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November 20, 2018

Mr. Moshood Oduwole
Project Manager
Technical Support Branch (3LC20)
Land and Chemicals Division
United States Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

RE: Transmittal of Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, Maryland

Dear Mr. Oduwole:

In accordance with the United States Environmental Protection Agency (USEPA) Administrative Order on Consent (Order), Docket Number RCRA-03-2008-0355TH, Arcadis, on behalf of Chevron Environmental Management Company (Chevron), has prepared this Corrective Measures (CM) 5-Year Assessment Report to describe actions taken by Chevron pursuant to the Order. This report contains a summary of activities performed during the reporting period, from January 18, 2013 through March 30, 2018, and an evaluation of the past and projected future effectiveness of the existing CMs.

As part of this CM Five-Year Assessment Report, Chevron is requesting modification or termination of the Order to allow risk-based closure and risk-based cleanup standards, consistent with USEPA, Washington, D.C., and Maryland regulations. At the time the Corrective Measures Study was issued in 2007, groundwater standards in Washington, D.C. were equivalent to USEPA Maximum Contaminant Levels (MCLs) for potable water as promulgated under 21 District of Columbia Municipal Regulations (DCMR) Section 1155. Use of the MCLs as the groundwater cleanup objective in the 2007 Corrective Measures Study was required by USEPA and Washington, D.C regulators. However, the environmental agency for Washington, D.C., the DOEE, currently allows for risk-based site closure using their DCRBCA process. MDE and USEPA also allow for risk-based closure. Application of the MCLs per the Order is a conservative remedial standard that is not appropriate because groundwater is not being utilized as a drinking water source in the area, and risk-based cleanup standards are more appropriate given that USEPA, Washington DC, and Maryland regulations allow for risk-based closure.

Consistent with part report submittals, Chevron intends to place a copy of this report in the Lamond-Riggs Neighborhood Library. Chevron also intends to distribute a Fact Sheet summarizing this report, which has been reviewed and accepted by USEPA, to the community in both Spanish and English languages.

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If you have any questions, please feel free to contact me at 832.854.5663.

Sincerely,

Ivanska Merced
Project Manager

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ARCADIS Design & Consultancy for natural and built assets

Chevron Environmental Management Company

CORRECTIVE MEASURES 5-YEAR ASSESSMENT REPORT

Former Chevron Facility No. 122208

November 2018



CORRECTIVE MEASURES 5-YEAR ASSESSMENT REPORT

Former Chevron Facility No. 122208

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ACRONYMS AND ABBREVIATIONS

3-D	three-dimensional
µg/kg	micrograms per kilogram
µg/L	micrograms per Liter
µg/m^3	micrograms per Cubic Meter
°C	degrees Celsius
°F	degrees Fahrenheit
%v	percent by volume
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CH_4	methane
Chevron	Chevron Environmental Management Company
cis 1,2-DCE	1,2 cis-dichloroethene
CM	Corrective Measures
CO_2	carbon dioxide
COC	constituent of concern
CSM	conceptual site model
D.C.	District of Columbia
DCMR	District of Columbia Municipal Regulations
DCRA	District of Columbia Department of Consumer and Regulatory Affairs
DCRBCA	District of Columbia Risk Based Corrective Action
DCRBDM	District of Columbia Risk Based Decision Making
DEM	Digital Elevation Model
DO	dissolved oxygen
DOEE	Department of Energy and the Environment
DPE	dual phase extraction
EVS	Earth Volumetric Studio™
FDRTC	Final Decision and Response to Comments

Fe (III)	ferric iron
FID	Flame Ionization Detector
GAC	Granular Activated Carbon
gal/ac/yr	gallons per acre per year
GC/FID	Gas Chromatography – Flame Ionization Detection
GC/MS	Gas Chromatography – Mass Spectrometry
GIS	Geographic Information System
gpm	gallons per minute
GPR	Ground Penetrating Radar
GWE	Groundwater Extraction
HQ	Hazard Quotient
HVAC	Heating, Ventilation and Cooling
ISGR	in-situ groundwater remediation
ITRC	Interstate Technology & Regulatory Council
LNAPL	Light Non-Aqueous Phase Liquid
LPH	liquid phase hydrocarbons
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
mg/L	milligrams per liter
ml/min	milliliters per minute
MMT	methylcyclopentadienyl manganese tricarbonyl
MNA	Monitored Natural Attenuation
MTBE	methyl tert-butyl ether
MVS	Mining Visualization System™
NAPL	Non-Aqueous Phase Liquids
NPDES	National Pollutant Discharge Elimination System
NSZD	Natural Source Zone Depletion
O_2	oxygen
OMM	Operation, Maintenance, and Monitoring
Order	Administrative Order on Consent
ORP	Oxidation Reduction Potential

ORZ	oxygen reactive zone
OSHA	Occupational Safety and Health Administration
PCE	tetrachloroethene
PEL	Permissible Exposure Level
PIANO	paraffin, isoparaffin, aromatic, naphthene, olefin
PID	Photoionization Detector
ppm	parts per million
psi	pounds per square inch
PVC	polyvinyl chloride
PVI	Petroleum Vapor Intrusion
RBSL	Risk-Based Screening Level
SC	Specific Conductivity
SOP	Standard Operating Procedure
SSTL	Site-Specific Target Level
SVE	soil vapor extraction
SVOC	Semi-volatile Organic Compound
TCE	trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TI	Technical Impracticability
TPH-DRO	Total Petroleum Hydrocarbons – Diesel Range Organics
TPH-GRO	Total Petroleum Hydrocarbons – Gasoline Range Organics
TRPH	Total Recoverable Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VISL	Vapor Intrusion Screening Level
VMS	vapor mitigation system
VOC	Volatile Organic Compound
WASA	Water and Sewer Authority
WSSC	Washington Suburban Sanitary Commission

EXECUTIVE SUMMARY

In accordance with the United States Environmental Protection Agency (USEPA) Administrative Order on Consent (Order), Docket Number RCRA-03-2008-0355TH, Arcadis, on behalf of Chevron Environmental Management Company (Chevron), has prepared this Corrective Measures (CM) 5-Year Assessment Report to describe actions taken by Chevron pursuant to the Order. This report contains a summary of activities performed during the reporting period, from January 18, 2013 through March 30, 2018, and an evaluation of the past and projected future effectiveness of the existing CMs, which include: 1) a dual phase extraction (DPE) remediation system in Area A that consists of total fluids extraction and treatment as well as soil vapor extraction (SVE) and treatment, 2) in-situ groundwater remediation (ISGR) wells in Area B, and 3) an oxygen reactive zone (ORZ) in Area C.

The site is a retail gas station located at 5801 Riggs Road, Chillum, Prince George's County, Maryland (**Figure 1**). Chevron reported a release at the service station to the Maryland Department of the Environment (MDE) on October 2, 1989, subsequently opening MDE Case No. 90-0629PG and making MDE the lead regulatory agency overseeing the project. A comprehensive investigation was conducted in the residential neighborhood adjacent to the service station property from September 2001 through December 2002. Based on these activities results and separate political jurisdictions (Maryland and the District), the USEPA took over as the lead regulatory agency in 2001. There are several off-site releases attributed to other parties, including chlorinated solvents in the groundwater attributed to a release from the dry-cleaning facility formally located at 5901 Eastern Avenue and petroleum hydrocarbon releases from three other nearby gas stations. Historical information is detailed in Section 1 of this report.

During the reporting period, routine Operation, Maintenance, and Monitoring (OMM) activities were performed related to the DPE remediation system in Area A, the ISGR remediation system in Area B, and the ORZ remediation system in Area C. Vapor mitigation systems (VMS) systems were monitored at three residential homes until the USEPA approved discontinuation of sampling in a letter dated January 9, 2014 (USEPA, 2014a). Routine monitoring in the form of groundwater gauging, groundwater sampling, and soil vapor sampling was performed. Routine monitoring activities are discussed in Section 2.

Chevron voluntarily performed additional activities to evaluate current risks and to support CM evaluations during the reporting period. In 2017, well GP-30A (now referred to as GP-30R) was over drilled and connected to the existing Area A DPE system, because it exhibited elevated concentrations of constituents of concern (COCs). An updated conceptual site model (CSM) was created based on a three-dimensional (3-D) CSM developed for the site using analytical, geospatial, and geological data. In 2017 and 2018, a study, which is referred to as the Pilot Rebound Evaluation in this report, was conducted in accordance with a technical memo (Arcadis, 2017a) and a Response to Comments Memo (Arcadis, 2017b) approved by the USEPA. The Pilot Rebound Evaluation was conducted to:

1) Collect new data to confirm that no potential vapor intrusion risks exist from petroleum-related compounds to commercial workers at the site.

2) Monitor for liquid-phase hydrocarbon (LPH) rebound while the DPE system is off and conduct additional characterization of LPH.

3) Evaluate if Natural Source Zone Depletion (NSZD), a combination of processes that reduce the LPH mass in the subsurface, is occurring.

4) Evaluate if natural attenuation is occurring and if biodegradation is contributing to natural attenuation.

The DPE system was subsequently turned off and was shut down from December 16, 2017 through March 1, 2018 to conduct the Pilot Rebound Evaluation. Section 2.2.5 of this report documents activities associated with the Pilot Rebound Evaluation.

With respect to the existing CMs, data presented in this report indicate the following:

- DPE operations in Area A since 2002 have mitigated downgradient LPH migration. Dissolved phase hydrocarbon plumes of COCs – benzene and methyl tert-butyl ether (MTBE) – are shrinking, as depicted in groundwater iso-concentration maps created using analytical results from the reporting period.
- The data since startup of the Area B ISGR remediation system and the Area C ORZ remediation system in August 2013 demonstrate that operation of these systems combined with natural attenuation effectively reduced benzene and MTBE concentrations in nearby wells and downgradient.

Detailed results of activities performed during the reporting period are summarized in Section 3. Section 4 assesses performance of the CMs over time and compares data to the media clean-up objectives identified in the USEPA approved 2007 Corrective Measures Study (Gannett Fleming, 2007) for separate areas, identified as Area A, Area B, Area C, Site-Wide Groundwater and Site-Wide Indoor Air below. Section 5 of this report includes conclusions and recommendations, including a summary of proposed CM(s).

The remainder of this executive summary presents the status of achievement of media clean-up objectives for each area, as defined in the 2007 Corrective Measures Study (Gannett Fleming, 2007). It also outlines the proposed CM(s). Findings from the routine monitoring and additional activities performed by Chevron during the reporting period have been included to support the data presented.

Area A

Two media clean-up objectives were developed for Area A in the 2007 Corrective Measures Study. To date, one objective has been achieved while the other objective has not yet been achieved because active remedial efforts are still occurring.

- The clean-up objective established to mitigate the potential inhalation risk to current and future commercial workers at the Service Station property that exceeds the Occupational Safety and Health Administration (OSHA) Permissible Exposure Levels (PELs) for an 8-hour work day (Gannett Fleming, 2007) has been achieved.
    - Vapor intrusion sampling was performed in 2017 and 2018, involving the collection of interior sub-slab soil gas samples and exterior soil gas samples. Vapor sample locations were biased toward areas exhibiting elevated groundwater concentrations of COCs in Area A. Conclusions reveal that site-related constituents were either not detected or were detected at concentrations below the applicable USEPA Vapor Intrusion Screening Levels (VISLs) in exterior soil gas samples. The concentrations were also below the OSHA PEL derived sub-slab soil gas screening values, which are higher/less stringent than the USEPA VISLs. These results indicate that concentrations of

site-related constituents would not be expected to migrate into a building at the site. No compounds were detected at concentrations greater than laboratory reporting limits in sub-slab soil gas samples collected from the beneath the slab of the on-site building, confirming that the vapor intrusion pathway is not a concern at the site.

- The clean-up objective to achieve no measurable LPH in monitoring wells in Area A for 1 year after active remedial efforts have been completed, as demonstrated by periodic monitoring of specified monitoring wells (Gannett Fleming, 2007), has not yet been achieved, as active remedial efforts are currently occurring. As defined in the 2007 Corrective Measures Report, measurable LPH is defined by the MDE Oil Control Program as a sheen (MDE, 2003) (0.01 feet as measured by an oil/water interface probe).
    - LPH was detected in one well, identified as MP-7, during the reporting period. LPH was detected in MP-7 during 7 out of 59 gauging events performed during this period. The recent LPH characterization testing performed as part of the Pilot Rebound Evaluation indicate that the LPH present in MP-7 is not practically recoverable and that the LPH plume is stable and not migrating.
    - Data presented in this report indicates that NSZD is occurring and the NSZD recovery rate currently is comparable to those achieved by the current DPE system.

Area B and Area C

With respect to Area B, one media clean-up objective was developed for Area B in the 2007 Corrective Measures Study (Gannett Fleming, 2007).

- The clean-up objective to achieve no measurable LPH in monitoring wells in Area B for 1 year after active remedial efforts have been completed has not yet been achieved, as active remedial efforts are currently occurring.
    - During the reporting period (January 18, 2013 through March 30, 2018), no measurable LPH was detected in monitoring wells in Area B; however, active remedial efforts are currently on-going in Area B.

The 2007 Corrective Measures Study did not distinguish Area C and, as such, media clean-up objectives were not established for this area in this report. Please refer to site-wide objectives discussed below.

Site-Wide Groundwater

Two media clean-up objectives were developed for site-wide groundwater in the 2007 Corrective Measures Study (Gannett Fleming, 2007). To date, one objective has been achieved while the other objective has not yet been achieved. Environmental regulations have changed with respect to the clean-up objective that has not yet been achieved.

- The clean-up objective established to demonstrate that the groundwater plume is stable, or decreasing has been achieved based on data from the reporting period and the conclusion that natural attenuation is occurring at the site and contributing to decreases in concentrations of COCs.
- The clean-up objective established to “Demonstrate that Washington, District of Columbia (D.C.) groundwater standards, equivalent to USEPA Maximum Contaminant Levels (MCLs) for potable water, are met at the site, where technically practicable” (Gannett Fleming, 2007) has not yet been achieved.

- Groundwater concentrations in site monitoring wells continue to exceed MCLs established by the USEPA for COCs. However, there has been a change in environmental regulations since issuance of the 2007 Corrective Measures Study. The District of Columbia Underground Storage Tank Regulations (Title 20, District Municipal Regulations) now include the District of Columbia Risk Based Corrective Action (DCRBCA) or Risk Based Decision Making (DCRBDM) process. This process can be used to develop site-specific risk-based screening levels (RBSLs) and site-specific target levels (SSTLs) for remediation. This approach is supported by the USEPA. The Washington, D.C. Department of Energy and the Environment (DOEE) and MDE allow for risk-based site closure under DCRBCA and the Maryland Environmental Assessment Technology for Leaking Underground Storage Tanks Guidance Document (MDE, 2003). Application of the MCLs per the Administrative Order on Consent to the site is a conservative remedial standard because groundwater is not currently being used in the area.
- Dissolved phase hydrocarbon plumes of COCs – benzene and MTBE – are shrinking, as depicted in groundwater iso-concentration maps created using analytical results from 2013 through 2018.

Wells MW-50 and MW-51 are excluded from the site-wide groundwater clean-up objective, because they are impacted by hydrocarbons from sources not related to the site (Gannett Fleming, 2007). Conclusions from the 3-D CSM indicate that benzene and MTBE groundwater impacts are not delineated upgradient of Area A, and dissolved phase impacts may be migrating from upgradient activities to the Chevron station as well as the eastern parking lot area and downgradient into site monitoring wells.

As part of this 5-Year CM Assessment Report, a site-wide evaluation was performed on a well-by-well basis according to the USEPA Recommended Approach for Evaluating Completion of Groundwater Restoration Remedial Actions at a Groundwater Monitoring Well (USEPA, 2014b). The USEPA guidance recommends an evaluation of COC concentrations on an individual well-by-well basis to assess completion of groundwater restoration remedial actions. The recommended statistical approach used for this evaluation provides robust support for an optimized groundwater monitoring program. The attainment evaluation results, along with conclusions from the 3-D CSM evaluation, were used to determine a final optimized monitoring program and proposed list of wells for abandonment, which are presented in Section 5.2.

Site-Wide Indoor Air

In terms of site-wide indoor air, based on data reviewed, there are no exceedances of the established indoor air standards for vapor intrusion. This clean-up objective has been achieved.

Proposed CMs

As part of this CM Five-Year Assessment Report, Chevron is requesting to select Monitored Natural Attenuation (MNA) and NSZD as the site-wide CMs based on the rationale presented in the bullet points below. The existing Area A DPE system, Area B ISGR remediation system, and Area C ORZ remediation system will be left in place until MNA and NSZD are implemented per an MNA and NSZD Work Plan to be submitted to USEPA.

- As documented in the 2007 Corrective Measures Study (Gannett Fleming, 2007), the USEPA-approved risk assessment indicated that risks for all pathways and receptors outside the Service

Station property are within or below USEPA-accepted ranges. This off-site exposure pathway is now closed, and there are no risks posed to current or future residents.

- New vapor data confirms that there is no vapor intrusion risk from petroleum compounds to workers at the gas station. This on-site exposure pathway is closed, and there are no risks posed to current or future commercial workers.
- As documented in this report, NSZD is occurring and the NSZD recovery rate currently is comparable to those achieved by the current DPE system. LPH exists in only one monitoring well, well MP-7 (located in Maryland). The LPH is not migrating and is not practically recoverable.
- Natural attenuation is concluded to be occurring and contributing to decreases in concentrations of COCs. Based on data presented in this report, MNA is a viable remedial alternative for the benzene and MTBE groundwater plumes. Site geochemical conditions are conducive to biodegradation of both benzene and MTBE.

As part of this CM Five-Year Assessment Report, Chevron is requesting modification or termination of the Order to allow risk-based closure and risk-based cleanup standards, consistent with USEPA, Washington, D.C., and Maryland regulations. At the time the Corrective Measures Study was issued in 2007, groundwater standards in Washington, D.C. were equivalent to USEPA MCLs for potable water as promulgated under 21 District of Columbia Municipal Regulations (DCMR) Section 1155 (Gannett Fleming, 2007). Use of the MCLs as the groundwater cleanup objective in the 2007 Corrective Measures Study was required by USEPA and Washington, D.C regulators (Gannett Fleming, 2007). However, the environmental agency for Washington, D.C., the DOEE, currently allows for risk-based site closure using their DCRBCA process. MDE and USEPA also allow for risk-based closure. Application of the MCLs per the Order is a conservative remedial standard that is not appropriate because groundwater is not being utilized as a drinking water source in the area, and risk-based cleanup standards are more appropriate given that USEPA, Washington DC and Maryland regulations allow for risk-based closure.

1 INTRODUCTION

Pursuant to the United States Environmental Protection Agency (USEPA) Administrative Order on Consent (Order), Docket Number RCRA-03-2008-0355TH, Chevron Environmental Management Company (Chevron) is conducting remedial activities at, and adjacent to, the former Chevron Service Station (Facility No. 122208) located at 5801 Riggs Road, Chillum, Maryland (the site). In accordance with Section VI, Paragraph E, subsection 2(d) of the Order, Arcadis on behalf of Chevron has prepared this Corrective Measures (CM) 5-Year Assessment Report to describe actions taken by Chevron pursuant to the Order. The reporting period for this report is from January 18, 2013 through March 30, 2018; January 18, 2013 was the submittal date of the CM Initial Assessment Report for Area A to USEPA.

1.1 Report Objectives

Pursuant to the Order, this CM 5-Year Assessment Report contains an evaluation of past and projected future effectiveness of the CMs, including the removal and containment of contaminated groundwater, the removal of the contaminants from the subsurface to attain the media cleanup standards, and the effectiveness of any vapor mitigation systems (VMS) installed in accordance with an USEPA-approved Interim Measures Work Plan.

As part of this CM Five-Year Assessment Report, Chevron is requesting to select MNA and NSZD as the CMs site-wide based on the rationale presented in Section 5. Chevron is also requesting modification and/or termination of the Order to allow risk-based closure and risk-based cleanup standards, consistent with USEPA, Washington, D.C., and Maryland regulations. Details are presented in Section 5 of this report.

The remainder of this report provides information on the following:

- Section 2.0 – A summary of Corrective Measure Implementation Activities performed during the period
- Section 3.0 – A summary of Corrective Measure Implementation Results
- Section 4.0 – Corrective Measures OMM Evaluation for the Area A, Area B, and Area C systems
- Section 5.0 – Conclusions and Recommendations, including a summary of any Alternative Corrective Measure(s) proposed
- Section 6.0 – References

1.2 Site Location and Operational History

The site is located at 5801 Riggs Road, Chillum, Prince George's County, Maryland (**Figure 1**). The site is a retail gasoline service station located at the eastern corner of the intersection of Eastern Avenue, N.E., and Riggs Road. A site map showing the parcel features is provided as **Figure 2**. The southern property line of the site abuts the boundary between Prince George's County, Maryland and Washington, District of Columbia (D.C.). The state boundary line is oriented parallel to the northeastern right-of-way line of Eastern Avenue, N.E. near the site, with land to the north being the property of Maryland and land to the south (including Eastern Avenue, N.E.) being the property of Washington, D.C.

Gulf Oil Corporation constructed the service station in the early 1950s and began operation of the station in approximately 1954 (USEPA, 2007). Gulf Oil Corporation was incorporated with Standard Oil Company in 1985 and was restructured as Chevron. Chevron owned the service station until 1993, when it was sold to the then lessee (USEPA, 2007). The property was subsequently sold again to Riggs Road Sunoco LLC in 2009, which is the entity that currently owns the site. Historic and current operations at the site include the sale of petroleum products and automotive repair and service. As further discussed below, the site is currently branded as a Shell Station and Convenience Store.

The dominant land use near the site includes light commercial and medium- to high-density residential. Land use to the north and east of the site in Maryland includes a shopping plaza, a laundromat that formally operated as a dry-cleaner (5901 Eastern Avenue), three other service stations, small businesses, and residential properties (**Figure 3**). Land use to the southwest of the site in Washington, D.C. includes residential properties, a church, an elementary school, and a recreational center.

As documented in the Semi-Annual Progress Report dated January 2017 submitted to USEPA by Chevron, beginning in August 2016, the on-site service station was rebranded to a Shell station and upgrades that included replacement of the existing fuel dispensers were performed by contractors for the property owner. Additional details and observations related to station rebranding are provided in Section 2.2.4 of this report.

1.3 Environmental History

1.3.1 Release History

Chevron reported a release to the Maryland Department of the Environment (MDE) on October 2, 1989, after the supreme unleaded gasoline line failed a tightness test (Gannett Fleming, 2006), subsequently opening MDE Case No. 90-0629PG. The testing was conducted pursuant to a vehicle accident that damaged a fuel dispenser. The volume of the release is unknown. Following the 1989 release, the MDE was the lead regulatory agency overseeing investigation and remediation activities.

A comprehensive soil, groundwater, soil vapor, and ambient air investigation was conducted in the residential neighborhood adjacent to the service station property during the period from September 2001 through December 2002. Based on these activities and the results, the USEPA took over as the lead regulatory agency in 2001. Additional soil vapor, ambient air, and groundwater samples were collected in the neighborhood during the period from February to June 2004. A comprehensive Site Investigation Report was submitted to USEPA in 2006, which summarized all data collected at the site (Gannett Fleming, 2006). A baseline human health risk assessment (RAM Group, 2007) and Corrective Measures Study (Gannett Fleming, 2007) were submitted to USEPA in 2007.

USEPA issued a Statement of Basis in August 2007 (USEPA, 2007) for public comment. The Final Decision and Response to Comments (FDRTC) (USEPA, 2008a) was released in April 2008. The FDRTC provided responses to public comments and provided the remedies to be implemented at the site. The Order became effective on January 19, 2009. Activities performed since issuance of the 2009 Order are summarized in Section 1.3.3 of this report.

There are three areas where remediation is occurring.

- Area A encompasses the former Chevron service station at 5801 Riggs Road, the existing DPE remediation system compound adjacent to the service station, and the Riggs Plaza shopping center parking lot near the intersection of Eastern Avenue and Riggs Road in Chillum, Maryland. A DPE remediation system operates in Area A, consisting of total fluids extraction and treatment as well as SVE and treatment.
- Area B is located in the alley between Oglethorpe Street, N.E. and Eastern Avenue, N.E., in Washington, D.C. (Oglethorpe Alley). The Area B remediation system consists of two in-situ groundwater remediation (ISGR) wells (ISGR-1 and ISGR-2) that are installed in the Oglethorpe Alley.
- Area C is located in the alley between Oglethorpe and Nicholson Streets, N.E., in Washington, D.C. (Nicholson Alley). The Area C remediation system consists of an oxygen reactive zone (ORZ) that utilizes five oxygen injection wells (IW-1 through IW-5).

Additional details on the Area A, Area B and Area C remediation systems are presented in Section 2.

1.3.1.1 Offsite Releases Attributed to Other Parties

1.3.1.1.1 Chlorinated Solvents

USEPA investigated chlorinated solvents in groundwater in the form of perchloroethylene (PCE), trichloroethylene (TCE), and cis-1,2-dichloroethylene (DCE) attributed to a release from the dry-cleaning facility formally located at 5901 Eastern Avenue (**Figure 3**). Investigations performed in 2001 and 2002 revealed that chlorinated solvents were present in groundwater at elevated concentrations, which led to USEPA's involvement (Gannett Fleming, 2006). USEPA has determined that chlorinated solvents are associated with the former dry cleaner that operated at 5901 Eastern Avenue and are not related to the former Chevron facility (USEPA, 2018). Therefore, chlorinated solvents are not considered COCs with respect to the Chevron site.

1.3.1.1.2 Offsite Petroleum Hydrocarbon Releases

As documented in the Site Investigation Report prepared by Gannett Fleming dated June 2006 (Gannett Fleming, 2006), during the execution of Site Investigation Work Plan Supplement 1, it was determined that another source had contributed petroleum hydrocarbons to the groundwater beneath the southeastern portion of the Riggs Plaza parking lot, the parking lot adjacent to the Chevron site at 5801 Riggs Road (Gannett Fleming, 2006). MDE was notified and subsequently oversaw investigations at three other service stations. MDE opened new case numbers for each of the facilities, including a former Exxon station, a dealer-owned Chevron station, and a BP-Amoco station (**Figure 3**). The following text is provided based on information documented in the 2006 Site Investigation Report as well as a recent review of files available through the MDE Public Information Act.

- The former Exxon service station is located at 900 Chillum Road. This site currently operates as a 7-Eleven convenience store. The underground storage tanks (USTs) were removed from this facility in 2001 (Gannett Fleming, 2006). A review of the files indicates historic soil and groundwater

exceedances. Elevated concentrations of petroleum hydrocarbons in groundwater, specifically in the form of benzene, toluene, and ethylbenzene, were reported at concentrations exceeding MDE Clean-up Standards during the January 11, 2005 sampling event. Groundwater flow during this event was depicted to the southeast. Downgradient monitoring well MW-8, which was located at the Merchant Tire property (909 Chillum Road), reported no exceedances of COCs during the January 11, 2005 event (Geologic Services Corp., 2005a). On July 19, 2005, a request for case closure was submitted to MDE; the highest concentrations of volatile organic compounds (VOCs) were detected adjacent to the former the pump island on the north side of the site. Soil borings and monitoring wells installed downgradient at 909 Chillum Road (Merchant Tire) show minimal concentrations of VOCs (Geologic Services Corp., 2005b). On August 3, 2005, MDE accepted the request to close Case No. 2005-0186 PG2.

- The dealer-owned (Cha's) Chevron station is an active facility located at 5818 Riggs Road. It should be noted that Chevron does not own this station. The facility currently operates as a BP service station. Based on a review of files for Case No. 05-0182PG, soil and groundwater sampling programs were conducted, and MDE conducted a compliance inspection of the facility. No evidence of a current release was noted by MDE (Gannett Fleming, 2006). The MDE case for this facility remains open, although recent activity has not occurred based on files reviewed.
- The third case opened by MDE was for the former BP-Amoco station located at 5851 Riggs Road. The facility currently operates as a US Gas service station. Dissolved phase petroleum hydrocarbons were delineated to the property line and it was determined that dissolved phase petroleum hydrocarbons extended off-site, downgradient of the station (Gannett Fleming, 2006). Groundwater flow direction has historically been identified to the south-southeast, toward Riggs Plaza parking lot, the parking lot adjacent to the Chevron site at 5801 Riggs Road. Elevated concentrations of benzene, toluene, ethylbenzene, and total xylenes (collectively known as BTEX), methyl tert-butyl ether (MTBE), Total Petroleum Hydrocarbons – Gasoline Range Organics (TPH-GRO) and Total Petroleum Hydrocarbons – Diesel Range Organics (TPH-DRO) have been historically detected in monitoring wells associated with the former BP-Amoco station. During the most recent groundwater sampling event conducted on September 23, 2015, dissolved phase petroleum hydrocarbons in the form of benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-GRO and TPH-DRO were reported at concentrations as high as 18,000 micrograms per liter (µg/L), 25,000 µg/L, 2,000 µg/L, 11,000 µg/L, 21,000 µg/L, 130,000 µg/L, and 56,000 µg/L, respectively (AnteaGroup, 2015). Recoverable liquid-phase hydrocarbons (LPH) was historically been detected in monitoring well MW-07 from 2006 to 2013 at the highest thickness of 5.21 feet. LPH has not been detected since 2013, when MW-07 was over drilled and reinstalled to determine if the occurrence of LPH observed was due to the LPH being trapped in the filter pack, rather than being representative of surrounding groundwater conditions (AnteaGroup, 2013). On December 2, 2015, a request for case closure was submitted to MDE. Based on the results of a sensitive receptor survey, the lack of measurable LPH observed in site monitoring wells since June 2013, and the reduction of the onsite dissolved phase hydrocarbon plume by remedial activities completed since June 2005, residual hydrocarbon impact at the site was determined to not pose a threat to human health or the environment (AnteaGroup, 2015). Therefore, Case No. 02-0851-PG2 was closed by MDE.

1.3.2 Underground Storage Tank History

According to the MDE Oil Control Program – UST Facility Summary available via the MDE website (http://mes-mde.mde.state.md.us/FacilitySummary/default.aspx) for Facility #13653, 5801 Riggs Road, six 4,000-gallon bare steel USTs containing gasoline were installed at the facility in May of 1974. The six 4,000-gallon USTs were removed from the site at an unknown date and declared permanently out of use (MDE, 2018). No additional information was found regarding the six historical 4,000-gallon gasoline tanks. Historic UST locations are depicted on **Figure 2**.

In September 1983, one 1,000-gallon heating oil UST constructed of fiberglass with reinforced plastic was installed at the site. In 1987, one 10,000-gallon diesel UST, two 10,000-gallon gasohol (a mixture of gasoline and ethanol) USTs, and one 1,000-gallon used oil UST were installed; the 1987 USTs were all installed as fiberglass tanks reinforced with plastic (MDE, 2018). The 1,000-gallon heating oil UST and 1,000-gallon used oil UST (**Figure 2**) were removed from the site in February 2009 (Gannett Fleming, 2003a). During their removal on February 3, 2009 (MDE, 2009), one groundwater and four soil samples were collected from the tank excavations at approximately 8 feet below ground surface (bgs) and analyzed for TPH-DRO and TPH-GRO via USEPA Method 8015B and VOCs by USEPA Method 8260. Additionally, soil samples collected from the used oil tank excavation were collected for semi-volatile organic compound (SVOC) analysis by USEPA Method 8270 and metals by Toxicity Characteristic Leaching Procedure (TCLP) by USEPA Method 1311. Results indicated concentrations of TPH-DRO above MDE's groundwater and non-residential soil cleanup standards. Based on the MDE Site Status Letter dated March 19, 2009, the MDE Oil Control Program does not require further corrective action due to ongoing remediation efforts at the site and as long as the contamination poses no threat to human health or the environment (MDE, 2009).

Additional historical site features include two former service bays within the existing building. Current site features include two pump islands with five dispensers, a one-story building with convenience store, and the three active USTs. The USTs are located in a common tank field and include the aforementioned two 10,000-gallon unleaded gasoline/gasohol tanks and one 10,000-gallon diesel fuel tank (Gannett Fleming, 2006b).

Historic and current UST locations are depicted on **Figure 2**.

1.3.3 Key Activities Performed Since the Order

Since the January 2009 Order became effective, the following activities have been performed in accordance with the final remedy:

1. The existing groundwater remediation system in Maryland (Area A system) has continued to operate.
2. In June 2012, the existing Area A remediation system in Maryland was expanded by installing an angle recovery well under Eastern Avenue into Washington, D.C. Details were presented in the Corrective Measures Construction Report submitted by Chevron to USEPA dated July 2012.
3. As documented in the 2007 Corrective Measures Study (Gannett Fleming, 2007), the USEPA-approved risk assessment indicated that risks for all pathways and receptors outside the Service Station property are within or below USEPA-accepted ranges. Historically Chevron conducted indoor air sampling to evaluate petroleum-related COCs at several homes overlying areas of shallow

petroleum concentrations. USEPA subsequently required Chevron to install and monitor three vapor mitigation systems located at 746 Oglethorpe Street, 5818 Eastern Avenue, and 5824 Eastern Avenue in Washington, D.C. As documented in further detail in Section 3.2.1.5 of this report, USEPA approved termination of Chevron operation and monitoring of the three systems in 2014 based on information provided by Chevron indicating operation of the vapor mitigation systems is no longer necessary to protect human health (USEPA, 2014a). This offsite exposure pathway is now closed.

4. In 2013, an independent remediation system (Area B system) was installed, and system operations were initiated on the Washington D.C. side of Eastern Avenue. Details were presented in the Corrective Measures Implementation Construction Completion Report for Area B: In-Situ Groundwater Remediation System submitted by Chevron to USEPA in June 2013. System details and activities performed in Area B during the reporting period are presented in Section 2 of this report. Section 3 presents results of data collected during the reporting period. An evaluation of the Area B system is presented in Section 4. This remediation system continues to operate.

5. In 2013, an oxygen curtain (Area C system) was installed above Nicholson Street to speed the natural degradation of the groundwater plume. Details were presented in the Corrective Measures Construction Completion Report for Area C: Oxygen Reactive Zone submitted by Chevron to USEPA in June 2013. System details and activities performed in Area C during the reporting period are presented in Section 2 of this report. Section 3 presents results of data collected during the reporting period. An evaluation of the Area C system is presented in Section 4. This remediation system continues to operate.

Chevron conducted additional activities during the 5-year CM timeframe, as outlined and detailed in this report. These activities include: over drilling and connection of GP-30R to the existing Area A DPE system, Area A vapor intrusion investigation, site-wide MNA evaluation, Area A NSZD evaluation, and site-wide updated conceptual site model. Details of these additional activities are presented in Section 2 of this report and results are presented in Section 3.

1.4 Regulatory Status

Following the 1989 release reported, the MDE was the lead regulatory agency overseeing investigation and remediation activities. In September 2001, Chevron initiated additional investigations to evaluate soil and groundwater conditions on the south side of Eastern Avenue, N.E., located to the southwest of the site. Further, Chevron conducted more extensive investigations onsite and in the offsite residential neighborhood in Washington, D.C. located to the southwest of the site from September 2001 through December 2002. Based on these activities and the results, the USEPA took over as the lead regulatory agency in 2001. However, the release at the site also has active case numbers in Maryland (case 90-0629PG) and Washington, D.C. (case #2001-071), and the respective agencies that manage these cases, MDE and the Department of Energy and Environment (DOEE), remain actively involved.

2 CORRECTIVE MEASURE IMPLEMENTATION ACTIVITIES

Per the Order, this section includes a narrative summary of principal activities conducted during the reporting period, including site monitoring and Operation, Maintenance, and Monitoring (OMM), as well as a schedule of sampling and field activities performed. Section 2.1 presents a summary of activities performed related to the remediation systems in Area A, Area B and Area C, as well as routine monitoring in the form of groundwater gauging, groundwater sampling and soil vapor sampling. Section 2.2 presents a summary of additional activities performed during the 5-year CM timeframe. These activities include: VMS sampling, over drilling and connection of GP-30R to the existing Area A DPE system, Area A vapor intrusion investigation, site-wide MNA evaluation, Area A NSZD evaluation, and site-wide updated conceptual site model. Details of these activities, including procedures and methodologies, are presented in Section 2. Results are presented in Section 3.

2.1 Operation, Maintenance, and Monitoring

2.1.1 Overview of Current Remedial Systems

The piping and instrumentation diagrams for the Area A, Area B and Area C systems, provided as **Appendix A, Appendix B** and **Appendix C**, respectively, provide specific system information, such as equipment models and sizes, piping sizes, controls, and other technical information.

2.1.1.1 Area A Dual Phase Extraction System

The DPE system has been operating at this active service station site since 1995 to address LPH recurrence, dissolved phase hydrocarbon concentrations and potential human health risks.

Area A encompasses the former Chevron service station, the existing remediation system compound adjacent to the service station, and the shopping center parking lot near the intersection of Eastern Avenue and Riggs Road in Chillum, Maryland. Duplex residential homes are present southwest of Area A, and land use is generally commercial in all other directions. The DPE System consists of total fluids extraction and treatment as well as SVE and treatment.

Total fluids (i.e., groundwater and LPH, if present) pumps are installed in 12 DPE wells (RW 1, RW 2, RW 3, RW 4, RW 5 (Angle Well), MW 7, MW 17, MW 22R, GP 27R, GP 39R, PTW B, and GP-30R). Total fluids are pumped from the wells through buried piping to the total fluids manifold located in the remediation system trailer. The total fluids manifold leads to a coalescing-type oil/water separator. Level sensors in the oil/water separator control a centrifugal pump that intermittently transfers the water to an air stripper. LPH accumulate in the separator and are manually skimmed off on a periodic basis (if present). Effluent air from the air stripper is treated using two vapor phase granular activated carbon (GAC) vessels in series and then discharged to the atmosphere in accordance with MDE Air Quality General Permit to Construct for Groundwater Air Stripping, Identification No. 033-9-1160. Treated water from the air stripper is pumped through three parallel bag filters and then through two liquid phase GAC vessels in series. The treated effluent flows through a buried pipe to a storm drain inlet located in Riggs Road near the intersection at Eastern Avenue, N.E. in accordance with MDE General Discharge Permit No. 18OGR-8514 (National Pollutant Discharge Elimination System [NPDES] Permit No. MDG918514).

SVE is conducted at 13 wells (i.e., the 12 DPE wells plus MP-7). An individual piping leg runs from each well to a common 3-inch manifold in the remediation system trailer. The manifold leads to a moisture knockout tank and then to the blower. The blower is a rotary lobe, positive displacement blower controlled by a variable frequency drive. Soil vapor is conveyed from the blower to a catalytic oxidizer for treatment. Treated air is discharged to the atmosphere in accordance with MDE Air Quality General Permit to Construct for Soil Vapor Extraction Equipment, Identification No. 033 9 1164. Water collected in the knockout tank is pumped to the oil/water separator for treatment.

2.1.1.2 Area B In-Situ Groundwater Remediation Wells

In 2013, an independent remediation system was installed, and system operations were initiated on the Washington, D.C. side of Eastern Avenue. Area B is located in the alley between Oglethorpe Street and Eastern Avenue, N.E., in Washington, D.C. (Oglethorpe Alley). The area surrounding Area B is residential, with brick duplexes and triplexes lining Oglethorpe Street and Eastern Avenue.

The Area B system consists of two ISGR wells (ISGR-1 and ISGR-2) that are installed in the Oglethorpe Alley forming a transect along the alley. ISGR-1 and ISGR-2 were started on August 28, 2013. The objective of the ISGR wells is to remove dissolved hydrocarbon mass from groundwater in Area B by adsorption to liquid phase GAC.

For each ISGR well, water enters the shallow aquifer inlet screen, which is placed at an appropriate depth to intersect dissolved hydrocarbons and is pumped through liquid phase GAC to remove hydrocarbons to non-detect levels. The treated water is released by gravity to the deep aquifer through an outlet screen in the same well. The targeted pumping rate of each well is 1 to 2 gallons per minute (gpm), depending on aquifer response.

The submersible pump is operated by a control panel mounted on a base with the electrical power (utility) meter. The pump is driven by a controller, which controls the speed of the pump depending on observed system performance and operator input. The pumping rate can be adjusted over a range of approximately 1 to 10 gpm.

2.1.1.3 Area C Oxygen Reactive Zone

In 2013, an oxygen curtain was installed to speed the natural degradation of the groundwater plume. Area C is located in the alley between Oglethorpe and Nicholson Streets, N.E., in Washington, D.C. (Nicholson Alley). The area surrounding Area C is residential, with brick duplexes and triplexes lining Nicholson and Oglethorpe Streets.

The objective of the ORZ is to increase the concentration of dissolved oxygen (DO) in the subsurface of the Nicholson Alley to stimulate the growth of native microbes that use oxygen to degrade dissolved petroleum hydrocarbons. The intent of the system is the reduction of dissolved hydrocarbons downgradient of Area C through the biotransformation of dissolved hydrocarbons by aerobic microbes. The Area C ORZ system was started on August 29, 2013.

Five oxygen injection wells (IW-1 through IW-5) are installed in the Nicholson Alley. The locations of the wells and vertical positions of the well screens correspond to the areas of highest petroleum hydrocarbon concentrations as determined from previous site investigation activities. Oxygen hoses are routed in and

out of each well vault through polyvinyl chloride inlet and outlet conduits. An oxygen emitter is installed in each injection well within the screened interval of the wells.

Oxygen is supplied to the oxygen emitters by an oxygen cylinder housed in a permit required confined space pre-cast concrete vault installed below grade in the Nicholson Alley. The vault is located in line with, and centered between, injection wells IW-1 and IW-2 and is equipped with a floor sump with level sensor, a passive ventilation system, and a continuous monitoring oxygen detector to monitor for oxygen leakage.

2.1.2 Schedule Summary of OMM Activities

For proper operation of the remediation systems, both routine and non-routine maintenance activities were conducted during the reporting period. This section describes the frequency at which routine and non-routine tasks were completed for the remediation systems in Area A, Area B and Area C. This section also presents a schedule summary for routine monitoring in the form of groundwater gauging, groundwater sampling and soil vapor sampling.

The System Operators performed routine maintenance and upkeep on the Area A, Area B and Area C remediation system as required. System deficiencies observed during monitoring/inspection activities were repaired immediately. System Operators only self-performed the routine maintenance activities that they were qualified to perform. For routine maintenance tasks that required more in-depth knowledge or were recommended to be performed by a subject matter expert, a manufacturer representative or recommended qualified contractor was deployed to the site to perform the maintenance.

2.1.2.1 Area A OMM Schedule Summary

2.1.2.1.1 Routine OMM Activities

Weekly, monthly, quarterly, and semi-annual routine OMM was performed as specified or as needed during the reporting period. **Table D-1** in **Appendix D** provides an overall summary of OMM activities for Area A. **Table D-2, Table D-3, Table D-4** and **Table D-5** in **Appendix D**, provide a summary of routine OMM activities performed weekly, monthly, quarterly, and semi-annual, respectively, to operate and maintain equipment and an approximate schedule.

Routine OMM site visits to record measurements and collect samples were performed every other week (twice per month) during the reporting period. This frequency is based on MDE General Discharge Permit/NPDES permit requirements to collect two effluent samples per month for an Area A effluent flow of less than 500,000 gallons per month to the municipal storm drain.

2.1.2.1.2 Non-Routine OMM Activities

A description of the major non-routine maintenance activities performed at Area A during the reporting period is provided in **Table D-6** in **Appendix D**.

2.1.2.2 Area B OMM Schedule Summary

2.1.2.2.1 Routine OMM Activities

Routine maintenance was performed as specified or as needed during the reporting period. A summary of routine OMM activities that were conducted to operate and maintain equipment and an approximate schedule are provided in **Table E-1** provided in **Appendix E**.

2.1.2.2.2 Non-Routine OMM Activities

A description of the major non-routine maintenance activities performed at Area B during the reporting period is provided in **Table E-2** in **Appendix E**.

2.1.2.3 Area C OMM Schedule Summary

2.1.2.3.1 Routine OMM Activities

Routine maintenance was performed as specified or as needed during the reporting period. A summary of routine OMM activities that were conducted to operate and maintain equipment and an approximate schedule are provided in **Table F-1** provided in **Appendix F**.

2.1.2.3.2 Non-Routine OMM Activities

A description of the major non-routine maintenance activities performed at Area C during the reporting period is provided in **Table F-2** in **Appendix F**.

2.1.2.4 Groundwater Gauging and Sampling Schedule Summary

In a letter dated August 21, 2014, Arcadis, on behalf of Chevron, submitted a request to the USEPA for modification of the approved site groundwater sampling plan. The letter proposed a reduction in the number of wells sampled, a modification to the frequency of sampling for specific wells and compared groundwater quality data to Maximum Contaminant Levels (MCLs) established for the site. The review also considered the location and usefulness of related monitoring wells with respect to future plume modeling. In a letter dated September 2, 2014 (USEPA, 2014c), the USEPA approved the proposed modification to the site groundwater sampling plan.

The USEPA-approved Interim Monitoring Sampling Plan calls for monthly gauging of ten monitoring wells (GP-27R, GP-30A, GP-35A, MP-7, MW-7, MW-16, MW-18, MW-22R, MW-24A, and RW-4), semi-annual gauging of all monitoring wells, semi-annual sampling of 41 monitoring wells, and annual sampling of 27 monitoring wells. **Table 1** provides a summary of the approved groundwater gauging and sampling plan. **Table 2** provides a summary of well construction details. A comprehensive map showing well sampling locations is provided as **Figure 4**.

2.1.2.5 Vapor Sampling Schedule Summary

The USEPA-approved Interim Monitoring Sampling Plan also calls for semi-annual sampling of the four soil vapor wells (VW-01, VW-02, VW-03, and VW-04). **Table 1** provides a summary of the approved soil

vapor sampling plan. **Table 2** provides a summary of well construction details. A comprehensive map showing vapor sampling locations is provided as **Figure 4**.

2.1.3 Procedure and Methodology Summary of OMM Activities

2.1.3.1 Area A OMM Activities and Procedures

2.1.3.1.1 Operation

Standard Operating Procedures (SOPs) are in place for Area A DPE system activities, including the general procedures listed below; SOPs are included in the OMM manual for the system. Due to document size, these SOPS are not included in this report. These files are available upon request.

- Pre-System Start-Up
- Initial System Start-Up Procedure
- System Start-Up After an Alarm
- Routine System Start-Up
- Soil Vapor Extraction System Start-Up While Groundwater Extraction (GWE) System is Running
- System Shut Down Procedures

2.1.3.1.2 Maintenance

Routine maintenance conducted at the Area A DPE system during the reporting period included checking the oil level of the SVE blower and air compressor, draining the air compressor, changing the bag filters, backwashing the carbon units, and skimming off LPH in the oil/water separator, if present. Routine OMM activities that were conducted to operate and maintain equipment and an approximate schedule are provided as **Tables D-1 through D-5** in **Appendix D**.

SOPs for routine maintenance tasks are included in the OMM manual, and are listed below:

- SOP 8: Bag Filter Change-Out
- SOP 9: Compressor Oil Change
- SOP10: Blower Oil Change
- SOP 11: Pneumatic Pump Cleaning
- SOP 12: Oil / Water Separator Cleaning
- SOP 13: Air Stripper Cleaning
- SOP 15: Carbon Backwash

SOPs for non-routine maintenance tasks are included in the OMM manual, and are listed below:

- SOP 14: Carbons Change-Out
- SOP 17: Angle Well Pump Removal and Re-Installation
- SOP 20: Knock-Out Tank Transfer Pump Replacement
- SOP 22: SVE Blower Motor Change-Out

Due to document size, these SOPS are not included in this report. These files are available upon request.

2.1.3.1.3 Monitoring

Routine monitoring for the DPE system includes the following activities:

- Recording groundwater and air flow rates
- Measuring air influent and effluent concentrations using a flame ionization detector (FID)
- Recording the manifold vacuum for the SVE system
- Recording GWE system bag filter and air stripper differential pressure
- Recording GWE system carbon influent pressures
- Recording the SVE hour meter
- Recording catalytic oxidizer temperatures
- Recording vacuum readings

Data for the total fluids extraction portion of the DPE system is provided in **Appendix G**, including a summary of operating data provided as **Table G-1**. Data for the SVE portion of the DPE system is provided in **Appendix H**, including a summary of operating data provided as **Table H-1**.

The total fluids influent (SP-1) was sampled 55 times and the treated effluent (SP-3) was sampled 119 times for laboratory analysis during the reporting period (**Tables G-2** and **G-3**, respectively, **Appendix G**). Treated effluent samples were analyzed by USEPA Method 8260 for BTEX, MTBE, naphthalene, PCE, TCE, and cis-1,2-DCE. Treated effluent samples were also analyzed by USEPA Method 8015 for TPH-GRO. The discharge permit limits are 100 µg/L for total BTEX, 5 µg/L for benzene, and 15 milligrams per liter (mg/L) for TPH-GRO. The discharge permit requires reporting of MTBE, naphthalene, PCE, TCE, and cis-1,2-DCE concentrations without established limits. Results are documented in Section 3 of this report.

On May 10, 2016, Arcadis on behalf of Chevron submitted a request to MDE Waste Management Administration to discontinue the requirement to analyze for and report on chlorinated solvents in the quarterly Discharge Monitoring Report, given that they are not facility-related contaminants and because analytical results of system performance groundwater samples collected since July of 2013 have demonstrated limited to no concentrations of these constituents in the system influent. A second request was submitted to MDE Waste Management Administration on November 16, 2016. A third request was submitted to MDE Environmental Permits Service Center on December 11, 2017. On December 12, 2017, the MDE granted approval to discontinue analyzing for PCE, TCE, and cis-1,2-DCE.

The air stripper vapor phase GAC influent (SP-50) air was sampled 44 times and the air stripper vapor phase GAC effluent (SP-52) air was sampled 47 times for laboratory analysis during the reporting period (**Tables G-4** and **G-5**, respectively, **Appendix G**). Samples were analyzed for BTEX, MTBE, and total recoverable petroleum hydrocarbons (TRPH), reported as GRO in the C4 to C10 range, using USEPA Method TO-15. The air stripper permit discharge limits are 20 pounds of VOCs per day and 0.02 pounds of benzene per hour. Results are documented in Section 3 of this report.

The SVE system influent (SP-100) air was sampled 51 times and the SVE treated effluent (SP-200) air was sampled 50 times for laboratory analysis during the reporting period (**Tables H-2** and **H-3**, respectively, **Appendix H**) to document compliance with the air discharge permit. The treated effluent air sampling port is located in the catalytic oxidizer effluent stack before discharge to the atmosphere. Samples were analyzed for BTEX, MTBE, and TRPH, reported as GRO in the C4 to C10 range, using USEPA Method TO-15. The SVE system permit discharge limits are 20 pounds of VOCs per day and 0.02 pounds of benzene per hour. Results are documented in Section 3 of this report.

2.1.3.1.4 Area A System Optimization

As documented in the USEPA-approved document “Corrective Measures Study” (Gannett Fleming, 2007), the expanded DPE system was expected to achieve optimal mass recovery rates during the initial stage of operation (i.e., first 6 months to 1 year). After this initial operation period, optimization of the DPE System would be required to maximize mass recovery.

A short-term operating plan for the Area A DPE system has been approved by USEPA, as documented in the Area A System Operating Plan Technical Memo (Arcadis, 2017a) and Response to Comments to Area A System Operating Plan Technical Memo (Arcadis, 2017b) submitted by Chevron. The objective of the short-term plan is to document that the system has achieved asymptotic mass recovery conditions for each well and that efforts to increase the applied vacuum do not result in increased mass recovery. Specifically, targeted vapor extraction methodology has been implemented to increase the vacuum applied to select SVE wells, starting with the SVE wells that demonstrate the highest dissolved phase groundwater concentrations. Once asymptotic mass recovery has been documented for the targeted wells, vapor extraction from that set of wells will cease and targeted vapor extraction will be focused on another set of extraction wells that exceed groundwater remedial objectives. Throughout this process, groundwater extraction and treatment will continue for all system wells to continue to depress the water table. The short-term plan is consistent with plans outlined in the 2007 Corrective Measures Report, which stated that the DPE system would be optimized to maximize mass recovery until asymptotic recovery is reached.

2.1.3.2 Area B OMM Activities and Procedures

2.1.3.2.1 Operation

SOPs are in place for Area B system activities, including the general procedures listed below; SOPs are included in the OMM manual for the system. Due to document size, these SOPs are not included in this report. These files are available upon request.

- Pre-Startup Procedure
- Initial and Routine System Startup Procedure
- System Shut Down Procedures

2.1.3.2.2 Maintenance

Routine maintenance includes checking and changing cartridge filters and checking the top of the carbon for fouling and fouled carbon removal (top few inches) as needed. Non-routine maintenance activities, including pump maintenance, carbon replacement, and replacement/repair of system components, are performed as needed. SOPs for non-routine maintenance task are included in the OMM manual, and are listed below:

- SOP 4: Inlet Filter Removal
- SOP 5: Pump Removal / Cleaning

Due to document size, these SOPs are not included in this report. These files are available upon request.

2.1.3.2.3 Monitoring

Routine monitoring for the ISGR wells included the following activities:

- Recording the hour meter
- Recording total volume pumped and the system flow rate
- Recording influent pressure
- Recording the pump set point, temperature, speed, power input, power consumption, operating hours, and starts

A table summarizing Area B system performance is provided as **Table I-1** in **Appendix I**. Liquid phase GAC performance samples were routinely collected during the reporting period. **Table I-2** in **Appendix I** provides a summary of the analysis results for the liquid phase GAC performance samples collected from ISGR-1 and ISGR-2.

2.1.3.3 Area C OMM Activities and Procedures

2.1.3.3.1 Operation

SOPs are in place for Area B system activities, including the general procedures listed below; SOPs are included in the OMM manual for the system. Due to document size, these SOPS are not included in this report. These files are available upon request.

- Pre-Startup Procedure
- Initial and Routine System Startup Procedure
- System Shut Down Procedure

2.1.3.3.2 Maintenance

System maintenance is performed as needed or as specified. Non-routine maintenance activities that will be performed as needed, based on system inspection and monitoring, include inspection and cleaning of the oxygen emitters, replacing the oxygen cylinder, well maintenance, removing liquids contained in the oxygen vault sump by pumping, and replacement/repair of system components. SOPs for non-routine maintenance task are included in the OMM manual, and are listed below:

- SOP 9: Lock Out/Tag Out

Due to document size, these SOPS are not included in this report. These files are available upon request.

2.1.3.3.3 Monitoring

Routine OMM visits to Area C were conducted monthly or as needed to check system operation status, to collect quarterly DO measurements, collect semi-annual geochemical measurements, and record system data.

Routine monitoring for the ORZ system included the following activities:

- Recording oxygen cylinder pressure
- Recording system pressure
- Recording oxygen sensor reading
- Recording pressure at each well

A table summarizing Area C system performance is provided as **Table J-1** in **Appendix J**. DO was measured in all injection wells (IW-1 through IW-5), MW-26A, MW-26B, and MW-58 on a quarterly basis using a YSI® Incorporated 6-series multiparameter water quality meter. Geochemical parameters (nitrate, pH, specific conductivity, oxygen-reduction potential, ferrous iron, alkalinity, oxidation reduction potential (ORP), sulfate, and temperature) were measured in MW-58, MW-59, MW-60, MW-26A, and MW-26B on a semi-annual basis using a YSI® Incorporated 6-series multiparameter water quality meter. **Tables J-2** and **J-3** in **Appendix J** provide a summary of the DO and geochemical measurements, respectively, for the Area C ORZ.

Oxygen cylinder usage was tracked to evaluate system consumption and to monitor for cylinder replacement. Based on data collected to date and cylinder replacement frequency, normal cylinder life is estimated at 6 months. The oxygen cylinder was last replaced on February 28, 2018. A new cylinder typically has a pressure of 1,800 pounds per square inch (psi) with an approximate capacity of 1,700 liters or 60 cubic feet. The next oxygen cylinder replacement will likely take place in early August 2018.

2.1.3.4 Monthly Gauging

In accordance with the USEPA-approved Interim Monitoring Sampling Plan (**Table 1**), monthly gauging of ten monitoring wells (GP-27R, GP-30A, GP-35A, MP-7, MW-7, MW-16, MW-18, MW-22R, MW-24A, and RW-4) was conducted during the reporting period. The wells were gauged with an oil-water interface probe to determine the water level and verify the absence of LPH. Depth to water and depth to LPH, if

present, were measured from the surveyed top of casing and recorded to the nearest 0.01 foot. Results are presented in Section 3 of this report.

2.1.3.5 Semi-Annual Monitoring Events

2.1.3.5.1 Semi-Annual Gauging

During semi-annual gauging events, the wells were gauged with an oil-water interface probe to determine the water level and verify the absence of LPH. Depth to water and depth to LPH, if present, were measured from the surveyed top of casing and recorded to the nearest 0.01 foot.

The most recent semi-annual groundwater gauging of site wells was conducted on March 20, 2018. **Table 1** provides a summary of the approved groundwater gauging plan. The groundwater gauging data for the duration of the reporting period are provided as **Table 3**. Groundwater contour maps provided as **Figures 5** and **6** were created using gauging data collected during the comprehensive gauging of all wells in March 2018. Results are summarized in Section 3 of this report.

2.1.3.5.2 Semi-Annual Sampling

During semi-annual sampling events, wells were sampled via a disposable plastic bailer or using HydraSleeve passive samplers, as outlined in the approved sampling plan table, **Table 1**. The use of HydraSleeve passive samplers was previously approved by DOEE and USEPA for use at this site and therefore HydraSleeve passive samplers were used during the reporting period. In accordance with the Semi-Annual Progress Report, January through June 2010 (Gannett Fleming, 2010), criteria that were used to select the wells to be sampled using HydraSleeve samplers included the following: 1) water column of a minimum of 4 feet so that the required sample volume could be collected; 2) a water column maximum of 12 feet to prevent stratification; and, 3) a well diameter of 1 inch or greater.

Wells that were not sampled using HydraSleeve passive samplers were sampled using the three-volume purge and sampling technique. The wells were purged utilizing a decontaminated submersible pump with disposable polyethylene tubing. Samples were collected using a disposable plastic bailer. A minimum of three well volumes were purged from each monitoring well location.

The most recent semi-annual sampling event for the Maryland and D.C. wells was conducted during the period of March 26 through March 29, 2018. The analytical results for groundwater sampling events for the duration of the reporting period are provided as **Table 4**. Groundwater iso-concentration maps were created for COCs, benzene and MTBE, using analytical results from the March 2018 sampling event and are provided as **Figures 7 through 10**. Groundwater iso-concentration maps generated for historic semi-annual groundwater sampling events are included in **Appendix K**.

2.1.3.5.3 Semi-Annual Soil Vapor Monitoring

The Site Investigation Work Plan (Gannett Fleming, 2003b) called for installation of soil vapor monitoring wells at several locations across the off-site residential area and they were installed in 2004 (VW-01 and VW-02) and 2005 (VW-03 and VW-04). Semi-annual soil vapor sampling of the 4 soil vapor wells (VW-01, VW-02, VW-03 and VW-04) and an ambient sample for VW-01 was conducted during the reporting period. **Figure 4** depicts the location of the soil vapor wells.

Prior to sample collection, stagnant air was purged from the sample train to ensure that samples collected are representative of subsurface conditions. Approximately three sample train volumes were purged from the points prior to sample collection. Vapor wells were sampled using 1-Liter summa canisters and analyzed by Air Toxics Ltd. in Folsom, California for analysis of BTEX and MTBE by EPA Method TO-15 (modified). Wet weather conditions prevented sample collection (i.e., infiltration of precipitation fills soil pore spaces and inhibits soil vapor flow) from soil vapor wells during the reporting period.

2.1.4 Permits and Permit Compliance

Permits required for activities during this reporting period are described below. There were no permit violations that occurred within the reporting period.

MDE Air Quality General Permit for Groundwater Air Stripping effluent, permit number 033-9-1160 and MDE Air Quality General Permit for Soil Vapor Extraction Equipment effluent, permit number 033-9-1164 are required to operate the Area A DPE system. Neither of these permits has an expiration date. Sampling and monitoring requirements include periodic effluent monitoring, as required.

MDE General Discharge Permit, permit number 18OGR-8514 (NPDES Permit No. MDG918514) was issued for discharge of treated groundwater from the Area A system. The most recent permit became effective on December 18, 2017 and expires on December 11, 2022. MDE General Discharge Permit requires two effluent samples for a monthly discharge volume at or below 500,000 gallons and above 25,000 gallons. Based on current system effluent flow, the permit requires effluent sampling twice per month (as applicable), system monitoring, and submission of a quarterly Discharge Monitoring Report. Except for those exceptions noted in Semi-Annual Progress Reports submitted by Chevron to USEPA, treated groundwater effluent (SP-3) samples were collected and analyzed each month during the reporting period.

With regards to the Area B and C systems, permit number PA10197033-R5 for Public Space Occupancy was issued by the District Department of Transportation on June 27, 2018 to cover traffic control requirements for sampling, gauging, and OMM in Areas B and C. This permit expires on December 23, 2018. A new permit is applied for and issued on a semi-annual basis.

2.2 Additional Field Activities Performed During Reporting Period

Section 2.2 presents a summary of additional activities performed during the 5-year CM timeframe. These activities include: VMS sampling, over drilling and connection of GP-30R to the existing Area A DPE system, Area A vapor intrusion investigation, site-wide MNA evaluation, Area A NSZD evaluation, and site-wide updated conceptual site model.

2.2.1 Schedule Summary of Additional Activities

A summary of additional activities completed by Chevron during the reporting period is provided in **Table 6**. The summary table provides a short description of the work along with the dates the work was executed. Details regarding these field activities are provided in the sections below.

2.2.2 Vapor Mitigation System Activities

In accordance with the USEPA approved Interim Measures Work Plan for Vapor Sampling and Mitigation (Gannet Fleming, 2008a), vapor mitigation system activities (VMS) were performed at 5818 Eastern Avenue from April 17, 2013 through June 7, 2013. Indoor air sampling activities were completed before discontinuation of VMS operations. Detailed sampling methods and procedures are provided in the Gannet Fleming Annual Vapor Mitigation System Indoor Air Sampling Report – Year 4, 2013 (Gannet Fleming, 2013b) submitted to USEPA. Following the sampling event at 5818 Eastern Avenue, annual VMS monitoring sampling events as required by USEPA for residences at 5818 Eastern Ave, 46 Oglethorpe Street and 5824 Eastern Avenue, were discontinued as approved in a letter dated January 9, 2014. Details of Chevron's request to discontinue operation and maintenance of the three VMS units is provided in Section 3.2.1.5.

2.2.2.1 Indoor and Ambient Air Sampling

Indoor air sampling was completed at 5818 Eastern Avenue during two separate sampling events, one under VMS "system on" conditions and a follow-up round of sampling under VMS "system off" conditions. These activities are discussed below. Results are provided in Section 3 of the report.

System on Sampling

On April 17, 2013, Gannett Fleming and Arcadis personnel confirmed that the VMS system was operating properly prior to performing indoor air sampling at 5818 Eastern Avenue. Prior to sampling, the sampling team used a ppbRAE photo-ionization detector (PID) to screen both the first floor and basement of the residence for the presence of VOCs. An indoor air building survey was also completed at this time (Gannet Fleming, 2013b).

A 6-Liter stainless steel air sampling canister with 24-hour flow controller was set up in the front room of the basement in a central location consistent with previous sampling events, an area in which air flow is unrestricted. Sampling was subsequently initiated, and the sample canister was set for approximately 24 hours of sample collection (Gannet Fleming, 2013b). A 24-hour ambient (outdoor) air sample was collected concurrently with the indoor air sample, starting, and ending within approximately 20 minutes of the indoor air sample (Gannet Fleming, 2013b).

Gannett Fleming and Arcadis personnel returned to the residence on April 18, 2013, approximately 24 hours after sample setup to retrieve the sample canisters. The end point of the "system on" sampling event represented the beginning of an equilibration period. Prior to departing the residence, the VMS was shut down, the breaker controlling power to the VMS was locked in the off position, and the discharge stack was sealed using a knife valve (Gannet Fleming, 2013b).

System Off Sampling

Seven weeks after the "system on" event, Gannett Fleming personnel returned to the residence at 5818 Eastern Avenue on June 6, 2013 to perform "system off sampling" to evaluate conditions when the VMS was off. The procedure used for "system off" sampling was identical to that used during "system on" sampling. Before setting the two 6-Liter canisters in the identical locations of "system on" sampling, Gannett Fleming personnel ensured that the VMS was still powered off and a ppbRAE PID was used to

screen the basement for the presence of VOCs. Sampling was terminated after approximately 24 hours and the sample canisters were retrieved by Gannett Fleming personnel the following day.

Grab samples of indoor air and ambient (outdoor) air were collected in 1-liter tedlar bags while the VMS system was off (Gannet Fleming, 2013b).

2.2.2.2 Discharge Stack Soil Vapor Sampling

Discharge stack soil vapor sampling was conducted on June 7, 2013, prior to restarting the VMS at 5818 Eastern Avenue. Prior to sampling, the VMS fan/blower was used to purge three volumes of air from the section of piping between the slab penetration and the sample port. The knife valve located below the fan/blower on the VMS was then closed to prevent ambient air from moving into the discharge stack. The sample was collected from sample ports in the VMS stack using 1-liter stainless-steel, summa-type canisters (Gannet Fleming, 2013b). Differential Pressure and Air Flow Rate Measurements.

Differential pressure measurements were collected using an Omniguard 4 differential pressure recorder while the VMS at 5818 Eastern Avenue was operating. The measurements were compared to the differential pressure goals that were established by USEPA and American Society for Testing and Materials (ASTM) (now ASTM International) to determine whether the system was operating efficiently (EPA, 2008b; ASTM, 2003).

2.2.3 Over drilling and Connection of GP-30R

As documented in semi-annual progress reports submitted to USEPA, well GP-30A exhibited elevated concentrations of COCs, including a total BTEX concentration of 40,200 µg/L observed during the April 2017 sampling event (**Table 4**). Therefore, in the Area A System Operating Plan Technical Memo dated February 2017 and revised June 2017 (Arcadis, 2017a), Arcadis and Chevron proposed to convert existing monitoring well GP-30A to a recovery well and connect this well to the remediation system. Connection of this well was proposed to assist in achieving remedial objectives and further support technical impracticability (TI) waiver demonstration. Field activities related to the conversion began on May 15, 2017 and were completed on May 31,2017. Extraction from this well began on June 1, 2017, following a pre-start-up safety review. Further details were provided to USEPA in the Semi-Annual Progress Report – January through June 2007 dated July 2017 submitted to USEPA by Arcadis on behalf of Chevron.

Prior to subsurface work, multiple lines of evidence were used to verify absence of subsurface utilities and a Miss Utility ticket was opened in advance of the work. Additionally, a private utility locating company utilized ground penetrating radar (GPR) and electromagnetic induction to identify the potential presence of private utility lines and other potential underground structures or anomalies near the work area.

The location was cleared to 8 feet below ground surface (bgs) prior to drilling using soft-dig methods to avoid contacting utilities or other underground structures. The existing 2-inch diameter monitoring well (GP-30A) was then over drilled using a hollow-stem auger drill rig for the installation of the new 4-inch recovery well (GP-30R). Soils produced from the over drilling of GP-30A and the installation of GP-30R were containerized in a roll-off container and removed for offsite disposal, as discussed below. GP-30R was installed to a depth of 55.5 feet and was screened from 34 to 50 feet bgs with 4-inch diameter wire-

wrapped 0.02-inch slot screen. A 4-inch diameter stainless steel sump was installed on the bottom of the well screen from 50 to 55.5 feet bgs. A 4-inch diameter polyvinyl chloride (PVC) riser casing was installed from 34 feet bgs to grade. Additional well details can be found in the well construction log, included in **Appendix L**.

To connect the well to the system, approximately 50 linear feet of trench was dug using vacuum extraction methods between the well and the Area A system enclosure for the installation of air and process piping. Concrete areas where trench lines crossed were removed via saw cutting as well as the existing concrete manway over GP-30A. Soils and concrete removed were containerized in a roll-off container and removed for offsite disposal, as discussed below. Following these activities, all SVE, conduit, compressed air supply, and recovered groundwater piping was installed to connect the well to the remediation system. Trenches were backfilled using clean fill materials and compacted. During backfilling, strips of utility warning tape with metallic wire for metal detection were placed in all trenched areas.

To install the well head assembly and pipe to make the required SVE and GWE pump connections, the extraction well casing was cut and a slip 4-inch by 2-inch schedule 40 PVC Tee was installed to allow lateral pipe to connect to the well. An AutoPump® AP4+ manufactured by QED Environmental Systems (QED) was installed in the extraction well. The pump was supported via a cable fastened to the well head seal.

Upon completion of the installation of the pipe and hose connections to GP-30R, a steel open bottom well vault was installed to enclose the well head and associated components. Completion of the vault included a 6-inch thick concrete apron extending 6 inches from the vault cover. The vault and apron were set flush with grade.

Upon completion of these activities, site restoration was performed, which included: grading and seeding of excavated and/or filled areas; and replacement of concrete walkways that were removed for trenching activities.

All solid investigative derived waste resulting from the GP-30A conversion was containerized in a 25-cubic yard roll-off container, which was staged onsite and removed for proper offsite disposal by Clean Harbors on June 19, 2017. The Waste Manifest form is included in **Appendix M**.

2.2.4 Station Rebranding

As documented in the Semi-Annual Progress Report dated January 2017 submitted by Chevron, beginning in August 2016, the on-site service station was rebranded to a Shell station and station upgrades that included replacement of the existing fuel dispensers was performed by contractors for the property owner. Prior to initiation of site activities, Chevron and Arcadis provided the site owner and their contractor with maps identifying infrastructure associated with EPA Administrative Order, Docket Number RCRA-03-2008-0355TH including monitoring wells, recovery wells, remediation system trenches, and remediation system piping. Site activities began on August 24, 2016. Arcadis staff were on-site on August 24, 25, 26 and 30, 2016 to observe the contractor activities and to help identify Chevron-owned infrastructure. Activities related to replacement of the existing fuel dispensers that were observed by Arcadis included concrete and asphalt removal, excavation of trenches for utility installation, electrical line installation, as well as sump installation and vapor recovery line modifications for the existing UST system. No UST removal activities were

performed or observed. During activities performed on August 26, 2016, a minimal amount of impacted soil was observed by Arcadis staff in one of the sump systems being installed near the location of the dispenser along Eastern Avenue (east of monitoring well MW-3). Soils screened by Arcadis staff exhibited a field screening reading of 100 parts per million (ppm) using a PID. The soil from this sump was subsequently removed and disposed of offsite by the contractor for the site owner during the site activities. Photos documenting the contractor activities were provided in the January 2017 Semi-Annual Report.

2.2.5 Pilot Rebound Evaluation

A long-term operating plan for the Area A DPE system was proposed in the Area A System Operating Plan Technical Memo, which was approved by USEPA on April 6, 2017 (Arcadis, 2017a). The objective of the long-term plan was to gather data to support future decisions and to evaluate potential risks and clean-up objectives. The long-term operating plan proposed an extended Pilot Rebound Evaluation to monitor for LPH rebound and to collect new data to confirm that no potential vapor intrusion risks from petroleum-related compounds to commercial workers exist at the site (Arcadis, 2017a). These activities were voluntarily performed by Chevron to evaluate current risks. The DPE system was subsequently shut down from December 16, 2017 through March 1, 2018 to conduct the Pilot Rebound Evaluation. Activities performed during the Pilot Rebound Evaluation are summarized below and include: Area A interior and exterior vapor intrusion investigation; LPH characterization and monitoring; Area A NSZD evaluation; site-wide MNA evaluation; and interim sentinel well gauging and sampling. A schedule of activities is provided in **Table 6**.

2.2.5.1 Area A Vapor Intrusion Investigation

A short-term operating plan for the Area A DPE system, which proposed an extended Pilot Rebound Evaluation to monitor for LPH rebound and to collect new data to confirm that no potential vapor intrusion risks from petroleum-related compounds to commercial workers exist at the site, was approved by USEPA on April 6, 2017 (Arcadis, 2017a). Vapor intrusion sampling in Area A was conducted per the technical memo submitted to USEPA entitled Proposed Area A Vapor Sampling (Arcadis, 2017c), which was approved by USEPA in a correspondence dated July 24, 2017. Vapor intrusion sampling was conducted while the DPE system was operating and while the DPE was off for the Pilot Rebound Evaluation. The procedures utilized for this work were developed based on guidance presented in the USEPA Technical Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (USEPA, 2005), as well as Chevron Soil Vapor & Indoor Air Sampling Toolkit.

Prior to implementation of proposed sampling, the following tasks were performed:

- Permission from the commercial gas station and shopping center property owners was requested and granted prior to executing the work proposed.
- Prior to any indoor sampling within the station building at 5801 Riggs Road, a building survey was conducted to identify, and document possible indoor air background sources of volatile petroleum hydrocarbon constituents stored within the onsite building (**Appendix N**).
- Prior to beginning intrusive work for the sub-slab and exterior points, a private utility locating company located underground utilities. Arcadis staff conducted a site inspection of the property to identify potential utilities and discussed the potential for buried underground utilities with property owners.

2.2.5.1.1 Exterior Soil Gas Sample Probe Installation

Three permanent multi-depth exterior soil gas sampling points were installed and sampled to evaluate the vapor intrusion pathway. Soil gas sampling points were installed within the vicinity of wells MW-7 and GP-30A, which exhibit elevated concentrations of COCs. The exterior soil gas sampling locations are shown on **Figure 11**. Soil gas point installation activities occurred between July 31, 2017 and August 2, 2017. Analytical results for the reporting period are presented in **Table 4**. Historical analytical results from prior to 2013 are presented in **Table 7**.

The soil gas sampling points targeted three depths corresponding to approximately 25 feet, 15 feet and 10 feet bgs. Collection of soil gas samples at these depths allow for the evaluation of attenuation within the vadose zone. Prior to installation, nearby groundwater monitoring wells were gauged to measure the depth to groundwater near the sampling locations. Depths to groundwater in nearby wells MW-7, GP-30R and RW-4 ranged from 35.5 to 36.5 feet bgs. However, based on the presence of moist soils at 25.3 feet bgs in borings CV-1 and CV-2, the deepest soil gas probe at these locations were installed to a depth of 24 feet bgs. Sampling point CV-3 was installed to a depth of 25 feet bgs.

Permanent exterior soil gas sampling points were installed using a drill rig equipped with a hollow stem auger. During installation, soil borings were screened with a PID and qualitative observations were recorded; no PID readings over 15 ppm were detected during the installation of CV-1, CV-2 and CV-3. Upon reaching the deepest target sample depth, the soil gas sampling points were constructed in the borehole. Soil gas sampling points were constructed using a 6-inch section of a woven wire screen implant with ¼-inch-outer-diameter Teflon® or Teflon®-lined sample tubing attached. The implant was set within 12 inches of permeable sand pack (No. 1 filter sand) at the target sample depth. Following installation of the implant, tubing, and sand pack, hydrated bentonite was used to seal the deepest sampling point up to the depth of the middle sampling zone. A second implant was placed at the middle sampling zone and set within 12 inches of permeable sand pack (No. 1 filter sand) at the sample depth. Following installation of the middle implant, tubing, and sand pack, hydrated bentonite was used to seal the middle sampling point up to the depth of the uppermost sampling zone. A third implant was placed at the uppermost sampling zone and set within 12 inches of permeable sand pack (No. 1 filter sand) at the sample depth. Following installation of the uppermost implant, tubing and sand pack, hydrated bentonite was used to seal the bore hole to the ground surface. The sample tubing was capped with a Swagelok plug. The soil gas sample points were completed at the surface with a flush-mount protective vault set in concrete. Schematics showing the soil gas point construction details for each location are provided in **Appendix N**.

Soil cuttings generated during the soil gas point installation were temporarily containerized in Department of Transportation-approved 55-gallon steel drums. Following waste characterization, these drums were removed by Clean Harbors and transported to an appropriate off-site disposal facility. The manifest is provided in **Appendix N**.

2.2.5.1.2 Sub-Slab Soil Gas Sample Probe Installation

Two permanent sub-slab soil gas sampling points were installed and sampled to evaluate the vapor intrusion pathway within the onsite building. A single sampling point, SS-1, was installed in the storage room located in the southeastern portion of the site building. This is biased toward well location MW-7, which exhibits elevated concentrations of COCs (**Table 4**). Sampling point SS-1 was installed less than 5

feet from the exterior wall due to the presence of an unknown subsurface utility. A second sample probe, SS-2, was installed in the kitchen area in the central/southern portion of the site building to provide a representative sample of sub-slab soil gas. The interior sub-slab soil gas sampling locations are shown on **Figure 11**. Sub-slab soil gas point installation activities occurred on January 27, 2018.

Permanent sub-slab soil gas sample probes were installed using a ½-inch diameter drill bit to core a hole 2 inches above the approximate 4-inch-thick concrete building slab. Probes were constructed from ¼-inch outer diameter chromatography grade 316 stainless steel tubing and stainless-steel compression to thread fittings. The probe was then wrapped with Teflon tape to create a snug fit of the assembly and hole. A quick-drying Portland cement was placed into the annular space between the probe and the larger diameter (1½-inch) hole. The cement cured for 24 hours prior to sampling.

2.2.5.1.3 Soil Gas Sample Collection

Exterior soil gas sampling was conducted while the DPE system was operating on August 16, 2017. The Area A DPE system had been operating continuously for at least 48 hours during the first exterior soil gas sampling event.

A second sampling event of the existing exterior points was conducted with the sub-slab soil gas sampling event during the extended pilot rebound study when the DPE system was off and not operational. These events occurred on February 6 and February 10, 2018, respectfully. The DPE system was shut down on December 16, 2017 to conduct the pilot rebound study and was not operating during the February 6 and February 10 sampling events.

Soil gas sampling was conducted at least 48 hours after installation of soil gas sampling points to allow for soil gas concentrations to equilibrate following subsurface disturbances.

Prior to collecting the soil gas samples, several quality control measures were employed to ensure vapor probe installations are representative of sub-surface conditions. Upon passing these quality control steps, the exterior soil gas and sub-slab sampling points were sampled.

To assure integrity of the sample train assembly, a shut-in test was conducted. One vapor-tight two-way ball valve was installed closest to the soil gas port (port valve) and another vapor-tight two-way ball valve was installed on the opposite end of the sampling train (purge valve). While the port valve was left in the closed position, a laboratory-provided syringe was used to induce a minimum vacuum of 5 inches of mercury within the sampling train. The purge valve was then closed and the vacuum within the sampling train was monitored for a minimum of two minutes. Following two minutes of successful observation without observable loss in the vacuum within the sampling train, the train was deemed competent.

Prior to sample collection, stagnant air was purged from the sample train to ensure that samples collected are representative of subsurface conditions. Approximately three sample train volumes were purged from the points prior to sample collection. Purged vapor was collected in a new Tedlar bag for field screening and a tracer compound leak test.

A second leak detection test was conducted to ensure the integrity of the sample train assembly. The soil gas probe and entire sampling train was placed in an air-tight enclosure with pliable weather stripping along the base. A tracer compound (laboratory grade helium) was then introduced into the enclosure. During the test, a helium concentration of approximately 10 to 15 percent by volume (%v) was maintained

in the enclosure and monitored using a portable helium detector. Prior to collecting the soil gas sample, approximately 300 ml was purged from the soil gas probe at a flow rate of less than or equal to 100 millilitres per minute (ml/min). Purged soil gas was screened for the tracer compound to ensure samples would be representative of sub-surface conditions. The detection of the tracer compound in the soil gas sample would indicate that a leak had occurred. No significant leaks were detected during these efforts. Please see Section 3.2.3 for additional details.

The exterior soil gas and sub-slab samples were collected in one-liter 100% certified SUMMA® canisters with a flow controller calibrated to a flow rate equal to 100 mL/min (i.e., 10 minutes). A vacuum of less than 10 inches of mercury (in Hg) was maintained throughout sampling.

One exterior duplicate sample and one sub-slab duplicate sample was collected in-line with its respective parent sample and an equipment blank sample collected using a laboratory supplied air source was also submitted to the laboratory for quality assurance process. The exterior and sub-slab soil gas samples were shipped under appropriate chain-of custody protocols for analysis.

Results are presented in Section 3.2.3.

2.2.5.1.4 Indoor and Ambient (i.e., Outdoor) Air Sampling

Two indoor air samples were collected on January 25, 2018 prior to sub-slab soil gas port installation to prevent cross-contamination and the introduction of sub-slab soil gas into the indoor air samples. Heating, Ventilation and Cooling (HVAC) systems were operating normally for the season and time of day during the sampling to evaluate the building setting representative of the typical building use. One indoor air sample, IA-1, was collected near the determined sub-slab soil sample, IA-1, while a second indoor air sample, IA-2, was collected near the determined sub-slab soil gas sample, SS-2. Both IA-1 and IA-2 were collected using a tripod approximately 6 feet and 3 feet above the floor level, respectfully.

A single ambient air sample, AA-1 was collected from the northeastern side of the building exterior between monitoring well locations, MW-7 and GP35-A (**Figure 11**) The sample was mounted to a chain link fence approximately 4 feet from ground level and collected concurrently with indoor air sampling.

The indoor and ambient air samples were collected using a six-liter 100%-certified SUMMA canister with a flow controller calibrated to collect the sample over a 24-hour period. A vacuum of less than 10 inches of mercury (in Hg) was maintained throughout sampling for samples IA-1, IA-2 and AA-1.

The indoor and ambient samples were shipped under appropriate chain-of custody protocols for analysis. The indoor and ambient air samples were put on hold until a determination was made to not run the samples based on the sub-slab sample results, as described in Section 3.2.3.

2.2.5.2 LPH Characterization and Monitoring

2.2.5.2.1 LPH Characterization and Monitoring Activities

Following shut down of the existing DPE system as part of the Pilot Rebound Evaluation, monitoring wells in Area A were gauged periodically to document the recovery of fluid levels and the overall potentiometric surface to static conditions and identify any in-well LPH accumulation that may have occurred following the cessation of system operation. The wells were gauged with an oil-water interface probe to determine

the water level and verify the absence of LPH. Depth to water and depth to LPH, if present, were measured from the surveyed top of casing and recorded to the nearest 0.01 foot. Three gauging events interspersed with two transmissivity tests were conducted as described below. All gauging data is provided in **Table 8**. Gauging event frequencies decreased after it was observed that MP-7 was the only well where product was present.

- First LPH gauging event was performed on January 12, 2018. No product was detected in wells except 0.80 foot in MP-7.
- Second LPH gauging event was performed on January 22, 2018. No product was detected in wells except 0.87 foot in MP-7.
- First transmissivity test was completed on MP-7 on January 26, 2018. Initially, 0.9 foot of product was present, and it recovered to a thickness of 0.2 foot by the end of the transmissivity test. Detailed information is presented in Section 2.2.5.2.5.
- Second transmissivity test was completed on MP-7 on February 6, 2018. Initially, 0.42 foot of product was present, and it recovered to a thickness of 0.13 foot by the end of the transmissivity test. Detailed information is presented in Section 2.2.5.2.5.
- Third LPH gauging event was performed on February 7, 2018. No product was detected in wells except 0.11 foot in MP-7.

2.2.5.2.2 LPH Speciation and Characterization

Monitoring well MP-7 is the only well with consistently measured LPH thickness, and as such a single LPH sample was collected at well MP-7 on January 26, 2018. The sample was submitted to Pace Analytical for the C_3-C_{36} Whole Oil Characterization Gas Chromatography "Fingerprint" test by gas chromatography – flame ionization detection (GC/FID) and C_3-C_{12} PIANO Quantitative Molecular Characterization by gas chromatography – mass spectrometry (GC/MS) (ASTM D3328). The analyses were used characterize the chemical nature of the LPH present at the site by generating a chromatogram for C_3 to C_{36} hydrocarbon compounds and providing semi-quantitative concentrations of over 90 gasoline range compounds in the paraffin, isoparaffin, aromatic, naphthene, and olefin compound classes (PIANO Analysis) for gasoline-range (C_3 to C_{10}) compounds. The C_3-C_{12} molecular characterization provided an analysis for individual PIANO compounds, including oxygenated blending agents, lead scavengers, methylcyclopentadienyl manganese tricarbonyl (MMT), and thiophenes. The LPH sample was also analyzed for flashpoint by EPA Method 1010. LPH speciation and characterization laboratory reports are included in **Appendix O**.

The LPH sample was collected as a grab sample into laboratory provided glassware. The sample was shipped under appropriate chain-of custody protocols for analysis as outlined in Section 3.2.3.2.

2.2.5.2.3 LPH Physical Properties

The LPH sample collected at MP-7 was also submitted to Pace Analytical (and then subsequently subcontracted to Clark Testing) for analysis of LPH density and viscosity. Each test, and the pertinent information generated from the tests, is described below:

NAPL Density, ASTM D4052 modified. This test provides information on the density of the LPH, which is compared to the density of water and used when modeling the distribution and mobility of LPH.

NAPL Viscosity, ASTM D445. This test assesses fluid viscosity at a controlled temperature similar to measured groundwater temperature. LPH is typically more viscous than groundwater, and LPH viscosity is used to translate hydraulic conductivity to LPH conductivity.

Fluid property tests of density and viscosity were completed at 68 degrees Fahrenheit (°F) (i.e., 20 degrees Celsius [°C]). The fluid physical properties are presented in **Table 9**. Fluid property laboratory analytical reports are included in **Appendix O**.

2.2.5.2.4 Hydrogeologic Parameters

A hydrograph of corrected groundwater elevation and measured LPH thickness were compiled for monitoring well MP-7 (**Figure 12**). The graph was visually inspected for trends in groundwater elevation and LPH thickness.

LPH accumulations or detections have been historically recorded in the following 18 monitoring wells within the plume area: GP-27A, MP-7, GP-35A, GP-38A, MW-7, GP-30A, MW-18, MW-16, MW-14, MW-12, MW-11, MW-15, MW-5, MW-10, MW-8, MW-6, MW-13, and VP-4. However, except for MP-7, LPH has not been detected in any well since 2014 including the three gauging events conducted in January and February 2018 when the SVE system at the well was not operational. Potentiometric surface elevation and LPH thickness (i.e., hydrograph) is plotted over time on **Figure 12** for monitoring well MP-7, which has had periodic measurable LPH accumulation since being installed. The hydrograph also presents periods of SVE system operation and system shut down at the well, which has been described previously.

2.2.5.2.5 LPH Transmissivity Testing

LPH transmissivity is commonly characterized using short duration LPH stress testing, also called LPH baildown testing. An LPH baildown test is initiated by quickly removing LPH from a well, making it analogous to a groundwater rising-head slug test. The rate of LPH flow into the well after initial removal is a function of LPH saturation, permeability of the surrounding formation to LPH, physical properties of the LPH (density, viscosity, interfacial tension between LPH and water), and magnitude of the initial hydraulic gradient toward the well developed during LPH removal.

LPH baildown tests that have sufficient LPH recharge into the well (recovery) during the test can be quantitatively analyzed to determine site LPH bulk transport conditions, and to characterize LPH recoverability and transmissivity. LPH recovery using hydraulic methods (e.g., dual-phase extraction, skimmer pumping, vacuum truck operations) is typically not effective for areas where LPH transmissivity is less than 0.1 to 0.8 square feet per day (ft^2/day) (ITRC 2009).

Two LPH transmissivity tests were completed in early 2018 at well MP-7, the first on January 26 and the second on February 6. Prior to the tests, the SVE system had been shut down since mid-December as part of the Pilot Rebound Evaluation. The system was kept off-line during the period leading up to the scheduled transmissivity testing to allow fluid levels at the well and in the surrounding area to reach a steady state condition. To ensure an equilibrium had been reached, gauging events were performed to monitor for changes in LPH thickness (Section 2.2.5.2.1). It is noted that several wells that historically

contained significant in-well LPH thicknesses (as discussed in Section 2.2.5.2.4), did not contain any LPH during the Pilot Rebound Evaluation to support transmissivity testing, consistent with the overall conceptual understanding that LPH saturation and mobility are decreasing over time due to natural depletion processes as suggested by the accompanying NSZD evaluation (Sections 2.2.5.3 and 3.2.3.3).

Baildown tests are analyzed using the API LPH Transmissivity Workbook (API Workbook [API 2012]), which includes three options for unconfined LPH conditions – (a) a modified slug test method by Bouwer and Rice (1976), (b) a modified pump test method by Cooper and Jacob/Jacob and Lohman (Cooper and Jacob 1946, Jacob, and Lohman 1952) or (c) a modified slug test method by Cooper, Bredehoeft, and Papadopulos (Cooper et al 1967).

Data analysis options in the API Workbook include a data time cut and drawdown adjustment. A data time cut is required for nearly every test, where early-time data due to filter pack drainage is removed from analysis. This is necessary as these data do not represent formation drainage, and if included, analysis will lead to erroneous results. A drawdown adjustment may also be applied to tests where the fluid levels in the well did not fully recover to initial conditions. The drawdown adjustment is only applied in the event that LPH in the well is not in equilibrium with LPH in the formation when the test is initiated, which will result in a clear trend of zero LPH discharge at a non-zero value for LPH drawdown. Further information on the analytical solutions, data time cut, and drawdown adjustment can be found in the user guide for the API Workbook (API 2012).

2.2.5.3 Natural Source Zone Depletion Evaluation

NSZD is a combination of processes that reduce the LPH mass in the subsurface. NSZD occurs both when (a) LPH phase is directly biodegraded and, (b) physical processes act to redistribute LPH constituents to the aqueous phase via dissolution or to the vapor phase via volatilization. In turn, dissolved or volatilized LPH constituents can be biologically degraded by microbial and/or enzymatic activity. These biodegradation reactions result in the production of carbon dioxide (CO_2) and methane (CH_4) under the strongly reducing conditions typically observed in LPH source zones. Biodegradation can be tracked by monitoring electron acceptors (e.g., sulfate and nitrate) or end products (CO2 and CH4) in the dissolved-phase. However, due to limited solubility of CO_2 and CH_4, and additional biological activity within the vadose zone, these end products often remain in or partition into the vapor phase and migrate toward the ground surface by diffusive and advective vapor transport. Typically, as soil vapor migrates upward through the soil column and comes into contact with higher concentrations of atmospheric oxygen (O_2), the methane is oxidized to CO_2, generating heat, and the carbon transfer processes may be dominated by the flux of CO_2 from the subsurface to the atmosphere.

The NSZD evaluation for the site consisted of two components: a dissolved-phase mass balance calculation using groundwater analytical data, and temperature profiling and modeling. The field procedures are discussed below. Locations at which NSZD data were collected are depicted on **Figure 13**.

2.2.5.3.1 Dissolved-Phase Mass Balance

As groundwater moves through the subsurface, it will encounter LPH-affected soils within the saturated zone, and infiltrating precipitation will contact LPH-affected source zone soils within the vadose zone. In both cases, dissolution of hydrocarbons into the water and a loss of hydrocarbon mass from the LPH will

occur. When infiltration of precipitation is insignificant, and hydrocarbons are not released upgradient from the LPH source zone, the rate of LPH mass loss to dissolution (that is not subsequently biodegraded or volatilized near the LPH body) can be simplified to consider only dissolved hydrocarbons exiting the submerged portion of the source zone.

Similarly, ongoing mass loss via biodegradation of LPH in the saturated zone can typically be identified by decreases in concentrations of dissolved electron acceptors required for aerobic and anaerobic biodegradation (e.g., oxygen, nitrate, and sulfate) in water flowing from upgradient locations, accompanied by increases in concentrations of transformation products (e.g., dissolved manganese, dissolved iron, carbon dioxide, and methane) in downgradient water.

Eight monitoring wells (GP-30A, GP-30R, GP-35A, MW-6, MW-13, MW-18, MW-20, and MW-45) were sampled for the following geochemical parameters: total and dissolved iron, total and dissolved manganese, sulfate, nitrogen, oxygen, carbon dioxide, and methane, in groundwater to verify if LPH NSZD processes are occurring at the site. The results of the NSZD geochemical sampling are presented in **Table 10**.

The field work was conducted in accordance with the methodology outlined in the 2018 Interstate Technology Regulatory Council (ITRC) guidance document LNAPL-3: LNAPL Site Management: LCSM Evolution, Decision Process, and Remedial Technologies (ITRC, 2018).

Results are presented in Section 3.2.3.3.

2.2.5.3.2 Biogenic Heat Modeling

The NSZD processes discussed above produce heat as the methane comes into contact with higher concentrations of atmospheric O_2. A typical thermal anomaly indicative of active NSZD consists of a warmer zone, typically a few degrees Fahrenheit above background, located at or slightly above the water table near the zone of LPH impacts.

Multiple temperature measurements at discrete vertical intervals were collected from wells GP-30A, MW-6, GP-35A, MW-18, and MW-20 on May 23, 2017. These measurements were collected during the “system-on” condition (DPE system on and operational). Another round of temperature measurements was collected from MW-6, GP-35A, MW-18, MW-20, and GP-30R in February 2018 during the “system-off” condition (DPE system down for the Pilot Rebound Evaluation). Temperature readings were collected from within the casing of existing monitoring wells, extending from near ground surface to the base of the well screen. A thermocouple thermometer was used to collect the temperature readings at 2-foot intervals as the thermometer was lowered into the well. The thermometer was allowed to equilibrate at each depth interval prior to recording readings.

The field work was conducted in accordance with the methodology outlined in the 2018 Interstate Technology Regulatory Council guidance document LNAPL-3: LNAPL Site Management: LCSM Evolution, Decision Process, and Remedial Technologies (ITRC, 2018).

Results are presented in Section 3.2.3.3.

2.2.5.4 Site-wide Monitored Natural Attenuation Evaluation

The USEPA describes natural attenuation as the reduction in dissolved hydrocarbon concentration, mass, or mobility due to naturally occurring processes in the environment (USEPA, 1998). These processes can be classified as follows:

- Physical (such as dispersion, diffusion, dilution by recharge, and volatilization)
- Chemical (sorption and chemical or abiotic reactions)
- Biological (biodegradation)

Natural attenuation of dissolved hydrocarbons in groundwater has been demonstrated at thousands of petroleum release sites using well-established protocols (e.g. ASTM, 1998; Wiedemeier et al., 1995; Wiedemeier et al., 1999). Published protocols recommend converging or multiple lines of evidence to demonstrate that natural attenuation and biodegradation of dissolved hydrocarbons is occurring and MNA is a viable remedial alternative. As such, a qualitative Tier 1 and Tier 2 MNA analysis was performed according to the Chevron Guidance for *Analysis of Geochemical Parameters for Natural Attenuation of Dissolved Hydrocarbons in Groundwater* (Chevron, 2008) to evaluate if natural attenuation is occurring (Tier 1) and if biodegradation is contributing to natural attenuation (Tier 2).

Sampling activities were performed in April 2017 (with the DPE system on) and February 2018 (with the DPE system off during the Pilot Rebound Evaluation) to collect data required to perform an MNA evaluation, in accordance with the Chevron Guidance (Chevron, 2008). The following background, source area, and cross-gradient monitoring wells were included in MNA sampling, as shown in **Figure 14**:

- Background Well: MW-20
- Source Area Well: GP-30R (connected to the DPE system in May 2017)
- Cross-gradient Wells: MW-6 and MW-45

The downgradient periphery wells comprised two different longitudinal transects, moving downgradient, as follows and shown in **Figure 14**:

- Western Transect: MW-18, MW-62B, MW-59, MW-33B
- Eastern Transect: MW-47, MW-25B, MW-53

The transects include the upgradient background well MW-20 and the source area well GP-30R.

