	< 50	50	10
10335	1,3-Dichlorobenzene	541-73-1	< 50	50	10
10335	1,4-Dichlorobenzene	106-46-7	< 50	50	10
10335	1,1-Dichloroethane	75-34-3	< 10	10	10
10335	1,2-Dichloroethane	107-06-2	< 10	10	10
10335	1,1-Dichloroethene	75-35-4	< 10	10	10
10335	**cis-1,2-Dichloroethene**	156-59-2	**250**	10	10
10335	trans-1,2-Dichloroethene	156-60-5	< 10	10	10
10335	1,2-Dichloropropane	78-87-5	< 10	10	10
10335	cis-1,3-Dichloropropene	10061-01-5	< 10	10	10
10335	trans-1,3-Dichloropropene	10061-02-6	< 10	10	10
10335	Ethyl t-butyl ether	637-92-3	< 10	10	10
10335	Ethylbenzene	100-41-4	< 10	10	10
10335	**di-Isopropyl ether**	108-20-3	**210**	10	10
10335	Isopropylbenzene	98-82-8	< 50	50	10
10335	p-Isopropyltoluene	99-87-6	< 50	50	10
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**4,200**	100	100
10335	Methylene Chloride	75-09-2	< 30	30	10
10335	Naphthalene	91-20-3	< 50	50	10
10335	n-Propylbenzene	103-65-1	< 50	50	10
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 10	10	10
10335	Tetrachloroethene	127-18-4	< 10	10	10
10335	Toluene	108-88-3	< 10	10	10
10335	1,1,1-Trichloroethane	71-55-6	< 10	10	10
10335	1,1,2-Trichloroethane	79-00-5	< 10	10	10
10335	Trichloroethene	79-01-6	< 10	10	10
10335	Trichlorofluoromethane	75-69-4	< 10	10	10
10335	1,2,4-Trimethylbenzene	95-63-6	< 50	50	10

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Analysis Report

Sample Description: Influent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582324
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:30 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

INF-2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	1,3,5-Trimethylbenzene	108-67-8	< 50	50	10
10335	Vinyl Chloride	75-01-4	< 10	10	10
10335	Xylene (Total)	1330-20-7	< 10	10	10

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 22:28	Brett W Kenyon	10
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 22:51	Brett W Kenyon	100
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 22:28	Brett W Kenyon	10
01163	GC/MS VOA Water Prep	SW-846 5030B	2	W142421AA	08/30/2014 22:51	Brett W Kenyon	100

Sample Description: Air Stripper Effluent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582325
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:35 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

ASE-2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**Acetone**	67-64-1	**25**	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	**t-Amyl methyl ether**	994-05-8	**9**	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	**2-Butanone**	78-93-3	**58**	10	1
10335	**t-Butyl alcohol**	75-65-0	**470**	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	**cis-1,2-Dichloroethene**	156-59-2	**2**	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**6**	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**520**	10	10
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1

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Analysis Report

Sample Description: Air Stripper Effluent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582325
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:35 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

ASE-2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 20:07	Brett W Kenyon	1
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 20:31	Brett W Kenyon	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 20:07	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	W142421AA	08/30/2014 20:31	Brett W Kenyon	10

Sample Description: LGAC1 Effluent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582326
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:40 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**Acetone**	67-64-1	**55**	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	**t-Butyl alcohol**	75-65-0	**1,500**	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**14**	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1

Sample Description: LGAC1 Effluent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582326
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:40 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Vinyl Chloride	75-01-4	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 18:10	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 18:10	Brett W Kenyon	1

Sample Description: LGAC2 Effluent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582327
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:44 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	**t-Butyl alcohol**	75-65-0	**330**	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

Sample Description: LGAC2 Effluent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582327
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:44 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 18:34	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 18:34	Brett W Kenyon	1

Sample Description: LGAC3 Effluent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582328
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:48 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA32

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: LGAC3 Effluent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582328
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:48 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA32

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 18:57	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 18:57	Brett W Kenyon	1

Sample Description: LGAC4 Effluent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582329
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:51 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA42

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	**Chloromethane**	74-87-3	**1**	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: LGAC4 Effluent 2 Grab Water
Fairfax 26140

LL Sample # WW 7582329
LL Group # 1499678
Account # 12152

Project Name: Fairfax 26140

Collected: 08/28/2014 15:51 by BB

Submitted: 08/29/2014 08:00
Reported: 09/02/2014 13:21

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA42

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	W142421AA	08/30/2014 19:20	Brett W Kenyon	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W142421AA	08/30/2014 19:20	Brett W Kenyon	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1499678
Reported: 09/02/14 at 01:21 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: W142421AA	Sample number(s): 7582324-7582329							
Acetone	< 20	20.	ug/l	101		55-129		
Acrolein	< 100	100.	ug/l	104		59-120		
Acrylonitrile	< 20	20.	ug/l	98		62-120		
t-Amyl methyl ether	< 1	1.	ug/l	95		75-120		
Benzene	< 1	1.	ug/l	106		78-120		
Bromodichloromethane	< 1	1.	ug/l	85		73-120		
Bromoform	< 4	4.	ug/l	71		61-120		
Bromomethane	< 1	1.	ug/l	94		53-130		
2-Butanone	< 10	10.	ug/l	97		54-133		
t-Butyl alcohol	< 20	20.	ug/l	98		75-120		
n-Butylbenzene	< 5	5.	ug/l	115		68-120		
sec-Butylbenzene	< 5	5.	ug/l	109		75-120		
Carbon Tetrachloride	< 1	1.	ug/l	89		74-130		
Chlorobenzene	< 1	1.	ug/l	101		80-120		
Chloroethane	< 1	1.	ug/l	97		56-120		
2-Chloroethyl Vinyl Ether	< 10	10.	ug/l	117		62-128		
Chloroform	< 1	1.	ug/l	96		80-122		
Chloromethane	< 1	1.	ug/l	102		63-120		
Dibromochloromethane	< 1	1.	ug/l	85		72-120		
1,2-Dichlorobenzene	< 5	5.	ug/l	99		80-120		
1,3-Dichlorobenzene	< 5	5.	ug/l	94		80-120		
1,4-Dichlorobenzene	< 5	5.	ug/l	96		80-120		
1,1-Dichloroethane	< 1	1.	ug/l	100		80-120		
1,2-Dichloroethane	< 1	1.	ug/l	95		65-135		
1,1-Dichloroethene	< 1	1.	ug/l	105		76-124		
cis-1,2-Dichloroethene	< 1	1.	ug/l	101		80-120		
trans-1,2-Dichloroethene	< 1	1.	ug/l	108		80-120		
1,2-Dichloropropane	< 1	1.	ug/l	105		80-120		
cis-1,3-Dichloropropene	< 1	1.	ug/l	92		80-120		
trans-1,3-Dichloropropene	< 1	1.	ug/l	91		76-120		
Ethyl t-butyl ether	< 1	1.	ug/l	97		69-120		
Ethylbenzene	< 1	1.	ug/l	98		79-120		
di-Isopropyl ether	< 1	1.	ug/l	110		61-132		
Isopropylbenzene	< 5	5.	ug/l	96		80-120		
p-Isopropyltoluene	< 5	5.	ug/l	102		76-120		
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	96		75-120		
Methylene Chloride	< 3	3.	ug/l	103		80-120		
Naphthalene	< 5	5.	ug/l	90		47-126		
n-Propylbenzene	< 5	5.	ug/l	103		80-120		
1,1,2,2-Tetrachloroethane	< 1	1.	ug/l	106		70-120		
Tetrachloroethene	< 1	1.	ug/l	96		80-120		
Toluene	< 1	1.	ug/l	108		80-120		
1,1,1-Trichloroethane	< 1	1.	ug/l	82		66-126		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1499678
Reported: 09/02/14 at 01:21 PM