The following parameters were collected in April 2017 and February 2018:

- Benzene, MTBE, Toluene, Ethylbenzene and Total Xylenes (USEPA Method 8260B)
- Nitrate and Sulfate (Method 9056A)
- Total and Dissolved Manganese and Iron (Method 6010C)
- Methane and Carbon Dioxide (Method RSK-175)
- Field parameters: dissolved oxygen (DO), oxidation-reduction potential (ORP), specific conductivity (SC), temperature, and pH

The field parameters were collected with a YSI 556 water quality multi-parameter downhole probe prior to the collection of groundwater samples. The YSI 556 probe and cable was carefully lowered into the well, taking precautions to not disturb the sediments at the bottom of the well. Readings were taken at an elevation in the middle of the well screen if completely submerged, or in the middle of the submerged portion of the well screen if partially submerged. The YSI 556 probe was kept submerged for 15 to 20 minutes prior to recording field parameter values to allow for stabilization of parameters. Following field parameter collection, groundwater samples were collected for all other analytical parameters listed above.

2.2.5.5 Sentinel Well Gauging and Sampling

Per the Response to Comments for Area A System Operating Plan submitted to USEPA on March 28, 2017 and revised June 15, 2017, additional well gauging and sampling activities were completed during the Pilot Rebound Evaluation to confirm if any offsite hydrocarbon migration was detected.

As proposed in the Response to Comments for Area A System Operating Plan, the frequency of gauging five sentinel monitoring wells, GP-44A, MW-4, MW-3, MW-19 and MW-23, was changed from semi-annually to monthly. Detection of LPH in any of the sentinel wells for two consecutive monthly gauging events during system shut down and rebound testing would be a trigger for the restart of the DPE system (Arcadis, 2017b). The DPE system was shut down from December 16, 2017 through March 1, 2018. Gauging events for the five sentinel wells occurred January 12, 2018, January 22, 2018, and February 7, 2018. A gauging event was not conducted in December 2017 due to Chevron policy restricting field work during the holiday season. Note that GP-44A was not gauged during these events because a third party had paved it over. Results from the gauging events are provided in Section 3 of this report.

As proposed in the Response to Comments for Area A System Operating Plan, the frequency of sampling six sentinel monitoring wells, GP-44A, MW-4, MW-3, MW-18, MW-19, and MW-23, would be changed from semi-annually to quarterly during the Pilot Rebound Evaluation to detect any sustained increasing trends in COC concentrations across Riggs Road or Eastern Avenue (Arcadis, 2017b). A statistically significant increasing trend in COC concentrations observed at any of the proposed sentinel wells over a period of four consecutive quarterly sampling events as evaluated by Mann-Kendall Trend Analysis during system shut down and rebound testing acted as a trigger for the restart of the DPE system (Arcadis, 2017b). The DPE system was down from December 16, 2017 through March 1, 2018 for the Pilot Rebound Evaluation. Given that the DPE system was down for less than a full quarter, less than the four consecutive quarters proposed in the Response to Comments for Area A System Operating Plan, a sentinel well sampling event was not conducted. The DPE remediation system was restarted on March 1, 2018. A routine semi-annual sampling event that included wells MW-23, MW-18, and MW-19 occurred March 26 through 29, 2018, shortly after the DPE system was restarted; results of the routine event are discussed in Section 3.1.5.

3 CORRECTIVE MEASURE IMPLEMENTATION RESULTS

3.1 Monitoring and OMM Summary of Findings

3.1.1 Area A Dual Phase Extraction System

3.1.1.1 Maintenance

The operating hours for both the total fluids and SVE portions of the DPE system were logged regularly during the reporting period by collecting measurements from the solenoid and hour meter, respectively. For the period of January 2013 through March 2018, the total fluids extraction portion of the system was operating 64.2 percent of the time (29,188 hours on and 16,306 hours off). During the same period, the SVE portion of the system was operating 52.2 percent of the time (23,791 hours on and 21,816 hours off). Reasons for system downtime this period are detailed in **Table D-6** in **Appendix D**. Details are listed in **Tables G-1** and **H-1** of **Appendix G** and **Appendix H**, respectively.

Table G-1 in Appendix G contains total GWE system data including date and time, on/off status, totalizer reading, cumulative gallons of hydrocarbons recovered, and operating extraction points. A detailed explanation of the tables is provided on the first page of **Appendix G**.

Table H-1 in Appendix H contains SVE system data including date and time, on/off status, hour meter readings, manifold air flow readings, manifold vacuum readings, influent and effluent screening concentrations measured using a FID, cumulative gallons of hydrocarbons recovered, and operating extraction points. A detailed explanation of the tables is provided on the first page of **Appendix H**.

Optimization of the DPE system is performed on a routine basis. Data collected during optimization events is utilized to maximize mass removal by targeting vapor extraction on wells exhibiting higher influent concentrations. Optimization events are performed monthly while the system is operational. The short-term optimization plan is consistent with plans outlined in the USEPA-approved 2007 Corrective Measures Study (Gannett Fleming, 2007), which states that the DPE system would be optimized to maximize mass recovery until asymptotic recovery is reached.

3.1.1.2 Monitoring

The GWE portion of the DPE system pumped approximately 11,694,019 gallons of groundwater and recovered 76.1 equivalent gallons of dissolved hydrocarbons during the reporting period. The average system flow rate over the entire period was 4.29 gpm. The total volume of groundwater pumped from this site since remediation began in 1989 is approximately 73,400,004 gallons.

The analytical results for groundwater samples collected from effluent sample point SP-3 (treated groundwater that is discharged to the storm drain) (**Table G-3** of **Appendix G**) indicated concentrations of benzene, BTEX, and TPH-GRO in the treated groundwater were below the permit limits (5 µg/L benzene, 100 µg/L BTEX, and 15 mg/L for TPH-GRO) during the reporting period.

The laboratory analytical results for monthly air stripper samples collected at sample points SP-50 (air stripper vapor phase GAC influent) (**Table G-4** of **Appendix G**) and SP-52 (air stripper vapor phase GAC

effluent to atmosphere) (**Table G-5** of **Appendix G**) indicated concentrations of benzene and TRPH in the treated vapor were below the permit limits. The permit limits are 0.02 pounds per hour of benzene and 20 pounds per day of VOCs measured as TRPH.

The SVE portion of the DPE system recovered 574.0 equivalent gallons of hydrocarbons in the vapor phase during the reporting period. The average air flow rate was 134.74 standard cubic feet per minute when the system was on (excluding down time).

The laboratory analytical results for monthly SVE system air samples collected at sample points SP-100 (soil vapor influent) (**Table H-2** of **Appendix H**) and SP-200 (soil vapor effluent to atmosphere) (**Table H-3** of **Appendix H**) indicated concentrations of benzene and TRPH in the treated soil vapor were below the permit limits. The permit limits are 0.02 pounds per hour of benzene and 20 pounds per day of VOCs measured as TRPH.

Hydrocarbon Recovery Summary for Period of Cumulative Total for System

Period	Liquid Phase Hydrocarbons (gallons)	Dissolved Phase Hydrocarbons (eq. gallons)	Vapor Phase Hydrocarbons (eq. gallons)	Cumulative Total Hydrocarbons (eq. gallons)
1/16/2013 through 3/31/2018	0.00	76.1	574.0	650.1
Cumulative Total for System	856.08	1,009.43	6,747.7	8,613.21

The volume of groundwater treated, and the corresponding volume of hydrocarbons collected for the entire time the system has been operating on a quarter by quarter basis continued to be tracked (**Figure 15**).

3.1.2 Area B In-Situ Groundwater Remediation Wells

3.1.2.1 Maintenance

The operating hours for both ISGR wells were logged regularly during the reporting period by collecting measurements from the hour meters during each visit. For the period of September 2013 through March 1, 2018, ISGR-1 was operating 87.2 percent of the time (33,756 hours on and 4,957 hours off). During the same period, ISGR-2 was operating 75.6 percent of the time (29,258 hours on and 9,454 hours off). Reasons for system downtime this period are detailed further in **Table E-2 in Appendix E**. System improvements were made in 2013 and 2014, including utilization of a larger discharge orifice in ISGR-2, adjustments to the submersible pump output in ISGR-2, and installation of a phone line connection to improve system uptime/downtime monitoring.

Table I-1 in **Appendix I** contains ISGR monitoring data for each well including date and time, on/off status, hour meter reading, total gallons pumped, system flow, influent pressure, and pump operating hours.

3.1.2.2 Monitoring

Liquid phase GAC performance samples were routinely collected during the reporting period. Since startup and throughout the reporting period, analysis of samples collected from the 50%, 70% and 90%

carbon sample ports of both wells have been below laboratory detection limits for COCs. The carbon consumption rate for both ISGR wells has been minimal. **Table I-2** in **Appendix I** provides a summary of the analysis results for the liquid phase GAC performance samples collected from ISGR-1 and ISGR-2. Section 4 of this report discusses system effectiveness and remedial performance of the Area B system.

3.1.3 Area C Oxygen Reactive Zone

3.1.3.1 Maintenance

The operating hours for the ORZ system were logged regularly during the reporting period based on pressure readings from the oxygen cylinder tank. During the period of September 17, 2013 through March 1, 2018, the oxygen cylinder contained sufficient oxygen for proper operation approximately 72 percent of the time (28,128 hours on and 10,896 hours off).

Table J-1 in **Appendix J** contains ORZ monitoring data including date and time, on/off status, oxygen cylinder pressure, cylinder regulator pressure, well regulator pressure, and vault oxygen sensor reading.

3.1.3.2 Monitoring

DO was measured in all injection wells (IW-1 through IW-5), MW-26A, MW-26B, and MW-58 on a quarterly basis. Geochemical parameters (nitrate, pH, specific conductivity, ferrous iron, alkalinity, ORP, sulfate, and temperature) were measured in MW-58, MW-59, MW-60, MW-26A, and MW-26B on a semi-annual basis. Aerobic oxidizing conditions are observed in upgradient well MW-26B and downgradient well MW-58, suggesting that aerobic oxidizing conditions are naturally occurring in the wells in Area C. Shallow wells MW-60 and MW-26A, which are screened above the Area C treatment zone, exhibit iron-reducing conditions, which is consistent with the results of geochemical sampling conducted previously in 2004 and 2005. **Tables J-2** and **J-3** in **Appendix J** provide a summary of the DO and geochemical measurements, respectively, for the Area C ORZ. Section 4 of this report discusses system effectiveness and remedial performance of the Area C system.

3.1.4 Groundwater Gauging Events

Comprehensive data from groundwater gauging events performed during the reporting period is provided in **Table 3**. Groundwater gauging measurements from the most recent semi-annual event, conducted in March 2018, indicate that groundwater flow direction is toward the south-southeast, consistent with observations from past event performed during the reporting period. Groundwater contour maps representing the March 2018 semi-annual groundwater gauging event are provided as **Figures 5** and **6**. Groundwater contour maps generated for historic semi-annual groundwater sampling events are not included in this report submittal, as they have been provided to USEPA in previous semi-annual report submittals.

During the reporting period, LPH was detected in one well, MP-7, at thicknesses ranging from 0.07 to 0.87 feet, as summarized in **Table 3**. Additional activities performed with respect to LPH in MP-7 are discussed in Section 2.2.5.2 and 3.2.3.2.

3.1.5 Semi-Annual Sampling Events

A Mann-Kendall statistical analysis was performed annually during the reporting period to determine trends in dissolved-phase hydrocarbon concentrations (benzene and MTBE) for select monitoring wells located along the previously mapped east and west centerlines of the dissolved-phase hydrocarbon plume. The findings of the analysis during the reporting period demonstrate that dissolved-phase hydrocarbon concentrations for centerline wells were either decreasing or did not indicate a statistically significant trend except for MW-60, which is located along the west centerline.

From the inception of the monitoring program through the fall of 2013, benzene was not detected at well MW-60. Beginning with the September 2013 monitoring event, benzene was detected, and concentrations slightly increased during the next two monitoring events. Benzene concentrations have subsequently decreased during the latest sampling events. Benzene has never been detected in monitoring well MW-60 above the MCL promulgated by the USEPA. The benzene concentration trend for MW-60 will continue to be monitored. The full Mann-Kendall statistical analyses completed for each year during the reporting period are provided in their respective fall Semi-Annual Progress Reports.

Analytical results for the reporting period are presented in **Table 4**; results have also been presented in Semi-Annual Progress reports submitted to USEPA. Soil vapor s. Historical analytical results from prior to 2013 are presented in **Table 7**.

3.1.6 Soil Vapor Monitoring

Analytical results for soil vapor samples collected during the reporting are provided on **Table 5**; results have also been presented in Semi-Annual Progress reports submitted to USEPA. Soil vapor sample results were compared to the USEPA Vapor Intrusion Screening Levels (VISLs) for Soil Gas for a residential scenario based on a target cancer risk equal to 1x10-6 or a target non-cancer hazard quotient (HQ) equal to 1. The USEPA VISLs were obtained from the USEPA VISL Calculator, Version 3.5.1 updated with June 2017 toxicity information because USEPA has not completed their update of the VISL Calculator with this information.

Except for one benzene detection from VW-02 in May 2014, the analytical results for the four soil vapor monitoring wells (VW-01, VW-02, VW-03, and VW-04) indicate either non-detect concentrations for all COCs or detected concentrations below USEPA Residential VISLs for Sub-Slab Soil Gas. The data for VW-01 through VW-04 provide an additional line of evidence supporting the conclusion that the vapor intrusion pathway is not a concern for the off-site residential area.

3.2 Additional Field Activities

3.2.1 Vapor Mitigation System Results

3.2.1.1 2013 Sample Analyses and Reporting

During the April 17, 2013 through June 7, 2013 annual VMS monitoring and sampling activities performed at the residence at 5818 Eastern Avenue, two indoor air samples were collected inside the residence basement; one sample was collected while the VMS system was on (identified as 5818EasternAve(ON))

and one samples was collected when the VMS system was off (identified as 5818Eastern(AOFF)2013). Two ambient air samples were collected in the front yard of the property; one while the VMS system was on (identified as 5818EasternAve(A)(ON)) and one when the VMS system was off (identified as 5818Eastern(OFF)CL2013). Both indoor and ambient air sample canisters were submitted to Air Toxics of Folsom, California for analysis using USEPA Method TO-15 (Full Scan) (Gannet Fleming, 2013b).

Discharge stack soil vapor samples (identified as 5818Eastern(OFF)Stack2013 and 5818Eastern(OFF)2013) were collected on June 7, 2013 before to the VMS was restarted. Samples were submitted to Air Toxics of Folsom, California for analysis of BTEX, MTBE, and difluoroethane (leak detection compound) using USEPA Method TO-15 (modified).

Differential pressure measurements were taken across the basement slab using an Omniguard 4 differential pressure monitor at the ports located on the rear exterior wall of the property while the VMS system was on. Air flow rates from the VMS fan/blower were also measured. The measurements were compared to the differential pressure goals that were established by USEPA and ASTM to determine whether the system was operating efficiently (USEPA, 2008b; ASTM, 2003).

3.2.1.2 Indoor and Ambient Air Sample Results

The following results and conclusions were made based on the annual VMS indoor and ambient air sampling conducted April 17, 2013 through June 7, 2013:

- Benzene was detected in the indoor sample (5818EasternAve(ON)) at 5818 Eastern Avenue at a concentration of 8.0 µg/m^3 when the VMS system was running (system on) and at a concentration of 8.5 µg/m^3 (5818Eastern(AOFF)2013) seven weeks later when the VMS was not running (system off). Both values are above the USEPA Conservative Indoor Air Standard for benzene of 8 µg/m^3 (Gannet Fleming, 2013b).
- Technicians verified that the VMS was functioning properly with an Omniguard differential pressure meter tied into ports above and below the slab. Benzene was not detected at a detection limit of 3.7 µg/m^3 in the soil vapor collected below the basement slab and was not detected in the ambient (outdoor) air samples (5818EasternAve(A)(ON), 5818Eastern(OFF)CL2013). Additionally, the technicians who arrived to collect the system-off sample noticed a strong odor of burning incense emanating from the doorway. The absence of benzene from the soil vapor beneath the concrete slab (stack or sub-slab samples) and the observations made by field staff strongly suggest that the benzene detected in the basement of 5818 Eastern Avenue was the result of activities within the household and therefore was likely not the result of vapor intrusion (Gannet Fleming, 2013b).
- Except for the aforementioned benzene concentrations detected in the system on and the system off samples for 5818 Eastern Avenue, analytical results for all indoor air samples were less than the indoor air standards identified by USEPA in correspondence to Chevron dated June 20, 2007 and the “Final Decision and Response to Comments” (USEPA, 2008a) (Gannet Fleming, 2013b).

Indoor and ambient air sample results from 2013 are provided in **Table 2** of **Appendix P**.

3.2.1.3 Discharge Stack Soil Vapor Sampling Results

The analytical results for sub-slab soil vapor collected at 5818 Eastern Avenue from the discharge stack prior to VMS reactivation revealed low detections of BTEX and no MTBE (Gannet Fleming, 2013b). The analytical results for this residence were below the USEPA Indoor Air Standards (Gannet Fleming, 2013b).

Discharge Stack Soil results are provided in **Table 2** of **Appendix P**.

3.2.1.4 Differential Pressure and Air Flow Rate Measurements

Differential pressure monitoring completed at 5818 Eastern Avenue during the "system on" sampling event indicated the presence of a positive differential pressure (+0.006) in the sub-slab relative to outdoor air. This result failed to achieve the sub-slab depressurization goal established by USEPA (-0.016). The positive differential pressure result indicated that the flow of air was from the sub-slab into the residence, thus indicating that the VMS was not functioning properly. Upon restarting of the VMS system, readings were taken an hour after the system was restarted and the differential pressure meter showed a reading of (-0.002) which indicated that the VMS was generating positive indoor pressure (Gannet Fleming, 2013b).

Differential Pressure Measurement readings are provided in **Table 4** of **Appendix P**.

3.2.1.5 VMS Effectiveness and Remedial Endpoint

Based on the approved Interim Measures Work Plan for Vapor Sampling and Mitigation (Gannet Fleming, 2008a), if the data trend over three consecutive years suggests that continuous operation of any VMS installed is no longer necessary to protect human health, Chevron may petition USEPA for system termination review.

Chevron submitted a letter dated November 7, 2013 to USEPA to formally request a termination review and USEPA approval that operation and maintenance of the three VMS units located at 746 Oglethorpe Street, 5818 Eastern Avenue, and 5824 Eastern Avenue in Washington, D.C. be discontinued. In a letter dated January 9, 2014, the USEPA approved Chevron's request to discontinue operation and maintenance of the three VMS units.

In response to the approval, the residence owner at 5824 Eastern Avenue, who was deemed not eligible to receive a VMS from the DOEE (per the 2010 Final Remedy), was contacted by Chevron in February 2014 to determine whether the system will be removed from the building or left in place. No request for the removal of the system at 5824 Eastern Avenue has been received to date, therefore; the system will be left in place, and the residence owner is responsible for all costs (including electricity) associated with further maintenance and operation of the system.

Additionally, in response to the approval, the residence owners at 746 Oglethorpe Street and 5818 Eastern Avenue were contacted by Chevron in February 2014 and informed that per the 2010 Final Remedy and as detailed in the 2010 Homeowner Report (that the resident owners previously received from the DOEE, they were deemed eligible to receive a VMS from the DOEE and they should not remove the VMS currently installed in their home. Following confirmation of receipt of this correspondence, the DOEE was to contact the resident owners to coordinate future operation and maintenance events.

Notification letters, inclusive of the EPA approval date and the information discussed above, were submitted to each resident via certified mail.

In April 2017, the VMS was removed from the residence at 5818 Eastern Avenue in Chillum, Maryland. The VMS system was removed based on recent requests from the property owner. The USEPA was aware of this request from the property owner and removal of the system from this residence. Based on documents reviewed, the sub-slab depressurization VMS was installed at this site in December 2008; details and as-built drawings for this system were obtained from the USEPA approved Interim Measures Work Plan for Vapor Sampling and Mitigation at Residences prepared by Gannett Fleming in 2008. Prior to removing the system, a building permit and an electrical permit were obtained from the District of Columbia Department of Consumer and Regulatory Affairs (DCRA) Permit Operations Division. A copy of permits obtained was included in the July 2017 Semi-Annual Progress Report submitted by Chevron. The VMS system was removed on April 12, 2017. Following completion of the work, an inspection was performed by a DCRA official on April 19, 2017 and the DCRA inspector approved the work performed. Photos of the work upon completion were included in the July 2017 Semi-Annual Progress Report submitted by Chevron.

3.2.2 Over Drilling and Connection of GP-30R

Targeted vapor extraction methodology has been implemented to increase the vacuum applied to select SVE wells, starting with the SVE wells that demonstrate the highest dissolved phase groundwater concentrations. Once asymptotic mass recovery has been documented for the targeted wells, vapor extraction from that set of wells will cease and targeted vapor extraction will be focused on another set of extraction wells that exceed groundwater remedial objectives. Targeted vapor extraction efforts were focused on GP-30R from when it was brought online on June 1, 2017 until asymptotic mass recovery was documented and it was closed on March 1, 2018. As depicted in the graph attached in **Appendix Q**, concentrations of COCs in GP-30A/GP-30R have fluctuated but show decreasing trends over time. Since installation of GP-30R in May 2017, concentrations of benzene have decreased from 3,000 µg/L in February 2018 to 90 µg/L total BTEX in March 2018. MTBE decreased from 500 µg/L in February 2018 to 140 µg/L in March 2018.

3.2.3 Pilot Rebound Evaluation

The DPE system was shut down from December 16, 2017 through March 1, 2018 to conduct the Pilot Rebound Evaluation to monitor for LPH rebound and to collect new data to confirm that no potential vapor intrusion risks from petroleum-related compounds to commercial workers exist at the site. Activities performed include: Area A interior and exterior vapor intrusion investigation; LPH characterization and monitoring; Area A NSZD evaluation; site-wide MNA evaluation; and interim sentinel well gauging and sampling. Results from these activities are summarized below.

3.2.3.1 Area A Vapor Intrusion Investigation

3.2.3.1.1 Sample Analysis and Reporting

During the August 2017 and February 2018 vapor intrusion investigation activities, exterior soil gas samples CV-1 (10), CV-1 (15), CV-1 (24), CV-2 (10), CV-2 (15), CV-2 (24), CV-3 (10), CV-3 (15), and CV-3 (25), were collected from three permanent exterior soil gas sampling locations (CV-1, CV-2, and CV-3) and submitted for analysis. A sample suffix of (10), (15), and (24) or (25) indicates a sample collected from 10 feet bgs, 15 feet bgs, and 24 or 25 feet bgs, respectively. Exterior soil gas sample CV-1 (24) could not be collected during the February 2018 sampling event due to the presence of water in the

sample tubing observed during the sampling. One exterior field duplicate was collected during each sampling event. In addition, one equipment field blank sample was collected during each event using a laboratory supplied air source and submitted to the laboratory for quality assurance purposes.

During the February 2018 vapor intrusion investigation activities, 3 soil gas samples, including one sub-slab field duplicate sample, were collected from two permanent sub-slab soil gas sampling locations (SS-1 and SS-2) and submitted for analysis (**Figure 11**). In addition, one equipment field blank sample was collected using a laboratory supplied air source and submitted to the laboratory for quality assurance purposes.

The exterior and sub-slab soil gas samples were analyzed for VOCs, including naphthalene, by USEPA Method TO-15 and fixed gases, including oxygen, carbon dioxide, methane, and helium by Modified ASTM Standard D-1946.Exterior and sub-slab soil gas sample results for VOCs were compared to the USEPA VISLs for Soil Gas for a commercial scenario based on a target cancer risk equal to $1x10^{-6}$ or a target non-cancer HQ equal to 1. The USEPA VISLs were obtained from the USEPA VISL Calculator, Version 3.5.2. Results are discussed in the following sections.

3.2.3.1.2 August 2017 Exterior Soil Gas Sampling Results

The vapor results indicate that typical indicator compounds for petroleum releases, such as benzene, ethylbenzene, toluene, xylenes, and the straight chain hydrocarbons (e.g., heptane, hexane) were either not detected or were detected well below their corresponding commercial VISLs.

Concentrations of the following constituents, which are not deemed COCs at the site, were detected above the VISLs:

- Bromodichloromethane was detected at a concentration of 12 micrograms per cubic meter (µg/m^3), which is greater than its VISL of 11 µg/m^3 in soil gas sample CV-2 (10). Sample CV-3 (10) had a detected concentration of 10 µg/m^3, which is below the VISL. This constituent was not detected in the other samples, although the laboratory detection limit for bromodichloromethane was above the corresponding VISL in samples collected from CV-1 (24) and CV-2 (24). This compound is not considered a COC at the site.
- Chloroform was detected at a concentration greater than the corresponding VISL of 18 µg/m^3 in soil gas samples CV-1 (24), CV-2 (10), and CV-3 (10). The laboratory detection limit for chloroform was above the VISL in the sample collected from CV-2 (24). Chloroform frequently is found in the subsurface environment from leaks in potable water lines or if treated water is used for irrigation (U.S. Geological Survey, 2006). Chloroform is not typically identified as an indicator of petroleum releases.
- Tetrachloroethene was detected at a concentration of 16,000 µg/m^3 which is greater than the corresponding VISL of 1,600 µg/m^3 in soil gas sample CV-2 (24). All other detections were below the commercial VISL. The shallower samples for CV-2 indicate that concentrations of this constituent are unlikely to reach the ground surface or migrate into a building at a concentration above the commercial VISL. USEPA has determined that chlorinated solvents are not Facility related contaminants but rather are associated with a former dry cleaner that operated across Riggs Road at 5901 Eastern Avenue.
- Trichloroethene was detected at a concentration of 340 µg/m^3, which is greater than the corresponding VISL of 100 µg/m^3 in soil gas sample CV-2 (24). Similar to the tetrachloroethene sampling results, the data do not indicate that concentrations of trichloroethene are migrating toward

the ground surface at concentrations near the commercial VISL. USEPA has determined that chlorinated solvents are not Facility related contaminants but rather are associated with a former dry cleaner that operated across Riggs Road at 5901 Eastern Avenue.

- The laboratory detection limits for several analytes (i.e., carbon tetrachloride, 3-chloropropene, alpha-chlorotoluene, 1,2-dibromoethane, 1,4-dioxane, hexachlorobutadiene, naphthalene, and 1.1,2,2-tetrachloroethene) were greater than their corresponding VISL in one or more samples.

An equipment field blank sample was collected using a laboratory supplied air source and analyzed by the laboratory for quality assurance process. The equipment field blank was analyzed for VOCs by USEPA Method TO-15 and fixed gases by Modified ASTM Standard D-1946. Tetrachloroethene was detected at a concentration of 15 µg/m^3 in the equipment field blank sample; no other constituents were detected above the lab limits. USEPA has determined that chlorinated solvents are not Facility related contaminants but rather are associated with a former dry cleaner that operated across Riggs Road at 5901 Eastern Avenue.

Analytical results are presented in **Table 11** and **Table 12**. The laboratory report is attached as **Appendix R**.

3.2.3.1.3 February 2018 Exterior Soil Gas Sampling Results

The February 2018 exterior soil gas sampling results, consistent with the August 2017 sampling results, indicate that typical indicator compounds for petroleum releases, such as benzene, ethylbenzene, toluene, xylenes, and the straight chain hydrocarbons (e.g., heptane, hexane) were either not detected or were detected well below their corresponding commercial VISLs.

Concentrations of the following constituents, which are not deemed COCs at the site, were detected above the VISLs in samples collected during the February 2018 sampling event:

- Chloroform was detected at concentration (22 µg/m^3) greater than the corresponding VISL (18 µg/m^3) in soil gas sample CV-2 (10).
- Tetrachloroethene was detected at a concentration (1,900 µg/m^3) greater than the corresponding VISL (1,600 µg/m^3) in soil gas sample CV-2 (24). All other detections were below the commercial VISL. The shallower samples for CV-2 indicate that concentrations of this constituent are unlikely to reach the ground surface or migrate into a building at a concentration above the commercial VISL. USEPA has determined that chlorinated solvents are not Facility related contaminants but rather are associated with a former dry cleaner that operated across Riggs Road at 5901 Eastern Avenue.
- The laboratory reporting limits for several analytes (i.e., 1,2-dibromoethane, hexachlorobutadiene, naphthalene, and 1.1,2,2-tetrachloroethene) were greater than their corresponding VISL in one or more samples.

An equipment field blank sample was collected using a laboratory supplied air source and analyzed by the laboratory for quality assurance process. The equipment field blank was analyzed for VOCs by USEPA Method TO-15 and fixed gases by Modified ASTM Standard D-1946. No constituents were detected at concentrations greater than the laboratory reporting limits.

Analytical results are presented in **Table 11 and Table 12**. The laboratory report is attached as **Appendix R**.

3.2.3.1.4 February 2018 Sub-Slab Soil Gas Sampling Results

The February 2018 sub-slab soil gas sampling results indicate that typical indicator compounds for petroleum releases, such as benzene, ethylbenzene, toluene, xylenes and the straight chain hydrocarbons (e.g., heptane, hexane) were not detected at concentrations greater than the corresponding laboratory reporting limits. Furthermore, no constituents were detected at concentrations greater than the corresponding VISLs.

The laboratory reporting limits for several analytes (i.e., 1,2-dibromoethane, hexachlorobutadiene, naphthalene, and 1.1,2,2-tetrachloroethene) were greater than their corresponding VISL in one or more samples.

Based on the sub-slab soil gas sampling results, the ambient and indoor air samples collected from the onsite building were not analyzed.

Analytical results are presented in **Table 13** and **Table 14**. The laboratory report is attached as **Appendix R**.

3.2.3.1.5 Fixed Gas Sampling Results

The exterior and sub-slab soil gas samples were analyzed for fixed gases, including oxygen, carbon dioxide, methane, and helium by Modified ASTM Standard D-1946. Helium was used as a tracer gas during soil gas sample collection to verify the integrity of the soil gas probe seal and to confirm the absence of infiltration of ambient air into the sampling apparatus at each soil gas sampling location. Helium was not detected above the laboratory reporting limit in samples collected from exterior soil gas sampling locations CV-1, CV-2, and CV-3 or sub-slab soil gas sampling locations SS-1 and SS-2. These results indicate that no leakage of ambient air occurred into the sample assembly and/or sampling point during sampling at exterior locations CV-1, CV-2, and CV-3 or sub-slab locations SS-1 and SS-2.

Fixed Gas Analytical results are presented in **Table 12** and **Table 14**. The laboratory report is attached as **Appendix R**.

3.2.3.1.6 Conclusions from Area A Vapor Intrusion Investigation

In summary, the VI pathway is not a concern for the site based on the data presented because:

- Constituents detected at concentrations greater than the corresponding USEPA VISLs for soil gas are not related to current and/or historical site operations.
- Site-related constituents were either not detected or were detected at concentrations below the USEPA VISLs in exterior soil gas samples. These results indicate that concentrations of site-related constituents would not be expected to migrate into a building at the site.
- No compounds, including site-related constituents, were detected at concentrations greater than laboratory reporting limits in sub-slab soil gas samples collected from the beneath the slab of the onsite building, confirming that the VI pathway is not a concern at the site.
- The USEPA Technical Guide for Addressing Petroleum Vapor Intrusion (PVI) At Leaking Underground Storage Tank Sites (PVI Guidance) supports the conclusion that PVI is not a concern for sites where benzene and TPH are present in the dissolved-phase at concentrations greater than 5,000 µg/L and 30,000 µg/L, respectively, and there is a vertical separation distance of a minimum of 15 feet (USEPA, 2015). Previous investigations at the site indicate that the shallowest impacts are

present at approximately 28 feet bgs. Results of soil gas samples collected from depths equal to 10 feet bgs, 15 feet bgs, and 24 or 25 feet bgs demonstrate that site-related constituents are not migrating from impacted soils and/or groundwater into soil gas.

- The data suggest that attenuation of the constituents in soil gas is occurring between the source (impacted groundwater or soils) and the ground surface.

3.2.3.2 LPH Characterization and Monitoring

3.2.3.2.1 LPH Speciation and Characterization

The Whole Oil Analysis and PIANO results (**Appendix O**) indicate that the LPH sample collected from MP-7 was primarily slightly weathered gasoline, containing a component that was likely premium gasoline (determined by the presence of 2,2,4-trimethylpentane, a compound used to increase the octane rating of premium fuels). Additionally, the LPH still contains lighter paraffins (i.e. pentane), which are generally the first compounds to be degraded in the weathering process as they are more soluble, more volatile, and are preferentially consumed by microbes in comparison to heavier paraffins. In a more weathered product sample, we would expect the lighter paraffins to have already degraded.

3.2.3.2.2 Hydrogeologic Parameters

LPH accumulations have been historically detected in 18 wells at the site, as noted previously. More recently, measurable LPH has only been present at MP-7. Generally, increased measurable LPH thickness in the well coincided with lower groundwater elevations at the site (see hydrograph, **Figure 12**). Measurements of groundwater elevation in relation to the ongoing operation of the SVE system, specifically at MP-7, indicate a relatively stable groundwater surface elevation that is generally higher during operation than in the noted periods of time when the system was not operating. This may indicate the SVE system increased groundwater surface elevation, reducing the seasonal or precipitation driven fluctuations in groundwater surface elevation that would typically be present, and potentially submerged the LPH present at and near the well. The submerging of the interval could limit mobility and hinder drainage from the formation to the well space and may account for the absence of LPH in the well during operation, and the drop in the groundwater elevation and subsequent accumulation of LPH during times when it was not operational. It is possible that treatment system effectiveness could be improved in this area by replacing the co-located wells GP-27R (where groundwater is extracted via submersible pump) and MP-7 (to which vacuum is applied) with a single well to dewater the LPH smear zone and extract soil vapor.

In an unconfined groundwater system, an inverse relationship between the groundwater potentiometric surface elevation and LPH thickness is expected (e.g., LPH thickness decreases as groundwater levels rise). Despite conditions created by the operation of the SVE system, conditions appear consistent with unconfined LPH behavior at MP-7, with LPH returning to the well at small thicknesses during periods of low groundwater elevation.

LPH movement at the pore scale is dependent upon the presence of a sufficient driving head and hydraulic gradient. Therefore, accumulation of LPH in monitoring wells is not a stand-alone indicator of LPH migration potential. The accumulation of LPH within a historical range at MP-7 following system shut

down and the absence of measurable LPH in monitoring wells that previously contained LPH within the footprint of the smear zone indicates that the historical LPH plume is stable. The lack of LPH accumulation in downgradient wells demonstrates that the LPH is not migrating.

3.2.3.2.3 LPH Transmissivity Testing

LPH transmissivity calculated from analyzing baildown test data can be used to quantitatively characterize LPH transport in the area immediately surrounding the well. Baildown tests were analyzed as described previously in Section 2.2.5 using a modified slug test method by Bouwer and Rice (1976), a modified pump test method by Cooper and Jacob/Jacob and Lohman (Cooper and Jacob 1946, Jacob, and Lohman 1952) and a modified slug test method by Cooper, Bredehoeft, and Papadopulos (Cooper et al 1967). The reported results for LPH transmissivity, an average of the results of the three methods named above, ranged from 0.10 to 0.11 feet^2/day during the two tests completed at MP-7. To account for potential uncertainties in the data collection process and analysis, a range of values could also be determined by applying a factor of 30% (plus or minus) of the determined transmissivity values, without significantly changing the outcome of the testing. Results from the API Workbook of LPH transmissivity calculated at each monitoring well are shown in **Table 15**. **Appendix S** includes the baildown test outputs from the API Workbooks.

LPH recovery using hydraulic methods yields negligible LPH when the LPH transmissivity is less than 0.1 to 0.8 foot^2/day (ITRC 2009). The calculated transmissivity (and applied range to account for any sensitivities) at monitoring well MP-7 is at the lower bound of this transmissivity criterion range, indicating that LPH is not practically recoverable via hydraulic methods, and hydraulic recovery is unlikely to beneficially reduce the overall LPH mass near the well. Methods other than hydraulic recovery, however, such as vapor extraction and enhanced biodegradation, may still be capable of reducing overall LPH mass, as LPH transmissivity is not a direct predictor of effectiveness for these methods.

3.2.3.3 Area A Natural Source Zone Depletion Evaluation

The results of the NSZD field activities, including temperature monitoring and dissolved-phase mass balance calculations, are discussed in the following sections.

3.2.3.3.1 Dissolved-Phase Mass Balance

Biodegradation and dissolution of the submerged portion of the LPH can be assessed by comparing the chemical composition of groundwater upgradient (MW-20) of the source zone with groundwater within or near the source zone (GP-30R, GP-35A, MW-6, MW-13, and MW-45) and downgradient (MW-18) of the source zone. Moving from upgradient through the source zone, if biodegradation is occurring, then a decrease in the concentrations of electron acceptors and a corresponding increase in the concentrations of biodegradation transformation products should be observed. The NSZD parameters (oxygen, nitrate, sulfate, dissolved iron, dissolved manganese, carbon dioxide, and methane) are presented in **Table 10;** analytical results are presented in **Appendix T**. A comparison of the upgradient and source zone/downgradient data indicates the following which would typically be indicative of the occurrence of NSZD processes:

- Nitrate concentrations generally decrease from the upgradient monitoring locations to the source zone and downgradient monitoring locations, indicating bio-oxidation of LPH using nitrate as a terminal electron acceptor within the LPH zone.
- Dissolved iron concentrations increase from the upgradient monitoring locations to the source zone monitoring locations, indicating some methanogenic and iron-reducing LPH degradation within the LPH zone.

The spatial comparison of upgradient and source zone/downgradient nitrate and dissolved iron may indicate a decreasing trend in electron acceptors and an increasing trend in biodegradation transformation products, which would indicate some biodegradation of LPH in the submerged portion of the LPH body. However, the results of the remaining NSZD parameters are generally not representative of results at a site where significant NSZD is occurring and do not definitively demonstrate depletion of LPH by dissolution, methanogenesis, and bio-oxidation within the saturated zone. As a result, the dissolved-phase mass balance data were not used as a primary line of evidence for quantification of NSZD.

3.2.3.3.2 Biogenic Heat Monitoring

To quantify the NSZD rates at the site, the temperature profiles collected in May 2017 and February 2018 from select source area wells were compared to the background profiles collected at MW-20. The temperature anomaly (the difference between the background and the measured) was calculated using the measured background profile, and the upward and downward heat flux from the peak of the thermal anomaly was estimated and converted to equivalent hydrocarbon losses following the relationships described by (Sweeney and Ririe, 2014). For wells where temperature profiles did not indicate a distinct thermal anomaly, calculations were not performed.

The data and calculations used in this approach are presented in **Appendix T**. This approach assumes that measured conditions approximate a steady-state. Literature-based values were used to approximate soil thermal properties, and an LPH density of 0.78 g/mL (based on site-specific LPH physical properties) was used to develop volume-equivalent degradation rates (e.g., estimates of degradation in terms of gallons per year). Consistent with recent publications and guidance documents (e.g., Garg et al. 2017; and ITRC 2018), these estimates are considered to represent order-of-magnitude estimates of degradation rates and are presented in this report to two significant digits.

In May 2017, the estimated average hydrocarbon loss rate, also referred to as the NSZD rate, was 700 gallons per acre per year (gal/ac/yr). Based on an approximate LPH body size of 0.5 ac in Area A, the average site-wide rate was then 350 gal/yr. In February 2018, the average NSZD rate was 1,700 gal/ac/yr or 850 gal/yr.

As illustrated by the higher calculated NSZD rate in February 2018, data collected during the “system-off” condition provide a stronger indication of NSZD activity; the thermal anomalies generated by methane oxidation are expected to be more difficult to observe during system-on conditions, due to circulation of air in the subsurface and the lack of a consistent aerobic-anaerobic horizon. The results and thermal anomalies observed are also consistent with the results of fixed gas analysis from the exterior soil gas sampling work described in section 3.2.3.1; exterior soil gas samples generally contained elevated carbon dioxide (on the order of 1 to 5 percent by volume), negligible methane, and near-atmospheric levels of

oxygen, as would be expected for the sampling locations above the anaerobic/aerobic horizon and zone of methane oxidation.

NSZD estimates can be compared to mass removal and biodegradation estimates derived from system operating data. A simple estimate of mass biodegraded/removed from 2017 system data, prepared using measured effluent vapor flow rates and carbon dioxide concentrations from one sampling event, indicates a biodegradation total of approximately 1,100 gal/yr, which is similar to the 850 gal/yr biodegraded by NSZD processes; laboratory results from the DPE effluent sample are included in **Appendix T** for reference. Degradation under the system-on condition could be attributed to a mix of both NSZD processes and direct aerobic biodegradation due to vapor extraction; however, because the NSZD rate estimate for system-off conditions and the total biodegradation estimate for system-on conditions are relatively similar, the data do not indicate that substantial increases in degradation rate can be achieved by operating the system in its current configuration.

3.2.3.4 Site-wide Monitored Natural Attenuation Evaluation

Natural attenuation of dissolved hydrocarbons and the presence of biodegradation can be assessed using three tiers of evidence per the Chevron Guidance for *Analysis of Geochemical Parameters for Natural Attenuation of Dissolved Hydrocarbons in Groundwater* (Chevron, 2008):

- Tier 1: Natural attenuation data analysis
  - Evidence for natural attenuation (i.e., a stable or shrinking plume)
- Tier 2: Geochemical parameter data analysis
  - Evidence for the contribution of biodegradation to natural attenuation
- Tier 3: Molecular biological tools data analysis
  - Demonstrate the impact of compound specific biodegradation on natural attenuation

MNA was evaluated at this site using a Tier 1 and Tier 2 data analysis in accordance with the Chevron Guidance for *Analysis of Geochemical Parameters for Natural Attenuation of Dissolved Hydrocarbons in Groundwater* (Chevron, 2008).

The results of MNA sampling activities, described in Section 2.2.5.4, are provided in **Table 16**. An MNA analysis of this data concludes the following:

- The benzene and MTBE plumes are shrinking over distance and time as indicated by trend charts.
- Background and downgradient geochemical conditions are aerobic with high electron acceptor availability and thus, favorable for biodegradation. In the source area, biodegradation is confirmed to be occurring.

Therefore, natural attenuation is concluded to be occurring at the site and MNA is a viable remedial alternative for the groundwater benzene and MTBE plumes. The following sections present a detailed summary of the Tier 1 and Tier 2 analysis supporting this conclusion.

3.2.3.4.1 Tier 1: Natural Attenuation Data Analysis

The objective of a Tier 1 natural attenuation data analysis is to evaluate existing data to see if there is evidence of natural attenuation processes (biologic, chemical, and physical processes) depleting COCs (ASTM, 1998). A dissolved hydrocarbon plume can be expanding, stable, or shrinking. An expanding plume has more dissolved phase compounds in the groundwater system being transported downgradient than can be naturally attenuated. A stable plume is in a state of dynamic equilibrium where there is an equal rate of natural attenuation and transport of dissolved compounds. A shrinking plume has dissolved compounds being naturally attenuated more rapidly than their transport downgradient. Benzene and MTBE were the only COCs evaluated by a Tier 1 data analysis due to their elevated concentrations in the groundwater plume relative to their respective MCLs as compared to other COCs.

A Tier 1 data analysis (Chevron, 2008) includes plots of:

- Concentration of dissolved hydrocarbons versus distance (i.e., longitudinal well transect plots demonstrating attenuation with distance).
- Concentration of dissolved hydrocarbons and groundwater elevation versus time (single well trend charts).

As presented in **Figure 16** and **Figure 17**, Tier 1 results demonstrate:

- Decreasing concentrations of benzene and MTBE with distance from the source area in both western and eastern transects.
- Decreasing concentrations of benzene and MTBE with time in all periphery MNA wells. The source area well GP-30R was not used in this time series analysis since benzene and MTBE trends over time in the source area may reflect a combination of active DPE system operation and natural attenuation influences, rather than natural attenuation alone. Instead, the cross-gradient wells MW-6 and MW-45 were substituted for the source area well GP-30R. A summary of benzene and MTBE concentrations over time for all MNA wells except GP-30R is provided in **Table 17**. These results indicate the benzene and MTBE plumes are shrinking on a site-wide basis.

Tier 1 plots are included as **Appendix U**.

3.2.3.4.2 Tier 2: Geochemical Parameter Data Analysis

Geochemical parameters, including electron acceptors and their reduced metabolites, alkalinity, pH, and ORP can affect and serve as indicators of biological activity. Microorganisms can transform dissolved hydrocarbons metabolically to produce energy or biomass by oxidation of dissolved hydrocarbons and reduction of electron acceptors. When dissolved hydrocarbons are introduced into the subsurface, bacteria tend to utilize the electron acceptor with the strongest affinity for electrons or reduction potential first because that reaction will generate the most energy for their biomass growth. Electron acceptors commonly found in aquifer systems, listed in order of strongest to weakest reduction potential, are: DO, nitrate, manganese oxides, ferric iron [Fe (III)], sulfate, and CO_2. ORP measurements are commonly used to evaluate the dominant electron acceptor as it reflects the overall redox conditions in the subsurface. Common geochemical parameters, including electron acceptors, analyzed in Tier 2 evaluations are shown in **Exhibit 1** below (Chevron, 2008).

Electron Acceptor (EA)		Common Metabolite	Reliability of Interpretation (low, medium, or high)	Measured Geochemical Parameter Trend due to Biodegradation	Measured Concentration of Geochemical Parameter	Plume Geochemistry
Oxygen	O_2	H_2O	Low	↑ biodeg. = ↓ O_2	O_2 > 1 mg/L	Aerobic
					O_2 < 1 mg/L	Weakly Aerobic / Anaerobic
Nitrate	NO_3^-	NO_2^-, N_2O, NO, NH_4^+, N_2	High	↑ biodeg. = ↓ NO_3^-	NO_3^- is non-detect or < background	Nitrate Reducing
Ferric iron	Fe(III)	Fe(II)	Medium	↑ biodeg. = ↑ Fe(II)	Fe(II) > background	Possibly Iron Reducing, indicator of anaerobic conditions
Sulfate	SO_4^{2-}	H_2S	High	↑ biodeg. = ↓ SO_4^{2-}	SO_4^{2-} < background	Sulfate utilized but available
					SO_4^{2-} is non-detect	Sulfate depleted
Carbon dioxide	CO_2	CH_4	High	↑ biodeg. = ↑ CH_4	CH_4 < 500 µg/L and above background	Weakly Methanogenic
					CH_4 > 500 µg/L	Methanogenic
Electron Donor		**By-Product of EA Reactions**				**Redox Condition**
Dissolved petroleum compounds		Alkalinity (Alk.) (HCO_3 + CO_3)	Medium	↑ biodeg. = ↑ Alk.	Alkalinity is elevated or > background	All

positive ↓ negative — Oxidation Reduction Potential (low data quality)

Exhibit 1. *Common electron acceptors in groundwater and other geochemical parameters measured to evaluate geochemical conditions (Chevron, 2008).*

Depending on the electron acceptor used, the process of hydrocarbon oxidation is termed aerobic oxidation (oxygen) or anaerobic oxidation (nitrate, manganese, iron, sulfate, and carbon dioxide). The relative dominance of the various electron acceptors utilized during oxidation can be evaluated by assessing availability and changes in concentrations of electron acceptors and their reduced metabolites along groundwater flow paths. Aerobic degradation and nitrate reduction result in decreased concentrations of dissolved oxygen and nitrate, respectively, relative to background concentrations. Reduction of iron and manganese oxides results in increased concentrations of dissolved iron and manganese in groundwater. Sulfate reduction results in decreased sulfate and increased hydrogen sulfide concentrations in groundwater. Methanogenesis results in increased concentrations of methane in groundwater. Successive consumption of dissolved electron acceptors results in decreased ORP values from +800 millivolts to -800 millivolts.

BTEX compounds are oxidized to carbon dioxide under aerobic conditions and to either carbon dioxide or non-toxic organic intermediates under anaerobic conditions (Wiedemeier et al., 1999). MTBE is completely oxidized to carbon dioxide, with intermediate products of tert-butyl alcohol and formaldehyde; however, it resists complete biodegradation in anaerobic methanogenic and sulfate-reducing conditions (USEPA, 2008c). As such, the presence of stronger electron acceptors (DO, nitrate, manganese oxides, and ferric iron) are required for biodegradation of MTBE.

The redox configuration and geochemistry of a dissolved hydrocarbon plume can be conceptualized, as shown in **Exhibit 2** below, given the expected sequential use of electron acceptors (Chevron, 2008). In addition to the presence of dissolved hydrocarbons, there is also a concurrent flux and utilization of electron acceptors through the source zone. The plume geochemistry is an expression of the relative magnitude of dissolved hydrocarbons in comparison to the flux and utilization of dissolved electron acceptors.

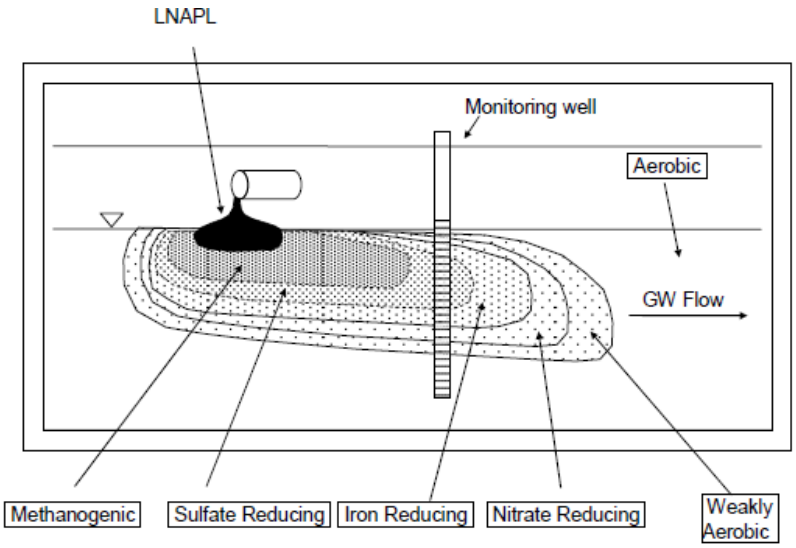


Exhibit 2. *Conceptualized geochemical zones of a dissolved hydrocarbon plume (Chevron, 2008).*

The objective of a Tier 2 data analysis is to evaluate existing site geochemical data to provide evidence that biodegradation of hydrocarbons is contributing to natural attenuation. The combined analytical results for dissolved electron acceptors or reduced metabolites (e.g., DO, nitrate, Fe (III), sulfate, and methane) and other geochemical parameters (e.g., ORP) are used to determine plume geochemistry conditions, relative to background or unimpacted levels.

A Tier 2 data analysis (Chevron, 2008) includes:

- Tabulation of COCs and geochemical data sorted by location within the longitudinal well transect.
- Plots of the geochemical parameters versus distance.

As summarized in **Table 18** and **Figures 18 and 19**, the Tier 2 geochemical parameter data analysis indicates:

- The background well has aerobic geochemical conditions with the presence of nitrates, ferric iron, and sulfates indicating sufficient presence of electron acceptors supportive of biodegradation.
- As observed from the source area well GP-30R from the February 2018 data, when the DPE system was off, iron-reducing conditions are prevalent in its vicinity, indicative of the occurrence of some biodegradation relative to background, since the redox condition has progressed from aerobic to iron-reducing due to oxidation of hydrocarbons present in the source area (**Figure 19**). Redox may have progressed further in other parts of the source area to methanogenic conditions depending on site heterogeneity and concentrations of hydrocarbons, as would be expected in a residual LPH smear zone source area. In the April 2017 event, the source area well GP-30R was replaced by cross-gradient wells MW-6 and MW-45 since the DPE system was operational and may have influenced the subsurface geochemistry which would then not be representative of natural attenuation influences alone (**Figure 18**).
- Downgradient wells are primarily aerobic or nitrate-reducing, and supportive of biodegradation, similar to the background well.

Overall, these results indicate the site geochemical conditions are conducive to biodegradation of both benzene and MTBE, with aerobic and nitrate-reducing conditions (i.e., strong electron acceptor availability) in both the background and downgradient areas and iron-reducing or further methanogenic conditions in the source area. Tier 2 plots are included as **Appendix U**.

3.2.3.5 Sentinel Well Gauging and Sampling

As proposed in the Response to Comments for Area A System Operating Plan (Arcadis, 2017b), the frequency of gauging five sentinel monitoring wells, GP-44A, MW-4, MW-3, MW-19, and MW-23, was changed from semi-annually to monthly during the Pilot Rebound Evaluation. Gauging events for the five sentinel wells occurred January 12, 2018, January 22, 2018 and February 7, 2018. Results are presented in **Table 8**. During these gauging events, LPH was not detected in any of sentinel wells gauged. Note that GP-44A was not gauged during these events because it had been paved over by a third party. A potentiometric surface map generated based on data from the January 12, 2018 gauging event, which was conducted while the DPE system was off, is provided as **Figure 20**.

As proposed in the Response to Comments for Area A System Operating Plan (Arcadis, 2017b), the frequency of sampling six sentinel monitoring wells, GP-44A, MW-4, MW-3, MW-18, MW-19, and MW-23, was changed from semi-annually to quarterly during the Pilot Rebound Evaluation. The DPE system was down from December 16, 2017 through March 1, 2018 for the Pilot Rebound Evaluation. Given that the DPE system was down for less than a full quarter, a sentinel well sampling event was not conducted. The DPE remediation system was restarted on March 1, 2018. A routine semi-annual sampling event that included wells MW-23, MW-18, and MW-19 occurred March 26 through 29, 2018, shortly after the DPE system was restarted; results of the routine event are discussed in Section 3.1.5.

3.3 Updated Conceptual Site Model

This section presents an updated conceptual site model (CSM) based on a three-dimensional (3-D) CSM developed by Arcadis for the site. It includes a summary of the activities involved in the 3-D CSM generation as well as observations and conclusions from its analysis. Specific recommendations for monitoring and remediation systems optimization are included in Section 5 of this report.

3.3.1 Summary of 3-D CSM Activities

The 3-D CSM task consisted of the following activities summarized in detail below.

Electronic Data Compilation – This task involved the compilation of all analytical, geospatial, and geological data from various sources (historical reports, databases, etc.) into central repository locations.

3-D CSM Model Development – This task involved creation of a 3-D model. Arcadis used CTech Corporation's Mining Visualization System™ (MVS) and Earth Volumetric Studio™ (EVS) software tools for 3-D visualization and volumetric modeling. MVS and EVS combine volumetric and mass analysis, visualization, global information system (GIS), and animation tools into a powerful software system that preserves spatial integrity. Modeling input files were developed using database software (Earthsoft's EQuIS) and GIS software (ESRI ArcINFO/ArcGIS and Blue Marble's Global Mapper™ software). The model was generated by sequential creation of various model layers (geospatial, followed by geological,

followed by analytical) as well as 3-D geological modeling and analytical modeling. The stepwise process followed for creation of the model was:

- The topographical layer in the model was generated using the site geospatial and survey data (where available) as well as the digital elevation model (DEM) for the area from the geospatial database. The aerial and the various site features were imported from the GIS geodatabase file from the geospatial database.
- The geological model was generated by importing all site lithological logs from the gINT file from geological database followed by hierarchical geological modeling to identify onsite and offsite clay bodies and lenses.
- Remediation and monitoring wells were imported within the model from the updated well construction table (**Table 2**) from the geological database.
- Groundwater elevations were imported from the analytical database for two time-periods: 2002 and 2017, and kriged to develop potentiometric surfaces for each.
- The NAPL smear zone was developed using three different lines of data:
    - All available soil TPH-GRO data was imported from well and direct push borings from the analytical database and a threshold value of 10,000 micrograms per kilogram (µg/kg) used for the kriged TPH-GRO model to define smear zone extent.
    - All available soil PID data was imported from well and direct push borings from the analytical database and a threshold value of 200 ppm used for the kriged PID model to also define smear zone extent.
    - All available LPH detection and thickness measurement data from site wells was imported from the analytical database and used also to define smear zone extent.

  The smear zone extents from the three different lines of data as described above were imported within the GIS geodatabase and professionally interpreted to develop the final smear zone extent map.
- Benzene and MTBE concentrations (grab and well samples) were imported from the analytical database for two time-periods: 2002 and 2017, and kriged to develop benzene and MTBE plume models.
- Storm and sanitary utilities were constructed as 3-D tubes using invert elevations and diameters obtained from historic surveys, existing project drawings and as-built drawings obtained from both the D.C. WASA and the Maryland WSSC. Limited information was available from WSSC, as the sewer system was installed in 1949 and no updates have been made to the system since then, with very sparse information available pre-1949.
- Station features including the dispenser islands, historic and current UST locations, and current station building have been updated based on historic and current as-built information. Tank information for the historic USTs in the underground pit from where LPH was released in 1989 was also located from maps dated 1973, identifying them as two 4,000-gallon Gulftane tanks. It should be noted that the historical LPH release is dated 1989, so these tank drawings predate the release and

may not be an accurate representation of tanks as they existed in that underground pit in 1989. The historic USTs were incorporated as individual tanks where possible. Due to lack of data in available as-builts, the height for dispenser islands and the station building, as well as the depth for USTs, is assumed to be 10 ft.

A layout of the site, with the various station features is presented in **Figure 2**. The following sections present the observations and conclusions from an analysis of the 3-D CSM.

3.3.2 Site Geology and Hydrogeology

Site Lithology

- Significant topographic slope is observed from the site and Area A toward Area C within the offsite residential area (**Figure 21**).
- Two onsite vadose zone clay lenses were observed within the geological model (**Figure 22**).
- The offsite clay body was observed to be much larger in size than historically represented and has a similar slope from Eastern Avenue toward Area C as the land surface topography (**Figure 22**).

Site Hydrogeology

- The general direction of groundwater flow in the area is observed as northwest to southeast, with local influences from pumping wells and the clay bodies (**Figure 23**).
- A groundwater depression is observed around DPE wells PTW-B, GP-30R, MW-17 and RW-2, representative of the pumping influence (**Figure 23**).
- A mounding of groundwater is observed above the off-site clay body near the wells GP-11A and GP-9A, and a radially outwards component of groundwater flow from the clay body. This results in the north to south direction of groundwater flow on its western edge, and west to east flow on its eastern edge (**Figure 23**).

3.3.3 Residual NAPL Smear Zone

- Vadose zone NAPL impacts as observed from PID and TPH-GRO measurements do correlate with the location of the former USTs, suggesting that a release did occur from the historic UST field (**Figure 24**).
- The NAPL is observed to have originated in the vadose zone near the former USTs near wells MW-15, GP-34A and GP-35A, and migrated deeper to the water table, and then along the water table under the clay lens to the Riggs Plaza parking lot area. Historic NAPL migration across the Eastern Avenue is also observed in two distinct areas – (a) to Area B near boring GP-5A and, (b) to historical boring SS-9 toward the distal end (**Figure 24**).
- The overall extent of the smear zone is larger than previously anticipated (**Figure 25**).
- All DPE wells, except for GP-27R, are screened across the water level surface, which is consistent with the fact that the smear zone is anticipated to be across the water table. Based on the construction of historic well GP-27A (**Table 2**), the well appears to have been installed in the correct

depth interval screened across the water table and had LPH detection in the same interval as adjacent SVE only well MP-7. When the well was converted to DPE well GP-27R, the well screen was lowered to below the water table and is now missing the top four feet of smear zone, which is potentially shielded from the SVE system by a thin clay layer. Also, dewatering from pumping at GP-27R shows no water level impact on adjacent well MP-7, which points toward lack of development or hydraulic connection at well GP-27R.

- The adjacent well MP-7 is an SVE only well, with periodic detections of LPH over the last couple years (**Table 3**). Since the well is a 2-inch well, there is no dewatering pump installed, and the well is only connected to the SVE component of the DPE system. In the absence of a lowered water table that exposes the entire smear zone, most of residual NAPL below water table is potentially untreated at MP-7. Further, the increased water level due to vacuum when SVE system is on, is shielding from remediation the residual NAPL above water table which is now submerged, which results in LPH accumulating in well when the SVE system is off and water levels drop to ambient levels and expose the upper smear zone.
- The current DPE well GP-39R is located outside the extent of the NAPL smear zone (**Figure 25**).

3.3.4 Groundwater Plume

Benzene Plume Nature and Extent

- From the 2002 benzene plume representation (**Figure 26**):
  - The benzene plume looks well delineated laterally and vertically on the western side of the clay body.
  - There is another off-site eastern benzene plume that doesn't seem to be connected to the main plume and may be a separate plume.
  - The upgradient extent of the benzene groundwater plume is also not delineated. Impacts may be migrating from upgradient activities.
- From the 2017 plume representation (**Figure 27**), it seems that the plume has attenuated significantly, with residual areas remaining around and downgradient of Area C, within Area A, to the east of the clay body, and within the eastern parking lot.
- The plume in deeper portion of the surficial aquifer in Areas B and C is connected hydraulically to the plume in the shallower portion in Area A (**Figure 26**).

MTBE Plume Nature and Extent

- The 2002 MTBE plume (**Figure 28**) observations are similar to and consistent with the 2002 benzene plume observations, though the MTBE plume has a larger footprint.
- The 2017 MTBE plume (**Figure 29**) doesn't show as much spatial attenuation as the 2017 benzene plume to the east of the clay body and east of Area A within the eastern parking lot; however, attenuation is observed in Area B.
- The plume in deeper portion of the surficial aquifer in Areas B and C is connected hydraulically to the plume in the shallower portion in Area A (**Figure 28**).

3.3.5 Conclusions

- Earlier representations of site lithology did not capture the two vadose zone clay lenses within Area A. The 3-D CSM shows an increased footprint of the off-site clay body (**Figure 22**).
- The water table is influenced by local pumping and presence of clay bodies (**Figure 23**).
- The plume in deeper portion of the surficial aquifer in Areas B and C is connected hydraulically to the plume in the shallower portion in Area A (**Figure 26** and **Figure 28**). Therefore, it is recommended to cease classification of the plumes as “shallow” versus “deep” (see figures in **Appendix K** of this report) and instead, produce just one plume map for COCs moving forward.
- The estimated NAPL smear zone footprint is greater than previously defined (**Figure 25**). The refined NAPL smear zone footprint matches well with observed LPH detections in monitoring wells, as well as the release history and NAPL migration pathway along the groundwater flow direction (**Figure 24**).
- Well GP-27R is not screened appropriately and missing the top four feet of the smear zone, which is shielded from SVE system by a thin clay layer. Also, dewatering from pumping at GP-27R shows no water level impact on adjacent well MP-7, which points toward lack of development or hydraulic connection at well GP-27R.
- Well MP-7, adjacent to GP-27R, is a 2-inch SVE only well with no dewatering pump installed, with periodic detections of LPH over the last couple years. In the absence of a lowered water table that exposes the entire smear zone, most of residual NAPL below water table is potentially untreated at MP-7. Further, the increased water level due to vacuum when SVE system is on is shielding from remediation the residual NAPL above water table, which is now submerged. This results in LPH accumulating in well when the SVE system is off and water levels drop to ambient levels and expose the upper smear zone.
- The groundwater benzene and MTBE impacts are not delineated upgradient of Area A, and dissolved phase impacts may be migrating from upgradient activities to Chevron station as well as the eastern parking lot area and downgradient into site monitoring wells (**Figure 26** and **Figure 28**).
- Considerable attenuation is observed in plume representations between 2002 and 2017; however residual contamination remains within Areas A and C, as well as the eastern portion of the site (**Figure 27** and **Figure 29**).
- A total of 36 wells have been recommended for abandonment based on the 3-D CSM analysis, as described in the bullets below. This list of wells proposed for abandonment based on 3-D CSM recommendations is used with the statistical attainment evaluation recommendations to develop a final list of wells proposed for abandonment in Section 5.2 of this report.
    - Abandon well GP-27R and replace adjacent well MP-7 with a 4-inch well. The replacement well at location MP-7 should have a screen interval designed appropriately to capture the entire smear zone.
    - Eliminate from monitoring program and abandon the following seven monitoring wells screened within the clay body (**Figure 30**).

- GP-11A (20’-25’), GP-11A (25’-30’), GP-11A (30’-35’) and GP-11A (35’–40’): Of these four wells, only GP-11A (20’-25’) is currently on a semi-annual gauging and annual sampling frequency. All other wells have exhibited concentrations of COCs below the MCLs.
- GP-9A (20’-25’), GP-9A (25’-30’) and GP-9A (30’-35’): None of these wells are included in the current sampling or gauging program. All wells have exhibited concentrations of COCs below the MCLs.

- Eliminate from monitoring program and abandon the following 28 monitoring wells that are screened too shallow or too deep or too far downgradient or cross-gradient (**Figure 4**):
  - Wells not part of the current sampling/gauging program recommended for abandonment:
    - GP-7A (20-25) (too shallow)
    - GP-7A (25-30) (too shallow)
    - GP-7A (30-35) (too shallow)
    - GP-7A (40-45) (too deep)
    - MW-28A (too shallow)
    - MW-30R (too far cross-gradient)
    - MW-31A (too shallow and too far cross-gradient)
    - MW-32 (too far downgradient)
    - MW-34A (too far cross-gradient)
    - MW-34B (too far cross-gradient)
    - MW-37 (too far cross-gradient)
    - MW-38 (too shallow)
    - MW-39 (too shallow)
    - MW-39R (too shallow)
    - MW-52 (too shallow)
  - Wells part of the current sampling/gauging program recommended for abandonment:
    - MW-25A (too shallow)
    - MW-26A (too shallow)
    - MW-29A (too shallow)
    - MW-31B (too far cross-gradient)
    - MW-33S (too shallow)
    - MW-33A (too shallow)
    - MW-41A (too shallow)

- MW-42 (too shallow)
- MW-43A (too shallow)
- MW-54 (too shallow and too far downgradient)
- MW-55 (too shallow and cross-gradient)
- MW-60 (too shallow)
- MW-62A (too shallow)

4 CORRECTIVE MEASURES OMM EVALUATION

Per the Order, the OMM Evaluation assesses performance of the CM over time and provides basis for USEPA's evaluation of the CM. This section includes summarized data representing CM performance during the reporting period, as well as assessment of the progress of the CM toward achievement of media clean-up objectives. More specifically, this section compares data to the media clean-up objectives identified in the USEPA approved 2007 Corrective Measures Study (Gannett Fleming, 2007).

4.1 Area A Dual Phase Extraction

Two media clean-up objectives were developed for Area A in the 2007 Corrective Measures Study (Gannett Fleming, 2007). To date, one objective has been achieved while the other objective has not yet been achieved because active remedial efforts are currently occurring. These objectives are detailed below.

The clean-up objective established to mitigate the potential inhalation risk to current and future commercial workers at the Service Station property that exceeds the Occupational Safety and Health Administration (OSHA) Permissible Exposure Levels (PELs) for an 8-hour work day (Gannett Fleming, 2007) has been achieved.

- Vapor intrusion sampling was performed in 2017 and 2018 involving the collection of interior sub-slab soil gas samples and exterior soil gas samples. Vapor sample locations were biased toward areas exhibiting elevated groundwater concentrations of COCs in Area A (**Figure 11**). Conclusions presented in Section 3.2.3.1.6 reveal that site-related constituents were either not detected or were detected at concentrations below the applicable USEPA VISLs in exterior soil gas samples. The concentrations were also below the OSHA PEL derived sub-slab soil gas screening values, which are higher/less stringent than the USEPA VISLs. These results indicate that concentrations of site-related constituents would not be expected to migrate into a building at the site. No compounds, including site-related constituents, were detected at concentrations greater than laboratory reporting limits in sub-slab soil gas samples collected from the beneath the slab of the onsite building, confirming that the VI pathway is not a concern at the site.

The clean-up objective to achieve no measurable LPH in monitoring wells in Area A for one year after active remedial efforts have been completed, as demonstrated by periodic monitoring of specified monitoring wells (Gannett Fleming, 2007), has not yet been achieved, as active remedial efforts are currently occurring. As defined in the 2007 Corrective Measures Report, measurable LPH is defined by the MDE Oil Control Program as a sheen (MDE, 2003) (0.01 feet as measured by an oil/water interface probe).

- LPH was detected in one well, MP-7, during the reporting period (**Table 3**). LPH was detected in MP-7 during 7 out of 59 gauging events performed during this period, at thicknesses ranging from 0.07 to 0.87 feet. Apart from well MP-7 and co-located historical well GP-27A, LPH has not been detected in wells in the site monitoring network since 2006. The recent LPH characterization and transmissivity testing performed in February 2018 concluded that the LPH present at the site is not practically recoverable (Section 3.2.3.2). Further, both NSZD and 3-D CSM analyses explain why LPH is observed to accumulate in well MP-7 when the SVE system is switched off; conversion of MP-7 to a new 4-inch well is therefore recommended (Sections 3.2.3.2 and 3.3). The replacement well at location MP-7 should have a screen interval designed appropriately to capture the entire smear zone.

DPE operations in Area A since 2002 have mitigated downgradient LPH migration. Apart from well MP-7 and co-located historical well GP-27A, LPH has not been detected in any wells within the site monitoring network since 2006. Dissolved phase hydrocarbon plumes of COCs, benzene and MTBE, are shrinking, as depicted in groundwater iso-concentration maps created using analytical results from 2013 through 2018. The groundwater iso-concentration maps are provided in **Appendix K**. Concentrations of benzene and MTBE show declining trends in Area A remediation monitoring well GP-35A, which is not connected to the DPE system and has exhibited elevated concentrations of COCs (see trend graphs in **Appendix Q**). Remaining monitoring wells that are not connected to the DPE system but are situated near the DPE system in Area A (such as MW-15, MW-16) show low concentrations of COCs. Concentrations of COCs in GP-30A, which was over drilled and connected to the DPE system in May 2017 (now identified as GP-30R), have fluctuated but also show decreasing trends over time, as shown in the trend graph included in **Appendix Q**. Since installation and connection to the DPE system in May 2017, concentrations of benzene in GP-30R have decreased from 3,000 µg/L in February 2018 to 90 µg/L in March 2018. MTBE concentrations in GP-30R decreased from 500 µg/L in February 2018 to 140 µg/L in March 2018.

With regards to the current DPE system operation, approximately 6,748 of the 8,613 gallons of total hydrocarbons recovered from initial system start up through March 2018 was recovered by the soil vapor extraction portion of the DPE system (i.e. SVE system), which serves as the primary mode of smear zone remediation. The focus of the GWE component of the DPE system is drawing the water table deep enough to expose the smear zone completely to soil vapor extraction. As depicted on **Figure 12**, hydrocarbon recovery has generally leveled off during the five-year reporting period. The most recent 5 years of DPE operation have exhibited a decreasing trend that suggests that the current DPE system installed at Area A has reached asymptotic conditions, potentially due to the age of the system itself and the frequent system shut downs and repairs needed (see **Table D-6** in **Appendix D**).

4.2 Area B Groundwater Recirculation

One media clean-up objective was developed for Area B in the 2007 Corrective Measures Study: to achieve no measurable LPH in monitoring wells in Area B for one year after active remedial efforts have been completed, as demonstrated by periodic monitoring of specified monitoring wells (Gannett Fleming, 2007). During the reporting period, no measurable LPH was detected in monitoring wells in Area B; however, active remedial efforts are currently occurring in Area B.

The Area B system was installed to target concentration reductions of petroleum hydrocarbon COCs, benzene and MTBE, in historic soil borings GP-5A (abandoned), GP-6A (abandoned), GP-7A, as well as monitoring wells MW-24A, MW-24B and GP-7A (20’-25’; 25’-30’; 30’-35’; 35’-40’ and 40’-45’). To accomplish this, two ISGR wells were installed in a barrier design configuration, with four piezometers to monitor influent and effluent concentrations for each ISGR well. The Area B system performance monitoring wells include MW-24B, MW-61A, ISGR-1SHALLOW, ISGR-1DEEP, ISGR-2SHALLOW, ISGR-2DEEP, and GP-7A (35’-40’).

The data since startup of the ISGR system in August 2013 demonstrate that operation of the Area B system combined with natural attenuation effectively reduced benzene and MTBE concentrations. Specifically:

- A decrease in benzene and MTBE concentrations is observed in Area B performance monitoring wells MW-61A and GP-7A (35'-40') and downgradient well MW-62B since system start-up in 2013; see supporting trend graphs attached in **Appendix Q**.
- Declining benzene and MTBE trends have been observed in MW-24B since 2005 (**Appendix Q**).
- There are currently no exceedances of the MCL of 5 µg/L for benzene and the remediation standard of 20 µg/L for MTBE as defined in the FDRTC (USEPA, 2008a) in the Area B system performance monitoring wells, MW-24B, MW-61A, ISGR-1SHALLOW, ISGR-1DEEP, ISGR-2SHALLOW, ISGR-2DEEP, and GP-7A (35'-40').
- Exceedances of the MCL for benzene and the remediation standard for MTBE persist only in Area B downgradient well MW-62B, but trends for COCs are decreasing.

It should be noted that while a decreasing trend is apparent in Area B performance monitoring and downgradient wells since Area B ISGR system start-up, it could at least partially be attributed to a decline in VOC flux because of upgradient treatment in Area A, as well as natural attenuation processes that have been concluded to be occurring at the site, as documented in Section 3.2.3.4 of this report. As noted above, some Area B wells (MW-24A, MW-24B, GP-7A (30'-35'), GP-7A (35'-40') and GP-7A (40'-45')) have shown declining trends since prior to system startup in 2013.

Analytical results for the reporting period are presented in **Table 4**. Historical analytical results from prior to 2013 are presented in **Table 7**.

4.3 Area C In-Situ Oxygen Diffusion

The 2007 Corrective Measures Study did not distinguish Area C and as such, media clean-up objectives were not established for this area in this report. However, please refer to site-wide objectives discussed in Section 4.4 and Section 4.5.

Dissolved oxygen concentrations in Area C were historically observed to be less than 0.5 mg/L (Gannett Fleming, 2006). The FDRTC issued by USEPA in April 2008 outlined the CM selected for implementation in Area C, which consisted of a line of wells as an ORZ to inject oxygen into the subsurface in Nicholson Alley to overcome anaerobic conditions. The purpose of the ORZ along Nicholson Alley is to increase dissolved oxygen levels in the groundwater, which will stimulate the growth of native microbes that use oxygen to degrade the hydrocarbons present in the subsurface. To accomplish this, five oxygen injection wells (IW-1 through IW-5) were constructed in Nicholson Alley. The locations of the wells and vertical positions of the well screens corresponded to the areas of highest petroleum hydrocarbon concentrations in direct push borings GP-109A, GP-110A and GP-111A (Gannett Fleming, 2013a). Waterloo Emitters were installed in each injection well to raise oxygen concentrations to approximately twelve mg/L in groundwater, resulting in a dissolved oxygen concentration in Area C that is approximately 24 times greater than historical levels (Gannett Fleming, 2013a). Three monitoring wells (MW-26B, MW-58 and MW-59) are used for performance evaluation of the oxygen injection wells, with MW-59 downgradient of Area C.

The data since startup of the ORZ in August 2013 demonstrate that operation of the Area C system combined with natural attenuation effectively reduced benzene and MTBE concentrations in wells and downgradient of Area C. Specifically:

- Groundwater samples were monitored during the reporting period using a YSI® Incorporated 6-series multiparameter water quality meter to evaluate the performance of the ORZ system; results are presented in **Table J-2** in **Appendix J**. The average dissolved oxygen concentrations in the injection wells, IW-1 through IW-5, were 8.1 mg/L, 6.5 mg/L, 6.5 mg/L, 5.8 mg/L, and 3 mg/L, respectively. Although these concentrations are below the designed concentration of 12 mg/L, they are indicative of aerobic conditions and are well above the dissolved oxygen concentrations historically observed to be less than 0.5 mg/L in Area C.
- Geochemical parameters (i.e., ferrous iron, nitrate, sulfate and ORP) presented in **Table J-3** in **Appendix J** indicate that performance monitoring wells MW-26B and MW-58 and downgradient well MW-59, screened within the same interval as the oxygen injection wells (i.e., 20 to 35 ft bgs), exhibit high ORP values, low ferrous iron concentrations, and high concentrations of oxygen and nitrate, suggesting aerobic redox conditions in their vicinity. Consistent with the results of geochemical sampling conducted in 2004 and 2005 (Gannett Fleming, 2006), iron-reducing conditions are present in shallow wells MW-60 and MW-26A, which are screened above the Area C ORZ treatment zone, as suggested by elevated ferrous iron concentrations and lower ORP and oxygen and nitrate concentrations compared to the deep wells. This indicates an aerobic oxidizing effect of the ORZ in its vicinity and downgradient.
- Wells MW-26B, MW-58 and MW-59 show a decreasing trend in COCs since system start-up in August 2013, suggesting an impact of the ORZ system. Dissolved phase hydrocarbon plumes of COCs, benzene and MTBE, are shrinking near Area C, as depicted in groundwater iso-concentration maps created using analytical results from 2013 through 2018. The groundwater iso-concentration maps are provided in **Appendix K**.

It should be noted that while a decreasing trend is apparent in Area C monitoring wells since system start-up, it could at least partially be attributed to a decline in VOC flux because of upgradient treatment in Area A, as well as ongoing natural attenuation processes that have been concluded to be occurring at the site, as documented in Section 3.2.3.4 of this report. Evidence of ongoing natural attenuation of the dissolved phase plume prior to August 2013 startup of Area C system includes:

- Well MW-26B had statistically significant decreasing concentration trends for both benzene and MTBE since 2011 (see supporting trend graph in **Appendix Q**).
- Prior to system start-up in August 2013, benzene and MTBE in downgradient wells MW-33A, MW-33B and MW-33C decreased to concentrations that were below the MCL of 5 µg/L for benzene and the remediation standard of 20 µg/L for MTBE (see supporting trend graph in **Appendix Q**).

Analytical results for the reporting period are presented in **Table 4**. Historical analytical results from prior to 2013 are presented in **Table 7**.

4.4 Site-Wide Groundwater Remediation

As documented in the 2007 Corrective Measures Study (Gannett Fleming, 2007):

> "Site-wide groundwater refers to all groundwater underlying the site, including groundwater underlying Areas A and B. The remediation strategy for site-wide groundwater is to use monitored natural attenuation to remediate the dissolved hydrocarbons in site-wide groundwater. Once the

> CM for the remediation of recoverable LPH and residual LPH have been implemented in Areas A and B, the concentrations of dissolved hydrocarbons in groundwater are expected to decline due to natural degradation processes, and the area of dissolved hydrocarbons will shrink over time. After meeting the primary objective of remediating recoverable LPH, the CM selected for Area A would continue to operate for an extended period, or alternate technologies proposed, to enhance site-wide groundwater remediation until such time that technical impracticability limits are reached."

Two media clean-up objectives were developed for site-wide groundwater in the 2007 Corrective Measures Study (Gannett Fleming, 2007). To date, one objective has been achieved while the other objective has not yet been achieved. Environmental regulations have changed with respect to the clean-up objective that has not yet been achieved. The objectives are detailed below.

The clean-up objective established to demonstrate that the groundwater plume is stable, or decreasing has been achieved based on data from the reporting period, and the conclusion that natural attenuation is occurring at the site and contributing to decreases in concentrations of COCs (Section 3.2.3.4). As documented in Section 3.1.5, findings of the Mann-Kendall statistical analysis during the reporting period demonstrate that dissolved-phase hydrocarbon concentrations for centerline wells were either decreasing or did not indicate a statistically significant trend except for benzene concentrations detected in MW-60, which has exhibited decreasing trends during recent events and has not exhibited benzene above the MCL of 5 µg/L since its installation in December 2010. It should be noted that per the 2007 Corrective Measures Study, wells MW-50 and MW-51 are excluded from this clean-up objective because they are impacted by hydrocarbons from sources not related to the site (Gannett Fleming, 2007). Hydrocarbon impacts from offsite sources are discussed further in Section 1.3.1.1 of this report.

The clean-up objective established to "Demonstrate that Washington, D.C. groundwater standards, equivalent to USEPA Maximum Contaminant Levels (MCLs) for potable water, are met at the site, where technically practicable" has not yet been achieved. Groundwater concentrations in site monitoring wells continue to exceed MCLs established by the USEPA for COCs. However, remedial efforts since 2002 have mitigated downgradient LPH migration. Apart from well MP-7 and co-located historical well GP-27A, LPH has not been detected in wells in the site monitoring network since 2006. Dissolved phase hydrocarbon plumes of COCs, benzene and MTBE, are shrinking, as depicted in groundwater iso-concentration maps created using analytical results from 2013 through 2018. The groundwater iso-concentration maps are provided in **Appendix K**. Per the 2007 Corrective Measures Study, wells MW-50 and MW-51 are excluded from this clean-up objective because they are impacted by hydrocarbons from sources not related to the site.

At the time the 2007 Corrective Measures Study was issued, the cleanup levels for this objective were the USEPA MCLs promulgated by Washington, D.C. as groundwater standards (21 DCMR Section 1155), including a cleanup standard of 5 µg/L for benzene and an action level of 20 µg/L for MTBE. However, there has been a change in environmental regulations since issuance of the 2007 Corrective Measures Study. The District of Columbia Underground Storage Tank Regulations now include the District of Columbia Risk Based Corrective Action (DCRBCA) or Risk Based Decision Making (DCRBDM) process. This process can be used to develop site-specific risk-based screening levels (RBSLs) and site-specific target levels (SSTLs) for remediation. This approach is supported by the USEPA. The DCRBDM process is detailed in the DCRBCA Guidance Document, dated June 2011 (DOEE, 2011).

Both the DOEE and the MDE allow for risk-based site closure under DCRBCA and the Maryland Environmental Assessment Technology for Leaking Underground Storage Tanks Guidance Document (MDE, 2003), respectively. As documented in the 2007 Corrective Measures Study, use of MCLs as the groundwater cleanup objective has been required by USEPA and DOEE. As documented in the 2007 Corrective Measures Study, Chevron respectfully disagrees with the applicability of MCLs as a clean-up objective for this site for the following reasons:

- All residents in Maryland and Washington, D.C. are currently served by public water systems. Therefore, the groundwater ingestion pathway is not complete.
- It is reasonable to assume that future residents will be served by public water systems in this highly urbanized area.
- Application of the MCLs per the Administrative Order on Consent to the site is a conservative remedial standard because groundwater is not currently being used in the area.
- The USEPA-approved risk assessment indicated that risks for all pathways and receptors outside the Service Station property are within or below USEPA-accepted ranges. There are no onsite or offsite vapor intrusion related inhalation risks to commercial station workers or current or future residents.
- There are currently no technically feasible remedial alternatives that could meet this objective in a reasonable amount of time.

4.5 Site-Wide Indoor Air

As documented in the FDRTC (USEPA, 2008a), the USEPA established the following indoor air standards for vapor intrusion:

- Benzene 8 µg/m^3
- Toluene 5,000 µg/m^3
- Ethylbenzene 1,000 µg/m^3
- Total Xylenes 100 µg/m^3
- MTBE 17 µg/m^3

Based on data reviewed, there are no exceedances of the established indoor air standards for vapor intrusion.

- Vapor intrusion sampling was performed in 2017 and 2018 involving the collection of interior sub-slab soil gas samples and exterior soil gas samples. Vapor sample locations were biased toward areas exhibiting elevated groundwater concentrations of COCs in Area A (**Figure 11**). As documented in this report, soil gas sampling results did not exceed VISLs established by the USEPA (see Section 3.2.3.1.6, **Table 11** through **Table 14**). Because petroleum hydrocarbon COCs were not detected in the interior sub-slab soil gas samples analyzed, the indoor air samples collected from the onsite station building were not analyzed; analysis of the indoor air samples collected was not warranted based on analytical results from the interior sub-slab soil gas sampling. Therefore, there is no indoor air sampling data from the 2017 and 2018 vapor intrusion investigation that can be compared to the

established indoor air standards. However, for comparison purposes, the highest concentration of benzene detected during the 2017 and 2018 vapor intrusion investigation was 20 µg/m^3 (**Table 11**), which does not exceed the Soil Vapor Action Level of 220 µg/m^3 documented in the FDRTC (USEPA, 2008a). Additionally, the highest concentration of MTBE detected during the 2017 and 2018 vapor intrusion investigation was <170 µg/m^3 (**Table 11**), which does not exceed the Soil Vapor Action Level of 1,600 µg/m^3 documented in the FDRTC (USEPA, 2008a). The FDRTC only cites Soil Vapor Action Levels for benzene and MTBE; there are no Soil Vapor Action Levels for toluene, ethylbenzene and total xylenes cited in the FDRTC.

- As documented in the 2007 Corrective Measures Study (Gannett Fleming, 2007), the USEPA-approved risk assessment indicated that risks for all pathways and receptors outside the Service Station property are within or below USEPA-accepted ranges. Historically Chevron conducted indoor air sampling to evaluate petroleum-related COCs at numerous homes overlying areas of shallow petroleum concentrations. USEPA subsequently required Chevron to install and monitor three VMS systems located at 746 Oglethorpe Street, 5818 Eastern Avenue, and 5824 Eastern Avenue in Washington, D.C. Based on data collected, Chevron submitted a letter dated November 7, 2013 to USEPA to formally request a termination review and approval to discontinue operation and maintenance of the three VMS systems. In a letter dated January 9, 2014, the USEPA approved Chevron's request to discontinue operation and maintenance of the three VMS units, stating that operation of the three VMSs is no longer necessary to protect human health (USEPA, 2014a).

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Alternative Corrective Measures Selected

As part of this CM Five-Year Assessment Report, Chevron is requesting to select MNA and NSZD as the site-wide CMs based on the rationale presented in the bullet points below.

- As documented in the 2007 Corrective Measures Study (Gannett Fleming, 2007), the USEPA-approved risk assessment indicated that risks for all pathways and receptors outside the Service Station property are within or below USEPA-accepted ranges. This off-site exposure pathway is now closed, and there are no risks posed to current or future residents.
- New vapor data confirms that there is no vapor intrusion risk from petroleum compounds to workers at the gas station. This on-site exposure pathway is closed, and there are no risks posed to current or future commercial workers.
- As documented in this report, NSZD is occurring and the current NSZD recovery rate is comparable to that achieved by the current DPE system. LPH exists in only one monitoring well, well MP-7 (located in Maryland). The LPH is not migrating and is not practically recoverable.
- Natural attenuation is concluded to be occurring and contributing to decreases in concentrations of COCs. Based on data presented in this report, MNA is a viable remedial alternative for the benzene and MTBE groundwater plumes. Site geochemical conditions are conducive to biodegradation of both benzene and MTBE.

The existing Area A DPE system, Area B ISGR remediation system, and Area C ORZ remediation system will be turned off but left in place until MNA and NSZD are implemented per a MNA and NSZD Work Plan to be submitted to USEPA. Site-wide monitoring will continue as outlined in Section 5.2 of this report. A cumulative statistically significant increasing trend in COC concentrations observed at the Area A, B, and C performance monitoring well networks (as identified in Section 5.2.1) over a period of four or more consecutive routine sampling events as evaluated by Mann-Kendall Trend Analysis will act as a trigger for the restart of the respective remediation system. Consistent with historic sampling events, groundwater samples collected will be analyzed for BTEX and MTBE as well as other geochemical parameters that will be outlined in the proposed MNA and NSZD work plan, along with details of triggers to restart the system.

As part of this CM Five-Year Assessment Report, Chevron is requesting modification or termination of the Order to allow risk-based closure and risk-based cleanup standards, consistent with USEPA, Washington, D.C., and Maryland regulations. At the time the Corrective Measures Study was issued in 2007, groundwater standards in Washington, D.C. were equivalent to USEPA MCLs for potable water as promulgated under 21 DCMR Section 1155 (Gannett Fleming, 2007). Use of the MCLs as the groundwater cleanup objective in the 2007 Corrective Measures Study was required by USEPA and Washington, D.C regulators (Gannett Fleming, 2007). However, the environmental agency for Washington, D.C., the DOEE, currently allows for risk-based site closure using their DCRBCA process. MDE and USEPA also allow for risk-based closure. Application of the MCLs per the Order is a conservative remedial standard that is not appropriate because groundwater is not being utilized as a drinking water source in the area, and risk-based cleanup standards are more appropriate given that USEPA, Washington DC and Maryland regulations allow for risk-based closure.

5.2 USEPA Recommended Approach for Evaluating Completion of Groundwater Restoration Remedial Actions at a Monitoring Well

A site-wide evaluation was performed on a well-by-well basis according to the *USEPA Recommended Approach for Evaluating Completion of Groundwater Restoration Remedial Actions at a Groundwater Monitoring Well* (USEPA, 2014b), referred hereafter in the document as "attainment evaluation". The USEPA guidance recommends an evaluation of COC concentrations on an individual well-by-well basis to assess completion of groundwater restoration remedial actions. The recommended statistical approach used for this evaluation provides robust support for an optimized groundwater monitoring program, as presented below.

5.2.1 Statistical Evaluation Methodology

Of the 115 remediation and monitoring wells that exist at the site, a total of 105 wells were evaluated. The five injection wells associated with Area C remedial system (IW-1 through IW-5) were excluded, as well as four vapor implants (VW-01, VW-02, VW-03R and VW-04). The monitoring well MW-39 was also excluded since the well was historically replaced by MW-39R due to improper screen placement but was subsequently never abandoned. No analytical data was available for MW-39, and the well was excluded from this analysis, thus bringing the total number of wells evaluated to 105.

A flow-chart developed in accordance with the USEPA guidance (USEPA, 2014b) and included as **Figure 31** summarizes the following process used for the site-wide attainment evaluation:

1. Aquifer parameters within each well were evaluated to determine if groundwater has reached a steady-state (i.e., water elevation stability by hydrograph plots) and if it is being influenced by any ongoing site remediation activities.
    - For wells influenced by remediation activities, the influence was attributed to a remediation area (A, B, or C) and wells are considered part of the system performance monitoring network for that area. A remediation monitoring phase evaluation was performed for these wells.
    - For wells not influenced by remediation activities, an attainment monitoring phase evaluation was performed.
2. A statistical evaluation was performed using the *USEPA Groundwater Statistics Tool* in Microsoft Excel (USEPA, 2014d) for all 105 monitoring wells and five COCs (benzene, MTBE, toluene, ethylbenzene, and total xylenes). The statistical evaluation included testing for outliers and normality, and calculation of the mean 95% UCL and the linear trend.
    - For the remediation phase wells, the most recent data with a minimum of four detections was used in the data set for the statistical evaluation. Note that a minimum of four data points is recommended for the remediation phase evaluation (USEPA, 2014b). If the last 20 data points (i.e., the maximum number that can be used in the USEPA Groundwater Statistics Tool) did not have at least four detections, then a visual evaluation was performed according to the USEPA guidance (USEPA, 2014b).
    - For the attainment phase wells, the most recent eight data points were included in the data set. If there were less than four detections, the minimum number of required data points for the statistical tool, then a visual evaluation was performed (USEPA, 2014b).

3. Recommendations for future groundwater monitoring were developed for each well-COC pair based on completion of its monitoring phase evaluation.
    - The remediation monitoring phase was considered complete for a well-COC pair if the 95% UCL value was at or below the cleanup level (see Section 4.4 for COC cleanup levels). Since Area A, B and C remediation systems are being proposed for discontinuation and replacement by combination of NSZD and MNA as site remedy, all remediation monitoring phase wells will be monitored monthly for water levels and field parameters post systems shutdown to confirm that they are no longer impacted by Area A, B and C remediation systems, and then semi-annual attainment monitoring will be initiated for all COCs concurrent with NSZD and MNA monitoring.
    - Attainment monitoring phase was considered complete for a well-COC pair if both the 95% UCL value was at or below the cleanup level and the linear trend had a statistically significant zero or decreasing slope.
    - When a visual evaluation of the data was performed for a well-COC pair, the evaluation phase was considered complete if all results in the data set were either non-detect and/or below the cleanup level.
4. A final optimized monitoring program was proposed based on the results of the statistical attainment evaluation and the 3-D CSM evaluation (Section 3.3).

5.2.2 Statistical Evaluation Results

The results of the statistical attainment evaluation are included in **Table 19**, and identifies wells influenced by ongoing remediation system activities, the number of data points in the statistical evaluation data set, and the conclusions of the remediation monitoring phase and attainment monitoring phase evaluations (i.e., if completion requirements were met).

The evaluation of hydrographs, included in **Appendix Q**, as well other aquifer parameters and remedial system information indicated 26 monitoring wells are influenced by ongoing remediation activities: 17 in Area A, seven in Area B, and two in Area C (**Table 19**). For these wells, a remediation monitoring phase evaluation, as described above, was performed. For the other 79 monitoring wells, an attainment monitoring phase evaluation was performed: 14 in Area A, nine in Area B, ten in Area C, and 46 in other areas of the site.

The output of the statistical evaluation for the remediation monitoring phase well-COC pairs is included in **Appendix V**. The statistical results suggest the remediation monitoring phase is:

- Complete for all five COCs for six monitoring wells
- Incomplete for one or more COCs for 20 monitoring wells

The attainment monitoring phase statistical output is provided in **Appendix V**. The statistical results suggest the attainment monitoring phase is complete for:

- All five COCs for 55 monitoring wells
- All COCs except benzene and/or MTBE for 24 monitoring wells

Monitoring program recommendations based on these results were determined as follows:

- Monitoring wells with all COCs meeting attainment monitoring phase completion requirements were suggested for abandonment.
- Optimized monitoring (i.e., continue current sampling frequency with a reduced analyte list) was proposed for monitoring wells with only some COCs meeting attainment monitoring phase completion requirements.
- Restarting monitoring for wells not currently sampled was proposed for well-COC pairs that did not meet attainment monitoring phase completion requirements.
- If none of the COCs met attainment monitoring phase completion requirements, then no change was made to the current monitoring program.
- For remediation monitoring phase wells, post systems shutdown, temporary suspension of monitoring combined with monthly water levels and field parameters monitoring is recommended to evaluate when they are no longer impacted by Area A, B and C remediation systems. Initiation of semi-annual attainment monitoring is then recommended for these wells for all COCs concurrent with MNA and NSZD monitoring.

These recommendations and those based on the 3-D CSM evaluation informed the final recommended optimized monitoring program, as described in the following section.

5.2.3 Well Network and Monitoring Program Optimization

The attainment evaluation results along with conclusions from the 3-D CSM evaluation (Section 3.1.3) were used to determine a final optimized monitoring program and proposed list of wells for abandonment, as shown in **Table 20** and illustrated in **Figures 32, 33, 34**. Wells were recommended for abandonment if either the 3-D CSM evaluation and/or the statistical attainment evaluation suggested abandonment. The only exception is for the two background monitoring wells for which the attainment evaluation recommends abandonment, but the 3-D CSM evaluation suggests continued monitoring as background wells (MW-20 and MW-46).

An optimized monitoring program with a reduced list of COCs for analysis is proposed when the attainment evaluation suggests continued monitoring for one or more COCs and the 3-D CSM does not recommend abandonment. In some cases, the evaluation suggested that monitoring should be restarted for some wells that are not currently sampled. For wells where monitoring is proposed to be restarted, the minimum number of monitoring events required to conclude completion of attainment phase monitoring has also been included in **Table 20**, with the assumption that all subsequent monitoring events will have COCs detected either below respective MCLs or non-detects.

A summary of the final monitoring program recommendations is as follows:

- Remediation monitoring phase wells:
    - For all 26 wells, discontinue remediation monitoring since the Area A, B and C remediation systems are being proposed for discontinuation. Post systems shutdown, all 26 wells will be monitored monthly for water levels and field water quality parameters to confirm that they are no longer impacted by Area A, B and C systems post shutdown. Once this has been confirmed,

semi-annual attainment monitoring will be initiated for all 26 wells for all COCs concurrent with MNA and NSZD monitoring.

  - For DPE well GP-27R and MP-7, the monitoring will follow as above. If the DPE system is re-activated due to any triggers per the MNA and NSZD Work Plan to be submitted, GP-27R will be abandoned, and MP-7 re-installed as a 4-inch DPE well with appropriate screen interval to capture the entire smear zone, consistent with conclusions from the updated CSM in Section 3.3.

- Attainment monitoring phase wells:
  - Abandon 54 monitoring wells. This includes the 53 monitoring wells where attainment monitoring was concluded to be complete, as well as one additional well GP-7A (40-45) where although attainment monitoring is incomplete for benzene and MTBE, the well hasn't been sampled since 2005 and is proposed for abandonment based on 3-D CSM evaluation.
  - No change in monitoring is recommended for the two wells, MW-20 and MW-46; although all COCs meet the attainment monitoring phase completion requirements, the 3-D CSM evaluation suggests continued monitoring as background wells.
  - Optimized monitoring for 18 wells currently sampled with a reduced list of COCs by discontinuing analysis for COCs that have attainment monitoring phase completed.
  - Restart semi-annual monitoring for five wells not currently sampled:
    - MW-1 – Has not been sampled since December 2005. Does not meet attainment monitoring phase completion requirements for MTBE only.
    - MW-13 – Has not been sampled since December 2005, except for NSZD sampling on 4/26/17 and 2/14/18. Does not meet attainment monitoring phase completion requirements for benzene and MTBE.
    - VP-4 – Removed from the remediation system in October 2004 and has not been sampled since December 2005. Does not meet attainment monitoring phase completion requirements for benzene and MTBE.
    - GP-2E (50-55) – Has not been sampled since September 2005. Does not meet attainment monitoring phase completion requirements for benzene and MTBE.
    - GP-2F (45-50) – Has not been sampled since April 2011. Does not meet attainment monitoring phase completion requirements for benzene and MTBE.
- The monitoring well MW-39 is also recommended for abandonment because it was historically replaced by MW-39R due to improper screen placement but was subsequently never abandoned and no analytical data has been collected from it since then.
- The four vapor implant wells VW-01, VW-02, VW-03R and VW-04 are also recommended for abandonment based on analytical data collected from them since 2013 indicating either non-detect concentrations for all COCs or detected concentrations below USEPA Residential Vapor Intrusion Screening Levels for Sub-Slab Soil Gas, and the fact that VW-03R and VW-04 are almost always filled with water and thus unavailable for sampling (Arcadis, 2018).

- Monthly gauging currently performed as part of the routine monitoring program for monitoring LPH accumulation or migration is proposed for discontinuation given that the LPH characterization results demonstrate that the residual LPH at Area A is no longer mobile or migrating.
- The plume in deeper portion of the surficial aquifer in Areas B and C is connected hydraulically to the plume in the shallower portion in Area A (**Figure 26** and **Figure 28**). Therefore, it is recommended to cease classification of the plumes as “shallow” versus “deep” (see figures in **Appendix K** of this report) and instead, produce just one plume map for COCs moving forward.

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TABLES

Table 1
Summary of Groundwater and Soil Vapor Sampling Plan

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

EXISTING WELLS TO BE SAMPLED

Well Identifier	Well Location Category	Petroleum Hydrocarbon Sampling Frequency	Current Sampling Method	Groundwater Gauging Frequency[(2)]	Comment
GP-30A	Dual-Phase Extraction System	Semi-annual	Bailer	Monthly	
GP-35A	Dual-Phase Extraction System	Semi-annual	HydraSleeve	Monthly	
MP-7	Dual-Phase Extraction System	None	None	Monthly	Gauge Only
MW-5	Dual-Phase Extraction System	None	None	Semi-annual	Gauge Only
MW-7	Dual-Phase Extraction System	Semi-annual	From pump	Monthly	Recovery Well
MW-15	Dual-Phase Extraction System	Semi-annual	Bailer	Semi-annual	
MW-16	Dual-Phase Extraction System	Annual	Bailer	Monthly	
MW-17	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	Recovery Well
MW-18	Dual-Phase Extraction System	Annual	Bailer	Monthly	
MW-23	Dual-Phase Extraction System	Annual	HydraSleeve	Semi-annual	
PTW-B	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	Recovery Well
RW-1	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	Recovery Well
RW-2	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	Recovery Well
RW-3	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	Recovery Well
RW-4	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	Recovery Well
RW-5	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	Angled Recovery Well
GP-27R	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	Recovery Well
MW-22R	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	Recovery Well
GP-39R	Dual-Phase Extraction System	None	None	Semi-annual	Recovery Well
GP-2E(45-50)	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
GP-2E(55-60)	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
GP-2F(45-50)	Dissolved Hydrocarbons	None	None	Semi-annual	Gauge only
GP-2F(50-55)	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
GP-7A(30-35)	Dissolved Hydrocarbons	None	None	Semi-annual	
GP-7A(35-40)	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
GP-24A	Dissolved Hydrocarbons	None	None	Semi-annual	

Table 1
Summary of Groundwater and Soil Vapor Sampling Plan

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Well Identifier	Well Location Category	Petroleum Hydrocarbon Sampling Frequency	Current Sampling Method	Groundwater Gauging Frequency[2]	Comment
GP-41A	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	
GP-44A	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	
MW-24A	Dissolved Hydrocarbons	None	None	Monthly	
MW-24B	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	
MW-25A	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	
MW-25B	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
MW-26A	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	
MW-26B	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
MW-27A	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
MW-27B	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
MW-33A	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	Added at the request of EPA
MW-33B	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	
MW-33C	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	Added at the request of EPA
MW-33S	Dissolved Hydrocarbons	None	None	Semi-annual	Gauge Only
MW-38	Dissolved Hydrocarbons	None	None	Semi-annual	
MW-39R	Dissolved Hydrocarbons	None	None	Semi-annual	
MW-40	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
MW-43B	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	
MW-44A	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
MW-44B	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
MW-45	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
MW-46	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	
MW-47	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
MW-49	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
MW-50	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
GP-7A(20-25)	Sentinel	None	None	Semi-annual	

Table 1
Summary of Groundwater and Soil Vapor Sampling Plan

Corrective Measures 5-Year Assessment Report
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Well Identifier	Well Location Category	Petroleum Hydrocarbon Sampling Frequency	Current Sampling Method	Groundwater Gauging Frequency[(2)]	Comment
GP-9A(20-25)	Sentinel	None	None	Semi-annual	
GP-11A(20-25)	Sentinel	Annual	Bailer	Semi-annual	
MW-6	Sentinel	Annual	Bailer	Semi-annual	
MW-19	Sentinel	Annual	Bailer	Semi-annual	
MW-20	Sentinel	Annual	Bailer	Semi-annual	Upgradient
MW-21	Sentinel	Semi-annual	Bailer	Semi-annual	
MW-28A	Sentinel	None	None	Semi-annual	
MW-28B	Sentinel	Annual	Bailer	Semi-annual	
MW-29A	Sentinel	Annual	Bailer	Semi-annual	
MW-29B	Sentinel	Semi-annual	Bailer	Semi-annual	
MW-30R	Sentinel	Annual	Bailer	Semi-annual	Replacement for MW-30
MW-31B	Sentinel	Annual	Bailer	Semi-annual	
MW-41A	Sentinel	Annual	Bailer	Semi-annual	
MW-41B	Sentinel	Annual	Bailer	Semi-annual	
MW-42	Sentinel	Annual	Bailer	Semi-annual	Upgradient
MW-43A	Sentinel	Annual	Bailer	Semi-annual	
MW-48	Sentinel	Annual	Bailer	Semi-annual	
MW-51	Sentinel	Semi-annual	Bailer	Semi-annual	
MW-53	Sentinel	Semi-annual	Bailer	Semi-annual	
MW-54	Sentinel	Annual	Bailer	Semi-annual	
MW-55	Sentinel	Annual	Bailer	Semi-annual	
MW-58	Oxygen Reactive Zone	Semi-annual	Bailer	Semi-annual	
MW-59	Oxygen Reactive Zone	Semi-annual	Bailer	Semi-annual	
MW-60	Oxygen Reactive Zone	Annual	Bailer	Semi-annual	
MW-61A	ISGR System	Semi-annual	HydraSleeve	Semi-annual	
MW-61B	ISGR System	Semi-annual	Bailer	Semi-annual	
MW-62A	ISGR System	Annual	Bailer	Semi-annual	
MW-62B	ISGR System	Semi-annual	Bailer	Semi-annual	

Table 1
Summary of Groundwater and Soil Vapor Sampling Plan

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Well Identifier	Well Location Category	Petroleum Hydrocarbon Sampling Frequency	Current Sampling Method	Groundwater Gauging Frequency[2]	Comment
ISGR-1Shallow	ISGR System	Semi-annual	HydraSleeve	Semi-annual	Also gauged as needed for OMM
ISGR-1Deep					
ISRG-2Shallow					
ISGR-2Deep					
VW-1	Soil Vapor	Semi-annual	NA	NA	
VW-2	Soil Vapor	Semi-annual	NA	NA	
VW-3	Soil Vapor	Semi-annual	NA	NA	
VW-4	Soil Vapor	Semi-annual	NA	NA	

Notes:
[1] This table is adapted from the Interim Measures Sampling Plan, dated April 2006.
[2] All wells will be gauged in the spring and the fall during the Semi-annual sampling events.
[3] Sampling will be conducted in the spring and fall (low and high groundwater conditions).

Table 2
Well Construction Table

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
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Well ID	DC or MD	Date Installed	Approx. Total Depth (ft bgs)	Approx. Screen Interval (ft bgs)	Well Diameter	Approx. Filter Sand Depth Interval (ft bgs)	Northing Coordinate (ft)	Easting Coordinate (ft)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Screen Slot Size/Sand Size	Comments
GP-11A (20-25)	DC	4/11/2002	25.0	20-25	0.75"	20-25	471123.81	1313350.36	158.28	158.70	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-11A (25-30)	DC	4/11/2002	30.0	25-30	0.75"	25-30	471126.34	1313347.82	158.43	158.70	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-11A (30-35)	DC	4/11/2002	35.0	30-35	0.75"	30-35	471128.89	1313345.33	158.38	158.80	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-11A (35-40)	DC	4/11/2002	40.0	35-40	0.75"	35-40	471131.38	1313342.79	158.38	158.80	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-24A	MD	4/9/2002	44.0	24-44	2"	22-44	471483.08	1313317.31	170.83	171.42	20 slot PVC/# 2 sand	MW
GP-27A	MD	3/25/2002	51.0	41-51	2"	41.8-51	471358.53	1313449.33	172.06	172.54	20 slot PVC/# 2 sand	Converted to GP-27R on 3/31/2011
GP-27R	MD	3/31/2011	61	43-58	4"	40-61	471358.50	1313449.28	171.35	172.54	20 slot PVC/# 2 sand	Area A 2012 Expansion
GP-2E (45-50)	DC	4/15/2002	50.0	45-50	0.75"	45-50	471055.06	1313636.96	168.17	168.65	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-2E (50-55)	DC	4/15/2002	55.0	50-55	0.75"	50-55	471057.55	1313634.32	168.27	168.65	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-2E (55-60)	DC	4/16/2002	60.0	55-60	0.75"	55-60	471059.83	1313631.91	168.53	169.04	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-2F (45-50)	DC	4/16/2002	50.0	45-50	0.75"	45-50	470900.52	1313791.22	159.59	160.14	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-2F (50-55)	DC	4/16/2002	55.0	50-55	0.75"	50-55	470902.79	1313789.02	159.59	160.55	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-30A	MD	4/11/2002	49.0	29-49	2"	27-49	471464.21	1313375.98	171.78	172.01	20 slot PVC/# 2 sand	Converted to GP-30R on 5/17/2017
GP-30R	MD	5/17/2017	55.5	34-50	4"	27-49	471464.21	1313375.98	N/A	N/A	20 slot PVC/# 1 sand	Converted to DPE Well
GP-35A	MD	4/18/2002	45.0	25-45	2"	23.5-45	471557.00	1313365.99	171.96	172.71	20 slot PVC/# 2 sand	MW
GP-38A	MD	4/12/2002	49.0	29-49	2"	27-49	471446.87	1313401.83	171.22	171.93	20 slot PVC/# 2 sand	Abandoned 4/11/2011
GP-39A	MD	4/2/2002	55.0	35-55	2"	34-55	471328.75	1313478.46	172.46	172.98	20 slot PVC/# 2 sand	Converted to GP-39R on 3/31/2011
GP-39R	MD	3/31/2011	55	40-55	4"	Unknown	471328.78	1313478.46	171.81	172.98		Area A 2012 Expansion
GP-41A	MD	4/23/2002	52.0	32-52	2"	30-52	471382.92	1313494.66	172.28	172.85	20 slot PVC/# 2 sand	MW
GP-44A	MD	4/15/2002	46.0	26-46	2"	24-46	471587.28	1313370.96	176.20	173.85	20 slot PVC/# 2 sand	MW
GP-7A (20-25)	DC	4/9/2002	25.0	20-25	0.75"	20-25	471252.95	1313222.22	158.11	158.69	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-7A (25-30)	DC	4/9/2002	30.0	25-30	0.75"	25-30	471255.57	1313219.99	158.08	158.69	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-7A (30-35)	DC	4/9/2002	35.0	30-35	0.75"	30-35	471258.13	1313217.64	158.09	158.40	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-7A (35-40)	DC	4/9/2002	40.0	35-40	0.75"	35-40	471260.65	1313215.37	158.09	158.40	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-7A (40-45)	DC	4/10/2002	45.0	40-45	0.75"	40-45	471265.93	1313210.42	158.11	158.18	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-9A (20-25)	DC	4/10/2002	25.0	20-25	0.75"	20-25	471187.69	1313287.94	158.86	159.12	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-9A (25-30)	DC	4/10/2002	30.0	25-30	0.75"	25-30	471190.11	1313285.21	158.81	159.12	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
GP-9A (30-35)	DC	4/10/2002	35.0	30-35	0.75"	30-35	471195.08	1313280.26	158.76	159.08	10 slot PVC/20x40 sand	GeoInsight Prepack DP Well
ISGR-1PD	DC	10/14/2011	60	48.6-58.6	2"	Unknown	471314.09	1313163.95	157.02	157.68	20 slot PVC/# 2 sand	ISGR 1 Deep Piezometer
ISGR-1PS	DC	10/11/2011	60	21.7-31.7	2"	3-31	Unknown	Unknown	156.93	Unknown	20 slot PVC/# 2 sand	ISGR 1 Shallow Piezometer
ISGR-2PD	DC	10/26/2011	67.7	55-65	2"	Unknown	471271.49	1313206.22	157.40	158.18	20 slot PVC/# 2 sand	ISGR 2 Deep Piezometer
ISGR-2PS	DC	10/26/2011	67.7	19-39	2"	Unknown	Unknown	Unknown	157.33	Unknown	20 slot PVC/# 2 sand	ISGR 2 Shallow Piezometer
IW-1	DC	12/9/2010	30	20-30	4"	19-30	470916.33	1313075.80	134.83	136.89	20 slot PVC/# 2 sand	Area C
IW-2	DC	12/9/2010	30	20-30	4"	Unknown	470905.11	1313085.76	135.00	136.51	20 slot PVC/# 2 sand	Area C
IW-3	DC	12/10/2010	30	20-30	4"	18-30	470893.89	1313095.71	134.93	136.38	20 slot PVC/# 2 sand	Area C
IW-4	DC	12/14/2010	31	20-30	4"	18-31	470882.67	1313105.67	134.79	136.90	20 slot PVC/# 2 sand	Area C
IW-5	DC	11/30/2010	36	25-35	4"	23-36	470871.45	1313115.63	134.66	136.45	20 slot PVC/# 2 sand	Area C
MP-20	MD	7/17/2002	55.0	40-55	2"	38-55	471345.93	1313454.26	172.16	172.59	20 slot PVC/# 2 sand	Abandoned 4/18/2011
MP-30	MD	7/17/2002	55.0	40-55	2"	38-55	471379.17	1313419.17	171.57	172.02	20 slot PVC/# 2 sand	Abandoned 4/18/2011
MP-40	MD	7/18/2002	55.0	40-55	2"	38-55	471394.57	1313471.52	172.11	172.68	20 slot PVC/# 2 sand	Abandoned 4/18/2011
MP-7	MD	7/18/2002	55.0	35-55	2"	33-55	471361.16	1313449.30	172.22	172.57	20 slot PVC/# 2 sand	Monitoring Point for PTW-A
MW-1	DC	11/16/1989	35.0	20-35	4"	18-35	471476.91	1313303.87	170.46	170.73	20 slot PVC/N/A	MW
MW-2	MD	11/15/1989	35.0	20-35	4"	18-35	471491.78	1313321.39	171.41	171.45	20 slot PVC/N/A	MW
MW-3	MD	11/14/1989	35.0	20-35	4"	18-35	471523.45	1313275.02	170.41	171.02	20 slot PVC/N/A	MW

See Notes on Page 4.

Table 2
Well Construction Table

Corrective Measures 5-Year Assessment Report
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Well ID	DC or MD	Date Installed	Approx. Total Depth (ft bgs)	Approx. Screen Interval (ft bgs)	Well Diameter	Approx. Filter Sand Depth Interval (ft bgs)	Northing Coordinate (ft)	Easting Coordinate (ft)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Screen Slot Size/Sand Size	Comments
MW-4	MD	11/14/1989	35.0	20-35	4"	18-35	471560.60	1313265.48	171.14	171.65	20 slot PVC/N/A	MW
MW-5	MD	11/13/1989	35.0	20-35	4"	18-35	471545.41	1313354.40	172.31	172.49	20 slot PVC/N/A	MW
MW-6	MD	4/2/1990	45.0	30-45	4"	Unknown	471533.06	1313306.89	171.12	171.67	Unknown	MW
MW-7	MD	5/2/1990	68.0	20-68	6"	Unknown	471530.65	1313382.64	177.11	173.88	Unknown	DPE Well/Per NCB 6" diameter well
MW-8	MD	4/3/1990	39.0	20-39	4"	Unknown	471594.00	1313366.29	172.78	174.00	Unknown	Abandoned 02/18/04
MW-9	MD	3/4/1991	38.0	23-38	4"	21-38			Unknown	0.00	20 slot PVC/#2 Sand	Abandoned 05/16/97
MW-10	MD	3/5/1991	40.0	5-40	4"	3-40			Unknown	0.00	20 slot PVC/#2 Sand	Abandoned 05/16/97
MW-11	MD	3/5/1991	55.0	25-55	4"	23-40	471480.63	1313386.93	171.24	172.98	20 slot PVC/#2 Sand	Originally installed to 40'. Deepened to 55' on 7/1996 . It was a DPE well. Well was discovered to be damaged based on observation of filter pack sand during re-development in July 2002. Abandoned on 02/18/04.
MW-12	MD	3/5/1991	55.0	25-55	4"	23-40	471459.24	1313358.81	171.50	172.02	20 slot PVC/#2 Sand	Originally installed to 40' on 3/5/91. Deepened to 55' on 7/1/96. Was a DPE well. Removed from remediation system 10/26/04. Currently a MW.
MW-13	MD	3/6/1991	40.0	25-40	4"	23-40	471486.23	1313438.45	172.47	173.19	20 slot PVC/#2 Sand	MW
MW-14	MD	8/1/1993	50.0	10-50	4"	8-50	475151.69	1313414.46	172.87	140.70	20 slot PVC/# 2 sand	Abandoned 02/18/04
MW-15	MD	8/1/1993	50.0	10-50	4"	8-50	471570.75	1313367.07	172.34	173.04	20 slot PVC/# 2 sand	DPE Well
MW-16	DC	8/4/1995	40.0	20-40	4"	Unknown	471417.57	1313364.30	171.05	171.49	Unknown	MW
MW-17	DC	5/16/2001	50.0	30-50	4"	Unknown	471412.32	1313363.11	170.67	171.49	20 slot PVC/# 2 sand	DPE Well
MW-18	DC	9/17/2001	43.7	29-44	0.75"	27-44	471415.32	1313276.38	168.45	168.86	10 slot PVC/# 2 sand	DP Well (see note #4)
MW-19	DC	9/17/2001	44.9	30-45	0.75"	28-45	471341.48	1313351.20	169.56	169.99	10 slot PVC/# 2 sand	DP Well (see note #4)
MW-20	MD	2/12/2004	50.0	30-50	2"	27.5-50	471616.49	1313523.71	176.27	177.21	20 slot PVC/#2 Sand	Upgradient MW
MW-21	MD	2/13/2004	48.0	28-48	2"	26-48	471479.47	1313503.35	173.37	173.68	20 slot PVC/#2 Sand	Upgradient MW
MW-22	DC	2/26/2004	52.0	31.5-51.5	2"	27.5-51.5	471380.48	1313384.88	171.23	171.38	20 slot PVC/#2 Sand	Converted to MW-22R on 4/1/2011
MW-22R	DC	4/1/2011	55	35-50	4"	32-55	471380.48	1313384.88	170.22	171.15	20 slot PVC/# 2 sand	Area A 2012 Expansion
MW-23	DC	2/27/2004	52.0	32-52	2"	28.5-52	471316.84	1313450.85	171.31	172.03	20 slot PVC/#2 Sand	MW
MW-24A	DC	3/4/2004	23.5	16-23.5	1"	16-23.5	471320.31	1313159.71	157.38	157.60	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-24B	DC	3/4/2004	30.0	22.5-30	1"	22.5-30	471318.67	1313160.83	157.45	157.64	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-25A	DC	3/9/2004	29.5	22-29.5	1"	22-29.5	470859.43	1313645.99	149.99	150.25	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-25B	DC	10/22/2004	55	45-55	2"	42-55	470876.47	1313628.46	150.95	151.17	10 slot PVC/Morie #00N Sand	MW
MW-26A	DC	3/2/2004	9.5	2-9.5	1"	2-9.5	470890.20	1313100.92	135.62	135.86	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-26B	DC	3/2/2004	26.5	21.5-26.5	1"	21.5-26.5	470891.96	1313099.59	135.74	135.90	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-27A	DC	3/3/2004	15.5	8-15.5	1"	8-15.5	470503.77	1313599.23	128.92	129.11	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-27B	DC	3/3/2004	40.5	30.5-40.5	1"	30.5-40.5	470502.96	1313601.18	128.92	129.06	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-28A	DC	2/27/2004	10.5	3-10.5	1"	3-10.5	470574.60	1313145.60	126.13	126.30	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-28B	DC	2/27/2004	25.5	15.5-25.5	1"	15.5-25.5	470573.07	1313148.74	125.49	126.10	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-29A	DC	3/1/2004	12.5	5-12.5	1"	5-12.5	470283.99	1313666.47	115.70	115.84	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-29B	DC	3/1/2004	29.0	19-29	1"	19-29	470284.44	1313665.03	115.54	115.79	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-30	DC	3/4/2004	30.0	15-30	1"	15-30	471361.11	1313116.34	156.87	157.07	25 slot PVC/100 x 120 silica	Replaced by MW-30R on 08/24/2011
MW-30R	DC	08/24/2011	60	15-30	4"	Multiple	471361.11	1313116.34	156.75	157.13	20 slot PVC/# 2 sand	Replaces Well MW-30
MW-31A	DC	2/26/2004	11.5	4-11.5	1"	4-11.5	470921.39	1312867.30	135.20	135.40	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well

See Notes on Page 4.

Table 2
Well Construction Table

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well ID	DC or MD	Date Installed	Approx. Total Depth (ft bgs)	Approx. Screen Interval (ft bgs)	Well Diameter	Approx. Filter Sand Depth Interval (ft bgs)	Northing Coordinate (ft)	Easting Coordinate (ft)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Screen Slot Size/Sand Size	Comments
MW-31B	DC	2/26/2004	21.5	11.5-21.5	1"	11.5-21.5	470923.42	1312869.39	135.81	136.04	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-32	DC	3/1/2004	15.0	5-15	1"	5-15	470410.64	1313209.05	128.47	128.62	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-33A	DC	2/27/2004	9.5	2.0-9.5	1"	2.0-9.5	470621.00	1313161.05	126.35	126.55	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-33B	DC	2/27/2004	23.0	13-23	1"	13-23	470619.82	1313162.29	126.16	126.42	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-33C	DC	2/27/2004	33.0	23-33	1"	23-33	470618.77	1313162.63	125.84	126.29	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-33S	DC	4/4/2005	7	2-7	1"	2-7	470623.89	1313157.13	126.58	126.79	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-34A	DC	3/1/2004	14.5	7-14.5	1"	7-14.5	470003.74	1314260.88	107.41	107.58	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-34B	DC	3/1/2004	24.5	14.5-24.5	1"	14.5-24.5	470003.62	1314259.02	107.40	107.66	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-37	DC	3/9/2004	15.5	8-15.5	1"	8-15.5	471330.20	1312962.83	152.61	152.92	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-38	DC	3/9/2004	15.5	8-15.5	1"	8-15.5	471001.94	1313239.83	146.91	146.98	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-39	DC	3/9/2004	13.5	6-13.5	1"	6-13.5	470873.58	1313374.83	146.02	146.08	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-39R	DC	10/22/2004	20.5	13-20.5	1"	13-20.5	470875.37	1313373.20	146.01	146.37	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-40	DC	3/5/2004	27.5	20-27.5	1"	20-27.5	470783.79	1313483.48	145.18	145.44	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-41A	DC	3/5/2004	24.5	17-24.5	1"	17-24.5	470526.42	1313864.27	136.96	137.26	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-41B	DC	3/5/2004	38.0	28-38	1"	28-38	470524.78	1313865.50	136.82	137.14	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-42	DC	3/2/2004	9.5	2-9.5	1"	2-9.5	471089.18	1312937.36	140.03	140.30	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-43A	DC	3/2/2004	9.5	2-9.5	1"	2-9.5	470760.06	1313227.63	133.98	134.44	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-43B	DC	3/2/2004	31.0	21-31	1"	21-31	470761.58	1313226.32	134.09	134.19	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-44A	DC	3/3/2004	13.5	6-13.5	1"	6-13.5	470559.61	1313496.32	130.22	130.45	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-44B	DC	3/3/2004	39.0	29-39	1"	29-39	470560.50	1313495.16	130.24	130.46	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-45	MD	10/5/2004	55	35-55	2"	31-55	471388.42	1313564.64	173.89	174.29	10 slot PVC/Morie #00N Sand	MW
MW-46	MD	10/6/2004	58	38-58	2"	34-58	471313.03	1313552.97	174.12	174.36	10 slot PVC/Morie #00N Sand	MW
MW-47	MD	10/7/2004	60	40-60	2"	34-60	471198.19	1313608.58	171.50	172.09	10 slot PVC/Morie #00N Sand	MW
MW-48	MD	10/4/2004	58	38-58	2"	34-58	471092.36	1313788.45	165.96	166.46	10 slot PVC/Morie #00N Sand	MW
MW-49	MD	9/30/2004	53	33-53	2"	29-53	470921.82	1313889.62	159.15	159.58	10 slot PVC/Morie #00N Sand	MW
MW-50	MD	9/30/2004	51	31-51	2"	27-51	470861.24	1314013.47	156.12	156.49	10 slot PVC/Morie #00N Sand	MW
MW-51	MD	9/29/2004	64	44-64	2"	40-64	470574.36	1314240.32	158.12	158.42	10 slot PVC/Morie #00N Sand	MW
MW-52	DC	4/4/2005	7	2-7	1"	2-7	470654.79	1313117.10	127.59	127.87	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-53	DC	4/8/2005	10.5	5.5-10.5	1"	5.5-10.5	470339.18	1313646.72	116.18	116.44	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-54	DC	4/4/2005	7	2-7	1"	2-7	470464.95	1313381.33	121.76	121.99	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-55	DC	4/8/2005	8.5	3.5-8.5	1"	3.5-8.5	470823.10	1312943.97	131.49	131.74	25 slot PVC/100 x 120 silica	GeoInsight Prepack DP Well
MW-58	DC	12/3/2010	35	25-35	2"	18-39	470868.26	1313115.79	134.97	135.87	20 slot PVC/# 2 sand	Area C
MW-59	DC	12/15/2010	30	20-30	2"	18-31	470743.28	1313125.32	131.10	131.79	20 slot PVC/# 2 sand	Area C
MW-60	DC	12/15/2010	20	10-20	2"		470743.27	1313125.32	131.08	131.79	20 slot PVC/# 2 sand	Area C
MW-61A	DC	10/4/2012	30	20-30	2"	5-30	471288.02	1313173.31	157.49	157.93	20 slot PVC/# 2 sand	Area B
MW-61B	DC	6/12/2012	60	50-60	2"	50-60	4314322.03	326960.70	157.54	Unknown	20 slot PVC/# 2 sand	Area B
MW-62A	DC	6/11/2012	15	5-15	2"	5-15	4314282.63	326942.74	148.58	Unknown	20 slot PVC/# 2 sand	Area B
MW-62B	DC	6/11/2012	35	25-35	2"	25-35	4314282.63	326942.74	148.50	Unknown	20 slot PVC/# 2 sand	Area B
PTW-A	MD	6/22/2002	65.0	40-65	4"	36-65	471362.21	1313445.45	172.28	172.52	20 slot PVC*/# 00N sand	Abandoned 4/6/2011
PTW-B	MD	7/30/2002	54.0	34-54	4"	30.5-54	471468.13	1313355.79	171.75	172.28	20 slot PVC*/ #00N & 00 sand	Installed as a DPE Pilot Test Well. Pilot Tested in Nov 2002.
RW-1	MD	2/19/2004	59.0	34-54	4"	30.5-54	471510.76	1313431.28	173.36	174.20	SS 10 Slot / #00N sand	Recovery Well
RW-2	MD	1/22/2004	60.0	30-55	4"	28-60	471488.89	1313386.16	172.21	173.00	SS 20/10 Slot / #00 and #00N	Recovery Well
RW-3	MD	2/2/2004	53.0	28-48	4"	25.5-48	471561.23	1313355.63	171.62	172.62	SS 20/10 Slot / #00 and #00N	Recovery Well

See Notes on Page 4.

Table 2
Well Construction Table

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well ID	DC or MD	Date Installed	Approx. Total Depth (ft bgs)	Approx. Screen Interval (ft bgs)	Well Diameter	Approx. Filter Sand Depth Interval (ft bgs)	Northing Coordinate (ft)	Easting Coordinate (ft)	Top of Casing Elevation (ft NAVD 88)	Ground Surface Elevation (ft NAVD 88)	Screen Slot Size/Sand Size	Comments
RW-4	MD	5/5/2011	60	35-53	4"	32-60	471451.80	1313410.95	171.62	172.45	20 slot PVC/# 2 sand	Area A 2012 Expansion
RW-5	MD	4/11/2011	103	73-103	4"	70-106	471424.00	1313359.94	171.75	171.53	20 slot PVC/# 2 sand	Angle Well Area A
VP-1	MD	3/6/1991	25.0	5-25	4"	3-25	471538.70	1313321.21	171.52	172.12	20 slot PVC/#2 Sand	Abandoned 02/18/04
VP-2	MD	3/6/1991	25.0	5-25	4"	3-25	471558.88	1313341.65	172.00	172.44	20 slot PVC/# 2 sand	Abandoned 02/18/04
VP-3	MD	8/1/1993	35.0	15-35	4"	Unknown	471562.40	1313322.75	171.97	172.66	Unknown	Abandoned 02/18/04
VP-4	MD	8/1/1993	35.0	15-35	4"	Unknown	471579.00	1313346.24	172.58	173.34	Unknown	Was a Soil Vapor Extraction Well. Removed from remediation system 10/26/04. Currently a MW.
VW-01	DC	3/8/2004	13.5	12-13.5	3/8"	11.5-13.5	471321.88	1313158.19	N/A	157.66	0.0057-inch pore size/#2 Sand	21-inch vapor implant with teflon lined tubing to surface.
VW-02	DC	3/8/2004	5.5	4-5.5	3/8"	3.5-5.5	470504.49	1313597.11	N/A	129.06	0.0057-inch pore size/#2 Sand	21-inch vapor implant with teflon lined tubing to surface.
VW-03	DC	4/5/2005	2.5	2-2.5	0.25" ID	1.5-2.5	470652.47	1313119.42	N/A	127.83	0.0057-inch pore size/#2 Sand	Replaced by VW-03R on 2/7/2008
VW-03R	DC	2/7/2008	2.5	2-2.5	0.25" ID	1.5-2.5	470652.47	1313119.42	N/A	127.83	0.0057-inch pore size/#2 Sand	6-inch SS vapor implant with teflon tubing to surface. Replaced VW-3 due to tubing failure.
VW-04	DC	4/8/2005	4	3.5-4	0.25" ID	3.3-4	470340.77	1313642.96	N/A	116.51	0.0057-inch pore size/#2 Sand	21-inch vapor implant with teflon lined tubing to surface.

Notes:
1. Top of Casing elevation is based on NAVD 88.
2. 20 Slot size indicates 0.020 inches, 10 Slot size indicates 0.010 inches.
3. * indicates continuous wire wrap PVC screen (PTW-A and PTW-B).
4. MW-18 and MW-19 are prepacked wells shipped without filter pack sand. #2 Sand was installed between PVC & wire-wrap screen before downhole installation.
5. Top of casing data revised based upon surveyor (Gerhold, Cross, and Etzel, Ltd.) data, recorded in June 2002.
6. Shading indicates Abandoned.
7. Survey elevations not available; elevations represent the surface elevation pulled from a 1/9 arcsecond digital elevation model (DEM).
8. Information on drilling log differs from data originally in this spreadsheet.

Table 3
Groundwater Gauging Results Table – 2013 through 2018

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
GP-11A(20-25)	GP-11A(20-25)	3/19/2013	17.71	17.71	158.28	140.57				
	GP-11A(20-25)	4/9/2013	17.52	17.52	158.28	140.76				
	GP-11A(20-25)	8/1/2013	17.35	17.35	158.28	140.93				
	GP-11A(20-25)	9/10/2013	18.18	18.18	158.28	140.10				
	GP-11A(20-25)	3/24/2014	17.05	17.05	158.28	141.23				
	GP-11A(20-25)	8/21/2014	17.80	17.80	158.28	140.48				
	GP-11A(20-25)	3/31/2015	17.23	17.23	158.28	141.05				
	GP-11A(20-25)	4/15/2015	17.00	17.00	158.28	141.28				
	GP-11A(20-25)	9/2/2015	18.12	18.12	158.28	140.16				
	GP-11A(20-25)	3/23/2016	17.36	17.36	158.28	140.92				
	GP-11A(20-25)	10/10/2016	18.65	18.65	158.28	139.63				
	GP-11A(20-25)	3/22/2017	18.52	18.52	158.28	139.76				
	GP-11A(20-25)	4/27/2017	18.47	18.47	158.28	139.81				
	GP-11A(20-25)	8/16/2017	18.10	18.10	158.28	140.18				
	GP-11A(20-25)	3/20/2018	18.19	18.19	158.28	140.09				
	GP-11A(20-25)	3/28/2018	18.03	18.03	158.28	140.25				
GP-11A(25-30)	GP-11A(25-30)	3/19/2013	19.22	19.22	158.43	139.21				
	GP-11A(25-30)	8/1/2013	19.92	19.92	158.43	138.51				
	GP-11A(25-30)	3/24/2014	19.62	19.62	158.43	138.81				
	GP-11A(25-30)	8/21/2014	20.63	20.63	158.43	137.80				
	GP-11A(25-30)	3/31/2015	20.26	20.26	158.43	138.17				
	GP-11A(25-30)	9/2/2015	20.05	20.05	158.43	138.38				
	GP-11A(25-30)	3/23/2016	18.70	18.70	158.43	139.73				
	GP-11A(25-30)	10/10/2016	21.02	21.02	158.43	137.41				
	GP-11A(25-30)	3/22/2017	19.57	19.57	158.43	138.86				
	GP-11A(25-30)	8/16/2017	20.34	20.34	158.43	138.09				
	GP-11A(25-30)	3/20/2018	20.83	20.83	158.43	137.60				
GP-11A(30-35)	GP-11A(30-35)	3/19/2013	20.91	20.91	158.38	137.47				
	GP-11A(30-35)	8/1/2013	21.59	21.59	158.38	136.79				
	GP-11A(30-35)	3/24/2014	20.72	20.72	158.38	137.66				
	GP-11A(30-35)	8/21/2014	21.07	21.07	158.38	137.31				
	GP-11A(30-35)	3/31/2015	21.00	21.00	158.38	137.38				
	GP-11A(30-35)	9/2/2015	21.21	21.21	158.38	137.17				
	GP-11A(30-35)	3/23/2016	21.27	21.27	158.38	137.11				
	GP-11A(30-35)	10/10/2016	21.54	21.54	158.38	136.84				
	GP-11A(30-35)	3/22/2017	22.54	22.54	158.38	135.84				
	GP-11A(30-35)	8/16/2017	21.45	21.45	158.38	136.93				
	GP-11A(30-35)	3/20/2018	20.91	20.91	158.38	137.47				
GP-11A(35-40)	GP-11A(35-40)	3/19/2013	28.84	28.84	158.38	129.54				
	GP-11A(35-40)	8/1/2013	28.17	28.17	158.38	130.21				
	GP-11A(35-40)	3/24/2014	20.76	20.76	158.38	137.62				
	GP-11A(35-40)	8/21/2014	27.17	27.17	158.38	131.21				
	GP-11A(35-40)	3/31/2015	26.85	26.85	158.38	131.53				
	GP-11A(35-40)	9/2/2015	27.48	27.48	158.38	130.90				
	GP-11A(35-40)	3/23/2016	27.60	27.60	158.38	130.78				
	GP-11A(35-40)	10/10/2016	28.35	28.35	158.38	130.03				
	GP-11A(35-40)	3/21/2017	29.32	29.32	158.38	129.06				
	GP-11A(35-40)	8/16/2017	28.04	28.04	158.38	130.34				
	GP-11A(35-40)	3/20/2018	20.87	20.87	158.38	137.51				
GP-24A	GP-24A	3/19/2013	35.24	35.24	170.83	135.59				
	GP-24A	3/29/2013	35.33	35.33	170.83	135.50				
	GP-24A	8/1/2013	33.18	33.18	170.83	137.65				
	GP-24A	9/6/2013	33.53	33.53	170.83	137.30				
	GP-24A	3/24/2014	33.18	33.18	170.83	137.65				
	GP-24A	8/22/2014	31.96	31.96	170.83	138.87				
	GP-24A	3/31/2015	31.64	31.64	170.83	139.19				
	GP-24A	9/2/2015	33.25	33.25	170.83	137.58				
	GP-24A	3/23/2016	33.03	33.03	170.83	137.80				
	GP-24A	10/10/2016	32.77	32.77	170.83	138.06				
	GP-24A	3/22/2017	34.68	34.68	170.83	136.15				
	GP-24A	8/16/2017	33.35	33.35	170.83	137.48				
	GP-24A	1/12/2018	32.36	32.36	171.83	139.47				Pilot Rebound Evaluation
	GP-24A	1/22/2018	32.75	32.75	172.83	140.08				Pilot Rebound Evaluation
	GP-24A	2/7/2018	33.75	33.75	173.83	140.08				Pilot Rebound Evaluation
	GP-24A	3/20/2018	32.91	32.91	170.83	137.92				

See Notes on Page 33.

Table 3
Groundwater Gauging Results Table – 2013 through 2018

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
GP-27R	GP-27R	1/28/2013	48.56	48.56	171.35	122.79				
	GP-27R	3/19/2013	NG	NG	NG	NG				Car Parked on Top of Well
	GP-27R	4/13/2013	NG	NG	NG	NG				Pumping
	GP-27R	4/22/2013	47.64	47.64	171.35	123.71				
	GP-27R	5/28/2013	42.52	42.52	171.35	128.83				
	GP-27R	6/3/2013	49.78	49.78	171.35	121.57				
	GP-27R	7/15/2013	46.71	46.71	171.35	124.64				
	GP-27R	8/1/2013	49.65	49.65	171.35	121.70				
	GP-27R	8/15/2013	44.23	44.23	171.35	127.12				
	GP-27R	11/14/2013	37.73	37.73	171.35	133.62				
	GP-27R	12/18/2013	42.50	42.50	171.35	128.85				
	GP-27R	1/28/2014	38.19	38.19	171.35	133.16				
	GP-27R	2/17/2014	49.78	49.78	171.35	121.57				
	GP-27R	3/7/2014	45.53	45.53	171.35	125.82				
	GP-27R	3/24/2014	47.41	47.41	171.35	123.94				
	GP-27R	4/11/2014	NG	NG	NG	NG				
	GP-27R	5/27/2014	NG	NG	NG	NG				
	GP-27R	6/24/2014	29.57	29.57	171.35	141.78				
	GP-27R	8/13/2014	NG	NG	NG	NG				Covered by Car
	GP-27R	8/21/2014	37.65	37.65	171.35	133.70				
	GP-27R	9/10/2014	NG	NG	NG	NG				Not Gauged - Pumping
	GP-27R	10/7/2014	NG	NG	NG	NG				Covered by Car
	GP-27R	11/6/2014	44.57	44.57	171.35	126.78				
	GP-27R	1/19/2015	36.83	36.83	171.35	134.52				
	GP-27R	3/31/2015	37.43	37.43	171.35	133.92				
	GP-27R	4/28/2015	31.23	31.23	171.35	140.12				
	GP-27R	5/7/2015	30.87	30.87	171.35	140.48				
	GP-27R	6/23/2015	37.51	37.51	171.35	133.84				
	GP-27R	1/5/2016	41.76	41.76	171.35	129.59				
	GP-27R	2/22/2016	NG	NG	NG	NG				
	GP-27R	3/23/2016	NG	NG	NG	NG				Pumping
	GP-27R	3/28/2016	41.53	41.53	171.35	129.82				Pumping
	GP-27R	4/4/2016	41.22	41.22	171.35	130.13				
	GP-27R	4/13/2016	NG	NG	NG	NG				
	GP-27R	5/31/2016	42.23	42.23	171.35	129.12				Pumping
	GP-27R	7/12/2016	38.79	38.79	171.35	132.56				
	GP-27R	8/16/2016	38.24	38.24	171.35	133.11				
	GP-27R	9/8/2016	46.95	46.95	171.35	124.40				
	GP-27R	10/10/2016	39.20	39.20	171.35	132.15				
	GP-27R	10/11/2016	39.20	39.20	171.35	132.15				
	GP-27R	11/15/2016	NG	NG	NG	NG				
	GP-27R	12/19/2016	46.83	46.83	171.35	124.52				
	GP-27R	1/5/2017	46.05	46.05	171.35	125.30				
	GP-27R	2/7/2017	39.17	39.17	171.35	132.18				
	GP-27R	3/21/2017	NG	NG	NG	NG				Covered by Broken Down
	GP-27R	4/3/2017	40.58	40.58	171.35	130.77				
	GP-27R	5/26/2017	43.91	43.91	171.35	127.44				
	GP-27R	6/1/2017	47.60	47.60	171.35	123.75				
	GP-27R	7/13/2017	NG	NG	NG	NG				Car on well
	GP-27R	8/16/2017	49.73	49.73	171.35	121.62				
	GP-27R	9/19/2017	49.30	49.30	171.35	122.05				
	GP-27R	10/23/2017	NG	NG	NG	NG				Covered by a car
	GP-27R	11/29/2017	38.79	38.79	171.35	132.56				
	GP-27R	12/12/2017	46.60	46.60	171.35	124.75				
	GP-27R	1/12/2018	39.15	39.15	171.35	132.20				Pilot Rebound Evaluation
	GP-27R	1/22/2018	39.10	39.10	171.35	132.25				Pilot Rebound Evaluation
	GP-27R	2/7/2018	39.05	39.05	171.35	132.30				Pilot Rebound Evaluation
	GP-27R	3/20/2018	47.47	47.47	171.35	123.88				
	GP-27R	3/29/2018	NG	NG	NG	NG				
GP-2E(45-50)	GP-2E(45-50)	3/19/2013	44.06	44.06	168.17	124.11				
	GP-2E(45-50)	4/10/2013	44.4	44.40	168.17	123.77				
	GP-2E(45-50)	8/1/2013	43.72	43.72	168.17	124.45				
	GP-2E(45-50)	9/11/2013	43.83	43.83	168.18	124.35				
	GP-2E(45-50)	3/24/2014	43.54	43.54	168.18	124.64				

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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
GP-2E(45-50) (cont.)	GP-2E(45-50)	8/21/2014	42.65	42.65	168.18	125.53				
	GP-2E(45-50)	9/9/2014	43.00	43.00	168.18	125.18				
	GP-2E(45-50)	3/31/2015	42.78	42.78	168.17	125.39				
	GP-2E(45-50)	4/15/2015	42.80	42.80	168.17	125.37				
	GP-2E(45-50)	9/2/2015	42.75	42.75	168.17	125.42				
	GP-2E(45-50)	9/30/2015	42.92	42.92	168.17	125.25				
	GP-2E(45-50)	3/23/2016	43.35	43.35	168.17	124.82				
	GP-2E(45-50)	4/12/2016	43.57	43.57	168.17	124.60				
	GP-2E(45-50)	10/10/2016	43.65	43.65	168.17	124.52				
	GP-2E(45-50)	3/21/2017	44.08	44.08	168.17	124.09				
	GP-2E(45-50)	4/27/2017	44.30	44.30	168.17	123.87				
	GP-2E(45-50)	8/16/2017	43.81	43.81	168.17	124.36				
	GP-2E(45-50)	8/24/2017	43.73	43.73	168.17	124.44				
	GP-2E(45-50)	3/20/2018	43.72	43.72	168.17	124.45				
	GP-2E(45-50)	3/28/2018	43.81	43.81	168.17	124.36				
GP-2E(50-55)	GP-2E(50-55)	3/19/2013	44.09	44.09	168.27	124.18				
	GP-2E(50-55)	8/1/2013	43.79	43.79	168.27	124.48				
	GP-2E(50-55)	3/24/2014	43.67	43.67	168.27	124.60				
	GP-2E(50-55)	8/21/2014	42.74	42.74	168.27	125.53				
	GP-2E(50-55)	3/31/2015	42.85	42.85	168.27	125.42				
	GP-2E(50-55)	9/2/2015	42.86	42.86	168.27	125.41				
	GP-2E(50-55)	3/23/2016	43.41	43.41	168.27	124.86				
	GP-2E(50-55)	10/10/2016	43.82	43.82	168.27	124.45				
	GP-2E(50-55)	3/21/2017	44.18	44.18	168.27	124.09				
	GP-2E(50-55)	8/16/2017	43.90	43.90	168.27	124.37				
	GP-2E(50-55)	3/20/2018	43.77	43.77	168.27	124.50				
	GP-2E(50-55)	3/28/2018	44.78	44.78	168.27	123.49				
GP-2E(55-60)	GP-2E(55-60)	3/19/2013	44.39	44.39	168.53	124.14				
	GP-2E(55-60)	4/10/2013	44.4	44.40	168.53	124.13				
	GP-2E(55-60)	8/1/2013	44.05	44.05	168.53	124.48				
	GP-2E(55-60)	9/11/2013	44.22	44.22	168.53	124.31				
	GP-2E(55-60)	3/24/2014	43.98	43.98	168.53	124.55				
	GP-2E(55-60)	8/21/2014	43.08	43.08	168.53	125.45				
	GP-2E(55-60)	9/9/2014	43.34	43.34	168.53	125.19				
	GP-2E(55-60)	3/31/2015	43.16	43.16	168.53	125.37				
	GP-2E(55-60)	4/15/2015	43.18	43.18	168.53	125.35				
	GP-2E(55-60)	9/2/2015	43.17	43.17	168.53	125.36				
	GP-2E(55-60)	9/30/2015	43.30	43.30	168.53	125.23				
	GP-2E(55-60)	3/23/2016	43.76	43.76	168.53	124.77				
	GP-2E(55-60)	4/12/2016	43.78	43.78	168.53	124.75				
	GP-2E(55-60)	10/10/2016	44.08	44.08	168.53	124.45				
	GP-2E(55-60)	3/21/2017	44.51	44.51	168.53	124.02				
	GP-2E(55-60)	4/27/2017	44.70	44.70	168.53	123.83				
	GP-2E(55-60)	8/16/2017	44.15	44.15	168.53	124.38				
	GP-2E(55-60)	8/24/2017	44.11	44.11	168.53	124.42				
	GP-2E(55-60)	3/20/2018	44.11	44.11	168.53	124.42				
	GP-2E(55-60)	3/28/2018	44.16	44.16	168.53	124.37				
GP-2F(45-50)	GP-2F(45-50)	3/19/2013	43.11	43.11	159.59	116.48				
	GP-2F(45-50)	4/10/2013	Dry							Dry
	GP-2F(45-50)	3/24/2014	43.1	43.10	159.59	116.49				
	GP-2F(45-50)	8/21/2014	Dry							Dry
	GP-2F(45-50)	9/9/2014	Dry							Dry
	GP-2F(45-50)	3/31/2015	42.85	42.85	159.59	116.74				
	GP-2F(45-50)	4/15/2015	42.82	42.82	159.59	116.77				
	GP-2F(45-50)	9/2/2015	43.20	43.20	159.59	116.39				
	GP-2F(45-50)	3/23/2016	Dry							Dry
	GP-2F(45-50)	4/12/2016	Dry							Dry
	GP-2F(45-50)	10/10/2016	43.10	43.10	159.59	116.49				
	GP-2F(45-50)	3/21/2017	Dry							Dry
	GP-2F(45-50)	4/27/2017	Dry							Dry

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GP-2F(45-50) (cont.)	GP-2F(45-50)	8/16/2017	Dry							Dry
	GP-2F(45-50)	3/20/2018	43.10	43.10	159.59	116.49				
	GP-2F(45-50)	3/28/2018	Dry							Dry
GP-2F(50-55)	GP-2F(50-55)	3/19/2013	45.02	45.02	159.59	114.57				
	GP-2F(50-55)	4/10/2013	45.09	45.09	159.59	114.50				
	GP-2F(50-55)	8/1/2013	44.88	44.88	159.59	114.71				
	GP-2F(50-55)	9/11/2013	45.18	45.18	159.59	114.41				
	GP-2F(50-55)	3/24/2014	44.35	44.35	159.59	115.24				
	GP-2F(50-55)	8/21/2014	43.75	43.75	159.59	115.84				
	GP-2F(50-55)	9/9/2014	43.32	43.32	159.59	116.27				
	GP-2F(50-55)	3/31/2015	42.97	42.97	159.59	116.62				
	GP-2F(50-55)	4/15/2015	43.15	43.15	159.59	116.44				
	GP-2F(50-55)	9/2/2015	43.84	43.84	159.59	115.75				
	GP-2F(50-55)	3/23/2016	43.93	43.93	159.59	115.66				
	GP-2F(50-55)	4/12/2016	44.05	44.05	159.59	115.54				
	GP-2F(50-55)	10/10/2016	44.51	44.51	159.59	115.08				
	GP-2F(50-55)	3/21/2017	45.16	45.16	159.59	114.43				
	GP-2F(50-55)	4/27/2017	45.11	45.11	159.59	114.48				
	GP-2F(50-55)	8/16/2017	44.41	44.41	159.59	115.18				
	GP-2F(50-55)	8/23/2017	44.26	44.26	159.59	115.33				
	GP-2F(50-55)	3/20/2018	44.90	44.90	159.59	114.69				
GP-30A	GP-30A	1/28/2013	41.26	41.26	171.78	130.52				
	GP-30A	3/19/2013	41.15	41.15	171.78	130.63				
	GP-30A	3/29/2013	41.14	41.14	171.78	130.64				
	GP-30A	4/22/2013	41.1	41.10	171.78	130.68				
	GP-30A	5/28/2013	38.84	38.84	171.78	132.94				
	GP-30A	6/3/2013	37.77	37.77	171.78	134.01				
	GP-30A	8/1/2013	39.39	39.39	171.78	132.39				
	GP-30A	8/15/2013	38.42	38.42	171.78	133.36				
	GP-30A	9/6/2013	41.05	41.05	171.78	130.73				
	GP-30A	10/30/2013	36.5	36.50	171.78	135.28				
	GP-30A	11/14/2013	41.33	41.33	171.78	130.45				
	GP-30A	12/18/2013	41.22	41.22	171.78	130.56				
	GP-30A	1/28/2014	37.2	37.20	171.78	134.58				
	GP-30A	2/17/2014	41.72	41.72	171.78	130.06				
	GP-30A	3/7/2014	41.12	41.12	171.78	130.66				
	GP-30A	3/24/2014	40.67	40.67	171.78	131.11				
	GP-30A	4/11/2014	36.18	36.18	171.78	135.60				
	GP-30A	5/27/2014	39.95	39.95	171.78	131.83				
	GP-30A	6/24/2014	40.89	40.89	171.78	130.89				
	GP-30A	8/13/2014	39.30	39.30	171.78	132.48				
	GP-30A	8/21/2014	35.95	35.95	171.78	135.83				
	GP-30A	9/10/2014	41.99	41.99	171.78	129.79				
	GP-30A	10/7/2014	34.43	34.43	171.78	137.35				
	GP-30A	1/19/2015	37.68	37.68	171.78	134.10				
	GP-30A	11/6/2014	42.20	42.20	171.78	129.58				
	GP-30A	3/31/2015	35.31	35.31	171.78	136.47				
	GP-30A	4/28/2015	36.82	36.82	171.78	134.96				
	GP-30A	5/7/2015	33.94	33.94	171.78	137.84				
	GP-30A	6/23/2015	33.36	33.36	171.78	138.42				
	GP-30A	9/2/2015	41.66	41.66	171.78	130.12				
	GP-30A	10/2/2015	5.75	5.75	171.78	166.03				
	GP-30A	1/5/2016	38.49	38.49	171.78	133.29				
	GP-30A	2/22/2016	41.68	41.68	171.78	130.10				
	GP-30A	3/23/2016	41.38	41.38	171.78	130.40				
	GP-30A	3/28/2016	41.08	41.08	171.78	130.70				
	GP-30A	4/4/2016	41.40	41.40	171.78	130.38				
	GP-30A	4/13/2016	41.68	41.68	171.78	130.10				
	GP-30A	5/31/2016	39.80	39.80	171.78	131.98				
	GP-30A	6/13/2016	41.25	41.25	171.78	130.53				
	GP-30A	7/12/2016	36.85	36.85	171.78	134.93				
	GP-30A	8/16/2016	36.06	36.06	171.78	135.72				

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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
GP-30A (cont.)	GP-30A	9/8/2016	39.88	39.88	171.78	131.90				
	GP-30A	10/10/2016	37.12	37.12	171.78	134.66				
	GP-30A	10/11/2016	37.12	37.12	171.78	134.66				
	GP-30A	11/15/2016	40.60	40.60	171.78	131.18				
	GP-30A	12/19/2016	37.66	37.66	171.78	134.12				
	GP-30A	1/5/2017	37.00	37.00	171.78	134.78				
	GP-30A	2/7/2017	36.31	36.31	171.78	135.47				
	GP-30A	3/21/2017	41.02	41.02	171.78	130.76				
	GP-30A	4/3/2017	41.13	41.13	171.78	130.65				
	GP-30A	4/24/2017	41.44	41.44	171.78	130.34				
	GP-30A	5/26/2017	43.68	43.68	171.78	128.10				
	GP-30A	6/1/2017	38.70	38.70	171.78	133.08				
	GP-30A	11/29/2017	36.40	36.40	171.78	135.38				
	GP-30A	12/12/2017	50.30	50.30	171.78	121.48				
	GP-30A	1/22/2018	36.78	36.78	171.78	135.00				Pilot Rebound Evaluation
	GP-30A	2/7/2018	36.69	36.69	171.78	135.09				Pilot Rebound Evaluation
	GP-30A	3/20/2018	50.31	50.31	171.78	121.47				
GP-30R	GP-30R	7/13/2017	32.91	32.91	171.78	138.87				
	GP-30R	8/16/2017	50.38	50.38	171.78	121.40				
	GP-30R	9/19/2017	50.35	50.35	171.78	121.43				
	GP-30R	10/23/2017	50.39	50.39	171.78	121.39				
	GP-30R	11/29/2017	36.40	36.40	171.78	135.38				
	GP-30R	12/12/2017	50.30	50.30	171.78	121.48				
	GP-30R	1/12/2018	36.84	36.84	172.78	135.94				Pilot Rebound Evaluation
	GP-30R	1/22/2018	36.78	36.78	173.78	137.00				Pilot Rebound Evaluation
	GP-30R	2/7/2018	36.69	36.69	174.78	138.09				Pilot Rebound Evaluation
	GP-30R	3/20/2018	50.31	50.31	171.78	121.47				
GP-35A	GP-35A	1/28/2013	42.12	42.12	171.96	129.84				
	GP-35A	3/19/2013	40.12	40.12	171.96	131.84				
	GP-35A	4/3/2013	40.81	40.81	171.96	131.15				
	GP-35A	4/22/2013	40.25	40.25	171.96	131.71				
	GP-35A	5/28/2013	38.23	38.23	171.96	133.73				
	GP-35A	6/3/2013	38.1	38.10	171.96	133.86				
	GP-35A	8/1/2013	38.23	38.23	171.96	133.73				
	GP-35A	8/15/2013	37.02	37.02	171.96	134.94				
	GP-35A	9/16/2013	34.85	34.85	171.96	137.11				
	GP-35A	10/30/2013	33.91	33.91	171.96	138.05				
	GP-35A	11/14/2013	39.22	39.22	171.96	132.74				
	GP-35A	12/18/2013	38.21	38.21	171.96	133.75				
	GP-35A	1/28/2014	34.12	34.12	171.96	137.84				
	GP-35A	2/17/2014	38.46	38.46	171.96	133.50				
	GP-35A	3/7/2014	37.81	37.81	171.96	134.15				
	GP-35A	3/24/2014	36.5	36.50	171.96	135.46				
	GP-35A	4/11/2014	34.28	34.28	171.96	137.68				
	GP-35A	5/27/2014	35.83	35.83	171.96	136.13				
	GP-35A	6/24/2014	36.64	36.64	171.96	135.32				
	GP-35A	8/13/2014	35.11	35.11	171.96	136.85				
	GP-35A	8/22/2014	33.45	33.45	171.96	138.51				
	GP-35A	9/8/2014	43.87	43.87	171.96	128.09				
	GP-35A	10/7/2014	34.47	34.47	171.96	137.49				
	GP-35A	11/6/2014	43.13	43.13	171.96	128.83				
	GP-35A	3/31/2015	32.88	32.88	171.96	139.08				
	GP-35A	4/28/2015	39.73	39.73	171.96	132.23				
	GP-35A	1/19/2015	33.82	33.82	171.96	138.14				
	GP-35A	5/7/2015	36.81	36.81	171.96	135.15				
	GP-35A	6/23/2015	35.35	35.35	171.96	136.61				
	GP-35A	9/2/2015	43.33	43.33	171.96	128.63				
	GP-35A	10/2/2015	41.60	41.60	171.96	130.36				
	GP-35A	1/5/2016	35.31	35.31	171.96	136.65				
	GP-35A	2/22/2016	38.49	38.49	171.96	133.47				
	GP-35A	3/23/2016	37.20	37.20	171.96	134.76				
	GP-35A	3/28/2016	36.59	36.59	171.96	135.37				
	GP-35A	4/4/2016	37.16	37.16	171.96	134.80				
	GP-35A	4/13/2016	38.18	38.18	171.96	133.78				
	GP-35A	5/31/2016	36.67	36.67	171.96	135.29				
	GP-35A	6/13/2016	36.04	36.04	171.96	135.92				
	GP-35A	7/12/2016	32.96	32.96	171.96	139.00				

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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
GP-35A (cont.)	GP-35A	8/16/2016	32.87	32.87	171.96	139.09				
	GP-35A	9/8/2016	33.75	33.75	171.96	138.21				
	GP-35A	10/10/2016	33.97	33.97	171.96	137.99				
	GP-35A	10/11/2016	33.97	33.97	171.96	137.99				
	GP-35A	11/15/2016	34.55	34.55	171.96	137.41				
	GP-35A	12/19/2016	34.02	34.02	171.96	137.94				
	GP-35A	1/5/2017	33.57	33.57	171.96	138.39				
	GP-35A	2/7/2017	33.36	33.36	171.96	138.60				
	GP-35A	3/21/2017	36.58	36.58	171.96	135.38				
	GP-35A	4/3/2017	36.83	36.83	171.96	135.13				
	GP-35A	4/24/2017	37.02	37.02	171.96	134.94				
	GP-35A	5/26/2017	34.61	34.61	171.96	137.35				
	GP-35A	6/1/2017	33.90	33.90	171.96	138.06				
	GP-35A	7/13/2017	34.01	34.01	171.96	137.95				
	GP-35A	8/16/2017	36.06	36.06	171.96	135.90				
	GP-35A	9/19/2017	37.08	37.08	171.96	134.88				
	GP-35A	10/23/2017	33.71	33.71	171.96	138.25				
	GP-35A	11/29/2017	33.58	33.58	171.96	138.38				
	GP-35A	12/12/2017	33.17	33.17	171.96	138.79				
	GP-35A	1/12/2018	33.95	33.95	172.96	139.01				Pilot Rebound Evaluation
	GP-35A	1/22/2018	33.71	33.71	171.96	138.25				Pilot Rebound Evaluation
	GP-35A	2/7/2018	33.75	33.75	171.96	138.21				Pilot Rebound Evaluation
	GP-35A	3/20/2018	33.76	33.76	171.96	138.20				
	GP-35A	3/26/2018	37.05	37.05	171.96	134.91				
GP-39R	GP-39R	3/19/2013	51.22	51.22	171.81	120.59				
	GP-39R	4/15/2013	NG	NG	NG	NG				Pumping
	GP-39R	7/18/2013	51.53	51.53	171.81	120.28				
	GP-39R	8/1/2013	44.4	44.40	171.81	127.41				
	GP-39R	3/24/2014	45.53	45.53	171.81	126.28				
	GP-39R	8/21/2014	41.36	41.36	171.81	130.45				
	GP-39R	9/10/2014	NG	NG	NG	NG				Not Gauged - Pumping
	GP-39R	3/31/2015	41.15	41.15	171.81	130.66				
	GP-39R	3/23/2016	NG	NG	NG	NG				Pumping
	GP-39R	4/13/2016	NG	NG	NG	NG				Pumping
	GP-39R	10/10/2016	41.20	41.20	171.81	130.61				
	GP-39R	3/21/2017	53.25	53.25	171.81	118.56				
	GP-39R	8/16/2017	52.74	52.74	171.81	119.07				
	GP-39R	1/12/2018	41.19	41.19	171.81	130.62				Pilot Rebound Evaluation
	GP-39R	1/22/2018	41.35	41.35	171.81	130.46				Pilot Rebound Evaluation
	GP-39R	2/7/2018	41.49	41.49	171.81	130.32				Pilot Rebound Evaluation
	GP-39R	3/20/2018	50.54	50.54	171.81	121.27				
GP-41A	GP-41A	3/19/2013	41.34	41.34	172.28	130.94				
	GP-41A	4/10/2013	41.8	41.80	172.28	130.48				
	GP-41A	8/1/2013	41.41	41.41	172.28	130.87				
	GP-41A	9/6/2013	41.61	41.61	172.28	130.67				
	GP-41A	3/24/2014	41.4	41.40	172.28	130.88				
	GP-41A	8/21/2014	40.84	40.84	172.28	131.44				
	GP-41A	3/31/2015	40.90	40.90	172.28	131.38				
	GP-41A	4/13/2015	40.98	40.98	172.28	131.30				
	GP-41A	9/2/2015	40.95	40.95	172.28	131.33				
	GP-41A	3/23/2016	41.63	41.63	172.28	130.65				
	GP-41A	10/10/2016	41.91	41.91	172.28	130.37				
	GP-41A	3/21/2017	42.50	42.50	172.28	129.78				
	GP-41A	4/27/2017	NG	NG	NG	NG				Hydrasleeve in well
	GP-41A	8/16/2017	42.42	42.42	172.28	129.86				
	GP-41A	3/20/2018	42.61	42.61	172.28	129.67				
	GP-41A	1/12/2018	47.70	47.70	172.28	124.58				Pilot Rebound Evaluation
	GP-41A	1/22/2018	41.91	41.91	172.28	130.37				Pilot Rebound Evaluation
	GP-41A	2/7/2018	41.97	41.97	172.28	130.31				Pilot Rebound Evaluation
	GP-41A	3/29/2018	42.18	42.18	172.28	130.10				
GP-44A	GP-44A	3/19/2013	31.5	31.50	176.20	144.70				
	GP-44A	4/22/2013	31.71	31.71	176.2	144.49				
	GP-44A	8/1/2013	31.1	31.10	176.20	145.10				
	GP-44A	9/12/2013	30.96	30.96	176.20	145.24				
	GP-44A	3/24/2014	30.88	30.88	176.20	145.32				
	GP-44A	8/22/2014	30.48	30.48	176.20	145.72				
	GP-44A	3/31/2015	30.69	30.69	176.20	145.51				
	GP-44A	4/16/2015	30.99	30.99	176.20	145.21				

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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
GP-44A (cont.)	GP-44A	9/2/2015	30.98	30.98	176.20	145.22				
	GP-44A	3/23/2016	30.74	30.74	176.20	145.46				
	GP-44A	10/10/2016	NG	NG	NG	NG				Not gauged - Paved Over
	GP-44A	3/21/2017	NG	NG	NG	NG				Not gauged - Paved Over
	GP-44A	8/16/2017	NG	NG	NG	NG				Not gauged - Paved Over
	GP-44A	1/12/2018	NG	NG	NG	NG				Not gauged - Paved Over
	GP-44A	1/22/2018	NG	NG	NG	NG				Not gauged - Paved Over
	GP-44A	2/7/2018	NG	NG	NG	NG				Not gauged - Paved Over
	GP-44A	3/20/2018	NG	NG	NG	NG				Not gauged - Paved Over
	GP-44A	3/29/2018	NG	NG	NG	NG				Not gauged - Paved Over
GP-7A(20-25)	GP-7A(20-25)	3/19/2013	19.81	19.81	158.11	138.30				
	GP-7A(20-25)	4/9/2013	19.81	19.81	158.11	138.30				
	GP-7A(20-25)	8/1/2013	18.95	18.95	158.11	139.16				
	GP-7A(20-25)	9/10/2013	19.85	19.85	158.11	138.26				
	GP-7A(20-25)	3/24/2014	18.58	18.58	158.11	139.53				
	GP-7A(20-25)	8/21/2014	19.92	19.92	158.11	138.19				
	GP-7A(20-25)	3/31/2015	17.80	17.80	158.11	140.31				
	GP-7A(20-25)	9/2/2015	18.70	18.70	158.11	139.41				
	GP-7A(20-25)	3/23/2016	18.41	18.41	158.11	139.70				
	GP-7A(20-25)	10/10/2016	19.55	19.55	158.11	138.56				
	GP-7A(20-25)	3/21/2017	21.00	21.00	158.11	137.11				
	GP-7A(20-25)	8/16/2017	18.57	18.57	158.11	139.54				
	GP-7A(20-25)	3/20/2018	20.69	20.69	158.11	137.42				
GP-7A(25-30)	GP-7A(25-30)	3/19/2013	20.17	20.17	158.08	137.91				
	GP-7A(25-30)	8/1/2013	19.15	19.15	158.08	138.93				
	GP-7A(25-30)	3/24/2014	18.9	18.90	158.08	139.18				
	GP-7A(25-30)	8/21/2014	19.18	19.18	158.08	138.90				
	GP-7A(25-30)	3/31/2015	18.00	18.00	158.08	140.08				
	GP-7A(25-30)	9/2/2015	19.07	19.07	158.08	139.01				
	GP-7A(25-30)	3/23/2016	18.67	18.67	158.08	139.41				
	GP-7A(25-30)	10/10/2016	19.79	19.79	158.08	138.29				
	GP-7A(25-30)	3/21/2017	21.09	21.09	158.08	136.99				
	GP-7A(25-30)	8/16/2017	18.30	18.30	158.08	139.78				
	GP-7A(25-30)	3/20/2018	20.90	20.90	158.08	137.18				
GP-7A(30-35)	GP-7A(30-35)	3/19/2013	21.74	21.74	158.09	136.35				
	GP-7A(30-35)	4/9/2013	21.7	21.70	158.09	136.39				
	GP-7A(30-35)	8/1/2013	21.18	21.18	158.09	136.91				
	GP-7A(30-35)	9/10/2013	21.93	21.93	158.09	136.16				
	GP-7A(30-35)	3/24/2014	20.94	20.94	158.09	137.15				
	GP-7A(30-35)	8/21/2014	20.53	20.53	158.09	137.56				
	GP-7A(30-35)	3/31/2015	19.75	19.75	158.09	138.34				
	GP-7A(30-35)	9/2/2015	20.60	20.60	158.09	137.49				
	GP-7A(30-35)	3/23/2016	20.75	20.75	158.09	137.34				
	GP-7A(30-35)	10/10/2016	31.47	31.47	158.09	126.62				
	GP-7A(30-35)	3/21/2017	22.11	22.11	158.09	135.98				
	GP-7A(30-35)	8/16/2017	20.63	20.63	158.09	137.46				
	GP-7A(30-35)	3/20/2018	23.07	23.07	158.09	135.02				
GP-7A(35-40)	GP-7A(35-40)	3/19/2013	21.95	21.95	158.09	136.14				
	GP-7A(35-40)	4/9/2013	21.91	21.91	158.09	136.18				
	GP-7A(35-40)	8/1/2013	21.5	21.50	158.09	136.59				
	GP-7A(35-40)	9/10/2013	22.18	22.18	158.09	135.91				
	GP-7A(35-40)	3/24/2014	21.31	21.31	158.09	136.78				
	GP-7A(35-40)	8/21/2014	20.84	20.84	158.09	137.25				
	GP-7A(35-40)	9/10/2014	21.33	21.33	158.09	136.76				
	GP-7A(35-40)	3/31/2015	20.36	20.36	158.09	137.73				
	GP-7A(35-40)	4/15/2015	20.81	20.81	158.09	137.28				
	GP-7A(35-40)	9/2/2015	21.06	21.06	158.09	137.03				
	GP-7A(35-40)	10/1/2015	20.76	20.76	158.09	137.33				
	GP-7A(35-40)	3/23/2016	21.35	21.35	158.09	136.74				
	GP-7A(35-40)	4/12/2016	21.55	21.55	158.09	136.54				
	GP-7A(35-40)	10/10/2016	22.01	22.01	158.09	136.08				
	GP-7A(35-40)	3/21/2017	22.76	22.76	158.09	135.33				
	GP-7A(35-40)	4/27/2017	22.84	22.84	158.09	135.25				
	GP-7A(35-40)	8/16/2017	16.56	16.56	158.09	141.53				

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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
GP-7A(35-40) (cont.)	GP-7A(35-40)	8/23/2017	21.26	21.26	158.09	136.83				
	GP-7A(35-40)	3/20/2018	23.01	23.01	158.09	135.08				
	GP-7A(35-40)	3/28/2018	23.80	23.80	158.09	134.29				
GP-7A(40-45)	GP-7A(40-45)	3/19/2013	21.92	21.92	158.11	136.19				
	GP-7A(40-45)	8/1/2013	21.54	21.54	158.11	136.57				
	GP-7A(40-45)	3/24/2014	21.13	21.13	158.11	136.98				
	GP-7A(40-45)	8/21/2014	21.00	21.00	158.11	137.11				
	GP-7A(40-45)	3/31/2015	20.40	20.40	158.11	137.71				
	GP-7A(40-45)	9/2/2015	21.18	21.18	158.11	136.93				
	GP-7A(40-45)	3/23/2016	21.39	21.39	158.11	136.72				
	GP-7A(40-45)	10/10/2016	21.97	21.97	158.11	136.14				
	GP-7A(40-45)	3/21/2017	22.72	22.72	158.11	135.39				
	GP-7A(40-45)	8/16/2017	21.53	21.53	158.11	136.58				
	GP-7A(40-45)	3/20/2018	23.11	23.11	158.11	135.00				
GP-9A(20-25)	GP-9A(20-25)	3/19/2013	17.98	17.98	158.86	140.88				
	GP-9A(20-25)	4/9/2013	17.67	17.67	158.86	141.19				
	GP-9A(20-25)	8/1/2013	17.2	17.20	158.86	141.66				
	GP-9A(20-25)	9/10/2013	18.16	18.16	158.86	140.70				
	GP-9A(20-25)	3/24/2014	16.5	16.50	158.86	142.36				
	GP-9A(20-25)	8/21/2014	17.94	17.94	158.86	140.92				
	GP-9A(20-25)	3/31/2015	16.28	16.28	158.86	142.58				
	GP-9A(20-25)	9/2/2015	17.73	17.73	158.86	141.13				
	GP-9A(20-25)	3/23/2016	16.66	16.66	158.86	142.20				
	GP-9A(20-25)	10/10/2016	19.69	19.69	158.86	139.17				
	GP-9A(20-25)	3/21/2017	19.87	19.87	158.86	138.99				
	GP-9A(20-25)	8/16/2017	16.94	16.94	158.86	141.92				
	GP-9A(20-25)	3/20/2018	18.44	18.44	158.86	140.42				
GP-9A(25-30)	GP-9A(25-30)	3/19/2013	20.76	20.76	158.81	138.05				
	GP-9A(25-30)	8/1/2013	19.84	19.84	158.81	138.97				
	GP-9A(25-30)	3/24/2014	20.03	20.03	158.81	138.78				
	GP-9A(25-30)	8/21/2014	19.73	19.73	158.81	139.08				
	GP-9A(25-30)	3/31/2015	20.06	20.06	158.81	138.75				
	GP-9A(25-30)	9/2/2015	19.51	19.51	158.81	139.30				
	GP-9A(25-30)	3/23/2016	19.89	19.89	158.81	138.92				
	GP-9A(25-30)	10/10/2016	20.14	20.14	158.81	138.67				
	GP-9A(25-30)	3/21/2017	22.40	22.40	158.81	136.41				
	GP-9A(25-30)	8/16/2017	20.08	20.08	158.81	138.73				
	GP-9A(25-30)	3/20/2018	19.12	19.12	158.81	139.69				
GP-9A(30-35)	GP-9A(30-35)	3/19/2013	22.89	22.89	158.76	135.87				
	GP-9A(30-35)	3/24/2014	21.7	21.70	158.76	137.06				
	GP-9A(30-35)	8/21/2014	21.22	21.22	158.76	137.54				
	GP-9A(30-35)	3/31/2015	21.67	21.67	158.76	137.09				
	GP-9A(30-35)	9/2/2015	21.11	21.11	158.76	137.65				
	GP-9A(30-35)	3/23/2016	21.47	21.47	158.76	137.29				
	GP-9A(30-35)	10/10/2016	21.65	21.65	158.76	137.11				
	GP-9A(30-35)	3/21/2017	23.51	23.51	158.76	135.25				
	GP-9A(30-35)	8/16/2017	21.45	21.45	158.76	137.31				
	GP-9A(30-35)	3/20/2018	23.03	23.03	158.76	135.73				
MP-7	MP-7	1/28/2013	NG	NG	NG	NG				Frozen
	MP-7	3/19/2013	37.84	37.84	172.17	134.33				
	MP-7	4/22/2013	38.02	38.02	172.17	134.15				
	MP-7	5/28/2013	37.85	37.85	172.17	134.32				
	MP-7	6/3/2013	42.91	42.74	172.17	129.26	42.68	0.23	129.43	SVE Off
	MP-7	8/1/2013	37.5	37.50	172.17	134.67				
	MP-7	8/15/2013	37.21	37.21	172.17	134.96				
	MP-7	9/11/2013	41.26	41.26	172.17	130.91				
	MP-7	9/16/2013	41.26	41.26	172.17	130.91				
	MP-7	10/30/2013	41.15	41.15	172.17	131.02				
	MP-7	11/14/2013	37.58	37.58	172.17	134.59				
	MP-7	12/18/2013	38.07	38.07	172.17	134.10				
	MP-7	1/28/2014	41.52	41.52	172.17	130.65				

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MP-7 (cont.)	MP-7	2/17/2014	42.99	42.99	172.17	129.18				
	MP-7	3/7/2014	37.83	37.83	172.17	134.34				
	MP-7	3/24/2014	37.8	37.80	172.17	134.37				
	MP-7	4/11/2014	38.82	38.82	172.17	133.35				
	MP-7	5/27/2014	37.67	37.67	172.17	134.50				
	MP-7	6/24/2014	37.23	37.23	172.17	134.94				
	MP-7	8/13/2014	37.65	37.65	172.17	134.52				
	MP-7	8/21/2014	40.31	40.31	172.17	131.86				
	MP-7	9/10/2014	37.72	37.72	172.17	134.45				
	MP-7	10/7/2014	37.51	37.51	172.17	134.66				
	MP-7	11/6/2014	37.92	37.92	172.17	134.25				
	MP-7	1/19/2015	37.65	37.65	172.17	134.52				
	MP-7	2/24/2015	40.64	40.64	172.17	131.53				
	MP-7	3/31/2015	40.15	40.15	172.17	132.02				
	MP-7	4/16/2015	37.82	37.82	172.17	134.35				
	MP-7	4/28/2015	37.41	37.41	172.17	134.76				
	MP-7	5/7/2015	37.60	37.60	172.17	134.57				
	MP-7	6/23/2015	40.04	40.04	172.17	132.13				
	MP-7	9/2/2015	37.23	37.23	172.17	134.94				
	MP-7	1/5/2016	38.16	38.16	172.17	134.01				
	MP-7	2/22/2016	38.26	38.26	172.17	133.91				
	MP-7	3/23/2016	37.95	37.95	172.17	134.22				
	MP-7	3/28/2016	37.64	37.64	172.17	134.53				
	MP-7	4/4/2016	37.85	37.85	172.17	134.32				
	MP-7	5/31/2016	37.71	37.71	172.17	134.46				
	MP-7	6/13/2016	38.05	38.05	172.17	134.12				
	MP-7	7/12/2016	41.12	41.12	172.17	131.05				
	MP-7	8/16/2016	40.78	40.78	172.17	131.39				
	MP-7	9/8/2016	37.95	37.95	172.17	134.22				
	MP-7	10/10/2016	41.52	41.52	172.17	130.65				
	MP-7	10/11/2016	41.52	41.52	172.17	130.65				
	MP-7	11/15/2016	38.81	38.81	172.17	133.36				
	MP-7	12/19/2016	38.69	38.69	172.17	133.48				
	MP-7	1/5/2017	43.12	43.12	172.17	129.05				
	MP-7	2/7/2017	41.51	41.51	172.17	130.66				
	MP-7	3/21/2017	42.92	42.92	172.17	129.25				
	MP-7	4/3/2017	37.63	37.63	172.17	134.54				
	MP-7	4/27/2017	38.12	38.12	172.17	134.05				
	MP-7	5/26/2017	37.94	37.94	172.17	134.23				
	MP-7	6/1/2017	38.60	38.60	172.17	133.57				
	MP-7	7/13/2017	43.38	43.33	172.17	128.79	43.31	0.07	128.84	
	MP-7	8/16/2017	41.68	41.68	172.17	130.49				
	MP-7	9/19/2017	43.90	43.90	172.17	128.27				
	MP-7	10/23/2017	41.88	41.88	172.17	130.29				
	MP-7	11/29/2017	41.47	41.23	172.17	130.70	41.15	0.32	130.94	
	MP-7	12/12/2017	41.51	41.11	172.17	130.66	40.98	0.53	131.06	
	MP-7	1/12/2018	41.84	41.24	172.17	130.33	41.04	0.80		Pilot Rebound Evaluation
	MP-7	1/22/2018	41.85	41.20	172.17	130.32	40.98	0.87	130.97	Pilot Rebound Evaluation
	MP-7	1/26/2018	42.07	41.40	172.17	130.10	41.17	0.90		
	MP-7	1/26/2018	41.44	41.29	172.17	130.73	41.24	0.20		
	MP-7	2/6/2018	41.74	41.43	172.17	130.43	41.32	0.42		At start of transmissivity test
	MP-7	2/6/2018	41.53	41.43	172.17	130.64	41.40	0.13		At end of transmissivity test
	MP-7	2/7/2018	41.22	41.14	172.17	130.95	41.11	0.11	131.03	Pilot Rebound Evaluation
	MP-7	3/20/2018	42.79	42.69	172.17	129.38	42.66	0.13	129.48	
MW-1	MW-1	3/19/2013	34.52	34.52	170.46	135.94				
	MW-1	8/1/2013	32.48	32.48	170.46	137.98				
	MW-1	3/24/2014	32.25	32.25	170.46	138.21				
	MW-1	8/22/2014	31.63	31.63	170.46	138.83				
	MW-1	3/31/2015	31.41	31.41	170.46	139.05				
	MW-1	9/2/2015	32.30	32.30	170.46	138.16				
	MW-1	3/23/2016	32.30	32.30	170.46	138.16				
	MW-1	10/10/2016	32.31	32.31	170.46	138.15				
	MW-1	3/21/2017	33.65	33.65	170.46	136.81				
	MW-1	8/16/2017	31.47	31.47	170.46	138.99				
	MW-1	1/12/2018	26.20	26.20	170.46	144.26				Pilot Rebound Evaluation
	MW-1	1/22/2018	31.90	31.90	170.46	138.56				Pilot Rebound Evaluation
	MW-1	2/7/2018	31.65	31.65	170.46	138.81				Pilot Rebound Evaluation
	MW-1	3/20/2018	32.06	32.06	170.46	138.40				

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MW-2	MW-2	3/19/2013	Dry							Dry
	MW-2	8/1/2013	33.05	33.05	171.41	138.36				
	MW-2	3/24/2014	32.2	32.20	171.41	139.21				
	MW-2	8/22/2014	31.64	31.64	171.41	139.77				
	MW-2	3/31/2015	31.57	31.57	171.41	139.84				
	MW-2	9/2/2015	33.27	33.27	171.41	138.14				
	MW-2	3/23/2016	32.25	32.25	171.41	139.16				
	MW-2	10/10/2016	32.83	32.83	171.41	138.58				
	MW-2	3/21/2017	Dry							Dry
	MW-2	8/16/2017	31.45	31.45	171.41	139.96				
	MW-2	1/12/2018	32.39	32.39	171.41	139.02				Pilot Rebound Evaluation
	MW-2	1/22/2018	32.77	32.77	171.41	138.64				Pilot Rebound Evaluation
	MW-2	2/7/2018	32.95	32.95	171.41	138.46				Pilot Rebound Evaluation
	MW-2	3/20/2018	32.71	32.71	171.41	138.70				
MW-3	MW-3	3/19/2013	28.31	28.31	170.41	142.10				
	MW-3	8/1/2013	30.74	30.74	170.41	139.67				
	MW-3	3/24/2014	29.26	29.26	170.41	141.15				
	MW-3	8/22/2014	Dry							Dry
	MW-3	3/31/2015	28.52	28.52	170.41	141.89				
	MW-3	3/23/2016	Dry							Dry
	MW-3	10/10/2016	27.59	27.59	170.41	142.82				
	MW-3	3/21/2017	Dry							Dry
	MW-3	8/16/2017	Dry							Dry
	MW-3	1/12/2018	Dry							Dry
	MW-3	1/22/2018	Dry							Dry
	MW-3	2/7/2018	Dry							Dry
	MW-3	3/20/2018	25.95	25.95	170.41	144.46				
MW-4	MW-4	3/19/2013	31.81	31.81	171.14	139.33				
	MW-4	8/1/2013	30.92	30.92	171.14	140.22				
	MW-4	3/24/2014	30.54	30.54	171.14	140.60				
	MW-4	8/22/2014	29.64	29.64	171.14	141.50				
	MW-4	3/31/2015	29.86	29.86	171.14	141.28				
	MW-4	9/2/2015	30.16	30.16	171.14	140.98				
	MW-4	3/23/2016	30.31	30.31	171.14	140.83				
	MW-4	10/10/2016	30.35	30.35	171.14	140.79				
	MW-4	3/21/2017	31.09	31.09	171.14	140.05				
	MW-4	8/16/2017	30.20	30.20	171.14	140.94				
	MW-4	1/12/2018	30.08	30.08	171.14	141.06				Pilot Rebound Evaluation
	MW-4	1/22/2018	30.35	30.35	171.14	140.79				Pilot Rebound Evaluation
	MW-4	2/7/2018	30.50	30.50	171.14	140.64				Pilot Rebound Evaluation
	MW-4	3/20/2018	30.73	30.73	171.14	140.41				
MW-5	MW-5	3/19/2013	35.55	35.55	172.31	136.76				
	MW-5	4/22/2013	Dry							Dry
	MW-5	9/12/2013	32.96	32.96	172.31	139.35				
	MW-5	3/24/2014	33.52	33.52	172.31	138.79				
	MW-5	8/22/2014	31.36	31.36	172.31	140.95				
	MW-5	9/10/2014	Dry							Dry
	MW-5	3/31/2015	30.94	30.94	172.31	141.37				
	MW-5	4/13/2015	32.44	32.44	172.31	139.87				
	MW-5	9/2/2015	33.70	33.70	172.31	138.61				
	MW-5	10/2/2015	44.30	44.30	172.31	128.01				
	MW-5	3/23/2016	33.30	33.30	172.31	139.01				
	MW-5	4/13/2016	Dry							Dry
	MW-5	10/10/2016	32.55	32.55	172.31	139.76				
	MW-5	3/21/2017	33.49	33.49	172.31	138.82				
	MW-5	4/27/2017	Dry							Dry
	MW-5	8/16/2017	32.10	32.10	172.31	140.21				
	MW-5	1/12/2018	31.44	31.44	172.31	140.87				Pilot Rebound Evaluation
	MW-5	1/22/2018	31.84	31.84	172.31	140.47				Pilot Rebound Evaluation
	MW-5	2/7/2018	32.07	32.07	172.31	140.24				Pilot Rebound Evaluation
	MW-5	3/20/2018	32.12	32.12	172.31	140.19				
MW-6	MW-6	3/19/2013	34.79	34.79	171.12	136.33				
	MW-6	3/29/2013	34.8	34.80	171.12	136.32				
	MW-6	8/1/2013	33.73	33.73	171.12	137.39				
	MW-6	9/6/2013	34.04	34.04	171.12	137.08				
	MW-6	3/24/2014	33.55	33.55	171.12	137.57				
	MW-6	8/22/2014	31.99	31.99	171.12	139.13				
	MW-6	3/31/2015	31.64	31.64	171.12	139.48				
	MW-6	4/16/2015	33.67	33.67	171.12	137.45				
	MW-6	9/2/2015	33.83	33.83	171.12	137.29				

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MW-6 (cont.)	MW-6	3/23/2016	33.70	33.70	171.12	137.42				
	MW-6	10/10/2016	32.77	32.77	171.12	138.35				
	MW-6	3/21/2017	34.37	34.37	171.12	136.75				
	MW-6	4/24/2017	34.80	34.80	171.12	136.32				
	MW-6	8/16/2017	33.80	33.80	171.12	137.32				
	MW-6	1/12/2018	32.45	32.45	171.12	138.67				Pilot Rebound Evaluation
	MW-6	1/22/2018	32.85	32.85	171.12	138.27				Pilot Rebound Evaluation
	MW-6	2/7/2018	32.84	32.84	171.12	138.28				Pilot Rebound Evaluation
	MW-6	3/20/2018	33.40	33.40	171.12	137.72				
	MW-6	3/29/2018	33.79	33.79	171.12	137.33				
MW-7	MW-7	1/28/2013	56.87	56.87	177.11	120.24				
	MW-7	3/19/2013	51.25	51.25	177.11	125.86				
	MW-7	4/15/2013	NG	NG	NG	NG				Pumping
	MW-7	4/22/2013	52.81	52.81	177.11	124.30				
	MW-7	5/28/2013	49.56	49.56	177.11	127.55				
	MW-7	6/3/2013	53.32	53.32	177.11	123.79				
	MW-7	7/15/2013	52.19	52.19	177.11	124.92				
	MW-7	1/28/2014	42.04	42.04	177.11	135.07				
	MW-7	2/17/2014	52.31	52.31	177.11	124.80				
	MW-7	3/7/2014	56.6	56.60	177.11	120.51				
	MW-7	3/24/2014	54.85	54.85	177.11	122.26				
	MW-7	4/11/2014	51.96	51.96	177.11	125.15				
	MW-7	5/27/2014	51.81	51.81	177.11	125.30				
	MW-7	6/24/2014	52.15	52.15	177.11	124.96				
	MW-7	8/13/2014	56.95	56.95	177.11	120.16				
	MW-7	8/21/2014	40.61	40.61	177.11	136.50				
	MW-7	9/10/2014	NG	NG	NG	NG				Not Gauged - Pumping
	MW-7	10/7/2014	56.98	56.98	177.11	120.13				
	MW-7	11/6/2014	56.93	56.93	177.11	120.18				
	MW-7	1/19/2015	55.38	55.38	177.11	121.73				
	MW-7	2/24/2015	40.49	40.49	177.11	136.62				
	MW-7	3/31/2015	39.89	39.89	177.11	137.22				
	MW-7	4/28/2015	57.00	57.00	177.11	120.11				
	MW-7	5/7/2015	57.18	57.18	177.11	119.93				
	MW-7	6/23/2015	40.07	40.07	177.11	137.04				
	MW-7	1/5/2016	57.04	57.04	177.11	120.07				
	MW-7	2/22/2016	NG	NG	NG	NG				Pumping
	MW-7	3/23/2016	NG	NG	NG	NG				Pumping
	MW-7	3/28/2016	57.00	57.00	177.11	120.11				
	MW-7	4/4/2016	57.01	57.01	177.11	120.10				
	MW-7	4/13/2016	NG	NG	NG	NG				Pumping
	MW-7	5/31/2016	57.35	57.35	177.11	119.76				
	MW-7	6/13/2016	57.31	57.31	177.11	119.80				
	MW-7	7/12/2016	41.31	41.31	177.11	135.80				
	MW-7	8/16/2016	41.06	41.06	177.11	136.05				
	MW-7	9/8/2016	43.35	43.35	177.11	133.76				
	MW-7	10/10/2016	41.41	41.41	177.11	135.70				
	MW-7	10/11/2016	41.41	41.41	177.11	135.70				
	MW-7	11/15/2016	43.18	43.18	177.11	133.93				
	MW-7	12/19/2016	41.90	41.90	177.11	135.21				
	MW-7	1/5/2017	41.37	41.37	177.11	135.74				
	MW-7	2/7/2017	40.85	40.85	177.11	136.26				
	MW-7	3/21/2017	54.94	54.94	177.11	122.17				
	MW-7	4/3/2017	57.22	57.22	177.11	119.89				
	MW-7	5/26/2017	55.22	55.22	177.11	121.89				
	MW-7	6/1/2017	51.90	51.90	177.11	125.21				
	MW-7	7/13/2017	56.98	56.98	177.11	120.13				
	MW-7	8/16/2017	57.05	57.05	177.11	120.06				
	MW-7	9/19/2017	57.34	57.34	177.11	119.77				
	MW-7	10/23/2017	55.49	55.49	177.11	121.62				
	MW-7	1/22/2018	41.12	41.12	177.11	135.99				Pilot Rebound Evaluation
	MW-7	2/7/2018	40.90	40.90	177.11	136.21				Pilot Rebound Evaluation
	MW-7	3/20/2018	58.49	58.49	177.11	118.62				
	MW-7	11/29/2017	41.21	41.21	177.11	135.90				
	MW-7	12/12/2017	55.30	55.30	177.11	121.81				
	MW-7	1/12/2018	41.21	41.21	177.11	135.90				Pilot Rebound Evaluation
	MW-7	1/22/2018	41.12	41.12	177.11	135.99				Pilot Rebound Evaluation
	MW-7	2/7/2018	40.90	40.90	177.11	136.21				Pilot Rebound Evaluation

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MW-12	MW-12	3/19/2013	38.95	38.95	171.51	132.56				
	MW-12	12/18/2013	52.05	52.05	171.51	119.46				
	MW-12	3/24/2014	40.88	40.88	171.51	130.63				
	MW-12	8/21/2014	35.41	35.41	171.51	136.10				
	MW-12	3/31/2015	35.13	35.13	171.51	136.38				
	MW-12	9/2/2015	41.90	41.90	171.51	129.61				
	MW-12	3/23/2016	42.05	42.05	171.51	129.46				
	MW-12	10/10/2016	36.38	36.38	171.51	135.13				
	MW-12	3/21/2017	41.36	41.36	171.51	130.15				
	MW-12	8/16/2017	41.33	41.33	171.51	130.18				
	MW-12	1/12/2018	36.56	36.56	171.51	134.95				Pilot Rebound Evaluation
	MW-12	1/22/2018	36.71	36.71	171.51	134.80				Pilot Rebound Evaluation
	MW-12	2/7/2018	36.78	36.78	171.51	134.73				Pilot Rebound Evaluation
	MW-12	3/20/2018	37.33	37.33	171.51	134.18				
MW-13	MW-13	3/19/2013	37.94	37.94	172.47	134.53				
	MW-13	8/1/2013	35.99	35.99	172.47	136.48				
	MW-13	3/24/2014	36.23	36.23	172.47	136.24				
	MW-13	8/22/2014	35.42	35.42	172.47	137.05				
	MW-13	3/31/2015	35.12	35.12	172.47	137.35				
	MW-13	9/2/2015	36.22	36.22	172.47	136.25				
	MW-13	3/23/2016	36.58	36.58	172.47	135.89				
	MW-13	10/10/2016	35.82	35.82	172.47	136.65				
	MW-13	3/21/2017	36.63	36.63	172.47	135.84				
	MW-13	4/26/2017	37.22	37.22	172.47	135.25				
	MW-13	8/16/2017	35.74	35.74	172.47	136.73				
	MW-13	1/12/2018	35.28	35.28	172.47	137.19				Pilot Rebound Evaluation
	MW-13	1/22/2018	35.41	35.41	172.47	137.06				Pilot Rebound Evaluation
	MW-13	2/7/2018	35.58	35.58	172.47	136.89				Pilot Rebound Evaluation
	MW-13	3/20/2018	35.91	35.91	172.47	136.56				
MW-15	MW-15	3/19/2013	31.22	31.22	172.34	141.12				
	MW-15	3/29/2013	31.25	31.25	172.34	141.09				
	MW-15	8/1/2013	30.85	30.85	172.34	141.49				
	MW-15	9/12/2013	30.78	30.78	172.34	141.56				
	MW-15	3/24/2014	30.72	30.72	172.34	141.62				
	MW-15	8/22/2014	30.36	30.36	172.34	141.98				
	MW-15	9/10/2014	30.73	30.73	172.34	141.61				
	MW-15	3/31/2015	NG	NG	NG	NG				Blocked by vehicle
	MW-15	4/13/2015	30.67	30.67	172.34	141.67				
	MW-15	9/2/2015	30.84	30.84	172.34	141.50				
	MW-15	10/2/2015	43.40	43.40	172.34	128.94				
	MW-15	3/23/2016	30.57	30.57	172.34	141.77				
	MW-15	4/13/2016	30.59	30.59	172.34	141.75				
	MW-15	10/10/2016	30.67	30.67	172.34	141.67				
	MW-15	3/21/2017	31.20	31.20	172.34	141.14				
	MW-15	4/27/2017	31.24	31.24	172.34	141.10				
	MW-15	8/16/2017	32.97	32.97	172.34	139.37				
	MW-15	8/24/2017	30.95	30.95	172.34	141.39				
	MW-15	1/12/2018	NG	NG	NG	NG				Covered by Vehicle
	MW-15	1/22/2018	NG	NG	NG	NG				Covered by Vehicle
	MW-15	2/7/2018	30.93	30.93	172.34	141.41				Pilot Rebound Evaluation
	MW-15	3/20/2018	35.67	35.67	172.34	136.67				
	MW-15	3/29/2018	31.17	31.17	172.34	141.17				
MW-16	MW-16	1/28/2013	39.71	39.71	171.05	131.34				
	MW-16	3/19/2013	40.26	40.26	171.05	130.79				
	MW-16	4/22/2013	38.58	38.58	171.05	132.47				
	MW-16	5/28/2013	36.69	36.69	171.05	134.36				
	MW-16	6/3/2013	36.15	36.15	171.05	134.90				
	MW-16	8/1/2013	35.02	35.02	171.05	136.03				
	MW-16	8/15/2013	36.31	36.31	171.05	134.74				
	MW-16	9/16/2013	37.85	37.85	171.05	133.20				
	MW-16	10/30/2013	36	36.00	171.05	135.05				
	MW-16	11/14/2013	38.27	38.27	171.05	132.78				
	MW-16	12/18/2013	37.88	37.88	171.05	133.17				
	MW-16	1/28/2014	37.65	37.65	171.05	133.40				
	MW-16	2/17/2014	38.38	38.38	171.05	132.67				
	MW-16	3/7/2014	40.09	40.09	171.05	130.96				
	MW-16	3/24/2014	40.42	40.42	171.05	130.63				
	MW-16	4/11/2014	38.23	38.23	171.05	132.82				
	MW-16	5/27/2014	36.37	36.37	171.05	134.68				
	MW-16	6/24/2014	38.35	38.35	171.05	132.70				