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	< 1	1.	ug/l	101		80-120		
Trichloroethene	< 1	1.	ug/l	99		80-120		
Trichlorofluoromethane	< 1	1.	ug/l	91		58-135		
1,2,4-Trimethylbenzene	< 5	5.	ug/l	97		80-120		
1,3,5-Trimethylbenzene	< 5	5.	ug/l	97		80-120		
Vinyl Chloride	< 1	1.	ug/l	100		63-120		
Xylene (Total)	< 1	1.	ug/l	100		80-120		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: W142421AA	Sample number(s): 7582324-7582329 UNSPK: P581042								
Acetone	96	95	35-144	1	30				
Acrolein	104	106	39-136	2	30				
Acrylonitrile	99	98	51-125	1	30				
t-Amyl methyl ether	100	99	65-117	1	30				
Benzene	117	115	72-134	2	30				
Bromodichloromethane	90	90	73-125	0	30				
Bromoform	74	72	48-118	1	30				
Bromomethane	106	105	47-129	1	30				
2-Butanone	97	96	44-135	1	30				
t-Butyl alcohol	95	107	67-119	12	30				
n-Butylbenzene	128	127	74-134	1	30				
sec-Butylbenzene	127	124	74-137	2	30				
Carbon Tetrachloride	105	102	75-148	3	30				
Chlorobenzene	107	110	87-124	3	30				
Chloroethane	115	113	55-130	2	30				
2-Chloroethyl Vinyl Ether	0*	0*	10-151	0	30				
Chloroform	105	103	81-134	2	30				
Chloromethane	119	119	61-125	0	30				
Dibromochloromethane	88	89	74-116	1	30				
1,2-Dichlorobenzene	103	105	84-119	2	30				
1,3-Dichlorobenzene	105	103	86-121	2	30				
1,4-Dichlorobenzene	105	104	85-121	1	30				
1,1-Dichloroethane	113	111	84-129	2	30				
1,2-Dichloroethane	98	97	63-142	2	30				
1,1-Dichloroethene	119	119	79-137	0	30				
cis-1,2-Dichloroethene	111	109	80-141	1	30				
trans-1,2-Dichloroethene	117	116	86-131	1	30				
1,2-Dichloropropane	114	113	83-124	1	30				
cis-1,3-Dichloropropene	97	95	70-116	3	30				
trans-1,3-Dichloropropene	94	96	74-119	2	30				
Ethyl t-butyl ether	98	100	74-122	2	30				
Ethylbenzene	107	108	71-134	1	30				
di-Isopropyl ether	117	118	70-129	1	30				
Isopropylbenzene	105	106	75-128	2	30				
p-Isopropyltoluene	117	115	76-123	1	30				
Methyl Tertiary Butyl Ether	101	99	72-126	2	30				
Methylene Chloride	112	113	78-133	1	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1499678
Reported: 09/02/14 at 01:21 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Naphthalene	94	95	52-125	1	30				
n-Propylbenzene	116	114	74-134	2	30				
1,1,2,2-Tetrachloroethane	109	104	72-128	5	30				
Tetrachloroethene	107	107	80-128	0	30				
Toluene	114	114	80-125	0	30				
1,1,1-Trichloroethane	95	92	69-140	4	30				
1,1,2-Trichloroethane	103	105	71-141	1	30				
Trichloroethene	110	110	88-133	1	30				
Trichlorofluoromethane	114	113	63-163	1	30				
1,2,4-Trimethylbenzene	108	107	72-130	1	30				
1,3,5-Trimethylbenzene	107	107	65-132	1	30				
Vinyl Chloride	116	117	66-133	1	30				
Xylene (Total)	108	109	79-125	0	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: W142421AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7582324	96	100	99	92
7582325	94	96	100	95
7582326	93	102	100	93
7582327	94	98	100	94
7582328	97	102	100	94
7582329	96	105	99	94
Blank	92	98	99	93
LCS	93	99	102	100
MS	94	97	101	98
MSD	93	100	102	99
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: _____
Group #: _____ Sample #: _____

12152/1499678/7582324-29

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Brianne Beal | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (Potable / NPDES)	Other	Total # of Containers	Full List VOCs									Remarks	Temperature of samples upon receipt (if requested)
Influent 2	8/28/14	1530	X			X		3	X										
Air Stripper Effluent 2	↓	1535	X			X		3	X										
LGAC1 Effluent 2	↓	1540	X			X		3	X										
LGAC2 Effluent 2	↓	1544	X			X		3	X										
LGAC3 Effluent 2	↓	1548	X			X		3	X										
LGAC4 Effluent 2	↓	1551	X			X		3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 2-Sep-14
Rush results requested by (please circle): Phone Fax E-mail
Phone #: 410-689-0813 Fax #:
E-mail address: MCSteele@kleinfelder.com

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
Brianne Beal	8/28/14	1600			
			Kathy L [illegible]	8.29.14	0800

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 02, 2014

Project: Fairfax 26140

Submittal Date: 08/29/2014
Group Number: 1499900
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
Influent Grab Water	7583302
Air Stripper Effluent Grab Water	7583303
LGAC1 Effluent Grab Water	7583304
LGAC2 Effluent Grab Water	7583305
LGAC3 Effluent Grab Water	7583306
LGAC4 Effluent Grab Water	7583307

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

Sample Description: Influent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583302
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 09:20 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

261IN

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 2,000	2,000	100
10335	Acrolein	107-02-8	< 10,000	10,000	100
10335	Acrylonitrile	107-13-1	< 2,000	2,000	100
10335	**t-Amyl methyl ether**	994-05-8	**790**	100	100
10335	Benzene	71-43-2	< 100	100	100
10335	Bromodichloromethane	75-27-4	< 100	100	100
10335	Bromoform	75-25-2	< 400	400	100
10335	Bromomethane	74-83-9	< 100	100	100
10335	2-Butanone	78-93-3	< 1,000	1,000	100
10335	**t-Butyl alcohol**	75-65-0	**13,000**	2,000	100
10335	n-Butylbenzene	104-51-8	< 500	500	100
10335	sec-Butylbenzene	135-98-8	< 500	500	100
10335	Carbon Tetrachloride	56-23-5	< 100	100	100
10335	Chlorobenzene	108-90-7	< 100	100	100
10335	Chloroethane	75-00-3	< 100	100	100
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 1,000	1,000	100
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 100	100	100
10335	Chloromethane	74-87-3	< 100	100	100
10335	Dibromochloromethane	124-48-1	< 100	100	100
10335	1,2-Dichlorobenzene	95-50-1	< 500	500	100
10335	1,3-Dichlorobenzene	541-73-1	< 500	500	100
10335	1,4-Dichlorobenzene	106-46-7	< 500	500	100
10335	1,1-Dichloroethane	75-34-3	< 100	100	100
10335	1,2-Dichloroethane	107-06-2	< 100	100	100
10335	1,1-Dichloroethene	75-35-4	< 100	100	100
10335	cis-1,2-Dichloroethene	156-59-2	< 100	100	100
10335	trans-1,2-Dichloroethene	156-60-5	< 100	100	100
10335	1,2-Dichloropropane	78-87-5	< 100	100	100
10335	cis-1,3-Dichloropropene	10061-01-5	< 100	100	100
10335	trans-1,3-Dichloropropene	10061-02-6	< 100	100	100
10335	Ethyl t-butyl ether	637-92-3	< 100	100	100
10335	Ethylbenzene	100-41-4	< 100	100	100
10335	**di-Isopropyl ether**	108-20-3	**1,300**	100	100
10335	Isopropylbenzene	98-82-8	< 500	500	100
10335	p-Isopropyltoluene	99-87-6	< 500	500	100
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**60,000**	1,000	1000
10335	Methylene Chloride	75-09-2	< 300	300	100
10335	Naphthalene	91-20-3	< 500	500	100
10335	n-Propylbenzene	103-65-1	< 500	500	100
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 100	100	100
10335	Tetrachloroethene	127-18-4	< 100	100	100
10335	Toluene	108-88-3	< 100	100	100
10335	1,1,1-Trichloroethane	71-55-6	< 100	100	100
10335	1,1,2-Trichloroethane	79-00-5	< 100	100	100
10335	Trichloroethene	79-01-6	< 100	100	100
10335	Trichlorofluoromethane	75-69-4	< 100	100	100
10335	1,2,4-Trimethylbenzene	95-63-6	< 500	500	100

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Analysis Report

Sample Description: Influent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583302
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 09:20 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

261IN

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	1,3,5-Trimethylbenzene	108-67-8	< 500	500	100
10335	Vinyl Chloride	75-01-4	< 100	100	100
10335	Xylene (Total)	1330-20-7	< 100	100	100

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142431AA	08/31/2014 11:41	Sarah A Guill	100
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142431AA	08/31/2014 12:05	Sarah A Guill	1000
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142431AA	08/31/2014 11:41	Sarah A Guill	100
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N142431AA	08/31/2014 12:05	Sarah A Guill	1000

Sample Description: Air Stripper Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583303
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 09:10 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