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MW-16 (cont.)	MW-16	8/13/2014	38.31	38.31	171.05	132.74				
	MW-16	8/21/2014	37.37	37.37	171.05	133.68				
	MW-16	10/7/2014	37.40	37.40	171.05	133.65				
	MW-16	11/6/2014	39.60	39.60	171.05	131.45				
	MW-16	1/19/2015	37.03	37.03	171.05	134.02				
	MW-16	2/24/2015	35.88	35.88	171.05	135.17				
	MW-16	3/31/2015	34.92	34.92	171.05	136.13				
	MW-16	4/16/2015	37.24	37.24	171.05	133.81				
	MW-16	4/28/2015	36.82	36.82	171.05	134.23				
	MW-16	5/7/2015	35.68	35.68	171.05	135.37				
	MW-16	6/23/2015	35.00	35.00	171.05	136.05				
	MW-16	9/2/2015	38.54	38.54	171.05	132.51				
	MW-16	1/5/2016	39.33	39.33	171.05	131.72				
	MW-16	2/22/2016	38.49	38.49	171.05	132.56				
	MW-16	3/23/2016	Dry							Dry
	MW-16	3/28/2016	40.25	40.25	171.05	130.80				
	MW-16	4/4/2016	39.93	39.93	171.05	131.12				
	MW-16	5/31/2016	40.30	40.30	171.05	130.75				
	MW-16	6/13/2016	40.40	40.40	171.05	130.65				
	MW-16	7/12/2016	37.84	37.84	171.05	133.21				
	MW-16	8/16/2016	37.12	37.12	171.05	133.93				
	MW-16	9/8/2016	37.19	37.19	171.05	133.86				
	MW-16	10/10/2016	38.89	38.89	171.05	132.16				
	MW-16	10/11/2016	38.89	38.89	171.05	132.16				
	MW-16	11/15/2016	40.44	40.44	171.05	130.61				
	MW-16	12/19/2016	37.60	37.60	171.05	133.45				
	MW-16	1/5/2017	36.61	36.61	171.05	134.44				
	MW-16	2/7/2017	36.07	36.07	171.05	134.98				
	MW-16	3/21/2017	38.51	38.51	171.05	132.54				
	MW-16	4/3/2017	39.72	39.72	171.05	131.33				
	MW-16	4/24/2017	Dry							Dry
	MW-16	5/26/2017	38.77	38.77	171.05	132.28				
	MW-16	6/1/2017	37.45	37.45	171.05	133.60				
	MW-16	7/13/2017	38.14	38.14	171.05	132.91				
	MW-16	8/16/2017	37.78	37.78	171.05	133.27				
	MW-16	9/19/2017	39.98	39.98	171.05	131.07				
	MW-16	10/23/2017	36.78	36.78	171.05	134.27				
	MW-16	3/20/2018	36.30	36.30	171.05	134.75				
	MW-16	3/29/2018	39.91	39.91	171.05	131.14				
	MW-16	11/29/2017	36.46	36.46	171.05	134.59				
	MW-16	12/12/2017	36.09	36.09	171.05	134.96				
	MW-16	1/12/2018	36.20	36.20	171.05	134.85				Pilot Rebound Evaluation
	MW-16	1/22/2018	35.96	35.96	171.05	135.09				Pilot Rebound Evaluation
	MW-16	2/7/2018	36.15	36.15	171.05	134.90				Pilot Rebound Evaluation
MW-17	MW-17	3/19/2013	44.14	44.14	170.67	126.53				
	MW-17	4/15/2013	NG	NG	NG	NG				Pumping
	MW-17	7/15/2013	32.45	32.45	170.67	138.22				
	MW-17	8/1/2013	32.83	32.83	170.67	137.84				
	MW-17	3/24/2014	44.39	44.39	170.67	126.28				
	MW-17	8/21/2014	35.96	35.96	170.67	134.71				
	MW-17	9/10/2014	NG	NG	NG	NG				Not Gauged - Pumping
	MW-17	3/31/2015	34.77	34.77	170.67	135.90				
	MW-17	3/23/2016	NG	NG	NG	NG				Pumping
	MW-17	4/13/2016	NG	NG	NG	NG				Pumping
	MW-17	10/10/2016	37.46	37.46	170.67	133.21				
	MW-17	3/21/2017	44.31	44.31	170.67	126.36				
	MW-17	8/16/2017	44.41	44.41	170.67	126.26				
	MW-17	1/12/2018	35.95	35.95	170.67	134.72				Pilot Rebound Evaluation
	MW-17	1/22/2018	36.18	36.18	170.67	134.49				Pilot Rebound Evaluation
	MW-17	2/7/2018	36.22	36.22	170.67	134.45				Pilot Rebound Evaluation
	MW-17	3/20/2018	34.30	34.30	170.67	136.37				
MW-18	MW-18	1/28/2013	33.6	33.60	168.45	134.85				
	MW-18	3/19/2013	32.81	32.81	168.45	135.64				
	MW-18	4/10/2013	32.7	32.70	168.45	135.75				
	MW-18	4/22/2013	32.71	32.71	168.45	135.74				
	MW-18	5/28/2013	32.67	32.67	168.45	135.78				
	MW-18	6/3/2013	32.77	32.77	168.45	135.68				
	MW-18	8/1/2013	31.51	31.51	168.45	136.94				
	MW-18	8/15/2013	31.54	31.54	168.45	136.91				

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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
MW-18 (cont.)	MW-18	9/11/2013	31.89	31.89	168.45	136.56				
	MW-18	9/16/2013	31.89	31.89	168.45	136.56				
	MW-18	10/30/2013	31.68	31.68	168.45	136.77				
	MW-18	11/14/2013	31.84	31.84	168.45	136.61				
	MW-18	12/18/2013	32.05	32.05	168.45	136.40				
	MW-18	1/28/2014	31.65	31.65	168.45	136.80				
	MW-18	3/7/2014	31.24	31.24	168.45	137.21				
	MW-18	3/24/2014	31.05	31.05	168.45	137.40				
	MW-18	4/11/2014	30.89	30.89	168.45	137.56				
	MW-18	5/27/2014	29.45	29.45	168.45	139.00				
	MW-18	6/24/2014	29.76	29.76	168.45	138.69				
	MW-18	8/13/2014	30.59	30.59	168.45	137.86				
	MW-18	8/21/2014	30.38	30.38	168.45	138.07				
	MW-18	10/7/2014	31.04	31.04	168.45	137.41				
	MW-18	11/6/2014	31.91	31.91	168.45	136.54				
	MW-18	1/19/2015	31.30	31.30	168.45	137.15				
	MW-18	3/31/2015	30.05	30.05	168.45	138.40				
	MW-18	4/15/2015	30.23	30.23	168.45	138.22				
	MW-18	4/28/2015	30.42	30.42	168.45	138.03				
	MW-18	5/7/2015	30.21	30.21	168.45	138.24				
	MW-18	6/23/2015	30.10	30.10	168.45	138.35				
	MW-18	9/2/2015	30.52	30.52	168.45	137.93				
	MW-18	1/5/2016	33.52	33.52	168.45	134.93				
	MW-18	2/22/2016	33.51	33.51	168.45	134.94				
	MW-18	3/23/2016	31.72	31.72	168.45	136.73				
	MW-18	3/28/2016	31.80	31.80	168.45	136.65				
	MW-18	4/4/2016	31.90	31.90	168.45	136.55				
	MW-18	5/31/2016	31.61	31.61	168.45	136.84				
	MW-18	6/13/2016	31.53	31.53	168.45	136.92				
	MW-18	7/12/2016	30.99	30.99	168.45	137.46				
	MW-18	8/16/2016	30.91	30.91	168.45	137.54				
	MW-18	9/8/2016	30.92	30.92	168.45	137.53				
	MW-18	10/10/2016	31.63	31.63	168.45	136.82				
	MW-18	10/11/2016	31.63	31.63	168.45	136.82				
	MW-18	11/15/2016	32.70	32.70	168.45	135.75				
	MW-18	12/19/2016	32.90	32.90	168.45	135.55				
	MW-18	1/5/2017	32.64	32.64	168.45	135.81				
	MW-18	2/7/2017	32.62	32.62	168.45	135.83				
	MW-18	3/21/2017	33.91	33.91	168.45	134.54				
	MW-18	4/3/2017	34.22	34.22	168.45	134.23				
	MW-18	4/25/2017	34.61	34.61	168.45	133.84				
	MW-18	5/26/2017	33.14	33.14	168.45	135.31				
	MW-18	6/1/2017	32.98	32.98	168.45	135.47				
	MW-18	7/13/2017	33.49	33.49	168.45	134.96				
	MW-18	8/16/2017	32.98	32.98	168.45	135.47				
	MW-18	9/19/2017	31.43	31.43	168.45	137.02				
	MW-18	10/23/2017	31.38	31.38	168.45	137.07				
	MW-18	11/29/2017	31.68	31.68	168.45	136.77				
	MW-18	12/12/2017	31.95	31.95	168.45	136.50				
	MW-18	1/12/2018	32.23	32.23	168.45	136.22				
	MW-18	1/22/2018	32.11	32.11	168.45	136.34				
	MW-18	2/7/2018	32.34	32.34	168.45	136.11				Pilot Rebound Evaluation
	MW-18	3/20/2018	32.91	32.91	168.45	135.54				Pilot Rebound Evaluation
	MW-18	3/28/2018	33.11	33.11	168.45	135.34				Pilot Rebound Evaluation
MW-19	MW-19	3/19/2013	36.81	36.81	169.56	132.75				
	MW-19	4/10/2013	36.71	36.71	169.56	132.85				
	MW-19	8/1/2013	34.52	34.52	169.56	135.04				
	MW-19	9/11/2013	35.25	35.25	169.56	134.31				
	MW-19	3/24/2014	35.54	35.54	169.56	134.02				
	MW-19	8/21/2014	33.85	33.85	169.56	135.71				
	MW-19	3/31/2015	33.58	33.58	169.56	135.98				
	MW-19	4/15/2015	34.23	34.23	169.56	135.33				
	MW-19	9/2/2015	34.33	34.33	169.56	135.23				
	MW-19	3/23/2016	35.00	35.00	169.56	134.56				
	MW-19	10/10/2016	35.08	35.08	169.56	134.48				

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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
MW-19 (cont.)	MW-19	3/21/2017	35.90	35.90	169.56	133.66				
	MW-19	4/25/2017	36.35	36.35	169.56	133.21				
	MW-19	8/16/2017	35.64	35.64	169.56	133.92				
	MW-19	1/12/2018	35.21	35.21	169.56	134.35				Pilot Rebound Evaluation
	MW-19	1/22/2018	35.35	35.35	169.56	134.21				Pilot Rebound Evaluation
	MW-19	2/7/2018	35.42	35.42	169.56	134.14				Pilot Rebound Evaluation
	MW-19	3/20/2018	35.71	35.71	169.56	133.85				
	MW-19	3/28/2018	35.87	35.87	169.56	133.69				
MW-20	MW-20	3/19/2013	37.93	37.93	176.27	138.34				
	MW-20	3/29/2013	38.05	38.05	176.27	138.22				
	MW-20	8/1/2013	38.14	38.14	176.27	138.13				
	MW-20	9/6/2013	38.12	38.12	176.27	138.15				
	MW-20	3/24/2014	37.9	37.90	176.27	138.37				
	MW-20	8/22/2014	36.57	36.57	176.27	139.70				
	MW-20	3/31/2015	36.53	36.53	176.27	139.74				
	MW-20	4/16/2015	36.72	36.72	176.27	139.55				
	MW-20	9/2/2015	36.33	36.33	176.27	139.94				
	MW-20	3/23/2016	37.20	37.20	176.27	139.07				
	MW-20	10/10/2016	37.20	37.20	176.27	139.07				
	MW-20	3/21/2017	37.90	37.90	176.27	138.37				
	MW-20	4/24/2017	38.21	38.21	176.27	138.06				
	MW-20	8/16/2017	38.41	38.41	176.27	137.86				
	MW-20	3/20/2018	37.84	37.84	176.27	138.43				
	MW-20	3/29/2018	37.83	37.83	176.27	138.44				
MW-21	MW-21	3/19/2013	36.49	36.49	173.37	136.88				
	MW-21	3/29/2013	36.7	36.70	173.37	136.67				
	MW-21	8/1/2013	36.65	36.65	173.37	136.72				
	MW-21	9/6/2013	36.73	36.73	173.37	136.64				
	MW-21	3/24/2014	36.58	36.58	173.37	136.79				
	MW-21	8/22/2014	35.25	35.25	173.37	138.12				
	MW-21	9/10/2014	35.48	35.48	173.37	137.89				
	MW-21	3/31/2015	34.98	34.98	173.37	138.39				
	MW-21	4/16/2015	35.48	35.48	173.37	137.89				
	MW-21	9/2/2015	38.20	38.20	173.37	135.17				
	MW-21	9/30/2015	30.74	30.74	173.37	142.63				
	MW-21	3/23/2016	36.01	36.01	173.37	137.36				
	MW-21	4/13/2016	36.24	36.24	173.37	137.13				
	MW-21	10/10/2016	35.90	35.90	173.37	137.47				
	MW-21	3/21/2017	36.45	36.45	173.37	136.92				
	MW-21	4/27/2017	36.75	36.75	173.37	136.62				
	MW-21	8/16/2017	36.85	36.85	173.37	136.52				
	MW-21	8/24/2017	36.89	36.89	173.37	136.48				
	MW-21	1/12/2018	36.04	36.04	173.37	137.33				Pilot Rebound Evaluation
	MW-21	1/22/2018	36.24	36.24	173.37	137.13				Pilot Rebound Evaluation
	MW-21	2/7/2018	36.24	36.24	173.37	137.13				Pilot Rebound Evaluation
	MW-21	3/20/2018	36.23	36.23	173.37	137.14				
	MW-21	3/29/2018	36.37	36.37	173.37	137.00				
MW-22R	MW-22R	1/28/2013	46.69	46.69	165.08	118.39				
	MW-22R	3/19/2013	NG	NG	NG	NG				Not accessible
	MW-22R	4/15/2013	NG	NG	NG	NG				Pumping
	MW-22R	4/22/2013	39.46	39.46	165.08	125.62				
	MW-22R	5/28/2013	39.35	39.35	165.08	125.73				
	MW-22R	6/3/2013	44.38	44.38	165.08	120.70				
	MW-22R	7/15/2013	42.62	42.62	165.08	122.46				
	MW-22R	8/1/2013	42.6	42.60	165.08	122.48				
	MW-22R	8/15/2013	39.85	39.85	165.08	125.23				
	MW-22R	10/30/2013	37.57	37.57	165.08	127.51				
	MW-22R	11/14/2013	42.92	42.92	165.08	122.16				
	MW-22R	12/18/2013	40.6	40.60	165.08	124.48				
	MW-22R	1/28/2014	39.15	39.15	165.08	125.93				
	MW-22R	2/17/2014	34.77	34.77	165.08	130.31				
	MW-22R	3/7/2014	40	40.00	165.08	125.08				
	MW-22R	3/24/2014	39.77	39.77	165.08	125.31				
	MW-22R	4/11/2014	NG	NG	NG	NG				
	MW-22R	5/27/2014	NG	NG	NG	NG				
	MW-22R	6/24/2014	40.10	40.10	165.08	124.98				
	MW-22R	8/13/2014	40.20	40.20	165.08	124.88				

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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
MW-22R (cont.)	MW-22R	8/21/2014	37.02	37.02	165.08	128.06				
	MW-22R	9/10/2014	NG	NG	NG	NG				Not Gauged - Pumping
	MW-22R	10/7/2014	40.41	40.41	165.08	124.67				
	MW-22R	11/6/2014	35.15	35.15	165.08	129.93				
	MW-22R	1/19/2015	40.30	40.30	165.08	124.78				
	MW-22R	2/24/2015	36.95	36.95	165.08	128.13				
	MW-22R	3/31/2015	36.33	36.33	165.08	128.75				
	MW-22R	4/28/2015	NG	NG	NG	NG				
	MW-22R	5/7/2015	40.10	40.10	165.08	124.98				
	MW-22R	6/23/2015	36.34	36.34	165.08	128.74				
	MW-22R	1/5/2016	39.00	39.00	170.22	131.22				
	MW-22R	2/22/2016	NG	NG	NG	NG				Pumping
	MW-22R	3/23/2016	NG	NG	NG	NG				Pumping
	MW-22R	3/28/2016	39.94	39.94	170.22	130.28				
	MW-22R	4/4/2016	41.65	41.65	170.22	128.57				
	MW-22R	4/13/2016	NG	NG	NG	NG				Pumping
	MW-22R	5/31/2016	40.15	40.15	170.22	130.07				
	MW-22R	6/13/2016	41.03	41.03	170.22	129.19				
	MW-22R	7/12/2016	38.32	38.32	170.22	131.90				
	MW-22R	8/16/2016	37.31	37.31	170.22	132.91				
	MW-22R	9/8/2016	NG	NG	NG	NG				Pumping
	MW-22R	10/10/2016	38.74	38.74	170.22	131.48				
	MW-22R	10/11/2016	38.74	38.74	170.22	131.48				
	MW-22R	11/15/2016	NG	NG	NG	NG				Pumping
	MW-22R	12/19/2016	NG	NG	NG	NG				Pumping
	MW-22R	1/5/2017	NG	NG	NG	NG				Pumping
	MW-22R	2/7/2017	37.99	37.99	170.22	132.23				
	MW-22R	3/21/2017	45.16	45.16	170.22	125.06				
	MW-22R	4/3/2017	42.98	42.98	170.22	127.24				
	MW-22R	5/26/2017	43.11	43.11	170.22	127.11				
	MW-22R	6/1/2017	45.57	45.57	170.22	124.65				
	MW-22R	7/13/2017	45.38	45.38	170.22	124.84				
	MW-22R	8/16/2017	45.58	45.58	170.22	124.64				
	MW-22R	9/19/2017	45.58	45.58	170.22	124.64				
	MW-22R	10/23/2017	45.60	45.60	170.22	124.62				
	MW-22R	11/29/2017	37.80	37.80	170.22	132.42				
	MW-22R	12/12/2017	45.60	45.60	170.22	124.62				
	MW-22R	1/12/2018	37.85	37.85	170.22	132.37				Pilot Rebound Evaluation
	MW-22R	1/22/2018	37.70	37.70	170.22	132.52				Pilot Rebound Evaluation
	MW-22R	2/7/2018	37.63	37.63	170.22	132.59				Pilot Rebound Evaluation
	MW-22R	3/20/2018	42.52	42.52	170.22	127.70				
MW-23	MW-23	3/19/2013	43.41	43.41	171.31	127.90				
	MW-23	4/3/2013	43.52	43.52	171.31	127.79				
	MW-23	8/1/2013	43.1	43.10	171.31	128.21				
	MW-23	9/6/2013	43.29	43.29	171.31	128.02				
	MW-23	3/24/2014	43.08	43.08	171.31	128.23				
	MW-23	8/21/2014	41.97	41.97	171.31	129.34				
	MW-23	3/31/2015	41.98	41.98	171.31	129.33				
	MW-23	4/13/2015	41.97	41.97	171.31	129.34				
	MW-23	9/2/2015	42.51	42.51	171.31	128.80				
	MW-23	3/23/2016	43.10	43.10	171.31	128.21				
	MW-23	10/10/2016	43.05	43.05	171.31	128.26				
	MW-23	3/21/2017	43.88	43.88	171.31	127.43				
	MW-23	4/27/2017	43.97	43.97	171.31	127.34				
	MW-23	8/16/2017	43.40	43.40	171.31	127.91				
	MW-23	1/12/2018	42.84	42.84	171.31	128.47				Pilot Rebound Evaluation
	MW-23	1/22/2018	42.99	42.99	171.31	128.32				Pilot Rebound Evaluation
	MW-23	2/7/2018	43.03	43.03	171.31	128.28				Pilot Rebound Evaluation
	MW-23	3/20/2018	43.24	43.24	171.31	128.07				
	MW-23	3/26/2018	43.75	43.75	171.31	127.56				
MW-24A	MW-24A	1/28/2013	21.27	21.27	157.39	136.12				
	MW-24A	3/19/2013	21.11	21.11	157.39	136.28				
	MW-24A	4/9/2013	20.91	20.91	157.39	136.48				
	MW-24A	4/22/2013	21.01	21.01	157.39	136.38				
	MW-24A	5/28/2013	21.09	21.09	157.39	136.30				
	MW-24A	6/3/2013	21.1	21.10	157.39	136.29				
	MW-24A	8/1/2013	20.55	20.55	157.39	136.84				

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MW-24A (cont.)	MW-24A	8/15/2013	20.58	20.58	157.39	136.81				
	MW-24A	9/10/2013	21.24	21.24	157.39	136.15				
	MW-24A	9/16/2013	21.24	21.24	157.39	136.15				
	MW-24A	10/30/2013	20.87	20.87	157.39	136.52				
	MW-24A	11/14/2013	21.14	21.14	157.39	136.25				
	MW-24A	12/18/2013	21.57	21.57	157.39	135.82				
	MW-24A	1/28/2014	20.65	20.65	157.39	136.74				
	MW-24A	2/17/2014	24.42	24.42	157.39	132.97				
	MW-24A	3/7/2014	20.09	20.09	157.39	137.30				
	MW-24A	3/24/2014	20.2	20.20	157.39	137.19				
	MW-24A	4/11/2014	19.86	19.86	157.39	137.53				
	MW-24A	5/27/2014	18.71	18.71	157.39	138.68				
	MW-24A	6/24/2014	19.10	19.10	157.39	138.29				
	MW-24A	8/13/2014	19.95	19.95	157.39	137.44				
	MW-24A	8/21/2014	19.93	19.93	157.39	137.46				
	MW-24A	10/7/2014	20.53	20.53	157.39	136.86				
	MW-24A	11/6/2014	20.48	20.48	157.39	136.91				
	MW-24A	1/19/2015	20.55	20.55	157.39	136.84				
	MW-24A	3/31/2015	19.22	19.22	157.39	138.17				
	MW-24A	4/28/2015	19.54	19.54	157.39	137.85				
	MW-24A	5/7/2015	19.45	19.45	157.39	137.94				
	MW-24A	6/23/2015	19.55	19.55	157.39	137.84				
	MW-24A	9/2/2015	19.95	19.95	157.39	137.44				
	MW-24A	1/5/2016	21.38	21.38	157.39	136.01				
	MW-24A	2/22/2016	20.65	20.65	157.39	136.74				
	MW-24A	3/23/2016	20.19	20.19	157.39	137.20				
	MW-24A	3/28/2016	20.25	20.25	157.39	137.14				
	MW-24A	4/4/2016	20.34	20.34	157.39	137.05				
	MW-24A	5/31/2016	20.59	20.59	157.39	136.80				
	MW-24A	6/13/2016	20.71	20.71	157.39	136.68				
	MW-24A	7/12/2016	20.72	20.72	157.39	136.67				
	MW-24A	8/16/2016	20.51	20.51	157.39	136.88				
	MW-24A	9/8/2016	20.58	20.58	157.39	136.81				
	MW-24A	10/10/2016	20.96	20.96	157.39	136.43				
	MW-24A	10/11/2016	20.96	20.96	157.39	136.43				
	MW-24A	11/15/2016	21.43	21.43	157.39	135.96				
	MW-24A	12/19/2016	21.53	21.53	157.39	135.86				
	MW-24A	1/5/2017	21.45	21.45	157.39	135.94				
	MW-24A	2/7/2017	21.30	21.30	157.39	136.09				
	MW-24A	3/21/2017	21.82	21.82	157.39	135.57				
	MW-24A	4/3/2017	22.30	22.30	157.39	135.09				
	MW-24A	5/26/2017	21.56	21.56	157.39	135.83				
	MW-24A	6/1/2017	21.26	21.26	157.39	136.13				
	MW-24A	7/13/2017	21.38	21.38	157.39	136.01				
	MW-24A	8/16/2017	20.64	20.64	157.39	136.75				
	MW-24A	9/19/2017	21.60	21.60	157.39	135.79				
	MW-24A	10/23/2017	20.78	20.78	157.39	136.61				
	MW-24A	3/20/2018	21.84	21.84	157.39	135.55				
	MW-24A	11/29/2017	21.02	21.02	157.39	136.37				
	MW-24A	12/12/2017	21.92	21.92	157.39	135.47				
	MW-24A	1/12/2018	21.66	21.66	157.39	135.73				Pilot Rebound Evaluation
	MW-24A	1/22/2018	21.55	21.55	157.39	135.84				Pilot Rebound Evaluation
	MW-24A	2/7/2018	32.74	32.74	157.39	124.65				Pilot Rebound Evaluation
	MW-24A	3/20/2018	21.84	21.84	157.39	135.55				
MW-24B	MW-24B	3/19/2013	21.08	21.08	157.45	136.37				
	MW-24B	4/9/2013	20.95	20.95	157.45	136.50				
	MW-24B	8/1/2013	20.53	20.53	157.45	136.92				
	MW-24B	9/10/2013	21.23	21.23	157.45	136.22				
	MW-24B	3/24/2014	20.2	20.20	157.45	137.25				
	MW-24B	8/21/2014	19.91	19.91	157.45	137.54				
	MW-24B	3/31/2015	19.17	19.17	157.45	138.28				
	MW-24B	4/15/2015	19.37	19.37	157.45	138.08				
	MW-24B	9/2/2015	19.97	19.97	157.45	137.48				
	MW-24B	3/23/2016	20.19	20.19	157.45	137.26				
	MW-24B	10/10/2016	20.96	20.96	157.45	136.49				

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MW-24B (cont.)	MW-24B	3/21/2017	21.75	21.75	157.45	135.70				
	MW-24B	4/27/2017	21.91	21.91	157.45	135.54				
	MW-24B	8/16/2017	20.62	20.62	157.45	136.83				
	MW-24B	3/20/2018	21.92	21.92	157.45	135.53				
	MW-24B	3/28/2018	22.09	22.09	157.45	135.36				
MW-25A	MW-25A	3/19/2013	26.8	26.80	149.99	123.19				
	MW-25A	4/9/2013	26.78	26.78	149.99	123.21				
	MW-25A	8/1/2013	26.56	26.56	149.99	123.43				
	MW-25A	9/10/2013	26.62	26.62	149.99	123.37				
	MW-25A	3/24/2014	26.47	26.47	149.99	123.52				
	MW-25A	8/21/2014	26.04	26.04	149.99	123.95				
	MW-25A	3/31/2015	26.19	26.19	149.99	123.80				
	MW-25A	4/15/2015	26.14	26.14	149.99	123.85				
	MW-25A	9/2/2015	26.09	26.09	149.99	123.90				
	MW-25A	3/23/2016	26.42	26.42	149.99	123.57				
	MW-25A	10/10/2016	26.62	26.62	149.99	123.37				
	MW-25A	3/21/2017	26.98	26.98	149.99	123.01				
	MW-25A	4/25/2017	27.05	27.05	149.99	122.94				
	MW-25A	8/16/2017	26.73	26.73	149.99	123.26				
	MW-25A	3/20/2018	26.74	26.74	149.99	123.25				
	MW-25A	3/28/2018	26.77	26.77	149.99	123.22				
MW-25B	MW-25B	3/19/2013	27.19	27.19	150.95	123.76				
	MW-25B	4/9/2013	27.31	27.31	150.95	123.64				
	MW-25B	8/1/2013	27.64	27.64	150.95	123.31				
	MW-25B	9/10/2013	27.34	27.34	150.95	123.61				
	MW-25B	3/24/2014	26.87	26.87	150.95	124.08				
	MW-25B	8/21/2014	26.94	26.94	150.95	124.01				
	MW-25B	9/10/2014	26.87	26.87	150.95	124.08				
	MW-25B	3/31/2015	26.51	26.51	150.95	124.44				
	MW-25B	4/15/2015	26.33	26.33	150.95	124.62				
	MW-25B	9/2/2015	27.47	27.47	150.95	123.48				
	MW-25B	10/1/2015	26.58	26.58	150.95	124.37				
	MW-25B	3/23/2016	26.49	26.49	150.95	124.46				
	MW-25B	4/12/2016	26.88	26.88	150.95	124.07				
	MW-25B	10/10/2016	27.50	27.50	150.95	123.45				
	MW-25B	3/21/2017	27.36	27.36	150.95	123.59				
	MW-25B	4/25/2017	27.87	27.87	150.95	123.08				
	MW-25B	8/16/2017	27.99	27.99	150.95	122.96				
	MW-25B	8/23/2017	27.35	27.35	150.95	123.60				
	MW-25B	3/20/2018	27.82	27.82	150.95	123.13				
	MW-25B	3/28/2018	27.51	27.51	150.95	123.44				
MW-26A	MW-26A	3/19/2013	3.53	3.53	135.62	132.09				
	MW-26A	4/2/2013	4.07	4.07	135.62	131.55				
	MW-26A	8/1/2013	4.61	4.61	135.62	131.01				
	MW-26A	9/9/2013	5.55	5.55	135.62	130.07				
	MW-26A	3/24/2014	3.15	3.15	135.62	132.47				
	MW-26A	8/21/2014	4.60	4.60	135.62	131.02				
	MW-26A	3/31/2015	2.27	2.27	135.62	133.35				
	MW-26A	4/14/2015	2.84	2.84	135.62	132.78				
	MW-26A	9/2/2015	4.70	4.70	135.62	130.92				
	MW-26A	3/23/2016	3.46	3.46	135.62	132.16				
	MW-26A	10/10/2016	5.10	5.10	135.62	130.52				
	MW-26A	3/21/2017	4.76	4.76	135.62	130.86				
	MW-26A	4/26/2017	4.34	4.34	135.62	131.28				
	MW-26A	8/16/2017	2.59	2.59	135.62	133.03				
	MW-26A	3/20/2018	4.65	4.65	135.62	130.97				
	MW-26A	3/27/2018	4.07	4.07	135.62	131.55				
MW-26B	MW-26B	3/19/2013	7.78	7.78	135.74	127.96				
	MW-26B	4/2/2013	7.12	7.12	135.74	128.62				
	MW-26B	8/1/2013	7.98	7.98	135.74	127.76				
	MW-26B	9/9/2013	7.65	7.65	135.74	128.09				

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MW-26B (cont.)	MW-26B	3/24/2014	6.8	6.80	135.74	128.94				
	MW-26B	8/21/2014	11.18	11.18	135.74	124.56				
	MW-26B	9/8/2014	9.40	9.40	135.74	126.34				
	MW-26B	3/31/2015	7.65	7.65	135.74	128.09				
	MW-26B	4/14/2015	7.01	7.01	135.74	128.73				
	MW-26B	9/2/2015	7.80	7.80	135.74	127.94				
	MW-26B	10/1/2015	7.30	7.30	135.74	128.44				
	MW-26B	3/23/2016	12.44	12.44	135.74	123.30				
	MW-26B	4/11/2016	8.94	8.94	135.74	126.80				
	MW-26B	10/10/2016	6.90	6.90	135.74	128.84				
	MW-26B	3/21/2017	10.35	10.35	135.74	125.39				
	MW-26B	4/26/2017	8.43	8.43	135.74	127.31				
	MW-26B	8/16/2017	10.56	10.56	135.74	125.18				
	MW-26B	8/22/2017	8.54	8.54	135.74	127.20				
	MW-26B	3/20/2018	6.48	6.48	135.74	129.26				
	MW-26B	3/27/2018	6.52	6.52	135.74	129.22				
MW-27A	MW-27A	3/19/2013	10.89	10.89	128.92	118.03				
	MW-27A	4/2/2013	10.95	10.95	128.92	117.97				
	MW-27A	8/1/2013	10.78	10.78	128.92	118.14				
	MW-27A	9/9/2013	11.11	11.11	128.92	117.81				
	MW-27A	3/24/2014	10.41	10.41	128.92	118.51				
	MW-27A	8/21/2014	9.96	9.96	128.92	118.96				
	MW-27A	9/8/2014	10.14	10.14	128.92	118.78				
	MW-27A	3/31/2015	9.84	9.84	128.92	119.08				
	MW-27A	4/15/2015	9.87	9.87	128.92	119.05				
	MW-27A	9/2/2015	10.03	10.03	128.92	118.89				
	MW-27A	10/1/2015	10.19	10.19	128.92	118.73				
	MW-27A	3/23/2016	10.11	10.11	128.92	118.81				
	MW-27A	4/13/2016	NG	NG	NG	NG				
	MW-27A	10/10/2016	10.88	10.88	128.92	118.04				
	MW-27A	3/21/2017	11.40	11.40	128.92	117.52				
	MW-27A	4/26/2017	11.34	11.34	128.92	117.58				
	MW-27A	8/16/2017	10.74	10.74	128.92	118.18				
	MW-27A	8/22/2017	10.61	10.61	128.92	118.31				
	MW-27A	3/20/2018	11.12	11.12	128.92	117.80				
	MW-27A	3/27/2018	11.07	11.07	128.92	117.85				
MW-27B	MW-27B	3/19/2013	13.54	13.54	128.92	115.38				
	MW-27B	4/2/2013	13.54	13.54	128.92	115.38				
	MW-27B	8/1/2013	13.55	13.55	128.92	115.37				
	MW-27B	9/9/2013	13.69	13.69	128.92	115.23				
	MW-27B	3/24/2014	13.25	13.25	128.92	115.67				
	MW-27B	8/21/2014	12.54	12.54	128.92	116.38				
	MW-27B	9/8/2014	12.86	12.86	128.92	116.06				
	MW-27B	3/31/2015	12.90	12.90	128.92	116.02				
	MW-27B	4/15/2015	12.69	12.69	128.92	116.23				
	MW-27B	9/2/2015	12.95	12.95	128.92	115.97				
	MW-27B	10/1/2015	12.91	12.91	128.92	116.01				
	MW-27B	3/23/2016	12.86	12.86	128.92	116.06				
	MW-27B	4/11/2016	12.71	12.71	128.92	116.21				
	MW-27B	10/10/2016	13.88	13.88	128.92	115.04				
	MW-27B	3/21/2017	13.97	13.97	128.92	114.95				
	MW-27B	4/26/2017	13.85	13.85	128.92	115.07				
	MW-27B	8/16/2017	13.31	13.31	128.92	115.61				
	MW-27B	8/22/2017	13.22	13.22	128.92	115.70				
	MW-27B	3/20/2018	13.75	13.75	128.92	115.17				
	MW-27B	3/27/2018	13.45	13.45	128.92	115.47				
MW-28A	MW-28A	3/19/2013	7.5	7.50	126.13	118.63				
	MW-28A	3/28/2013	7.58	7.58	126.13	118.55				
	MW-28A	8/1/2013	7.8	7.80	126.13	118.33				
	MW-28A	9/9/2013	8.13	8.13	126.13	118.00				
	MW-28A	3/24/2014	7.34	7.34	126.13	118.79				

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MW-28A (cont.)	MW-28A	8/21/2014	7.25	7.25	126.13	118.88				
	MW-28A	3/31/2015	6.72	6.72	126.13	119.41				
	MW-28A	9/2/2015	7.14	7.14	126.13	118.99				
	MW-28A	3/23/2016	6.62	6.62	126.13	119.51				
	MW-28A	10/10/2016	7.83	7.83	126.13	118.30				
	MW-28A	3/21/2017	7.54	7.54	126.13	118.59				
	MW-28A	8/16/2017	7.06	7.06	126.13	119.07				
	MW-28A	3/20/2018	7.40	7.40	126.13	118.73				
MW-28B	MW-28B	3/19/2013	7.32	7.32	125.49	118.17				
	MW-28B	3/28/2013	7.35	7.35	125.49	118.14				
	MW-28B	8/1/2013	7.66	7.66	125.49	117.83				
	MW-28B	9/9/2013	7.85	7.85	125.49	117.64				
	MW-28B	3/24/2014	7.22	7.22	125.49	118.27				
	MW-28B	8/21/2014	6.94	6.94	125.49	118.55				
	MW-28B	3/31/2015	6.67	6.67	125.49	118.82				
	MW-28B	4/13/2015	6.70	6.70	125.49	118.79				
	MW-28B	9/2/2015	6.79	6.79	125.49	118.70				
	MW-28B	3/23/2016	6.46	6.46	125.49	119.03				
	MW-28B	10/10/2016	7.49	7.49	125.49	118.00				
	MW-28B	3/21/2017	7.46	7.46	125.49	118.03				
	MW-28B	4/25/2017	7.26	7.26	125.49	118.23				
	MW-28B	8/16/2017	6.95	6.95	125.49	118.54				
	MW-28B	3/20/2018	7.19	7.19	125.49	118.30				
	MW-28B	3/26/2018	7.12	7.12	125.49	118.37				
MW-29A	MW-29A	3/19/2013	7.44	7.44	115.70	108.26				
	MW-29A	3/28/2013	7.57	7.57	115.70	108.13				
	MW-29A	8/1/2013	7.59	7.59	115.70	108.11				
	MW-29A	9/9/2013	7.95	7.95	115.70	107.75				
	MW-29A	3/24/2014	7.15	7.15	115.70	108.55				
	MW-29A	8/21/2014	7.18	7.18	115.70	108.52				
	MW-29A	3/31/2015	6.52	6.52	115.70	109.18				
	MW-29A	4/13/2015	6.68	6.68	115.70	109.02				
	MW-29A	9/2/2015	7.18	7.18	115.70	108.52				
	MW-29A	3/23/2016	6.65	6.65	115.70	109.05				
	MW-29A	10/10/2016	7.49	7.49	115.70	108.21				
	MW-29A	3/21/2017	7.06	7.06	115.70	108.64				
	MW-29A	4/25/2017	7.10	7.10	115.70	108.60				
	MW-29A	8/16/2017	7.34	7.34	115.70	108.36				
	MW-29A	3/20/2018	7.44	7.44	115.70	108.26				
	MW-29A	3/26/2018	7.59	7.59	115.70	108.11				
MW-29B	MW-29B	3/19/2013	6.51	6.51	115.54	109.03				
	MW-29B	3/28/2013	6.56	6.56	115.54	108.98				
	MW-29B	8/1/2013	9.36	9.36	115.54	106.18				
	MW-29B	9/9/2013	6.64	6.64	115.54	108.90				
	MW-29B	3/24/2014	6.13	6.13	115.54	109.41				
	MW-29B	8/21/2014	6.00	6.00	115.54	109.54				
	MW-29B	9/8/2014	6.02	6.02	115.54	109.52				
	MW-29B	3/31/2015	5.60	5.60	115.54	109.94				
	MW-29B	4/13/2015	5.60	5.60	115.54	109.94				
	MW-29B	9/2/2015	5.95	5.95	115.54	109.59				
	MW-29B	9/30/2015	10.18	10.18	115.54	105.36				
	MW-29B	3/23/2016	5.61	5.61	115.54	109.93				
	MW-29B	4/11/2016	5.34	5.34	115.54	110.20				
	MW-29B	10/10/2016	6.13	6.13	115.54	109.41				
	MW-29B	3/21/2017	6.17	6.17	115.54	109.37				
	MW-29B	4/25/2017	6.04	6.04	115.54	109.50				
	MW-29B	8/16/2017	6.19	6.19	115.54	109.35				
	MW-29B	8/22/2017	6.15	6.15	115.54	109.39				
	MW-29B	3/20/2018	6.20	6.20	115.54	109.34				
	MW-29B	3/26/2018	6.40	6.40	115.54	109.14				

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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
MW-30R	MW-30R	3/19/2013	20.36	20.36	156.75	136.39				
	MW-30R	4/9/2013	Dry							Dry
	MW-30R	8/1/2013	19.93	19.93	156.75	136.82				
	MW-30R	9/6/2013	20.6	20.60	156.75	136.15				
	MW-30R	3/24/2014	19.67	19.67	156.75	137.08				
	MW-30R	8/21/2014	19.29	19.29	156.75	137.46				
	MW-30R	3/31/2015	18.79	18.79	156.75	137.96				
	MW-30R	4/13/2015	18.70	18.70	156.75	138.05				
	MW-30R	9/2/2015	19.31	19.31	156.75	137.44				
	MW-30R	3/23/2016	19.41	19.41	156.75	137.34				
	MW-30R	10/10/2016	20.30	20.30	156.75	136.45				
	MW-30R	3/21/2017	Dry							Dry
	MW-30R	4/27/2017	Dry							Dry
	MW-30R	8/16/2017	20.03	20.03	156.75	136.72				
	MW-30R	3/20/2018	20.2	20.20	156.75	136.55				
	MW-30R	3/28/2018	Dry							Dry
MW-31A	MW-31A	3/19/2013	5.62	5.62	135.19	129.57				
	MW-31A	8/1/2013	8.85	8.85	135.19	126.34				
	MW-31A	3/24/2014	5.74	5.74	135.19	129.45				
	MW-31A	8/21/2014	6.12	6.12	135.19	129.07				
	MW-31A	3/31/2015	4.59	4.59	135.20	130.61				
	MW-31A	9/2/2015	5.79	5.79	135.20	129.41				
	MW-31A	3/23/2016	5.05	5.05	135.20	130.15				
	MW-31A	10/10/2016	5.92	5.92	135.20	129.28				
	MW-31A	3/21/2017	5.59	5.59	135.20	129.61				
	MW-31A	8/16/2017	NG	NG	NG	NG				Paved over
	MW-31A	3/20/2018	NG	NG	NG	NG				Paved over
MW-31B	MW-31B	3/19/2013	5.55	5.55	135.81	130.26				
	MW-31B	3/28/2013	5.72	5.72	135.81	130.09				
	MW-31B	8/1/2013	8.57	8.57	135.81	127.24				
	MW-31B	9/9/2013	6.35	6.35	135.81	129.46				
	MW-31B	3/24/2014	5.6	5.60	135.81	130.21				
	MW-31B	8/21/2014	5.63	5.63	135.81	130.18				
	MW-31B	3/31/2015	4.41	4.41	135.81	131.40				
	MW-31B	4/13/2015	4.58	4.58	135.81	131.23				
	MW-31B	9/2/2015	5.30	5.30	135.81	130.51				
	MW-31B	3/23/2016	5.77	5.77	135.81	130.04				
	MW-31B	10/10/2016	5.31	5.31	135.81	130.50				
	MW-31B	3/21/2017	5.62	5.62	135.81	130.19				
	MW-31B	4/26/2017	5.35	5.35	135.81	130.46				
	MW-31B	8/16/2017	4.64	4.64	135.81	131.17				
	MW-31B	3/20/2018	5.32	5.32	135.81	130.49				
	MW-31B	3/26/2018	5.82	5.82	135.81	129.99				
MW-32	MW-32	3/19/2013	8.38	8.38	128.47	120.09				
	MW-32	8/1/2013	8.76	8.76	128.47	119.71				
	MW-32	3/24/2014	8.28	8.28	128.47	120.19				
	MW-32	8/21/2014	8.92	8.92	128.47	119.55				
	MW-32	3/31/2015	8.00	8.00	128.47	120.47				
	MW-32	9/2/2015	9.06	9.06	128.47	119.41				
	MW-32	3/23/2016	8.45	8.45	128.47	120.02				
	MW-32	10/10/2016	8.95	8.95	128.47	119.52				
	MW-32	3/21/2017	8.30	8.30	128.47	120.17				
	MW-32	8/16/2017	8.21	8.21	128.47	120.26				
	MW-32	3/20/2018	8.68	8.68	128.47	119.79				
MW-33A	MW-33A	3/19/2013	8.3	8.30	126.35	118.05				
	MW-33A	3/28/2013	8.26	8.26	126.35	118.09				
	MW-33A	8/1/2013	8.42	8.42	126.35	117.93				
	MW-33A	9/9/2013	8.7	8.70	126.35	117.65				
	MW-33A	3/24/2014	6.23	6.23	126.35	120.12				
	MW-33A	8/21/2014	7.86	7.86	126.35	118.49				
	MW-33A	3/31/2015	7.02	7.02	126.35	119.33				

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MW-33A (cont.)	MW-33A	4/13/2015	7.53	7.53	126.35	118.82				
	MW-33A	9/2/2015	7.51	7.51	126.35	118.84				
	MW-33A	3/23/2016	6.59	6.59	126.35	119.76				
	MW-33A	10/10/2016	8.00	8.00	126.35	118.35				
	MW-33A	3/21/2017	7.08	7.08	126.35	119.27				
	MW-33A	4/25/2017	7.07	7.07	126.35	119.28				
	MW-33A	8/16/2017	5.26	5.26	126.35	121.09				
	MW-33A	3/20/2018	7.66	7.66	126.35	118.69				
	MW-33A	3/26/2018	7.43	7.43	126.35	118.92				
MW-33B	MW-33B	3/19/2013	7.89	7.89	126.16	118.27				
	MW-33B	3/28/2013	7.94	7.94	126.16	118.22				
	MW-33B	8/1/2013	8.01	8.01	126.16	118.15				
	MW-33B	9/9/2013	8.31	8.31	126.16	117.85				
	MW-33B	3/24/2014	7.8	7.80	126.16	118.36				
	MW-33B	8/21/2014	7.50	7.50	126.16	118.66				
	MW-33B	3/31/2015	7.16	7.16	126.16	119.00				
	MW-33B	4/13/2015	7.27	7.27	126.16	118.89				
	MW-33B	9/2/2015	7.31	7.31	126.16	118.85				
	MW-33B	3/23/2016	6.95	6.95	126.16	119.21				
	MW-33B	10/10/2016	7.95	7.95	126.16	118.21				
	MW-33B	3/21/2017	7.86	7.86	126.16	118.30				
	MW-33B	4/25/2017	7.66	7.66	126.16	118.50				
	MW-33B	8/16/2017	7.37	7.37	126.16	118.79				
	MW-33B	3/20/2018	7.63	7.63	126.16	118.53				
	MW-33B	3/26/2018	7.59	7.59	126.16	118.57				
MW-33C	MW-33C	3/19/2013	7.44	7.44	125.84	118.40				
	MW-33C	3/28/2013	7.48	7.48	125.84	118.36				
	MW-33C	8/1/2013	7.69	7.69	125.84	118.15				
	MW-33C	9/9/2013	7.95	7.95	125.84	117.89				
	MW-33C	3/24/2014	7.28	7.28	125.84	118.56				
	MW-33C	8/21/2014	7.06	7.06	125.84	118.78				
	MW-33C	3/31/2015	6.75	6.75	125.84	119.09				
	MW-33C	4/13/2015	6.81	6.81	125.84	119.03				
	MW-33C	9/2/2015	6.90	6.90	125.84	118.94				
	MW-33C	3/23/2016	6.56	6.56	125.84	119.28				
	MW-33C	10/10/2016	7.55	7.55	125.84	118.29				
	MW-33C	3/21/2017	7.61	7.61	125.84	118.23				
	MW-33C	4/25/2017	7.33	7.33	125.84	118.51				
	MW-33C	8/16/2017	7.02	7.02	125.84	118.82				
	MW-33C	3/20/2018	7.45	7.45	125.84	118.39				
	MW-33C	3/26/2018	7.25	7.25	125.84	118.59				
MW-33S	MW-33S	3/19/2013	6.38	6.38	126.58	120.20				
	MW-33S	3/28/2013	Dry							Dry
	MW-33S	8/1/2013	7.07	7.07	126.58	119.51				
	MW-33S	9/9/2013	7.11	7.11	126.58	119.47				
	MW-33S	3/24/2014	7.07	7.07	126.58	119.51				
	MW-33S	8/21/2014	7.05	7.05	126.58	119.53				
	MW-33S	9/8/2014	7.02	7.02	126.58	119.56				
	MW-33S	3/31/2015	6.98	6.98	126.58	119.60				
	MW-33S	4/13/2015	7.01	7.01	126.58	119.57				
	MW-33S	9/2/2015	7.05	7.05	126.58	119.53				
	MW-33S	9/30/2015	5.95	5.95	126.58	120.63				
	MW-33S	3/23/2016	6.84	6.84	126.58	119.74				
	MW-33S	4/11/2016	6.26	6.26	126.58	120.32				
	MW-33S	10/10/2016	7.04	7.04	126.58	119.54				
	MW-33S	3/21/2017	6.29	6.29	126.58	120.29				
	MW-33S	4/25/2017	6.75	6.75	126.58	119.83				
	MW-33S	8/16/2017	3.00	3.00	126.58	123.58				
	MW-33S	3/20/2018	7.03	7.03	126.58	119.55				

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MW-34A	MW-34A	3/19/2013	9.36	9.36	107.41	98.05				
	MW-34A	8/1/2013	9.5	9.50	107.41	97.91				
	MW-34A	3/24/2014	8.95	8.95	107.41	98.46				
	MW-34A	8/21/2014	9.10	9.10	107.41	98.31				
	MW-34A	3/31/2015	8.76	8.76	107.41	98.65				
	MW-34A	9/2/2015	8.93	8.93	107.41	98.48				
	MW-34A	3/23/2016	8.54	8.54	107.41	98.87				
	MW-34A	10/10/2016	8.90	8.90	107.41	98.51				
	MW-34A	3/21/2017	8.67	8.67	107.41	98.74				
	MW-34A	8/16/2017	8.92	8.92	107.41	98.49				
	MW-34A	3/20/2018	4.60	4.60	107.41	102.81				
MW-34B	MW-34B	3/19/2013	8.91	8.91	107.40	98.49				
	MW-34B	8/1/2013	8.43	8.43	107.4	98.97				
	MW-34B	3/24/2014	8.95	8.95	107.4	98.45				
	MW-34B	8/21/2014	8.55	8.55	107.4	98.85				
	MW-34B	3/31/2015	9.00	9.00	107.40	98.40				
	MW-34B	9/2/2015	8.58	8.58	107.40	98.82				
	MW-34B	3/23/2016	8.65	8.65	107.40	98.75				
	MW-34B	10/10/2016	9.01	9.01	107.40	98.39				
	MW-34B	3/21/2017	9.41	9.41	107.40	97.99				
	MW-34B	8/16/2017	8.81	8.81	107.40	98.59				
	MW-34B	3/20/2018	4.28	4.28	107.4	103.12				
MW-37	MW-37	3/19/2013	Dry							Dry
	MW-37	3/24/2014	15.1	15.10	152.61	137.51				
	MW-37	8/21/2014	Dry							Dry
	MW-37	3/31/2015	14.82	14.82	152.61	137.79				
	MW-37	9/2/2015	15.14	15.14	152.61	137.47				
	MW-37	3/23/2016	Dry							Dry
	MW-37	10/10/2016	15.10	15.10	152.61	137.51				
	MW-37	3/21/2017	Dry							Dry
	MW-37	3/20/2018	15.07	15.07	152.61	137.54				
MW-38	MW-38	3/19/2013	10.44	10.44	146.91	136.47				
	MW-38	4/5/2013	10.36	10.36	146.91	136.55				
	MW-38	8/1/2013	10.23	10.23	146.91	136.68				
	MW-38	9/10/2013	11.77	11.77	146.91	135.14				
	MW-38	3/24/2014	9.45	9.45	146.91	137.46				
	MW-38	8/21/2014	10.28	10.28	146.91	136.63				
	MW-38	3/31/2015	9.33	9.33	146.91	137.58				
	MW-38	9/2/2015	10.30	10.30	146.91	136.61				
	MW-38	3/23/2016	9.50	9.50	146.91	137.41				
	MW-38	10/10/2016	10.95	10.95	146.91	135.96				
	MW-38	3/21/2017	11.50	11.50	146.91	135.41				
	MW-38	8/16/2017	10.20	10.20	146.91	136.71				
	MW-38	3/20/2018	10.85	10.85	146.91	136.06				
MW-39	MW-39	3/24/2014	14.4	14.40	146.02	131.62				
	MW-39	8/21/2014	Dry							Dry
	MW-39	8/16/2017	14.79	14.79	146.02	131.23				
	MW-39	3/31/2015	13.84	13.84	146.02	132.18				
	MW-39	9/2/2015	15.45	15.45	146.02	130.57				
	MW-39	3/23/2016	14.84	14.84	146.02	131.18				
	MW-39	10/10/2016	15.45	15.45	146.02	130.57				
	MW-39	3/20/2018	15.40	15.40	146.02	130.62				
MW-39R	MW-39R	3/19/2013	16.71	16.71	146.01	129.30				
	MW-39R	4/5/2013	16.69	16.69	146.01	129.32				
	MW-39R	8/1/2013	16.28	16.28	146.01	129.73				
	MW-39R	9/10/2013	16.91	16.91	146.01	129.10				
	MW-39R	3/24/2014	15.92	15.92	146.01	130.09				
	MW-39R	8/21/2014	16.28	16.28	146.01	129.73				
	MW-39R	3/31/2015	15.94	15.94	146.01	130.07				
	MW-39R	9/2/2015	16.35	16.35	146.01	129.66				
	MW-39R	3/23/2016	15.71	15.71	146.01	130.30				
	MW-39R	10/10/2016	17.04	17.04	146.01	128.97				
	MW-39R	3/21/2017	17.14	17.14	146.01	128.87				
	MW-39R	8/16/2017	16.10	16.10	146.01	129.91				
	MW-39R	3/20/2018	16.80	16.80	146.01	129.21				

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MW-40	MW-40	3/19/2013	23.1	23.10	145.18	122.08				
	MW-40	4/5/2013	23.03	23.03	145.18	122.15				
	MW-40	8/1/2013	22.88	22.88	145.18	122.30				
	MW-40	9/10/2013	23.17	23.17	145.18	122.01				
	MW-40	3/24/2014	22.45	22.45	145.18	122.73				
	MW-40	8/21/2014	21.54	21.54	145.18	123.64				
	MW-40	9/10/2014	21.76	21.76	145.18	123.42				
	MW-40	3/31/2015	21.45	21.45	145.18	123.73				
	MW-40	4/14/2015	21.91	21.91	145.18	123.27				
	MW-40	9/2/2015	21.60	21.60	145.18	123.58				
	MW-40	10/1/2015	21.90	21.90	145.18	123.28				
	MW-40	3/23/2016	21.72	21.72	145.18	123.46				
	MW-40	4/12/2016	21.84	21.84	145.18	123.34				
	MW-40	10/10/2016	22.48	22.48	145.18	122.70				
	MW-40	3/21/2017	23.53	23.53	145.18	121.65				
	MW-40	4/26/2017	23.50	23.50	145.18	121.68				
	MW-40	8/16/2017	22.96	22.96	145.18	122.22				
	MW-40	8/23/2017	22.81	22.81	145.18	122.37				
	MW-40	3/20/2018	23.08	23.08	145.18	122.10				
	MW-40	3/28/2018	23.11	23.11	145.18	122.07				
MW-41A	MW-41A	3/19/2013	19.96	19.96	136.96	117.00				
	MW-41A	4/5/2013	19.91	19.91	136.96	117.05				
	MW-41A	8/1/2013	19.41	19.41	136.96	117.55				
	MW-41A	9/10/2013	19.68	19.68	136.96	117.28				
	MW-41A	3/24/2014	19.3	19.30	136.96	117.66				
	MW-41A	8/21/2014	18.26	18.26	136.96	118.70				
	MW-41A	3/31/2015	18.32	18.32	136.96	118.64				
	MW-41A	4/14/2015	18.40	18.40	136.96	118.56				
	MW-41A	9/2/2015	18.26	18.26	136.96	118.70				
	MW-41A	3/23/2016	18.70	18.70	136.96	118.26				
	MW-41A	10/10/2016	19.40	19.40	136.96	117.56				
	MW-41A	3/21/2017	20.45	20.45	136.96	116.51				
	MW-41A	4/26/2017	20.34	20.34	136.96	116.62				
	MW-41A	8/16/2017	NG	NG	NG	NG				Not accessible
	MW-41A	3/20/2018	20.15	20.15	136.96	116.81				
	MW-41A	3/28/2018	20.10	20.10	136.96	116.86				
MW-41B	MW-41B	3/19/2013	20.25	20.25	136.82	116.57				
	MW-41B	4/5/2013	20.21	20.21	136.82	116.61				
	MW-41B	8/1/2013	19.8	19.80	136.82	117.02				
	MW-41B	9/10/2013	20.06	20.06	136.82	116.76				
	MW-41B	3/24/2014	19.67	19.67	136.82	117.15				
	MW-41B	8/21/2014	18.73	18.73	136.82	118.09				
	MW-41B	3/31/2015	18.80	18.80	136.82	118.02				
	MW-41B	4/14/2015	18.88	18.88	136.82	117.94				
	MW-41B	9/2/2015	18.75	18.75	136.82	118.07				
	MW-41B	3/23/2016	19.20	19.20	136.82	117.62				
	MW-41B	10/10/2016	19.72	19.72	136.82	117.10				
	MW-41B	3/21/2017	20.69	20.69	136.82	116.13				
	MW-41B	4/26/2017	20.56	20.56	136.82	116.26				
	MW-41B	8/16/2017	19.85	19.85	136.82	116.97				
	MW-41B	3/20/2018	20.54	20.54	136.82	116.28				
	MW-41B	3/28/2018	30.39	30.39	136.82	106.43				
MW-42	MW-42	3/19/2013	7.95	7.95	140.03	132.08				
	MW-42	4/2/2013	8.1	8.10	140.03	131.93				
	MW-42	8/1/2013	8.21	8.21	140.03	131.82				
	MW-42	3/24/2014	7.95	7.95	140.03	132.08				
	MW-42	8/21/2014	7.84	7.84	140.03	132.19				
	MW-42	3/31/2015	6.69	6.69	140.03	133.34				
	MW-42	4/14/2015	6.94	6.94	140.03	133.09				
	MW-42	9/2/2015	7.74	7.74	140.03	132.29				
	MW-42	3/23/2016	7.55	7.55	140.03	132.48				

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Well No.	Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Corrected Depth to Water (Feet BTOC)	PVC Casing Elevation (Feet MSL)	Water Table Elevation (Feet MSL)	NAPL Measurement (Feet)	NAPL Thickness (Feet)	NAPL Elevation (Feet MSL)	Comments
MW-42 (cont.)	MW-42	10/10/2016	8.34	8.34	140.03	131.69				
	MW-42	3/21/2017	8.70	8.70	140.03	131.33				
	MW-42	4/26/2017	8.54	8.54	140.03	131.49				
	MW-42	8/16/2017	7.14	7.14	140.03	132.89				
	MW-42	3/20/2018	8.45	8.45	140.03	131.58				
	MW-42	3/27/2018	8.47	8.47	140.03	131.56				
MW-43A	MW-43A	3/19/2013	3.28	3.28	133.98	130.70				
	MW-43A	4/2/2013	3.61	3.61	133.98	130.37				
	MW-43A	8/1/2013	4.24	4.24	133.98	129.74				
	MW-43A	9/9/2013	5	5.00	133.98	128.98				
	MW-43A	3/24/2014	2.91	2.91	133.98	131.07				
	MW-43A	8/21/2014	4.29	4.29	133.98	129.69				
	MW-43A	3/31/2015	2.35	2.35	133.98	131.63				
	MW-43A	4/14/2015	2.80	2.80	133.98	131.18				
	MW-43A	9/2/2015	4.50	4.50	133.98	129.48				
	MW-43A	3/23/2016	3.28	3.28	133.98	130.70				
	MW-43A	10/10/2016	4.37	4.37	133.98	129.61				
	MW-43A	3/21/2017	3.87	3.87	133.98	130.11				
	MW-43A	4/26/2017	3.59	3.59	133.98	130.39				
	MW-43A	8/16/2017	2.14	2.14	133.98	131.84				
	MW-43A	3/20/2018	3.91	3.91	133.98	130.07				
	MW-43A	3/27/2018	3.50	3.50	133.98	130.48				
MW-43B	MW-43B	3/19/2013	9.97	9.97	134.09	124.12				
	MW-43B	4/2/2013	10.01	10.01	134.09	124.08				
	MW-43B	8/1/2013	9.99	9.99	134.09	124.10				
	MW-43B	9/9/2013	10.52	10.52	134.09	123.57				
	MW-43B	3/24/2014	9.34	9.34	134.09	124.75				
	MW-43B	8/21/2014	9.20	9.20	134.09	124.89				
	MW-43B	9/8/2014	9.53	9.53	134.09	124.56				
	MW-43B	3/31/2015	8.40	8.40	134.09	125.69				
	MW-43B	4/14/2015	8.55	8.55	134.09	125.54				
	MW-43B	9/2/2015	9.20	9.20	134.09	124.89				
	MW-43B	10/1/2015	9.34	9.34	134.09	124.75				
	MW-43B	3/23/2016	8.75	8.75	134.09	125.34				
	MW-43B	4/11/2016	8.85	8.85	134.09	125.24				
	MW-43B	10/10/2016	9.77	9.77	134.09	124.32				
	MW-43B	3/21/2017	10.18	10.18	134.09	123.91				
	MW-43B	4/26/2017	9.77	9.77	134.09	124.32				
	MW-43B	8/16/2017	7.43	7.43	134.09	126.66				
	MW-43B	3/20/2018	8.39	8.39	134.09	125.70				
	MW-43B	3/27/2018	9.65	9.65	134.09	124.44				
MW-44A	MW-44A	3/19/2013	9.85	9.85	130.22	120.37				
	MW-44A	4/2/2013	9.88	9.88	130.22	120.34				
	MW-44A	8/1/2013	9.91	9.91	130.22	120.31				
	MW-44A	9/9/2013	10.26	10.26	130.22	119.96				
	MW-44A	3/24/2014	9.42	9.42	130.22	120.80				
	MW-44A	8/21/2014	9.27	9.27	130.22	120.95				
	MW-44A	9/8/2014	9.47	9.47	130.22	120.75				
	MW-44A	3/31/2015	8.90	8.90	130.22	121.32				
	MW-44A	4/14/2015	8.96	8.96	130.22	121.26				
	MW-44A	9/2/2015	9.34	9.34	130.22	120.88				
	MW-44A	3/23/2016	9.21	9.21	130.22	121.01				
	MW-44A	4/11/2016	9.31	9.31	130.22	120.91				
	MW-44A	10/10/2016	10.05	10.05	130.22	120.17				
	MW-44A	3/21/2017	10.36	10.36	130.22	119.86				
	MW-44A	4/26/2017	10.26	10.26	130.22	119.96				
	MW-44A	8/16/2017	9.73	9.73	130.22	120.49				
	MW-44A	8/22/2017	9.58	9.58	130.22	120.64				
	MW-44A	3/20/2018	10.00	10.00	130.22	120.22				
	MW-44A	3/27/2018	9.93	9.93	130.22	120.29				

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MW-44B	MW-44B	3/19/2013	12.6	12.60	130.24	117.64				
	MW-44B	4/2/2013	12.53	12.53	130.24	117.71				
	MW-44B	8/1/2013	13.78	13.78	130.24	116.46				
	MW-44B	9/9/2013	12.77	12.77	130.24	117.47				
	MW-44B	3/24/2014	11.7	11.70	130.24	118.54				
	MW-44B	8/21/2014	11.86	11.86	130.24	118.38				
	MW-44B	9/8/2014	11.99	11.99	130.24	118.25				
	MW-44B	3/31/2015	12.00	12.00	130.24	118.24				
	MW-44B	4/14/2015	11.75	11.75	130.24	118.49				
	MW-44B	9/2/2015	11.91	11.91	130.24	118.33				
	MW-44B	10/1/2015	9.61	9.61	130.24	120.63				
	MW-44B	3/23/2016	12.59	12.59	130.24	117.65				
	MW-44B	4/11/2016	12.02	12.02	130.24	118.22				
	MW-44B	10/10/2016	12.37	12.37	130.24	117.87				
	MW-44B	3/21/2017	12.81	12.81	130.24	117.43				
	MW-44B	4/26/2017	12.75	12.75	130.24	117.49				
	MW-44B	8/16/2017	12.59	12.59	130.24	117.65				
	MW-44B	8/22/2017	12.25	12.25	130.24	117.99				
	MW-44B	3/20/2018	12.80	12.80	130.24	117.44				
	MW-44B	3/27/2018	12.51	12.51	130.24	117.73				
MW-45	MW-45	3/19/2013	43.07	43.07	173.89	130.82				
	MW-45	3/29/2013	43.15	43.15	173.89	130.74				
	MW-45	8/1/2013	42.8	42.80	173.89	131.09				
	MW-45	9/12/2013	42.48	42.48	173.89	131.41				
	MW-45	3/24/2014	43.02	43.02	173.89	130.87				
	MW-45	8/21/2014	41.39	41.39	173.89	132.50				
	MW-45	9/10/2014	42.64	42.64	173.89	131.25				
	MW-45	3/31/2015	41.27	41.27	173.89	132.62				
	MW-45	4/16/2015	42.21	42.21	173.89	131.68				
	MW-45	9/2/2015	42.00	42.00	173.89	131.89				
	MW-45	9/30/2015	34.90	34.90	173.89	138.99				
	MW-45	3/23/2016	42.78	42.78	173.89	131.11				
	MW-45	4/13/2016	43.00	43.00	173.89	130.89				
	MW-45	10/10/2016	42.33	42.33	173.89	131.56				
	MW-45	3/21/2017	43.35	43.35	173.89	130.54				
	MW-45	4/24/2017	43.83	43.83	173.89	130.06				
	MW-45	8/16/2017	43.10	43.10	173.89	130.79				
	MW-45	8/24/2017	42.93	42.93	173.89	130.96				
	MW-45	3/20/2018	41.81	41.81	173.89	132.08				
	MW-45	3/29/2018	42.67	42.67	173.89	131.22				
MW-46	MW-46	3/19/2013	47.31	47.31	174.12	126.81				
	MW-46	3/29/2013	47.31	47.31	174.12	126.81				
	MW-46	8/1/2013	47.05	47.05	174.12	127.07				
	MW-46	9/6/2013	47.26	47.26	174.12	126.86				
	MW-46	3/24/2014	46.91	46.91	174.12	127.21				
	MW-46	8/21/2014	46.07	46.07	174.12	128.05				
	MW-46	3/31/2015	46.15	46.15	174.12	127.97				
	MW-46	4/13/2015	46.11	46.11	174.12	128.01				
	MW-46	9/2/2015	46.27	46.27	174.12	127.85				
	MW-46	3/23/2016	46.86	46.86	174.12	127.26				
	MW-46	10/10/2016	47.15	47.15	174.12	126.97				
	MW-46	3/21/2017	47.59	47.59	174.12	126.53				
	MW-46	4/27/2017	NG	NG	NG	NG				
	MW-46	8/16/2017	47.19	47.19	174.12	126.93				
	MW-46	1/12/2018	46.99	46.99	174.12	127.13				Pilot Rebound Evaluation
	MW-46	1/22/2018	47.06	47.06	174.12	127.06				Pilot Rebound Evaluation
	MW-46	2/7/2018	47.15	47.15	174.12	126.97				Pilot Rebound Evaluation
	MW-46	3/20/2018	47.02	47.02	174.12	127.10				
	MW-46	3/29/2018	47.26	47.26	174.12	126.86				
MW-47	MW-47	3/19/2013	46.44	46.44	171.50	125.06				
	MW-47	4/3/2013	46.42	46.42	171.5	125.08				
	MW-47	8/1/2013	46.09	46.09	171.5	125.41				
	MW-47	9/11/2013	46.2	46.20	171.5	125.30				
	MW-47	3/24/2014	46.03	46.03	171.5	125.47				

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MW-47 (cont.)	MW-47	8/21/2014	45.08	45.08	171.5	126.42				
	MW-47	9/9/2014	45.38	45.38	171.5	126.12				
	MW-47	3/31/2015	45.24	45.24	171.50	126.26				
	MW-47	4/15/2015	45.27	45.27	171.50	126.23				
	MW-47	9/2/2015	45.19	45.19	171.50	126.31				
	MW-47	10/2/2015	41.33	41.33	171.50	130.17				
	MW-47	3/23/2016	45.83	45.83	171.50	125.67				
	MW-47	4/13/2016	45.91	45.91	171.50	125.59				
	MW-47	10/10/2016	46.01	46.01	171.50	125.49				
	MW-47	3/21/2017	46.43	46.43	171.50	125.07				
	MW-47	4/24/2017	46.63	46.63	171.50	124.87				
	MW-47	8/16/2017	46.18	46.18	171.50	125.32				
	MW-47	8/24/2017	46.18	46.18	171.50	125.32				
	MW-47	3/20/2018	46.03	46.03	171.5	125.47				
	MW-47	3/29/2018	46.15	46.15	171.5	125.35				
MW-48	MW-48	3/19/2013	42.33	42.33	165.96	123.63				
	MW-48	4/3/2013	42.33	42.33	165.96	123.63				
	MW-48	8/1/2013	42.04	42.04	165.96	123.92				
	MW-48	9/11/2013	42.1	42.10	165.96	123.86				
	MW-48	3/24/2014	41.95	41.95	165.96	124.01				
	MW-48	8/21/2014	40.98	40.98	165.96	124.98				
	MW-48	3/31/2015	41.00	41.00	165.96	124.96				
	MW-48	4/15/2015	41.18	41.18	165.96	124.78				
	MW-48	9/2/2015	41.20	41.20	165.96	124.76				
	MW-48	3/23/2016	41.71	41.71	165.96	124.25				
	MW-48	10/10/2016	41.81	41.81	165.96	124.15				
	MW-48	3/21/2017	42.35	42.35	165.96	123.61				
	MW-48	4/27/2017	42.50	42.50	165.96	123.46				
	MW-48	8/16/2017	42.08	42.08	165.96	123.88				
	MW-48	3/20/2018	41.95	41.95	165.96	124.01				
	MW-48	3/28/2018	42.10	42.10	165.96	123.86				
MW-49	MW-49	3/19/2013	45.41	45.41	159.15	113.74				
	MW-49	4/10/2013	45.46	45.46	159.15	113.69				
	MW-49	8/1/2013	45.23	45.23	159.15	113.92				
	MW-49	9/6/2013	45.56	45.56	159.15	113.59				
	MW-49	3/24/2014	44.7	44.70	159.15	114.45				
	MW-49	8/21/2014	44.11	44.11	159.15	115.04				
	MW-49	9/8/2014	44.32	44.32	159.15	114.83				
	MW-49	3/31/2015	43.26	43.26	159.15	115.89				
	MW-49	4/13/2015	45.39	45.39	159.15	113.76				
	MW-49	9/2/2015	44.17	44.17	159.15	114.98				
	MW-49	9/30/2015	45.44	45.44	159.15	113.71				
	MW-49	3/23/2016	44.33	44.33	159.15	114.82				
	MW-49	4/13/2016	44.49	44.49	159.15	114.66				
	MW-49	10/10/2016	44.79	44.79	159.15	114.36				
	MW-49	3/21/2017	NG	NG	NG	NG				Inaccessible
	MW-49	4/27/2017	45.51	45.51	159.15	113.64				
	MW-49	8/16/2017	44.76	44.76	159.15	114.39				
	MW-49	8/24/2017	44.64	44.64	159.15	114.51				
	MW-49	3/20/2018	45.20	45.20	159.15	113.95				
	MW-49	3/28/2018	45.19	45.19	159.15	113.96				
MW-50	MW-50	3/19/2013	38.13	38.13	156.12	117.99				
	MW-50	4/3/2013	38.19	38.19	156.12	117.93				
	MW-50	8/1/2013	38.05	38.05	156.12	118.07				
	MW-50	9/11/2013	38.15	38.15	156.12	117.97				
	MW-50	3/24/2014	37.55	37.55	156.12	118.57				
	MW-50	8/21/2014	36.68	36.68	156.12	119.44				
	MW-50	9/9/2014	36.77	36.77	156.12	119.35				
	MW-50	3/31/2015	36.54	36.54	156.12	119.58				
	MW-50	4/15/2015	36.52	36.52	156.12	119.60				
	MW-50	9/2/2015	36.45	36.45	156.12	119.67				

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MW-50 (cont.)	MW-50	10/2/2015	36.54	36.54	156.12	119.58				
	MW-50	3/23/2016	36.96	36.96	156.12	119.16				
	MW-50	4/13/2016	37.04	37.04	156.12	119.08				
	MW-50	10/10/2016	37.18	37.18	156.12	118.94				
	MW-50	3/21/2017	37.73	37.73	156.12	118.39				
	MW-50	4/27/2017	37.86	37.86	156.12	118.26				
	MW-50	8/16/2017	37.70	37.70	156.12	118.42				
	MW-50	8/24/2017	37.65	37.65	156.12	118.47				
	MW-50	3/20/2018	37.64	37.64	156.12	118.48				
	MW-50	3/28/2018	37.65	37.65	156.12	118.47				
MW-51	MW-51	3/19/2013	50.06	50.06	158.12	108.06				
	MW-51	4/3/2013	50.27	50.27	158.12	107.85				
	MW-51	8/1/2013	49.98	49.98	158.12	108.14				
	MW-51	9/11/2013	50.15	50.15	158.12	107.97				
	MW-51	3/24/2014	49.71	49.71	158.12	108.41				
	MW-51	8/21/2014	49.00	49.00	158.12	109.12				
	MW-51	9/9/2014	49.11	49.11	158.12	109.01				
	MW-51	3/31/2015	48.85	48.85	158.12	109.27				
	MW-51	4/15/2015	48.91	48.91	158.12	109.21				
	MW-51	9/2/2015	48.88	48.88	158.12	109.24				
	MW-51	10/2/2015	49.05	49.05	158.12	109.07				
	MW-51	3/23/2016	49.19	49.19	158.12	108.93				
	MW-51	4/13/2016	49.40	49.40	158.12	108.72				
	MW-51	10/10/2016	49.72	49.72	158.12	108.40				
	MW-51	3/21/2017	50.28	50.28	158.12	107.84				
	MW-51	4/27/2017	50.28	50.28	158.12	107.84				
	MW-51	8/16/2017	49.98	49.98	158.12	108.14				
	MW-51	8/24/2017	49.87	49.87	158.12	108.25				
	MW-51	3/20/2018	50.02	50.02	158.12	108.10				
	MW-51	3/28/2018	49.95	49.95	158.12	108.17				
MW-52	MW-52	3/19/2013	4.11	4.11	127.58	123.47				
	MW-52	8/1/2013	5.27	5.27	127.58	122.31				
	MW-52	3/24/2014	3.8	3.80	127.58	123.78				
	MW-52	8/21/2014	4.60	4.60	127.58	122.98				
	MW-52	3/31/2015	3.56	3.56	127.58	124.02				
	MW-52	9/2/2015	4.96	4.96	127.58	122.62				
	MW-52	3/23/2016	3.88	3.88	127.58	123.70				
	MW-52	10/10/2016	4.61	4.61	127.58	122.97				
	MW-52	3/21/2017	3.53	3.53	127.58	124.05				
	MW-52	8/16/2017	3.16	3.16	127.58	124.42				
	MW-52	3/20/2018	4.28	4.28	127.59	123.31				
MW-53	MW-53	3/19/2013	6.17	6.17	116.18	110.01				
	MW-53	3/28/2013	6.32	6.32	116.18	109.86				
	MW-53	8/1/2013	6.39	6.39	116.18	109.79				
	MW-53	9/9/2013	6.4	6.40	116.18	109.78				
	MW-53	3/24/2014	6.33	6.33	116.18	109.85				
	MW-53	8/21/2014	5.77	5.77	116.18	110.41				
	MW-53	9/8/2014	5.95	5.95	116.18	110.23				
	MW-53	3/31/2015	5.68	5.68	116.18	110.50				
	MW-53	4/13/2015	5.67	5.67	116.18	110.51				
	MW-53	9/2/2015	5.97	5.97	116.18	110.21				
	MW-53	9/30/2015	5.82	5.82	116.18	110.36				
	MW-53	3/23/2016	5.63	5.63	116.18	110.55				
	MW-53	4/11/2016	5.50	5.50	116.18	110.68				
	MW-53	10/10/2016	6.16	6.16	116.18	110.02				
	MW-53	3/21/2017	6.36	6.36	116.18	109.82				
	MW-53	4/25/2017	6.16	6.16	116.18	110.02				
	MW-53	8/16/2017	5.91	5.91	116.18	110.27				
	MW-53	8/22/2017	5.86	5.86	116.18	110.32				
	MW-53	3/20/2018	6.48	6.48	116.18	109.70				
	MW-53	3/26/2018	6.30	6.30	116.18	109.88				

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MW-54	MW-54	3/19/2013	4.86	4.86	121.76	116.90				
	MW-54	3/28/2013	5.08	5.08	121.76	116.68				
	MW-54	8/1/2013	5.54	5.54	121.76	116.22				
	MW-54	9/9/2013	6.18	6.18	121.76	115.58				
	MW-54	3/24/2014	5.04	5.04	121.76	116.72				
	MW-54	8/21/2014	5.50	5.50	121.76	116.26				
	MW-54	3/31/2015	4.64	4.64	121.76	117.12				
	MW-54	4/13/2015	4.95	4.95	121.76	116.81				
	MW-54	9/2/2015	5.73	5.73	121.76	116.03				
	MW-54	3/23/2016	4.86	4.86	121.76	116.90				
	MW-54	10/10/2016	5.70	5.70	121.76	116.06				
	MW-54	3/21/2017	4.77	4.77	121.76	116.99				
	MW-54	4/26/2017	4.88	4.88	121.76	116.88				
	MW-54	8/16/2017	2.70	2.70	121.76	119.06				
	MW-54	3/20/2018	5.24	5.24	121.76	116.52				
	MW-54	3/26/2018	5.05	5.05	121.76	116.71				
MW-55	MW-55	3/19/2013	1.97	1.97	131.49	129.52				
	MW-55	4/2/2013	1.84	1.84	131.49	129.65				
	MW-55	8/1/2013	1.74	1.74	131.49	129.75				
	MW-55	9/9/2013	2.85	2.85	131.49	128.64				
	MW-55	3/24/2014	1.95	1.95	131.49	129.54				
	MW-55	8/22/2014	1.97	1.97	131.49	129.52				
	MW-55	3/31/2015	1.30	1.30	131.49	130.19				
	MW-55	4/13/2015	1.74	1.74	131.49	129.75				
	MW-55	3/23/2016	1.55	1.55	131.49	129.94				
	MW-55	10/10/2016	2.43	2.43	131.49	129.06				
	MW-55	3/21/2017	1.45	1.45	131.49	130.04				
	MW-55	4/26/2017	1.39	1.39	131.49	130.10				
	MW-55	8/16/2017	1.18	1.18	131.49	130.31				
	MW-55	3/20/2018	2.04	2.04	131.49	129.45				
	MW-55	3/26/2018	1.59	1.59	131.49	129.90				
MW-58	MW-58	3/19/2013	6.97	6.97	134.97	128.00				
	MW-58	4/2/2013	7.13	7.13	134.97	127.84				
	MW-58	8/1/2013	7.6	7.60	134.97	127.37				
	MW-58	9/9/2013	7.91	7.91	134.97	127.06				
	MW-58	3/24/2014	7.19	7.19	134.97	127.78				
	MW-58	8/21/2014	6.46	6.46	134.97	128.51				
	MW-58	9/8/2014	6.93	6.93	134.97	128.04				
	MW-58	3/31/2015	6.57	6.57	134.97	128.40				
	MW-58	4/14/2015	6.51	6.51	134.97	128.46				
	MW-58	9/2/2015	7.56	7.56	134.97	127.41				
	MW-58	10/1/2015	12.00	12.00	134.97	122.97				
	MW-58	3/23/2016	7.57	7.57	134.97	127.40				
	MW-58	4/11/2016	6.60	6.60	134.97	128.37				
	MW-58	10/10/2016	7.33	7.33	134.97	127.64				
	MW-58	3/21/2017	7.85	7.85	134.97	127.12				
	MW-58	4/26/2017	7.51	7.51	134.97	127.46				
	MW-58	8/16/2017	6.89	6.89	134.97	128.08				
	MW-58	8/22/2017	7.26	7.26	134.97	127.71				
	MW-58	3/20/2018	3.51	3.51	134.97	131.46				
	MW-58	3/27/2018	6.56	6.56	134.97	128.41				
MW-59	MW-59	3/19/2013	10.78	10.78	131.10	120.32				
	MW-59	4/2/2013	10.19	10.19	131.10	120.91				
	MW-59	8/1/2013	10.91	10.91	131.10	120.19				
	MW-59	9/9/2013	11.25	11.25	131.10	119.85				
	MW-59	3/24/2014	10.35	10.35	131.10	120.75				
	MW-59	8/21/2014	10.31	10.31	131.10	120.79				
	MW-59	9/8/2014	10.61	10.61	131.10	120.49				
	MW-59	3/31/2015	9.78	9.78	131.10	121.32				
	MW-59	4/14/2015	9.93	9.93	131.10	121.17				
	MW-59	9/2/2015	10.11	10.11	131.10	120.99				

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MW-59 (cont.)	MW-59	10/1/2015	6.82	6.82	131.10	124.28				
	MW-59	3/23/2016	9.59	9.59	131.10	121.51				
	MW-59	4/11/2016	9.59	9.59	131.10	121.51				
	MW-59	10/10/2016	10.47	10.47	131.10	120.63				
	MW-59	3/21/2017	10.44	10.44	131.10	120.66				
	MW-59	4/25/2017	10.24	10.24	131.10	120.86				
	MW-59	8/16/2017	9.84	9.84	131.10	121.26				
	MW-59	8/22/2017	9.82	9.82	131.10	121.28				
	MW-59	3/20/2018	10.15	10.15	131.10	120.95				
	MW-59	3/27/2018	10.17	10.17	131.10	120.93				
MW-60	MW-60	3/19/2013	13.47	13.47	131.08	117.61				
	MW-60	4/2/2013	12.12	12.12	131.08	118.96				
	MW-60	8/1/2013	14.69	14.69	131.08	116.39				
	MW-60	9/9/2013	13.15	13.15	131.08	117.93				
	MW-60	3/24/2014	13.5	13.50	131.08	117.58				
	MW-60	8/21/2014	14.06	14.06	131.08	117.02				
	MW-60	3/31/2015	11.68	11.68	131.08	119.40				
	MW-60	4/14/2015	10.71	10.71	131.08	120.37				
	MW-60	9/2/2015	13.40	13.40	131.08	117.68				
	MW-60	3/23/2016	10.93	10.93	131.08	120.15				
	MW-60	10/10/2016	9.68	9.68	131.08	121.40				
	MW-60	3/21/2017	8.20	8.20	131.08	122.88				
	MW-60	4/27/2017	NG	NG	NG	NG				Hydrasleeve installed
	MW-60	8/16/2017	12.77	12.77	131.08	118.31				
	MW-60	3/20/2018	8.86	8.86	131.08	122.22				
	MW-60	3/27/2018	8.54	8.54	131.08	122.54				
MW-61A	MW-61A	3/19/2013	21.28	21.28	158.49	137.21				
	MW-61A	4/9/2013	21.24	21.24	158.49	137.25				
	MW-61A	8/1/2013	20.77	20.77	158.49	137.72				
	MW-61A	9/6/2013	21.6	21.60	158.49	136.89				
	MW-61A	3/24/2014	20.42	20.42	158.49	138.07				
	MW-61A	8/21/2014	20.21	20.21	158.49	138.28				
	MW-61A	9/10/2014	20.59	20.59	158.49	137.90				
	MW-61A	3/31/2015	19.90	19.90	157.49	137.59				
	MW-61A	4/13/2015	20.31	20.31	157.49	137.18				
	MW-61A	9/2/2015	20.27	20.27	157.49	137.22				
	MW-61A	9/30/2015	20.50	20.50	157.49	136.99				
	MW-61A	3/23/2016	20.13	20.13	157.49	137.36				
	MW-61A	4/12/2016	20.61	20.61	157.49	136.88				
	MW-61A	10/10/2016	21.25	21.25	157.49	136.24				
	MW-61A	3/21/2017	22.04	22.04	157.49	135.45				
	MW-61A	4/27/2017	NG	NG	NG	NG				Hydrasleeve installed
	MW-61A	8/16/2017	20.65	20.65	157.49	136.84				
	MW-61A	3/20/2018	22.26	22.26	157.49	135.23				
	MW-61A	3/26/2018	22.64	22.64	157.49	134.85				
MW-61B	MW-61B	3/19/2013	23.14	23.14	157.54	134.40				
	MW-61B	4/9/2013	23.15	23.15	157.54	134.39				
	MW-61B	8/1/2013	21.9	21.90	157.54	135.64				
	MW-61B	9/6/2013	23.5	23.50	157.54	134.04				
	MW-61B	3/24/2014	23.05	23.05	157.54	134.49				
	MW-61B	8/21/2014	21.45	21.45	157.54	136.09				
	MW-61B	9/10/2014	23.14	23.14	157.54	134.40				
	MW-61B	3/31/2015	21.27	21.27	157.54	136.27				
	MW-61B	4/15/2015	22.54	22.54	157.54	135.00				
	MW-61B	9/2/2015	23.00	23.00	157.54	134.54				
	MW-61B	10/1/2015	23.05	23.05	157.54	134.49				
	MW-61B	3/23/2016	23.26	23.26	157.54	134.28				
	MW-61B	4/12/2016	23.43	23.43	157.54	134.11				
	MW-61B	10/10/2016	22.42	22.42	157.54	135.12				
	MW-61B	3/21/2017	23.72	23.72	157.54	133.82				
	MW-61B	4/27/2017	23.76	23.76	157.54	133.78				

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MW-61B (cont.)	MW-61B	8/16/2017	23.28	23.28	157.54	134.26				
	MW-61B	8/23/2017	22.09	22.09	157.54	135.45				
	MW-61B	3/20/2018	22.91	22.91	157.54	134.63				
	MW-61B	3/28/2018	23.11	23.11	157.54	134.43				
MW-62A	MW-62A	3/19/2013	11.71	11.71	148.58	136.87				
	MW-62A	4/5/2013	11.57	11.57	148.58	137.01				
	MW-62A	8/1/2013	11.38	11.38	148.58	137.20				
	MW-62A	9/10/2013	11.9	11.90	148.58	136.68				
	MW-62A	3/24/2014	10.5	10.50	148.58	138.08				
	MW-62A	8/21/2014	11.38	11.38	148.58	137.20				
	MW-62A	3/31/2015	9.90	9.90	148.58	138.68				
	MW-62A	4/13/2015	10.38	10.38	148.58	138.20				
	MW-62A	9/2/2015	11.36	11.36	148.58	137.22				
	MW-62A	3/23/2016	10.61	10.61	148.58	137.97				
	MW-62A	10/10/2016	12.21	12.21	148.58	136.37				
	MW-62A	3/21/2017	Dry							Dry
	MW-62A	4/25/2017	13.33	13.33	148.58	135.25				
	MW-62A	8/16/2017	11.59	11.59	148.58	136.99				
	MW-62A	3/20/2018	12.08	12.08	148.58	136.50				
	MW-62A	3/28/2018	12.03	12.03	148.58	136.55				
MW-62B	MW-62B	3/19/2013	13.71	13.71	148.50	134.79				
	MW-62B	4/5/2013	13.75	13.75	148.50	134.75				
	MW-62B	8/1/2013	13.72	13.72	148.50	134.78				
	MW-62B	9/10/2013	14.45	14.45	148.50	134.05				
	MW-62B	3/24/2014	13.08	13.08	148.50	135.42				
	MW-62B	8/21/2014	12.82	12.82	148.50	135.68				
	MW-62B	9/10/2014	13.85	13.85	148.50	134.65				
	MW-62B	3/31/2015	12.47	12.47	148.50	136.03				
	MW-62B	4/14/2015	12.56	12.56	148.50	135.94				
	MW-62B	9/2/2015	13.25	13.25	148.50	135.25				
	MW-62B	10/1/2015	13.65	13.65	148.50	134.85				
	MW-62B	3/23/2016	13.11	13.11	148.50	135.39				
	MW-62B	4/12/2016	13.35	13.35	148.50	135.15				
	MW-62B	10/10/2016	13.55	13.55	148.50	134.95				
	MW-62B	3/21/2017	14.45	14.45	148.50	134.05				
	MW-62B	4/25/2017	14.47	14.47	148.50	134.03				
	MW-62B	8/16/2017	13.08	13.08	148.50	135.42				
	MW-62B	8/23/2017	12.68	12.68	148.50	135.82				
	MW-62B	3/20/2018	14.13	14.13	148.50	134.37				
	MW-62B	3/28/2018	14.24	14.24	148.50	134.26				
PTW-B	PTW-B	3/19/2013	40.88	40.88	171.75	130.87				
	PTW-B	4/15/2013	NG	NG	NG	NG				Pumping
	PTW-B	7/15/2013	35.08	35.08	171.75	136.67				
	PTW-B	8/1/2013	42.18	42.18	171.75	129.57				
	PTW-B	8/15/2013	37.52	37.52	171.75	134.23				
	PTW-B	3/24/2014	43.68	43.68	171.75	128.07				
	PTW-B	8/21/2014	35.14	35.14	171.75	136.61				
	PTW-B	9/10/2014	NG	NG	NG	NG				Pumping
	PTW-B	3/31/2015	34.89	34.89	171.75	136.86				
	PTW-B	3/23/2016	NG	NG	NG	NG				Pumping
	PTW-B	4/13/2016	NG	NG	NG	NG				Pumping
	PTW-B	10/10/2016	35.77	35.77	171.75	135.98				
	PTW-B	3/21/2017	43.31	43.31	171.75	128.44				
	PTW-B	8/16/2017	42.76	42.76	171.75	128.99				
	PTW-B	1/12/2018	36.41	36.41	171.75	135.34				Pilot Rebound Evaluation
	PTW-B	1/22/2018	36.54	36.54	171.75	135.21				Pilot Rebound Evaluation
	PTW-B	2/7/2018	36.48	36.48	171.75	135.27				Pilot Rebound Evaluation
	PTW-B	3/20/2018	37.01	37.01	171.75	134.74				
RW-1	RW-1	3/19/2013	50.95	50.95	173.36	122.41				
	RW-1	4/15/2013	NG	NG	NG	NG				Pumping
	RW-1	7/15/2013	50.48	50.48	173.36	122.88				
	RW-1	8/1/2013	52.02	52.02	173.36	121.34				
	RW-1	3/24/2014	34.9	34.90	173.36	138.46				
	RW-1	8/22/2014	37.51	37.51	173.36	135.85				

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RW-1 (cont.)	RW-1	9/10/2014	NG	NG	NG	NG				Pumping
	RW-1	3/31/2015	36.95	36.95	173.36	136.41				
	RW-1	3/23/2016	NG	NG	NG	NG				Pumping
	RW-1	4/13/2016	NG	NG	NG	NG				Pumping
	RW-1	10/10/2016	38.48	38.48	173.36	134.88				
	RW-1	3/21/2017	52.10	52.10	173.36	121.26				
	RW-1	8/16/2017	53.20	53.20	173.36	120.16				
	RW-1	1/12/2018	37.70	37.70	173.36	135.66				
	RW-1	1/22/2018	37.90	37.90	173.36	135.46				
	RW-1	2/7/2018	37.94	37.94	173.36	135.42				
	RW-1	3/20/2018	48.29	48.29	173.36	125.07				
RW-2	RW-2	3/19/2013	50.51	50.51	172.21	121.70				
	RW-2	4/15/2013	NG	NG	NG	NG				Pumping
	RW-2	7/15/2013	48.82	48.82	172.21	123.39				
	RW-2	8/1/2013	52.7	52.70	172.21	119.51				
	RW-2	3/24/2014	45.51	45.51	172.21	126.70				
	RW-2	8/21/2014	35.69	35.69	172.21	136.52				
	RW-2	9/10/2014	NG	NG	NG	NG				Pumping
	RW-2	3/31/2015	34.96	34.96	172.21	137.25				
	RW-2	3/23/2016	NG	NG	NG	NG				Pumping
	RW-2	4/13/2016	NG	NG	NG	NG				Pumping
	RW-2	10/10/2016	36.85	36.85	172.21	135.36				
	RW-2	3/21/2017	49.76	49.76	172.21	122.45				
	RW-2	8/16/2017	54.80	54.80	172.21	117.41				
	RW-2	1/12/2018	36.09	36.09	172.21	136.12				Pilot Rebound Evaluation
	RW-2	1/22/2018	36.38	36.38	172.21	135.83				Pilot Rebound Evaluation
	RW-2	2/7/2018	36.36	36.36	172.21	135.85				Pilot Rebound Evaluation
	RW-2	3/20/2018	52.55	52.55	172.21	119.66				
RW-3	RW-3	3/19/2013	46.55	46.55	171.62	125.07				
	RW-3	4/15/2013	NG	NG	NG	NG				Pumping
	RW-3	7/15/2013	36.9	36.90	171.62	134.72				
	RW-3	8/1/2013	27.21	27.21	171.62	144.41				
	RW-3	3/24/2014	36.72	36.72	171.62	134.90				
	RW-3	8/22/2014	32.07	32.07	171.62	139.55				
	RW-3	9/10/2014	NG	NG	NG	NG				Not Gauged - Pumping
	RW-3	3/31/2015	32.05	32.05	171.62	139.57				
	RW-3	3/23/2016	NG	NG	NG	NG				Pumping
	RW-3	4/13/2016	NG	NG	NG	NG				Pumping
	RW-3	10/10/2016	32.82	32.82	171.62	138.80				
	RW-3	3/21/2017	35.75	35.75	171.62	135.87				
	RW-3	8/16/2017	34.38	34.38	171.62	137.24				
	RW-3	1/12/2018	32.31	32.31	171.62	139.31				Pilot Rebound Evaluation
	RW-3	1/22/2018	32.81	32.81	171.62	138.81				Pilot Rebound Evaluation
	RW-3	2/7/2018	NG	NG	NG	NG				
	RW-3	3/20/2018	NG	NG	NG	NG				
RW-4	RW-4	1/28/2013	42.16	42.16	171.62	129.46				
	RW-4	3/19/2013	51.71	51.71	171.62	119.91				
	RW-4	4/15/2013	NG	NG	NG	NG				Pumping
	RW-4	4/22/2013	40.21	40.21	171.62	131.41				
	RW-4	5/28/2013	40.29	40.29	171.62	131.33				
	RW-4	6/3/2013	42.2	42.20	171.62	129.42				
	RW-4	7/15/2013	44.68	44.68	171.62	126.94				
	RW-4	8/1/2013	47.65	47.65	171.62	123.97				
	RW-4	8/15/2013	49.6	49.60	171.62	122.02				
	RW-4	9/16/2013	41.05	41.05	171.62	130.57				
	RW-4	10/30/2013	36.4	36.40	171.62	135.22				
	RW-4	11/14/2013	50.35	50.35	171.62	121.27				
	RW-4	12/18/2013	44.9	44.90	171.62	126.72				
	RW-4	1/28/2014	40.05	40.05	171.62	131.57				
	RW-4	2/17/2014	41.09	41.09	171.62	130.53				
	RW-4	3/7/2014	49	49.00	171.62	122.62				
	RW-4	3/24/2014	50.8	50.80	171.62	120.82				
	RW-4	4/11/2014	NG	NG	NG	NG				Pumping
	RW-4	5/27/2014	NG	NG	NG	NG				Pumping
	RW-4	6/24/2014	41.00	41.00	171.62	130.62				
	RW-4	8/13/2014	40.61	40.61	171.62	131.01				
	RW-4	8/21/2014	35.92	35.92	171.62	135.70				
	RW-4	9/10/2014	NG	NG	NG	NG				Not Gauged - Pumping
	RW-4	10/7/2014	44.58	44.58	171.62	127.04				
	RW-4	11/6/2014	42.33	42.33	171.62	129.29				

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RW-4 (cont.)	RW-4	1/19/2015	41.75	41.75	171.62	129.87				
	RW-4	2/24/2015	36.32	36.32	171.62	135.30				
	RW-4	3/31/2015	36.11	36.11	171.62	135.51				
	RW-4	4/28/2015	NG	NG	NG	NG				Pumping
	RW-4	5/7/2015	41.35	41.35	171.62	130.27				
	RW-4	6/23/2015	36.23	36.23	171.62	135.39				
	RW-4	1/5/2016	NG	NG	NG	NG				Pumping
	RW-4	2/22/2016	NG	NG	NG	NG				Pumping
	RW-4	3/23/2016	NG	NG	NG	NG				Pumping
	RW-4	3/28/2016	NG	NG	NG	NG				Pumping
	RW-4	4/4/2016	NG	NG	NG	NG				Pumping
	RW-4	4/13/2016	NG	NG	NG	NG				Pumping
	RW-4	5/31/2016	49.70	49.70	171.62	121.92				
	RW-4	6/13/2016	42.62	42.62	171.62	129.00				
	RW-4	7/12/2016	36.91	36.91	171.62	134.71				
	RW-4	8/16/2016	36.45	36.45	171.62	135.17				
	RW-4	9/8/2016	48.67	48.67	171.62	122.95				
	RW-4	10/10/2016	37.30	37.30	171.62	134.32				
	RW-4	10/11/2016	37.30	37.30	171.62	134.32				
	RW-4	11/15/2016	NG	NG	NG	NG				Pumping
	RW-4	12/19/2016	NG	NG	NG	NG				Pumping
	RW-4	1/5/2017	NG	NG	NG	NG				Pumping
	RW-4	2/7/2017	37.17	37.17	171.62	134.45				
	RW-4	3/21/2017	50.25	50.25	171.62	121.37				
	RW-4	4/3/2017	41.34	41.34	171.62	130.28				
	RW-4	5/26/2017	43.21	43.21	171.62	128.41				
	RW-4	6/1/2017	50.30	50.30	171.62	121.32				
	RW-4	7/13/2017	49.53	49.53	171.62	122.09				
	RW-4	8/16/2017	51.60	51.60	171.62	120.02				
	RW-4	9/19/2017	50.64	50.64	171.62	120.98				
	RW-4	10/23/2017	50.65	50.65	171.62	120.97				
	RW-4	11/29/2017	36.73	36.73	171.62	134.89				
	RW-4	12/12/2017	50.30	50.30	171.62	121.32				
	RW-4	1/12/2018	36.97	36.97	171.62	134.65				Pilot Rebound Evaluation
	RW-4	1/22/2018	36.86	36.86	171.62	134.76				Pilot Rebound Evaluation
	RW-4	2/7/2018	36.78	36.78	171.62	134.84				Pilot Rebound Evaluation
	RW-4	3/20/2018	50.25	50.25	171.62	121.37				
RW-5	RW-5	9/10/2014	NG	NG	NG	NG				Not Gauged - Angle Well
	RW-5	4/13/2016	NG	NG	NG	NG				Not Gauged - Angle Well
	RW-5	1/12/2018	NG	NG	NG	NG				Not Gauged - Angle Well

Notes:
NG = Not Gauged

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Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	mp-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
GP-11A(20-25)	4/9/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/10/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/16/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/15/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
GP-27R	4/15/2013	24	6.8	<1.0	<5.0	<5.0	<5.0	39	150
	9/12/2013	7.5	12	<1.0			<10	6.0	130
	4/15/2014	76	35	3.6	10.0	10.0	20	68	350
	9/10/2014	35	10.0	1.9			<10	57	210
	4/16/2015	3.2	11	3.1			31	9.8	470
	10/5/2015	<1.0	<1.0	<1.0			<5.0	2.2	<100
	4/13/2016	41	9.2	1.2			<5.0	57	190
	10/13/2016	32	4.4	<1.0			<5.0	39	130
	4/24/2017	10.0	<1.0	<1.0			<10	23	<100
	8/23/2017	<1.0	<1.0	<1.0			<3.0	3.0	<100
	3/29/2018	<1.0	1.4	<1.0			<3.0	3.9	<100
GP-2E(45-50)	4/10/2013	55 H	<2.0	<2.0	<10	<10	<10	460 H	510
	9/11/2013	50	<2.0	<2.0			<20	280	380
	4/15/2014	6.9	<1.0	<1.0	<5.0	<5.0	<5.0	130	120
	9/9/2014	1.4	<1.0	<1.0	<5.0	<5.0	<5.0	75	<100
	4/15/2015	<1.0	<1.0	<1.0			<5.0	38	<100
	9/30/2015	<1.0	<1.0	<1.0			<5.0	12	<100
	4/12/2016	<1.0	<1.0	<1.0			<5.0	8.8	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	5.1	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	1.9	<100
	8/24/2017	<1.0	<1.0	<1.0			<3.0	1.7	<100
	3/28/2018	<10	<10	<10			<30	<10	<100
GP-2E(55-60)	4/10/2013	110	<5.0	<5.0	<25	<25	<25	440	790
	9/11/2013	65	<1.0	<1.0			<10	290	360
	4/15/2014	73	3.6	<2.0	<10	<10	<10	290	500
	9/9/2014	40	<1.0	<1.0	<5.0	<5.0	<5.0	190	300
	4/15/2015	<1.0	<1.0	<1.0			<5.0	24	<100
	9/30/2015	2.1	<1.0	<1.0			<5.0	34	<100
	4/12/2016	<1.0	<1.0	<1.0			<5.0	9.9	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	20	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	37	<100
	8/24/2017	<20	<20	<20			<60	<20	<100
	3/28/2018	<50	<50	<50			<150	<50	<5,000
GP-2F(50-55)	4/10/2013	42	<1.0	<1.0	<5.0	13	13	360 E	420
	9/11/2013	48	<1.0	<1.0			17	320	240
	4/15/2014	39	<2.0	<2.0	<10	15	15	250	300
	9/9/2014	43	<2.0	<2.0	<10	21	21	350	420
	4/15/2015	49	<2.0	<2.0			<10	270	580
	9/30/2015	53	<1.0	<1.0			<5.0	360	530
	4/12/2016	68	<2.0	<2.0			<10	340	560
	10/12/2016	5.3	<1.0	<1.0			<5.0	280	250
	4/27/2017	4.8	<1.0	<1.0			<10	180	240
	8/23/2017	<20	<20	<20			<60	170	160
GP-30A	4/10/2013	16,000 H	22,000 H	1,100 H	4,900 H	2,700 H	7,600 H	14,000 H	110,000
	9/12/2013	2,000	950	150			1,100	2,500	11,000
	4/17/2014	8,500	10,000	750	4,300	2,600	6,900	3,500	57,000
	9/10/2014	4,900	6,400	720			5,600	4,900	65,000
	4/16/2015	2,900	3,600	360			2,600	970	24,000
	10/2/2015	5,900	6,100	440			3,800	2,700	34,000
	4/13/2016	6,700	10,000	600			4,000	1,200	48,000
	10/12/2016	1,100	1,400	52			600	68	5,200
	4/24/2017	10,000	21,000	1,300			7,900	880	98,000
GP-30R	8/23/2017	530	600	49			330	490	<5,000
	2/14/2018	3,000 F1	4,100	590	1,600	1,100	2,700	500	22,000
	3/29/2018	90	86	6.0			93	140	<1,000

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GP-35A	4/3/2013	930	3,200	770	2,800	1,800	4,600	53	29,000
	9/12/2013	700	2,800	460			3,600	<20	21,000
	4/17/2014	770	3,300	380	2,900	2,200	5,100	13	27,000
	9/10/2014	230	460	91			1,000	13	7,200
	4/16/2015	400	1,400	530			3,000	11	27,000
	10/2/2015	390	720	200			1,300	<5.0	7,900
	4/13/2016	650	3,800	820			6,300	<20	34,000
	10/12/2016	460	4,200	1,000			6,900	<25	33,000
	4/24/2017	590	3,300	980			5,600	<20	36,000
	8/24/2017	420	2,900	810			5,900	5.0	30,000
	2/15/2018	110	980	250	1,200	440	1,640	<20	31,000
	3/29/2018	420	3,300	970			6,300	<10	33,000
GP-39A	10/13/2016	<1.0	<1.0	<1.0			<5.0	22	<100
GP-39R	4/15/2013	210	140	15	45	44	89	310	1,100
	9/12/2013	27	52	6.6			45	24	<100
	4/15/2014	130	59	4.9	16	21	37	160	640
	9/10/2014	120	62	5.9			48	220	850
	4/16/2015	1.8	<1.0	<1.0			<5.0	65	130
	10/2/2015	27	1.4	<1.0			5.7	100	160
	4/13/2016	4.7	<1.0	<1.0			<5.0	49	<100
	4/24/2017	4.0	<1.0	<1.0			<10	27	<100
	8/23/2017	<1.0	<1.0	<1.0			<3.0	7.5	<100
	3/29/2018	<1.0	<1.0	<1.0			<3.0	5.3	<100
GP-41A	4/10/2013	2.2 H	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	120
	9/12/2013	1.7	<1.0	<1.0			<10	<1.0	110
	4/17/2014	2.1	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/29/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
GP-44A	4/22/2013	<10	37	130	720	300	1,020	<10	11,000
	9/12/2013	<5.0	25	120			830	<5.0	11,000
	4/16/2014	<2.0	21	92	470	190	660	<2.0	9,500
	4/16/2015	<1.0	2.1	34			240	<1.0	8,200
GP-7A(35-40)	4/9/2013	38	<1.0	13	<5.0	<5.0	<5.0	170	1,400
	9/10/2013	25	<1.0	4.0			<10	230	1,100
	4/16/2014	31	<1.0	40	<5.0	<5.0	<5.0	240	1,200
	9/9/2014	25	<1.0	18	<5.0	<5.0	<5.0	220	820
	4/15/2015	5.3	<1.0	2.4			<5.0	23	130
	10/1/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/12/2016	68	1.0	2.3			6.6	240	840
	10/11/2016	5.6	<1.0	<1.0			<5.0	140	300
	4/27/2017	1.6	<1.0	<1.0			<10	64	210
	8/23/2017	<1.0	<1.0	<1.0			<3.0	<1.0	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
ISGR-1 Deep	8/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	23	<100
	4/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	5.4	<100
	9/10/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	6.9	<100
	4/16/2015	<1.0	<1.0	<1.0			<5.0	4.3	<100
	10/5/2015	<1.0	<1.0	<1.0			<5.0	1.3	<100
	4/12/2016	<1.0	<1.0	<1.0			<5.0	3.4	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	3.2	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	2.0	<100
	8/24/2017	<1.0	<1.0	<1.0			<3.0	<1.0	<100
	3/29/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
ISGR-1 Shallow	8/28/2013	<1.0	2.3	4.1	76	31	107	<1.0	2,700
	4/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/10/2014	<1.0	<1.0	<1.0	<5.0	6.1	6.1	<1.0	890
	4/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	180
	10/5/2015	<1.0	1.0	1.0			10.0	<1.0	<100
	4/12/2016	<1.0	<1.0	<1.0			<5.0	<1.0	440
	10/12/2016	<1.0	1.7	9.2			5.9	<1.0	1,300
	4/27/2017	<1.0	2.2	27			43	<1.0	2,900
	8/24/2017	<1.0	1.2	2.5			27	<1.0	230
	3/29/2018	<1.0	2.4	9.5			29	<1.0	1,100

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ISGR-2 Deep	8/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	2.6	<100
	4/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	2.5	<100
	9/10/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	2.8	<100
	4/16/2015	<1.0	<1.0	<1.0			<5.0	2.4	<100
	10/5/2015	<1.0	<1.0	<1.0			<5.0	4.6	<100
	4/12/2016	<1.0	<1.0	<1.0			<5.0	4.8	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	1.0	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	5.4	<100
	8/24/2017	<1.0	<1.0	<1.0			<3.0	<1.0	<100
	3/29/2018	<1.0	<1.0	<1.0			<3.0	1.7	<100
ISGR-2 Shallow	8/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	1.1	<100
	4/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/10/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/5/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/12/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	8/24/2017	<1.0	<1.0	<1.0			<3.0	<1.0	<100
	3/29/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-13	4/26/2017	2.6	<1.0	<1.0			<10	<1.0	<100
	2/14/2018	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<100
MW-15	4/10/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/12/2013	6.5	32	8.5			35	<1.0	320
	4/16/2014	2.2	6.6	1.2	<5.0	<5.0	<5.0	<1.0	<100
	9/10/2014	4.2	22	5.7			30	<1.0	240
	4/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/2/2015	4.4	8.1	2.2			6.4	<1.0	<100
	4/13/2016	3.7	17	7.7			27	<1.0	370
	10/13/2016	3.5	12	2.8			11	<1.0	130
	4/27/2017	3.8	20	8.6			33	<1.0	390
	8/24/2017	11	76	25			100	<1.0	<1,000
	3/29/2018	4.8	36	11			28	<1.0	340
MW-16	4/22/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/12/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/16/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/16/2015	<1.0	<1.0	<1.0			<5.0	1.3	<100
	10/13/2016	<1.0	<1.0	<1.0			<5.0	1.5	<100
	3/29/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-17	4/15/2013	190	440	62	330	200	530	650	4,700
	9/12/2013	54	260	70			880	21	4,400
	4/15/2014	4,700	8,600	950	4,100	2,100	6,200	3,700	43,000
	9/10/2014	3,100	7,100	760			5,300	2,800	43,000
	4/16/2015	2,700	4,400	640			3,700	1,900	34,000
	10/2/2015	3,000	4,600	620			3,800	2,800	37,000
	4/13/2016	2,600	4,000	580			3,400	2,300	38,000
	10/13/2016	2,600	5,000	460			3,200	2,100	29,000
	4/24/2017	3,000	6,100	600			4,700	2,400	37,000
	8/23/2017	2,900	5,100	540			3,600	2,300	26,000
	3/29/2018	1,900	2,500	380			2,000	1,200	18,000
MW-18	4/10/2013	5.0	54	120	35	89	124	<1.0	18,000
	9/11/2013	<1.0	<1.0	1.3			48	<1.0	11,000
	4/15/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	15,000
	4/15/2015	<1.0	<1.0	<1.0			<5.0	<1.0	270
	10/12/2016	<1.0	<1.0	<1.0			<5.0	<1.0	220
	4/25/2017	<1.0	<1.0	<1.0			<10	<1.0	260
	2/14/2018	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-19	4/10/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/11/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/15/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/15/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/25/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100

Table 4
Groundwater Analytical Results Table – 2013 through 2018

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	mp-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-20	4/10/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	410
	9/12/2013	<1.0	<1.0	<1.0			<10	<1.0	350
	4/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	360
	4/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	430
	10/13/2016	<1.0	<1.0	<1.0			<5.0	<1.0	460
	4/24/2017	<1.0	<1.0	<1.0			<10	<1.0	310
	2/15/2018	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	<1.0	250
	3/29/2018	<1.0	<1.0	<1.0			<3.0	<1.0	370
MW-21	4/10/2013	7.0 H	<1.0	<1.0	5.0 H	<5.0	5.0 H	13 H	450
	9/12/2013	6.8	<1.0	<1.0			<10	<1.0	370
	4/17/2014	7.5	<1.0	<1.0	<5.0	<5.0	<5.0	12	430
	9/10/2014	7.8	<1.0	<1.0			<10	15	380
	4/16/2015	4.7	<1.0	<1.0			6.7	13	400
	10/5/2015	4.0	1.2	<1.0			<5.0	9.0	230
	4/13/2016	4.7	<1.0	<1.0			<5.0	<1.0	360
	10/13/2016	3.8	<1.0	<1.0			<5.0	9.7	290
	4/27/2017	1.5	<1.0	<1.0			<10	7.0	320
	8/24/2017	2.7	<1.0	<1.0			<3.0	7.5	240
	3/29/2018	3.1	<1.0	<1.0			<3.0	6.3	280
MW-22R	4/15/2013	2,300	3,900	390	1,600	880	2,480	2,200	29,000
	9/12/2013	3,200	6,100	670			4,400	3,000	26,000
	4/15/2014	3,300	6,500	700	3,000	1,600	4,600	1,500	37,000
	9/10/2014	2,000	5,000	550			3,800	1,500	30,000
	4/16/2015	2,200	4,400	630			3,800	1,500	32,000
	10/2/2015	2,500	4,000	570			3,200	1,800	32,000
	4/13/2016	1,600	2,800	460			2,500	1,000	24,000
	10/13/2016	1,300	2,800	310			2,500	660	20,000
	4/24/2017	2,100	4,400	470			4,000	1,200	26,000
	8/23/2017	2,100	3,200	320			3,200	1,400	21,000
	3/29/2018	2,000	3,200	320			3,400	1,200	24,000
MW-23	4/3/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	3.6	<100
	9/12/2013	<1.0	<1.0	<1.0			<10	2.1	<100
	4/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	1.9	<100
	4/16/2015	<1.0	<1.0	<1.0			<5.0	1.2	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	1.5	<100
	3/29/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-24B	4/9/2013	<1.0	2.1	20	23	39	62	<1.0	13,000
	9/10/2013	<1.0	1.1	9.9			27	<1.0	11,000
	4/16/2014	<1.0	<1.0	5.1	<5.0	<5.0	<5.0	<1.0	3,000
	4/15/2015	<1.0	<1.0	9.1			<5.0	<1.0	1,600
	10/11/2016	<1.0	<1.0	11			<5.0	<1.0	2,800
	4/27/2017	<1.0	<1.0	4.6			<10	<1.0	2,500
	3/28/2018	<1.0	<1.0	7.4			<3.0	<1.0	<1,000
MW-25A	4/9/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	2.7	<100
	9/10/2013	<1.0	<1.0	<1.0			<10	1.1	<100
	4/16/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/15/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/25/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-25B	4/9/2013	160	<1.0	<1.0	<5.0	33	33	250	880
	9/10/2013	260	<1.0	<1.0			66	320	1,200
	4/16/2014	23	<1.0	<1.0	<5.0	<5.0	<5.0	25	<100
	9/9/2014	430	<2.0	<2.0	<10	33	33	430	1,200
	4/15/2015	150	<2.0	<2.0			<10	230	580
	10/1/2015	94	<1.0	<1.0			<5.0	190	300
	4/12/2016	52	<1.0	<1.0			<5.0	150	310
	10/12/2016	27	<1.0	<1.0			<5.0	93	190
	4/25/2017	78	<1.0	<1.0			<10	150	360
	8/23/2017	88	<1.0	<1.0			<3.0	150	330
	2/15/2018	170	<4.0	<4.0	<8.0	4.6	4.6	140	520
	3/28/2018	130	<1.0	<1.0			<3.0	120	<1,000

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Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	mp-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-26A	4/2/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/14/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/27/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-26B	4/2/2013	710	<5.0	<5.0	<25	42	42	390	1,400
	9/9/2013	570	<5.0	<5.0			<50	240	1,500
	4/14/2014	340	<2.0	<2.0	<10	31	31	140	870
	9/8/2014	520	<5.0	<5.0	<25	36	36	230	1,300
	4/14/2015	320	<1.0	<1.0			41	150	1,300
	10/1/2015	600	<5.0	<5.0			38	320	1,200
	4/11/2016	450	<2.0	<2.0			44	240	1,600
	10/11/2016	260	<2.0	<2.0			27	110	590
	4/26/2017	250	<2.0	<2.0			26	110	1,100
	8/22/2017	270	<5.0	<5.0	<25	27	27	110	600
	3/27/2018	170	<1.0	<1.0			16	77	570
MW-27A	4/2/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	10.0	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	7.4	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	13	<100
	9/8/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	1.7	<100
	4/15/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/1/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/13/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	1.9	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	8/22/2017	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	2.5	<100
	3/27/2018	<1.0	<1.0	<1.0			<3.0	1.1	<100
MW-27B	4/2/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	120	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	96	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	71	<100
	9/8/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	72	<100
	4/15/2015	<1.0	<1.0	<1.0			<5.0	68	<100
	10/1/2015	<1.0	<1.0	<1.0			<5.0	91	<100
	4/11/2016	<1.0	<1.0	<1.0			<5.0	82	120
	10/11/2016	<1.0	<1.0	<1.0			<5.0	83	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	68	<100
	8/22/2017	<2.0	<2.0	<2.0	<10	<10	<10	91	<100
	3/27/2018	<1.0	<1.0	<1.0			<3.0	75	<100
MW-28B	3/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	2.8	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	4.3	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	2.1	<100
	4/13/2015	<1.0	<1.0	<1.0			<5.0	5.7	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	2.3	<100
	4/25/2017	<1.0	<1.0	<1.0			<10	3.3	<100
	3/26/2018	<1.0	<1.0	<1.0			<3.0	2.1	<100
MW-29A	3/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	1.0	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	1.4	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/13/2015	<1.0	<1.0	<1.0			<5.0	1.1	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	1.5	<100
	4/25/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/26/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-29B	3/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	85	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	88	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	58	<100
	9/8/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	80	<100
	4/13/2015	<1.0	<1.0	<1.0			<5.0	120	<100
	9/30/2015	<1.0	<1.0	<1.0			<5.0	77	100
	4/11/2016	<1.0	<1.0	<1.0			<5.0	72	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	69	100
	4/25/2017	<1.0	<1.0	<1.0			<10	65	<100
	8/22/2017	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	65	<100
	3/26/2018	<1.0	<1.0	<1.0			<3.0	42	<100

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Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	mp-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-30R	9/10/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-31B	3/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	1.4	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/13/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/26/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-33A	3/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/13/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/25/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/26/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-33B	3/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	1.9	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	1.0	<100
	4/13/2015	<1.0	<1.0	<1.0			<5.0	1.1	<100
	10/11/2016	5.4	<1.0	<1.0			<5.0	26	<100
	4/25/2017	3.1	<1.0	<1.0			<10	12	<100
	2/15/2018	1.6	<1.0	<1.0	<2.0	<1.0	<2.0	11	<100
	3/26/2018	3.5	<1.0	<1.0			<3.0	12	<100
MW-33C	3/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	1.2	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/13/2015	<1.0	<1.0	<1.0			<5.0	1.2	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/25/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/26/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-33S	4/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-40	4/5/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	16	<100
	9/10/2013	<1.0	<1.0	<1.0			<10	4.5	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	1.8	<100
	9/9/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	1.9	<100
	4/14/2015	<1.0	<1.0	<1.0			<5.0	11	<100
	10/1/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/12/2016	<1.0	<1.0	<1.0			<5.0	4.8	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	12	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	14	<100
	8/23/2017	<1.0	<1.0	<1.0			<3.0	8.1	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	9.5	<100
MW-41A	4/5/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/10/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/14/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-41B	4/5/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	14	<100
	9/10/2013	<1.0	<1.0	<1.0			<10	12	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	12	<100
	4/14/2015	<1.0	<1.0	<1.0			<5.0	12	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	7.6	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	7.4	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	9.5	<100
MW-42	4/2/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	2.3	<100
	4/14/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100

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Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	mp-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-43A	4/2/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/14/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/27/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-43B	4/2/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	7.9	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	5.4	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	3.8	<100
	9/8/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	2.1	<100
	4/14/2015	<1.0	<1.0	<1.0			<5.0	2.3	<100
	10/1/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/11/2016	<1.0	<1.0	<1.0			<5.0	2.5	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	3.0	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	1.7	<100
	3/27/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-44A	4/2/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	21	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	25	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	7.1	<100
	9/8/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	6.2	<100
	4/14/2015	<1.0	<1.0	<1.0			<5.0	8.0	<100
	10/1/2015	<1.0	<1.0	<1.0			<5.0	1.6	<100
	4/11/2016	<1.0	<1.0	<1.0			<5.0	6.3	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	5.8	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	1.4	<100
	8/22/2017	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	4.6	<100
	3/27/2018	<1.0	<1.0	<1.0			<3.0	3.0	<100
MW-44B	4/2/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	81	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	59	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	51	<100
	9/8/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	42	<100
	4/14/2015	<1.0	<1.0	<1.0			<5.0	37	<100
	10/1/2015	<1.0	<1.0	<1.0			<5.0	42	<100
	4/11/2016	<1.0	<1.0	<1.0			<5.0	41	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	41	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	30	<100
	8/22/2017	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	36	<100
	3/27/2018	<1.0	<1.0	<1.0			<3.0	32	<100
MW-45	4/10/2013	11 H	1.5 H	<1.0	15 H	25 H	40 H	2.0 H	570
	9/12/2013	17	2.7	<1.0			34	<1.0	640
	4/17/2014	19	1.9	<1.0	15	27	42	2.0	640
	9/10/2014	6.4	<1.0	<1.0			<10	<1.0	220
	4/16/2015	16	<1.0	<1.0			31	2.9	660
	10/5/2015	22	2.5	<1.0			57	<1.0	1,100
	4/13/2016	13	<1.0	<1.0			17	<1.0	650
	10/13/2016	7.2	<1.0	<1.0			13	2.8	300
	4/24/2017	2.4	<1.0	<1.0			<10	1.7	190
	8/24/2017	1.6	<1.0	<1.0			<3.0	<1.0	130
	2/15/2018	3.6	<1.0	<1.0	<2.0	2.5	2.5	1.1	150
	3/29/2018	2.1	<1.0	<1.0			<3.0	<1.0	<100
MW-46	4/10/2013	1.2 H	<1.0	<1.0	<5.0	<5.0	<5.0	4.9 H	<100
	9/11/2013	<1.0	<1.0	<1.0			<10	4.7	<100
	4/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	4.7	<100
	4/16/2015	<1.0	<1.0	<1.0			<5.0	3.0	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	4.1	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	1.4	<100
	3/29/2018	<1.0	<1.0	<1.0			<3.0	2.0	<100
MW-47	4/3/2013	510	310	11	150	330	480	16	3,900
	9/11/2013	250	130	6.3			300	<1.0	1,200
	4/16/2014	280	49	3.5	28	150	178	43	2,300
	9/9/2014	210	27	1.6	21	140	161	<1.0	1,300
	4/15/2015	94	16	1.3			67	24	1,400
	10/2/2015	180	24	2.3			110	8.5	1,900

Table 4
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Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	mp-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-47 (cont.)	4/13/2016	180	30	3.0			130	<1.0	1,300
	10/13/2016	170	25	2.3			150	12	1,400
	4/24/2017	120	20	1.8			84	8.3	1,300
	8/24/2017	94	13	<1.0			59	14	820
	2/14/2018	99	16	<2.0	<4.0	72	72	12	990
	3/29/2018	86	21	1.8			65	6.9	<1,000
MW-48	4/3/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	1.1	<100
	9/11/2013	1.9	1.1	<1.0			<10	1.0	<100
	4/16/2014	<1.0	1.0	<1.0	<5.0	<5.0	<5.0	2.0	<100
	4/15/2015	<1.0	<1.0	<1.0			<5.0	1.4	<100
	10/13/2016	<1.0	<1.0	<1.0			<5.0	1.7	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	1.0	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-49	4/10/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	230 H	170
	9/11/2013	<1.0	<1.0	<1.0			<10	230	190
	4/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	200	130
	9/10/2014	<1.0	<1.0	<1.0			<10	110	120
	4/16/2015	<1.0	<1.0	<1.0			<5.0	73	<100
	10/5/2015	<1.0	<1.0	<1.0			<5.0	60	<100
	4/13/2016	<1.0	<1.0	<1.0			<5.0	82	100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	26	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	20	<100
	8/25/2017	<1.0	<1.0	<1.0			<3.0	17	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	17	<100
MW-5	10/13/2016	1.2	<1.0	<1.0			<5.0	<1.0	<100
MW-50	4/3/2013	2.2	<1.0	<1.0	<5.0	<5.0	<5.0	94	<100
	9/11/2013	1.6	<1.0	<1.0			<10	110	110
	4/16/2014	2.5	<1.0	<1.0	<5.0	<5.0	<5.0	74	<100
	9/9/2014	2.0	<1.0	<1.0	<5.0	<5.0	<5.0	43	<100
	4/15/2015	<1.0	<1.0	<1.0			<5.0	5.0	<100
	10/2/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/13/2016	<1.0	<1.0	<1.0			<5.0	13	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	5.2	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	1.4	<100
	8/24/2017	<1.0	<1.0	<1.0			<3.0	1.3	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	1.1	<100
MW-51	4/3/2013	4.9	<1.0	<1.0	<5.0	<5.0	<5.0	65	<100
	9/11/2013	3.7	<1.0	<1.0			<10	50	<100
	4/16/2014	2.6	1.1	<1.0	<5.0	<5.0	<5.0	62	<100
	9/9/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	49	<100
	4/15/2015	1.5	<1.0	<1.0			<5.0	45	<100
	10/2/2015	1.1	<1.0	<1.0			<5.0	56	<100
	4/13/2016	<1.0	<1.0	<1.0			<5.0	46	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	41	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	22	<100
	8/24/2017	<1.0	<1.0	<1.0			<3.0	19	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	9.9	<100
MW-53	3/28/2013	2.7	<1.0	<1.0	<5.0	<5.0	<5.0	73	120
	9/9/2013	2.8	<1.0	<1.0			<10	110	140
	4/14/2014	5.0	<1.0	<1.0	<5.0	<5.0	<5.0	76	<100
	9/8/2014	3.1	<1.0	<1.0	<5.0	<5.0	<5.0	110	130
	4/13/2015	9.3	<1.0	<1.0			<5.0	82	150
	9/30/2015	2.8	<1.0	<1.0			<5.0	100	<100
	4/11/2016	5.7	<1.0	<1.0			<5.0	65	<100
	10/11/2016	4.5	<1.0	<1.0			<5.0	110	130
	4/25/2017	3.5	<1.0	<1.0			<10	71	100
	8/22/2017	2.7	<1.0	<1.0	<5.0	<5.0	<5.0	92	<100
	2/15/2018	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	39	<100
	3/26/2018	<1.0	<1.0	<1.0			<3.0	21	<100
MW-54	3/28/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/10/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/13/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100

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MW-54 (cont.)	4/26/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/26/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-55	4/2/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/9/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/13/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/26/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/26/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-58	4/2/2013	180	<2.0	<2.0	<10	13	13	140	550
	9/9/2013	250	<2.0	<2.0			21	110	600
	4/14/2014	72	<1.0	<1.0	<5.0	5.1	5.1	81	280
	9/8/2014	120	<1.0	<1.0	<5.0	10.0	10.0	82	380
	4/14/2015	57	<1.0	<1.0			<5.0	51	240
	10/1/2015	110	<1.0	<1.0			5.9	140	630
	4/11/2016	90	<1.0	<1.0			8.3	100	320
	10/12/2016	220	<1.0	<1.0			18	87	370
	4/26/2017	41	<1.0	<1.0			<10	62	220
	8/22/2017	110	<2.0	<2.0	<10	<10	<10	85	300
	3/27/2018	65	<1.0	<1.0			4.9	48	290
MW-59	4/2/2013	260	<5.0	<5.0	<25	<25	<25	250	840
	9/9/2013	240	<2.0	<2.0			<20	220	940
	4/14/2014	73	<1.0	<1.0	<5.0	<5.0	<5.0	140	320
	9/8/2014	120	<2.0	<2.0	<10	<10	<10	170	580
	4/14/2015	120	<1.0	<1.0			5.3	160	660
	10/1/2015	110	<1.0	<1.0			<5.0	200	510
	4/11/2016	110	<1.0	<1.0			<5.0	180	650
	10/12/2016	110	<1.0	<1.0			<5.0	180	460
	4/25/2017	86	<1.0	<1.0			<10	170	460
	8/22/2017	100	<4.0	<4.0	<20	<20	<20	190	390
	2/15/2018	87	<4.0	<4.0	<8.0	<4.0	<8.0	170	340
	3/27/2018	68	<1.0	<1.0			<3.0	120	400
MW-6	4/10/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<200
	9/12/2013	<1.0	40	130			260	<1.0	8,200
	4/17/2014	<1.0	26	7.8	58	64	122	<1.0	780
	4/16/2015	<1.0	2.0	2.0			11	<1.0	280
	10/12/2016	<1.0	15	18			77	<1.0	690
	4/24/2017	<1.0	10.0	26			72	<1.0	1,700
	2/15/2018	<4.0	15	47	51	160	211	<4.0	1,900
	3/29/2018	<1.0	6.3	18			88	<1.0	1,000
MW-60	4/2/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	14	<100
	9/9/2013	1.6	<1.0	<1.0			<10	12	<100
	4/14/2014	1.7	<1.0	<1.0	<5.0	<5.0	<5.0	12	<100
	4/14/2015	2.6	<1.0	<1.0			<5.0	9.8	<100
	10/12/2016	2.2	<1.0	<1.0			<5.0	9.0	<100
	4/27/2017	1.9	<1.0	<1.0			<10	7.9	<100
	3/27/2018	1.7	<1.0	<1.0			<3.0	6.7	<100
MW-61A	4/9/2013	29	280	1,400	1,800	180	1,980	11	20,000
	9/10/2013	38	130	900			1,200	<10	15,000
	4/17/2014	1.5	<1.0	<1.0	<5.0	<5.0	<5.0	2.0	<100
	9/10/2014	<1.0	<1.0	<1.0			<10	1.1	<100
	4/16/2015	1.9	14	160			120	<1.0	2,600
	10/1/2015	1.2	<1.0	<1.0			<5.0	<1.0	<100
	4/12/2016	1.8	<1.0	<1.0			<5.0	<1.0	<100
	10/12/2016	<1.0	<1.0	1.8			9.1	<1.0	<100
	4/27/2017	11	<1.0	7.1			<10	1.7	290
	8/24/2017	<1.0	<1.0	<1.0			<3.0	<1.0	<100
	3/29/2018	4.8	23	190			290	2.5	4,200
MW-61B	4/9/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	16	<100
	9/10/2013	<1.0	<1.0	<1.0			<10	25	<100
	4/16/2014	<1.0	1.8	<1.0	<5.0	<5.0	<5.0	29	<100
	9/9/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	31	<100
	4/15/2015	<1.0	<1.0	<1.0			<5.0	15	<100
	10/1/2015	<1.0	<1.0	<1.0			<5.0	10.0	<100

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MW-61B (cont.)	4/12/2016	<1.0	<1.0	<1.0			<5.0	18	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	12	<100
	4/27/2017	<1.0	<1.0	<1.0			<10	9.1	<100
	8/23/2017	<1.0	<1.0	<1.0			<3.0	10.0	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	1.5	<100
MW-62A	4/5/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	9/10/2013	<1.0	<1.0	<1.0			<10	<1.0	<100
	4/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	<1.0	<100
	4/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/12/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	4/25/2017	<1.0	<1.0	<1.0			<10	<1.0	<100
	3/28/2018	<1.0	<1.0	<1.0			<3.0	<1.0	<100
MW-62B	4/5/2013	61	<1.0	100	<5.0	<5.0	<5.0	77	1,200
	9/10/2013	34	<1.0	22			<10	66	800
	4/14/2014	3.3	<1.0	2.1	<5.0	<5.0	<5.0	17	260
	9/9/2014	40	<1.0	3.8	<5.0	<5.0	<5.0	71	660
	4/14/2015	9.6	<1.0	4.0			<5.0	30	770
	10/1/2015	8.2	<1.0	2.5			<5.0	36	310
	4/12/2016	18	<1.0	<1.0			<5.0	48	790
	10/12/2016	5.8	<1.0	<1.0			<5.0	32	360
	4/25/2017	5.2	<1.0	<1.0			<10	27	620
	8/23/2017	3.6	<1.0	<1.0			<3.0	24	150
	2/15/2018	6.0	<1.0	<1.0	<2.0	<1.0	<2.0	26	170
	3/28/2018	2.1	<1.0	<1.0			<3.0	18	210
MW-7	4/15/2013	260	550	38	380	200	580	79	3,400
	9/12/2013	940	1,300	150			880	200	7,500
	4/15/2014	460	570	48	280	170	450	73	3,500
	9/10/2014	340	530	54			400	62	3,500
	4/16/2015	510	580	88			500	89	3,500
	10/2/2015	270	300	35			290	49	1,400
	4/13/2016	350	350	46			290	53	2,500
	10/13/2016	9,300	13,000	1,200			6,200	1,100	52,000
	3/15/2017	6,300	5,600	830	1,700	1,200	2,900	820	47,000
	4/24/2017	420	290	42			370	52	3,300
	8/23/2017	610	550	84			510	69	<5,000
	3/29/2018	5,500	7,600	820			4,600	340	40,000
PTW-B	4/15/2013	<1.0	<1.0	<1.0	<5.0	<5.0	<5.0	5.1	<100
	9/12/2013	5.1	9.6	5.1			27	11	120
	4/15/2014	15	14	2.6	7.7	<5.0	7.7	17	150
	9/10/2014	23	26	4.8			26	33	370
	4/16/2015	18	19	5.5			33	20	320
	10/2/2015	22	17	3.9			17	26	220
	4/13/2016	40	46	8.0			41	39	160
	10/13/2016	20	19	2.1			13	31	110
	4/24/2017	16	24	3.2			19	15	170
	8/23/2017	<1.0	1.1	<1.0			<3.0	4.0	<100
	3/29/2018	1.5	7.2	3.0			15	3.6	170
RW-1	4/15/2013	260	230	31	110	79	189	140	2,300
	9/12/2013	150	150	14			140	89	1,100
	4/15/2014	350	290	41	130	84	214	90	2,100
	9/10/2014	210	230	38			190	87	1,600
	4/16/2015	290	120	30			130	110	1,400
	10/2/2015	170	68	10.0			60	81	670
	4/13/2016	180	140	38			120	70	660
	10/13/2016	400	340	86			310	110	5,100
	4/24/2017	290	230	51			210	81	2,100
	8/23/2017	660	370	96			300	170	<5,000
	3/29/2018	520	280	64			200	120	2,800
RW-2	4/15/2013	340	220	38	82	110	192	260	2,600
	9/12/2013	760	1,100	170			1,100	300	7,500
	4/15/2014	250	240	20	170	150	320	170	1,700
	9/10/2014	180	140	11			210	130	1,200
	4/16/2015	270	300	29			280	140	2,300
	10/2/2015	140	91	9.6			97	140	820

Table 4
Groundwater Analytical Results Table – 2013 through 2018

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	mp-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
RW-2 (cont.)	4/13/2016	220	380	46			320	120	2,800
	10/13/2016	370	920	100			850	130	4,300
	4/24/2017	180	220	25			210	100	2,000
	8/23/2017	340	150	46			190	200	<5,000
	3/29/2018	290	220	15			300	130	2,000
RW-3	4/15/2013	180	240	24	100	67	167	200	490
	9/12/2013	75	590	130			1,200	29	4,700
	4/15/2014	6.5	11	<1.0	<5.0	<5.0	<5.0	6.6	200
	9/10/2014	44	590	80			970	21	5,400
	4/16/2015	73	730	130			1,200	33	7,200
	10/2/2015	53	350	55			510	12	2,000
	4/13/2016	17	120	12			240	25	740
	10/13/2016	110	200	22			210	120	2,400
	4/24/2017	15	350	170			2,000	<5.0	8,800
	8/23/2017	29	6.2	<1.0			3.9	240	160
	3/29/2018	40	1,300	230			3,600	<10	14,000
RW-4	4/15/2013	2,900	2,700	290	1,300	760	2,060	2,400	25,000
	9/12/2013	370	500	72			640	150	27,000
	4/15/2014	3,200	5,100	600	2,400	1,300	3,700	1,600	19,000
	9/10/2014	2,400	3,000	420			2,300	1,400	19,000
	4/16/2015	1,700	1,700	370			1,400	930	25,000
	10/2/2015	1,900	2,200	320			1,600	1,300	13,000
	4/13/2016	1,700	2,700	430			2,400	1,100	15,000
	10/13/2016	1,800	2,600	260			2,000	810	17,000
	4/24/2017	1,500	1,700	140			1,200	510	12,000
	8/23/2017	1,300	460	130			580	590	5,900
	3/29/2018	1,700	830	150			890	510	8,400
RW-5	9/12/2013	13	37	5.2			99	13	1,000
	4/15/2014	13	11	5.5	21	25	46	3.2	800
	9/10/2014	160	390	140			680	48	6,500
	4/16/2015	160	280	130			400	37	4,600
	10/2/2015	190	250	100			320	48	1,800
	4/13/2016	17	55	12			190	8.1	1,600
	10/13/2016	1,500	3,400	350			2,800	820	17,000
	4/24/2017	47	98	28			190	17	3,600
	8/23/2017	79	74	24			130	15	<5,000

Table 5
Soil Vapor Analytical Results Table – 2013 through 2018

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Location	Sample Date	1,1-Difluoroethane (µg/m³)	Benzene (µg/m³)	Ethylbenzene (µg/m³)	m+p-Xylene (µg/m³)	Methyl-t-butyl ether (µg/m³)	o-Xylene (µg/m³)	Toluene (µg/m³)
USEPA Residential Vapor Intrusion Screening Level for Sub-Slab Soil Gas:		**1,390,000**	**12**	**37.4**	**3,480**	**360**	**3,480**	**174,000**
VW-01	12/19/2013	ND 13	ND 3.8	ND 5.1	ND 5.1	ND 4.3	ND 5.1	ND 4.5
	5/27/2014	ND 14	ND 4.1	ND 5.6	ND 5.6	ND 4.6	ND 5.6	ND 4.9
	10/23/2014	ND 12	ND 3.7	ND 5.0	ND 5.0	ND 4.2	ND 5.0	4.6
	4/28/2015	ND 14	ND 4.0	ND 5.5	6.2	ND 4.5	ND 5.5	4.9
	10/27/2015	ND 12	ND 3.5	ND 4.8	ND 4.8	ND 4.0	ND 4.8	ND 4.2
	5/9/2016	ND 13	ND 3.9	ND 5.2	7.4	ND 4.4	ND 5.2	8.4
	11/3/2016	ND 13	ND 3.8	ND 5.2	9.6	ND 17	ND 5.2	7.8
	5/18/2017	NA	ND 3.8	ND 5.2	ND 5.2	ND 17	ND 5.2	1.3
	10/20/2017	ND 13	ND 3.8	ND 5.1	ND 5.1	ND 17	ND 5.1	ND 4.4
VW-01 (Ambient)	12/19/2013	ND 8.1	ND 2.4	ND 3.2	ND 3.2	ND 2.7	ND 3.2	3.6
	5/27/2014	ND 9.2	ND 2.7	ND 3.7	ND 3.7	ND 3.1	ND 3.7	ND 3.2
	10/23/2014	ND 10	ND 3.0	ND 4.1	ND 4.1	ND 3.4	ND 4.1	ND 3.6
	4/28/2015	ND 8.4	ND 2.5	ND 3.4	ND 3.4	ND 2.8	ND 3.4	ND 2.9
	10/27/2015	ND 12	ND 3.4	ND 4.7	ND 4.7	ND 3.9	ND 4.7	7.0
	5/9/2016	ND 8.4	ND 2.5	ND 3.4	ND 3.4	ND 2.8	ND 3.4	ND 2.9
	11/3/2016	29	ND 2.6	ND 3.6	ND 3.6	ND 12	ND 3.6	6.9
	5/18/2017	NA	ND 2.6	ND 3.5	ND 3.5	ND 12	ND 3.5	ND 3.1
	10/20/2017	ND 8.5	ND 2.5	ND 3.4	ND 3.4	ND 11	ND 3.4	ND 3.0
VW-02	12/19/2013	ND 14	6.2	ND 5.5	ND 5.5	ND 4.6	ND 5.5	ND 4.8
	5/27/2014	ND 14	**20**	ND 5.6	7.1	ND 4.6	ND 5.6	9.0
	10/23/2014	ND 13	5.6	ND 5.2	6.3	ND 4.4	ND 5.2	5.5
	4/28/2015	ND 13	ND 3.9	ND 5.2	5.7	ND 4.4	ND 5.2	5.1
	10/27/2015	ND 12	ND 3.4	ND 4.6	ND 4.6	ND 3.8	ND 4.6	ND 4.0
	11/3/2016	ND 14	ND 4.1	ND 5.5	11	ND 18	ND 5.5	7.9
	10/20/2017	32	4.8	ND 5.0	ND 5.0	ND 17	ND 5.0	ND 4.4
VW-03	5/18/2017	NA	ND 3.6	ND 5.0	1.2	ND 16	ND 5.0	1.7
	10/20/2017	ND 12	ND 3.6	ND 4.9	ND 5.0	ND 16	ND 5.0	ND 4.3

Notes:
1. NA - Not analyzed for this constituent
2. ND - Not detected at the minimum reported quantification limit
3. Wells VW-03 and VW-04 were not sampled numerous times during the reporting period due to the presence of water in the sample port.
4. USEPA Vapor Intrusion Screening Levels (VISL) were obtained from the online VISL Calculator and correspond to a target cancer risk equal to 1 x 10^{-6} and a hazard quotient equal to 1.
5. Screening values for xylenes (total) were used to evaluate xylene (o) and xylenes (m&p).
6. Bolded and shaded values exceed the USEPA Residential VISL.
7. µg/m³ - Micrograms per cubic meter (air).
8. USEPA - United States Environmental Protection Agency
9. VISL - Vapor Intrusion Screening Level

Table 6
Schedule of Additional Activities

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Activity	Work Description	Dates Activity Completed	5-Year Report Section Reference
Vapor Mitigation System	Per the USEPA approved Interim Measures Work Plan for Vapor Sampling and Mitigation (Gannet Fleming, 2008a), vapor mitigation system activities (VMS) were performed from April 17, 2013 through June 7, 2013. Indoor air sampling activities were completed before discontinuation of VMS operations (Gannet Fleming, 2013b). Chevron submitted a letter dated November 7, 2013 to USEPA to formally request a termination review and USEPA approval that operation and maintenance of the three VMS units located at 746 Oglethorpe Street, 5818 Eastern Avenue, and 5824 Eastern Avenue in Washington, D.C. be discontinued. In a letter dated January 9, 2014, the USEPA approved Chevron's request to discontinue operation and maintenance of the three VMS units. In April 2017, the VMS was removed from the residence at 5818 Eastern Avenue in Chillum, Maryland. The VMS system was removed based on recent requests from the property owner. The USEPA was aware of this request from the property owner and removal of the system from this residence.	During the reporting period, sampling occurred April 17, 2013 through June 7, 2013. USEPA approved Chevron's request to discontinue operation and maintenance of the three VMS units on January 9, 2014. The VMS system from the residence at 5818 Eastern Avenue was completed on April 12, 2017.	Details provided in Sections 2.2.2 and 3.2.1
Over drilling and Connection of GP-30R	Due to elevated BTEX concentrations, existing monitoring well GP-30A was converted to a recovery well (GP-30R) and connected to the existing Area A DPE remediation system. Connection of this well was completed to assist in achieving remedial objectives and further support technical impracticability (TI) waiver demonstration.	May 15, 2017 through May 31,2017	Details provided in Sections 2.2.3 and 3.2.2
Area A Vapor Intrusion Investigation	Three permanent exterior multi-depth (25, 15, and 10 feet bgs) exterior soil gas sampling points (CV-1, CV-2, and CV-3) and two permanent sub-slab soil gas probes (SS-1 and SS-2) were installed and sampled in Area A to evaluate the VI pathway. Samples were analyzed for VOCs, including naphthalene, by USEPA Method TO-15 and fixed gases, including oxygen, carbon dioxide, methane, and helium by Modified ASTM Standard D-1946. Results were compared to the USEPA VISLs for Soil Gas for a commercial scenario and showed VI pathway is not a concern for the site.	The exterior soil gas sampling points were installed between July 31, 2017 and August 2, 2017. The exterior points were sampled on August 16, 2017, when the DPE system was on, and on February 6, 2018, when the DPE was off. Sub-slab soil gas probe installation occurred January 27, 2018. Sub-slab soil gas sampling occurred when the system was off, on February 10, 2018.	Details provided in Sections 2.2.5.1 and 3.2.3.1
Site-wide Monitored Natural Attenuation Evaluation	The feasibility of monitored natural attenuation (MNA) for the Site was completed during two sampling events for peripheral site wells with low level COC concentrations. Site wells, MW-6, MW-18, MW-45, MW-47, MW-62B, MW-25B, MW-59, MW-33B, MW-53 were sampled while the DPE system was running and while the DPE system was off for COCs (BTEX, MTBE, TPH-GRO), geochemical parameters (Nitrate, Sulfate (9056A), Total and Dissolved Manganese and Iron (6010C), Methane and Carbon Dioxide (RSK-175), and water quality field parameters – DO, ORP, SC, Temperature, pH). Temperature profiling was completed for wells MW-6 and MW-18. Sample results were compared to background well, MW-20 results to show if MNA is occurring at the Site.	Sampling (system on) occurred April 24-27, 2017 and May 10, 2017. Temperature profiling (system on) occurred May 23, 2017. Sampling (system off) occurred February 12-15, 2018.Temperature profiling (system off) occurred February 12-14, 2018.	Details provided in Sections 2.2.5.4 and 3.2.3.4
Area A Natural Source Zone Depletion Evaluation	Natural Source Zone Depletion (NSZD) was evaluated at Site wells with historical LPH presence, including GP-35A, MW-16, and GP-30A/R. Wells were sampled for COCs and geochemical parameters (same parameters sampled for MNA) while the DPE system was running and while the DPE system was off. Temperature profiling was completed for wells GP-35A, MW-16, GP-30A, and MW-13 .The rates estimated during DPE system operation were compared to the NSZD rates evaluated during extended pilot rebound testing (while the DPE system off) to identify if NSZD is an effective remedy.	Sampling (system on) occurred April 24-27, 2017 and May 10, 2017. Temperature profiling (system on) occurred May 23, 2017. Sampling (system off) occurred February 12-15, 2018.Temperature profiling (system off) occurred February 12-14, 2018.	Details provided in Sections 2.2.5.3 and 3.2.3.3

Table 6
Schedule of Additional Activities

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Activity	Work Description	Dates Activity Completed	5-Year Report Section Reference
Sentinel Well Gauging and Sampling and Monitoring	Per the USEPA approved Response to Comments for Area A System Operating Plan dated June 15, 2017, additional gauging and sampling activities were completed during the extended pilot rebound evaluation to confirm if any offsite hydrocarbon migration was detected. The frequency of gauging five sentinel monitoring wells, GP-44A, MW-4, MW-3, MW-19 and MW-23 changed from semi-annually to monthly. In addition, the six listed sentinel monitoring wells were sampled quarterly during the rebound study to detect any sustained increase in COC concentrations, which in turn would trigger the restart of the DPE system. Results from the gauging and sampling events did not trigger the restart of the DPE system.	Gauging events were completed January 12, 2018, January 22, 2018 and February 7, 2018. The additional sampling event was completed February 12-15, 2018.	Details provided in Sections 2.2.5.5 and 3.2.3.5
LPH Characterization and Monitoring	During the remediation system shutdown for the extended DPE pilot rebound evaluation, wells in Area A were evaluated for LPH impacts. Evaluation measures included fluid level monitoring to document recovery fluid levels and overall potentiometric surface to static conditions, LPH Transmissivity Assessment, and LPH Characterization. LPH was observed in MW-7 ranging from a thickness of 0.11 feet to 0.87 feet during the evaluation. Two baildown transmissivity tests were completed for MP-7 and analyses of transmissivity test data was completed in accordance with ASTM E-2856, and the American Petroleum Institute (API) workbook for baildown tests. A sample of LPH was collected and sent to PACE laboratories for density/viscosity analysis via ASTM D7042, GC/FID whole oil, PIANO GC/MS analysis via EPA 8260, and flashpoint analysis via ASTM D93 to evaluate degradation, volatilization, and variability in physical and chemical properties across the site.	Fluid level monitoring events were completed January 12, 2018, January 22, 2018 and February 7, 2018. Transmissivity tests for MP-7 were completed January 26, 2018 and February 6, 2018. LPH from MP-7 was sampled January 26, 2018.	Details provided in Sections 2.2.5.2 and 3.2.3.2

Table 7
Groundwater Analytical Results Table – 1989 through 2012

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes, Total (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
GP-2E(45-50)	04/18/2002	170	<2.000	<2.000	33.8	795	
	12/19/2002	46.3	<1.000	<1.000	10.2	600	
	05/19/2004	28.7	1.8	1.4	130	756	
	08/16/2004	60.2	4.4	3.1	162	656	
	12/15/2004	117	1	1	179	522	
	03/21/2005	189	1.4	<1.0	198	610	
	05/26/2005	172	<1.0	<1.0	163	803	
	09/14/2005	134	<1	<1	96.3	501	
	12/20/2005	71.4	1.21	<1.00	79.2	394	
	10/02/2006	78	<5.0	<5.0	38	420	
	03/26/2007	50	<5.0	<5.0	18	400	
	10/01/2007	34	<2.0	<2.0	10	470	
	03/31/2008	8	<2.0	<2.0	<4.0	330	
	09/25/2008	<0.60	<1.4	<1.0	3	370	
	03/30/2009	<2.0	<2.0	<2.0	4	350	
	09/28/2009	<0.60	<1.4	<1.0	3	450	410
	05/18/2010	86	<1.0	<1.0	21	1000	950
	11/10/2010	17	<1.4	<1.0	6.3	560	710
	04/01/2011	200	<7.0	<5.0	29	820	1200
	01/19/2012	350	<10	<10	52	1300	990
	04/25/2012	470	<5.0	<5.0	74	1400	1900
	10/08/2012	320	<1.0	<1.0	45	850	1500
GP-2E(50-55)	04/18/2002	114	<2.000	<2.000	27.1	695	
	12/19/2002	51.2	<1.000	<1.000	16.5	524	
	09/08/2005	115	1.08	0.97	142	651	
GP-2E(55-60)	04/18/2002	246	<2.000	<2.000	46.2	1410	
	12/19/2002	79.5	<1.000	<1.000	19.4	1140	
	05/19/2004	83.8	<1.0	<1.0	13.1	1220	
	09/14/2005	105	<1	<1	102	656	
	03/24/2006	135	<1.00	<1.00	97	725	
	10/02/2006	25	<5.0	<5.0	10	260	
	03/26/2007	4.1	<1.0	<1.0	3.6	160	
	10/01/2007	1.5	<1.0	<1.0	<2.0	240	
	03/31/2008	<1.0	<1.0	<1.0	<2.0	160	
	09/25/2008	3.9	<1.0	<1.0	0	130	
	03/30/2009	<1.0	<1.0	<1.0	0	130	
	09/28/2009	3.4	<1.0	<1.0	0	160	210
	05/18/2010	19	<5.0	<5.0	0	550	310
	11/10/2010	19	<3.5	<2.5	0	500	750
	04/01/2011	12	<3.5	<2.5	0	570	350
	01/19/2012	150	<5.0	<5.0	0	800	760
	04/25/2012	200	<5.0	<5.0	36	820	1000
	10/08/2012	180	<1.0	<1.0	28	610	910
GP-2F(45-50)	04/18/2002	<2.000	<2.000	<2.000	<2.000	235	
	12/19/2002	<1.000	<1.000	<1.000	<1.000	55.4	
	05/19/2004	16.8	<1.0	<1.0	3.1	442	
	08/16/2004	<1.00	<1.0	<1.0	<3.0	246	
	12/15/2004	1.6	<1.0	<1.0	3	198	
	03/21/2005	3.4	<1.0	<1.0	<3.0	264	
	05/26/2005	6.4	<1.0	<1.0	<3.0	376	
	09/08/2005	5.41	<1.00	<1.00	<3.00	395	
	10/02/2006	<5.0	<5.0	<5.0	<10	340	
	03/26/2007	2.9	<2.0	<2.0	<4.0	270	
	10/02/2007	<2.0	<2.0	<2.0	<4.0	370	
	03/31/2008	<1.0	<1.0	<1.0	<2.0	330	
	09/25/2008	<1.0	<1.0	<1.0	<2.0	270	
	03/31/2009	<1.0	<1.0	<1.0	<2.0	190	
	04/01/2011	20	<3.5	<2.5	<8.0	380	330

Table 7
Groundwater Analytical Results Table – 1989 through 2012

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes, Total (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
GP-2F(50-55)	04/18/2002	20.5	<2.000	<2.000	3.6	498	
	12/19/2002	6.3	<1.000	<1.000	1.5	388	
	05/19/2004	1.4	<1.0	<1.0	<3.0	250	
	09/08/2005	<1	<1	<1	12.3	591	
	03/24/2006	113	<1.00	<1.00	22.9	525	
	10/02/2006	70	<5.0	<5.0	12	550	
	03/26/2007	19	<2.0	<2.0	5	410	
	10/02/2007	29	<2.0	<2.0	5.7	570	
	03/31/2008	15	<2.0	<2.0	<4.0	420	
	09/25/2008	9.3	<7.0	<5.0	<10	430	
	03/30/2009	3	<2.0	<2.0	<10	380	
	09/28/2009	2.1	<1.4	<1.0	<10	270	250
	05/18/2010	1.8	<1.0	<1.0	<10	330	210
	11/10/2010	3.8	<1.4	<1.0	<10	280	320
	01/19/2012	56	<5.0	<5.0	<10	420	400
	04/25/2012	44	<2.0	<2.0	<10	400	440
	10/09/2012	29	<1.0	<1.0	<10	310	300
GP-7A(20-25)	04/16/2002	<2.000	<2.000	<2.000	<2.000	<2.000	
	12/18/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	05/19/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	08/16/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	12/15/2004	<1.00	1	1	3	1.9	
	03/21/2005	<1.00	<1.0	<1.0	<3.0	<1.0	
	05/26/2005	<1.00	<1.0	<1.0	<3.0	<1.0	
	09/08/2005	<1.00	0.21	<1.00	<3.00	<1.00	
	03/27/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/04/2006	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/27/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/02/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/01/2008	<1.0	<1.0	<1.0	<2.0	1.3	
	09/24/2008	<1.0	<1.0	<1.0	<2.0	1	
	03/27/2009	<1.0	<1.0	<1.0	<2.0	1.3	
	09/29/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/12/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/10/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/01/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/19/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/25/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/05/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
GP-7A(25-30)	04/16/2002	<2.000	<2.000	<2.000	<2.000	<2.000	
	12/18/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	09/08/2005	<1	<1	<1	<2	0.42	
GP-7A(30-35)	04/16/2002	85	4.6	12.6	58	135	
	12/19/2002	11.6	<1.000	<1.000	5	17.5	
	09/08/2005	9.02	<1	0.36	2.01	8.99	
	03/27/2006	6.69	<1.00	<1.00	5.41	5.57	
	10/04/2006	9.6	<1.0	<1.0	3.6	9.1	
	03/27/2007	7	<1.0	<1.0	2.4	6.7	
	10/02/2007	12	<1.0	<1.0	2.9	11	
	04/01/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/24/2008	1.7	<1.0	<1.0	<2.0	1.8	
	03/27/2009	1.4	<1.0	<1.0	<2.0	1.1	
	09/29/2009	1.5	<1.0	<1.0	<2.0	1.4	<100
	05/12/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/10/2010	<1.0	<1.0	<1.0	<2.0	1.1	<100
	04/01/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/19/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/25/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/05/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100

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Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes, Total (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
GP-7A(35-40)	04/16/2002	1370	262	129	1400	1330	
	12/19/2002	1070	173	65	953	1450	
	09/08/2005	458	12.4	134	838	330	
	03/27/2006		10.3	63.8	753	318	
	03/27/2006	425					
	10/04/2006	420	14	99	510	260	
	03/27/2007	240	6	35	440	170	
	10/02/2007	380	7	92	290	250	
	04/01/2008	280	6	50	150	180	
	09/24/2008	380	6.7	66	80	310	
	03/27/2009	440	6.2	69	55	240	
	09/29/2009	170	1.9	23	15.7	210	1400
	05/12/2010	140	1	36	<10	260	1600
	11/10/2010	110	1.7	29	5.5	330	1300
	04/01/2011	<1.0	<1.0	<1.0	<10	<1.0	<100
	04/21/2011	65	<1.0	7.9	5	130	
	01/19/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
	04/25/2012	4.2	<1.0	<1.0	<10	6.3	<100
	10/05/2012	24	<1.0	3.6	<10	30	<100
GP-7A(40-45)	04/16/2002	<2.000	<2.000	<2.000	<2.000	1.2	
	12/18/2002	10.8	3.1	1.1	9.3	16.8	
	05/19/2004	2.4	<1.0	<1.0	5.1	3.2	
	09/08/2005	0.86	<1	<1	0.52	2.92	
GP-9A(20-25)	04/16/2002	<2.000	<2.000	<2.000	<2.000	<2.000	
	12/19/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	05/19/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	08/16/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	12/15/2004	<1.00	1	<1.0	3	<1.0	
	03/21/2005	<1.00	<1.0	<1.0	<3.0	<1.0	
	05/26/2005	<1.00	1.4	<1.0	<3.0	<1.0	
	09/08/2005	<1.00	<1.00	<1.00	<3.00	0.5	
	03/27/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/04/2006	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/27/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/02/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/01/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/24/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/27/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/29/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/12/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/10/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/01/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/19/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/25/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/05/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
GP-9A(25-30)	04/17/2002	<2.000	<2.000	<2.000	<2.000	<2.000	
	12/19/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	09/08/2005	<1	<1	<1	<2	<1	
GP-9A(30-35)	04/16/2002	<2.000	<2.000	<2.000	<2.000	<2.000	
	12/19/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	05/19/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	09/08/2005	<1	<1	<1	<2	<1	
GP-11A(20-25)	04/16/2002	<2.000	<2.000	<2.000	<2.000	<2.000	
	12/18/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	05/19/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	08/16/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	12/15/2004	1	14.8	4	33.8	1.9	
	03/21/2005	<1.00	<1.0	<1.0	<3.0	<1.0	
	05/26/2005	<1.00	<1.0	<1.0	<3.0	<1.0	
	09/08/2005	<1.00	<1.00	<1.00	<3.00	<1.00	
	03/27/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/04/2006	<1.0	<1.0	<1.0	<2.0	<1.0	

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Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes, Total (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
GP-11A(20-25) (cont.)	03/27/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/02/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/01/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/24/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/30/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/29/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/12/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/10/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/01/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/19/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/25/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/05/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
GP-11A(25-30)	04/16/2002	<2.000	<2.000	<2.000	<2.000	<2.000	
	12/18/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	09/08/2005	<1	<1	<1	0.86	<1	
GP-11A(30-35)	04/16/2002	<2.000	<2.000	<2.000	<2.000	<2.000	
	12/18/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	09/08/2005	<1	<1	<1	0.56	<1	
GP-11A(35-40)	04/16/2002	<2.000	<2.000	<2.000	<2.000	<2.000	
	12/19/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	05/19/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	09/08/2005	<1	<1	<1	0.36	<1	
GP-24A	03/26/2003	1	<1	2.2	3.2	154	
	06/17/2003	<20	<20	<20	<20	1380	
	09/23/2003	3	1.8	8.1	17	860	
	12/10/2003	<5.00	<5.0	<5.0	<15.0	468	
	03/24/2004	<1.00	<1.0	12.3	26.4	234	
	05/18/2004	<1.00	<1.0	4.4	11.8	140	
	08/16/2004	<1.00	<1.0	8.3	21.5	88.6	
	12/16/2004	1	1	7	28.4	27.4	
	03/21/2005	<1.00	<1.0	<1.0	3.8	9.5	
	05/25/2005	<1.00	<1.0	6.7	21.8	63.3	
	12/19/2005	<1.00	<1.00	2.07	5.49	3.04	
	03/22/2006	<1.00	<1.00	6.11	15.8	111	
	09/29/2006	<1.0	<1.0	25	66	2.4	
	03/23/2007	<1.0	<1.0	27	63	<1.0	
	09/25/2007	<1.0	<1.0	16	38	<1.0	
	03/28/2008	<1.0	<1.0	10	40	<1.0	
	10/01/2008	<1.0	<1.0	7.1	27	<1.0	
	04/01/2009	<1.0	<1.0	1.3	12.1	<1.0	
	09/24/2009	<1.0	<1.0	1.6	19.1	<1.0	350
	05/18/2010	<1.0	<1.0	<1.0	<10	<1.0	140
	11/10/2010	<1.0	<1.0	<1.0	<10	<1.0	<100
	03/28/2011	<1.0	<1.0	<1.0	<10	1.9	<100
	11/15/2011	<1.0	<1.0	<1.0	<10	<1.0	110
	05/03/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
	10/11/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
GP-27A	03/26/2003	11700	20900	1800	9500	8820	
	06/17/2003	16700	24800	3040	15300	7740	
	09/23/2003	14000	24300	2900	14100	4500	
	12/10/2003	10500	22300	1370	10600	1540	
	03/24/2004	17000	27100	2840	14200	3720	
	08/16/2004	5840	12200	1320	6880	810	
	03/22/2007	4500	11000	2000	10000	2400	
	09/30/2008	5200	16000	2500	13900	3100	
	04/07/2009	3400	8400	1900	11100	3500	
	09/23/2009	3500	8900	1700	10300	1500	49000
	05/17/2010	2000	4600	1200	7500	1100	28000
	11/05/2010	4300	8700	1400	11300	<74	
	03/17/2011	1400	4100	790	6300	420	37000

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GP-27R	11/14/2011	74	34	4	36	140	11000
	04/26/2012	63	25	4.3	30	140	450
	10/10/2012	89	30	3.8	24	150	550
GP-30A	03/26/2003	7430	7950	650	3340	27300	
	06/17/2003	12100	12400	1120	6280	34200	
	09/23/2003	9120	7310	730	3780	23600	
	12/10/2003	12800	12500	905	4230	40300	
	03/24/2004	10500	8920	855	5210	35700	
	05/18/2004	10200	9270	790	4470	56600	
	08/16/2004	7850	5880	550	3440	5600	
	12/15/2004	6640	8200	780	8560	20500	
	03/21/2005	7520	7060	670	7260	27000	
	05/25/2005	9700	9000	600	16200	59800	
	09/08/2005	1490	1430	117	10300	10600	
	03/22/2006	8830	11800	832	8830	64500	
	09/28/2006	11000	13000	1000	7300	54000	
	03/22/2007	7200	7400	450	8500	57000	
	09/24/2007	240	290	24	140	1300	
	03/28/2008	9100	11000	920	5800	49000	
	09/30/2008	14000	14000	600	6200	47000	
	04/07/2009	5200	4700	400	3800	22000	
	09/24/2009	6200	6500	500	3600	13000	51000
	09/24/2009	7400	7500	410	3600	15000	59000
	05/10/2010	3600	3900	380	3400	8800	38000
	11/05/2010	12000	11000	550	3700	15000	
	03/17/2011	4000	3600	290	2120	9500	32000
	11/15/2011	11000	11000	1100	6100	32000	68000
	05/03/2012	12000	14000	750	5600	18000	63000
	10/11/2012	16000	27000	2000	12000	13000	120000
GP-35A	03/26/2003	6850	12500	810	5940	2140	
	06/17/2003	11300	18000	1440	10400	4500	
	12/10/2003	9840	18500	1540	7780	5890	
	03/24/2004	12600	22800	1940	10600	4060	
	05/18/2004	9220	15800	1360	7340	3700	
	08/16/2004	7950	12300	920	5360	2170	
	03/21/2005	194	371	155	976	152	
	05/25/2005	2580	5800	585	4170	3750	
	09/07/2005	5.77	47.9	56.5	541	10.7	
	12/19/2005	18.9	86.4	10.4	138	10.2	
	03/22/2006	1.33	7.16	1.98	16.1	5.17	
	09/29/2006	160	75	3.8	36	380	
	03/23/2007	560	1100	240	1400	450	
	09/25/2007	19	33	9.2	59	6.6	
	03/28/2008	42	57	13	76	21	
	10/01/2008	4400	8500	880	4600	1100	
	04/01/2009	1800	3700	250	2010	290	
	09/24/2009	2800	5800	890	5600	300	26000
	11/05/2010	430	560	11	470	110	
	11/15/2011	1500	4600	910	4800	120	27000
	05/03/2012	2100	4800	520	3400	270	21000
	10/10/2012	290	96	61	200	98	1900
GP-38A	10/02/2002	13600	17900	1440	8460	9520	
	03/26/2003	14600	27200	1840	9390	6900	
	06/17/2003	6580	6950	350	2150	4850	
	09/23/2003	1780	3170	386	3430	808	
	12/10/2003	3250	7990	1050	5660	1020	
	03/24/2004	552	2250	526	3800	180	

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GP-38A (cont.)	05/18/2004	145	595	119	1460	153	
	08/16/2004	108	627	123	1300	36	
	12/15/2004	104	365	189	1740	86	
	03/21/2005	28	116	130	1740	32	
	05/25/2005	144	240	124	1800	28	
	12/19/2005	21	45	12.8	415	12.5	
	03/23/2006	23	86.2	46.4	947	7.52	
	09/28/2006	88	150	72	1100	<5.0	
	03/22/2007	62	150	49	790	<5.0	
	09/24/2007	120	68	110	990	<5.0	
	03/28/2008	150	280	10	260	<2.0	
	09/30/2008	3.4	5.1	4	208	<1.5	
	04/07/2009	44	6.8	4.6	144	<2.0	
	09/24/2009	2.7	1.5	3.4	124	<1.0	3400
	05/17/2010	2.1	1.5	2.7	179	<1.0	5800
	11/05/2010	2.5	3.4	2.2	129	<0.74	
	03/17/2011	1.5	4	1.1	47	<1.0	2400
GP-39A	10/02/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	03/26/2003	<1	<1	<1	<1	1.1	
	06/17/2003	<1	<1	<1	<1	1.1	
	09/23/2003	<1	<1	<1	<1	2.1	
	12/10/2003	535	3	1.1	84	1770	
	03/24/2004	570	2.2	<1.0	105	1940	
	05/18/2004	473	<10.0	<10.0	75	1680	
	08/16/2004	476	1.7	<1.0	49.9	2060	
	12/16/2004	725	2.7	1	104	2520	
	03/21/2005	7.1	3.2	1.4	133	3200	
	05/26/2005	905	5.7	2.1	104	3550	
	09/08/2005	721	15.5	2.36	120	2490	
	12/19/2005	995	43.2	7.31	206	3360	
	03/22/2006	1570	127	11.1	496	5960	
	09/28/2006	2500	740	77	910	6500	
	03/22/2007	2600	940	100	1000	5800	
	09/24/2007	2300	710	85	960	5200	
	03/27/2008	2100	620	92	980	5400	
	09/30/2008	2100	540	66	750	4800	
	03/31/2009	2200	820	90	820	4900	
	09/23/2009	3100	2200	240	1770	4600	
	09/23/2009	2800	1900	190	1600	4700	15000
	05/17/2010	3100	2300	200	1710	5500	14000
	11/10/2010	3400	3300	280	1820	4200	21000
	03/28/2011	4100	3300	360	2070	5100	21000
GP-39R	11/14/2011	340	120	16	129	680	1600
	04/26/2012	150	31	2.1	33	400	750
	10/10/2012	280	180	19	120	350	1500
GP-41A	10/02/2002	4.5	<1.000	<1.000	2.7	88.1	
	03/26/2003	48.1	<1	<1	10.4	662	
	06/17/2003	38.1	<1	<1	12.5	556	
	09/23/2003	17.3	<1	<1	4.9	399	
	12/10/2003	20.5	<1.0	<1.0	5.3	464	
	03/24/2004	1.6	<1.0	<1.0	<3.0	42.2	
	05/18/2004	1.1	<1.0	<1.0	<3.0	45.7	
	08/16/2004	<1.00	<1.0	<1.0	<3.0	26	
	12/16/2004	1	<1.0	<1.0	3	18	
	03/21/2005	1.2	<1.0	<1.0	<3.0	18.2	
	05/25/2005	1.9	1.8	<1.0	<3.0	13.3	
	12/19/2005	<1.00	<1.00	<1.00	<3.00	9.93	
	03/22/2006	<1.00	<1.00	<1.00	<2.00	7.4	
	09/28/2006	<1.0	<1.0	<1.0	<2.0	5.3	
	03/22/2007	2.1	1.1	<1.0	<2.0	3	
	09/24/2007	<1.0	<1.0	<1.0	<2.0	2.8	
	03/27/2008	<1.0	<1.0	<1.0	<2.0	4.1	

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Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes, Total (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
GP-41A (cont.)	09/29/2008	1.5	<1.0	<1.0	1.7	5.4	
	03/31/2009	7.8	<1.0	<1.0	11	29	
	09/23/2009	7.3	<1.0	<1.0	13	1.7	160
	05/17/2010	13	5.9	<1.0	20	<1.0	360
	11/10/2010	2.5	1.4	<1.0	5.2	<1.0	120
	03/28/2011	6.4	3.2	<1.0	12	<1.0	370
	11/15/2011	7.7	1.9	<1.0	8	<1.0	350
	05/03/2012	4.5	<1.0	<1.0	<5	<1.0	190
	10/11/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
GP-44A	03/26/2003	<10	51	170	2010	53	
	06/17/2003	20.5	29	133	2080	55	
	09/23/2003	2	7.1	265	2500	61.3	
	12/10/2003	32.1	6.6	332	2340	92.3	
	03/24/2004	7	8.5	149	1030	31.1	
	05/18/2004	19.4	16.8	374	2980	102	
	08/16/2004	27.9	12.4	290	2440	125	
	12/16/2004	27	9.6	155	1350	20	
	03/21/2005	<20.0	<20.0	182	1370	28	
	05/25/2005	23.4	32.7	204	1550	81.9	
	09/07/2005	<1	64.4	260	1870	3.24	
	12/19/2005	3.65	88	102	788	8.51	
	03/23/2006	<1.00	166	250		<1.00	
	03/23/2006				1800		
	09/29/2006	<2.0	70	150	940	<2.0	
	03/23/2007	<5.0	130	240	1700	<5.0	
	09/25/2007	<5.0	160	300	2100	<5.0	
	03/28/2008	<2.0	37	220	1100	<2.0	
	09/30/2008	<1.5	37	290	1510	<3.7	
	04/01/2009	<3.0	54	230	1430	<7.4	
	09/24/2009	<2.0	22	110	700	<2.0	7700
	05/18/2010	<5.0	25	160	1090	<5.0	7500
	11/05/2010	<1.7	4.3	97	970	<3.7	
	03/17/2011	<3.4	<7.0	65	560	<7.4	4700
	11/15/2011	<2.0	5.2	82	750	<2.0	6300
	04/24/2012	<2.0	6.3	63	630	<2.0	6500
	10/10/2012	<2.0	14	76	710	<2.0	7400
MP-7	05/02/2012	6900	13000	1500	9100	3400	67000
	10/10/2012	2000	820	150	1000	2800	17000
MW-1	11/29/1989	8300	8400	1400	2800		
	05/01/1990	4200	1000	1800	1100		
	12/12/1990	4900	3100	440	1200		
	03/27/1991	8000	4800	530	3000		
	02/19/1992	3500	600	400	760		
	05/20/1992	4800	920				
	08/19/1992	6200	1800	690	1900		
	12/18/1992	5500	2200	480	1840	7400	
	03/05/1993	5500	1600	400	1500	9500	
	06/11/1993	4600	690	340	820		
	09/14/1993	6700	3000	570	2400		
	12/16/1993	4800	280	650	600	5300	
	03/18/1994	110	20	20	60	3400	
	06/20/1994	50	20	10	40	520	
	09/28/1994	42	3	6	6	540	
	12/21/1994	320	16	33	16	1000	
	03/03/1995	890	30	90	40	1800	
	06/20/1995	850	21	120	17	1700	
	09/28/1995	810	140	100	60	2100	
	12/28/1995	560	11	77	7	1400	
	09/17/1996	330	5	5		12000	
	12/10/1996	<1	<1	<1	<3	66000	
	03/13/1997	<10	3	1	6	17000	
	06/27/1997	<1	<1	<1	<3	7200	

Table 7
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Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes, Total (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-1 (cont.)	02/27/1998	<1	<1	<1	<3	450	
	07/29/1998	<1	<1	<1	<3	47	
	03/30/1999	28	2.5	0.47999998	5.0999999	3000	
	11/08/1999	190	<60	<60	<180	7900	
	03/31/2000	110	74	38	120	7100	
	02/07/2001	<1	<2	<2	<2	5000	
	11/15/2001	75.8	<1.000	14.1	<1.000	9160	
	03/06/2002	<200.000	<200.000	<200.000	<200.000	5380	
	03/26/2003	<2	<2	2.6	<2	363	
	06/17/2003	<1	<1	<1	<1	<1	
	09/23/2003	<1	<1	<1	<1	<1	
	12/10/2003	<1.00	<1.0	<1.0	<3.0	<1.0	
	03/24/2004	<1.00	<1.0	<1.0	<3.0	1	
	05/18/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	08/16/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	12/16/2004	<1.00	<1.0	<1.0	<3.0	2.1	
	03/21/2005	<1.00	<1.0	<1.0	<3.0	2.6	
	05/25/2005	<1.00	<1.0	<1.0	<3.0	1	
	09/07/2005	<1	<1	<1	<2	29.5	
	12/19/2005	<1.00	<1.00	<1.00	<3.00	<1.00	
MW-2	11/29/1989	1100	1200	2500	4100		
	05/01/1990	11000	1400	15000	3900		
	03/27/1991	13000	12000	600	7000		
	08/19/1992	8500	6500	730	3600		
	03/05/1993	8400	6800	900	5500	15000	
	06/11/1993	5400	2000	700	3000		
	09/14/1993	8400	2900	1500	4100		
	12/16/1993	6400	2700	1200	3800	11000	
	03/18/1994	1000	100	240	400	4100	
	06/20/1994	300	40	80	90	800	
	09/28/1994	150	20	110	210	700	
	12/21/1994	220	42	190	310	740	
	03/03/1995	370	50	230	390	990	
	06/20/1995	260	48	240	410	510	
	09/28/1995	61	12	61	100	300	
	12/28/1995	7	4	39	92	140	
	09/17/1996	40	10	170	370	5600	
	12/10/1996	5	5	73	170	120000	
	03/13/1997	3	14	45	140	44000	
	06/27/1997	3	2	12	27	4300	
	02/27/1998	<1	<1	10	15	250	
	07/29/1998	<1	<1	7	13	56	
	03/30/1999	1.10000002	1.20000004	4.90000009	9	400	
	11/08/1999	32	33	36	22	1200	
	03/31/2000	29	<16	40	43	3800	
	03/26/2003	<1	<1	<1	<1	<1	
	06/17/2003	<1	<1	<1	<1	<1	
	09/23/2003	<1	<1	<1	<1	1.7	
	12/10/2003	<1.00	4.8	1.6	9.6	1.4	
	03/24/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	05/18/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	08/16/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	12/16/2004	<1.00	<1.0	<1.0	<3.0	2.2	
	03/21/2005	<1.00	<1.0	<1.0	<3.0	4.6	
	05/25/2005	<1.00	<1.0	<1.0	<3.0	<1.0	
	12/19/2005	<1.00	<1.00	<1.00	<3.00	2.13	
MW-3	11/29/1989	8800	19000	4600	8200		
	05/01/1990	3400	2900	6600	2600		
	12/12/1990	4100	8200	1350	6600		
	03/27/1991	24000	44000	8200	47000		
	02/19/1992	3700	6500	2000	7300		
	05/20/1992	3600	7700	1900	7900		

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MW-3 (cont.)	08/19/1992	3300	4300	1200	4400		
	12/18/1992	1700	1700	950	3090	10000	
	03/05/1993	2600	3300	1500	4700	16000	
	06/11/1993	1200	660	720	1780		
	09/14/1993	1600	290	960	1068		
	12/16/1993	1700	700	900	1500	4000	
	03/18/1994	450	430	180	460	2700	
	06/20/1994	830	380	240	450	2500	
	09/28/1994	230	130	90	160	1100	
	12/21/1994	120	48	65	78	900	
	03/03/1995	560	760	230	630	1700	
	06/20/1995	500	800	300	700	1100	
	09/28/1995	390	580	200	460	910	
	12/28/1995	160	320	200	440	390	
	09/17/1996	80	190	130	260	4200	
	12/10/1996	130	340	170	360	2700	
	03/13/1997	76	28	170	200	27000	
	06/27/1997	3	<1	2	<3	1500	
	02/27/1998	26	50	62	100	1900	
	07/29/1998	<10	6	8	9	290	
	03/30/1999	8.30000019	42	32	66	660	
	11/08/1999	49	410	250	700	320	
	03/31/2000	<10	440	340	800	1900	
	02/07/2001	15	240	180	490	2100	
	08/07/2001	1.10000002	<1	2	4	34.5999984	
	11/15/2001	<1.000	1.9	8.6	16	10.8	
	03/06/2002	5.3	16.4	59.5	83.5	70.2	
	06/17/2002	2.8	2.5	18.5	15.7	14.9	
	10/02/2002	1.4	1.7	20	17.5	12.4	
	03/26/2003	1	1.9	16.9	46.9	8.2	
	06/17/2003	3.6	<1	9.3	22.3	13.6	
	09/23/2003	1.6	<1	<1	3.5	4.7	
	12/10/2003	3.7	4.9	9.1	32.7	11.9	
	03/24/2004	1.7	<1.0	2	9.5	8.1	
	05/18/2004	2	<1.0	3	11.8	11	
	08/16/2004	<1.00	<1.0	2.1	8.2	7.5	
	12/16/2004	2.3	1	2	7.8	7.1	
	03/21/2005	<1.00	<1.0	1.4	6.7	6	
	05/25/2005	<1.00	<1.0	<1.0	<3.0	1.5	
	12/19/2005	<1.00	<1.00	<1.00	<3.00	1.8	
MW-4	11/29/1989	2300	1300				
	05/01/1990	2400	460	890	600		
	12/12/1990	1300	870	310	280		
	03/27/1991	24000	5000	3500	2700		
	02/19/1992	1700	290	370			
	05/20/1992	1300					
	08/19/1992	1600		460	230		
	12/18/1992	1000	67	390	138	2400	
	06/11/1993	1400	150	330	50		
	09/14/1993	2500	600	550	410		
	12/16/1993	2100	50	390	60	1100	
	03/18/1994	1100	10	50	30	540	
	06/20/1994	7	1	1	3	25	
	09/28/1994	20	1	1	3	50	
	12/21/1994	140	2	9	3	100	
	03/03/1995	210	6	20	5	210	
	06/20/1995	130	6	9	20	290	
	09/28/1995	100	3	6	3	310	
	12/28/1995	89	2	3	3	350	
	09/17/1996	100	3	8	3	94	
	12/10/1996	6	1	2	3	24	
	02/27/1998	5	<1	<1	<3	14	

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MW-4 (cont.)	07/29/1998	<1	<1	<1	<3	2	
	03/30/1999	1.20000004	0.75	<1	0.89999997	5.0999999	
	11/08/1999	8.6999998	1.70000004	1.29999995	<1	3.5	
	03/31/2000	7.90000009	<1	<1	<1	22	
	02/07/2001	<1	<1	<1	<1	24	
	08/07/2001	<1	<1	<1	<1	33.5999984	
	11/15/2001	<1.000	<1.000	<1.000	<1.000	10.4	
	03/06/2002	3	<1.000	<1.000	2.1	6.7	
	06/17/2002	3.6	<1.000	1	<1.000	4.3	
	10/02/2002	2.7	<1.000	<1.000	<1.000	1.9	
	03/26/2003	<1	<1	<1	<1	<1	
	06/17/2003	<1	<1	<1	<1	<1	
	09/23/2003	<1	<1	<1	<1	<1	
	12/10/2003	<1.00	<1.0	<1.0	<3.0	<1.0	
	03/24/2004	<1.00	<1.0	<1.0	<3.0	1.6	
	05/18/2004	<1.00	<1.0	<1.0	<3.0	1.8	
	08/16/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	12/16/2004	<1.00	<1.0	<1.0	<3.0	2.1	
	03/21/2005	<1.00	<1.0	<1.0	<3.0	<1.0	
	05/25/2005	<1.00	<1.0	<1.0	<3.0	<1.0	
	09/07/2005	<1	<1	<1	<2	0.52	
	12/19/2005	<1.00	<1.00	<1.00	<3.00	<1.00	
MW-5	08/19/1992	51000	65000		100000		
	06/11/1993	19000	19000	1500	15600		
	09/14/1993	19000	22000	2000	22000		
	12/16/1993	18000	19000	1800	13000	36000	
	03/18/1994	15000	17000	1700	11000	38000	
	06/20/1994	11000	6500	500	8400	34000	
	12/21/1994	7400	8900	700	8300	12000	
	03/03/1995	4600	4400	200	7500	10000	
	06/20/1995	3100	2000	180	7400	18000	
	09/28/1995	380	460	90	7500	8600	
	12/28/1995	160	150	50	1900	2900	
	09/17/1996	5800	1400	200	700	5600	
	12/10/1996	3700	790	360	800	5100	
	06/27/1997	2200	520	160	440	4500	
	02/27/1998	1000	<500	110	560	2500	
	07/29/1998	100	17	37	60	1100	
	03/30/1999	310	160	59	110	2200	
	11/08/1999	1600	110	140	120	330	
	03/31/2000	390	33	160	65	230	
	10/02/2002	2.6	2.9	4	13.8	4.2	
	03/26/2003	57.3	76.6	5.4	49.9	4.5	
	06/17/2003	107	171	22.2	152	8	
	09/23/2003	45.9	127	9.3	67.1	1.3	
	12/10/2003	106	148	17.5	148	134	
	05/18/2004	10.2	14.9	1.7	14.6	4.1	
	12/16/2004	1.7	1.1	2.2	7.5	1.6	
	03/21/2005	<1.00	<1.0	<1.0	<3.0	4.2	
	05/25/2005	<1.00	<1.0	<1.0	<3.0	1.5	
	09/29/2006	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/23/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/25/2007	<1.0	<1.0	1.6	6	<1.0	
	10/01/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/01/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/29/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
MW-6	05/01/1990	9200	3700	3200	7600		
	12/18/1992	2000	2400	750	3390	4000	
	03/05/1993	2500	3400	1500	7500	4200	
	06/11/1993	3200	4900	2000	9600		
	09/14/1993	5400	7600	3500	15000		
	12/16/1993	3800	4900	2500	11000	10000	

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MW-6 (cont.)	03/18/1994	2500	3100	1500	7700	6000	
	06/20/1994	1600	2100	900	5000	3300	
	09/28/1994	1700	2300	1300	6600	2500	
	12/21/1994	2000	2000	1800	7200	5600	
	03/03/1995	1700	2100	1400	6200	4500	
	06/20/1995	1800	2300	1900	7800	5100	
	09/28/1995	780	1000	1300	5700	1800	
	12/28/1995	700	1700	2200	8800	3500	
	09/17/1996	430	670	340	1600	24000	
	12/10/1996	250	360	250	1100	30000	
	03/13/1997	400	1200	800	3900	140000	
	06/27/1997	510	2300	1100	5700	110000	
	02/27/1998	190	200	150	710	2600	
	07/29/1998	200	610	720	2600	4400	
	03/30/1999	150	600	500	2100	1100	
	11/08/1999	250	1600	1800	7700	4300	
	03/31/2000	130	980	1700	5600	14000	
	02/07/2001	90	50	100	420	370	
	08/07/2001	73	127	331	1100	168	
	11/15/2001	70.3	<1.000	193	564	166	
	03/06/2002	57.3	13.3	71.6	234	95.2	
	06/17/2002	53.8	5.7	47.1	134	76.1	
	10/02/2002	23	161	671	1920	180	
	03/26/2003	29.4	13.8	54	121	57.8	
	06/17/2003	55.5	5.4	9.4	18.9	69.6	
	09/23/2003	45.2	14.9	25.5	71.4	36.4	
	12/10/2003	36.6	4.3	7.2	20.8	25.9	
	03/24/2004	44.1	2.8	4.3	12.7	21.5	
	05/25/2004	33.1	1	1.3	2.8	12	
	07/22/2004	30.7	0.7	1.2	2.9	10.2	
	12/16/2004	20.4	32.7	130	329	22.2	
	03/21/2005	15.2	73.2	176	407	28.3	
	05/25/2005	7.5	22	83.1	182	7.9	
	12/19/2005	1.88	1.94	1.24	3.51	4.92	
	03/23/2006	4.31	1.22	2.13	3.75	3.12	
	09/29/2006	3.4	4.1	12	16	1.7	
	03/23/2007	3.2	2.6	6.7	22	<1.0	
	09/25/2007	1.7	<1.0	1.4	2.6	<1.0	
	03/28/2008	3.2	<1.0	<1.0	<2.0	<1.0	
	10/01/2008	1.9	4.9	48	126	<1.5	
	04/02/2009	3.5	12	100	166	<2.0	
	09/24/2009	1.3	33	50	168	<1.0	1700
	09/24/2009	2	5.1	17	51	<1.0	890
	05/18/2010	2.6	<1.0	<1.0	<5	<1.0	<100
	11/10/2010	0.86	<1.4	<1.0	<3.2	<1.5	<100
	03/29/2011	<1.7	63	320	500	<3.7	4100
	11/15/2011	1.5	<1.0	<1.0	<5	<1.0	<100
	05/03/2012	<1.0	22	14	55	<1.0	620
	10/11/2012	<1.0	<1.0	<1.0	<10	<1.0	110
MW-7	03/18/1994	12000	18000	1600	8100	44000	
	06/20/1994	5000	8600	1000	5700	9600	
	09/28/1994	3400	4000	500	2400	13000	
	09/17/1996	1600	1700	200	1200	4200	
	12/10/1996	1500	1400	190	1000	4000	
	03/13/1997	1700	2200	330	1700	5500	
	06/27/1997	8500	11000	1100	5500	40000	
	02/27/1998	1500	1800	270	1400	5900	
	07/29/1998	3500	5600	800	5000	14000	
	03/30/1999	3700	5000	650	3400	12000	
	02/07/2001	2900	3300	400	1900	5800	
	08/07/2001	2000	2330	290	1410	3250	
	11/15/2001	1540	1	100	980	3460	

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Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes, Total (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-7 (cont.)	03/06/2002	1700	2060	200	1120	3300	
	06/17/2002	1590	2100	238	1200	2580	
	10/02/2002	5600	6860	730	4130	7290	
	03/26/2003	318	686	59.6	360	383	
	06/17/2003	778	1010	109	634	888	
	09/23/2003	764	1010	110	558	936	
	12/10/2003	680	918	103	511	867	
	03/24/2004	1900	2830	328	1710	2180	
	05/18/2004	453	604	64	402	717	
	08/16/2004	819	1120	140	737	1270	
	01/20/2005	2220	2440	360	1840	2170	
	03/21/2005	695	585	50	370	1380	
	05/25/2005	602	754	74	544	816	
	12/19/2005	701	675	43.6	310	735	
	03/23/2006	908	1060	67.6	762	1410	
	09/29/2006	330	410	34	310	340	
	03/23/2007	800	1200	150	860	450	
	09/25/2007	1000	1500	120	1400	530	
	03/28/2008	700	1300	94	1200	420	
	10/01/2008	1	230	17	206	240	
	04/01/2009	3400	5300	670	2770	1300	
	09/29/2009	550	640	72	430	270	3300
	05/10/2010	860	1200	110	600	390	4700
	11/03/2010	810	1000	52	530	150	
	11/14/2011	600	870	82	600	190	3500
	04/26/2012	3000	4500	600	1850	540	20000
	10/10/2012	390	590	58	420	99	3600
MW-12	12/18/1992	22000	24000	1800	9900	72000	
	03/05/1993	29000	33000	2500	14900	110000	
	06/20/1994	6900	17000	2200	14000	11000	
	09/28/1994	24000	26000	2000	12000	76000	
	12/21/1994	4300	7900	1000	5800	8000	
	03/03/1995	1700	7200	1100	11000	5700	
	06/20/1995	11000	20000	3000	21000	39000	
	09/28/1995	4100	11000	1200	9200	17000	
	12/28/1995	160	580	100	1700	1300	
	09/17/1996	1500	3600	790	4100	1600	
	12/10/1996	890	2200	440	2400	1700	
	03/13/1997	700	2100	460	2500	1700	
	06/27/1997	500	1500	300	1800	200	
	02/27/1998	580	660	110	590	1400	
	07/29/1998	900	1900	350	2300	1400	
	03/30/1999	600	620	85	600	2300	
	11/08/1999	3800	3900	420	2500	5000	
	03/31/2000	680	860	130	1100	1100	
	02/07/2001	150	140	13	160	440	
	08/07/2001	666	520	72	344	1510	
	11/15/2001	1130	1740	177	1070	1740	
	03/06/2002	915	1780	<50.000	170	1930	
	06/17/2002	508	977	88	583	1190	
	10/02/2002	157	397	42	388	94	
	03/26/2003	184	195	18.4	169	538	
	06/17/2003	268	246	20.4	136	636	
	09/23/2003	474	506	24	155	710	
	12/10/2003	246	220	17	106	630	
	03/24/2004	505	452	30	225	1270	
	05/18/2004	277	239	18	126	682	
	08/16/2004	236	218	20.5	130	702	
	12/16/2004	290	704	106	1450	262	
	03/21/2005	24.6	39	4.2	283	69	
	05/25/2005	6240	8660	680	3250	16100	
	09/07/2005	57.8	127	9.37	78.6	165	
	12/19/2005	60.4	65.3	3.46	35.8	268	