261AS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 100	100	5
10335	Acrolein	107-02-8	< 500	500	5
10335	Acrylonitrile	107-13-1	< 100	100	5
10335	**t-Amyl methyl ether**	994-05-8	**28**	5	5
10335	Benzene	71-43-2	< 5	5	5
10335	Bromodichloromethane	75-27-4	< 5	5	5
10335	Bromoform	75-25-2	< 20	20	5
10335	Bromomethane	74-83-9	< 5	5	5
10335	**2-Butanone**	78-93-3	**220**	50	5
10335	**t-Butyl alcohol**	75-65-0	**14,000**	1,000	50
10335	n-Butylbenzene	104-51-8	< 25	25	5
10335	sec-Butylbenzene	135-98-8	< 25	25	5
10335	Carbon Tetrachloride	56-23-5	< 5	5	5
10335	Chlorobenzene	108-90-7	< 5	5	5
10335	Chloroethane	75-00-3	< 5	5	5
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 50	50	5
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 5	5	5
10335	Chloromethane	74-87-3	< 5	5	5
10335	Dibromochloromethane	124-48-1	< 5	5	5
10335	1,2-Dichlorobenzene	95-50-1	< 25	25	5
10335	1,3-Dichlorobenzene	541-73-1	< 25	25	5
10335	1,4-Dichlorobenzene	106-46-7	< 25	25	5
10335	1,1-Dichloroethane	75-34-3	< 5	5	5
10335	1,2-Dichloroethane	107-06-2	< 5	5	5
10335	1,1-Dichloroethene	75-35-4	< 5	5	5
10335	cis-1,2-Dichloroethene	156-59-2	< 5	5	5
10335	trans-1,2-Dichloroethene	156-60-5	< 5	5	5
10335	1,2-Dichloropropane	78-87-5	< 5	5	5
10335	cis-1,3-Dichloropropene	10061-01-5	< 5	5	5
10335	trans-1,3-Dichloropropene	10061-02-6	< 5	5	5
10335	Ethyl t-butyl ether	637-92-3	< 5	5	5
10335	Ethylbenzene	100-41-4	< 5	5	5
10335	**di-Isopropyl ether**	108-20-3	**9**	5	5
10335	Isopropylbenzene	98-82-8	< 25	25	5
10335	p-Isopropyltoluene	99-87-6	< 25	25	5
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**2,200**	50	50
10335	Methylene Chloride	75-09-2	< 15	15	5
10335	Naphthalene	91-20-3	< 25	25	5
10335	n-Propylbenzene	103-65-1	< 25	25	5
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 5	5	5
10335	Tetrachloroethene	127-18-4	< 5	5	5
10335	Toluene	108-88-3	< 5	5	5
10335	1,1,1-Trichloroethane	71-55-6	< 5	5	5
10335	1,1,2-Trichloroethane	79-00-5	< 5	5	5
10335	Trichloroethene	79-01-6	< 5	5	5
10335	Trichlorofluoromethane	75-69-4	< 5	5	5
10335	1,2,4-Trimethylbenzene	95-63-6	< 25	25	5

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Analysis Report

Sample Description: Air Stripper Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583303
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 09:10 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

261AS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	1,3,5-Trimethylbenzene	108-67-8	< 25	25	5
10335	Vinyl Chloride	75-01-4	< 5	5	5
10335	Xylene (Total)	1330-20-7	< 5	5	5

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142431AA	08/31/2014 12:28	Sarah A Guill	5
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142431AA	08/31/2014 12:52	Sarah A Guill	50
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142431AA	08/31/2014 12:28	Sarah A Guill	5
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N142431AA	08/31/2014 12:52	Sarah A Guill	50

Sample Description: LGAC1 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583304
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 09:00 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGAC1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**Acetone**	67-64-1	**49**	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	**t-Butyl alcohol**	75-65-0	**1,500**	200	10
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**41**	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1

Sample Description: LGAC1 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583304
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 09:00 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGAC1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Vinyl Chloride	75-01-4	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142431AA	08/31/2014 10:04	Sarah A Guill	1
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142431AA	08/31/2014 18:02	Sarah A Guill	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142431AA	08/31/2014 10:04	Sarah A Guill	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N142431AA	08/31/2014 18:02	Sarah A Guill	10

Sample Description: LGAC2 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583305
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 08:50 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGAC2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	**Acetone**	67-64-1	**25**	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	**t-Butyl alcohol**	75-65-0	**540**	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	**Chloromethane**	74-87-3	**1**	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: LGAC2 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583305
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 08:50 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGAC2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142431AA	08/31/2014 10:28	Sarah A Guill	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142431AA	08/31/2014 10:28	Sarah A Guill	1

Sample Description: LGAC3 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583306
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 08:40 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGAC3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	**Chloromethane**	74-87-3	**1**	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

Sample Description: LGAC3 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583306
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 08:40 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGAC3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142431AA	08/31/2014 10:52	Sarah A Guill	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142431AA	08/31/2014 10:52	Sarah A Guill	1

Sample Description: LGAC4 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583307
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 08:30 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA-4

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: LGAC4 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7583307
LL Group # 1499900
Account # 12152

Project Name: Fairfax 26140

Collected: 08/29/2014 08:30 by MS

Submitted: 08/29/2014 16:50
Reported: 09/02/2014 15:48

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

LGA-4

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	N142431AA	08/31/2014 11:16	Sarah A Guill	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N142431AA	08/31/2014 11:16	Sarah A Guill	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1499900
Reported: 09/02/14 at 03:48 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N142431AA	Sample number(s): 7583302-7583307							
Acetone	< 20	20.	ug/l	106		55-129		
Acrolein	< 100	100.	ug/l	81		59-120		
Acrylonitrile	< 20	20.	ug/l	101		62-120		
t-Amyl methyl ether	< 1	1.	ug/l	107		75-120		
Benzene	< 1	1.	ug/l	105		78-120		
Bromodichloromethane	< 1	1.	ug/l	105		73-120		
Bromoform	< 4	4.	ug/l	100		61-120		
Bromomethane	< 1	1.	ug/l	88		53-130		
2-Butanone	< 10	10.	ug/l	106		54-133		
t-Butyl alcohol	< 20	20.	ug/l	112		75-120		
n-Butylbenzene	< 5	5.	ug/l	94		68-120		
sec-Butylbenzene	< 5	5.	ug/l	99		75-120		
Carbon Tetrachloride	< 1	1.	ug/l	112		74-130		
Chlorobenzene	< 1	1.	ug/l	107		80-120		
Chloroethane	< 1	1.	ug/l	88		56-120		
2-Chloroethyl Vinyl Ether	< 10	10.	ug/l	93		62-128		
Chloroform	< 1	1.	ug/l	109		80-122		
Chloromethane	< 1	1.	ug/l	91		63-120		
Dibromochloromethane	< 1	1.	ug/l	102		72-120		
1,2-Dichlorobenzene	< 5	5.	ug/l	104		80-120		
1,3-Dichlorobenzene	< 5	5.	ug/l	105		80-120		
1,4-Dichlorobenzene	< 5	5.	ug/l	106		80-120		
1,1-Dichloroethane	< 1	1.	ug/l	103		80-120		
1,2-Dichloroethane	< 1	1.	ug/l	113		65-135		
1,1-Dichloroethene	< 1	1.	ug/l	104		76-124		
cis-1,2-Dichloroethene	< 1	1.	ug/l	108		80-120		
trans-1,2-Dichloroethene	< 1	1.	ug/l	108		80-120		
1,2-Dichloropropane	< 1	1.	ug/l	104		80-120		
cis-1,3-Dichloropropene	< 1	1.	ug/l	107		80-120		
trans-1,3-Dichloropropene	< 1	1.	ug/l	100		76-120		
Ethyl t-butyl ether	< 1	1.	ug/l	102		69-120		
Ethylbenzene	< 1	1.	ug/l	106		79-120		
di-Isopropyl ether	< 1	1.	ug/l	100		61-132		
Isopropylbenzene	< 5	5.	ug/l	104		80-120		
p-Isopropyltoluene	< 5	5.	ug/l	97		76-120		
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	106		75-120		
Methylene Chloride	< 3	3.	ug/l	100		80-120		
Naphthalene	< 5	5.	ug/l	81		47-126		
n-Propylbenzene	< 5	5.	ug/l	104		80-120		
1,1,2,2-Tetrachloroethane	< 1	1.	ug/l	101		70-120		
Tetrachloroethene	< 1	1.	ug/l	107		80-120		
Toluene	< 1	1.	ug/l	108		80-120		
1,1,1-Trichloroethane	< 1	1.	ug/l	109		66-126		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1499900
Reported: 09/02/14 at 03:48 PM