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MW-13	08/19/1992	1100	1600		3000		
	12/18/1992	370	430	19	970	300	
	06/11/1993	420	330	20	1250		
	09/14/1993	1700	4100	460	2700		
	12/16/1993	1300	3400	470	2300	1000	
	03/18/1994	780	1700	230	1200	460	
	06/20/1994	1000	5500	1500	7900	800	
	09/28/1994	600	2500	700	3800	900	
	12/21/1994	570	2300	600	2800	1000	
	03/03/1995	550	2100	450	2300	200	
	06/20/1995	540	1600	410	2000	500	
	09/28/1995	660	2200	760	3900	3600	
	12/28/1995	450	960	390	2000	1600	
	09/17/1996	260	600	290	1590	300	
	12/10/1996	110	490	380	2100	230	
	03/13/1997	130	41	56	410	<100	
	06/27/1997	210	9	4	210	180	
	02/27/1998	140	5	3	160	<200	
	07/29/1998	37	20	45	770	<100	
	03/30/1999	98	2.70000004	3.70000004	120	120	
	11/08/1999	220	12	9.6999998	170	200	
	03/31/2000	310	13	6.1999998	120	310	
	02/07/2001	100	6.80000019	1.39999997	95	140	
	08/07/2001	120	2.20000004	<1	60.9000015	93.5999984	
	11/15/2001	294	4	<1.000	135	153	
	03/06/2002	402	10	<10.000	204	61	
	06/17/2002	138	2.5	1.8	92.9	172	
	10/02/2002	45.4	<1.000	<1.000	5.4	70.8	
	03/26/2003	9.8	<1	<1	<1	20.2	
	06/17/2003	213	3	1.3	104	171	
	09/23/2003	<1	<1	<1	<1	4.1	
	12/10/2003	1.1	<1.0	<1.0	<3.0	5.9	
	03/24/2004	<1.00	<1.0	<1.0	<3.0	3.9	
	05/18/2004	14	<1.0	<1.0	<3.0	32.1	
	08/16/2004	2	<1.0	<1.0	<3.0	13	
	12/16/2004	8.8	1	1	3	7.3	
	03/21/2005	<1.00	<1.0	<1.0	<3.0	3.5	
	05/25/2005	<1.00	<1.0	<1.0	<3.0	1.9	
	12/19/2005	<1.00	<1.00	<1.00	<3.00	1.92	
MW-15	09/14/1993	16000	39000	3100	17000		
	09/28/1994	2500	6200	1100	7900	4000	
	12/21/1994	2200	8000	1200	9200	4400	
	03/03/1995	1700	7200	1100	11000	5600	
	09/28/1995	550	2800	560	3800	4600	
	09/17/1996	840	6900	950	8600	1400	
	12/10/1996	610	3300	390	5100	1200	
	03/13/1997	540	3000	230	6500	1700	
	06/27/1997	270	2900	440	6900	340	
	02/27/1998	420	2400	470	6400	600	
	07/29/1998	130	1300	530	5000	<300	
	03/30/1999	170	530	150	1500	200	
	11/08/1999	230	1700	650	4000	44	
	03/31/2000	270	2000	670	4800	42	
	02/07/2001	210	710	230	5100	340	
	08/07/2001	382	750	116	4100	564	
	11/15/2001	355	744	123	3770	502	
	03/06/2002	350	478	52	3640	690	
	06/17/2002	608	140	<20.000	612	1620	
	10/02/2002	118	288	109	814	50	
	03/26/2003	134	416	138	2390	244	
	06/17/2003	146	616	152	1550	272	
	09/23/2003	184	487	97.9	1950	245	

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MW-15 (cont.)	12/10/2003	66	194	80.7	1200	107	
	03/24/2004	37.5	97.5	94	874	104	
	05/18/2004	53.2	180	100	1110	121	
	08/16/2004	18.5	48.5	44	528	65	
	12/16/2004	35.4	68.1	68.4	240	13.4	
	03/21/2005	34.4	102	99.3	378	65.7	
	05/25/2005	22.8	147	126	507	41.3	
	12/19/2005	6.5	18.4	17.7	58.3	10.7	
	03/23/2006	1.3	10.3	11	36	<1.00	
	09/29/2006	1	5.7	5.3	19	<1.0	
	03/23/2007	9.4	59	31	120	<1.0	
	09/25/2007	6.1	37	16	58	<1.0	
	03/28/2008	8.6	47	22	65	<1.0	
	09/30/2008	7.9	16	23	33	<1.0	
	04/01/2009	10	38	16	57	<1.0	
	09/24/2009	1.2	<1.0	<1.0	<2	<1.0	<100
	09/24/2009	7	32	13	49	<1.0	680
	05/18/2010	7	36	11	37	<1.0	560
	11/05/2010	5.2	27	7.7	28	<1.0	
	03/17/2011	2.2	14	6.7	22.9	<1.0	500
	11/15/2011	11	36	16	46	<1.0	720
	04/24/2012	5	33	12	48	<1.0	470
	10/10/2012	17	100	37	130	<1.0	1100
MW-16	09/28/1995	4700	9900	1300	6600	7100	
	12/28/1995	4900	10000	1100	6000	7900	
	09/17/1996	3200	5000	330	2640	3500	
	12/10/1996	810	1200	120	880	1300	
	03/13/1997	860	1100	120	780	1400	
	06/27/1997	21	42	7	57	31	
	02/27/1998	6900	9500	830	5000	4800	
	07/29/1998	120	290	60	440	80	
	03/30/1999	5200	7500	700	4400	7100	
	11/08/1999	4300	3200	<200	1400	29000	
	03/31/2000	14000	11000	730	4600	56000	
	11/15/2001	25900	44400	4700	26700	45400	
	03/06/2002	12600	37000	3500	24000	33000	
	06/17/2002	4060	11000	1820	19100	27000	
	10/02/2002	2000	1440	<200.000	5060	20800	
	03/26/2003	3020	2140	140	3100	17000	
	06/17/2003	6160	10200	820	9740	14700	
	09/23/2003	23.4	49.8	4.8	67	294	
	12/10/2003	334	646	82	695	3290	
	03/24/2004	81.5	51.3	8.1	123	2250	
	05/18/2004	444	734	76	593	2470	
	08/16/2004	2340	3360	285	2210	7780	
	12/16/2004	5900	9520	1240	8760	6580	
	03/21/2005	4060	4640	400	4090	7840	
	05/25/2005	2810	3920	630	5880	5260	
	09/07/2005	3830	9040	107	7160	6620	
	12/19/2005	46.6	94.4	12.7	120	92.3	
	03/23/2006	24.4	38.9	5.93	187	1970	
	10/02/2006	1600	3400	85	3100	2500	
	03/26/2007	2200	2200	<100	650	2400	
	10/01/2007	2400	250	59	540	2600	
	09/25/2008	4700	13000	1400	9800	560	
	03/30/2009	27	6.4	<2.0	4.3	480	
	09/28/2009	27	20	2.9	38	6	350
	05/10/2010	<1.0	<1.0	<1.0	<5	<1.0	<100
	11/10/2010	5.1	<1.0	3.6	15	410	750
	03/17/2011	<1.7	<3.5	<2.5	<8	250	360

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MW-17	08/07/2001	15200	24200	2600	13200	26100	
	11/15/2001	13300	23200	2780	14800	29000	
	03/06/2002	13900	22200	2640	14200	31100	
	06/17/2002	8840	10800	900	6000	24700	
	10/02/2002	7180	7700	660	4280	20300	
	03/26/2003	4820	6140	580	3280	13300	
	06/17/2003	6160	7270	820	4750	12100	
	09/23/2003	8320	9990	1130	5710	14200	
	12/10/2003	5820	7660	785	3920	12500	
	03/24/2004	6960	9540	1010	4720	8900	
	05/18/2004	5340	7010	700	3660	9280	
	08/16/2004	5370	6940	620	3540	10300	
	01/20/2005	2270	2500	125	1780	3030	
	03/21/2005	7560	10800	1360	6140	11700	
	05/25/2005	8250	12800	1180	6780	13700	
	12/19/2005	5370	6480	484	2810	9410	
	03/23/2006	1620	2240	183	1480	3030	
	10/02/2006	5100	8600	830	4800	6500	
	03/26/2007	360	300	14	100	750	
	10/01/2007	6600	13000	1300	8000	7800	
	03/31/2008	1500	3100	310	2200	1800	
	10/01/2008	5700	10000	1100	6300	6500	
	04/07/2009	5600	10000	1600	7700	6000	
	09/29/2009	4400	8300	820	5300	6200	31000
	05/10/2010	4000	7800	840	5600	5300	33000
	11/03/2010	7400	12000	810	5900	4800	
	03/17/2011	4400	9800	1100	5800	4400	33000
	11/14/2011	4700	9100	850	6200	4700	38000
	04/26/2012	2800	5900	490	4500	4100	30000
	10/10/2012	4000	7500	830	5500	4300	45000
MW-18	10/02/2001	2500	20500	2600	18700	600	
	11/15/2001	2250	21200	3260	21700	260	
	03/06/2002	1890	20000	3100	18500	230	
	06/17/2002	1230	15800	1900	13700	450	
	10/02/2002	1800	14700	2360	12100	530	
	03/26/2003	208	1940	316	6380	118	
	06/17/2003	95.5	727	163	2180	55.5	
	09/23/2003	5.3	30	11.2	136	6.6	
	12/10/2003	4.5	93.1	53	197	4.6	
	03/24/2004	1.3	3.1	<1.0	16.1	1.1	
	05/17/2004	1.9	10.4	1.4	25.5	1.3	
	07/13/2004	2.6	22.4	2.9	40.2	1.4	
	12/15/2004	70	664	286	2450	66	
	03/21/2005	3.6	33.2	13.2	120	10.8	
	05/26/2005	25.3	158	103	984	29.2	
	09/09/2005	4.58	2170	924	7680	7.12	
	12/20/2005	61.6	558	372	3470	60.4	
	03/23/2006	1.61	138	164	887	17.9	
	10/02/2006	<5.0	210	160	1500	<5.0	
	03/26/2007	<20	430	320	2900	<20	
	10/01/2007	<10	480	560	6100	<10	
	03/31/2008	42	1600	450	4000	<10	
	09/25/2008	6.1	670	270	6900	<15	
	03/30/2009	14	810	380	5000	<15	
	09/28/2009	<6.0	140	19	3500	<15	26000
	05/18/2010	<2.0	<2.0	<2.0	<10	<2.0	1300
	11/10/2010	<1.0	4.1	10	480	<1.0	13000
	04/01/2011	<1.7	26	16	930	<3.7	23000
	01/19/2012	<10	<10	39	1000	<10	50000
	04/25/2012	<5.0	<5.0	11	300	<5.0	23000
	10/08/2012	<1.0	24	15	430	<1.0	190000

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MW-19	10/02/2001	<1.000	<1.000	<1.000	<1.000	<1.000	
	11/15/2001	<1.000	<1.000	<1.000	<1.000	<1.000	
	03/06/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	06/17/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	10/02/2002	<1.000	<1.000	<1.000	<1.000	<1.000	
	03/26/2003	<1	<1	<1	<1	<1	
	06/17/2003	<1	<1	<1	<1	<1	
	09/23/2003	<1	<1	<1	<1	<1	
	12/10/2003	<1.00	<1.0	<1.0	<3.0	<1.0	
	03/24/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	05/19/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	08/16/2004	<1.00	<1.0	<1.0	<3.0	<1.0	
	12/15/2004	<1.00	<1.0	<1.0	3	1	
	03/21/2005	<1.00	<1.0	<1.0	<3.0	<1.0	
	05/26/2005	<1.00	<1.0	<1.0	<3.0	<1.0	
	09/09/2005	<1	<1	<1	0.59	0.48	
	12/20/2005	<1.00	<1.00	<1.00	<3.00	<1.00	
	03/22/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/02/2006	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/26/2007	<1.0	<1.0	<1.0	<2.0	4.6	
	10/01/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/31/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/25/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/30/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/28/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/18/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/10/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/01/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/19/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/25/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/08/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
MW-20	05/18/2004	1.4	<1	<1	<1	<1	
	07/15/2004	1.4	<1	<1	<1	<1	
	09/07/2005	2.41	<1	<1	<2	<1	
	03/22/2006	2.04	<1.00	<1.00	<2.00	<1.00	
	09/28/2006	4	<1.0	<1.0	2.4	<1.0	
	03/22/2007	4.2	<1.0	<1.0	2.3	<1.0	
	09/24/2007	3.8	<1.0	<1.0	2.3	<1.0	
	03/28/2008	2	<1.0	<1.0	<2.0	<1.0	
	10/01/2008	2.3	5.5	2.7	15.1	<1.0	
	04/02/2009	2.3	<1.0	<1.0	<2.0	<1.0	
	09/24/2009	1.7	<1.0	<1.0	<2.0	<1.0	300
	05/18/2010	1.9	<1.0	<1.0	<2.0	<1.0	190
	11/10/2010	1.5	<1.0	<1.0	<2.0	<1.0	390
	04/07/2011	3	<1.0	<1.0	<2.0	<1.0	190
	11/15/2011	1.7	<1.0	<1.0	<2.0	<1.0	400
	04/24/2012	1.7	<1.0	<1.0	<2.0	<1.0	460
	10/11/2012	<1.0	<1.0	<1.0	<2.0	<1.0	390
MW-21	05/18/2004	1.8	<1	<1	<1	3.7	
	07/14/2004	2	<1	<1	<1	5.1	
	09/07/2005	5.64	<1	<1	<2	12.6	
	03/22/2006	7.03	<1.00	<1.00	3.55	14.7	
	09/28/2006	10	<1.0	<1.0	6.5	18	
	03/22/2007	9.9	13	6	43	15	
	09/24/2007	9.6	<1.0	<1.0	7	15	
	03/28/2008	8.6	<1.0	<1.0	6.7	19	
	09/30/2008	10	18	7.1	53	15	
	04/02/2009	10	<1.0	<1.0	8.7	17	
	09/24/2009	9.1	<1.0	<1.0	8.6	<1.0	230
	06/09/2010	10	<1.0	<1.0	5	18	410
	06/09/2010	12	<1.0	<1.0	6.1	20	410
	11/10/2010	9	<1.0	<1.0	5.2	16	410

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Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes, Total (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-21 (cont.)	04/07/2011	11	<1.0	<1.0	6.2	16	230
	11/15/2011	9.9	<1.0	4.2	5.5	20	340
	04/24/2012	9.2	<1.0	4.1	5.4	19	370
	10/11/2012	6.6	<1.0	<1.0	<10	<1.0	420
MW-22	06/08/2004	5620	15000	1330	7060	866	
	08/03/2004	7960	19300	1810	10500	1620	
	09/07/2005	8790	22500	2310	12300	1780	
	03/23/2006	6860	19200	1690	9120	2020	
	10/02/2006	7900	20000	2100	13000	1100	
	03/26/2007	2400	3400	160	1000	570	
	10/01/2007	7000	18000	1800	12000	1000	
	03/31/2008	4900	12000	1200	8200	710	
	09/25/2008	1100	730	95	630	1100	
	03/30/2009	5900	16000	1500	10100	680	
	09/28/2009	3500	9600	960	8100	390	50000
	09/28/2009	4200	12000	1100	9300	420	55000
	05/10/2010	1300	6900	790	9500	200	31000
	11/10/2010	950	6400	810	9400	120	44000
	03/17/2011	1200	8900	990	10500	110	37000
MW-22R	11/14/2011	5500	10000	1000	6300	5700	37000
	04/26/2012	3900	7800	790	5000	3600	34000
	10/10/2012	3100	6200	630	3900	2400	32000
MW-23	05/24/2004	88.9	5.1	0.8	16.6	286	
	07/20/2004	314	72.3	10.4	113	888	
	09/06/2005	0.42	<1	<1	<2	101	
	03/23/2006	<1.00	<1.00	<1.00	<2.00	31.3	
	10/02/2006	1.2	<1.0	<1.0	<2.0	20	
	03/26/2007	<2.0	4.4	<2.0	9.9	38	
	10/01/2007	<1.0	<1.0	<1.0	<2.0	10	
	03/31/2008	<1.0	<1.0	<1.0	<2.0	7.7	
	09/25/2008	6.5	<1.0	<1.0	<2.0	16	
	03/30/2009	2.3	<1.0	<1.0	<2.0	6.8	
	09/28/2009	9.6	<1.0	<1.0	<2.0	24	<100
	05/17/2010	9.1	<1.0	<1.0	<2.0	16	<100
	11/10/2010	13	<1.0	<1.0	<2.0	24	100
	03/17/2011	21	<1.0	<1.0	<2.0	53	170
	01/19/2012	59	4.8	<1.0	<2.0	120	130
	05/03/2012	<1.0	<1.0	<1.0	<2.0	2	<100
	10/11/2012	<1.0	<1.0	<1.0	<2.0	1.1	<100
MW-24A	06/07/2004	61	855	270	2140	2.6	
	08/02/2004	74.1	1370	476	2980	4.2	
	09/15/2005	613	5070	1420	8480	3.19	
	03/27/2006	592	4420	2460	9540	<20.0	
	10/04/2006	570	6600	2900	14000	<50	
	03/27/2007	2.5	32	11	51	<1.0	
	10/02/2007	340	5700	2300	12000	<20	
	04/01/2008	37	1400	750	9200	<25	
	09/24/2008	<6.0	160	640	4940	<15	
	03/27/2009	8.3	52	610	3290	<15	
	09/29/2009	<1.5	23	250	1750	<3.7	14000
	05/12/2010	<1.0	<1.0	17	108	<1.0	2800
	11/10/2010	<1.0	4.7	94	573	<1.0	11000
	04/01/2011	<1.7	<3.5	63	411	<3.7	13000
	01/19/2012	<5.0	<5.0	110	327	<5.0	10000
	04/25/2012	<10	<10	92	170	<10	11000
	10/11/2012	<5.0	<5.0	39	130	<5.0	9900
MW-24B	06/08/2004	431	7780	1980	11300	9.3	
	08/02/2004	474	7980	1920	12100	9.6	
	09/15/2005	497	2050	1260	2090	3.64	
	03/27/2006	864	5750	3270	9730	3.99	
	10/04/2006	540	8100	2700	14000	<50	
	03/27/2007	5.6	76	24	120	<1.0	

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MW-24B (cont.)	10/02/2007	310	6100	2600	13000	<20	
	04/01/2008	110	1900	750	7200	<20	
	09/24/2008	<6.0	110	460	4650	<15	
	03/27/2009	17	190	290	2150	<15	
	09/29/2009	<1.5	6.8	20	890	<3.7	12000
	06/08/2010	<5.0	<5.0	<5.0	183	<5.0	5900
	06/08/2010	<2.0	<2.0	<2.0	104	<2.0	6300
	11/09/2010	<1.0	3.4	9.5	350	<1.0	16000
	04/07/2011	<3.4	11	53	289	<7.4	13000
	04/18/2011	<1.7	7.3	38	279	<3.7	
	01/19/2012	<5.0	9.9	56	420	<5.0	11000
	05/03/2012	<20	<20	59	310	<20	11000
	10/11/2012	<10	<10	39	160	<10	14000
MW-25A	06/04/2004	<1	2.1	<1	<1	107	
	08/02/2004	<1	<1	<1	<1	238	
	09/15/2005	<1	<1	<1	<2	28.6	
	03/24/2006	<1.00	<1.00	<1.00	<2.00	17.1	
	10/04/2006	<1.0	<1.0	<1.0	<2.0	16	
	03/27/2007	<1.0	<1.0	<1.0	<2.0	6.1	
	10/03/2007	<1.0	<1.0	<1.0	<2.0	5.8	
	04/01/2008	<1.0	<1.0	<1.0	<2.0	36	
	09/24/2008	<1.0	<1.0	<1.0	<2.0	4.6	
	03/30/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/22/2009	<1.0	<1.0	<1.0	<2.0	2.5	<100
	05/12/2010	<1.0	<1.0	<1.0	<2.0	1.9	<100
	11/10/2010	<1.0	<1.0	<1.0	<2.0	1.7	<100
	04/01/2011	<1.0	<1.0	<1.0	<2.0	2.2	<100
	01/19/2012	<1.0	<1.0	<1.0	<2.0	3.5	<100
	04/25/2012	<1.0	<1.0	<1.0	<2.0	3.2	<100
	10/04/2012	<1.0	<1.0	<1.0	<2.0	3.4	<100
MW-25B	11/22/2004	456	1.4	<1	70.1	502	
	09/15/2005	<1	<1	0.98	2.08	386	
	03/24/2006	403	<1.00	<1.00	31.9	461	
	10/04/2006	470	<5.0	<5.0	65	550	
	03/27/2007	320	<2.0	<2.0	47	370	
	10/03/2007	340	<2.0	<2.0	43	490	
	04/01/2008	180	<2.0	<2.0	27	310	
	09/24/2008	240	<1.4	<1.0	29	350	
	03/27/2009	450	<2.0	<2.0	83	410	
	09/22/2009	170	<2.0	<2.0	27	240	790
	09/22/2009	170	<2.0	<2.0	29	260	820
	05/18/2010	220	<1.0	<1.0	42	310	900
	11/09/2010	99	<1.0	<1.0	13	260	450
	04/01/2011	120	<3.5	<2.5	15	200	530
	01/19/2012	200	<2.0	<2.0	19	390	470
	04/25/2012	120	<1.0	<1.0	26	250	570
	10/04/2012	140	<1.0	<1.0	40	230	720
MW-26A	06/04/2004	<1	<1	<1	<1	0.6	
	07/30/2004	<1	<1	<1	<1	1	
	09/13/2005	<1	<1	<1	<2	1.07	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	1.03	
	10/05/2006	<1.0	<1.0	<1.0	<2.0	1.4	
	03/28/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/04/2007	<1.0	<1.0	<1.0	<2.0	1.7	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/23/2008	<1.0	<1.0	<1.0	<10	<1.0	
	03/25/2009	<1.0	<1.0	<1.0	<10	<1.0	
	09/22/2009	<1.0	<1.0	<1.0	<10	<1.0	<100
	05/11/2010	<1.0	<1.0	<1.0	<10	<1.0	<100
	11/08/2010	<1.0	<1.0	<1.0	<10	<1.0	
	03/03/2011	<1.0	<1.0	<1.0	<10	<1.0	<100
	04/07/2011	<1.0	<1.0	<1.0	<10	<1.0	<100

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MW-26A (cont.)	01/18/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
	05/04/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
	10/11/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
MW-26B	06/07/2004	30.5	<1	<1	<1	112	
	07/30/2004	34.4	<1	<1	<1	114	
	09/16/2005	24.9	<1	<1	3.3	168	
	03/28/2006	144	<1.00	<1.00	9.05	221	
	10/05/2006	100	1.9	<1.0	5.3	210	
	03/28/2007	140	<1.0	<1.0	6.7	270	
	10/04/2007	110	<1.0	<1.0	5.2	230	
	04/02/2008	94	<1.0	<1.0	5.2	170	
	09/23/2008	110	<1.0	<1.0	5.3	200	
	03/25/2009	130	<1.0	<1.0	8.5	230	
	09/22/2009	150	<1.0	<1.0	9.1	200	570
	05/11/2010	190	<2.0	<2.0	0	280	580
	11/09/2010	36	<1.0	<1.0	0	220	310
	03/03/2011	380	<2.0	<2.0	28	280	840
	03/30/2011	1100	<7.0	37	108	560	2100
	01/18/2012	520	<5.0	<5.0	0	290	880
	04/30/2012	850	<5.0	<5.0	63	510	1700
	10/03/2012	720	<5.0	13	<50	330	1800
MW-27A	06/01/2004	<1	<1	<1	<1	83.4	
	07/28/2004	<1	<1	<1	<1	97.4	
	09/16/2005	<1	<1	<1	<2	14.7	
	03/28/2006	<1.00	<1.00	2.16	4.34	36.2	
	10/05/2006	<1.0	<1.0	<1.0	<2.0	62	
	03/28/2007	<1.0	<1.0	<1.0	<2.0	47	
	10/04/2007	<1.0	<1.0	<1.0	<2.0	44	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	52	
	09/23/2008	<1.0	<1.0	<1.0	<10	23	
	03/25/2009	<1.0	<1.0	<1.0	<10	32	
	09/21/2009	<1.0	<1.0	<1.0	<10	12	<100
	05/11/2010	<1.0	<1.0	<1.0	<10	1.9	<100
	11/09/2010	<1.0	<1.0	<1.0	<10	3.9	<100
	04/07/2011	<1.0	<1.0	<1.0	<10	<1.0	<100
	05/04/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
	10/03/2012	<1.0	<1.0	<1.0	<10	100	110
MW-27B	06/02/2004	193	0.7	<1	67.7	534	
	07/28/2004	142	<1	<1	58.8	507	
	09/16/2005	146	<1	<1	<2	417	
	03/28/2006	168	1.54	2.19	32.6	451	
	10/05/2006	150	<5.0	<5.0	24	370	
	03/28/2007	200	<2.0	<2.0	28	530	
	10/04/2007	82	<2.0	<2.0	13	310	
	04/02/2008	34	<1.0	<1.0	5.2	240	
	09/23/2008	37	<1.0	<1.0	5.4	240	
	03/25/2009	19	<1.0	<1.0	3.1	240	
	09/22/2009	6.5	<1.0	<1.0	1.3	160	250
	06/08/2010	<2.0	<2.0	<2.0	<10	200	180
	06/08/2010	<1.0	<1.0	<1.0	<5.0	24	<100
	11/09/2010	<1.0	<1.0	<1.0	<5.0	170	<100
	03/30/2011	<1.7	<3.5	<2.5	<8.0	140	120
	04/30/2012	<1.0	<1.0	<1.0	<5.0	140	110
	10/03/2012	<1.0	<1.0	<1.0	<10	3.4	<100
MW-28A	05/27/2004	<1	<1	<1	<1	2.8	
	09/14/2005	<1	<1	<1	<2	3.67	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	4.35	
	10/05/2006	<1.0	<1.0	<1.0	<2.0	3.7	
	03/29/2007	<1.0	<1.0	<1.0	<2.0	2.4	
	10/05/2007	<1.0	<1.0	<1.0	<2.0	2.4	
	04/03/2008	<1.0	<1.0	<1.0	<2.0	1.9	
	09/22/2008	<1.0	<1.0	<1.0	<2.0	1.8	

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MW-28A (cont.)	03/23/2009	<1.0	<1.0	<1.0	<2.0	1.8	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	1.1	<100
	05/11/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/07/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/08/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/02/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
MW-28B	05/28/2004	<1	<1	<1	<1	<1	
	09/14/2005	<1	<1	<1	<2	<1	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/05/2006	<1.0	1.1	<1.0	<2.0	<1.0	
	03/29/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/05/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/03/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/22/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/23/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	06/08/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	06/08/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	03/30/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/02/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/02/2012	<1.0	<1.0	<1.0	<2.0	2	<100
MW-29A	05/26/2004	<1	<1	<1	<1	18.2	
	07/21/2004	<1	<1	<1	<1	19.4	
	09/09/2005	<1	0.21	<1	<2	7.51	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	5.74	
	10/06/2006	<1.0					
	10/06/2006		<1.0	<1.0	<2.0	<1.0	
	03/29/2007	<1.0	<1.0	<1.0	<2.0	7.3	
	10/05/2007	<1.0	<1.0	<1.0	<2.0	14	
	04/03/2008	<1.0	<1.0	<1.0	<2.0	8.5	
	09/22/2008	<1.0	<1.0	<1.0	<2.0	9.4	
	03/23/2009	<1.0	<1.0	<1.0	<2.0	7.4	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	9.7	<100
	06/08/2010	<1.0	<1.0	<1.0	<2.0	13	<100
	06/08/2010	<1.0	<1.0	<1.0	<2.0	11	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	6.8	<100
	04/07/2011	<1.0	<1.0	<1.0	<2.0	4.3	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	5.2	<100
	05/04/2012	<1.0	<1.0	<1.0	<2.0	15	<100
	10/02/2012	<1.0	<1.0	<1.0	<2.0	2.1	<100
MW-29B	05/26/2004	<1	<1	<1	<1	42	
	07/22/2004	<1	<1	<1	<1	52	
	09/12/2005	<1	<1	<1	0.64	45.4	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	73.2	
	10/06/2006	<1.0	<1.0	<1.0	<2.0	63	
	03/29/2007	<1.0	<1.0	<1.0	<2.0	7.8	
	10/05/2007	<1.0	<1.0	<1.0	<2.0	76	
	04/03/2008	<1.0	<1.0	<1.0	<2.0	75	
	09/22/2008	<1.0	<1.0	<1.0	<2.0	74	
	03/23/2009	<1.0	<1.0	<1.0	<2.0	72	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	58	150
	06/08/2010	<1.0	<1.0	<1.0	<2.0	110	120
	06/08/2010	<1.0	<1.0	<1.0	<2.0	91	100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	87	<100
	03/30/2011	<1.0	<1.0	<1.0	<2.0	100	110
	01/18/2012	<1.0	<1.0	<1.0	<2.0	100	<100
	04/30/2012	<1.0	<1.0	<1.0	<2.0	95	<100
	10/02/2012	<1.0	<1.0	<1.0	<2.0	84	<100

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MW-30	05/20/2004	<1	<1	<1	<1	<1	
	07/16/2004	<1	<1	<1	<1	<1	
	09/08/2005	<1	<1	<1	<2	<1	
	03/27/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/04/2006	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/27/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/02/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/01/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/24/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/27/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/29/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/12/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
MW-30R	05/03/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
	10/11/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
MW-31A	05/19/2004	<1	<1	<1	<1	1.5	
	07/15/2004	<1	<1	<1	<1	1.7	
	09/14/2005	<1	<1	<1	<2	0.79	
MW-31B	05/20/2004	<1	<1	<1	<1	1.2	
	07/16/2004	<1	<1	<1	<1	1.3	
	09/14/2005	<1	<1	<1	<2	1.02	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	1.39	
	10/05/2006	<1.0	2.5	<1.0	<2.0	1.4	
	03/29/2007	<1.0	<1.0	<1.0	<2.0	1.1	
	10/05/2007	1.3	<1.0	<1.0	<2.0	1.2	
	04/03/2008	<1.0	<1.0	<1.0	<2.0	1.2	
	09/23/2008	<1.0	<1.0	<1.0	<2.0	1.2	
	03/24/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	06/08/2010	<1.0	<1.0	<1.0	<2.0	1	<100
	06/08/2010	<1.0	<1.0	<1.0	<2.0	1	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	1.1	<100
	03/30/2011	<1.0	<1.0	<1.0	<2.0	1.1	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	1.1	<100
	05/02/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/03/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
MW-32	05/21/2004	<1	2	<1	<1	2.6	
	07/20/2004	<1	<1	<1	<1	0.9	
MW-33A	06/01/2004	242	<1	<1	4	278	
	07/26/2004	44.4	<1	<1	<1	185	
	09/13/2005	1.64	<1	<1	<2	45.9	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/23/2008	<1.0	<1.0	<1.0	<2.0	1.1	
	03/24/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/11/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/07/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/08/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
MW-33B	06/02/2004	1040	0.9	<1	23	770	
	07/27/2004	1000	1.2	<1	30.2	744	
	09/13/2005	<1	<1	<1	14.3	698	
	03/28/2006	974	1.04	11.9	28.1	653	
	10/05/2006	760	<5.0	<5.0	22	520	
	03/29/2007	670	<5.0	<5.0	17	400	
	10/05/2007	540	<2.0	<2.0	16	410	
	04/02/2008	520	<2.0	<2.0	14	400	
	09/23/2008	340	<2.0	<2.0	9.8	230	
	03/24/2009	380	<2.0	<2.0	13	220	
	09/21/2009	380	<2.0	<2.0	11.4	240	1100
	05/11/2010	470	<2.0	4.9	0	380	1000
	11/09/2010	150	<1.0	<1.0	0	150	740

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Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes, Total (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-33B (cont.)	03/30/2011	570	<3.5	7.5	9.8	300	1100
	01/18/2012	470	<2.0	<2.0	0	310	820
	05/08/2012	380	<2.0	<2.0	0	300	1000
	10/02/2012	<1.0	<1.0	<1.0	<10	20	<100
MW-33C	06/02/2004	89.6	<1	<1	1.8	85.4	
	07/27/2004	107	<1	<1	1.9	98.7	
	09/13/2005	<1	<1	<1	<2	70.7	
	04/02/2008	13	<1.0	<1.0	<2.0	37	
	09/23/2008	12	<1.0	<1.0	<2.0	35	
	03/24/2009	4.4	<1.0	<1.0	<2.0	26	
	09/21/2009	8.4	<1.0	<1.0	<2.0	24	<100
	05/11/2010	8.4	<1.0	<1.0	<2.0	43	<100
	11/09/2010	67	<1.0	<1.0	<2.0	120	370
	03/30/2011	16	<1.0	<1.0	<2.0	41	160
	01/18/2012	17	<1.0	<1.0	<2.0	34	<100
	05/08/2012	3.4	<1.0	<1.0	<2.0	20	<100
	10/02/2012	<1.0	<1.0	<1.0	<2.0	2.2	<100
MW-33S	05/02/2005	<1	0.7	<1	<1	<1	
	06/07/2005	<1	<1	<1	<1	<1	
	09/14/2005	<1	<1	<1	<2	<1	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/05/2006	<1.0	1.4	<1.0	<2.0	<1.0	
	03/29/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/05/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/23/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/24/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/11/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/08/2010	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/30/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/08/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/02/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
MW-34A	05/17/2004	<1	<1	<1	<1	<1	
	07/12/2004	<1	<1	<1	<1	<1	
	09/13/2005	0.3	<1	<1	<2	<1	
MW-34B	05/17/2004	<1	<1	<1	<1	<1	
	07/12/2004	<1	<1	<1	<1	<1	
	09/13/2005	<1	<1	<1	<2	<1	
MW-37	05/21/2004	<1	<1	<1	<1	<1	
	07/19/2004	<1	<1	<1	<1	<1	
MW-38	05/24/2004	<1	<1	<1	<1	<1	
	07/19/2004	<1	<1	<1	<1	<1	
	09/13/2005	<1	<1	<1	<2	<1	
	03/27/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/05/2006	1	3.5	<1.0	<2.0	<1.0	
	03/28/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/03/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/24/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/27/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/23/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/12/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/07/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/03/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/04/2012	4	<1.0	<1.0	<2.0	6.6	<100

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MW-39R	11/15/2004	<1	<1	<1	<1	1	
	09/09/2005	<1	<1	<1	<2	0.46	
	03/27/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/06/2006	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/28/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/03/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/24/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/27/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/22/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/12/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	03/30/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/26/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/04/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
MW-40	05/19/2004	<1	<1	<1	<1	22	
	07/13/2004	<1	<1	<1	<1	33.4	
	09/09/2005	<1	<1	<1	<2	18.7	
	03/27/2006	<1.00	<1.00	<1.00	<2.00	6.34	
	10/06/2006	<1.0	<1.0	<1.0	<2.0	10	
	03/28/2007	<1.0	<1.0	<1.0	<2.0	7.3	
	10/03/2007	<1.0	<1.0	<1.0	<2.0	8.6	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	12	
	09/24/2008	<1.0	<1.0	<1.0	<2.0	1.3	
	03/27/2009	<1.0	<1.0	<1.0	<2.0	1.9	
	09/22/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/12/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	14	<100
	04/07/2011	<1.0	<1.0	<1.0	<2.0	9.8	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	6	<100
	05/03/2012	<1.0	<1.0	<1.0	<2.0	5.2	<100
	10/04/2012	<1.0	<1.0	<1.0	<2.0	21	<100
MW-41A	05/25/2004	<1	<1	<1	<1	2.2	
	07/21/2004	<1	<1	<1	<1	1.5	
	09/09/2005	<1	<1	<1	<2	<1	
	03/27/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/04/2006	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/27/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/03/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/01/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/24/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/25/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/22/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	06/09/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	06/09/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/07/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/03/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/04/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
MW-41B	05/26/2004	<1	<1	<1	<1	17	
	07/21/2004	<1	<1	<1	<1	14.2	
	09/09/2005	<1	1.73	1.45	13	15	
	03/27/2006	<1.00	<1.00	<1.00	<2.00	14.9	
	10/04/2006	<1.0	<1.0	<1.0	<2.0	17	
	03/27/2007	<1.0	<1.0	<1.0	<2.0	14	
	10/03/2007	<1.0	<1.0	<1.0	<2.0	14	
	04/01/2008	<1.0	<1.0	<1.0	<2.0	17	
	09/24/2008	<1.0	<1.0	<1.0	<2.0	20	
	03/25/2009	<1.0	<1.0	<1.0	<2.0	16	
	09/22/2009	<1.0	<1.0	<1.0	<2.0	13	<100

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MW-41B (cont.)	06/09/2010	<1.0	<1.0	<1.0	<2.0	13	<100
	06/09/2010	<1.0	<1.0	<1.0	<2.0	15	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	11	<100
	03/30/2011	<1.0	<1.0	<1.0	<2.0	6.7	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	15	<100
	04/26/2012	<1.0	<1.0	<1.0	<2.0	13	<100
	10/11/2012	<1.0	<1.0	<1.0	<2.0	17	<100
MW-42	05/24/2004	<1	<1	<1	<1	2.4	
	07/20/2004	<1	<1	<1	<1	1.4	
	09/13/2005	<1	<1	<1	<2	<1	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/05/2006	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/28/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/04/2007	3.8	<1.0	<1.0	<2.0	6.6	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/23/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/25/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/22/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/11/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/08/2010	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/30/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/30/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/03/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
MW-43A	05/27/2004	<1	<1	<1	<1	0.6	
	09/13/2005	<1	<1	<1	<2	8.35	
	03/28/2006	<1.00	<1.00	1.56	3.1	4.44	
	10/05/2006	<1.0	<1.0	<1.0	<2.0	2.4	
	03/28/2007	<1.0	<1.0	<1.0	<2.0	1.5	
	10/04/2007	<1.0	<1.0	<1.0	<2.0	4.3	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/23/2008	<1.0	<1.0	<1.0	<10	<1.0	
	03/25/2009	<1.0	<1.0	<1.0	<10	<1.0	
	09/22/2009	<1.0	<1.0	<1.0	<10	<1.0	<100
	05/11/2010	<1.0	<1.0	<1.0	<10	<1.0	<100
	11/08/2010	<1.0	<1.0	<1.0	<10	<1.0	
	04/07/2011	<1.0	<1.0	<1.0	<10	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
	04/30/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
	10/03/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
MW-43B	05/27/2004	<1	<1	<1	<1	25.1	
	09/13/2005	0.58	<1	<1	<2	26.7	
	03/28/2006	3.87	<1.00	1.49	<2.00	29.6	
	10/05/2006	3	1.3	<1.0	<2.0	24	
	03/28/2007	5	<1.0	<1.0	<2.0	30	
	10/04/2007	2.3	<1.0	<1.0	<2.0	17	
	04/02/2008	8.6	<1.0	<1.0	<2.0	40	
	09/23/2008	4.3	<1.0	<1.0	<10	21	
	03/25/2009	4.3	<1.0	<1.0	<10	17	
	09/22/2009	2.6	<1.0	<1.0	<10	11	<100
	06/08/2010	<1.0	<1.0	<1.0	<10	6.7	<100
	06/08/2010	<1.0	<1.0	<1.0	<10	6.5	<100
	11/09/2010	<1.0	<1.0	<1.0	<10	5.9	<100
	03/30/2011	1.8	<1.0	<1.0	<10	11	<100
	01/18/2012	4.3	<1.0	<1.0	<10	16	<100
	04/30/2012	2.9	<1.0	<1.0	<10	12	<100
	10/03/2012	<1.0	<1.0	<1.0	<10	6.7	<100
MW-44A	05/28/2004	<1	<1	<1	<1	41.1	
	07/27/2004	<1	<1	<1	<1	37.8	
	09/13/2005	<1	<1	<1	<2	57.9	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	49.8	
	10/05/2006	<1.0	<1.0	<1.0	<2.0	53	

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Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes, Total (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-44A (cont.)	03/28/2007	<1.0	<1.0	<1.0	<2.0	58	
	10/04/2007	<1.0	<1.0	<1.0	<2.0	42	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	100	
	09/23/2008	<1.0	<1.0	<1.0	<2.0	42	
	03/25/2009	<1.0	<1.0	<1.0	<2.0	17	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	29	<100
	05/11/2010	<1.0	<1.0	<1.0	<2.0	41	<100
	11/08/2010	<1.0	<1.0	<1.0	<2.0	13	
	03/30/2011	<1.0	<1.0	<1.0	<2.0	38	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	33	<100
	04/30/2012	<1.0	<1.0	<1.0	<2.0	32	<100
	10/03/2012	<1.0	<1.0	<1.0	<2.0	30	<100
MW-44B	05/28/2004	<1	<1	<1	<1	195	
	07/28/2004	<1	<1	<1	<1	178	
	09/13/2005	<1	<1	<1	<2	162	
	03/28/2006	<1.00	<1.00	1.57	4.67	143	
	10/05/2006	<1.0	<1.0	<1.0	<2.0	120	
	03/28/2007	<1.0	<1.0	<1.0	<2.0	140	
	10/04/2007	<1.0	<1.0	<1.0	<2.0	110	
	04/02/2008	<1.0	<1.0	<1.0	<2.0	25	
	09/23/2008	<1.0	<1.0	<1.0	<2.0	95	
	03/25/2009	<1.0	<1.0	<1.0	<2.0	94	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	76	120
	05/11/2010	<1.0	<1.0	<1.0	<2.0	110	<100
	11/09/2010	<1.0	<1.0	<1.0	<2.0	89	<100
	03/30/2011	<1.0	<1.0	<1.0	<2.0	85	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	89	<100
	04/30/2012	<1.0	<1.0	<1.0	<2.0	87	<100
	10/03/2012	<1.0	<1.0	<1.0	<2.0	65	<100
MW-45	11/22/2004	47.6	9.6	11	47.7	<1	
	03/22/2006	165	167	16.8	250	<1.00	
	09/28/2006	95	2.4	<1.0	41	<1.0	
	03/22/2007	81	1.7	2.2	49	<1.0	
	09/24/2007	100	110	13	260	<1.0	
	03/27/2008	55	7	1.2	93	<1.0	
	09/29/2008	30	<1.0	<1.0	16	<1.0	
	03/31/2009	21	2.7	<1.0	29.5	<1.0	
	09/23/2009	130	6.5	1.2	103	<1.0	920
	05/17/2010	58	14	2.7	90	<1.0	510
	11/10/2010	67	20	4	133	<1.0	770
	04/07/2011	77	39	18	290	<1.0	1100
	11/15/2011	20	<1.0	<1.0	15	<1.0	220
	04/24/2012	27	<1.0	<1.0	23	<1.0	380
	10/11/2012	<1.0	<1.0	<1.0	12	<1.0	310
MW-46	11/19/2004	3.5	<1	<1	0.6	93.4	
	03/22/2006	15.7	<1.00	<1.00	<2.00	142	
	09/28/2006	<1.0	<1.0	<1.0	<2.0	85	
	03/22/2007	<1.0	<1.0	<1.0	<2.0	55	
	09/24/2007	2.2	1.2	<1.0	<2.0	24	
	03/27/2008	<1.0	<1.0	<1.0	<2.0	16	
	09/29/2008	<1.0	<1.0	<1.0	<2.0	21	
	03/31/2009	<1.0	<1.0	<1.0	<2.0	6.2	
	09/23/2009	1.4	<1.0	<1.0	<2.0	14	<100
	06/09/2010	<1.0	<1.0	<1.0	<2.0	7.4	<100
	06/09/2010	<1.0	<1.0	<1.0	<2.0	8.5	<100
	11/10/2010	<1.0	<1.0	<1.0	<2.0	15	<100
	03/28/2011	<1.0	<1.0	<1.0	<2.0	14	<100
	11/15/2011	1.9	<1.0	<1.0	<2.0	10	<100
	05/03/2012	<1.0	<1.0	<1.0	<2.0	17	<100
	10/11/2012	2.3	<1.0	<1.0	<2.0	4.9	110

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MW-47	11/19/2004	116	0.8	<1	30.2	27.2	
	09/06/2005	315	56.7	7.19	105	17.6	
	03/22/2006	459	213	13.6	178	13.3	
	09/28/2006	380	200	15	140	22	
	03/22/2007	240	99	5.7	75	58	
	09/24/2007	260	150	6.1	94	<1.0	
	03/27/2008	360	89	2.9	85	<2.0	
	09/29/2008	230	51	1.3	48.7	15	
	03/31/2009	250	63	<1.0	77.5	19	
	09/23/2009	160	34	<1.0	46.1	16	680
	05/17/2010	170	17	<1.0	33	59	670
	11/05/2010	650	47	<2.5	97	15	
	03/28/2011	260	14	<1.0	68.6	50	910
	11/15/2011	330	22	<2.0	128	52	1200
	04/24/2012	380	42	<5.0	202	40	2000
	10/09/2012	430	110	4.6	0	<1.0	2200
MW-48	11/19/2004	<1	<1	<1	<1	<1	
	03/22/2006	<1.00	<1.00	<1.00	<2.00	2.09	
	09/28/2006	<1.0	<1.0	<1.0	<2.0	2.3	
	03/22/2007	<1.0	<1.0	<1.0	<2.0	2.9	
	09/24/2007	<1.0	<1.0	<1.0	<2.0	5.2	
	03/27/2008	<1.0	<1.0	<1.0	<2.0	9.7	
	09/29/2008	<1.0	<1.0	<1.0	<2.0	3.5	
	03/31/2009	<1.0	<1.0	<1.0	<2.0	4.2	
	09/23/2009	<1.0	<1.0	<1.0	<2.0	1.4	<100
	05/17/2010	<1.0	<1.0	<1.0	<2.0	1.3	<100
	11/05/2010	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/28/2011	<1.0	<1.0	<1.0	<2.0	1.7	<100
	11/14/2011	<1.0	<1.0	<1.0	<2.0	1.1	<100
	04/24/2012	<1.0	<1.0	<1.0	<2.0	1.2	<100
	10/09/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
MW-49	11/18/2004	<1	<1	<1	<1	408	
	09/06/2005	<1	<1	<1	<2	367	
	03/22/2006	<1.00	<1.00	<1.00	<2.00	386	
	09/28/2006	<2.0	<2.0	<2.0	<4.0	410	
	03/22/2007	<2.0	<2.0	<2.0	<4.0	540	
	09/24/2007	7.1	<2.0	<2.0	<4.0	380	
	03/27/2008	29	<1.0	<1.0	3.3	290	
	09/29/2008	14	<1.4	<1.0	1.7	270	
	03/31/2009	<2.0	<2.0	<2.0	<10	250	
	09/23/2009	<1.0	<1.0	<1.0	<10	180	250
	11/10/2010	<1.0	<1.0	<1.0	<10	210	170
	04/07/2011	<1.0	<1.0	<1.0	<10	200	110
	11/15/2011	<2.0	<2.0	<2.0	<10	230	180
	05/03/2012	<1.0	<1.0	<1.0	<10	270	320
	10/11/2012	<1.0	<1.0	<1.0	<10	200	180
MW-50	11/18/2004	3.7	<1	<1	0.4	69.2	
	03/22/2006	9.67	<1.00	<1.00	<2.00	107	
	09/28/2006	6.4	<1.0	<1.0	<2.0	110	
	03/22/2007	5.9	<1.0	<1.0	<2.0	160	
	09/24/2007	3.5	<1.0	<1.0	<2.0	97	
	03/27/2008	5.1	<1.0	<1.0	<2.0	160	
	09/29/2008	4.4	<1.0	<1.0	<2.0	130	
	03/31/2009	4.1	<1.0	<1.0	<2.0	110	
	09/23/2009	3.6	<1.0	<1.0	<2.0	100	190
	05/17/2010	3.6	<1.0	<1.0	<2.0	100	220
	11/03/2010	3.6	<1.0	<1.0	<2.0	96	
	03/28/2011	3.1	<1.0	<1.0	<2.0	76	150
	11/14/2011	1.6	<1.0	<1.0	<2.0	65	<100
	04/24/2012	1.9	<1.0	<1.0	<2.0	83	<100
	10/09/2012	1	<1.0	<1.0	<2.0	110	120

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MW-51	11/17/2004	120	<1	<1	2	28.6	
	03/22/2006	86.8	<1.00	<1.00	<2.00	55.6	
	09/28/2006	85	<1.0	<1.0	3.4	63	
	03/22/2007	83	<1.0	<1.0	2.3	83	
	09/24/2007	55	<1.0	<1.0	<2.0	61	
	03/27/2008	49	<1.0	<1.0	<2.0	84	
	09/29/2008	28	<1.0	<1.0	<2.0	74	
	03/31/2009	21	<1.0	<1.0	<2.0	76	
	09/23/2009	13	<1.0	<1.0	<2.0	47	160
	05/17/2010	17	<1.0	<1.0	<2.0	75	160
	11/03/2010	21	<1.0	<1.0	<2.0	56	
	03/28/2011	15	<1.0	<1.0	<2.0	67	190
	11/15/2011	9.3	<1.0	<1.0	<2.0	67	110
	04/24/2012	5.6	<1.0	<1.0	<2.0	63	110
	10/09/2012	6.1	<1.0	<1.0	<2.0	55	150
MW-52	05/04/2005	<1	0.6	<1	<1	9	
	06/07/2005	<1	<1	<1	<1	6.1	
	09/14/2005	0.48	<1	<1	<2	11.8	
MW-53	05/03/2005	<1	0.8	<1	<1	66.4	
	06/08/2005	<1	<1	<1	<1	97	
	09/14/2005	<1	<1	<1	<2	88.1	
	03/28/2006	4	<1.00	<1.00	<2.00	103	
	10/06/2006	54	<1.0	<1.0	<2.0	240	
	03/29/2007	15	<1.0	<1.0	<2.0	110	
	10/05/2007	61	<2.0	<2.0	<4.0	270	
	04/03/2008	17	<1.0	<1.0	<2.0	160	
	09/22/2008	23	<1.0	<1.0	<10	160	
	03/23/2009	7.8	<1.0	<1.0	<10	150	
	09/21/2009	11	<2.0	<2.0	<10	220	
	09/21/2009	9.2	<1.0	<1.0	<10	160	290
	06/08/2010	28	<2.0	<2.0	<10	310	340
	06/08/2010	27	<2.0	<2.0	<10	250	330
	11/09/2010	16	<1.0	<1.0	<10	300	250
	04/07/2011	6.6	<1.0	<1.0	<10	140	140
	01/18/2012	5.1	<1.0	<1.0	<10	180	130
	05/04/2012	6.5	<1.0	<1.0	<10	140	120
	10/02/2012	4.1	<1.0	<1.0	<10	100	170
MW-54	05/03/2005	<1	0.7	<1	<1	<1	
	06/07/2005	<1	<1	<1	<1	<1	
	09/14/2005	<1	<1	<1	<2	<1	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/05/2006	<1.0	1.3	<1.0	<2.0	<1.0	
	03/29/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/05/2007	<1.0	<1.0	<1.0	<2.0	4.6	
	04/03/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/22/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/23/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/11/2010	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/08/2010	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/30/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	04/30/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/02/2012	<1.0	<1.0	<1.0	<2.0	3.1	<100
MW-55	05/02/2005	<1	0.6	<1	<1	1	
	06/07/2005	<1	<1	<1	<1	0.6	
	09/14/2005	<1	<1	<1	<2	<1	
	03/28/2006	<1.00	<1.00	<1.00	<2.00	<1.00	
	10/05/2006	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/29/2007	<1.0	<1.0	<1.0	<2.0	<1.0	
	10/05/2007	3.4	<1.0	<1.0	<2.0	1.8	
	04/03/2008	<1.0	<1.0	<1.0	<2.0	<1.0	

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MW-55 (cont.)	09/23/2008	<1.0	<1.0	<1.0	<2.0	<1.0	
	03/24/2009	<1.0	<1.0	<1.0	<2.0	<1.0	
	09/21/2009	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	11/08/2010	<1.0	<1.0	<1.0	<2.0	<1.0	
	04/07/2011	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	01/18/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	05/04/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
	10/11/2012	<1.0	<1.0	<1.0	<2.0	<1.0	<100
MW-58	04/21/2011	180	<1.0	<1.0	20.9	110	400
	01/19/2012	390	<2.0	5.9	18	220	620
	05/04/2012	240	<1.0	<1.0	27.8	190	620
	10/03/2012	380	<2.0	5.2	0	170	980
MW-59	03/02/2011	140	<1.0	<1.0	<10	140	590
	01/19/2012	220	<2.0	<2.0	<10	220	630
	05/04/2012	140	<1.0	<1.0	<10	160	440
	10/03/2012	240	<1.0	1.1	<10	210	720
MW-60	01/19/2012	<1.0	<1.0	<1.0	<10	16	<100
	05/04/2012	<1.0	<1.0	<1.0	<10	18	<100
	10/03/2012	<1.0	<1.0	<1.0	<10	10	<100
MW-61A	05/03/2012	7.4	39	140	237	4.3	2100
	10/05/2012	21	170	940	1800	<10	19000
MW-61B	10/05/2012	<1.0	<1.0	<1.0	<10	33	<100
MW-62A	10/04/2012	<1.0	<1.0	<1.0	<10	<1.0	<100
MW-62B	10/04/2012	94	1.3	210	<10	97	1800
PTW-A	10/02/2002	6.4	7.6	<1.000	9.1	26.4	
	01/20/2005	27.5	1.1	1	3.5	69.2	
	03/21/2005	2.3	<1.0	<1.0	<3.0	15.9	
	05/25/2005	12.8	2.4	<1.0	<3.0	41.8	
	12/19/2005	7.54	1.13	<1.00	<3.00	20.8	
	03/23/2006	7.1	3.77	<1.00	4.43	20.4	
	09/29/2006	83	<1.0	<1.0	6	62	
	03/23/2007	35	16	3.9	28	37	
	09/25/2007	18	10	1.3	22	39	
	03/28/2008	10	9	<1.0	16	26	
	10/01/2008	9.3	<1.0	<1.0	7.2	23	
	04/07/2009	2.7	<1.0	<1.0	9.4	5.2	
	09/29/2009	4.2	<1.0	<1.0	6.3	<1.0	<100
	05/10/2010	10	<1.0	<1.0	19	18	180
	11/03/2010	3.7	<1.0	<1.0	<5.0	8.4	
PTW-B	01/20/2005	72.3	27.2	6	59.1	182	
	03/21/2005	49.1	36.7	8.7	35.3	189	
	05/25/2005	61.2	27.2	5.1	21.9	188	
	12/19/2005	114	135	14.3	136	232	
	03/23/2006	88.3	100	13.5	138	289	
	09/29/2006	75	51	4.6	39	250	
	03/23/2007	110	140	19	150	310	
	09/25/2007	95	95	11	88	240	
	03/28/2008	150	140	16	110	440	
	10/01/2008	270	1200	410	3900	23	
	04/02/2009	200	460	57	600	140	
	09/29/2009	67	55	9.7	73	160	600
	05/10/2010	25	39	7.1	74	62	520
	11/03/2010	94	79	8.3	61	110	
	11/14/2011	150	340	49	510	150	490
	04/26/2012	32	31	4.2		71	480
	10/10/2012	<1.0	4.6	1.6	39	4.7	250
RW-1	01/20/2005	1460	1440	55	740	3050	
	03/21/2005	384	390	14.9	312	804	
	05/25/2005	269	253	16.8	433	925	
	12/19/2005	752	879	61.1	653	1020	
	03/23/2006	683	871	54.4	569	975	
	09/29/2006	200	180	13	180	330	

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RW-1 (cont.)	03/23/2007	640	750	51	450	740	
	09/25/2007	350	390	24	260	440	
	03/28/2008	1000	1900	150	1100	590	
	10/01/2008	1700	2500	110	1740	1100	
	04/01/2009	890	640	38	700	700	
	09/29/2009	1100	820	64	860	550	4300
	05/10/2010	410	330	41	270	340	5500
	11/03/2010	670	500	28	280	220	
	11/14/2011	510	480	63	330	280	2600
	04/26/2012	400	250	37	230	180	1900
	10/10/2012	190	140	17	82	100	1100
RW-2	01/20/2005	2290	1570	190	1280	4610	
	03/21/2005	1100	870	110	630	3350	
	05/25/2005	1800	1580	130	995	4880	
	12/19/2005	2090	2000	183	1310	4140	
	03/23/2006	1990	2490	198	1340	4290	
	09/29/2006	2400	2800	270	1900	4700	
	03/23/2007	2500	2800	250	1700	4400	
	09/25/2007	3000	3500	340	2500	5300	
	03/28/2008	2200	2700	240	1700	3700	
	10/01/2008	2000	2600	240	1600	3300	
	04/02/2009	1500	3200	330	2800	850	
	09/29/2009	2100	2500	280	1750	2700	10000
	05/10/2010	2400	2600	320	2100	3400	14000
	11/03/2010	3800	4600	330	2310	2200	
	11/14/2011	650	380	68	330	1100	3300
	04/26/2012	600	600	72	510	520	3900
	10/10/2012	330	220	35	200	300	2200
RW-3	01/20/2005	5750	7250	490	3090	1260	
	03/21/2005	3680	8660	700	5020	580	
	05/25/2005	1720	3240	325	3120	1380	
	12/19/2005	2110	6270	454	4880	405	
	03/23/2006	153	362	27.6	318	162	
	09/29/2006	43	64	5	58	58	
	03/23/2007	43	91	9.6	79	68	
	09/25/2007	650	2300	170	1900	130	
	03/28/2008	480	900	63	810	650	
	10/01/2008	620	4400	430	2310	33	
	04/01/2009	580	2300	280	1820	200	
	09/29/2009	480	3600	350	2360	38	9100
	05/10/2010	280	2000	210	1530	55	7600
	11/03/2010	400	2600	150	1540	44	
	11/14/2011	16	9.8	<1.0	13	99	470
	04/26/2012	190	1400	150	1460	39	5000
	10/10/2012	84	210	15	250	77	1200
RW-4	11/14/2011	1900	2200	210	2000	1700	15000
	04/26/2012	2200	2500	270	1890	2100	23000
	10/10/2012	2300	3000	380	2300	1600	29000

Table 8
Gauging Results from Pilot Rebound Evaluation

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Depth to Product (Feet BTOC)	NAPL Thickness (Feet)	Comments
GP-24A	1/12/2018	32.36			
	1/22/2018	32.75			
	2/7/2018	33.75			
GP-27R	1/12/2018	39.15			
	1/22/2018	39.10			
	2/7/2018	39.05			
GP-30R	1/12/2018	36.84			
	1/22/2018	36.78			
	2/7/2018	36.69			
GP-35A	1/12/2018	33.95			
	1/22/2018	33.71			
	2/7/2018	33.75			
GP-39R	1/12/2018	41.19			
	1/22/2018	41.35			Needs new vault lid.
	2/7/2018	41.49			
GP-41A	1/12/2018	47.70			
	1/22/2018	41.91			
	2/7/2018	41.97			
GP-44A	1/12/2018	NA			Covered by vehicle.
	1/22/2018	NA			Paved over.
	2/7/2018	NA			Paved over.
MP-7	1/12/2018	41.84	41.04	0.80	
	1/22/2018	41.85	40.98	0.87	
	1/26/2018	42.07	41.17	0.90	At start of transmissivity test.
	1/26/2018	41.44	41.24	0.20	At end of transmissivity test.
	2/6/2018	41.74	41.32	0.42	At start of transmissivity test.
	2/6/2018	41.53	41.40	0.13	At end of transmissivity test.
	2/7/2018	41.22	41.11	0.11	
MW-1	1/12/2018	26.20			
	1/22/2018	31.90			
	2/7/2018	31.65			
MW-2	1/12/2018	32.39			
	1/22/2018	32.77			
	2/7/2018	32.95			
MW-3	1/12/2018	NA			Dry at 28.
	1/22/2018	NA			Dry at 27.90.
	2/7/2018	NA			Dry.
MW-4	1/12/2018	30.08			
	1/22/2018	30.35			
	2/7/2018	30.50			
MW-5	1/12/2018	31.44			
	1/22/2018	31.84			
	2/7/2018	32.07			
MW-6	1/12/2018	32.45			
	1/22/2018	32.85			
	2/7/2018	32.84			
MW-7	1/12/2018	41.21			
	1/22/2018	41.12			
	2/7/2018	40.90			
MW-12	1/12/2018	36.56			
	03/24/2014	36.71			
	2/7/2018	36.78			
MW-13	1/12/2018	35.28			
	1/22/2018	35.41			
	2/7/2018	35.58			
MW-15	1/12/2018	NA			Covered by vehicle.
	1/22/2018	NA			Not included on field log.
	2/7/2018	30.93			
MW-16	1/12/2018	36.20			
	1/22/2018	35.96			
	2/7/2018	36.15			

Table 8
Gauging Results from Pilot Rebound Evaluation

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well No.	Date of Measurement	Depth to Water (Feet BTOC)	Depth to Product (Feet BTOC)	NAPL Thickness (Feet)	Comments
MW-17	1/12/2018	35.95			
	1/22/2018	36.18			
	2/7/2018	36.22			
MW-18	1/12/2018	32.23			
	1/22/2018	32.11			
	2/7/2018	32.34			
MW-19	1/12/2018	35.21			
	1/22/2018	35.35			
	2/7/2018	35.42			
MW-21	1/12/2018	36.04			
	1/22/2018	36.24			
	2/7/2018	36.24			
MW-22R	1/12/2018	37.85			
	1/22/2018	37.70			
	2/7/2018	37.63			
MW-23	1/12/2018	42.84			
	1/22/2018	42.99			
	2/7/2018	43.03			
MW-24A	1/12/2018	21.66			
	1/22/2018	21.55			
	2/7/2018	32.74			
MW-46	1/12/2018	46.99			
	1/22/2018	47.06			
	2/7/2018	47.15			
PTW-B	1/12/2018	36.41			
	1/22/2018	36.54			
	2/7/2018	36.48			
RW-1	1/12/2018	37.70			
	1/22/2018	37.90			
	2/7/2018	37.94			
RW-2	1/12/2018	36.09			
	1/22/2018	36.38			
	2/7/2018	36.36			
RW-3	1/12/2018	32.31			
	1/22/2018	32.81			
	2/7/2018	NA			Well cover not secure.
RW-4	1/12/2018	36.97			
	1/22/2018	36.86			
	2/7/2018	36.78			
RW-5	1/12/2018	NA			Angle well.

Table 9
LPH Laboratory Fluid Properties

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Parameter	Units	MP-7
LPH Density[1]	g/cm^3	**0.78**
LPH Viscosity[1]	cSt	**0.74**
Flashpoint	g/cm	**< 60 F**

Footnotes:
[1] Analyses performed at 68°F.
cSt = centistokes
F = Degrees Fahrenheit
LPH Density was analyzed by Clark Testing via method D4052 (mod).
LPH viscosity was analyzed by Clark Testing via method D445.
LPH flashpoint was analyzed by Pace Analytical Services, LLC via EPA 1010.

Acronyms and Abbreviations:
g/cm = grams per centimeter
g/cm^3 = grams per centimeter cubed
LPH = liquid phase hydrocarbons

Table 10
Natural Source Zone Depletion Parameters - April 2017 and February 2018

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Parameter	Units	MW-20		GP-30R		MW-6		GP-35A		MW-18		MW-13	
		4/24/2017	2/15/2018	4/24/2017	2/14/2018	4/24/2017	2/15/2018	4/24/2017	2/15/2018	4/25/2017	2/14/2018	4/26/2017	2/15/2018
Constituents of Concern													
Benzene	µg/L	< 1	< 1	10,000	3,000	< 1	< 4	590	110	< 1	< 1	2.6	< 1
MTBE	µg/L	< 1	< 1	880	500	< 1	< 4	< 20	< 20	< 1	< 1	< 1	< 1
Toluene	µg/L	< 1	< 1	21,000	4,100	10	15	3300	980	< 1	< 1	< 1	< 1
Ethylbenzene	µg/L	< 1	< 1	1,300	590	26	47	980	250	< 1	< 1	< 1	< 1
Xylenes	µg/L	< 10	< 2	7,900	2,700	72	211	5600	1640	< 10	< 2	< 10	< 2
Geochemical Parameters													
Nitrate	µg/L	6000	6100	< 100	800	19000	6300	< 100	< 50	1100	4100	1500	1400
Manganese, Total	µg/L	420	390	110	220	470	450	210	180	150	48	120	63
Manganese, Dissolved	µg/L	410	370	110	220	460	460	200	170	53	44	76	59
Iron, Total	µg/L	7400	7100	25000	24700	23000	34500	46000	40700	29000	3200	140000	5100
Iron, Dissolved	µg/L	130	200	17000	21300	7900	3800	33000	10800	< 100	< 50	< 100	< 50
Sulfate	µg/L	2400	< 5000	1100	23600	24000	23600	2200	33000	61000	46300	29000	50500
Carbon dioxide	mg/L	210	200	110	89	220	66	120	77	61	210	28	29
Methane	µg/L	930	460	26	260	550	650	510	460	< 2	< 4	< 2	< 4
Field Parameters													
Dissolved oxygen	mg/L	0.10	2.18	0.14	3.81	0.05	1.68	0.13	5.23	0.98	2.41	3.04	10.43
ORP	mV	191.9	338.2	-24.9	-14.2	8.5	97.9	-22.4	61.2	89.6	198.6	213.6	287.3
Specific Conductivity	mS/cm	2.236	2.333	0.548	0.922	1.538	1.630	1.253	0.019	1.482	1.412	1.743	0.011
Temperature	°C	17.97	17.98	17.52	17.24	18.82	18.42	18.03	17.6	15.96	14.42	19.03	16.99
pH	s.u.	4.26	3.69	6.11	5.92	6.43	5.74	6.40	5.33	6.03	4.97	4.95	3.99

Notes:
< = parameter was not detected; value is reported as less than the reporting limit
°C = degrees Celsius
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
MTBE = methyl tert-butyl ether
mV = millivolts
ORP = oxidation-reduction potential
s.u. = standard units
µg/L = micrograms per liter

Table 11
Exterior Soil Gas Analytical Results - Method TO-15

Corrective Measures 5-Year Assessment Report
Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	Acetone (µg/m3)	Benzene (µg/m^3)	Bromodichloro-methane (µg/m^3)	Bromoform (µg/m^3)	1,3-Butadiene (µg/m^3)	2-Butanone (Methyl Ethyl Ketone) (µg/m^3)	Bromomethane (µg/m^3)	Carbon Disulfide (µg/m^3)	Carbon Tetrachloride (µg/m3)	Chlorobenzene (µg/m^3)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		4,500,000	52	11	370	14	730,000	730	100,000	68	7,300
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		80,000,000	1,100,000	NS	170,000	74,000	20,000,000	2,700,000 (C)	2,100,000	2,100,000	12,000,000
CV-1 (10)	08-16-2017	52	<3.8	<7.9	<12	<2.6	<14	<46	<15	<7.4	<5.4
	02-06-2018*	<24	<3.3	<6.9	<10	<2.3	<12	<40	<13	<6.4	<4.7
CV-1 (15)	08-16-2017	100	<3.9	<8.2	<13	<2.7	<14	<47	<15	<7.7	<5.6
	02-06-2018*	28	<3.7	<7.8	<12	<2.6	<14	<45	<14	<7.3	<5.4
CV-1 (24)	08-16-2017	65	20	<13	<20	<4.3	<23	<76	72.0	<12	<9.0
	02-06-2018*	Not sampled due to the presence of water in the sample port									
CV-2 (10)	08-16-2017	62	<3.9	**12**	<13	<2.7	<14	<47	56.0	<7.7	<5.6
	02-06-2018*	24	<3.3	<6.9	<10	<2.3	<12	<40	<13	<6.4	<4.7
CV-2 (15)	08-16-2017	48	<3.9	<8.1	<12	<2.7	<14	<47	<15	<7.6	<5.6
	02-06-2018*	27	<3.6	<7.5	<12	<2.5	<13	<43	<14	<7.0	<5.2
CV-2 (24)	08-16-2017	<280	<38	<80	<120	<26	<140	<460	<150	<75	<55
	02-06-2018*	26	<3.4	<7.2	<11	<2.4	<13	<42	<13	<6.8	<5.0
CV-3 (10)	08-16-2017	94	<4.1	10.0	<13	<2.8	<15	<50	130.0	<8.0	<5.9
	02-06-2018*	27	<3.6	<7.5	<12	<2.5	<13	<43	<14	<7.0	<5.2
CV-3 (15)	08-16-2017	200 [220]	<4.0 [<3.6]	<8.5 [<7.5]	<13 [<12]	<2.8 [<2.5]	<15 [<13]	<49 [<44]	18 [18]	<8.0 [<7.1]	<5.8 [<5.2]
	02-06-2018*	26 [26]	<3.4 [<3.5]	<7.2 [<7.4]	<11 [<11]	<2.4 [<2.4]	<13 [<13]	<42 [<43]	<13 [<14]	<6.8 [<6.9]	<5.0 [<5.1]
CV-3 (25)	08-16-2017	390	5.1	<8.2	<13	<2.7	30.0	<48	20.0	<7.7	<5.7
	02-06-2018*	27	<3.6	<7.5	<12	<2.5	<13	<43	<14	<7.0	<5.2

See Notes on Page 8.

Table 11
Exterior Soil Gas Analytical Results - Method TO-15

Corrective Measures 5-Year Assessment Report
Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	Chloroethane (µg/m^3)	Chloroform (µg/m^3)	Chloromethane (µg/m^3)	3-Chloropropene (µg/m^3)	alpha-Chlorotoluene (µg/m^3)	Cumene (µg/m^3)	Cyclohexane (µg/m^3)	Dibromochloro-methane (µg/m^3)	1,2-Dibromoethane (µg/m^3)	1,2-Dichloro-benzene (µg/m^3)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		1,500,000	18	13,000	68	8.3	58,000	880,000	NS	0.68	29,000
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		87,000,000	8,000,000 (C)	6,900,000	100,000	170,000	8,200,000	35,000,000	NS	5,100,000	10,000,000 (C)
CV-1 (10)	08-16-2017	<12	6.2	<24	<15	<6.1	<5.8	<4.1	<10	<9.1	<7.1
	02-06-2018*	<11	8.0	<21	<13	<5.3	<5.4	<3.5	<8.7	<7.9	<6.2
CV-1 (15)	08-16-2017	<13	8.0	<25	<15	<6.3	<5.0	<4.2	<10	<9.4	<7.3
	02-06-2018*	<12	5.8	<24	<14	<6.0	<5.7	<4.0	<9.9	<9.0	<7.0
CV-1 (24)	08-16-2017	<20	**28**	<40	<24	<10	<9.6	12.0	<16	<15	<12
	02-06-2018*	Not sampled due to the presence of water in the sample port									
CV-2 (10)	08-16-2017	<13	**120**	<25	<15	<6.3	<6.0	<4.2	<10	<9.4	<7.3
	02-06-2018*	<11	**22**	<21	<13	<5.3	<5.0	<3.5	<8.7	<7.9	<6.2
CV-2 (15)	08-16-2017	<13	<5.9	<25	<15	<6.3	<6.0	<4.2	<10	<9.3	<7.3
	02-06-2018*	<12	9.8	<23	<14	<5.8	<5.5	<3.8	<9.5	<8.6	<6.7
CV-2 (24)	08-16-2017	<130	<58	<250	<150	<62	<59	<41	<100	<92	<72
	02-06-2018*	<11	<5.3	<22	<14	<5.6	<5.3	<3.7	<9.2	<8.3	<6.5
CV-3 (10)	08-16-2017	<13	**160**	<26	<16	<6.6	<6.3	7.0	<11	<9.8	<7.7
	02-06-2018*	<12	17	<23	<14	<5.8	<5.5	<3.8	<9.5	<8.6	<6.7
CV-3 (15)	08-16-2017	<13 [<12]	16 [16]	<26 [<23]	<16 [<14]	<6.6 [<5.8]	<6.2 [<5.5]	<4.4 [<3.9]	<11 [<9.6]	<9.8 [<8.6]	<7.6 [<6.8]
	02-06-2018*	<11 [<12]	11 [10]	<22 [<23]	<14 [<14]	<5.6 [<5.7]	<5.3	<3.7 [<3.8]	<9.2 [<9.4]	<8.3 [<8.4]	<6.5 [<6.6]
CV-3 (25)	08-16-2017	<13	<6.0	<25	<15	<6.4	<6.0	<4.2	<10	<9.4	<7.4
	02-06-2018*	<12	<5.5	<23	<14	<5.8	<5.5 [<5.4]	<3.8	<9.5	<8.6	<6.7

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Table 11
Exterior Soil Gas Analytical Results - Method TO-15

Corrective Measures 5-Year Assessment Report
Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	1,3-Dichloro-benzene (µg/m^3)	1,4-Dichloro-benzene (µg/m^3)	1,1-Dichloroethane (µg/m^3)	1,2-Dichloroethane (µg/m^3)	1,1-Dichloroethene (µg/m^3)	cis-1,2-Dichloroethene (µg/m^3)	Trans-1,2-Dichloroethene (µg/m^3)	1,2-Dichloro-propane (µg/m^3)	Cis-1,3-Dichloro-propene (µg/m^3)	Trans-1,3-Dichloro-propene (µg/m^3)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		NS	37	260	16	29,000	NS	NS	110	100	100
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		NS	15,000,000	13,000,000	6,700,000	NS	NS	NS	12,000,000	NS	NS
CV-1 (10)	08-16-2017	<7.1	<7.1	<4.8	<4.8	<4.7	<4.7	<4.7	<5.5	<5.4	<5.4
	02-06-2018*	<6.2	<6.2	<4.1	<4.1	<4.1	<4.1	<4.1	<4.7	<4.6	<4.6
CV-1 (15)	08-16-2017	<7.3	<7.3	<4.9	<4.9	<4.8	<4.8	<4.8	<5.6	<5.5	<5.5
	02-06-2018*	<7.0	<7.0	<4.7	<4.7	<4.7	<4.6	<4.6	<5.4	<5.3	<5.3
CV-1 (24)	08-16-2017	<12	<12	<7.9	<7.9	<7.7	<7.7	<7.7	<9.0	<8.8	<8.8
	02-06-2018*	Not sampled due to the presence of water in the sample port									
CV-2 (10)	08-16-2017	<7.3	<7.3	<4.9	<4.9	<4.8	<4.8	<4.8	<5.6	<5.5	<5.5
	02-06-2018*	<6.2	<6.2	<4.1	<4.1	<4.1	<4.1	<4.1	<4.7	<4.6	<4.6
CV-2 (15)	08-16-2017	<7.3	<7.3	<4.9	<4.9	<4.8	53	<4.8	<5.6	<5.5	<5.5
	02-06-2018*	<6.7	<6.7	<4.5	<4.5	<4.5	<4.4	<4.4	<5.2	<5.1	<5.1
CV-2 (24)	08-16-2017	<72	<72	<48	<48	<47	87	<47	<55	<54	<54
	02-06-2018*	<6.5	<6.5	<4.4	<4.4	<4.4	<4.3	<4.3	<5.0	<4.9	<4.9
CV-3 (10)	08-16-2017	<7.7	<7.7	<5.2	<5.2	<5.0	<5.0	<5.0	<5.9	<5.8	<5.8
	02-06-2018*	<6.7	<6.7	<4.5	<4.5	<4.5	<4.4	<4.4	<5.2	<5.1	<5.1
CV-3 (15)	08-16-2017	<7.6 [<6.8]	<7.6 [<6.8]	<5.1 [<4.6]	<5.1 [<4.6]	<5.0 [<4.5]	<5.0 [4.9]	<5.0 [<4.5]	<5.9 [<5.2]	<5.8 [<5.1]	<5.8 [<5.1]
	02-06-2018*	<6.5 [<6.6]	<6.5 [<6.6]	<4.4 [<4.4]	<4.4 [<4.4]	<4.4 [<4.4]	<4.3 [<4.4]	<4.3 [<4.4]	<5.0 [<5.1]	<4.9 [5.0]	<4.9 [<5.0]
CV-3 (25)	08-16-2017	<7.4	<7.4	<5.0	<5.0	<4.9	<4.9	<4.9	<5.7	<5.6	<5.6
	02-06-2018*	<6.7	<6.7	<4.5	<4.5	<4.5	<4.4	<4.4	<5.2	<5.1	<5.1

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Table 11
Exterior Soil Gas Analytical Results - Method TO-15

Corrective Measures 5-Year Assessment Report
Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	1,4-Dioxane ($\mu g/m^3$)	Ethanol ($\mu g/m^3$)	Ethylbenzene ($\mu g/m^3$)	4-Ethyltoluene ($\mu g/m^3$)	Freon 11 ($\mu g/m^3$)	Freon 113 ($\mu g/m^3$)	Freon 114 ($\mu g/m^3$)	Freon 12 ($\mu g/m^3$)	Heptane ($\mu g/m^3$)	Hexachloro-butadiene ($\mu g/m^3$)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		82	NS	160	NS	NS	730,000	NS	15,000	58,000	19
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		12,000,000	63,000,000	15,000,000	NS	190,000,000	250,000,000	230,000,000	170,000,000	67,000,000	NS
CV-1 (10)	08-16-2017	<17	9.3	<5.1	<5.8	<6.6	<9.1	<8.3	<5.9	<4.8	<50
	02-06-2018*	<15	<7.7	<4.4	<5.0	<5.8	<7.8	<7.2	<5.1	<4.2	<44
CV-1 (15)	08-16-2017	<18	17	<5.3	<6.0	<6.8	<9.4	<8.5	<6.0	<5.0	<52
	02-06-2018*	<17	10	<5.0	<5.7	<6.4	<8.9	<8.1	<5.8	<4.8	<50
CV-1 (24)	08-16-2017	<28	<15	8.4	<9.6	<11	<15	<14	<9.6	11.0	<83
	02-06-2018*	Not sampled due to the presence of water in the sample port									
CV-2 (10)	08-16-2017	<18	<9.2	5.9	<6.0	<6.8	<9.4	<8.5	<6.0	<5.0	<52
	02-06-2018*	<15	<7.7	<4.4	<5.0	<7.8	<7.8	<7.2	<5.1	<4.2	<44
CV-2 (15)	08-16-2017	<18	12	<5.3	<6.0	<6.8	<9.3	<8.5	<6.0	<5.0	<52
	02-06-2018*	<16	<8.4	<4.9	<5.5	<6.3	<8.6	<7.8	<5.5	<4.6	<48
CV-2 (24)	08-16-2017	<170	<90	<52	<59	<67	<92	<84	<59	<49	<510
	02-06-2018*	<16	<8.1	<4.7	<5.3	<6.1	<8.3	<7.6	<5.3	<4.4	<46
CV-3 (10)	08-16-2017	<18	10	22	15	<7.2	<9.8	<8.9	<6.3	<5.2	<54
	02-06-2018*	<16	<8.4	<4.9	<5.5	<6.3	<8.6	<7.8	<5.5	<4.6	<48
CV-3 (15)	08-16-2017	<18 [<16]	<9.6 [<8.5]	<5.5 [<4.9]	<6.2 [<5.5]	<7.1 [<6.3]	<9.7 [<8.6]	<8.9 [<7.9]	<6.3 [<5.6]	<5.2 [<4.6]	<54 [<48]
	02-06-2018*	<16 [<16]	<8.1 [<8.3]	<4.7 [<4.8]	<5.3 [<5.4]	<6.1 [<6.2]	<8.3 [<8.4]	<7.6 [<7.7]	<5.3 [<5.5]	<4.4 [<4.5]	<46 [<47]
CV-3 (25)	08-16-2017	<18	62	7.9	11	<6.9	<9.4	<8.6	<6.1	<5.0	<52
	02-06-2018*	<16	<8.4	<4.9	<5.5	<6.3	<6.3	<7.8	<5.5	<4.6	<48

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Table 11
Exterior Soil Gas Analytical Results - Method TO-15

Corrective Measures 5-Year Assessment Report
Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	Hexane (µg/m^3)	2-Hexanone (µg/m^3)	4-Methyl-2-Pentanone (µg/m^3)	Methylene Chloride (µg/m^3)	MTBE (µg/m^3)	Naphthalene (µg/m^3)	2-Propanol (µg/m^3)	Propylbenzene (µg/m^3)	Styrene (µg/m^3)	1,1,2,2-Tetrachloro-ethane (µg/m^3)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		100,000	4,400	440,000	41,000	1,600	12	29,000	150,000	150,000	7.0
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		60,000,000	14,000,000	14,000,000	2,900,000	NS	1,700,000	33,000,000	NS	14,000,000	1,200,000
CV-1 (10)	08-16-2017	<4.2	<19	<4.8	<41	<17	<12	<12	<5.8	<5.0	<8.1
	02-06-2018*	<3.6	<17	<4.2	<36	<15	<11	<10	<5.0	<4.4	<7.0
CV-1 (15)	08-16-2017	<4.3	<20	<5.0	<42	<18	<13	92	<6.0	<5.2	<8.4
	02-06-2018*	<4.1	<19	<4.8	<40	<17	<12	<11	<5.7	<5.0	<8.0
CV-1 (24)	08-16-2017	16	<32	<8.0	<68	<28	<20	<19	<9.6	<8.3	<13
	02-06-2018*	Not sampled due to the presence of water in the sample port									
CV-2 (10)	08-16-2017	<4.3	<20	<5.0	<42	<18	<13	<12	<6.0	<5.2	<8.4
	02-06-2018*	<3.6	<17	<4.2	<36	<15	<11	<10	<5.0	<4.4	<7.0
CV-2 (15)	08-16-2017	<4.3	<20	<5.0	<42	<18	<13	60	<6.0	<5.2	<8.3
	02-06-2018*	<3.9	<18	<4.6	<40	<16	<12	<11	<5.5	<4.8	<7.7
CV-2 (24)	08-16-2017	<42	<200	<49	<420	<170	<120	<120	<59	<51	<82
	02-06-2018*	<4.4	<18	<4.4	<39	<16	<11	<11	<5.3	<4.6	<7.4
CV-3 (10)	08-16-2017	8.3	<21	<5.2	<44	<18	<13	<12	<6.3	<5.4	<8.8
	02-06-2018*	<3.9	<18	<4.6	<38	<16	<12	<11	<5.5	<4.8	<7.7
CV-3 (15)	08-16-2017	<4.5 [<4.0]	<21 [<18]	<5.2 [<4.6]	<44 [<39]	<18 [<16]	<13 [<12]	<12 [<11]	<6.2 [<5.5]	<5.4 [<4.8]	<8.7 [<7.7]
	02-06-2018*	<3.8 [3.9]	<18 [<18]	<4.4 [<4.5]	<39 [38]	<16 [<16]	<11 [<12]	<11 [<11]	<5.3 [<5.4]	<4.6 [<4.7]	<7.4 [<7.6]
CV-3 (25)	08-16-2017	4.5	<20	<5.0	<43	<18	<13	100.0	<6.0	<5.2	<8.4
	02-06-2018*	<3.9	<18	<4.6	<38	<16	<12	<11	<5.5	<4.8	<7.7

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Table 11
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Sample ID	Sampling Date	Tetrachloro-ethene ($\mu g/m^3$)	Tetrahydro-furan ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	1,2,4-Trichloro-benzene ($\mu g/m^3$)	1,1,1-Trichloro-ethane ($\mu g/m^3$)	1,1,2-Trichloro-ethane ($\mu g/m^3$)	Trichloro-ethene ($\mu g/m^3$)	1,2,4-Trimethyl-benzene ($\mu g/m^3$)	1,3,5-Trimethyl benzene ($\mu g/m^3$)	2,2,4-Trimethyl-pentane ($\mu g/m^3$)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		1,600	290,000	730,000	290	730,000	26	100	8,800	8,800	NS
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		23,000,000	20,000,000	25,000,000	NS	63,000,000	1,500,000	18,000,000	NS	NS	NS
CV-1 (10)	08-16-2017	<8.0	<3.5	4.6	<35	<6.5	<6.5	<6.4	<5.8	<5.8	<5.5
	02-06-2018*	24	<3.0	<3.9	<30	<5.6	<5.6	<5.5	<5.0	<5.0	<4.8
CV-1 (15)	08-16-2017	<8.3	<3.6	<4.6	<36	<6.6	<6.6	<6.6	<6.0	<6.0	<5.7
	02-06-2018*	50	<3.4	<4.4	<34	<6.4	<6.4	<6.3	<5.7	<5.7	27
CV-1 (24)	08-16-2017	74	<5.7	68	<58	<11	<11	<10	<9.6	<9.6	67
	02-06-2018*	Not sampled due to the presence of water in the sample port									
CV-2 (10)	08-16-2017	96	<3.6	12	<36	<6.6	<6.6	<6.6	<6.0	<6.0	<5.7
	02-06-2018*	31	<3.0	<3.9	<30	<6.1	<5.6	<5.5	<5.0	<5.0	<4.8
CV-2 (15)	08-16-2017	230	<3.6	<4.6	<36	<6.6	<6.6	19	<6.0	<6.0	66
	02-06-2018*	200	<3.3	<4.2	<33	<5.9	<6.1	<6.0	<5.5	<5.5	<5.2
CV-2 (24)	08-16-2017	**16,000**	<35	<45	<350	<65	<65	**340**	<59	<59	140
	02-06-2018*	**1,900**	<3.2	<4.1	<32	<6.1	<5.9	<5.8	<5.3	<5.3	<5.0
CV-3 (10)	08-16-2017	400	8.9	39	<38	<7.0	<7.0	<6.8	13	<6.3	95
	02-06-2018*	46	<3.3	<4.2	<33	<5.9	<6.1	<6.0	<5.5	<5.5	<5.2
CV-3 (15)	08-16-2017	28 [25]	<3.7 [<3.3]	<4.8 [<4.2]	<38 [<33]	<6.9 [<6.1]	<6.9 [<6.1]	<6.8 [15]	<6.2 [<5.5]	<6.2 [<5.5]	<5.9 [<5.2]
	02-06-2018*	39 [40]	<3.2 [<3.2]	<4.1 [<4.1]	<32 [<33]	<6.1 [<7.0]	<5.9 [<6.0]	<5.8 [5.9]	<5.3 [<5.4]	<5.3 [<5.4]	<5.0 [<5.1]
CV-3 (25)	08-16-2017	41	6.8	15	<36	<6.7	<6.7	<6.6	12	<6.0	61
	02-06-2018*	63	<3.3	<4.2	<33	<6.0	<0.1	<6.0	<5.5	<5.5	<5.2

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Table 11
Exterior Soil Gas Analytical Results - Method TO-15

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5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	Vinyl Chloride ($\mu g/m^3$)	m,p-Xylenes ($\mu g/m^3$)	o-Xylene ($\mu g/m^3$)	Total Xylenes ($\mu g/m^3$)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		93	15,000	15,000	15,000
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		85,000	15,000,000	15,000,000	15,000,000
CV-1 (10)	08-16-2017	<3.0	7.1	<5.1	7.1
	02-06-2018*	<2.6	<4.4	<4.4	<4.4
CV-1 (15)	08-16-2017	<3.1	<5.3	<5.3	<5.3
	02-06-2018*	<3.0	<5.0	<5.0	<5.0
CV-1 (24)	08-16-2017	<5.0	32	13	45
	02-06-2018*	Not sampled due to the presence of water in the sample port			
CV-2 (10)	08-16-2017	<3.1	16	5.4	21.4
	02-06-2018*	<2.6	<4.4	<4.4	<4.4
CV-2 (15)	08-16-2017	<3.1	<5.3	<5.3	<5.3
	02-06-2018*	<2.9	<4.9	<4.9	<4.9
CV-2 (24)	08-16-2017	<30	<52	<52	<52
	02-06-2018*	<2.8	<4.7	<4.7	<4.7
CV-3 (10)	08-16-2017	<3.2	66	21	87
	02-06-2018*	<2.9	<4.9	<4.9	<4.9
CV-3 (15)	08-16-2017	<3.2 [<2.9]	7.9 [7.4]	<5.5 [<4.9]	7.9 [7.4]
	02-06-2018*	<2.8 [<2.8]	<4.7 [<4.8]	<4.7 [<4.8]	<4.7 [<4.8]
CV-3 (25)	08-16-2017	<3.1	30	11	41
	02-06-2018*	<2.9	<4.9	<4.9	<4.9

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Table 11
Exterior Soil Gas Analytical Results - Method TO-15

Corrective Measures 5-Year Assessment Report
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Notes:
Samples were analyzed via Method TO-15
µg/m^3 - Micrograms per cubic meter (air)
USEPA - United States Environmental Protection Agency
MTBE - Methyl tertiary butyl ether
RBSL - Risk Based Screening Levels
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
NS - Sample not taken due to presence of water in sample point
VISL - Vapor Intrusion Screening Level
* Sampling event was conducted when Dual Phase Extraction System was down.
[1] - VISLs for soil vapor indoor inhalation for commercial workers, with a target cancer risk equal to 1 x 10^{-6} and a hazard quotient equal to 1, as listed in USEPA Vapor Intrusion Screening Level Calculator Version 3.5.2 updated with June 2017 toxicity information.
[2] - OSHA PEL Derived Sub-Slab Soil Gas Screening Values, presented for informational purposes only, were derived by dividing the OSHA PEL by an attenuation factor equal to 0.03. OSHA PELs were obtained from OSHA Standard 29 CFR 1910.1000 Table Z-1 and Z-2, 1910.1051 (1,3-butadiene), 1910.1052 (methylene chloride), and 1910.1017 (vinyl chloride). OSHA PELs are time-weighted averages, unless indicated as a ceiling limit (C).
[3] - Screening values for total 1,3-dichloropropene were used to evaluate cis- and trans-1,3-dichloropropene.
[4] - Screening values for xylenes (total) were used to evaluate xylene (o) and xylenes (m&p).
Bolded and shaded values exceed the USEPA Commercial VISL.
NS - no screening level established.
[ ] - Field duplicate analytical results
< - Result is less than the method detection limit.
C - OSHA PEL corresponds to the ceiling limit.

Table 12
Exterior Fixed Gas Analytical Results - Method TO-15

Corrective Measures 5-Year Assessment Report
Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	Helium (%v/v/)	Carbon Dioxide (%v/v/)	Methane (%v/v/)	Oxygen (%v/v/)
CV-1 (10)	08-16-2017	<0.12	0.097	<0.00024	20
	02-06-2018*	<0.10	1.3	<0.00020	19
CV-1 (15)	08-16-2017	<0.12	0.024	<0.00024	18
	02-06-2018*	<0.12	1.7	<0.00023	19
CV-1 (24)	08-16-2017	<0.19	1.0	0.00065	13
	02-06-2018*	Not sampled due to the presence of water in the sample port			
CV-2 (10)	08-16-2017	<0.12	0.72	<0.00024	19
	02-06-2018*	<0.10	0.96	<0.00020	19
CV-2 (15)	08-16-2017	<0.12	0.98	<0.00024	18
	02-06-2018*	<0.11	1.4	<0.00022	20
CV-2 (24)	08-16-2017	<0.12	1.8	0.00083	18
	02-06-2018*	<0.11	1.3	<0.00022	18
CV-3 (10)	08-16-2017	<0.13	0.055	0.00071	13
	02-06-2018*	<0.11	1.6	<0.00022	19
CV-3 (15)	08-16-2017	<0.13 [<0.11]	5.0 [4.9]	0.00025 [<0.00023]	14 [14]
	02-06-2018*	<0.11 [<0.11]	2.4 [2.3]	<0.00022 [<0.00022]	19 [19]
CV-3 (25)	08-16-2017	<0.12	0.11	0.00025	20
	02-06-2018*	<0.11	0.70	<0.00022	19

Notes:
Samples were analyzed for Helium in accordance with ASTM D1946(MOD) and Fixed Gases using GC/FID or GC/TCD in accordance with EPA Method 3C.
% v/v - Percent volume concentration
[ ] - Field duplicate analytical results
< - Result is less than the method detection limit.
NS - Sample not taken due to presence of water in sample point
* Sampling event was conducted when Dual Phase Extraction System was down.

Table 13
Interior Soil Gas Analytical Results - Method TO-15

Corrective Measures 5-Year Assessment Report
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5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	Acetone (µg/m3)	Benzene (µg/m^3)	Bromodichloro-methane (µg/m^3)	Bromoform (µg/m^3)	1,3-Butadiene (µg/m^3)	2-Butanone (Methyl Ethyl Ketone) (µg/m^3)	Bromomethane (µg/m^3)	Carbon Disulfide (µg/m^3)	Carbon Tetrachloride (µg/m3)	Chlorobenzene (µg/m^3)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		4,500,000	52	11	370	14	730,000	730	100,000	68	7,300
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		80,000,000	1,100,000	NS	170,000	74,000	20,000,000	2,700,000 (C)	2,100,000	2,100,000	12,000,000
SS-1	02-10-2018*	<29	<3.9	<8.1	<12	<2.7	<14	<47	<15	<7.6	<5.6
SS-2	02-10-2018*	<28 [87]	<3.8 [<3.2]	<7.9 [<6.7]	<12 [<10]	<2.6 [<2.2]	<14 [<12]	<46 [<39]	<15 [<12]	<7.4 [6.3]	<5.4 [<4.6]

Sample ID	Sampling Date	Chloroethane (µg/m^3)	Chloroform (µg/m^3)	Chloromethane (µg/m^3)	3-Chloropropene (µg/m^3)	alpha-Chlorotoluene (µg/m^3)	Cumene (µg/m^3)	Cyclohexane (µg/m^3)	Dibromochloro-methane (µg/m^3)	1,2-Dibromoethane (µg/m^3)	1,2-Dichloro-benzene (µg/m^3)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		1,500,000	18	13,000	68	8.3	58,000	880,000	NS	0.68	29,000
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		87,000,000	8,000,000 (C)	6,900,000	100,000	170,000	8,200,000	35,000,000	NS	5,100,000	10,000,000 (C)
SS-1	02-10-2018*	<13	<5.9	<25	<15	<6.3	<6.0	<4.2	<10	<9.3	<7.3
SS-2	02-10-2018*	<12 [<11]	<5.7 [<4.9]	<24 [<21]	<15 [<12]	<6.1 [<5.2]	<5.8 [4.9]	<4.0 [3.4]	<10 [<8.6]	<9.0 [<7.7]	<7.1 [<6.0]

Sample ID	Sampling Date	1,3-Dichloro-benzene (µg/m^3)	1,4-Dichloro-benzene (µg/m^3)	1,1-Dichloroethane (µg/m^3)	1,2-Dichloroethane (µg/m^3)	1,1-Dichloroethene (µg/m^3)	cis-1,2-Dichloroethene (µg/m^3)	Trans-1,2-Dichloroethene (µg/m^3)	1,2-Dichloro-propane (µg/m^3)	Cis-1,3-Dichloro-propene (µg/m^3)	Trans-1,3-Dichloro-propene (µg/m^3)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		NS	37	260	16	29,000	NS	NS	110	100	100
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		NS	15,000,000	13,000,000	6,700,000	NS	NS	NS	12,000,000	NS	NS
SS-1	02-10-2018*	<7.3	<7.3	<4.9	<4.9	<4.8	<4.8	<4.8	<5.6	<5.5	<5.3
SS-2	02-10-2018*	<7.1 [6.0]	<7.1 [6.0]	<4.8 [<4.1]	<4.8 [<4.1]	<4.6 [<4.0]	<4.6 [<4.0]	<4.6 [<4.0]	<5.4 [<4.6]	<5.3 [<4.6]	<4.6 [<5.4]

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Table 13
Interior Soil Gas Analytical Results - Method TO-15

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5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	1,4-Dioxane ($\mu g/m^3$)	Ethanol ($\mu g/m^3$)	Ethylbenzene ($\mu g/m^3$)	4-Ethyltoluene ($\mu g/m^3$)	Freon 11 ($\mu g/m^3$)	Freon 113 ($\mu g/m^3$)	Freon 114 ($\mu g/m^3$)	Freon 12 ($\mu g/m^3$)	Heptane ($\mu g/m^3$)	Hexachloro-butadiene ($\mu g/m^3$)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		82	NS	160	NS	NS	730,000	NS	15,000	58,000	19
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		12,000,000	63,000,000	15,000,000	NS	190,000,000	250,000,000	230,000,000	170,000,000	67,000,000	NS
SS-1	02-10-2018*	<18	14	<5.3	<6.0	<6.8	<9.3	<8.5	<6.0	<4.8	<52
SS-2	02-10-2018*	<17 [<14]	<8.8 [120]	<5.1 [<4.4]	<5.8 [<4.9]	<6.6	<9.0	<8.2	<5.8	<4.1	<50 [<43]

Sample ID	Sampling Date	Hexane ($\mu g/m^3$)	2-Hexanone ($\mu g/m^3$)	4-Methyl-2-Pentanone ($\mu g/m^3$)	Methylene Chloride ($\mu g/m^3$)	MTBE ($\mu g/m^3$)	Naphthalene ($\mu g/m^3$)	2-Propanol ($\mu g/m^3$)	Propylbenzene ($\mu g/m^3$)	Styrene ($\mu g/m^3$)	1,1,2,2-Tetrachloro-ethane ($\mu g/m^3$)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		100,000	4,400	440,000	41,000	1,600	12	29,000	150,000	150,000	7.0
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		60,000,000	14,000,000	14,000,000	2,900,000	NS	1,700,000	33,000,000	NS	14,000,000	1,200,000
SS-1	02-10-2018*	<4.3	<20	<5.0	<42	<14	<13	<12	<6.0	<5.2	<8.3
SS-2	02-10-2018*	<4.1 [8.1]	<19 [<16]	<4.8 [<4.1]	<41 [<35]	<14 [<12]	<12 [<10]	<12 [40]	<5.8 [<4.9]	<5.0 [<4.3]	<8.1 [<6.9]

Sample ID	Sampling Date	Tetrachloro-ethene ($\mu g/m^3$)	Tetrahydro-furan ($\mu g/m^3$)	Toluene ($\mu g/m^3$)	1,2,4-Trichloro-benzene ($\mu g/m^3$)	1,1,1-Trichloro-ethane ($\mu g/m^3$)	1,1,2-Trichloro-ethane ($\mu g/m^3$)	Trichloro-ethene ($\mu g/m^3$)	1,2,4-Trimethyl-benzene ($\mu g/m^3$)	1,3,5-Trimethyl benzene ($\mu g/m^3$)	2,2,4-Trimethyl-pentane ($\mu g/m^3$)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		1,600	290,000	730,000	290	730,000	26	100	8,800	8,800	NS
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		23,000,000	20,000,000	25,000,000	NS	63,000,000	1,500,000	18,000,000	NS	NS	NS
SS-1	02-10-2018*	<8.2	<3.6	<4.6	<36	<6.6	<6.6	<6.5	<6.0	<6.0	<5.7
SS-2	02-10-2018*	<8.0 [<6.8]	<3.5 [<3.0]	<4.4 [4.4]	<35 [<30]	<6.4 [<5.5]	<6.4 [<5.5]	<6.3 [<5.4]	<5.8 [<4.9]	<5.8 [<4.9]	<5.5 [<4.7]

See Notes on Page 3.

Table 13
Interior Soil Gas Analytical Results - Method TO-15

Corrective Measures 5-Year Assessment Report
Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	Vinyl Chloride ($\mu g/m^3$)	m,p-Xylenes ($\mu g/m^3$)	o-Xylene ($\mu g/m^3$)	Total Xylenes ($\mu g/m^3$)
USEPA Commercial Vapor Intrusion Screening Level for Sub-Slab Soil Gas		93	15,000	15,000	15,000
OSHA PEL Derived Sub-Slab Soil Gas Screening Value		85,000	15,000,000	15,000,000	15,000,000
SS-1	02-10-2018*	<3.1	<5.3	<5.3	<5.3
SS-2	02-10-2018*	<3.0 [<2.6]	<5.1 [<4.4]	<5.1 [<4.4]	<5.1 [<4.4]

Notes:
Samples were analyzed via Method TO-15
$\mu g/m^3$ - Micrograms per cubic meter (air)
USEPA - United States Environmental Protection Agency
MTBE - Methyl tertiary butyl ether
RBSL - Risk Based Screening Levels
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
NS - Sample not taken due to presence of water in sample point
VISL - Vapor Intrusion Screening Level
[1] - VISLs for soil vapor indoor inhalation for commercial workers, with a target cancer risk equal to 1×10^{-6} and a hazard quotient equal to 1, as listed in USEPA Vapor Intrusion Screening Level Calculator Version 3.5.2 updated with June 2017 toxicity information.
[2] - OSHA PEL Derived Sub-Slab Soil Gas Screening Values, presented for informational purposes only, were derived by dividing the OSHA PEL by an attenuation factor equal to 0.03. OSHA PELs were obtained from OSHA Standard 29 CFR 1910.1000 Table Z-1 and Z-2, 1910.1051 (1,3-butadiene), 1910.1052 (methylene chloride), and 1910.1017 (vinyl chloride). OSHA PELs are time-weighted averages, unless indicated as a ceiling limit (C).
[3] - Screening values for total 1,3-dichloropropene were used to evaluate cis- and trans-1,3-dichloropropene.
[4] - Screening values for xylenes (total) were used to evaluate xylene (o) and xylenes (m&p).
Bolded and shaded values exceed the USEPA Commercial VISL.
NS - no screening level established.
[ ] - Field duplicate analytical results. The final canister vacuum for the duplicate sample was measured at ambient pressure at the laboratory.
< - Result is less than the method detection limit.
C - OSHA PEL corresponds to the ceiling limit.
* Sampling event was conducted when Dual Phase Extraction System was down.

Table 14
Interior Fixed Gas Analytical Results - Method TO-15

Corrective Measures 5-Year Assessment Report
Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Sample ID	Sampling Date	Helium (%v/v/)	Carbon Dioxide (%v/v/)	Methane (%v/v/)	Oxygen (%v/v/)
SS-1	02-10-2018*	<0.12	0.051	0.00025	21
SS-2	02-10-2018*	<0.12 [<0.10]	0.025 [<0.039]	0.00024 [<0.00024]	21 [21]

Notes:
Samples were analyzed for Helium in accordance with ASTM D1946(MOD) and Fixed Gases using GC/FID or GC/TCD in accordance with EPA Method 3C.
% v/v - Percent volume concentration
[ ] - Field duplicate analytical results. The final canister vacuum for the duplicate sample was measured at ambient pressure at the laboratory.
< - Result is less than the method detection limit.
* Sampling event was conducted when Dual Phase Extraction System was down.

Table 15
LPH Baildown Test Results

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well ID	Date	Initial LPH Thickness (feet)	Test Duration (minutes)	Final LPH Thickness (feet)	Percent Recovery	LPH Transmissivity (feet^2/day)			
						Bouwer & Rice	Cooper & Jacob / Jacob & Lohman	Cooper, Bredehoeft, & Papadopoulos	Reported Result (feet^2/day)
MP-7 (test 1)	1/26/2018	0.90	260	0.20	22%	0.06	0.10	0.18	**0.11**
MP-7 (test 2)	2/2/2018	0.42	320	0.11	26%	0.09	0.11	NT	**0.10**

General Notes:
Bold - Exceeds 0.1 to 0.8 foot^2/day lower criterion range to produce sufficient LPH recoverability (ITRC 2009).

Acronyms and Abbreviations:
LPH = liquid phase hydrocarbons
NT = Test excluded from results due to inconsistent transmissivity result
Bouwer & Rice = Bouwer & Rice modified slug test analysis method
Cooper & Jacob /Jacob & Lohman = Cooper & Jacob /Jacob & Lohman slug test analysis method
Cooper, Bradehoeft, & Papadopoulos = Cooper, Bradehoeft, & Papadopoulos slug test analysis method

Table 16
Monitored Natural Attenuation Sampling Results - April 2017 and February 2018

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Parameter	Units	Background Well		Source Area Well		Cross-Gradient Wells				Western Transect			
		MW-20		GP-30R		MW-6		MW-45		MW-18		MW-62B	
		4/24/2017	2/15/2018	4/24/2017	2/14/2018	4/24/2017	2/15/2018	4/24/2017	2/15/2018	4/25/2017	2/14/2018	4/25/2017	2/15/2018
Constituents of Concern													
Benzene	µg/L	< 1	< 1	10,000	3,000	< 1	< 4	2.4	3.6	< 1	< 1	5.2	6.0
MTBE	µg/L	< 1	< 1	880	500	< 1	< 4	1.7	1.1	< 1	< 1	27	26
Toluene	µg/L	< 1	< 1	21,000	4,100	10	15	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	µg/L	< 1	< 1	1,300	590	26	47	< 1	< 1	< 1	< 1	< 1	< 1
Xylenes	µg/L	< 10	< 2	7,900	2,700	72	211	< 10	2.5	< 10	< 2	< 10	< 2
Geochemical Parameters													
Nitrate	µg/L	6000	6100	< 100	800	19000	6300	3700	4500	1100	4100	< 100	< 50
Manganese, Total	µg/L	420	390	110	220	470	450	53	66	150	48	370	390
Manganese, Dissolved	µg/L	410	370	110	220	460	460	130	54	53	44	340	340
Iron, Total	µg/L	7400	7100	25000	24700	23000	34500	460	7300	29000	3200	23000	54200
Iron, Dissolved	µg/L	130	200	17000	21300	7900	3800	1100	< 50	< 100	< 50	< 100	2400
Sulfate	µg/L	2400	< 5000	1100	23600	24000	23600	< 1000	< 5000	61000	46300	32000	41400
Carbon dioxide	mg/L	210	200	110	89	220	66	190	140	61	210	120	72
Methane	µg/L	930	460	26	260	550	650	250	250	< 2	< 4	12	19
Field Parameters													
Dissolved oxygen	mg/L	0.10	2.18	0.14	3.81	0.05	1.68	0.64	20.98	0.98	2.41	0.11	1.01
ORP	mV	191.9	338.2	-24.9	-14.2	8.5	97.9	180.3	299.0	89.6	198.6	-15.1	0.3
Specific Conductivity	mS/cm	2.236	2.333	0.548	0.922	1.538	1.630	0.661	0.637	1.482	1.412	1.026	1.163
Temperature	°C	17.97	17.98	17.52	17.24	18.82	18.42	17.75	17.69	15.96	14.42	16.73	17.82
pH	s.u.	4.26	3.69	6.11	5.92	6.43	5.74	4.62	4.52	6.03	4.97	6.62	5.96

See Notes on Page 2.

Table 16
Monitored Natural Attenuation Sampling Results - April 2017 and February 2018

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Parameter	Units	Western Transect				Eastern Transect					
		MW-59		MW-33B		MW-47		MW-25B		MW-53	
		4/25/2017	2/15/2018	4/25/2017	2/15/2018	4/24/2017	2/14/2018	4/25/2017	2/15/2018	4/25/2017	2/15/2018
Constituents of Concern											
Benzene	µg/L	86	87	3.1	1.6	120	99	78	170	3.5	< 1
MTBE	µg/L	170	170	12	11	8.3	12	150	140	71	39
Toluene	µg/L	< 1	< 4	< 1	< 1	20	16	< 1	< 4	< 1	< 1
Ethylbenzene	µg/L	< 1	< 4	< 1	< 1	1.8	< 2	< 1	< 4	< 1	< 1
Xylenes	µg/L	< 10	< 8	< 10	< 2	84	72	< 10	4.6	< 10	< 2
Geochemical Parameters											
Nitrate	µg/L	1400	1400	2300	1800	120	120	2200	1800	< 100	< 50
Manganese, Total	µg/L	120	140	200	150	170	170	160	160	250	370
Manganese, Dissolved	µg/L	120	120	190	140	160	160	150	150	240	280
Iron, Total	µg/L	970	4300	110	1400	7700	10300	8400	1400	7500	26600
Iron, Dissolved	µg/L	180	140	< 100	< 50	2700	1800	< 100	< 50	< 100	< 50
Sulfate	µg/L	32000	34100	68000	56400	< 1000	< 5000	61000	56300	31000	28400
Carbon dioxide	mg/L	250	160	260	170	69	240	190	87	160	120
Methane	µg/L	68	85	6	4	64	62	< 2	< 4	530	650
Field Parameters											
Dissolved oxygen	mg/L	0.10	4.97	2.24	6.22	0.10	5.21	0.06	7.83	3.63	1.84
ORP	mV	199.8	255.9	224.6	223.4	164.0	228.3	180.7	207.3	216.6	43.4
Specific Conductivity	mS/cm	0.383	0.428	0.381	0.412	0.357	0.010	0.790	0.022	0.561	1.029
Temperature	°C	15.01	16.22	15.00	14.81	16.93	16.08	15.98	15.19	14.61	13.09
pH	s.u.	5.05	4.61	5.33	5.02	4.83	4.74	4.74	5.94	6.97	6.15

Notes:
< = parameter was not detected; value is reported as less than the reporting limit
°C = degrees Celsius
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
MTBE = methyl tert-butyl ether
mV = millivolts
ORP = oxidation-reduction potential
s.u. = standard units
µg/L = micrograms per liter

Table 17
Tier 1 Natural Attenuation Analysis Summary

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well	Benzene						MTBE					
	C_i (µg/L)	Date Collected	C_f (µg/L)	Date Collected	Slope of Best-Fit Line	R^2 of Best-Fit Line	C_i (µg/L)	Date Collected	C_f (µg/L)	Date Collected	Slope of Best-Fit Line	R^2 of Best-Fit Line
Upgradient / Background Well												
MW-20	1.4	5/18/2004	< 1	3/29/2018	D	0.36	< 1	5/18/2004	< 1	3/29/2018	S	NA
Wells Within Plume, Cross-gradient of Source Area												
MW-6	9200	5/1/1990	< 1	3/29/2018	D	0.36	4000	12/18/1992	< 1	3/29/2018	D	0.08
MW-45	47.6	11/22/2004	2.1	3/29/2018	D	0.55	< 1	11/22/2004	< 1	3/29/2018	I	0.14
Wells Within Plume, Downgradient of Source Area												
MW-18	2500	10/2/2001	< 1	3/28/2018	D	0.24	600	10/2/2001	< 1	3/28/2018	D	0.26
MW-62B	94	10/4/2012	2.1	3/28/2018	D	0.61	97	10/4/2012	18	3/28/2018	D	0.61
MW-59	140	3/2/2011	68	3/27/2018	D	0.46	140	3/2/2011	120	3/27/2018	D	0.08
MW-47	116	11/19/2004	86	3/29/2018	D	0.17	27.2	11/19/2004	6.9	3/29/2018	D	0.07
MW-25B	456	11/22/2004	130	3/28/2018	D	0.30	502	11/22/2004	120	3/28/2018	D	0.64
Wells Downgradient of Plume												
MW-33B	1040	6/2/2004	3.5	3/26/2018	D	0.63	770	6/2/2004	12	3/26/2018	D	0.81
MW-53	< 1	5/3/2005	< 1	3/26/2018	D	0.15	66.4	5/3/2005	21	3/26/2018	D	0.18

Notes:
< = parameter was not detected; value is reported as less than the reporting limit
C_i = initial concentration of all historical data
C_f = final concentration of all historical data
D = decreasing (negative slope)
I = increasing (positive slope)
MTBE = methyl tert-butyl ether
NA = not applicable
S = stable (zero slope)
µg/L = micrograms per liter

Table 18
Tier 2 Geochemical Parameter Data Analysis Summary

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well	Benzene (µg/L)	MTBE (µg/L)	DO (mg/L)	Nitrate (µg/L)	Total Mn (µg/L)	Dissolved Mn (µg/L)	Total Fe (µg/L)	Dissolved Fe (µg/L)	Sulfate (µg/L)	CO_2 (mg/L)	Methane (µg/L)	ORP (mV)	Dominant Geochemical Condition
April 2017 Groundwater Sampling Results													
Western Transect													
Upgradient / Cross-Gradient Wells (Background Well)													
MW-20	< 1	< 1	***0.10***	***6000***	420	410	***7400***	***130***	***2400***	210	930	***191.9***	Nitrate Reducing
Wells Within Plume, Cross-gradient of Source Area													
MW-6	< 1	< 1	***0.05***	***19000***	470	460	***23000***	***7900***	***24000***	220	550	8.5	Iron-Reducing
Wells Within Plume, Downgradient of Source Area													
MW-18	< 1	< 1	***0.98***	***1100***	150	53	***29000***	***< 100***	***61000***	61	< 2	***89.6***	Nitrate Reducing
MW-62B	5.2	27	***0.11***	***< 100***	370	340	***23000***	***< 100***	***32000***	120	12	-15.1	Inconclusive
MW-59	86	170	***0.10***	***1400***	120	120	***970***	***180***	***32000***	250	68	***199.8***	Nitrate Reducing
Wells Downgradient of Plume													
MW-33B	3.1	12	***2.24***	***2300***	200	190	***110***	***< 100***	***68000***	260	6	***224.6***	Aerobic/Nitrate Reducing
Eastern Transect													
Upgradient / Cross-Gradient Wells (Background Well)													
MW-20	< 1	< 1	***0.10***	***6000***	420	410	***7400***	***130***	***2400***	210	930	***191.9***	Nitrate Reducing
Wells Within Plume, Cross-gradient of Source Area													
MW-45	2.4	1.7	***0.64***	***3700***	53	130	460	1100	< 1000	190	250	***180.3***	Nitrate Reducing
Wells Within Plume, Downgradient of Source Area													
MW-47	120	8.3	***0.10***	***120***	170	160	***7700***	***2700***	< 1000	69	64	***164.0***	Slightly Iron-Reducing
MW-25B	78	150	***0.06***	***2200***	160	150	***8400***	***< 100***	***61000***	190	< 2	***180.7***	Nitrate Reducing
Wells Downgradient of Plume													
MW-53	3.5	71	***3.63***	***< 100***	250	240	***7500***	***< 100***	***31000***	160	530	***216.6***	Inconclusive

Notes:
Bold/italics = geochemical conditions are supportive of biodegradation
* The DPE system was off during sampling in February 2018 (and on in April 2017).
< = parameter was not detected; value is reported as less than the reporting limit
CO_2 = carbon dioxide
DO = dissolved oxygen
Fe = iron
mg/L = milligrams per liter
Mn = manganese
MTBE = methyl tert-butyl ether
ORP = oxidation-reduction potential
µg/L = micrograms per liter

Table 18
Tier 2 Geochemical Parameter Data Analysis Summary

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Well	Benzene (µg/L)	MTBE (µg/L)	DO (mg/L)	Nitrate (µg/L)	Total Mn (µg/L)	Dissolved Mn (µg/L)	Total Fe (µg/L)	Dissolved Fe (µg/L)	Sulfate (µg/L)	CO_2 (mg/L)	Methane (µg/L)	ORP (mV)	Dominant Geochemical Condition
February 2018 Groundwater Sampling Results													
Western Transect													
Upgradient / Cross-Gradient Wells (Background Well)													
MW-20	< 1	< 1	***2.18***	***6100***	390	370	***7100***	***200***	< 5000	200	460	***338.2***	Aerobic
Wells Within Plume, Source Area*													
GP-30R	3000	500	***3.81***	***800***	220	220	***24700***	***21300***	***23600***	89	260	***-14.2***	Iron-Reducing
Wells Within Plume, Downgradient of Source Area													
MW-18	< 1	< 1	***2.41***	***4100***	48	44	***3200***	***< 50***	***46300***	210	< 4	***198.6***	Aerobic/Nitrate Reducing
MW-62B	6.0	26	***1.01***	***< 50***	390	340	***54200***	***2400***	***41400***	72	19	***0.3***	Iron-Reducing
MW-59	87	170	***4.97***	***1400***	140	120	***4300***	***140***	***34100***	160	85	***255.9***	Aerobic/Nitrate Reducing
Wells Downgradient of Plume													
MW-33B	1.6	11	***6.22***	***1800***	150	140	***1400***	***< 50***	***56400***	170	4	***223.4***	Aerobic/Nitrate Reducing
Eastern Transect													
Upgradient / Cross-Gradient Wells (Background Well)													
MW-20	< 1	< 1	***2.18***	***6100***	390	370	***7100***	***200***	< 5000	200	460	***338.2***	Aerobic
Wells Within Plume, Source Area*													
GP-30R	3000	500	***3.81***	***800***	220	220	***24700***	***21300***	***23600***	89	260	***-14.2***	Iron-Reducing
Wells Within Plume, Downgradient of Source Area													
MW-47	99	12	***5.21***	***120***	170	160	***10300***	***1800***	< 5000	240	62	***228.3***	Slightly Iron-Reducing
MW-25B	170	140	***7.83***	***1800***	160	150	***1400***	***< 50***	***56300***	87	< 4	***207.3***	Aerobic/Nitrate Reducing
Wells Downgradient of Plume													
MW-53	< 1	39	***1.84***	***< 50***	370	280	***26600***	***< 50***	***28400***	120	650	***43.4***	Inconclusive

Notes:
Bold/italics = geochemical conditions are supportive of biodegradation
* The DPE system was off during sampling in February 2018 (and on in April 2017).
< = parameter was not detected; value is reported as less than the reporting limit
CO_2 = carbon dioxide
DO = dissolved oxygen
Fe = iron
mg/L = milligrams per liter
Mn = manganese
MTBE = methyl tert-butyl ether
ORP = oxidation-reduction potential
µg/L = micrograms per liter

Table 19
Statistical Evaluation Results

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Monitoring Well ID	Area	Influenced by Remediation System Activities?	Number of Data Points in Statistical Evaluation Data Set	Remediation Monitoring Phase Evaluation Results (Completion Requirements Met? - Yes [Y] or No [N])					Attainment Monitoring Phase Evaluation Results (Completion Requirements Met? - Yes [Y] or No [N])				
				Benzene	MTBE	Toluene	Ethylbenzene	Xylenes, Total	Benzene	MTBE	Toluene	Ethylbenzene	Xylenes, Total
MW-20	BKGD	No	8	--	--	--	--	--	Y[6]	Y[6]	Y[6]	Y[6]	Y[6]
MW-21	BKGD	No	8	--	--	--	--	--	***N***	Y	Y[5]	Y[6]	Y[5]
MW-45	BKGD	No	8	--	--	--	--	--	***N***	Y	Y[5]	Y[6]	Y[2]
MW-46	BKGD	No	8	--	--	--	--	--	Y[5]	Y	Y[6]	Y[6]	Y[6]
GP-24A	A	No	8	--	--	--	--	--	Y[6]	Y[5]	Y[6]	Y[6]	Y[6]
GP-27R (GP-27A)	A	Yes	≥ 4	***N***[1]	***N***[1,3]	Y[1,2]	Y[1,2]	Y[1,2]	--	--	--	--	--
GP-30R (GP-30A)	A	Yes	≥ 4	***N***	***N***	***N***	***N***	***N***	--	--	--	--	--
GP-35A	A	Yes	≥ 4	***N***	Y[1,4]	***N***	***N***	Y	--	--	--	--	--
GP-39R (GP-39A)	A	Yes	≥ 4	Y[1,2]	***N***	Y[1,2]	Y[1,2]	Y[1,2]	--	--	--	--	--
GP-41A	A	No	8	--	--	--	--	--	Y[5]	Y[6]	Y[6]	Y[6]	Y[6]
GP-44A	A	No	8	--	--	--	--	--	Y[6]	Y[6]	Y	Y	Y
MP-7	A	Yes	≥ 4	***N***	***N***	***N***	***N***	Y	--	--	--	--	--
MW-1	A	No	8	--	--	--	--	--	Y[6]	***N***	Y[6]	Y[6]	Y[6]
MW-12	A	Yes	≥ 4	***N***	***N***	***N***	***N***	Y	--	--	--	--	--
MW-13	A	No	8	--	--	--	--	--	***N***[2]	***N***[2]	Y[5]	Y[5]	Y[5]
MW-15	A	Yes	≥ 4	***N***	Y[5]	Y	Y	Y	--	--	--	--	--
MW-16	A	Yes	≥ 4	Y[1,2]	Y[1,2]	Y[1,2]	Y[1,2]	Y[1,2]	--	--	--	--	--
MW-17	A	Yes	≥ 4	***N***	***N***	***N***	Y	Y	--	--	--	--	--
MW-18	A	No	8	--	--	--	--	--	***N***[5]	Y[6]	Y[5]	Y[5]	Y[5]
MW-19	A	No	8	--	--	--	--	--	Y[6]	Y[6]	Y[6]	Y[6]	Y[6]
MW-2	A	No	8	--	--	--	--	--	Y[6]	Y	Y[5]	Y[5]	Y[5]
MW-22R (MW-22)	A	Yes	≥ 4	***N***	***N***	***N***	Y	Y	--	--	--	--	--
MW-23	A	No	8	--	--	--	--	--	Y[6]	Y	Y[6]	Y[6]	Y[6]
MW-3	A	No	8	--	--	--	--	--	Y[2]	Y	Y[5]	Y[2]	Y
MW-4	A	No	8	--	--	--	--	--	Y[6]	Y	Y[6]	Y[6]	Y[6]
MW-5	A	No	8	--	--	--	--	--	Y[5]	Y[5]	Y[6]	Y[5]	Y[5]
MW-6	A	No	8	--	--	--	--	--	Y[6]	Y[6]	Y	Y	Y
MW-7	A	Yes	≥ 4	***N***	***N***	***N***	***N***	Y	--	--	--	--	--
PTW-B	A	Yes	≥ 4	***N***[1]	***N***[3]	Y	Y[1]	Y[1]	--	--	--	--	--
RW-1	A	Yes	≥ 4	***N***	***N***	Y	Y	Y	--	--	--	--	--
RW-2	A	Yes	≥ 4	***N***	***N***	Y[3]	Y	Y	--	--	--	--	--
RW-3	A	Yes	≥ 4	***N***	***N***[1]	Y[3]	Y[1]	Y	--	--	--	--	--
RW-4	A	Yes	≥ 4	***N***	***N***	***N***	Y	Y	--	--	--	--	--
RW-5	A	Yes	≥ 4	***N***	***N***	***N***	Y	Y	--	--	--	--	--
VP-4	A	No	8	--	--	--	--	--	***N***	***N***	Y[5]	Y[5]	Y[5]
GP-7A(20-25)	B	No	8	--	--	--	--	--	Y[6]	Y[5]	Y[6]	Y[6]	Y[6]
GP-7A(25-30)	B	No	3	--	--	--	--	--	Y[6]	Y[5]	Y[6]	Y[6]	Y[6]
GP-7A(30-35)	B	No	8	--	--	--	--	--	Y[6]	Y[5]	Y[6]	Y[6]	Y[6]
GP-7A(35-40)	B	Yes	≥ 4	***N***[1,2]	***N***[1,3]	Y[1]	Y[1,2]	Y[1]	--	--	--	--	--

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Table 19
Statistical Evaluation Results

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
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Monitoring Well ID	Area	Influenced by Remediation System Activities?	Number of Data Points in Statistical Evaluation Data Set	Remediation Monitoring Phase Evaluation Results (Completion Requirements Met? - Yes [Y] or No [N])					Attainment Monitoring Phase Evaluation Results (Completion Requirements Met? - Yes [Y] or No [N])				
				Benzene	MTBE	Toluene	Ethylbenzene	Xylenes, Total	Benzene	MTBE	Toluene	Ethylbenzene	Xylenes, Total
GP-7A(40-45)	B	No	4	--	--	--	--	--	***N*** [5]	***N***	Y [5]	Y [5]	Y [5]
ISGR-1 Deep	B	Yes	≥ 4	Y [5]	Y [1]	Y [5]	Y [5]	Y [5]	--	--	--	--	--
ISGR-1 Shallow	B	Yes	≥ 4	Y [5]	Y [5]	Y	Y	Y	--	--	--	--	--
ISGR-2 Deep	B	Yes	≥ 4	Y [5]	Y [1]	Y [5]	Y [5]	Y [5]	--	--	--	--	--
ISGR-2 Shallow	B	Yes	≥ 4	Y [5]	Y [5]	Y [5]	Y [5]	Y [5]	--	--	--	--	--
MW-24A	B	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y	Y [3]
MW-24B	B	Yes	≥ 4	Y [1,2]	Y [5]	Y [1,2,4]	Y	Y [1,2]	--	--	--	--	--
MW-30R (MW-30)	B	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-61A	B	Yes	≥ 4	***N*** [1,2]	Y [1]	Y [1,2]	Y [1,2]	Y [1]	--	--	--	--	--
MW-61B	B	No	8	--	--	--	--	--	Y [6]	Y	Y [6]	Y [6]	Y [6]
MW-62A	B	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-62B	B	No	8	--	--	--	--	--	***N***	***N***	Y [6]	Y [5]	Y [6]
MW-26A	C	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-26B	C	Yes	≥ 4	***N***	***N***	Y [5]	Y [5]	Y	--	--	--	--	--
MW-28A	C	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-28B	C	No	8	--	--	--	--	--	Y [6]	Y	Y [6]	Y [6]	Y [6]
MW-33A	C	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-33B	C	No	8	--	--	--	--	--	***N*** [2]	***N*** [2]	Y [6]	Y [6]	Y [6]
MW-33C	C	No	8	--	--	--	--	--	Y [6]	Y [5]	Y [6]	Y [6]	Y [6]
MW-33S	C	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-52	C	No	3	--	--	--	--	--	Y [5]	Y [5]	Y [5]	Y [6]	Y [6]
MW-58	C	Yes	≥ 4	***N***	***N***	Y [5]	Y [5]	Y [1]	--	--	--	--	--
MW-59	C	No	8	--	--	--	--	--	***N***	***N***	Y [6]	Y [6]	Y [5]
MW-60	C	No	8	--	--	--	--	--	Y	Y	Y [6]	Y [6]	Y [6]
GP-11A(20-25)	CLAY	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
GP-11A(25-30)	CLAY	No	3	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [5]
GP-11A(30-35)	CLAY	No	3	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [5]
GP-11A(35-40)	CLAY	No	4	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [5]
GP-9A(20-25)	CLAY	No	8	--	--	--	--	--	Y [6]	Y [5]	Y [6]	Y [6]	Y [6]
GP-9A(25-30)	CLAY	No	3	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
GP-9A(30-35)	CLAY	No	4	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-38	CLAY	No	8	--	--	--	--	--	Y [5]	Y [5]	Y [6]	Y [6]	Y [6]
MW-39R	CLAY	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-47	EAST-LOT	No	8	--	--	--	--	--	***N***	***N***	Y	Y	Y
MW-48	EAST-LOT	No	8	--	--	--	--	--	Y [5]	Y	Y [5]	Y [6]	Y [6]
MW-49	EAST-LOT	No	8	--	--	--	--	--	Y [6]	***N***	Y [6]	Y [6]	Y [6]
MW-50	EAST-LOT	No	8	--	--	--	--	--	Y [5]	***N*** [2]	Y [6]	Y [6]	Y [6]
MW-51	EAST-LOT	No	8	--	--	--	--	--	Y [5]	***N***	Y [6]	Y [6]	Y [6]
GP-2E(45-50)	EAST-RES	No	8	--	--	--	--	--	Y [5]	***N*** [2]	Y [6]	Y [6]	Y [6]

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Table 19
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Monitoring Well ID	Area	Influenced by Remediation System Activities?	Number of Data Points in Statistical Evaluation Data Set	Remediation Monitoring Phase Evaluation Results (Completion Requirements Met? - Yes [Y] or No [N])					Attainment Monitoring Phase Evaluation Results (Completion Requirements Met? - Yes [Y] or No [N])				
				Benzene	MTBE	Toluene	Ethylbenzene	Xylenes, Total	Benzene	MTBE	Toluene	Ethylbenzene	Xylenes, Total
GP-2E(50-55)	EAST-RES	No	3	--	--	--	--	--	***N*** [5]	***N*** [5]	Y [5]	Y [5]	Y [5]
GP-2E(55-60)	EAST-RES	No	8	--	--	--	--	--	***N*** [5]	***N***	Y [6]	Y [6]	Y [6]
GP-2F(45-50)	EAST-RES	No	8	--	--	--	--	--	***N*** [5]	***N***	Y [6]	Y [6]	Y [6]
GP-2F(50-55)	EAST-RES	No	8	--	--	--	--	--	***N***	***N***	Y [6]	Y [6]	Y [5]
MW-25A	EAST-RES	No	8	--	--	--	--	--	Y [6]	Y [5]	Y [6]	Y [6]	Y [6]
MW-25B	EAST-RES	No	8	--	--	--	--	--	***N***	***N***	Y [6]	Y [6]	Y [5]
MW-40	EAST-RES	No	8	--	--	--	--	--	Y [6]	Y	Y [6]	Y [6]	Y [6]
MW-41A	EAST-RES	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-41B	EAST-RES	No	8	--	--	--	--	--	Y [6]	Y	Y [6]	Y [6]	Y [6]
MW-27A	SE-RES	No	8	--	--	--	--	--	Y [6]	Y	Y [6]	Y [6]	Y [6]
MW-27B	SE-RES	No	8	--	--	--	--	--	Y [6]	***N***	Y [6]	Y [6]	Y [6]
MW-29A	SE-RES	No	8	--	--	--	--	--	Y [6]	Y	Y [6]	Y [6]	Y [6]
MW-29B	SE-RES	No	8	--	--	--	--	--	Y [6]	***N***	Y [6]	Y [6]	Y [6]
MW-34A	SE-RES	No	3	--	--	--	--	--	Y [5]	Y [6]	Y [6]	Y [6]	Y [6]
MW-34B	SE-RES	No	3	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-44A	SE-RES	No	8	--	--	--	--	--	Y [6]	Y	Y [6]	Y [6]	Y [6]
MW-44B	SE-RES	No	8	--	--	--	--	--	Y [6]	***N***	Y [6]	Y [6]	Y [6]
MW-53	SE-RES	No	8	--	--	--	--	--	***N***	***N***	Y [6]	Y [6]	Y [6]
MW-54	SE-RES	No	8	--	--	--	--	--	Y [6]	Y [5]	Y [6]	Y [6]	Y [6]
MW-32	SW-RES	No	2	--	--	--	--	--	Y [6]	Y [5]	Y [5]	Y [6]	Y [6]
MW-31A	WEST-RES	No	3	--	--	--	--	--	Y [6]	Y [5]	Y [6]	Y [6]	Y [6]
MW-31B	WEST-RES	No	8	--	--	--	--	--	Y [6]	Y [5]	Y [6]	Y [6]	Y [6]
MW-37	WEST-RES	No	2	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-42	WEST-RES	No	8	--	--	--	--	--	Y [6]	Y [5]	Y [6]	Y [6]	Y [6]
MW-43A	WEST-RES	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]
MW-43B	WEST-RES	No	8	--	--	--	--	--	Y [6]	Y	Y [6]	Y [6]	Y [6]
MW-55	WEST-RES	No	8	--	--	--	--	--	Y [6]	Y [6]	Y [6]	Y [6]	Y [6]

Notes:

[1] There are less than 4 detections in the last 4 data points and the remediation monitoring phase statistical evaluation was performed with additional data points to include at a minimum 4 detections.

[2] The trend analysis predicted negative concentrations and a 95% UCL could not be calculated, even with additional data points included in the analysis. As such, a visual evaluation was performed according to the USEPA Guidelines (USEPA, 2014b).

[3] The trend analysis predicted negative concentrations and a 95% UCL could not be calculated; however, with additional data points included in the analysis, a 95% UCL was calculated. See the notes included in the comprehensive statistical analysis spreadsheet.

[4] Non-detects with detection limits greater than the highest detected value were removed from the dataset as prompted.

[5] There are less than four detections in the data set. As such, a visual evaluation was performed according to the USEPA Guidelines (USEPA, 2014b).

[6] All data points included in the attainment monitoring phase statistical evaluation are non-detect.
Bold/italics = well-COC pair does not meet monitoring phase evaluation completion requirements
-- = not applicable
BKGD = background
ID = identification
LOT = parking lot
MTBE = methyl tert-butyl ether
RES = residential
SE = southeast
SW = southwest

Table 20
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Monitoring Well ID	Monitoring Phase	Current Sampling Frequency	3D CSM Recommendation	Statistical Attainment Evaluation Recommendation	Final Optimized Monitoring Program Recommendation	Recommended Sampling Frequency	Recommended Analytes	Minimum Number of Monitoring Events Required for Monitoring Phase Completion*	Notes
MW-20	Attainment	Annual	Use as a background well	Abandon	**No change**	Annual	All COCs	--	Background well for NSZD and MNA evaluations
MW-21	Attainment	Semi-annual	None	Continue semi-annual - Benzene only	**Optimize monitoring**	Semi-annual	Benzene	--	
MW-45	Attainment	Semi-annual	None	Continue semi-annual - Benzene only	**Optimize monitoring**	Semi-annual	Benzene	--	
MW-46	Attainment	Annual	Use as a background well	Abandon	**No change**	Annual	All COCs	--	Alternate background well
GP-24A	Attainment	None	None	Abandon	**Abandon**	--	--	--	
GP-27R (GP-27A)	Remediation	Semi-annual	Abandon	Continue semi-annual - Benzene and MTBE only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well; if DPE system is reactivated due to triggers per the MNA and NSZD Work Plan to be submitted, recommend replacement with co-located DPE well MP-7
GP-30R (GP-30A)	Remediation	Semi-annual	None	Continue semi-annual monitoring as-is (all COCs)	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well
GP-35A	Remediation	Semi-annual	None	Continue semi-annual - Benzene, Toluene, and Ethylbenzene only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	
GP-39R (GP-39A)	Remediation	Semi-annual	None	Semi-annual - MTBE only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well
GP-41A	Attainment	Annual	None	Abandon	**Abandon**	--	--	--	
GP-44A	Attainment	Annual	None	Abandon	**Abandon**	--	--	--	Not sampled since 4/16/2015
MP-7	Remediation	None	Reinstall and connect to DPE system	Semi-annual - Benzene, MTBE, Toluene, Ethylbenzene only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	SVE Recovery Well, not sampled since 9/10/2014; if DPE system is reactivated due to triggers per the MNA and NSZD Work Plan to be submitted, reinstall as DPE well
MW-1	Attainment	None	None	Semi-annual - MTBE only	**Restart monitoring**	Semi-annual	MTBE	MTBE = 7	Not sampled since 12/19/2005
MW-12	Remediation	None	None	Semi-annual - Benzene, MTBE, Toluene, Ethylbenzene only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	Removed from remediation system 10/26/04, not sampled since 12/19/2005
MW-13	Attainment	None	None	Semi-annual - Benzene and MTBE only	**Restart monitoring**	Semi-annual	Benzene, MTBE	Benzene = 3 MTBE = 1	Not sampled since 12/19/2005, except for NSZD sampling on 4/26/17 and 2/14/18
MW-15	Remediation	Semi-annual	None	Continue semi-annual - Benzene only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	

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Monitoring Well ID	Monitoring Phase	Current Sampling Frequency	3D CSM Recommendation	Statistical Attainment Evaluation Recommendation	Final Optimized Monitoring Program Recommendation	Recommended Sampling Frequency	Recommended Analytes	Minimum Number of Monitoring Events Required for Monitoring Phase Completion*	Notes
MW-16	Remediation	Annual	None	Discontinue monitoring until remediation system is inactive, then continue attainment phase monitoring	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	
MW-17	Remediation	Semi-annual	None	Continue semi-annual - Benzene, MTBE, and Toluene only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well
MW-18	Attainment	Annual	None	Continue annual - Benzene only	**Optimize monitoring**	Annual	Benzene	--	
MW-19	Attainment	Annual	None	Abandon	**Abandon**	--	--	--	
MW-2	Attainment	None	None	Abandon	**Abandon**	--	--	--	Not sampled since 12/19/2005
MW-22R (MW-22)	Remediation	Semi-annual	None	Continue semi-annual - Benzene, MTBE, and Toluene only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well
MW-23	Attainment	Annual	None	Abandon	**Abandon**	--	--	--	
MW-3	Attainment	None	None	Abandon	**Abandon**	--	--	--	Not sampled since 12/19/2005
MW-4	Attainment	None	None	Abandon	**Abandon**	--	--	--	Not sampled since 12/19/2005
MW-5	Attainment	None	None	Abandon	**Abandon**	--	--	--	
MW-6	Attainment	Annual	None	Abandon	**Abandon**	--	--	--	
MW-7	Remediation	Semi-annual	None	Continue semi-annual - Benzene, MTBE, Toluene, Ethylbenzene only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well
PTW-B	Remediation	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well
RW-1	Remediation	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well
RW-2	Remediation	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well
RW-3	Remediation	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well
RW-4	Remediation	Semi-annual	None	Continue semi-annual - Benzene, MTBE, and Toluene only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well
RW-5	Remediation	Semi-annual	None	Continue semi-annual - Benzene, MTBE, and Toluene only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	DPE Well

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Monitoring Well ID	Monitoring Phase	Current Sampling Frequency	3D CSM Recommendation	Statistical Attainment Evaluation Recommendation	Final Optimized Monitoring Program Recommendation	Recommended Sampling Frequency	Recommended Analytes	Minimum Number of Monitoring Events Required for Monitoring Phase Completion*	Notes
VP-4	Attainment	None	None	Semi-annual - Benzene and MTBE only	**Restart monitoring**	Semi-annual	Benzene, MTBE	Benzene = 5 MTBE = 5	Removed from remediation system 10/26/04; Not sampled since 12/19/2005
GP-7A(20-25)	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	
GP-7A(25-30)	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 9/8/2005
GP-7A(30-35)	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	
GP-7A(35-40)	Remediation	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	
GP-7A(40-45)	Attainment	None	Abandon	Semi-annual - Benzene and MTBE only	**Abandon**	--	--	--	Not sampled since 9/8/2005
ISGR-1 Deep	Remediation	Semi-annual	None	Discontinue monitoring until remediation system is inactive, then continue attainment phase monitoring	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	Piezometer adjacent to in-situ groundwater remediation well started on 8/28/2013
ISGR-1 Shallow	Remediation	Semi-annual	None	Discontinue monitoring until remediation system is inactive, then continue attainment phase monitoring	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	Piezometer adjacent to in-situ groundwater remediation well started on 8/28/2013
ISGR-2 Deep	Remediation	Semi-annual	None	Discontinue monitoring until remediation system is inactive, then continue attainment phase monitoring	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	Piezometer adjacent to in-situ groundwater remediation well started on 8/28/2013
ISGR-2 Shallow	Remediation	Semi-annual	None	Discontinue monitoring until remediation system is inactive, then continue attainment phase monitoring	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	Piezometer adjacent to in-situ groundwater remediation well started on 8/28/2013
MW-24A	Attainment	None	None	Abandon	**Abandon**	--	--	--	Not sampled since 4/16/2014
MW-24B	Remediation	Annual	None	Discontinue monitoring until remediation system is inactive, then continue attainment phase monitoring	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	
MW-30R (MW-30)	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
MW-61A	Remediation	Semi-annual	None	Continue semi-annual - Benzene only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	
MW-61B	Attainment	Semi-annual	None	Abandon	**Abandon**	--	--	--	
MW-62A	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	

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Monitoring Well ID	Monitoring Phase	Current Sampling Frequency	3D CSM Recommendation	Statistical Attainment Evaluation Recommendation	Final Optimized Monitoring Program Recommendation	Recommended Sampling Frequency	Recommended Analytes	Minimum Number of Monitoring Events Required for Monitoring Phase Completion*	Notes
MW-62B	Attainment	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Optimize monitoring**	Semi-annual	Benzene, MTBE	--	
MW-26A	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
MW-26B	Remediation	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	
MW-28A	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	
MW-28B	Attainment	Annual	None	Abandon	**Abandon**	--	--	--	
MW-33A	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
MW-33B	Attainment	Annual	None	Continue annual - Benzene and MTBE only	**Optimize monitoring**	Annual	Benzene, MTBE	--	
MW-33C	Attainment	Annual	None	Abandon	**Abandon**	--	--	--	
MW-33S	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	
MW-52	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 9/14/2005
MW-58	Remediation	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Initiate attainment phase monitoring****	Semi-annual	All COCs	--	
MW-59	Attainment	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Optimize monitoring**	Semi-annual	Benzene, MTBE	--	
MW-60	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
GP-11A(20-25)	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
GP-11A(25-30)	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 9/8/2005
GP-11A(30-35)	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 9/8/2005
GP-11A(35-40)	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 9/8/2005
GP-9A(20-25)	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	
GP-9A(25-30)	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 9/8/2005
GP-9A(30-35)	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 9/8/2005
MW-38	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	
MW-39	Not Evaluated	None	Not Evaluated	Not Evaluated	**Abandon**	--	--	--	Historically replaced by MW-39R
MW-39R	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	
MW-47	Attainment	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Optimize monitoring**	Semi-annual	Benzene, MTBE	--	
MW-48	Attainment	Annual	None	Abandon	**Abandon**	--	--	--	
MW-49	Attainment	Semi-annual	None	Continue semi-annual - MTBE only	**Optimize monitoring**	Semi-annual	MTBE	--	
MW-50	Attainment	Semi-annual	None	Continue semi-annual - MTBE only	**Optimize monitoring**	Semi-annual	MTBE	--	
MW-51	Attainment	Semi-annual	None	Continue semi-annual - MTBE only	**Optimize monitoring**	Semi-annual	MTBE	--	
GP-2E(45-50)	Attainment	Semi-annual	None	Continue semi-annual - MTBE only	**Optimize monitoring**	Semi-annual	MTBE	--	
GP-2E(50-55)	Attainment	None	None	Semi-annual - Benzene and MTBE only	**Restart monitoring**	Semi-annual	Benzene and MTBE	Benzene = 8 MTBE = 8	Not sampled since 9/8/2005

See Notes on Page 6.

Table 20
Optimized Groundwater Monitoring Program

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Monitoring Well ID	Monitoring Phase	Current Sampling Frequency	3D CSM Recommendation	Statistical Attainment Evaluation Recommendation	Final Optimized Monitoring Program Recommendation	Recommended Sampling Frequency	Recommended Analytes	Minimum Number of Monitoring Events Required for Monitoring Phase Completion*	Notes
GP-2E(55-60)	Attainment	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Optimize monitoring**	Semi-annual	Benzene, MTBE	--	
GP-2F(45-50)	Attainment	None	None	Semi-annual - Benzene and MTBE only	**Restart monitoring**	Semi-annual	Benzene, MTBE	Benzene = 8 MTBE = 8	Not sampled since 4/1/2011
GP-2F(50-55)	Attainment	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Optimize monitoring**	Semi-annual	Benzene, MTBE	--	
MW-25A	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
MW-25B	Attainment	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Optimize monitoring**	Semi-annual	Benzene, MTBE	--	
MW-40	Attainment	Semi-annual	None	Abandon	**Abandon**	--	--	--	
MW-41A	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
MW-41B	Attainment	Annual	None	Abandon	**Abandon**	--	--	--	
MW-27A	Attainment	Semi-annual	None	Abandon	**Abandon**	--	--	--	
MW-27B	Attainment	Semi-annual	None	Continue semi-annual - MTBE only	**Optimize monitoring**	Semi-annual	MTBE	--	
MW-29A	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
MW-29B	Attainment	Semi-annual	None	Continue semi-annual - MTBE only	**Optimize monitoring**	Semi-annual	MTBE	--	
MW-34A	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 9/13/2005
MW-34B	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 9/13/2005
MW-44A	Attainment	Semi-annual	None	Abandon	**Abandon**	--	--	--	
MW-44B	Attainment	Semi-annual	None	Continue semi-annual - MTBE only	**Optimize monitoring**	Semi-annual	MTBE	--	
MW-53	Attainment	Semi-annual	None	Continue semi-annual - Benzene and MTBE only	**Optimize monitoring**	Semi-annual	Benzene, MTBE	--	
MW-54	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
MW-32	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 7/20/2004
MW-31A	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 9/14/2005
MW-31B	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
MW-37	Attainment	None	Abandon	Abandon	**Abandon**	--	--	--	Not sampled since 7/19/2004
MW-42	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
MW-43A	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
MW-43B	Attainment	Annual	None	Abandon	**Abandon**	--	--	--	
MW-55	Attainment	Annual	Abandon	Abandon	**Abandon**	--	--	--	
VW-01	Not Evaluated	Semi-annual	Not Evaluated	Not Evaluated	**Abandon**	--	--	--	Vapor implant
VW-02	Not Evaluated	Semi-annual	Not Evaluated	Not Evaluated	**Abandon**	--	--	--	Vapor implant
VW-03	Not Evaluated	Semi-annual	Not Evaluated	Not Evaluated	**Abandon**	--	--	--	Vapor implant
VW-04	Not Evaluated	Semi-annual	Not Evaluated	Not Evaluated	**Abandon**	--	--	--	Vapor implant

See Notes on Page 6.

Table 20
Optimized Groundwater Monitoring Program

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

Notes:
Bold = final recommendation based on 3D CSM evaluation and statistical evaluation results
*The minimum number of sampling events required to conclude completion of attainment monitoring has only been determined for wells where monitoring is proposed to be restarted.
**After systems shutdown, water levels and field water quality parameters will be collected monthly to confirm the well is no longer impacted by residual effects of the systems. Following confirmation, attainment monitoring will be initiated concurrent with MNA and NSZD monitoring.
-- = not applicable
3D CSM = three-dimensional conceptual site model
BKGD = background
COC = constituent of concern
DPE = dual-phase extraction
GW = groundwater
MNA = monitored natural attenuation
MTBE = methyl tert-butyl ether
NSZD = natural source zone depletion
SVE = soil vapor extraction

FIGURES





0 600' 1200'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

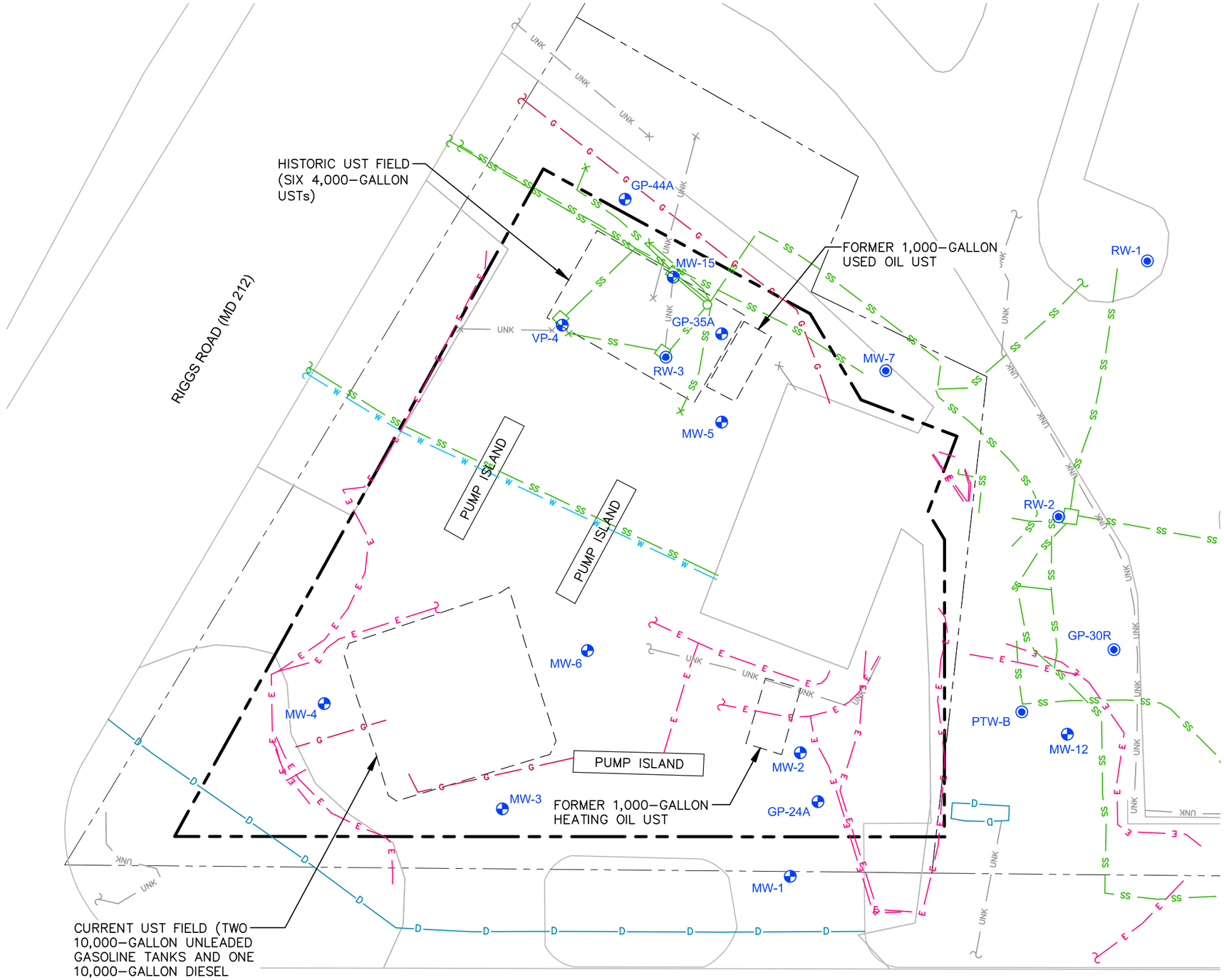
SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

XREFS:
IMAGES: Site location.tif

C:\Users\EKrahmer\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\Site Plans-Fig 1-Site Location Map.dwg SAVED: 6/6/2018 12:51 PM BY: KRAHMER, ERIC



LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- U/G ELECTRIC LINE
- U/G STORM DRAIN
- U/G WATER LINE
- U/G GAS LINE
- U/G SANITARY SEWER
- UNKNOWN LINE

NOTES:

1. BASE MAP REFERENCES: "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.
2. UTILITIES SHOWN ARE THE APPROXIMATE LOCATIONS OF EXISTING UNDERGROUND UTILITIES AS MARKED BY MASTER LOCATORS DURING A GEOPHYSICAL INVESTIGATION PERFORMED IN APRIL 2017.

0 20' 40'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

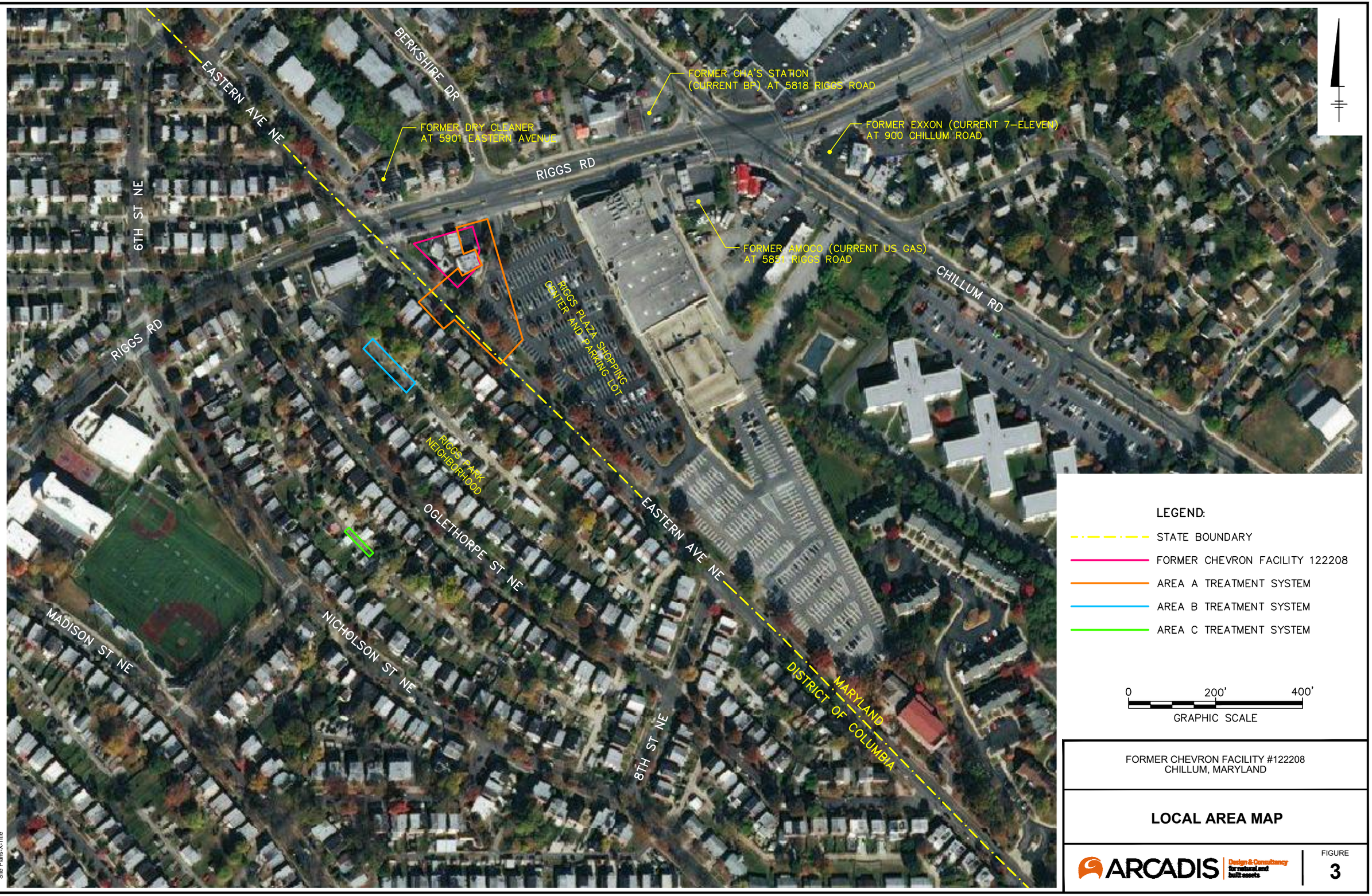
SITE MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2

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XREFS: IMAGES:
Site Plans-X-Base
Site Plans-X-Title
Site Plans-X-Utilities



LEGEND:

- STATE BOUNDARY
- FORMER CHEVRON FACILITY 122208
- AREA A TREATMENT SYSTEM
- AREA B TREATMENT SYSTEM
- AREA C TREATMENT SYSTEM

0 200' 400'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

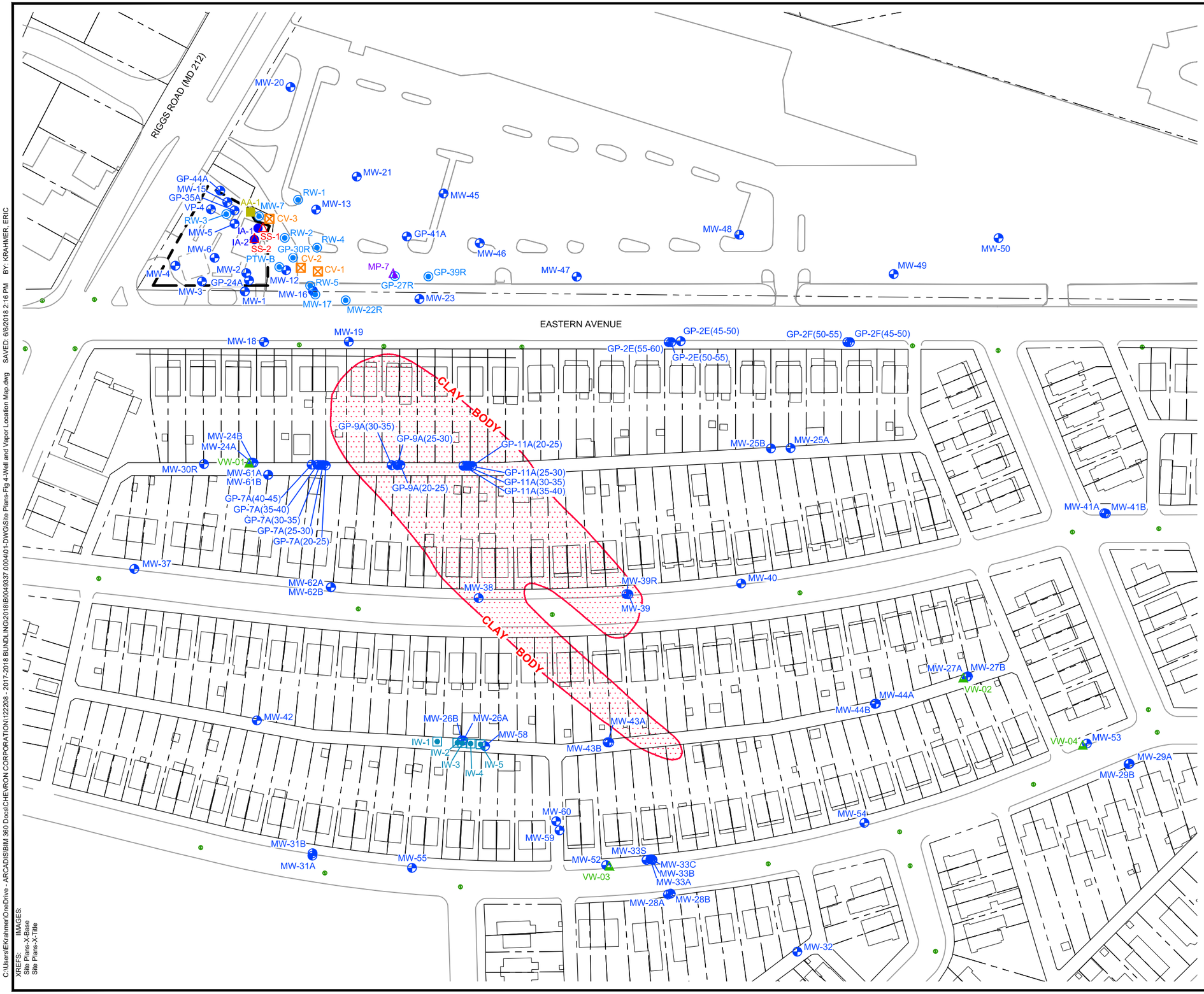
LOCAL AREA MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 3

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XREFS: IMAGES:
Site Plans-X-Title



C:\Users\EKrahmer\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\Site Plans-Fig 4-Well and Vapor Location Map.dwg SAVED: 6/6/2018 2:16 PM BY: KRAHMER, ERIC

XREFS: IMAGES:
Site Plans-X-Base
Site Plans-X-Title

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- INJECTION WELL VAULT
- ABANDONED WELL
- EXTERIOR VAPOR SAMPLING POINT
- APPROXIMATE SUB-SLAB VAPOR POINTS
- APPROXIMATE INDOOR AIR SAMPLE LOCATIONS
- APPROXIMATE AMBIENT AIR SAMPLE LOCATION
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE

NOTES:

1. BASE MAP REFERENCES: "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

WELL AND VAPOR POINT LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\EKrahmer\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\1SAR18-Fig4-Pot Surf.dwg LAYOUT: 4 SAVED: 7/16/2018 10:38 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/16/2018 10:46 AM BY: KRAHMER, ERIC
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCES:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (123.48) GROUNDWATER ELEVATION
- 138 INFERRED GROUNDWATER ELEVATION
- INDICATES CONTOUR DEPRESSION

RIGGS ROAD (MD 212)

EASTERN AVENUE

MW-20 (138.43)
MW-15 (136.67)
GP-44A
VP-4
RW-3
GP-35A (138.20)
MW-5
MW-7
RW-1
MW-21 (137.14)
MW-13
(132.08) MW-45
MW-6 (137.72)
MW-4
MW-2
MW-3
GP-24A (137.92)
MW-1
RW-2
RW-4
GP-30A (121.47)
PTW-B
MW-12
RW-5
MW-16 (134.75)
MW-17
MW-22R
GP-41A (129.67)
MW-46 (127.10)
MP-7 (129.38)
GP-27R
GP-39R
MW-47 (125.47)
MW-23 (128.07)
(133.85) MW-19
MW-18 (135.54)

138 136 134 132 130 128 126 128 138

0 40' 80'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

POTENTIOMETRIC SURFACE MAP - MARCH 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 5

BASE MAP REFERENCES:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (123.48) GROUNDWATER ELEVATION
- 138 INFERRED GROUNDWATER ELEVATION
- INDICATES CONTOUR DEPRESSION

RIGGS ROAD (MD 212)

EASTERN AVENUE

MW-20 (138.43)
MW-21 (137.14)
(132.08) MW-45
GP-44A
(136.67) MW-15
(138.20) GP-35A
VP-4
RW-1
RW-3
MW-7
MW-13
MW-5
RW-2
RW-4
PTW-5
GP-30A (121.47)
MW-2
GP-41A (129.67)
(127.10) MW-46
MW-4
GP-27R
GP-39R
MW-6 (137.72)
MW-3
MW-12
RW-5
GP-24A (137.92)
MW-1
MW-16 (134.75)
MW-17
MW-22R
(133.85) MW-19
MW-23 (128.07)
MP-7 (129.38)
MW-47 (125.47)
MW-48 (124.01)
GP-2E(45-50)
GP-2E(55-60) (124.42)
GP-2E(50-55)
(118.48) MW-50
MW-49 (113.95)
MW-51 (108.10)
GP-2F(45-50)
GP-2F(50-55) (114.69)
MW-18 (135.54)
GP-7A(20-25) (137.42)
MW-24B
GP-7A(35-40) (135.08)
MW-24A (135.54)
VW-01
MW-30R
GP-7A(40-45)
GP-7A(30-35) (135.02)
GP-7A(25-30)
GP-9A(30-35)
GP-9A(25-30)
GP-9A(20-25) (140.42)
GP-11A(20-25) (140.09)
GP-11A(25-30)
GP-11A(30-35)
GP-11A(35-40)
MW-25A (123.25)
MW-25B (123.13)
(116.81) MW-41A
MW-41B
MW-37
MW-62A
(136.06) MW-38
(129.21) MW-39R
MW-39
MW-40 (122.10)
(117.80) MW-27A
VW-02
MW-27B
MW-44A (120.22)
MW-44B
MW-42
MW-26A (130.97)
MW-26B
MW-58
IW-1
IW-2
IW-3
IW-4
IW-5
MW-43B
(130.07) MW-43A
(109.70) MW-53
VW-04
MW-29A (108.26)
MW-29B
(130.49) MW-31B
MW-31A
MW-55
MW-60
(119.55) MW-33S
MW-52
VW-03
MW-33A
MW-33B
MW-33C
MW-28A (118.73)
MW-28B
MW-32
MW-54 (116.52)

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

POTENTIOMETRIC SURFACE MAP - AREA WIDE - MARCH 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 6

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
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PLOTTED: 5/30/2018 12:59 PM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (180) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENSINGTON PL NE
KENNEDY ST NE
CLAY BODY

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - MARCH 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 7

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\EKrahmer\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\1SAR18-Fig6-Benz Shallow.dwg LAYOUT: 6 SAVED: 5/22/2018 9:23 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 5/22/2018 9:24 AM BY: KRAHMER, ERIC
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).
2. RW-5 IS ANGLED AT 30° OFF HORIZONTAL TOWARDS EASTERN AVENUE, AND WAS NOT USED IN DEVELOPMENT OF THE CONTOUR.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

MW-20 (ND)
MW-21 (6.3)
MW-45 (ND)
MW-48 (ND)
MW-50 (1.1)
MW-49 (17)
MW-51 (9.9)
MW-47 (6.9)
MW-46 (2.0)
GP-27R (3.9)
GP-39R (5.3)
GP-41A (ND)
MW-23 (ND)
MW-22R (1,200)
MW-16 (ND)
MW-17 (1,200)
MW-19 (ND)
MW-18 (ND)
GP-2E(50-55)
GP-2E(45-50) (ND)
GP-2F(45-50)
GP-2E(55-60)
GP-2F(50-55)
MW-25B
MW-25A (ND)
MW-41A (ND)
MW-41B
MW-37
MW-62A (ND)
MW-62B
MW-38
MW-39R
MW-39
MW-40 (9.5)
MW-27A (1.1)
MW-27B
VW-02
MW-44A (3.0)
MW-44B
MW-42 (ND)
MW-26A (ND)
MW-26B
MW-58
MW-43B
MW-43A (ND)
IW-1
IW-2
IW-3
IW-4
IW-5
(21) MW-53
VW-04
MW-29B
MW-29A (ND)
MW-60 (6.7)
MW-59
MW-54 (ND)
MW-31B
MW-31A
MW-55 (ND)
MW-52
VW-03
(NS) MW-33S
(ND) MW-33A
MW-33B
MW-33C
MW-28B
MW-28A
MW-32
MW-15 (ND)
GP-44A (NS)
GP-35A (ND)
MW-7 (340)
RW-1 (120)
MW-13
RW-2 (130)
RW-4 (510)
RW-3 (ND)
VP-4
MW-5 (NS)
MW-6 (ND)
MW-4
PTW-B (3.6)
GP-30R(140)
MW-2
MW-12
MW-3
MW-1
GP-24A
RW-5(NS)
MP-7
ISGR-2S (ND)
ISGR-2D
ISGR-1S (ND)
ISGR-1D
GP-9A(30-35)
GP-9A(25-30)
GP-7A(20-25)
GP-11A(20-25) (ND)
GP-11A(25-30)
GP-11A(30-35)
GP-11A(35-40)
MW-24A
MW-24B
VW-01
MW-30R (NS)
MW-61A (2.5)
GP-7A(25-30)
GP-7A(30-35)
GP-7A(35-40)
GP-7A(40-45)
GP-9A(20-25)

20
200

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - MARCH 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 8

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: K.M.ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
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PLOTTED: 5/22/2018 9:20 AM BY: KRAHMER, ERIC
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (100) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE

MW-20, MW-21, MW-45, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, GP-41A, MW-46, MW-48, MW-50, MW-4, MW-6, PTW-B, GP-30R, MW-12, MP-7, GP-27R, GP-39R, MW-47, MW-49, MW-51, MW-2, GP-24A, RW-5, MW-3, MW-16, MW-1, MW-17, MW-22R, MW-23

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2E(55-60) (ND), GP-2F(50-55) (NS), GP-2F(45-50), ISGR-1S, ISGR-1D (ND), ISGR-2S, ISGR-2D (ND), GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-24A, MW-24B (ND), MW-30R, VW-01, MW-61B (ND), GP-9A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-7A(25-30), GP-7A(30-35), GP-7A(35-40) (ND), GP-7A(40-45), 5, (130) MW-25B, 50, MW-25A, MW-41A, MW-41B (ND)

MW-37, MW-62A, MW-62B (2.1), MW-38, MW-39R, MW-39, MW-40, MW-42, MW-26B (170), MW-26A, MW-58 (65), IW-1, IW-2, IW-3, IW-4, IW-5, MW-43A, MW-43B (ND), MW-27B (ND), MW-27A, VW-02, MW-44B (ND), MW-44A, VW-04, MW-53, MW-29B (ND), MW-29A, MW-60, MW-59 (68), MW-54, MW-31B (ND), MW-31A, MW-55, MW-52, VW-03, MW-33S, MW-33A, MW-33B (3.5), MW-33C (ND), MW-28B (ND), MW-28A, MW-32

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - MARCH 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 9

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
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PLOTTED: 5/30/2018 1:19 PM BY: DECLERCQ, BRIAN
XREFS: PROJECTNAME: ----
IMAGES:
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (150) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT
CLAY BODY
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE

MW-20, MW-21, MW-45, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, GP-41A, MW-46, MW-48, MW-50, MW-4, MW-6, PTW-B, GP-30R, MW-12, MP-7, GP-27R, GP-39R, MW-47, MW-49, MW-51, MW-2, GP-24A, RW-5, MW-3, MW-16, MW-1, MW-17, MW-22R, MW-23

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2F(50-55) (NS), GP-2E(55-60) (ND), GP-2F(45-50), ISGR-1S, ISGR-2S, (ND) ISGR-1D, ISGR-2D (1.7), (ND) MW-24B, GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-24A, MW-30R, VW-01, MW-61B (1.5), (120) MW-25B, MW-25A, GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-9A(20-25), GP-7A(25-30), GP-7A(30-35), GP-7A(35-40) (ND), GP-7A(40-45), MW-41A, MW-41B (9.5), MW-37, MW-62A, MW-62B (18), MW-38, MW-39R, MW-39, MW-40, MW-27A, MW-27B (75), VW-02, MW-44B (32), MW-44A, MW-42, MW-26B (77), MW-26A, IW-1, IW-2, IW-3, IW-4, IW-5, MW-58 (48), MW-43A, MW-43B (ND), VW-04, MW-53, MW-29B (42), MW-29A, MW-60, MW-59 (120), MW-54, MW-31B (ND), MW-31A, MW-55, MW-52, MW-33S, MW-33A, MW-33B (12), MW-33C (ND), VW-03, MW-28B (2.1), MW-28A, MW-32

20

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - MARCH 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 10

CITY: SYRACUSE NY DIV/GROUP: ENV/CAD DB: E. KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
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PLOTTED: 5/22/2018 9:41 AM BY: KRAHMER, ERIC
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

CITY: MINNEAPOLIS, MN DIV/GROUP: ENV/CAD DB: R. OBERLANDER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\roberlander\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\VI-FIG 1-INT & EXT VI SAMPLE LOC MAP.dwg LAYOUT: 1 SAVED: 5/16/2018 1:15 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE:
PLTFULL.CTB PLOTTED: 5/16/2018 1:15 PM BY: OBERLANDER, ROSEANNE
XREFS: IMAGES: PROJECTNAME: ----
VI-X-BASE
VI-X-BORDER

BASE MAP REFERENCE:

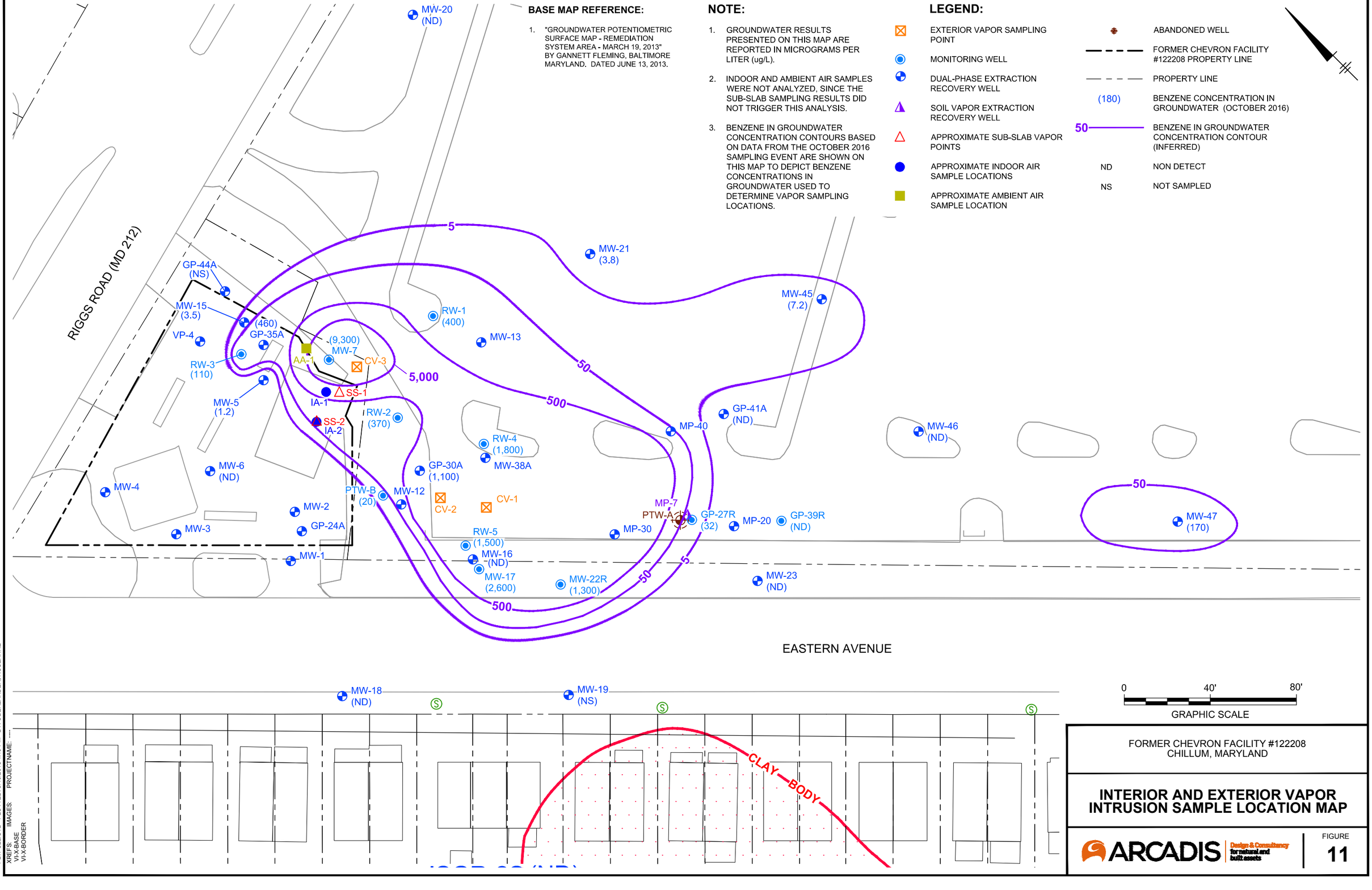
1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. GROUNDWATER RESULTS PRESENTED ON THIS MAP ARE REPORTED IN MICROGRAMS PER LITER (ug/L).
2. INDOOR AND AMBIENT AIR SAMPLES WERE NOT ANALYZED, SINCE THE SUB-SLAB SAMPLING RESULTS DID NOT TRIGGER THIS ANALYSIS.
3. BENZENE IN GROUNDWATER CONCENTRATION CONTOURS BASED ON DATA FROM THE OCTOBER 2016 SAMPLING EVENT ARE SHOWN ON THIS MAP TO DEPICT BENZENE CONCENTRATIONS IN GROUNDWATER USED TO DETERMINE VAPOR SAMPLING LOCATIONS.

LEGEND:

- EXTERIOR VAPOR SAMPLING POINT
- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- APPROXIMATE SUB-SLAB VAPOR POINTS
- APPROXIMATE INDOOR AIR SAMPLE LOCATIONS
- APPROXIMATE AMBIENT AIR SAMPLE LOCATION
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (180) BENZENE CONCENTRATION IN GROUNDWATER (OCTOBER 2016)
- 50 BENZENE IN GROUNDWATER CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED



0 40' 80'

GRAPHIC SCALE

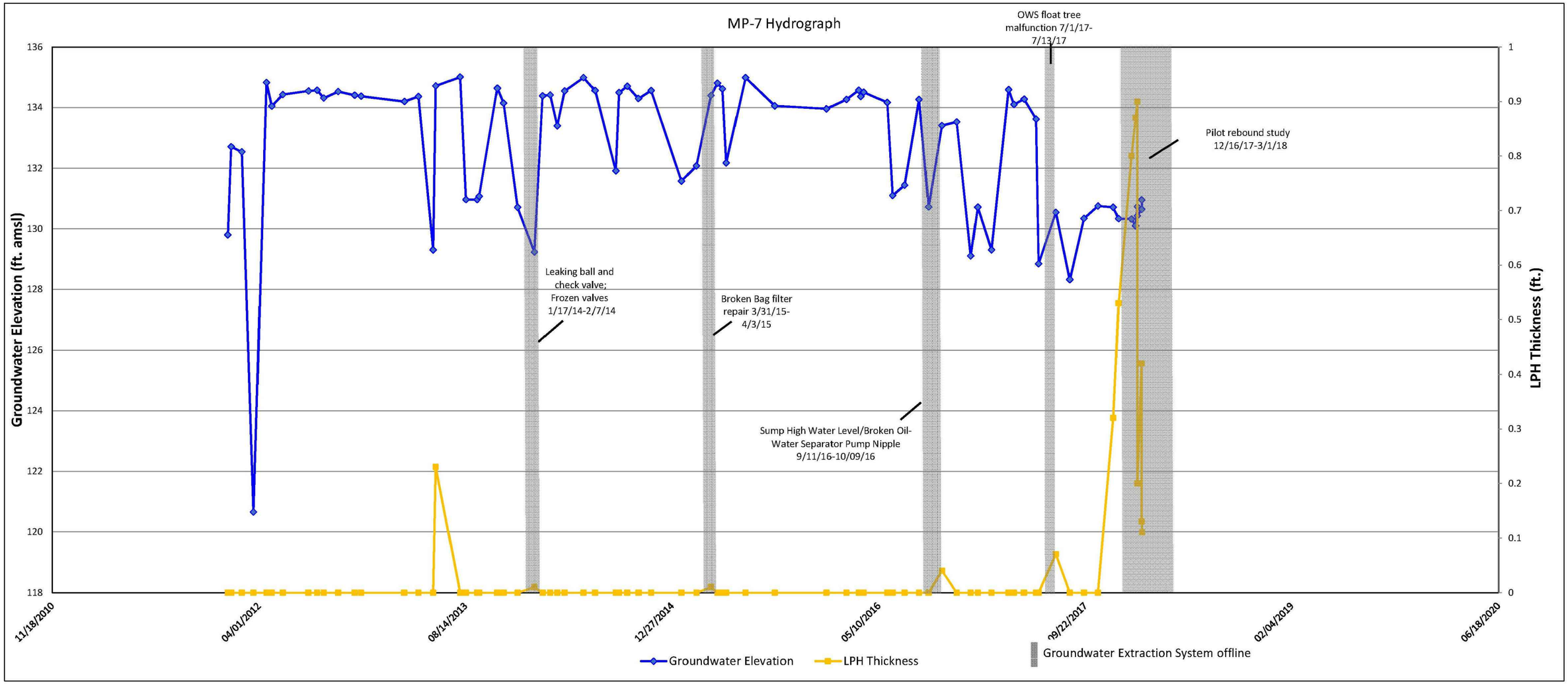
FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

INTERIOR AND EXTERIOR VAPOR INTRUSION SAMPLE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 11

FIGURE 12
MP-7 HYDROGRAPH JANUARY 2012 - FEBRUARY 2018
CORRECTIVE MEASURES FIVE-YEAR ASSESSMENT REPORT:JANUARY 2013 - MARCH 2018
FORMER CHEVRON FACILITY 122208, CHILLUM, MARYLAND



CITY: MANCHESTER DIV/GROUP: ENVCAD DB: B.SMALL PM: TM:
C:\Users\BSSmall\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\Hydrograph-FigX.dwg LAYOUT: X (2) SAVED: 7/23/2018 2:05 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 7/23/2018
2:05 PM BY: SMALL, BRIAN

NOTE:

1. NSZD - NATURAL SOURCE ZONE DEPLETION
2. NSZD GEOCHEMICAL SAMPLING WAS COMPLETED APRIL 24, 2017 THROUGH APRIL 26, 2017 FOR WELLS GP-30R,GP-35A MW-20, MW-18 MW-13 AND MW-6. A SECOND EVENT WAS COMPLETED BETWEEN FEBRUARY 14 - 15, 2018 WHILE THE DPE SYSTEM WAS OFF.
3. NSZD TEMPERATURE PROFILE READINGS WERE TAKEN ON APRIL 23, 2017 FOR WELLS GP-30R,GP-35A MW-20, MW-18 MW-13 AND MW-6. A SECOND TEMPERATURE PROFILE READING EVENT WAS HELD ON FEBRUARY 12-14 WHILE THE THE DPE SYSTEM WAS OFF.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- ND — NON DETECT
- NS — NOT SAMPLED
- NSZD GEOCHEMICAL SAMPLING WELL
- NSZD TEMPERATURE PROFILING WELL

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENSINGTON PL NE
KENNEDY ST NE
CLAY BODY
CLAY BODY

MW-20 GP-35A GP-44A MW-15 VP-4 RW-3 MW-5 MW-6 MW-4 MW-7 RW-1 MW-13 RW-2 RW-4 MW-38A PTW-B MW-2 MW-3 GP-24A MW-1 MW-12 GP-30A RW-5 MW-16 MW-17 MW-22R MW-18 MW-19 MW-21 MW-45 MP-40 GP-41A MW-46 MP-7 PTW-A GP-27R GP-39R MW-23 MP-20 MP-30 MW-47 MW-48 MW-49 MW-50 MW-51
GP-2E(50-55) GP-2E(45-50) GP-2F(50-55) GP-2F(45-50) GP-2E(55-60)
ISGR-1S ISGR-1D ISGR-2S ISGR-2D MW-24B MW-24A MW-30R MW-61A GP-9A(30-35) GP-9A(25-30) GP-11A(20-25) GP-9A(20-25) GP-11A(25-30) GP-11A(30-35) GP-11A(35-40) GP-7A(20-25) GP-7A(25-30) GP-7A(30-35) GP-7A(35-40) GP-7A(40-45) MW-25B MW-25A MW-41A MW-41B
MW-37 MW-62A MW-62B MW-38 MW-39R MW-39 MW-40
MW-42 MW-26B MW-26A MW-58 IW-1 IW-2 IW-3 IW-4 IW-5 MW-43B MW-43A MW-27A MW-27B MW-44B MW-44A MW-53 MW-29B MW-29A
MW-31B MW-31A MW-55 MW-60 MW-59 MW-33S MW-33A MW-33B MW-33C MW-52 MW-54
MW-28B MW-28A MW-32

0 120' 240'
GRAPHIC SCALE

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

NSZD EVALUATION SAMPLING LOCATIONS APRIL 2017 AND FEBRUARY 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE 13

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\BSSmallOneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\NSZDWells-Fig13.dwg LAYOUT: 13 SAVED: 7/24/2018 2:55 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/24/2018 2:56 PM BY: SMALL, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
X-Base
X-Border

MW-20
MW-21
MW-45
GP-44A
MW-15
RW-1
VP-4
GP-35A
MW-13
RW-3
MW-5
MW-7
RW-2
GP-41A
MW-46
MW-48
MW-50
MW-51
MW-49
RW-4
MW-6
PTW-B
GP-30R
MP-7
MW-47
MW-4
MW-2
MW-12
GP-39R
GP-24A
MW-16
GP-27R
MW-23
MW-3
MW-1
RW-5
MW-17
GP-2E(55-60)
GP-2E(50-55)
GP-2E(45-50)
MW-22R
GP-2F(45-50)
MW-18
MW-19
GP-2F(50-55)
ISGR-1PS
ISGR-2PS
GP-7A(40-45)
GP-11A(35-40)
ISGR-1PD
ISGR-2PD
GP-7A(35-40)
GP-11A(30-35)
GP-7A(30-35)
GP-11A(25-30)
MW-24B
GP-7A(20-25)
GP-11A(20-25)
MW-24A
GP-7A(25-30)
MW-25B
MW-25A
MW-30R
MW-61B
MW-61A
MW-41A
MW-41B
GP-9A(20-25)
GP-9A(25-30)
GP-9A(30-35)
MW-37
MW-38
MW-39R
MW-40
MW-34B
MW-34A
MW-62B
MW-62A
MW-27A
MW-27B
MW-42
MW-44B
MW-44A
MW-53
MW-26A
MW-26B
MW-58
MW-43B
MW-43A
MW-29B
MW-29A
MW-54
MW-60
MW-33A
MW-59
MW-33S
MW-33B
MW-31B
MW-55
MW-33C
MW-52
MW-31A
MW-28B
MW-28A
MW-32

LEGEND

- MNA SAMPLING WELLS
- MONITORING WELL
- EASTERN TRANSECT
- WESTERN TRANSECT
- FORMER CHEVRON FACILITY # 122208 PROPERTY
- AREA A
- AREA B
- AREA C

NOTES:

LABEL COLOR INDICATES LONGITUDINAL TRANSECT WELL TYPE, AS FOLLOWS:

PINK = DOWNGRADIENT PERIPHERY WELL
PURPLE = CROSS-GRADIENT WELL
BLUE = BACKGROUND WELL
ORANGE = SOURCE AREA WELL

0 170 340
SCALE IN FEET

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

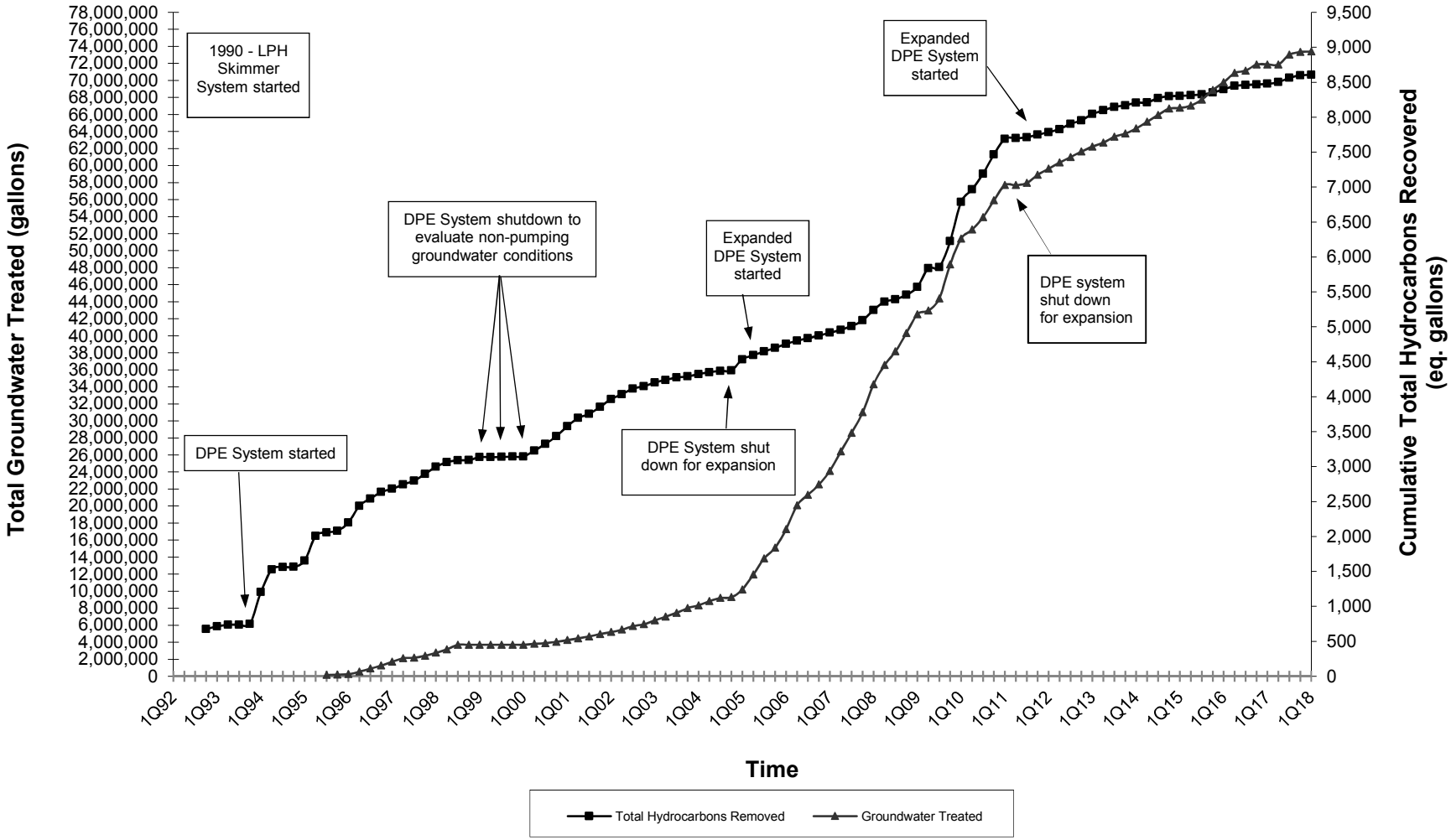
MNA EVALUATION SAMPLING LOCATIONS

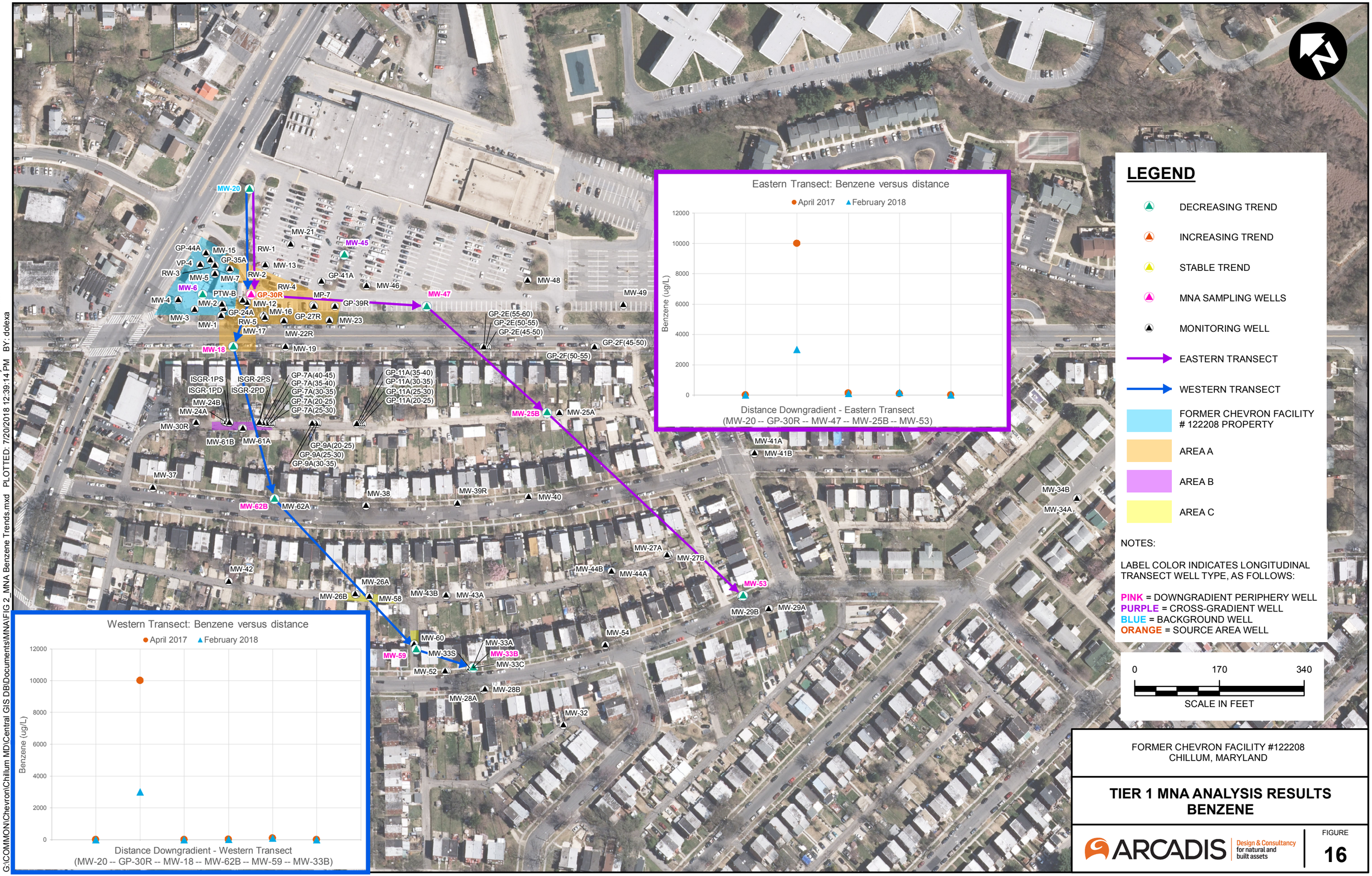
ARCADIS Design & Consultancy for natural and built assets

FIGURE
14

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Maryland FIPS 1900 Feet
G:\COMMON\Chevron\Chillum MD\Central GIS DB\Documents\MNA\FIG 1_MNA Sampling Locations.mxd PLOTTED: 7/20/2018 12:34:43 PM BY: dolexa

Figure 15
Cumulative Total Hydrocarbons Recovered and Groundwater Treated Since 1990
Corrective Measures Five-Year Assessment Report: January 2013 - March 2018
Former Chevron Facility 122208, Chillum, Maryland





LEGEND

- DECREASING TREND
- INCREASING TREND
- STABLE TREND
- MNA SAMPLING WELLS
- MONITORING WELL
- EASTERN TRANSECT
- WESTERN TRANSECT
- FORMER CHEVRON FACILITY # 122208 PROPERTY
- AREA A
- AREA B
- AREA C

NOTES:

LABEL COLOR INDICATES LONGITUDINAL TRANSECT WELL TYPE, AS FOLLOWS:

PINK = DOWNGRADIENT PERIPHERY WELL
PURPLE = CROSS-GRADIENT WELL
BLUE = BACKGROUND WELL
ORANGE = SOURCE AREA WELL

0 170 340
SCALE IN FEET

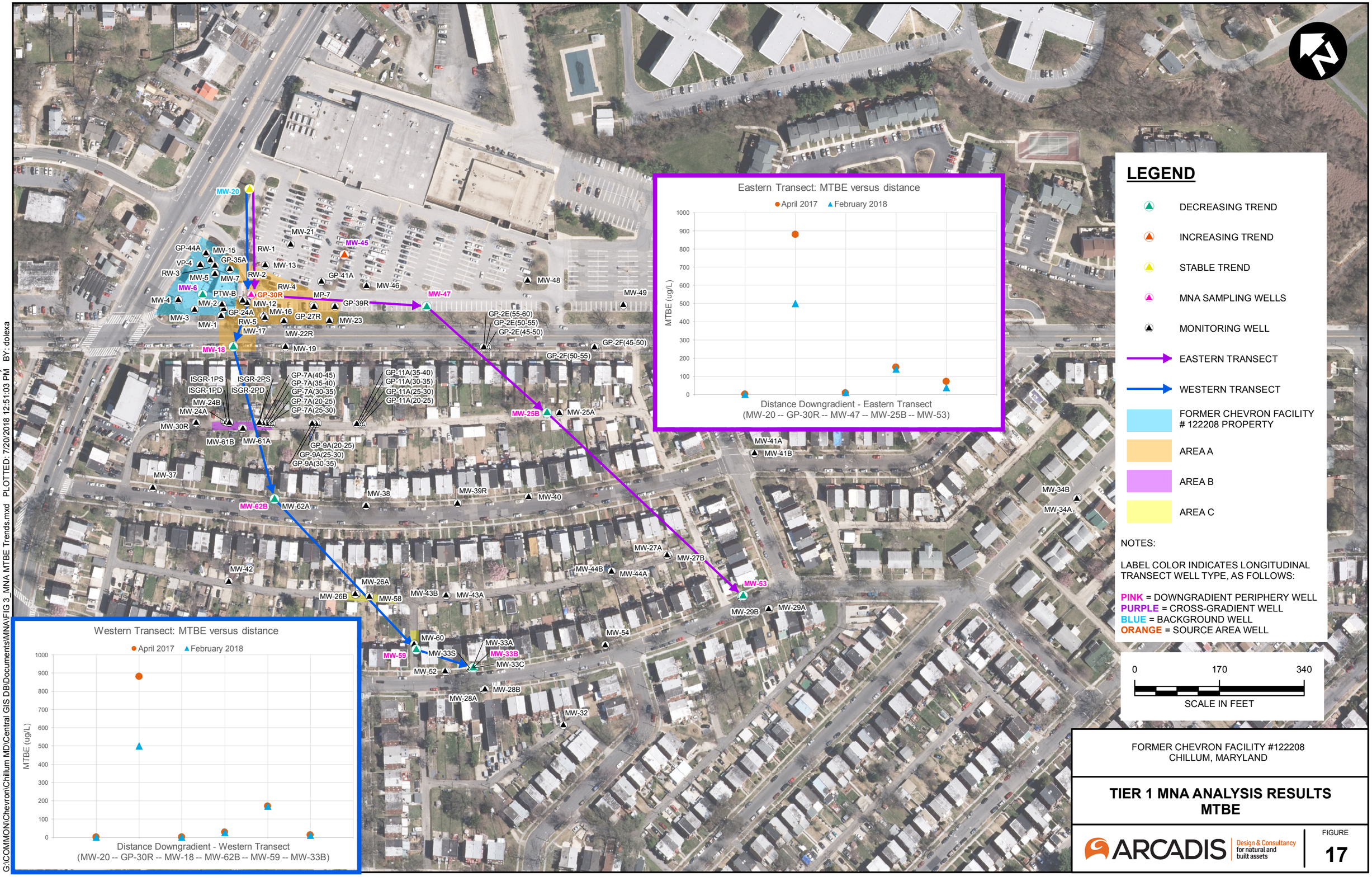
FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

TIER 1 MNA ANALYSIS RESULTS
BENZENE

ARCADIS Design & Consultancy for natural and built assets

FIGURE
16

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Maryland FIPS 1900 Feet
G:\COMMON\Chevron\Chillum MD\Central GIS DB\Documents\MNA\FIG 2_MNA Benzene Trends.mxd PLOTTED: 7/20/2018 12:39:14 PM BY: dolexa



LEGEND

- DECREASING TREND
- INCREASING TREND
- STABLE TREND
- MNA SAMPLING WELLS
- MONITORING WELL
- EASTERN TRANSECT
- WESTERN TRANSECT
- FORMER CHEVRON FACILITY # 122208 PROPERTY
- AREA A
- AREA B
- AREA C

NOTES:

LABEL COLOR INDICATES LONGITUDINAL TRANSECT WELL TYPE, AS FOLLOWS:

PINK = DOWNGRADIENT PERIPHERY WELL
PURPLE = CROSS-GRADIENT WELL
BLUE = BACKGROUND WELL
ORANGE = SOURCE AREA WELL

0 170 340
SCALE IN FEET

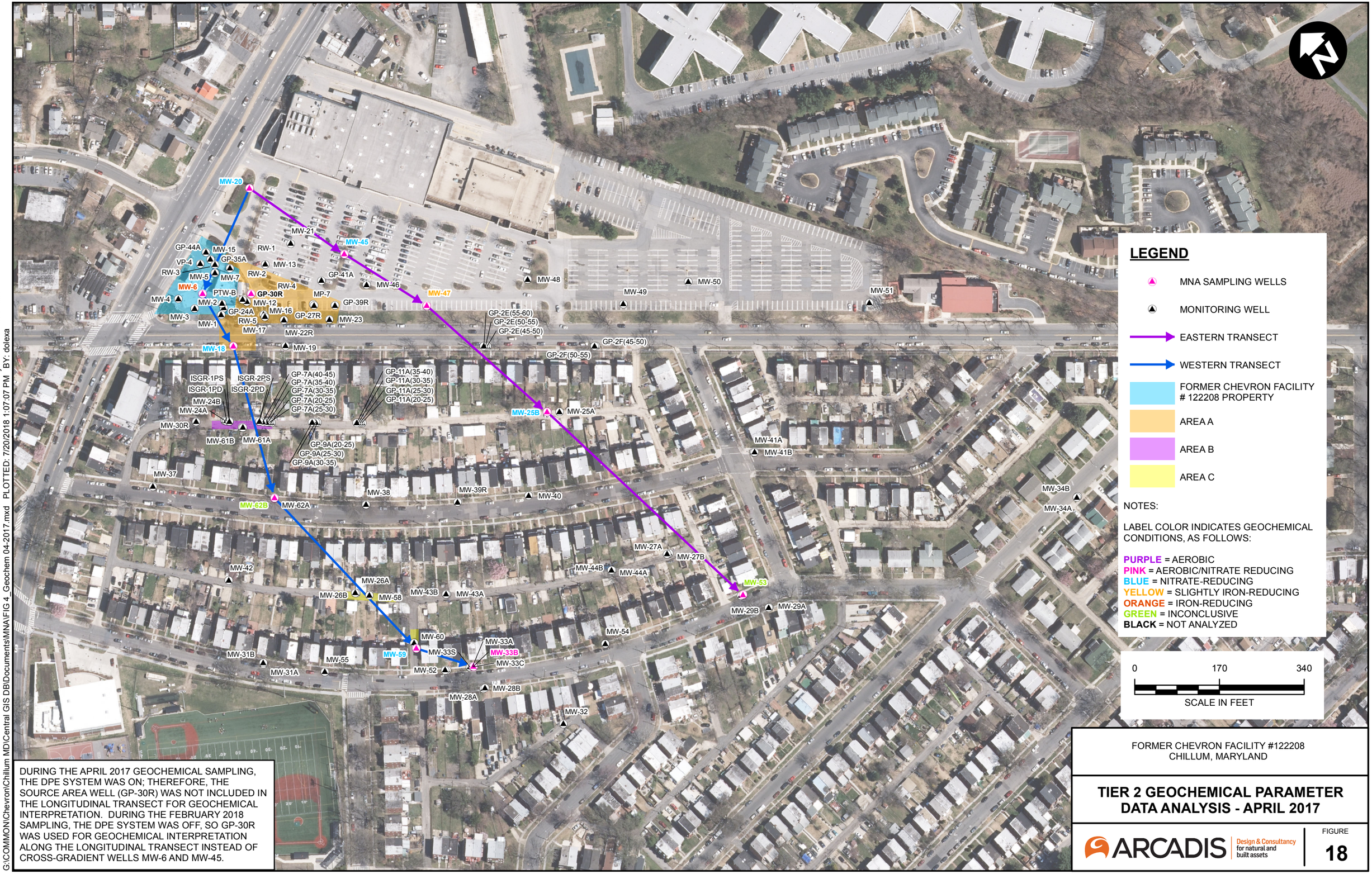
FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

TIER 1 MNA ANALYSIS RESULTS MTBE

ARCADIS Design & Consultancy for natural and built assets

FIGURE 17

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Maryland FIPS 1900 Feet
G:\COMMON\Chevron\Chillum MD\Central GIS DB\Documents\MNA\FIG 3_MNA MTBE Trends.mxd PLOTTED: 7/20/2018 12:51:03 PM BY: dolexa



LEGEND

- MNA SAMPLING WELLS
- MONITORING WELL
- EASTERN TRANSECT
- WESTERN TRANSECT
- FORMER CHEVRON FACILITY # 122208 PROPERTY
- AREA A
- AREA B
- AREA C

NOTES:

LABEL COLOR INDICATES GEOCHEMICAL CONDITIONS, AS FOLLOWS:

PURPLE = AEROBIC
PINK = AEROBIC/NITRATE REDUCING
BLUE = NITRATE-REDUCING
YELLOW = SLIGHTLY IRON-REDUCING
ORANGE = IRON-REDUCING
GREEN = INCONCLUSIVE
BLACK = NOT ANALYZED

0 170 340
SCALE IN FEET

DURING THE APRIL 2017 GEOCHEMICAL SAMPLING, THE DPE SYSTEM WAS ON; THEREFORE, THE SOURCE AREA WELL (GP-30R) WAS NOT INCLUDED IN THE LONGITUDINAL TRANSECT FOR GEOCHEMICAL INTERPRETATION. DURING THE FEBRUARY 2018 SAMPLING, THE DPE SYSTEM WAS OFF, SO GP-30R WAS USED FOR GEOCHEMICAL INTERPRETATION ALONG THE LONGITUDINAL TRANSECT INSTEAD OF CROSS-GRADIENT WELLS MW-6 AND MW-45.