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	< 1	1.	ug/l	107		80-120		
Trichloroethene	< 1	1.	ug/l	110		80-120		
Trichlorofluoromethane	< 1	1.	ug/l	101		58-135		
1,2,4-Trimethylbenzene	< 5	5.	ug/l	106		80-120		
1,3,5-Trimethylbenzene	< 5	5.	ug/l	106		80-120		
Vinyl Chloride	< 1	1.	ug/l	94		63-120		
Xylene (Total)	< 1	1.	ug/l	108		80-120		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: N142431AA	Sample number(s): 7583302-7583307 UNSPK: P577951								
Acetone	102	103	35-144	1	30				
Acrolein	84	81	39-136	3	30				
Acrylonitrile	102	103	51-125	1	30				
t-Amyl methyl ether	108	107	65-117	0	30				
Benzene	112	112	72-134	1	30				
Bromodichloromethane	110	109	73-125	1	30				
Bromoform	101	101	48-118	0	30				
Bromomethane	104	104	47-129	1	30				
2-Butanone	105	107	44-135	2	30				
t-Butyl alcohol	108	108	67-119	1	30				
n-Butylbenzene	104	104	74-134	1	30				
sec-Butylbenzene	110	110	74-137	0	30				
Carbon Tetrachloride	128	127	75-148	0	30				
Chlorobenzene	115	113	87-124	1	30				
Chloroethane	99	99	55-130	1	30				
2-Chloroethyl Vinyl Ether	0*	0*	10-151	0	30				
Chloroform	116	116	81-134	0	30				
Chloromethane	101	101	61-125	1	30				
Dibromochloromethane	106	104	74-116	1	30				
1,2-Dichlorobenzene	108	107	84-119	1	30				
1,3-Dichlorobenzene	110	109	86-121	0	30				
1,4-Dichlorobenzene	110	110	85-121	0	30				
1,1-Dichloroethane	110	111	84-129	1	30				
1,2-Dichloroethane	115	115	63-142	0	30				
1,1-Dichloroethene	117	118	79-137	1	30				
cis-1,2-Dichloroethene	114	115	80-141	0	30				
trans-1,2-Dichloroethene	117	120	86-131	3	30				
1,2-Dichloropropane	109	108	83-124	1	30				
cis-1,3-Dichloropropene	108	108	70-116	0	30				
trans-1,3-Dichloropropene	104	104	74-119	0	30				
Ethyl t-butyl ether	105	107	74-122	2	30				
Ethylbenzene	115	113	71-134	2	30				
di-Isopropyl ether	105	105	70-129	0	30				
Isopropylbenzene	115	113	75-128	1	30				
p-Isopropyltoluene	107	106	76-123	0	30				
Methyl Tertiary Butyl Ether	109	109	72-126	0	30				
Methylene Chloride	106	105	78-133	1	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1499900
Reported: 09/02/14 at 03:48 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Naphthalene	82	85	52-125	3	30				
n-Propylbenzene	114	114	74-134	0	30				
1,1,2,2-Tetrachloroethane	103	102	72-128	1	30				
Tetrachloroethene	121	121	80-128	0	30				
Toluene	117	115	80-125	2	30				
1,1,1-Trichloroethane	121	120	69-140	1	30				
1,1,2-Trichloroethane	110	108	71-141	2	30				
Trichloroethene	119	121	88-133	2	30				
Trichlorofluoromethane	121	121	63-163	0	30				
1,2,4-Trimethylbenzene	113	112	72-130	1	30				
1,3,5-Trimethylbenzene	114	113	65-132	1	30				
Vinyl Chloride	110	108	66-133	2	30				
Xylene (Total)	116	115	79-125	2	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N142431AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7583302	101	101	97	93
7583303	101	101	99	94
7583304	103	100	98	95
7583305	104	104	98	93
7583306	105	104	98	93
7583307	105	103	97	92
Blank	105	104	97	93
LCS	101	101	100	101
MS	101	99	102	102
MSD	102	101	101	102
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

NN

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: _____ Sample #: _____
1499900 7583302-07

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Mike Smith | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes: H=HCl T=Thiosulfate N=HNO3 B=NaOH S=H2SO4 O=Other

Sample Identification	Date Collected (2014)	Time Collected	Grab	Composite	Soil	Water (Potable / NPDES)	Other	Total # of Containers	Full List VOCs									Remarks	Temperature of samples upon receipt (if requested)
Influent	8/29	0920	X			X		3	X										
Air Stripper Effluent	8/29	0910	X			X		3	X										
LGAC1 Effluent	8/29	0900	X			X		3	X										
LGAC2 Effluent	8/29	0850	X			X		3	X										
LGAC3 Effluent	8/29	0840	X			X		3	X										
LGAC4 Effluent	8/29	0830	X			X		3	X										

Analyses Requested / Preservation Codes

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 2-Sep-14
Rush results requested by (please circle): Phone Fax E-mail
Phone #: 410-689-0813 Fax #:
E-mail address: MCSteele@kleinfelder.com

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplecate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	8/29/14	1300	[signature]	8-29-14	1300
[signature]	8-29-14	1650			
			[signature]	8/29/14	1650

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 04, 2014

Project: Fairfax 26140

Submittal Date: 09/03/2014
Group Number: 1500635
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
Influent Grab Water	7586463
Air Stripper Effluent Grab Water	7586464
LGAC1 Effluent Grab Water	7586465
LGAC2 Effluent Grab Water	7586466
LGAC3 Effluent Grab Water	7586467
LGAC4 Effluent Grab Water	7586468

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: Influent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586463
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:30 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVIN

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 1,000	1,000	50
10335	Acrolein	107-02-8	< 5,000	5,000	50
10335	Acrylonitrile	107-13-1	< 1,000	1,000	50
10335	**t-Amyl methyl ether**	994-05-8	**430**	50	50
10335	Benzene	71-43-2	< 50	50	50
10335	Bromodichloromethane	75-27-4	< 50	50	50
10335	Bromoform	75-25-2	< 200	200	50
10335	Bromomethane	74-83-9	< 50	50	50
10335	2-Butanone	78-93-3	< 500	500	50
10335	**t-Butyl alcohol**	75-65-0	**6,500**	1,000	50
10335	n-Butylbenzene	104-51-8	< 250	250	50
10335	sec-Butylbenzene	135-98-8	< 250	250	50
10335	Carbon Tetrachloride	56-23-5	< 50	50	50
10335	Chlorobenzene	108-90-7	< 50	50	50
10335	Chloroethane	75-00-3	< 50	50	50
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 500	500	50
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 50	50	50
10335	Chloromethane	74-87-3	< 50	50	50
10335	Dibromochloromethane	124-48-1	< 50	50	50
10335	1,2-Dichlorobenzene	95-50-1	< 250	250	50
10335	1,3-Dichlorobenzene	541-73-1	< 250	250	50
10335	1,4-Dichlorobenzene	106-46-7	< 250	250	50
10335	1,1-Dichloroethane	75-34-3	< 50	50	50
10335	1,2-Dichloroethane	107-06-2	< 50	50	50
10335	1,1-Dichloroethene	75-35-4	< 50	50	50
10335	**cis-1,2-Dichloroethene**	156-59-2	**110**	50	50
10335	trans-1,2-Dichloroethene	156-60-5	< 50	50	50
10335	1,2-Dichloropropane	78-87-5	< 50	50	50
10335	cis-1,3-Dichloropropene	10061-01-5	< 50	50	50
10335	trans-1,3-Dichloropropene	10061-02-6	< 50	50	50
10335	Ethyl t-butyl ether	637-92-3	< 50	50	50
10335	Ethylbenzene	100-41-4	< 50	50	50
10335	**di-Isopropyl ether**	108-20-3	**870**	50	50
10335	Isopropylbenzene	98-82-8	< 250	250	50
10335	p-Isopropyltoluene	99-87-6	< 250	250	50
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**29,000**	100	100
10335	Methylene Chloride	75-09-2	< 150	150	50
10335	Naphthalene	91-20-3	< 250	250	50
10335	n-Propylbenzene	103-65-1	< 250	250	50
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 50	50	50
10335	Tetrachloroethene	127-18-4	< 50	50	50
10335	Toluene	108-88-3	< 50	50	50
10335	1,1,1-Trichloroethane	71-55-6	< 50	50	50
10335	1,1,2-Trichloroethane	79-00-5	< 50	50	50
10335	Trichloroethene	79-01-6	< 50	50	50
10335	Trichlorofluoromethane	75-69-4	< 50	50	50
10335	1,2,4-Trimethylbenzene	95-63-6	< 250	250	50

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Analysis Report

Sample Description: Influent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586463
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:30 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVIN

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	1,3,5-Trimethylbenzene	108-67-8	< 250	250	50
10335	Vinyl Chloride	75-01-4	< 50	50	50
10335	Xylene (Total)	1330-20-7	< 50	50	50

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	Y142462AA	09/04/2014 05:21	Amanda K Richards	100
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	Y142462AA	09/04/2014 07:53	Amanda K Richards	50
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y142462AA	09/04/2014 05:21	Amanda K Richards	100
01163	GC/MS VOA Water Prep	SW-846 5030B	2	Y142462AA	09/04/2014 07:53	Amanda K Richards	50

Sample Description: Air Stripper Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586464
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:25 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVEF

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 100	100	5
10335	Acrolein	107-02-8	< 500	500	5
10335	Acrylonitrile	107-13-1	< 100	100	5
10335	**t-Amyl methyl ether**	994-05-8	**270**	5	5
10335	Benzene	71-43-2	< 5	5	5
10335	Bromodichloromethane	75-27-4	< 5	5	5
10335	Bromoform	75-25-2	< 20	20	5
10335	Bromomethane	74-83-9	< 5	5	5
10335	2-Butanone	78-93-3	< 50	50	5
10335	**t-Butyl alcohol**	75-65-0	**6,600**	100	5
10335	n-Butylbenzene	104-51-8	< 25	25	5
10335	sec-Butylbenzene	135-98-8	< 25	25	5
10335	Carbon Tetrachloride	56-23-5	< 5	5	5
10335	Chlorobenzene	108-90-7	< 5	5	5
10335	Chloroethane	75-00-3	< 5	5	5
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 50	50	5
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 5	5	5
10335	Chloromethane	74-87-3	< 5	5	5
10335	Dibromochloromethane	124-48-1	< 5	5	5
10335	1,2-Dichlorobenzene	95-50-1	< 25	25	5
10335	1,3-Dichlorobenzene	541-73-1	< 25	25	5
10335	1,4-Dichlorobenzene	106-46-7	< 25	25	5
10335	1,1-Dichloroethane	75-34-3	< 5	5	5
10335	1,2-Dichloroethane	107-06-2	< 5	5	5
10335	1,1-Dichloroethene	75-35-4	< 5	5	5
10335	**cis-1,2-Dichloroethene**	156-59-2	**29**	5	5
10335	trans-1,2-Dichloroethene	156-60-5	< 5	5	5
10335	1,2-Dichloropropane	78-87-5	< 5	5	5
10335	cis-1,3-Dichloropropene	10061-01-5	< 5	5	5
10335	trans-1,3-Dichloropropene	10061-02-6	< 5	5	5
10335	Ethyl t-butyl ether	637-92-3	< 5	5	5
10335	Ethylbenzene	100-41-4	< 5	5	5
10335	**di-Isopropyl ether**	108-20-3	**370**	5	5
10335	Isopropylbenzene	98-82-8	< 25	25	5
10335	p-Isopropyltoluene	99-87-6	< 25	25	5
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**18,000**	200	200
10335	Methylene Chloride	75-09-2	< 15	15	5
10335	Naphthalene	91-20-3	< 25	25	5
10335	n-Propylbenzene	103-65-1	< 25	25	5
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 5	5	5
10335	Tetrachloroethene	127-18-4	< 5	5	5
10335	Toluene	108-88-3	< 5	5	5
10335	1,1,1-Trichloroethane	71-55-6	< 5	5	5
10335	1,1,2-Trichloroethane	79-00-5	< 5	5	5
10335	Trichloroethene	79-01-6	< 5	5	5
10335	Trichlorofluoromethane	75-69-4	< 5	5	5
10335	1,2,4-Trimethylbenzene	95-63-6	< 25	25	5

Sample Description: Air Stripper Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586464
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:25 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVEF

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	1,3,5-Trimethylbenzene	108-67-8	< 25	25	5
10335	Vinyl Chloride	75-01-4	< 5	5	5
10335	Xylene (Total)	1330-20-7	< 5	5	5

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	Y142462AA	09/04/2014 04:38	Amanda K Richards	5
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	Y142462AA	09/04/2014 07:32	Amanda K Richards	200
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y142462AA	09/04/2014 04:38	Amanda K Richards	5
01163	GC/MS VOA Water Prep	SW-846 5030B	2	Y142462AA	09/04/2014 07:32	Amanda K Richards	200

Sample Description: LGAC1 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586465
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:20 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVL1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	**t-Amyl methyl ether**	994-05-8	**270**	1	1
10335	**Benzene**	71-43-2	**2**	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	**t-Butyl alcohol**	75-65-0	**6,500**	2,000	100
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	**cis-1,2-Dichloroethene**	156-59-2	**23**	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	**di-Isopropyl ether**	108-20-3	**280**	100	100
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**15,000**	100	100
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1

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Analysis Report

Sample Description: LGAC1 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586465
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:20 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVL1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	Y142462AA	09/04/2014 03:57	Amanda K Richards	1
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	Y142462AA	09/04/2014 07:11	Amanda K Richards	100
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y142462AA	09/04/2014 03:57	Amanda K Richards	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	Y142462AA	09/04/2014 07:11	Amanda K Richards	100

Sample Description: LGAC2 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586466
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:15 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVL2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	**t-Butyl alcohol**	75-65-0	**5,800**	400	20
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**1,500**	20	20
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1

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Analysis Report

Sample Description: LGAC2 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586466
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:15 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVL2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Vinyl Chloride	75-01-4	< 1	1	1
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	Y142462AA	09/04/2014 02:54	Amanda K Richards	1
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	Y142462AA	09/04/2014 06:02	Amanda K Richards	20
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y142462AA	09/04/2014 02:54	Amanda K Richards	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	Y142462AA	09/04/2014 06:02	Amanda K Richards	20

Sample Description: LGAC3 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586467
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:10 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVL3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	**t-Butyl alcohol**	75-65-0	**290**	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: LGAC3 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586467
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:10 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVL3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	Y142462AA	09/04/2014 03:15	Amanda K Richards	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y142462AA	09/04/2014 03:15	Amanda K Richards	1

Sample Description: LGAC4 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586468
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:05 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVL4

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	Acetone	67-64-1	< 20	20	1
10335	Acrolein	107-02-8	< 100	100	1
10335	Acrylonitrile	107-13-1	< 20	20	1
10335	t-Amyl methyl ether	994-05-8	< 1	1	1
10335	Benzene	71-43-2	< 1	1	1
10335	Bromodichloromethane	75-27-4	< 1	1	1
10335	Bromoform	75-25-2	< 4	4	1
10335	Bromomethane	74-83-9	< 1	1	1
10335	2-Butanone	78-93-3	< 10	10	1
10335	t-Butyl alcohol	75-65-0	< 20	20	1
10335	n-Butylbenzene	104-51-8	< 5	5	1
10335	sec-Butylbenzene	135-98-8	< 5	5	1
10335	Carbon Tetrachloride	56-23-5	< 1	1	1
10335	Chlorobenzene	108-90-7	< 1	1	1
10335	Chloroethane	75-00-3	< 1	1	1
10335	2-Chloroethyl Vinyl Ether	110-75-8	< 10	10	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10335	Chloroform	67-66-3	< 1	1	1
10335	Chloromethane	74-87-3	< 1	1	1
10335	Dibromochloromethane	124-48-1	< 1	1	1
10335	1,2-Dichlorobenzene	95-50-1	< 5	5	1
10335	1,3-Dichlorobenzene	541-73-1	< 5	5	1
10335	1,4-Dichlorobenzene	106-46-7	< 5	5	1
10335	1,1-Dichloroethane	75-34-3	< 1	1	1
10335	1,2-Dichloroethane	107-06-2	< 1	1	1
10335	1,1-Dichloroethene	75-35-4	< 1	1	1
10335	cis-1,2-Dichloroethene	156-59-2	< 1	1	1
10335	trans-1,2-Dichloroethene	156-60-5	< 1	1	1
10335	1,2-Dichloropropane	78-87-5	< 1	1	1
10335	cis-1,3-Dichloropropene	10061-01-5	< 1	1	1
10335	trans-1,3-Dichloropropene	10061-02-6	< 1	1	1
10335	Ethyl t-butyl ether	637-92-3	< 1	1	1
10335	Ethylbenzene	100-41-4	< 1	1	1
10335	di-Isopropyl ether	108-20-3	< 1	1	1
10335	Isopropylbenzene	98-82-8	< 5	5	1
10335	p-Isopropyltoluene	99-87-6	< 5	5	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10335	Methylene Chloride	75-09-2	< 3	3	1
10335	Naphthalene	91-20-3	< 5	5	1
10335	n-Propylbenzene	103-65-1	< 5	5	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	< 1	1	1
10335	Tetrachloroethene	127-18-4	< 1	1	1
10335	Toluene	108-88-3	< 1	1	1
10335	1,1,1-Trichloroethane	71-55-6	< 1	1	1
10335	1,1,2-Trichloroethane	79-00-5	< 1	1	1
10335	Trichloroethene	79-01-6	< 1	1	1
10335	Trichlorofluoromethane	75-69-4	< 1	1	1
10335	1,2,4-Trimethylbenzene	95-63-6	< 5	5	1
10335	1,3,5-Trimethylbenzene	108-67-8	< 5	5	1
10335	Vinyl Chloride	75-01-4	< 1	1	1

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Analysis Report

Sample Description: LGAC4 Effluent Grab Water
Fairfax Petroleum 26140

LL Sample # WW 7586468
LL Group # 1500635
Account # 12152

Project Name: Fairfax 26140

Collected: 09/03/2014 10:05 by CD

Submitted: 09/03/2014 17:45
Reported: 09/04/2014 12:59

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

GFVL4

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	VOCs 8260 Kleinfelder Full	SW-846 8260B	1	Y142462AA	09/04/2014 03:36	Amanda K Richards	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y142462AA	09/04/2014 03:36	Amanda K Richards	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500635
Reported: 09/04/14 at 12:59 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: Y142462AA	Sample number(s): 7586463-7586468							
Acetone	< 20	20.	ug/l	75		55-129		
Acrolein	< 100	100.	ug/l	84		59-120		
Acrylonitrile	< 20	20.	ug/l	78		62-120		
t-Amyl methyl ether	< 1	1.	ug/l	87		75-120		
Benzene	< 1	1.	ug/l	96		78-120		
Bromodichloromethane	< 1	1.	ug/l	87		73-120		
Bromoform	< 4	4.	ug/l	77		61-120		
Bromomethane	< 1	1.	ug/l	60		53-130		
2-Butanone	< 10	10.	ug/l	85		54-133		
t-Butyl alcohol	< 20	20.	ug/l	88		75-120		
n-Butylbenzene	< 5	5.	ug/l	83		68-120		
sec-Butylbenzene	< 5	5.	ug/l	84		75-120		
Carbon Tetrachloride	< 1	1.	ug/l	85		74-130		
Chlorobenzene	< 1	1.	ug/l	92		80-120		
Chloroethane	< 1	1.	ug/l	67		56-120		
2-Chloroethyl Vinyl Ether	< 10	10.	ug/l	93		62-128		
Chloroform	< 1	1.	ug/l	96		80-122		
Chloromethane	< 1	1.	ug/l	97		63-120		
Dibromochloromethane	< 1	1.	ug/l	88		72-120		
1,2-Dichlorobenzene	< 5	5.	ug/l	92		80-120		
1,3-Dichlorobenzene	< 5	5.	ug/l	90		80-120		
1,4-Dichlorobenzene	< 5	5.	ug/l	92		80-120		
1,1-Dichloroethane	< 1	1.	ug/l	100		80-120		
1,2-Dichloroethane	< 1	1.	ug/l	101		65-135		
1,1-Dichloroethene	< 1	1.	ug/l	83		76-124		
cis-1,2-Dichloroethene	< 1	1.	ug/l	98		80-120		
trans-1,2-Dichloroethene	< 1	1.	ug/l	85		80-120		
1,2-Dichloropropane	< 1	1.	ug/l	99		80-120		
cis-1,3-Dichloropropene	< 1	1.	ug/l	89		80-120		
trans-1,3-Dichloropropene	< 1	1.	ug/l	90		76-120		
Ethyl t-butyl ether	< 1	1.	ug/l	93		69-120		
Ethylbenzene	< 1	1.	ug/l	91		79-120		
di-Isopropyl ether	< 1	1.	ug/l	103		61-132		
Isopropylbenzene	< 5	5.	ug/l	88		80-120		
p-Isopropyltoluene	< 5	5.	ug/l	85		76-120		
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	86		75-120		
Methylene Chloride	< 3	3.	ug/l	93		80-120		
Naphthalene	< 5	5.	ug/l	79		47-126		
n-Propylbenzene	< 5	5.	ug/l	90		80-120		
1,1,2,2-Tetrachloroethane	< 1	1.	ug/l	88		70-120		
Tetrachloroethene	< 1	1.	ug/l	89		80-120		
Toluene	< 1	1.	ug/l	95		80-120		
1,1,1-Trichloroethane	< 1	1.	ug/l	77		66-126		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500635
Reported: 09/04/14 at 12:59 PM

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2-Trichloroethane	< 1	1.	ug/l	91		80-120		
Trichloroethene	< 1	1.	ug/l	95		80-120		
Trichlorofluoromethane	< 1	1.	ug/l	73		58-135		
1,2,4-Trimethylbenzene	< 5	5.	ug/l	90		80-120		
1,3,5-Trimethylbenzene	< 5	5.	ug/l	89		80-120		
Vinyl Chloride	< 1	1.	ug/l	84		63-120		
Xylene (Total)	< 1	1.	ug/l	92		80-120		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: Y142462AA	Sample number(s): 7586463-7586468 UNSPK: P585929								
Acetone	78	81	35-144	4	30				
Acrolein	83	82	39-136	1	30				
Acrylonitrile	76	81	51-125	6	30				
t-Amyl methyl ether	87	92	65-117	5	30				
Benzene	107	111	72-134	4	30				
Bromodichloromethane	92	95	73-125	3	30				
Bromoform	75	79	48-118	4	30				
Bromomethane	64	62	47-129	2	30				
2-Butanone	82	87	44-135	5	30				
t-Butyl alcohol	86	89	67-119	4	30				
n-Butylbenzene	96	100	74-134	4	30				
sec-Butylbenzene	99	104	74-137	5	30				
Carbon Tetrachloride	110	115	75-148	5	30				
Chlorobenzene	100	104	87-124	4	30				
Chloroethane	76	71	55-130	6	30				
2-Chloroethyl Vinyl Ether	0*	0*	10-151	0	30				
Chloroform	105	109	81-134	3	30				
Chloromethane	105	106	61-125	1	30				
Dibromochloromethane	91	93	74-116	3	30				
1,2-Dichlorobenzene	95	99	84-119	5	30				
1,3-Dichlorobenzene	95	100	86-121	5	30				
1,4-Dichlorobenzene	97	102	85-121	5	30				
1,1-Dichloroethane	112	113	84-129	0	30				
1,2-Dichloroethane	102	107	63-142	5	30				
1,1-Dichloroethene	106	110	79-137	4	30				
cis-1,2-Dichloroethene	108	110	80-141	2	30				
trans-1,2-Dichloroethene	102	108	86-131	6	30				
1,2-Dichloropropane	106	109	83-124	3	30				
cis-1,3-Dichloropropene	92	96	70-116	5	30				
trans-1,3-Dichloropropene	91	96	74-119	5	30				
Ethyl t-butyl ether	94	99	74-122	5	30				
Ethylbenzene	102	106	71-134	4	30				
di-Isopropyl ether	108	113	70-129	5	30				
Isopropylbenzene	99	104	75-128	5	30				
p-Isopropyltoluene	96	102	76-123	6	30				
Methyl Tertiary Butyl Ether	89	95	72-126	7	30				
Methylene Chloride	99	104	78-133	5	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Kleinfelder Group Number: 1500635
Reported: 09/04/14 at 12:59 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Naphthalene	76	81	52-125	6	30				
n-Propylbenzene	103	107	74-134	3	30				
1,1,2,2-Tetrachloroethane	87	91	72-128	5	30				
Tetrachloroethene	106	110	80-128	3	30				
Toluene	106	110	80-125	4	30				
1,1,1-Trichloroethane	93	97	69-140	4	30				
1,1,2-Trichloroethane	93	96	71-141	3	30				
Trichloroethene	109	112	88-133	3	30				
Trichlorofluoromethane	97	97	63-163	1	30				
1,2,4-Trimethylbenzene	99	104	72-130	5	30				
1,3,5-Trimethylbenzene	99	104	65-132	5	30				
Vinyl Chloride	94	95	66-133	1	30				
Xylene (Total)	101	105	79-125	4	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: Y142462AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7586463	97	98	99	94
7586464	95	97	100	96
7586465	94	97	101	97
7586466	96	99	99	96
7586467	98	99	99	96
7586468	98	99	99	96
Blank	97	98	100	97
LCS	98	101	101	100
MS	98	98	101	100
MSD	98	100	101	100
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 1500635 Sample #: 7586463-68

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 Great Falls, VA | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Chuck Drevo STS Tech | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (Potable / NPDES)	Other	Total # of Containers	Full List VOCs (8260)									Remarks	Temperature of samples upon receipt (if requested)
Influent	9/3/14	1030	X			X		3	X										
Air Stripper Effluent	↓	1025	X			X		3	X										
LGAC1 Effluent		1020	X			X		3	X										
LGAC2 Effluent		1015	X			X		3	X										
LGAC3 Effluent		1010	X			X		3	X										
LGAC4 Effluent		1005	X			X		3	X										

Analyses Requested / Preservation Codes

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 24 - hour TAT
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9/3/14	1330	[signature]	9/3/14	1630
[signature]	9/3/14	17:41			
			[signature]	9/3/14	1745

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 05, 2014

Project: Fairfax 26140

Submittal Date: 09/05/2014
Group Number: 1501183
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
Air Stripper Effluent Grab Water	7588822
Air Stripper Influent Grab Water	7588823

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

Sample Description: Air Stripper Effluent Grab Water
Fairfax 26140

LL Sample # WW 7588822
LL Group # 1501183
Account # 12152

Project Name: Fairfax 26140

Collected: 09/04/2014 15:10 by CL

Submitted: 09/05/2014 09:30
Reported: 09/05/2014 15:10

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

ASE--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**43**	5	5
10335	Benzene	71-43-2	< 5	5	5
10335	**t-Butyl alcohol**	75-65-0	**6,900**	100	5
10335	Ethyl t-butyl ether	637-92-3	< 5	5	5
10335	Ethylbenzene	100-41-4	< 5	5	5
10335	**di-Isopropyl ether**	108-20-3	**21**	5	5
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**3,300**	50	50
10335	Toluene	108-88-3	< 5	5	5
10335	Xylene (Total)	1330-20-7	< 5	5	5

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142482AA	09/05/2014 12:38	Linda C Pape	5
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142482AA	09/05/2014 13:01	Linda C Pape	50
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T142482AA	09/05/2014 12:38	Linda C Pape	5
01163	GC/MS VOA Water Prep	SW-846 5030B	2	T142482AA	09/05/2014 13:01	Linda C Pape	50

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Analysis Report

Sample Description: Air Stripper Influent Grab Water
Fairfax 26140

LL Sample # WW 7588823
LL Group # 1501183
Account # 12152

Project Name: Fairfax 26140

Collected: 09/04/2014 15:15 by CL

Submitted: 09/05/2014 09:30
Reported: 09/05/2014 15:10

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

ASI--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10335	**t-Amyl methyl ether**	994-05-8	**470**	20	20
10335	Benzene	71-43-2	< 20	20	20
10335	**t-Butyl alcohol**	75-65-0	**7,300**	400	20
10335	Ethyl t-butyl ether	637-92-3	< 20	20	20
10335	Ethylbenzene	100-41-4	< 20	20	20
10335	**di-Isopropyl ether**	108-20-3	**680**	20	20
10335	**Methyl Tertiary Butyl Ether**	1634-04-4	**33,000**	200	200
10335	Toluene	108-88-3	< 20	20	20
10335	Xylene (Total)	1330-20-7	< 20	20	20

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142482AA	09/05/2014 13:25	Linda C Pape	20
10335	BTEX + 5 Oxys	SW-846 8260B	1	T142482AA	09/05/2014 13:48	Linda C Pape	200
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T142482AA	09/05/2014 13:25	Linda C Pape	20
01163	GC/MS VOA Water Prep	SW-846 5030B	2	T142482AA	09/05/2014 13:48	Linda C Pape	200

Quality Control Summary

Client Name: Kleinfelder Group Number: 1501183
Reported: 09/05/14 at 03:10 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: T142482AA	Sample number(s): 7588822-7588823							
t-Amyl methyl ether	< 1	1.	ug/l	104	102	75-120	1	30
Benzene	< 1	1.	ug/l	102	102	78-120	0	30
t-Butyl alcohol	< 20	20.	ug/l	104	105	75-120	1	30
Ethyl t-butyl ether	< 1	1.	ug/l	105	104	69-120	1	30
Ethylbenzene	< 1	1.	ug/l	104	106	79-120	2	30
di-Isopropyl ether	< 1	1.	ug/l	110	109	61-132	1	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	103	102	75-120	1	30
Toluene	< 1	1.	ug/l	100	103	80-120	2	30
Xylene (Total)	< 1	1.	ug/l	99	101	80-120	2	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: T142482AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7588822	104	98	99	103
7588823	105	100	99	99
Blank	102	99	99	98
LCS	103	101	103	103
LCSD	103	98	102	102
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: 1501183 Sample #: 758822-23

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Charlie Low | Quote #:
Name of State where samples were collected: Virginia

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Potable	NPDES	Water	Other	Total # of Containers	BTEX + ~~Oxy~~								Remarks	Temperature of samples upon receipt (if requested)
											H									
Air Stripper Effluent	9-4-14	1510	X					X		3	X									
Air Stripper Influent	9-4-14	1515	X					X		3	X								1 Cooler	
																			Page 1 of 1	

Analyses Requested / Preservation Codes

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: 24-Hr TAT
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9-4-14	1530	UPS	9-9-14	1530
			[signature]	9-5-14	930

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 22, 2014

Project: Fairfax 26140

Submittal Date: 09/17/2014
Group Number: 1503922
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
Influent Grab Water	7602432
Air Stripper Effluent Grab Water	7602433
LGAC1 Effluent Grab Water	7602434
LGAC2 Effluent Grab Water	7602435
LGAC3 Effluent Grab Water	7602436
LGAC4 Effluent Grab Water	7602437

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

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Analysis Report

Sample Description: Influent Grab Water
Fairfax 26140

LL Sample # WW 7602432
LL Group # 1503922
Account # 12152

Project Name: Fairfax 26140

Collected: 09/16/2014 11:30 by TD

Submitted: 09/17/2014 09:25
Reported: 09/22/2014 11:10

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F40IN

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	< 10	10	10
10943	Ethylbenzene	100-41-4	< 10	10	10
10943	**Methyl Tertiary Butyl Ether**	1634-04-4	**21,000**	100	100
10943	Toluene	108-88-3	< 10	10	10
10943	Xylene (Total)	1330-20-7	< 10	10	10

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	UST BTEX, MTBE in Water	SW-846 8260B	1	F142612AA	09/18/2014 07:43	Anita M Dale	10
10943	UST BTEX, MTBE in Water	SW-846 8260B	1	F142612AA	09/18/2014 08:05	Anita M Dale	100
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F142612AA	09/18/2014 07:43	Anita M Dale	10
01163	GC/MS VOA Water Prep	SW-846 5030B	2	F142612AA	09/18/2014 08:05	Anita M Dale	100

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Analysis Report

Sample Description: Air Stripper Effluent Grab Water
Fairfax 26140

LL Sample # WW 7602433
LL Group # 1503922
Account # 12152

Project Name: Fairfax 26140

Collected: 09/16/2014 11:20 by TD

Submitted: 09/17/2014 09:25
Reported: 09/22/2014 11:10

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F40AS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	< 5	5	5
10943	Ethylbenzene	100-41-4	< 5	5	5
10943	**Methyl Tertiary Butyl Ether**	1634-04-4	**1,700**	5	5
10943	Toluene	108-88-3	< 5	5	5
10943	Xylene (Total)	1330-20-7	< 5	5	5

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	UST BTEX, MTBE in Water	SW-846 8260B	1	F142612AA	09/18/2014 08:27	Anita M Dale	5
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F142612AA	09/18/2014 08:27	Anita M Dale	5

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Analysis Report

Sample Description: LGAC1 Effluent Grab Water
Fairfax 26140

LL Sample # WW 7602434
LL Group # 1503922
Account # 12152

Project Name: Fairfax 26140

Collected: 09/16/2014 11:10 by TD

Submitted: 09/17/2014 09:25
Reported: 09/22/2014 11:10

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F401E

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	< 1	1	1
10943	Ethylbenzene	100-41-4	< 1	1	1
10943	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10943	Toluene	108-88-3	< 1	1	1
10943	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	UST BTEX, MTBE in Water	SW-846 8260B	1	F142612AA	09/18/2014 08:49	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F142612AA	09/18/2014 08:49	Anita M Dale	1

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Analysis Report

Sample Description: LGAC2 Effluent Grab Water
Fairfax 26140

LL Sample # WW 7602435
LL Group # 1503922
Account # 12152

Project Name: Fairfax 26140

Collected: 09/16/2014 11:00 by TD

Submitted: 09/17/2014 09:25
Reported: 09/22/2014 11:10

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F402E

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l	ug/l	
10943	Benzene	71-43-2	< 1	1	1
10943	Ethylbenzene	100-41-4	< 1	1	1
10943	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10943	Toluene	108-88-3	< 1	1	1
10943	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	UST BTEX, MTBE in Water	SW-846 8260B	1	F142612AA	09/18/2014 09:11	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F142612AA	09/18/2014 09:11	Anita M Dale	1

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Analysis Report

Sample Description: LGAC3 Effluent Grab Water
Fairfax 26140

LL Sample # WW 7602436
LL Group # 1503922
Account # 12152

Project Name: Fairfax 26140

Collected: 09/16/2014 10:50 by TD

Submitted: 09/17/2014 09:25
Reported: 09/22/2014 11:10

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F403E

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	< 1	1	1
10943	Ethylbenzene	100-41-4	< 1	1	1
10943	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10943	Toluene	108-88-3	< 1	1	1
10943	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	UST BTEX, MTBE in Water	SW-846 8260B	1	F142612AA	09/18/2014 09:32	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F142612AA	09/18/2014 09:32	Anita M Dale	1

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Analysis Report

Sample Description: LGAC4 Effluent Grab Water
Fairfax 26140

LL Sample # WW 7602437
LL Group # 1503922
Account # 12152

Project Name: Fairfax 26140

Collected: 09/16/2014 10:40 by TD

Submitted: 09/17/2014 09:25
Reported: 09/22/2014 11:10

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

F404E

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	< 1	1	1
10943	Ethylbenzene	100-41-4	< 1	1	1
10943	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	1
10943	Toluene	108-88-3	< 1	1	1
10943	Xylene (Total)	1330-20-7	< 1	1	1

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	UST BTEX, MTBE in Water	SW-846 8260B	1	F142612AA	09/18/2014 09:54	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F142612AA	09/18/2014 09:54	Anita M Dale	1

Quality Control Summary

Client Name: Kleinfelder Group Number: 1503922
Reported: 09/22/14 at 11:10 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: F142612AA	Sample number(s): 7602432-7602437							
Benzene	< 1	1.	ug/l	90	97	78-120	7	30
Ethylbenzene	< 1	1.	ug/l	93	97	79-120	4	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	92	98	75-120	7	30
Toluene	< 1	1.	ug/l	96	98	80-120	3	30
Xylene (Total)	< 1	1.	ug/l	95	98	80-120	4	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: UST BTEX, MTBE in Water
Batch number: F142612AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7602432	99	100	99	100
7602433	103	97	99	99
7602434	102	99	98	97
7602435	103	100	98	97
7602436	102	99	100	98
7602437	102	98	100	97
Blank	102	97	98	97
LCS	99	101	101	101
LCSD	101	100	98	99
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: _____ Sample #: _____
1503922 7602432-37

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Travis Dugstad | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected (2014)	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	Total # of Containers	Analyses Requested / Preservation Codes: BTEX, MTBE									Remarks	Temperature of samples upon receipt (if requested)
Influent	9/16	1130	X			X		3	X										
Air Stripper Effluent	9/16	1120	X			X		3	X										
LGAC1 Effluent	9/16	1110	X			X		3	X										
LGAC2 Effluent	9/16	1100	X			X		3	X										
LGAC3 Effluent	9/16	1050	X			X		3	X										
LGAC4 Effluent	9/16	1040	X			X		3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush 3 day
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: ~~19 Sep 14~~ 9/22/14 per M. Steele LF 9/17/14
Rush results requested by (please circle): Phone Fax E-mail
Phone #: _____ Fax #: _____
E-mail address: mcsteele@kleinfelder.com

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9/16/14	1500			
			[signature]	9/17/14	0925

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	Kleinfelder 550 West C Street, Suite 1200 San Diego CA 92101

September 26, 2014

Project: Fairfax 26140

Submittal Date: 09/23/2014
Group Number: 1505367
PO Number: 51141-299197
State of Sample Origin: VA

Client Sample Description	Lancaster Labs (LL) #
Influent Grab Water	7609727
Air Stripper Effluent Grab Water	7609728

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Kleinfelder	Attn: Mark Steele
ELECTRONIC COPY TO	Kleinfelder	Attn: Venelda Williams
ELECTRONIC COPY TO	Kleinfelder	Attn: Jennifer Kozak
ELECTRONIC COPY TO	Kleinfelder	Attn: Nathan Stevens
ELECTRONIC COPY TO	Kleinfelder	Attn: Paxton Wertz

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

eurofins
Lancaster Laboratories Environmental
2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: Influent Grab Water
Fairfax 26140

LL Sample # WW 7609727
LL Group # 1505367
Account # 12152

Project Name: Fairfax 26140

Collected: 09/22/2014 10:00 by TD

Submitted: 09/23/2014 09:35
Reported: 09/26/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

FINF-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	< 10	10	10
10943	Ethylbenzene	100-41-4	< 10	10	10
10943	**Methyl Tertiary Butyl Ether**	1634-04-4	**21,000**	100	100
10943	Toluene	108-88-3	< 10	10	10
10943	Xylene (Total)	1330-20-7	< 10	10	10

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	UST BTEX, MTBE in Water	SW-846 8260B	1	F142663AA	09/23/2014 18:31	Brett W Kenyon	10
10943	UST BTEX, MTBE in Water	SW-846 8260B	1	F142663AA	09/23/2014 18:53	Brett W Kenyon	100
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F142663AA	09/23/2014 18:31	Brett W Kenyon	10
01163	GC/MS VOA Water Prep	SW-846 5030B	2	F142663AA	09/23/2014 18:53	Brett W Kenyon	100

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2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Analysis Report

Sample Description: Air Stripper Effluent Grab Water
Fairfax 26140

LL Sample # WW 7609728
LL Group # 1505367
Account # 12152

Project Name: Fairfax 26140

Collected: 09/22/2014 09:50 by TD

Submitted: 09/23/2014 09:35
Reported: 09/26/2014 13:20

Kleinfelder
550 West C Street, Suite 1200
San Diego CA 92101

FAISE

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10943	Benzene	71-43-2	< 5	5	5
10943	Ethylbenzene	100-41-4	< 5	5	5
10943	**Methyl Tertiary Butyl Ether**	1634-04-4	**1,100**	5	5
10943	Toluene	108-88-3	< 5	5	5
10943	Xylene (Total)	1330-20-7	< 5	5	5

General Sample Comments

Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10943	UST BTEX, MTBE in Water	SW-846 8260B	1	F142663AA	09/23/2014 19:15	Brett W Kenyon	5
01163	GC/MS VOA Water Prep	SW-846 5030B	1	F142663AA	09/23/2014 19:15	Brett W Kenyon	5

Quality Control Summary

Client Name: Kleinfelder Group Number: 1505367
Reported: 09/26/14 at 01:20 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: F142663AA	Sample number(s): 7609727-7609728							
Benzene	< 1	1.	ug/l	90	93	78-120	3	30
Ethylbenzene	< 1	1.	ug/l	91	94	79-120	3	30
Methyl Tertiary Butyl Ether	< 1	1.	ug/l	97	97	75-120	0	30
Toluene	< 1	1.	ug/l	92	94	80-120	2	30
Xylene (Total)	< 1	1.	ug/l	93	96	80-120	3	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: UST BTEX, MTBE in Water
Batch number: F142663AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7609727	100	97	100	99
7609728	101	98	99	97
Blank	100	97	99	97
LCS	100	97	100	101
LCSD	100	96	99	100
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

Analysis Request/Environmental Services Chain of Custody

For Lancaster Laboratories use only Acct. #: 12152
Group #: _____ Sample #: _____
1505367 7609727-28

Client: Fairfax Petroleum | Acct. #:
Project Name/#: 26140 | PWSID #:
Project Manager: Mark C. Steele | P.O. #: 51141-299197
Sampler: Travis Dugstad | Quote #:
Name of State where samples were collected: Virginia

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO3 B=NaOH
S=H2SO4 O=Other

Sample Identification	Date Collected (2014)	Time Collected	Grab	Composite	Matrix: Soil	Matrix: Potable	Matrix: NPDES	Matrix: Water	Matrix: Other	Total # of Containers	BTEX, MTBE (8260) (H)									Remarks	Temperature of samples upon receipt (if requested)
Influent	9/22	1000	X					X		3	X										
Air Stripper Effluent	9/22	0950	X					X		3	X										

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: _____
Rush results requested by (please circle): Phone Fax E-mail
Phone #: _____ Fax #: _____
E-mail address: mcsteele@kleinfelder.com

Data Package Options (please circle if required)
Type I (validation/NJ reg) TX-TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

State-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicated QC sample and submit triplicate volume)
Internal COC required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	9/22/14				
			[signature]	9.23.14	935

Lancaster Laboratories, Inc. 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 717-656-2300
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.