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

TIER 2 GEOCHEMICAL PARAMETER DATA ANALYSIS - APRIL 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
18

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Maryland FIPS 1900 Feet
G:\COMMON\Chevron\Chillum MD\Central GIS DB\Documents\MNA\FIG 4_Geochem 04-2017.mxd PLOTTED: 7/20/2018 1:07:07 PM BY: dolexa



LEGEND

- MNA SAMPLING WELLS
- MONITORING WELL
- EASTERN TRANSECT
- WESTERN TRANSECT
- FORMER CHEVRON FACILITY # 122208 PROPERTY
- AREA A
- AREA B
- AREA C

NOTES:

LABEL COLOR INDICATES GEOCHEMICAL CONDITIONS, AS FOLLOWS:

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0 170 340
SCALE IN FEET

DURING THE APRIL 2017 GEOCHEMICAL SAMPLING, THE DPE SYSTEM WAS ON; THEREFORE, THE SOURCE AREA WELL (GP-30R) WAS NOT INCLUDED IN THE LONGITUDINAL TRANSECT FOR GEOCHEMICAL INTERPRETATION. DURING THE FEBRUARY 2018 SAMPLING, THE DPE SYSTEM WAS OFF, SO GP-30R WAS USED FOR GEOCHEMICAL INTERPRETATION ALONG THE LONGITUDINAL TRANSECT INSTEAD OF CROSS-GRADIENT WELLS MW-6 AND MW-45.

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

TIER 2 GEOCHEMICAL PARAMETER DATA ANALYSIS - FEBRUARY 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE
19

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Maryland FIPS 1900 Feet
G:\COMMON\Chevron\Chillum MD\Central GIS DB\Documents\MNA\FIG 5_Geochem 02-2018.mxd PLOTTED: 7/20/2018 1:10:34 PM BY: dolexa



FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

POTENTIOMETRIC SURFACE MAP - JANUARY 12, 2018 DUAL PHASE EXTRACTION SYSTEM OFF

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FIGURE
20

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Maryland FIPS 1900 Feet
G:\COMMON\Chevron\Chillum MD\Central GIS DB\Documents\System Rebound Contours.mxd PLOTTED: 3/27/2018 10:17:53 AM BY: dolexa

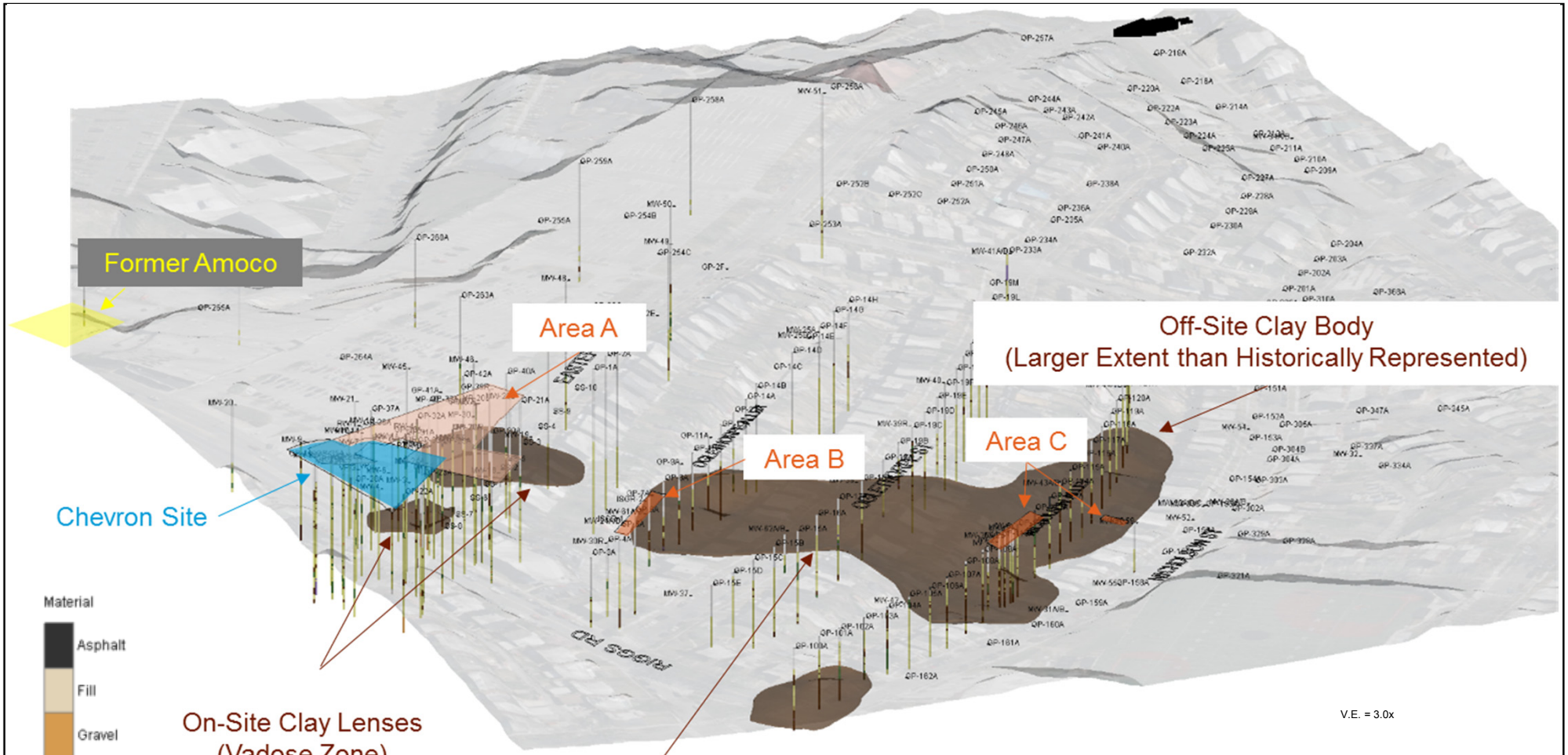


FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

TOPOGRAPHIC SLOPE FROM SITE TOWARD AREA C

ARCADIS Design & Consultancy for natural and built assets

FIGURE
21

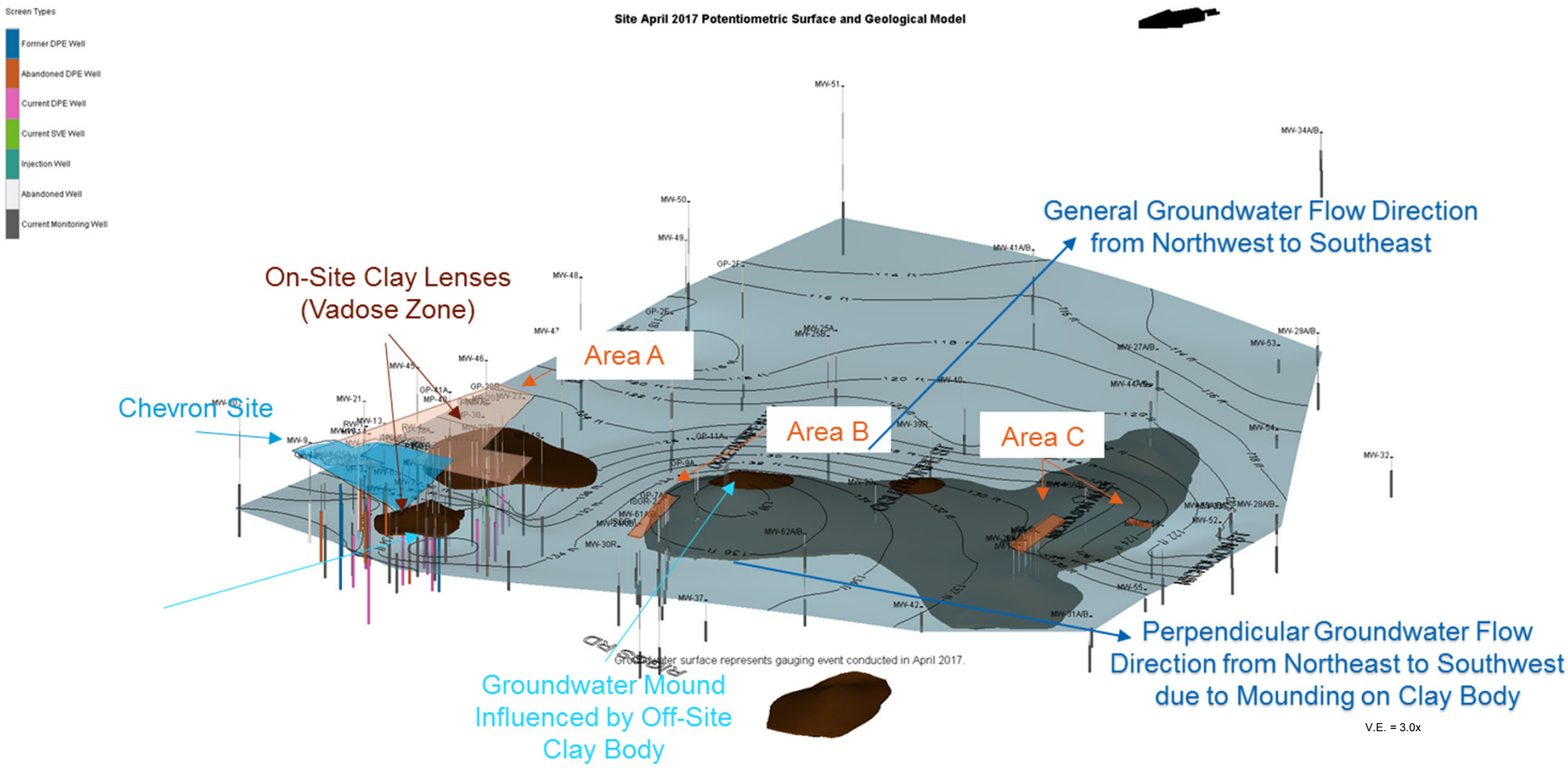


FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

ON-SITE AND OFF-SITE CLAY FEATURE EXTENTS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
22

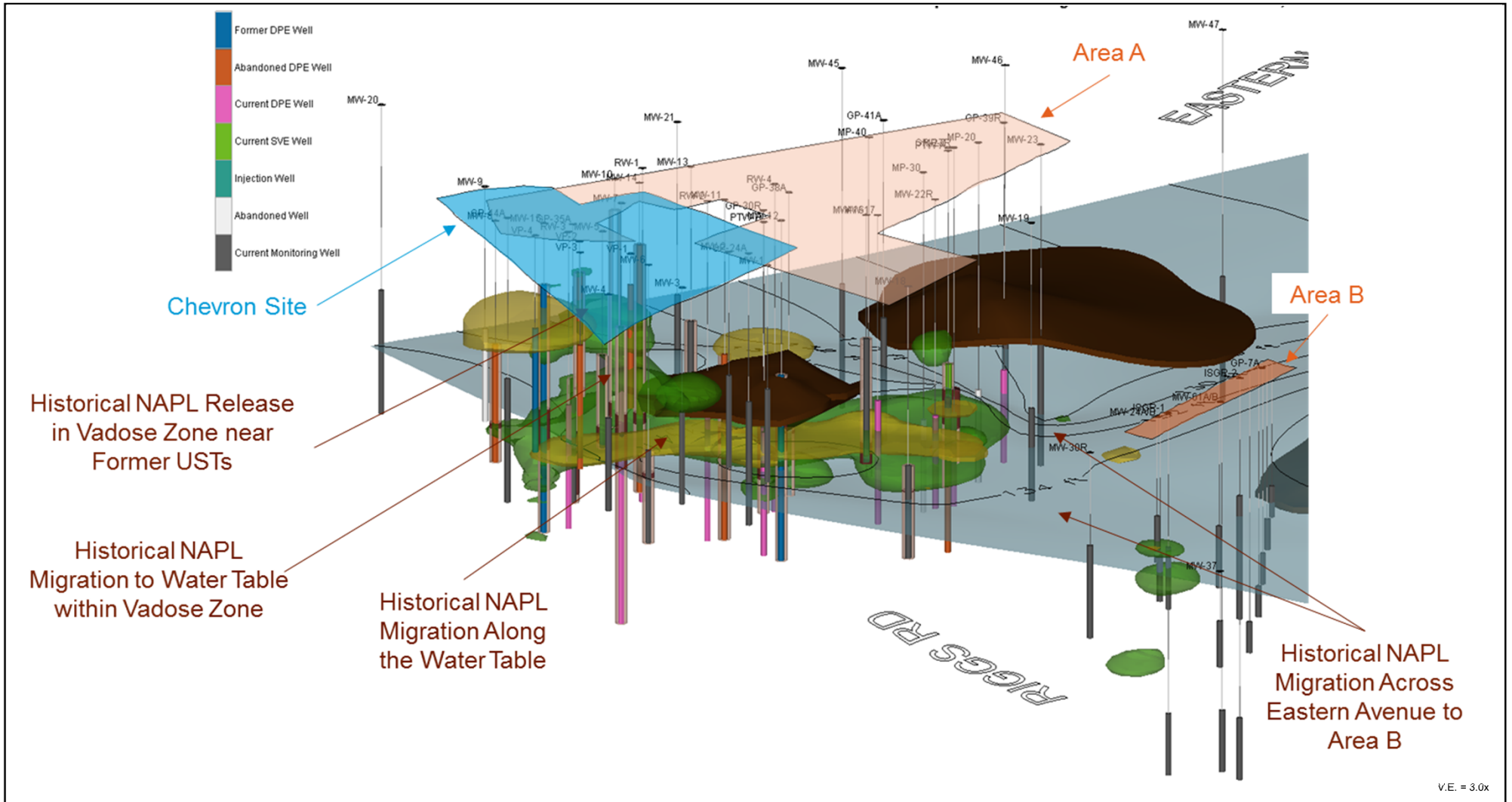


FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

APRIL 2017 POTENTIOMETRIC SURFACE CONTOURS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
23



The yellow plume represents TPH-GRO concentrations in soil above 10,000 ug/kg
The green plume represents PID concentrations above 200 ppm
The solid brown shapes represent the on-site clay bodies.

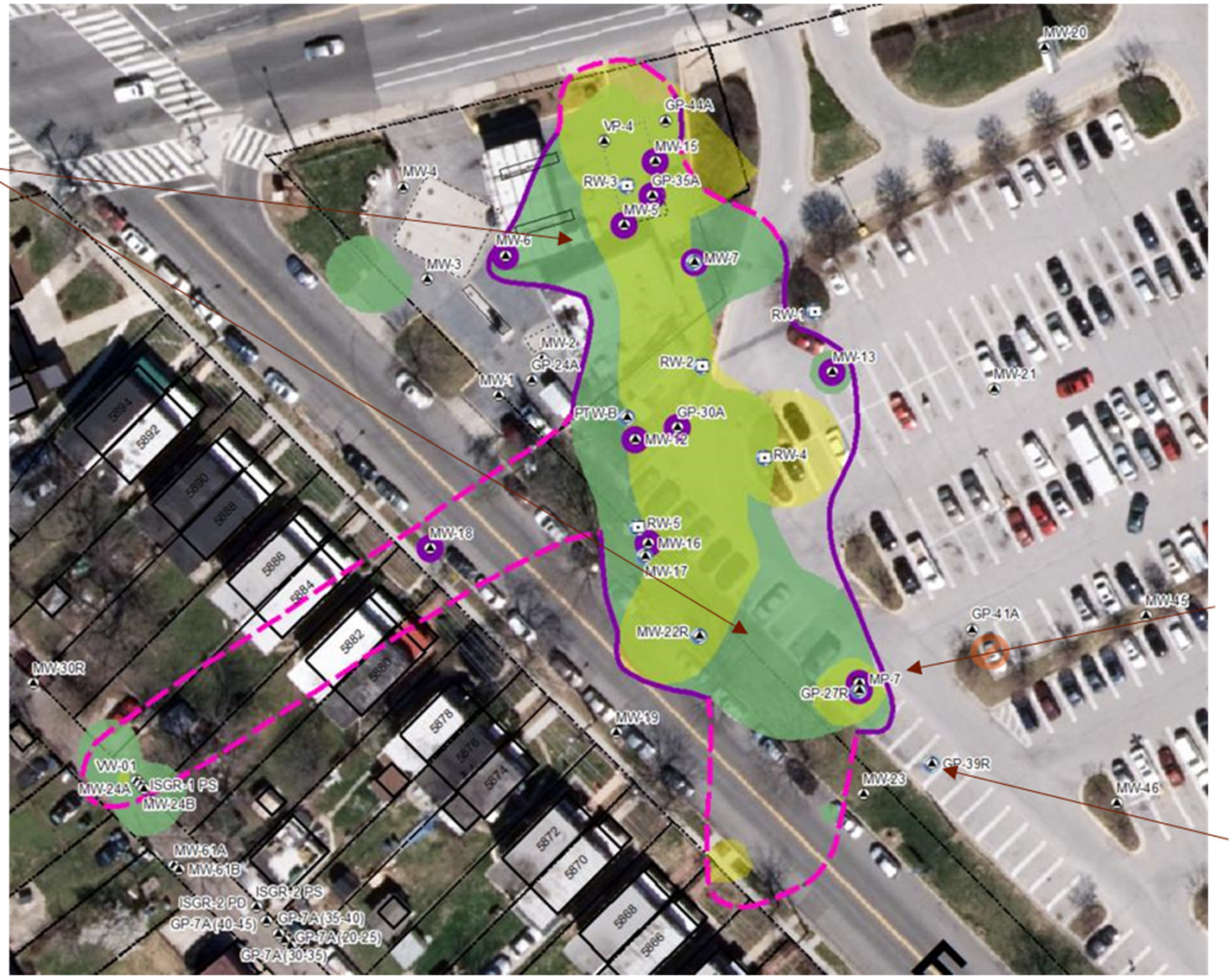
FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

SMEAR ZONE REPRESENTATION

ARCADIS Design & Consultancy for natural and built assets

FIGURE
24

Smear Zone Extent Larger than Previously Anticipated



- Active DPE Well
- Active SVE Well
- Abandoned DPE Well
- Former DPE Well, Current Monitoring Well
- Smear Zone Delineated
- Smear Zone Not Delineated
- Monitoring Well
- Abandoned Monitoring Well
- Soil Boring Location
- Tank Monitoring Port
- LNAPL Presence
- TPH-GRO Plume
- PID Plume

Abandon GP-27R and Convert MP-7 to DPE Well

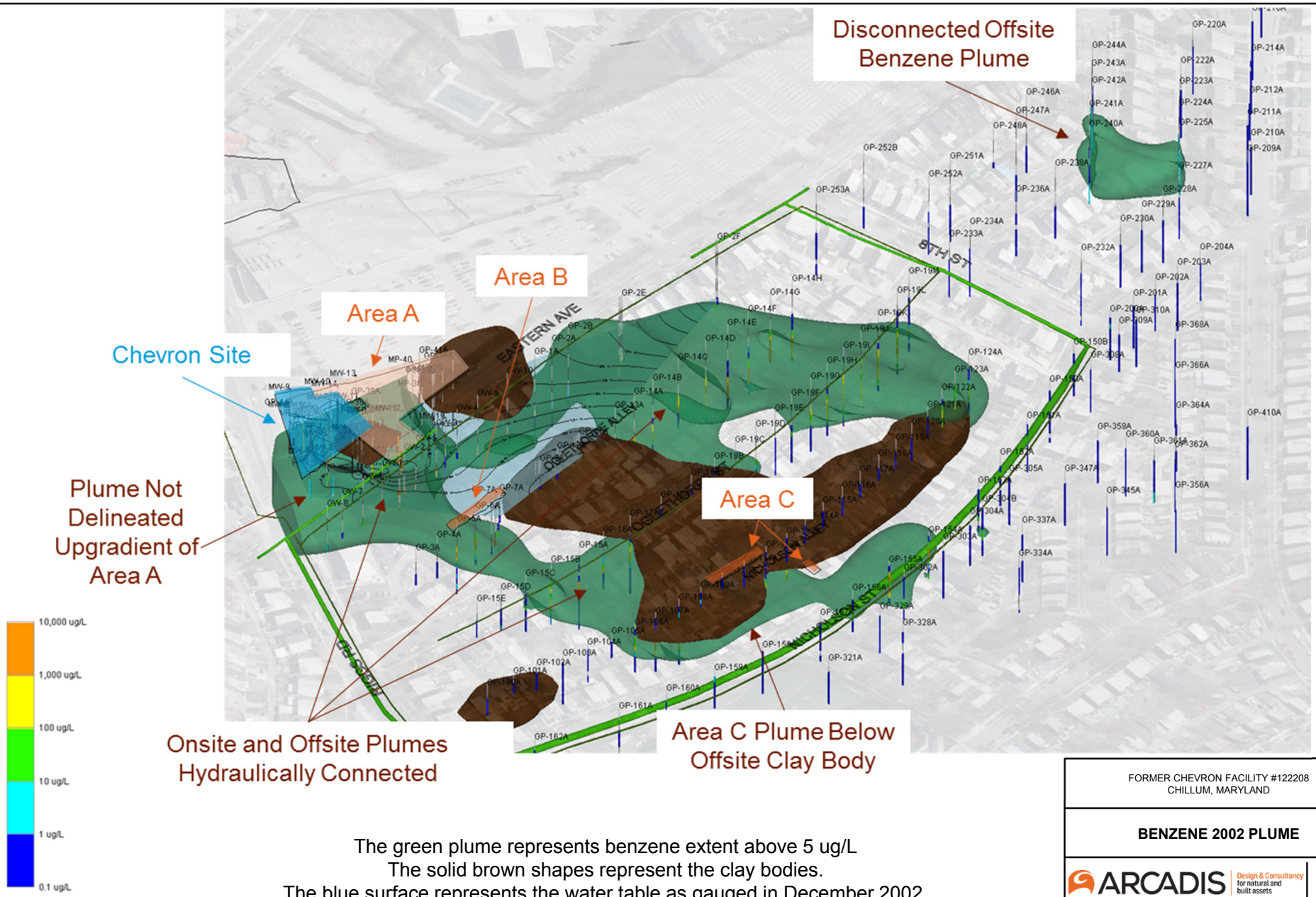
DPE Well GP-39R Outside Smear Zone Footprint; Recommend Removal from DPE System

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

SMEAR ZONE EXTENT

ARCADIS Design & Consultancy for natural and built assets

FIGURE
25



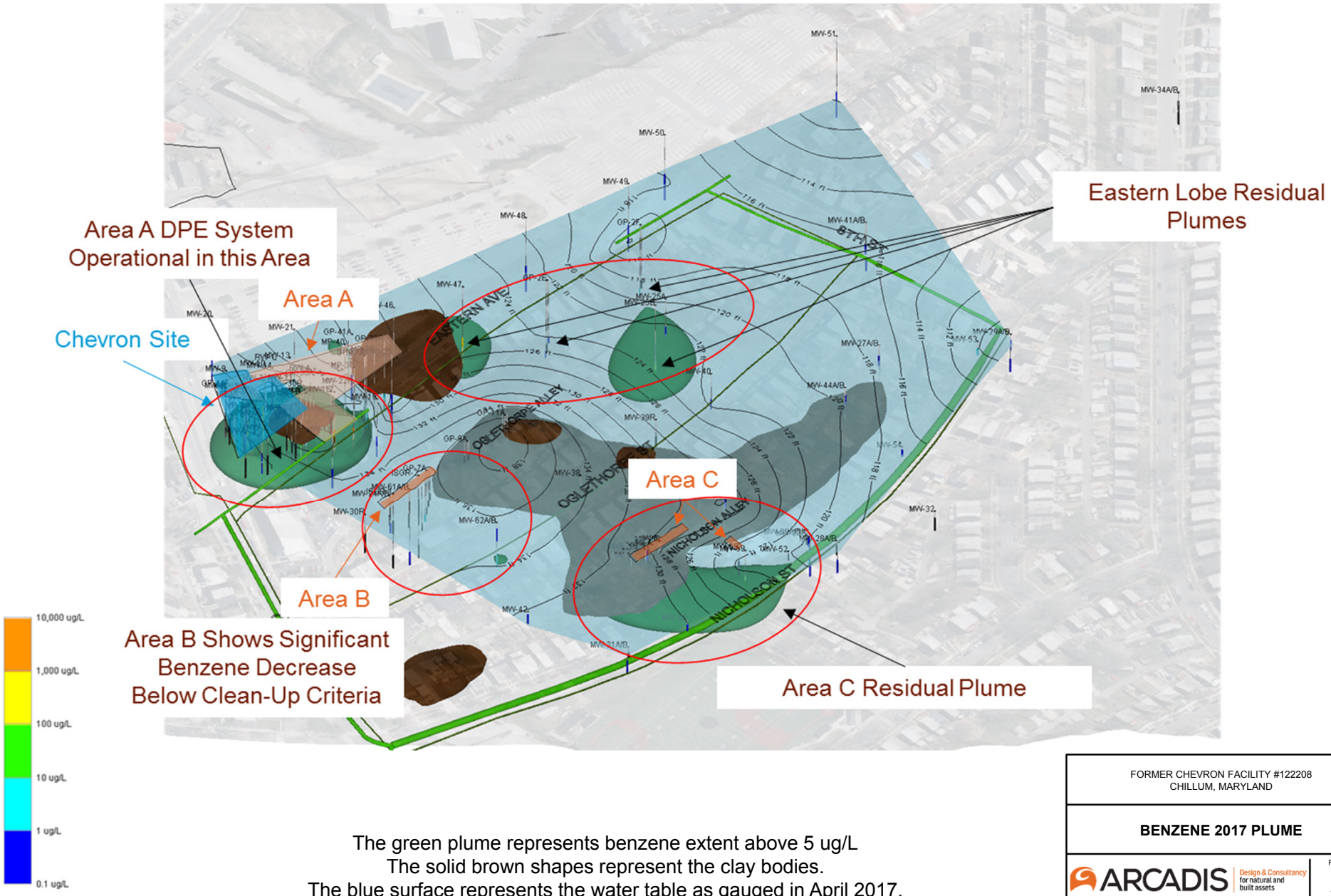
The green plume represents benzene extent above 5 ug/L
The solid brown shapes represent the clay bodies.
The blue surface represents the water table as gauged in December 2002.

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE 2002 PLUME

ARCADIS Design & Consultancy for natural and built assets

FIGURE
26



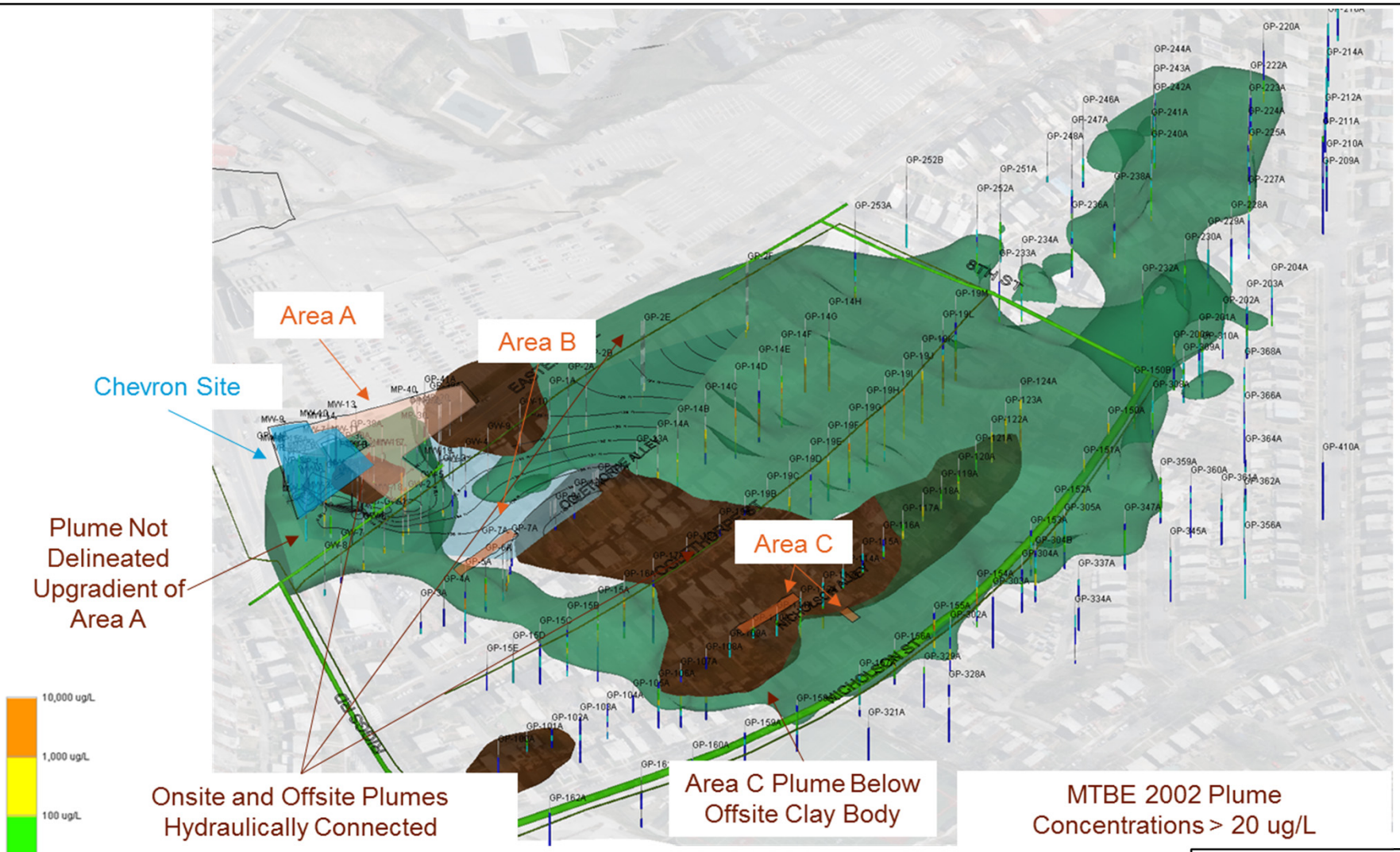
The green plume represents benzene extent above 5 ug/L
The solid brown shapes represent the clay bodies.
The blue surface represents the water table as gauged in April 2017.

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE 2017 PLUME

ARCADIS Design & Consultancy for natural and built assets

FIGURE
27



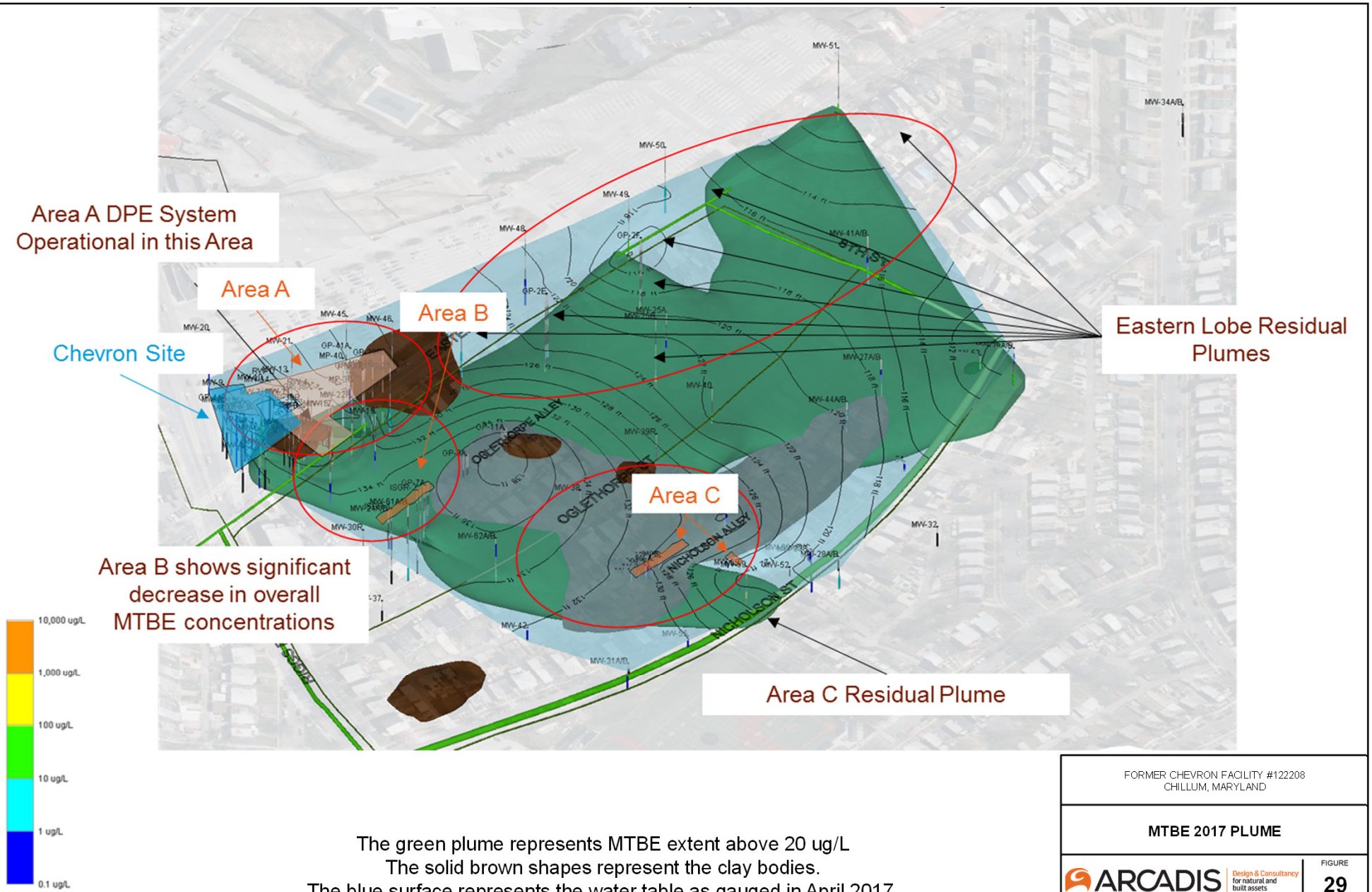
The green plume represents MTBE extent above 20 ug/L
The solid brown shapes represent the clay bodies.
The blue surface represents the water table as gauged in December 2002.

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE 2002 PLUME

ARCADIS Design & Consultancy for natural and built assets

FIGURE
28



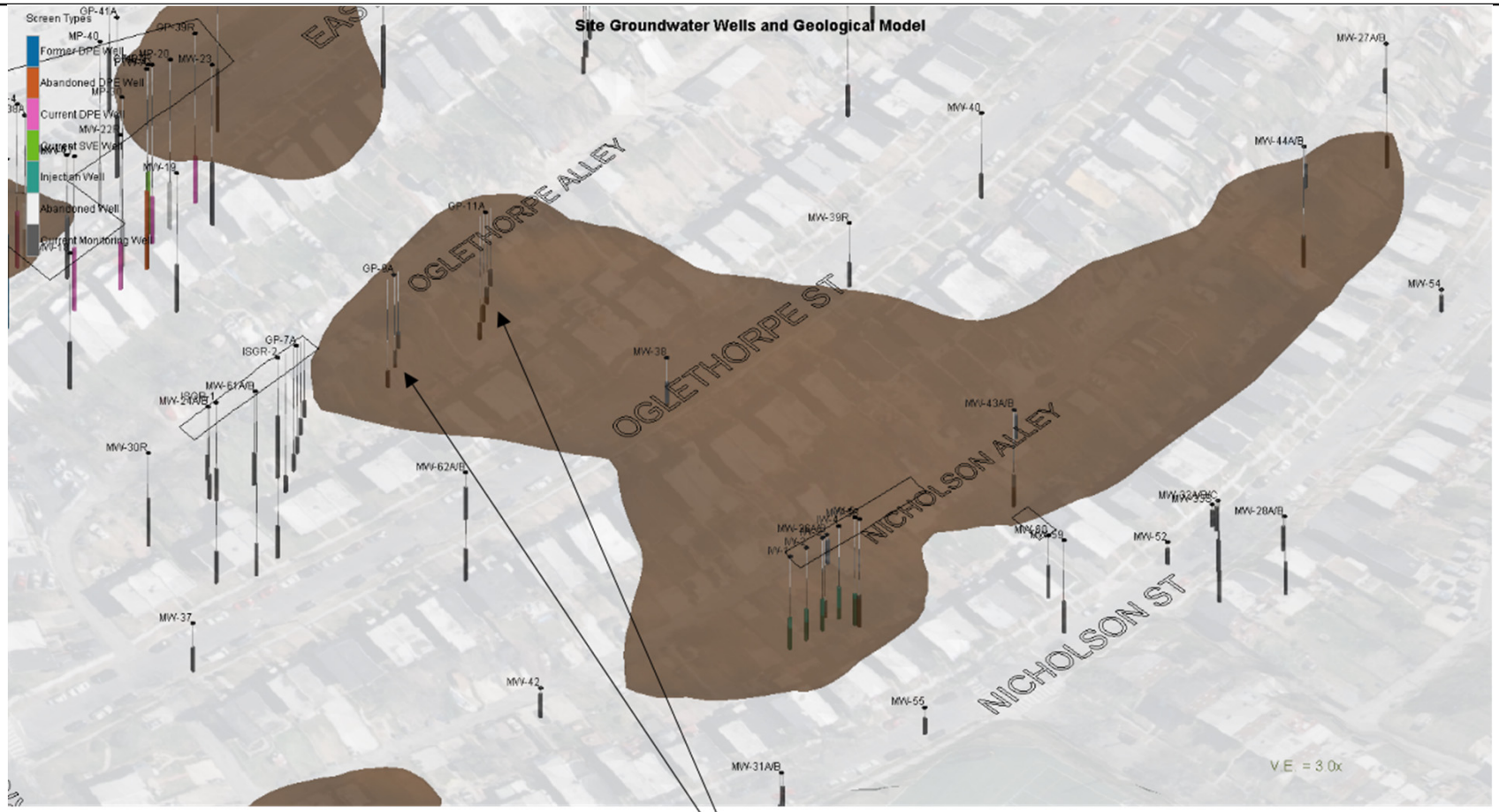
The green plume represents MTBE extent above 20 ug/L
The solid brown shapes represent the clay bodies.
The blue surface represents the water table as gauged in April 2017.

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE 2017 PLUME

ARCADIS Design & Consultancy for natural and built assets

FIGURE
29



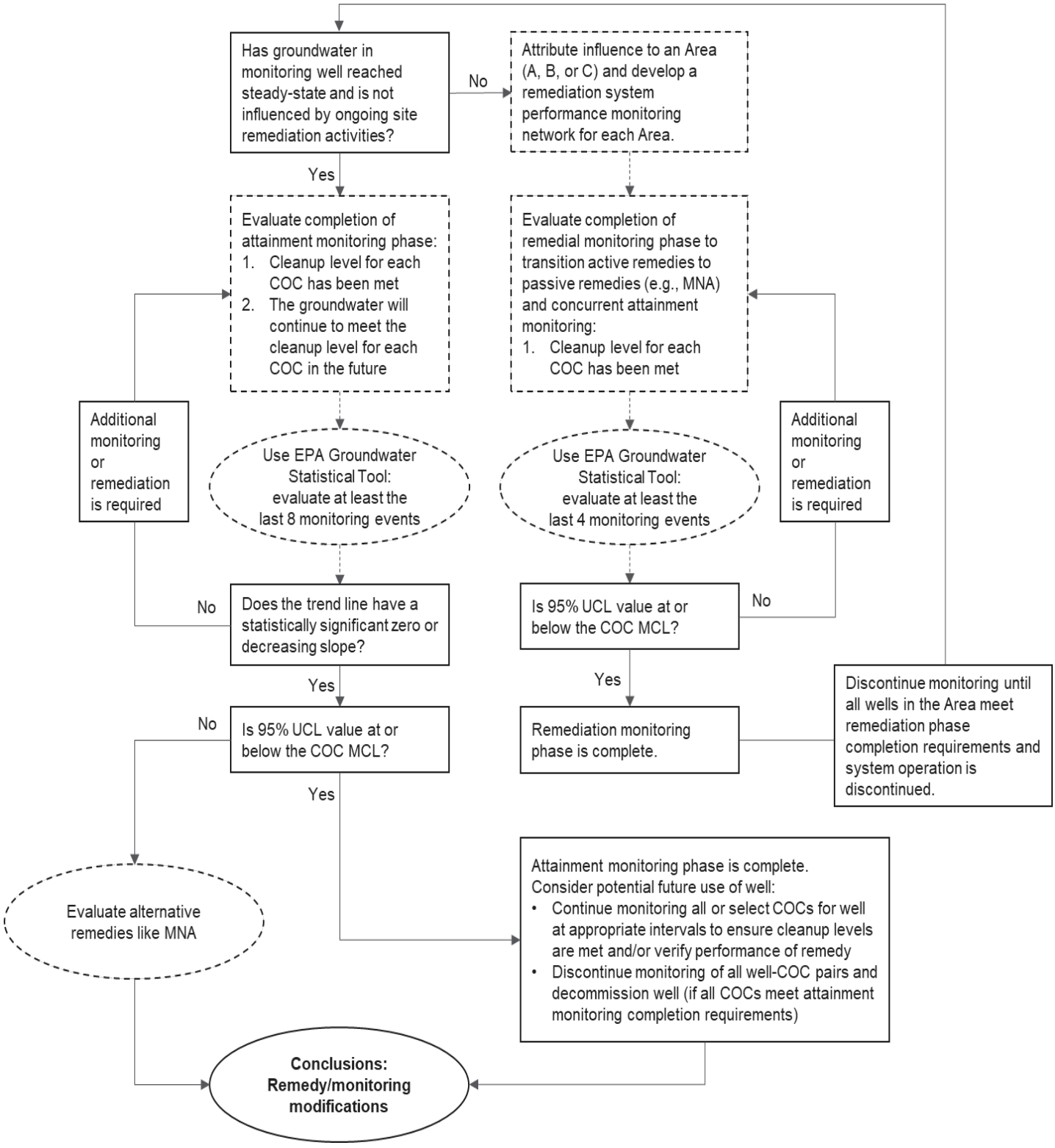
Wells GP-11A (cluster of 4 wells), GP-9A (cluster of 3 wells)

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

SEVEN WELLS RECOMMENDED FOR ABANDONMENT

ARCADIS Design & Consultancy for natural and built assets

FIGURE
30



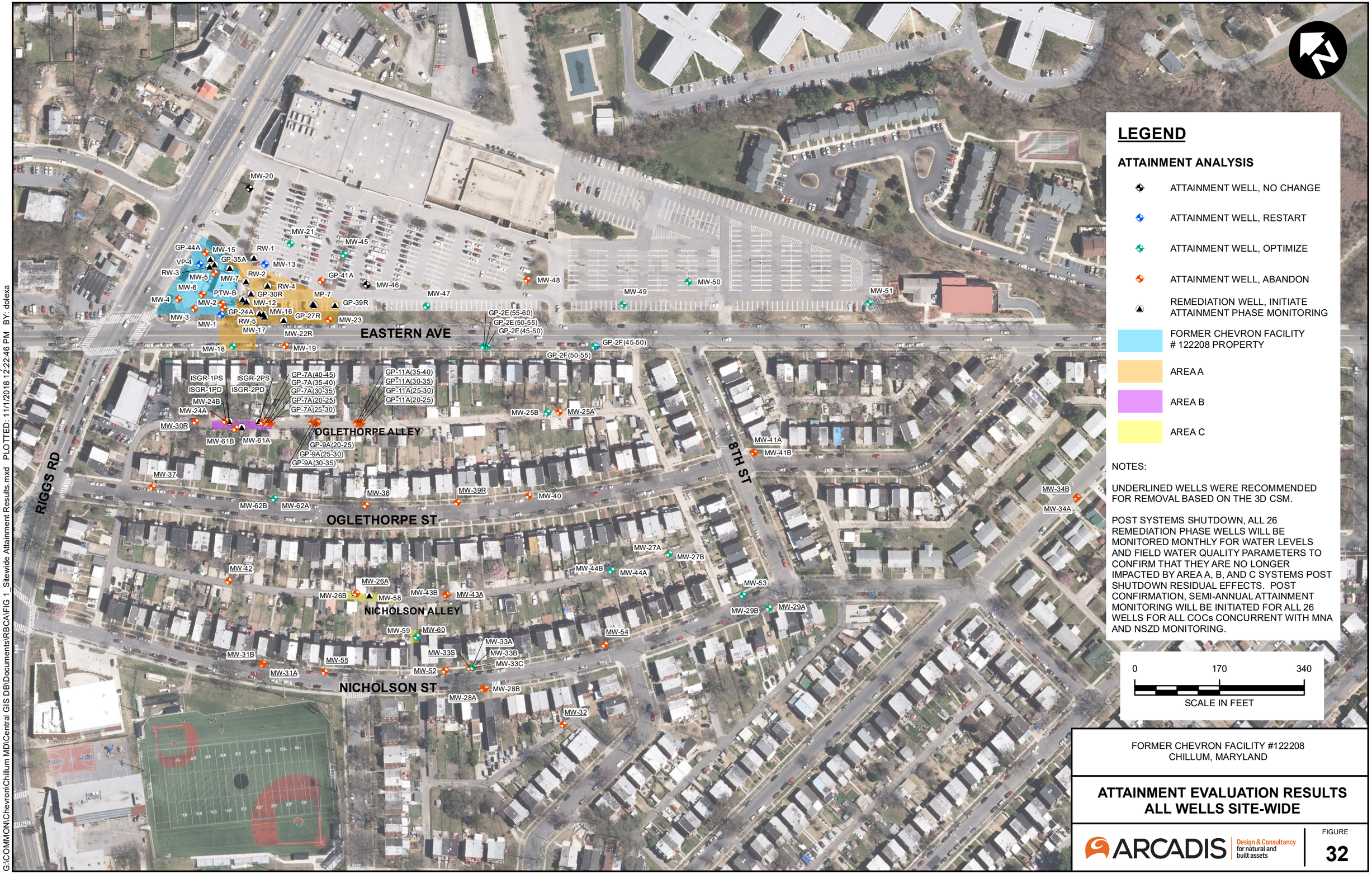
FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

SITE-WIDE ATTAINMENT EVALUATION PROCESS FLOW-CHART

ARCADIS Design & Consultancy for natural and built assets

FIGURE
31

G:\DIV11\CHEVRON\CHILLUM MD 122208\REPORTS\5-YEAR ASSESSMENT REPORT\REPORT CONTENT\FIGURES
7/24/2018 5:23:51 PM



LEGEND

ATTAINMENT ANALYSIS

- ATTAINMENT WELL, NO CHANGE
- ATTAINMENT WELL, RESTART
- ATTAINMENT WELL, OPTIMIZE
- ATTAINMENT WELL, ABANDON
- REMEDIATION WELL, INITIATE ATTAINMENT PHASE MONITORING
- FORMER CHEVRON FACILITY # 122208 PROPERTY
- AREA A
- AREA B
- AREA C

NOTES:

UNDERLINED WELLS WERE RECOMMENDED FOR REMOVAL BASED ON THE 3D CSM.

POST SYSTEMS SHUTDOWN, ALL 26 REMEDIATION PHASE WELLS WILL BE MONITORED MONTHLY FOR WATER LEVELS AND FIELD WATER QUALITY PARAMETERS TO CONFIRM THAT THEY ARE NO LONGER IMPACTED BY AREA A, B, AND C SYSTEMS POST SHUTDOWN RESIDUAL EFFECTS. POST CONFIRMATION, SEMI-ANNUAL ATTAINMENT MONITORING WILL BE INITIATED FOR ALL 26 WELLS FOR ALL COCs CONCURRENT WITH MNA AND NSZD MONITORING.

0 170 340

SCALE IN FEET

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

ATTAINMENT EVALUATION RESULTS ALL WELLS SITE-WIDE

ARCADIS Design & Consultancy for natural and built assets

FIGURE 32

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Maryland FIPS 1900 Feet
G:\COMMON\Chevron\Chillum MD\Central GIS DB\Documents\RBCA\FIG 1_Sitewide Attainment Results.mxd PLOTTED: 11/1/2018 12:22:46 PM BY: dolexa

MW-20
MW-21
MW-45
GP-44A
VP-4
MW-13
MW-5
GP-41A
MW-46
MW-48
MW-50
MW-6
MW-47
MW-49
MW-51
MW-4
MW-2
GP-24A
MW-3
MW-1
MW-23
EASTERN AVE
GP-2E(55-60)
GP-2E(50-55)
GP-2E(45-50)
GP-2F(45-50)
MW-18
MW-19
GP-2F(50-55)
GP-7A(40-45)
GP-11A(35-40)
GP-7A(30-35)
GP-11A(30-35)
GP-7A(20-25)
GP-11A(25-30)
GP-7A(25-30)
GP-11A(20-25)
MW-24A
MW-25B
MW-25A
MW-30R
MW-61B
OGLETHORPE ALLEY
GP-9A(20-25)
GP-9A(25-30)
GP-9A(30-35)
MW-41A
MW-41B
8TH ST
RIGGS RD
MW-37
MW-38
MW-39R
MW-40
MW-34B
MW-34A
MW-62A
OGLETHORPE ST
MW-27A
MW-27B
MW-44B
MW-44A
MW-42
MW-53
MW-26A
MW-43B
MW-43A
MW-29B
MW-29A
NICHOLSON ALLEY
MW-59
MW-60
MW-54
MW-33A
MW-33S
MW-33B
MW-33C
MW-31B
MW-55
MW-52
MW-31A
NICHOLSON ST
MW-28B
MW-28A
MW-32

LEGEND

ATTAINMENT ANALYSIS

- ATTAINMENT WELL, NO CHANGE
- ATTAINMENT WELL, RESTART
- ATTAINMENT WELL, OPTIMIZE
- ATTAINMENT WELL, ABANDON
- FORMER CHEVRON FACILITY # 122208 PROPERTY
- AREA A
- AREA B
- AREA C

NOTES:

UNDERLINED WELLS WERE RECOMMENDED FOR REMOVAL BASED ON THE 3D CSM.

0 170 340

SCALE IN FEET

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

ATTAINMENT EVALUATION RESULTS ATTAINMENT WELLS SITE-WIDE

ARCADIS Design & Consultancy for natural and built assets

FIGURE 33

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Maryland FIPS 1900 Feet
G:\COMMON\Chevron\Chillum MD\Central GIS DB\Documents\RBCA\FIG 1_Sitewide Attainment Results.mxd PLOTTED: 7/20/2018 12:20:15 PM BY: dolexa



FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

ATTAINMENT EVALUATION RESULTS REMEDIATION WELLS SITE-WIDE

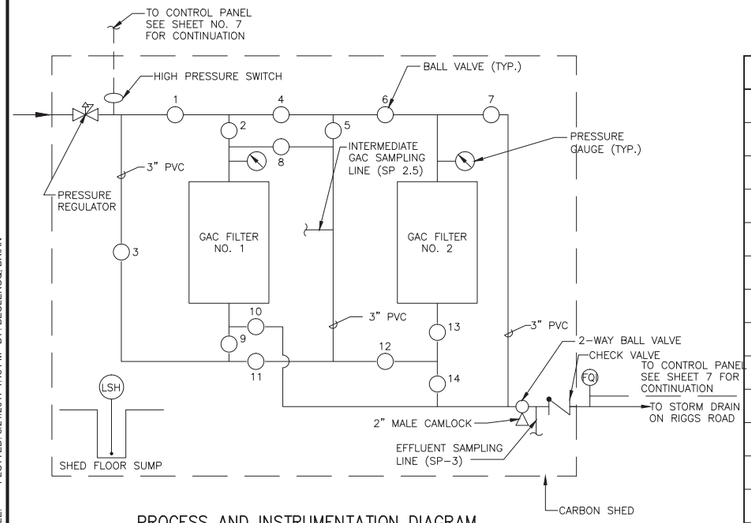
ARCADIS Design & Consultancy for natural and built assets

FIGURE
34

CITY: Novi DIV: ENV DB: TRY PIC: PM: TM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Maryland FIPS 1900 Feet
G:\COMMON\Chevron\Chillum MD\Central GIS DB\Documents\RBCA\FIG 1_Sitewide Attainment Results.mxd PLOTTED: 11/1/2018 12:22:46 PM BY: dolexa

APPENDIX A

Area A Piping and Instrumentation Diagrams

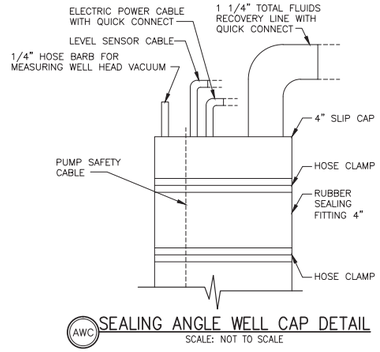


PROCESS AND INSTRUMENTATION DIAGRAM

SCALE: NOT TO SCALE

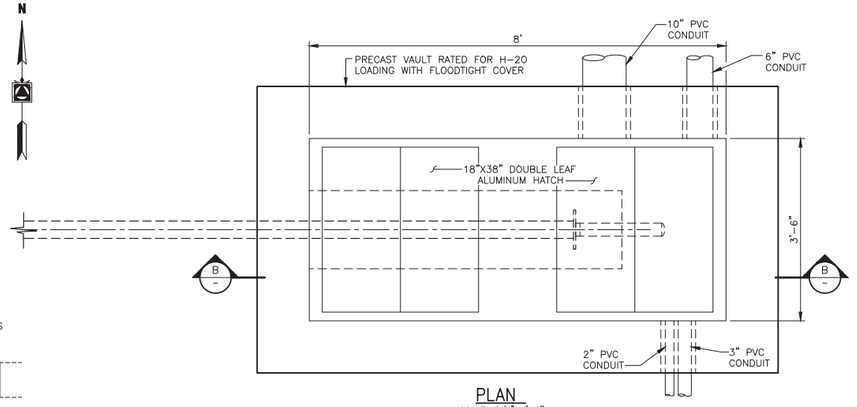
VALVE	SYSTEM OPERATING MODE						
	SERIES 1→2	SERIES 2→1	GAC 1	GAC 2	BW 1→2	BW 1	BW 2
1	O	O	O	O	C	C	C
2	O	C	O	C	C	C	–
3	C	C	C	C	O	O	O
4	C	O	C	O	–	–	–
5	O	C	–	C	C	C	C
6	O	O	–	O	C	–	C
7	C	C	C	C	O	C	O
8	C	O	C	–	O	O	C
9	O	C	C	–	O	O	C
10	C	O	O	C	C	C	–
11	O	C	–	–	C	C	O
12	C	O	–	C	O	O	O
13	O	O	–	O	O	C	O
14	O	C	C	O	C	O	C

O = OPEN
C = CLOSED
– = IRRELEVANT
BW = BACKWASH



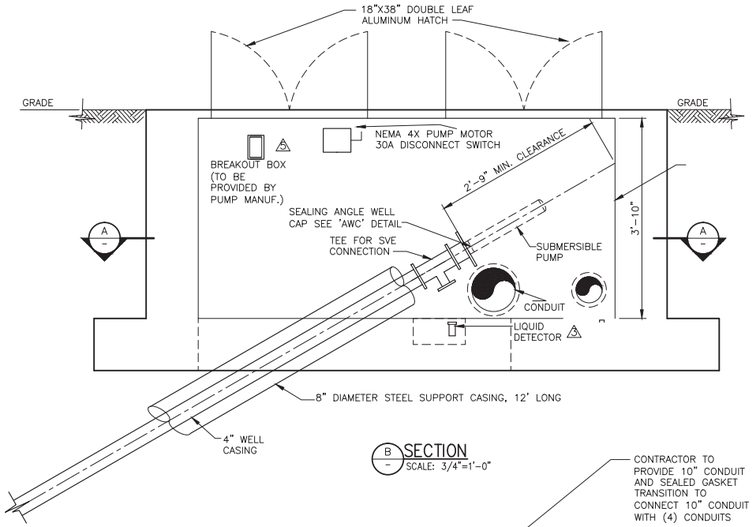
AWC SEALING ANGLE WELL CAP DETAIL

SCALE: NOT TO SCALE



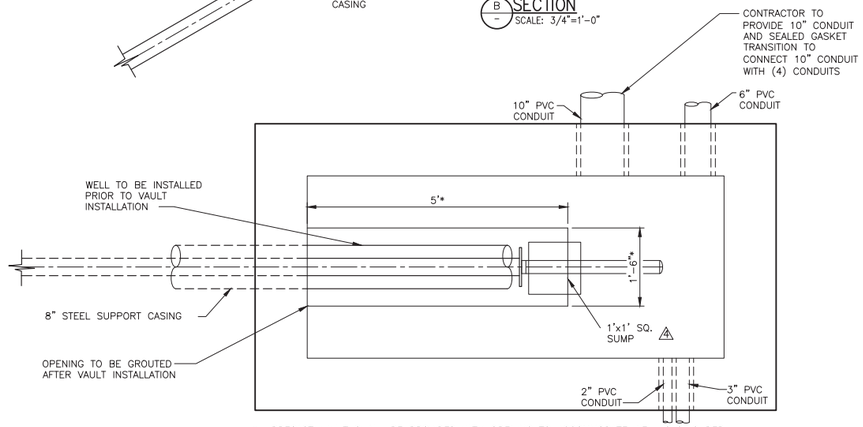
PLAN

SCALE: 3/4"=1'-0"



B SECTION

SCALE: 3/4"=1'-0"

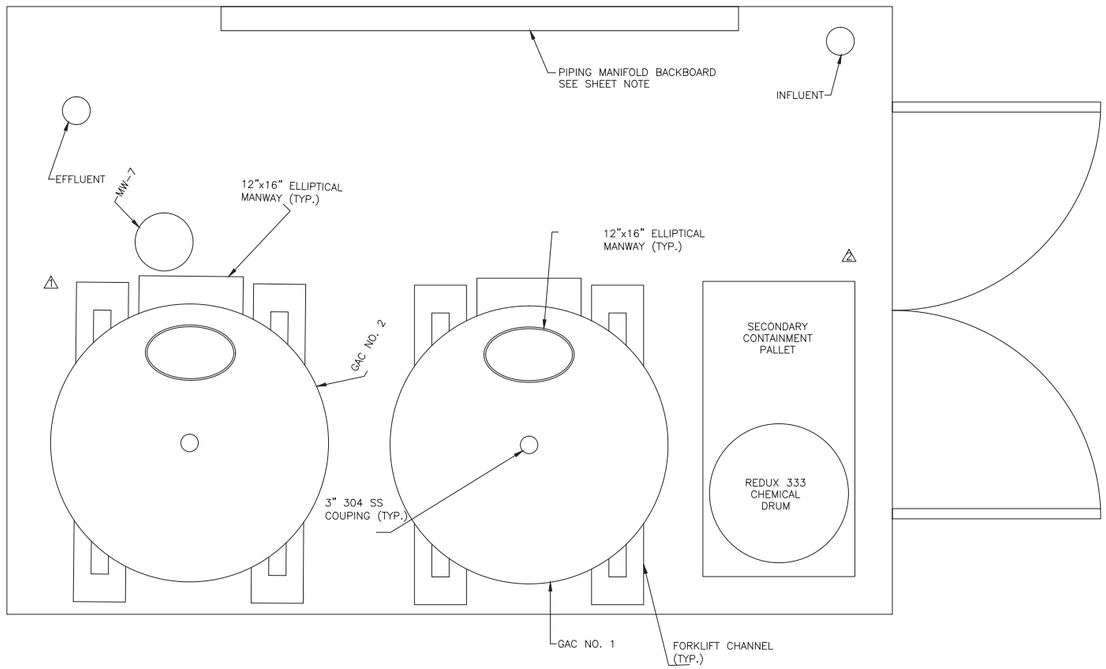


* PRECAST VAULT SHALL BE PROVIDED WITH OPENING TO ACCOMMODATE WELL CASING PER THE FOLLOWING NOTES.
1. CONTRACTOR SHALL VERIFY OPENING DIMENSIONS AND LOCATIONS PRIOR TO CASTING THE VAULT.
2. CONTRACTOR SHALL DOWEL BARS, CAST CONCRETE IN PLACE AND CLOSE OPENING WATERTIGHT WITH NON-SHRINK GROUT TO LEVEL WITH BOTTOM OF THE PRECAST VAULT, PER THE PRECAST VAULT MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR SHALL PROTECT WELL CASING FROM CONCRETE IN ALL CONTACT AREAS PER THE PRECAST VAULT MANUFACTURER'S RECOMMENDATIONS.

A SECTION A-A

SCALE: 3/4"=1'-0"

ANGLE WELL VAULT



GAC SHED PLAN VIEW

SCALE: 1" = 1'

SHEET NOTE:
PIPING SHALL NOT BLOCK ACCESS TO GAC MANWAYS OR RUN ACROSS THE FLOOR.

NOTE:
BEGINNING OCTOBER 2013, THIS DRAWING HAS BEEN MODIFIED BY ARCADIS U.S. TO SHOW AS-BUILT CONDITIONS.

AS-BUILT DRAWINGS

SEAL

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND

LICENSE NO. 33568

EXP DATE 09/12/12

ENGINEER: ROBERT W. SCRAFFORD
GANNETT FLEMING, INC.

THE SEALED DRAWING IS AND SHALL REMAIN PROPERTY OF GANNETT FLEMING, INC. ANY REUSE, REVISIONS, ALTERATIONS, EDITIONS, AND/OR ADDITIONS TO THE DRAWINGS FOR ANY PURPOSE OTHER THAN THE ORIGINALLY INTENDED PROJECT SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO GANNETT FLEMING, INC. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL GOVERN.

DATE:

NO.	DESCRIPTION	DATE	BY
1	GAC NO. 2 ALIGNED PARALLEL WITH GAC NO. 1	6/11/12	ET
2	SECONDARY CONTAINMENT PALLET MOVED NEXT TO GAC NO. 1	6/11/12	ET
3	AS-BUILT LIQUID DETECTOR LOCATION	6/11/12	ET
4	AS-BUILT SUMP LOCATION	6/11/12	ET
5	AS-BUILT BREAKOUT BOX LOCATION	6/11/12	ET

REVISIONS

DESIGNED	CADD	SCALE
EL	SJM	NONE
CHECKED	APPROVED	APPROVED
RWS	RWS	X

Gannett Fleming

BALTIMORE, MARYLAND

CHEVRON PRODUCTS COMPANY
HOUSTON, TEXAS

FORMER CHEVRON FACILITY NO.122208-AREA A
CHILLUM, MARYLAND

DUAL PHASE EXTRACTION SYSTEM
GAC SYSTEM AND ANGLE WELL VAULT

JOB NO. 55588
DATE JUNE 2012
CAD FILE 122208AA GAC

SHEET NO. 4
4 OF 12

CITY: SYRACUSE-NY DIV/GROUP: 141/ENV DB: K.SARTORI PIC: P.M. TM: JOHN MARRS LYR:ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACTIB0049337\0004000005\AREA_A\48971G04.dwg LAYOUT: 4 SAVED: 11/8/2013 12:05 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 8/21/2017 4:45 PM BY: DECLERCQ, BRIAN
XREFS: IMAGES:
122208-TB2 ANGLED WELL VAULT.JPG

CITY: SYRACUSE-NY DIV/GROUP: 141ENV DB: K.SARTORI PIC: PM: TM: JOHN MARRS LYR:ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0049337\700\04\00005\AREA_A\48971G08.dwg LAYOUT: 8 SAVED: 8/21/2017 4:40 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 8/21/2017 4:45 PM BY: DECLERCQ, BRIAN
XREFS:
122208-TB2
IMAGES:

PRIMARY ELEMENT:

FLOW

- M — ELECTROMAGNETIC
- CORIOLIS
- THERMAL DISPERSION
- ULTRASONIC TRANSIT–TIME OR DOPPLER
- VENTURI
- ORIFICE PLATE
- PROPELLER OR TURBINE
- VORTEX
- FI — ROTAMETER
- FLUME
- FS — FLOW SWITCH
- WEIR

LEVEL

- BUBBLER TUBE
- ULTRASONIC
- CAPACITANCE
- ELECTRODES (W/HOLDER)
- FLOAT
- OPTICAL

TEMPERATURE

- TE — TEMPERATURE ELEMENT WITH WELL

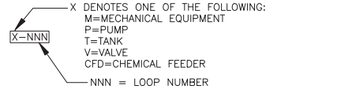
ACTUATORS:

- CYLINDER
- MOTOR
- E/P — ELECTROPNEUMATIC
- E/H — ELECTROHYDRAULIC
- MANUAL (SHOWN ONLY FOR CERTAIN HAND OPERATED VALVES)
- S — SOLENOID
- DIAPHRAM (SPRING OPPOSED)
- DIAPHRAM (PRESSURE BALANCED)
- PRESSURE OR VACUUM RELIEF SPRING OR WEIGHT LOADED

NOTE: ON LOSS OF PRIMARY POWER (PNEUMATIC OR ELECTRICAL)

XX DENOTES ONE OF THE FOLLOWING:
FO = FAIL OPEN
FC = FAIL CLOSED
FI = FAIL TO INTERMEDIATE POSITION
BLANK = FAIL TO LAST POSITION

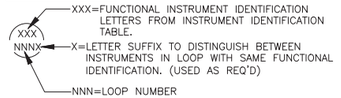
EQUIPMENT TAGGING:



X DENOTES ONE OF THE FOLLOWING:
M=MECHANICAL EQUIPMENT
P=PUMP
T=TANK
V=VALVE
CFD=CHEMICAL FEEDER

NNN = LOOP NUMBER

INSTRUMENT & FUNCTION TAGGING:

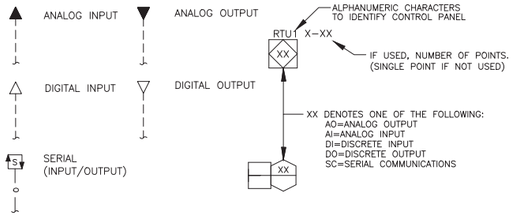


XXX=FUNCTIONAL INSTRUMENT IDENTIFICATION LETTERS FROM INSTRUMENT IDENTIFICATION TABLE.

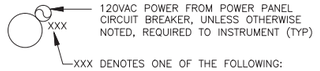
X=LETTER SUFFIX TO DISTINGUISH BETWEEN INSTRUMENTS IN LOOP WITH SAME FUNCTIONAL IDENTIFICATION. (USED AS REQ'D)

NNN=LOOP NUMBER

INPUTS & OUTPUTS INTERFACED WITH COMPUTER DATA ACQUISITION & CONTROL SYSTEM:



EQUIPMENT POWER:



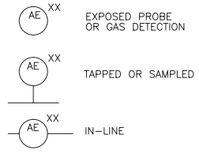
120VAC POWER FROM POWER PANEL CIRCUIT BREAKER, UNLESS OTHERWISE NOTED, REQUIRED TO INSTRUMENT (TYP)

XXX DENOTES ONE OF THE FOLLOWING:

UPS=120VAC FROM UPS VIA FUSEBLOCK

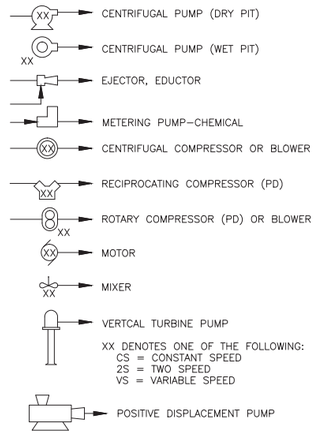
208/3=208V, 3 PHASE FROM POWER PANEL CIRCUIT BREAKER

ANALYSIS INSTRUMENTS:

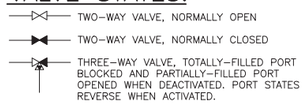


XX DENOTES ONE OF THE FOLLOWING:
CLG=CHLORINE GAS
CLR=CHLORINE RESIDUAL
PH=PH
T=TURBIDITY
FLR=FLOURIDE
SCD=STREAMING CURRENT
PM=PARTICLE MONITOR
PC=PARTICLE COUNTER
TOC=TOTAL ORGANIC CARBON

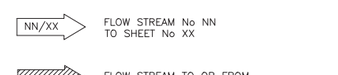
EQUIPMENT:



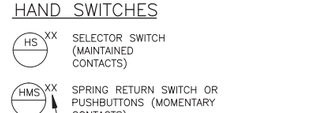
VALVE STATES:



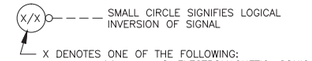
EXPLANATORY NOTATIONS:



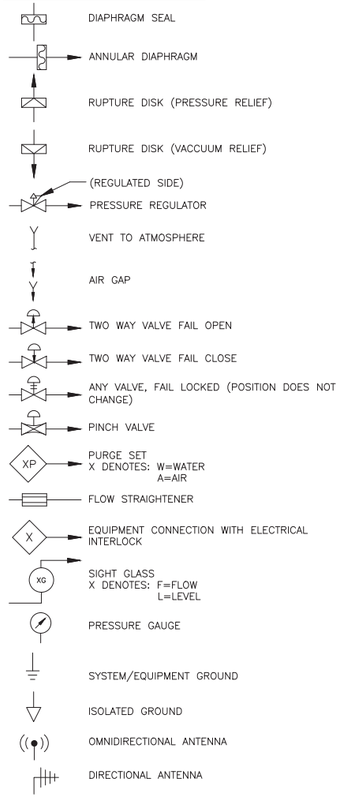
HAND SWITCHES



SIGNAL CONVERTERS



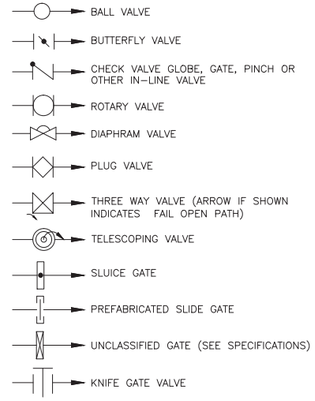
MISCELLANEOUS:



ABBREVIATIONS:

A or AMP	AMPERE		
AC	ALTERNATING CURRENT	KW	KILOWATT
AFF	ABOVE FINISHED FLOOR	MTD	MOUNTED
AFG	ABOVE FINISHED GRADE	N/A	NOT APPLICABLE
AIC	AMPERE INTERRUPTING CAPACITY	NC	NORMALLY CLOSED
AS	AMMETER SELECTOR SWITCH	NO	NORMALLY OPEN
ATS	AUTO TRANSFER SWITCH	No	NUMBER
AUTO	AUTOMATIC	PNL	PANEL
AWG	AMERICAN WIRE GAUGE	PVC	POLYVINYL CHLORIDE (CONDUIT)
BLDG	BUILDING	RECP	RECEPTACLES
C	CONDUIT	RGS	RIGID GALVANIZED STEEL (CONDUIT)
CP	CONTROL PANEL	RVAT	REDUCED VOLTAGE AUTOTRANSFORMER
DIV	DIVISION	RVSS	REDUCED VOLTAGE SOLID STATE
EC	ELECTRICAL CONTRACTOR	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
EMT	ELECTRICAL METALLIC TUBING (CONDUIT)	TYP	TYPICAL
EF	EXHAUST FAN	UL	UNDERWRITER LABORATORIES
EP	EXPLOSION PROOF	UON	UNLESS OTHERWISE NOTED
F/T	FEED THROUGH	UPS	UNINTERRUPTIBLE POWER SUPPLY
FU	FUSE	V	VOLT
FO	FIBER OPTIC	VS	VOLTMETER SELECTOR SWITCH
GFI	GROUND FAULT INTERRUPTER	W	WIRE
GRD	GROUND	WP	WEATHERPROOF
HP	HORSEPOWER	WS	WATER SUPPLY
IG	ISOLATED GROUND	XFMR	TRANSFORMER
KV	KILOVOLT	1–PH	SINGLE PHASE
KVA	KILOVOLT AMPERE	3–PH	THREE PHASE

VALVES & GATES:



INSTRUMENT/FUNCTION & LOCATION SYMBOLS

	FIELD (LOCAL) MOUNTED	PANEL MOUNTED		MOTOR CONTROL CENTER MOUNTED	
		ACCESSIBLE OR EXTERIOR	INACCESSIBLE OR INTERIOR	ACCESSIBLE OR EXTERIOR	INACCESSIBLE OR INTERIOR
DISCRETE INSTRUMENT	○	⊖	⊖	⊖	⊖
SHARED DISPLAY/CONTROL	□	⊟	⊟	⊟	⊟
COMPUTER FUNCTION	⬡	⬡	⬡	⬡	⬡
PROGRAMMABLE LOGIC CONTROL	◇	◇	◇	◇	◇
PILOT LIGHT	◯	◯	◯	◯	◯
HAND SWITCH MAINTAINED CONTACTS	HS	HS	HS	HS	HS
HAND SWITCH MOMENTARY CONTACTS	HMS	HMS	HMS	HMS	HMS
COMPOUND INSTRUMENTS (SHARE COMMON HOUSING)	○○	⊖⊖	⊖⊖	⊖⊖	⊖⊖

INSTRUMENT IDENTIFICATION TABLE ISA–S5.1–1984

LETTER	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (2)		ALARM		
B	BURNER, COMBUSTION			CLOSE, STOP, DECREASE (1)	OFF (1)
C				CONTROL	
D		DIFFERENTIAL		OPEN, START, INCREASE (1)	
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		ENABLED (1)
F	FLOW RATE	RATIO (FRACTION)			FAIL (1)
G			GLASS, VIEWING DEVICE		
H	HAND				HIGH (OPENED)
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW (CLOSED)
M	MOTOR, MOTION (1)	MOMENTARY		MOTOR (1)	MIDDLE OR INTERMEDIATE
N					ON OR OPERATE (1)
O			ORIFICE, RESTRICTION		OVERLOAD (1)
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	PUMP (1)	
Q	QUANTITY (2)	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY OR SOLENOID		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (2)		MULTIFUNCTION (2)	MULTIFUNCTION (2)	MULTIFUNCTION (2)
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED, (2)		UNCLASSIFIED (2)	UNCLASSIFIED (2)	UNCLASSIFIED (2)
Y	EVENT, STATE, PRESENCE			RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION			DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

(1) USER'S CHOICE
(2) WHEN USED, SYMBOL OR SIGNAL LINE IS INDICATED.

NOTE:
BEGINNING OCTOBER 2013, THIS DRAWING HAS BEEN MODIFIED BY ARCADIS U.S. TO SHOW AS–BUILT CONDITIONS.

AS-BUILT DRAWINGS

SEAL

DATE:

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND

LICENSE NO. 33568

EXP DATE 09/12/12

ENGINEER: ROBERT W. SCRAFFORD
GANNETT FLEMING, INC.

THE SEALED DRAWING IS AND SHALL REMAIN PROPERTY OF GANNETT FLEMING INC AND MISUSE, REUSE, ALTERATIONS, ADDITIONS, AND/OR DELETIONS OF THESE DRAWINGS ON PROJECT EXTENSIONS OR OTHER PROJECTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO GANNETT FLEMING, INC. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL GOVERN.

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
EL	SJM	NONE
CHECKED	APPROVED	APPROVED
RWS	RWS	X

Gannett Fleming
BALTIMORE, MARYLAND

CHEVRON PRODUCTS COMPANY
HOUSTON, TEXAS

FORMER CHEVRON FACILITY NO.122208–AREA A
CHILLUM, MARYLAND

DUAL PHASE EXTRACTION SYSTEM
INSTRUMENTATION LEGEND
ABBREVIATIONS AND GENERAL NOTES

JOB NO. 55588
DATE JUNE 2012
CAD FILE 122208AA |LEG

SHEET NO. 8
8 OF 12

CITY: SYRACUSE-NY DIV/GROUP: 141/ENV DB: K.SARTORI PIC: PM: TM: JOHN.MARRS LYR:ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0048337\00040005\AREA_A\48971PID9.dwg LAYOUT: 9 SAVED: 8/21/2017 4:40 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 8/21/2017 4:45 PM BY: DECLERCQ, BRIAN
XREFS: 122208-TB2
IMAGES:

GRS CONTROL PANEL
EOS CONTROLER

CAT OXIDIZER RUNNING (1) | CAT OXIDIZER INLET TEMP T-1 (2) | CAT OXIDIZER OUTLET TEMP T-2 (3) | SVE BLOWER DISCHARGE FLOW SWITCH | SVE AIR FLOW | KO TANK VACUUM | RUN/STOP KO PUMP P-1 (HS, XA) (4) | KO TANK LEVEL HI/HI | KO TANK LEVEL HI | KO TANK LEVEL LO (5) | OIL/WATER SEPERATOR LEVEL HI/HI | OIL/WATER SEPERATOR LEVEL HI | OIL/WATER SEPERATOR LEVEL LO (6, 7) | RUN/STOP OIL/WATER SEPERATOR PUMP P-2 (HS, XA) (8) | SVE BLOWER RPM (9) | SVE BLOWER SPEED SET POINT (10) | RUN/STOP SVE BLOWER B-1 (HS, XA) (11) | RUN/STOP AST BLOWER B-2 (HS, XA) (12) | AST BLOWER DISCHARGE FLOW SWITCH (13) | AST LEVEL HI/HI (14) | AST LEVEL HI (15) | AST LEVEL LO (16) | RUN/STOP AST PUMP P-3 (HS, XA) (17) | NOT USED (18) | 3-WAY COMPRESSED AIR SOLENOID VALVE (19) | XA | RUN/STOP COMPRESSER C-1 (HS, XA) (20) | AST EFFLUENT FLOW PULSE (21) | ENCLOSURE ALARM LEL (28) | RUN/STOP ANGLE WELL PUMP (22) | ALARM ANGLE WELL PUMP (23) | ALARM LIQUID DETECTOR (27) | RUN/STOP METERING PUMP (24) | ALARM METERING PUMP (25) | ALARM HIGH PRESSURE SWITCH (26) | GAC-5 ALARM HIGH TEMPERATURE (29) | GAC-4 ALARM HIGH TEMPERATURE (30)

RTU-02
CONTROL PANEL

SHEET NOTES

1. SEE SHEET NO. 4 FOR MODIFICATION WORK.
2. REMOVE CONNECTIONS FROM WELL PTW-A.
3. METERING PUMP TO BE LOCATED IN THE CARBON SHED ON/ABOVE THE CHEMICAL DRUM
3. ANGLE WELL RUN/STOP WIRED TO SOLENOID RELAY

NON-CLASSIFIED ATMOSPHERE | CLASSIFIED ATMOSPHERE (CLASS 1, DIV 2)

2" PVC | TUBING | DETAIL A

SVE PIPE FROM WELL — 2" PVC 40 (TYP) — GP30R — GP39-A AND GP27-A — MW-22(R) — MW-7 — MP-7 — RW-3 — RW-4 — RW-1 — RW-5 — RW-2 — MW-17 — PTW-B

SEE SHEET NOTE 2

FT 003 | PI 003 | TI | FE 003 | PIT 003 | SILENCER | 3" PVC 40 | LSHH 003 | LSH 003 | LSL 003 | 2" GLOBE VALVE | V1 | KO TANK | VFD | SVE B-1 BLOWER TUTHILL MODEL# 4009-46L3 25 HP | STARTER | 1" HOSE | P-1 KO PUMP MOYNO MOD #33201 2 HP | 3/4" CS | DRAIN | 3" CS 40 | 1" PVC 80

LSHH 001 | LSH 001 | LSL 001 | FSL 001 | 2" PVC 80 | OIL/WATER SEPARATOR HYDRO QUIP MOD #AGM-2SS-60V 30 GPM

FROM ATMOSPHERE | DILUTION VALVE | TO ATMOSPHERE | M | XA 006 | TIT 006A | TIT 006B | PSL | TI | FLAME ARRESTER CS-2 | CATALITIC OXIDIZER- FALCO 300 FALMOUTH PRODUCTS | SP-200 | SP-100 | 3" CS 40

3/4" HOSE (TYP) | 1" PVC BALL VALVE (TYP) | TUBING (TYP) | 1" HOSE | 2" PVC 80

TO WELL RW-1 | TO WELL RW-2 | TO WELL RW-3 | TO WELL MW-7 | TO WELL MW-17 | TO WELL PTW-B | TO WELL GP-27(R) | TO WELL RW-4 | TO WELL MW-22 | TO WELL GP-39A | TO WELL RW-5 | TO WELL GP-30R

WELL PUMPS: QED MOD# AP4T

SEE SHEET NOTE 2 | 1/2" HOSE | INTEGRAL RELIEF VALVE | PSL | S | PSH 005 | PSL 005 | I | TSH | 120 GAL RECEIVING TANK MAX 200 PSI | DRAIN | 3/4" CS 40 AIR LINE | STARTER | C-1 AIR COMPRESSOR SAYLOR BEALL MOD VT-PL-755-120 10 HP 34.4 CFM @ 175 PSI | CONTROL ROOM | TRAILER FLOOR SUMP | LSH

P-2 OIL/WATER SEPARATOR PUMP AMT MOD #3694-97 1.5 HP | STARTER | FSL 002 | PI | FI | B-2 AST BLOWER NEW YORK BLOWER CO 5 HP | 4" PVC 40

AS-1 AIR STRIPPER QED MOD #E-Z STACKER 4.4 P

SP-1 | 2" PVC 40 | 14 15 16 17 | LSHH 002 | LSH 002 | LSL 002 | 4" PVC 40 | VAPOR OFF GAS | 2" PVC 40 | STARTER | P-3 AST PUMP GRUNDFOS CR8 5 HP (42 gpm @ 230 FT. TDH) | 1 1/2" PVC 80 | 2" PVC 80

F-1C | F-1B | F-1A | BAG FILTER | DRAIN (TYP.) | ROSEDALE PRODUCTS MODEL #L0618112P125CBPB (125 PSI) | FE 004 | FQI 004 | 21

SEE SHEET NOTE 1 | SEE SHEET NOTE 3 | METERING PUMP LMI ROYTRONICS MODEL A 741 8178SI

LIQUID PHASE GAC FILTERS: SIEMENS MOD# LP-61P 150 PSIG MAX | GAC FILTER | 1" PVC | 1" HOSE | 1" GS | ST | 2" PVC 80 | SP-2 | SP-3

INSIDE CARBON SHED | SHED FLOOR SUMP | LSH | TO STORM DRAIN IN RIGGS ROAD

CRITICAL SAFETY DEVICE:

1. ES-1 EMERGENCY STOP BUTTON IS TIED DIRECTLY TO PANEL B AND PANEL A. WHEN ACTIVATED, EMERGENCY STOP BUTTON SHUTS DOWN ALL EQUIPMENT, BUT DOES NOT KILL POWER TO THE SYSTEM. SYSTEM OPERATORS WILL BE NOTIFIED. (CS-1) ⚠1
2. FLAME ARRESTER PREVENTS UPSTREAM PROPAGATION OF FLAME FROM CATALYTIC OXIDIZER (CS-2).
3. LOWER EXPLOSIVE LIMIT METER SHUTS THE SYSTEM DOWN WHEN MONITORED GASES IN THE ENCLOSURE REACH THEIR LOWER EXPLOSIVE LIMIT (CS-3). ⚠3
4. TEMPERATURE SENSOR TIT-001 SHUTS THE SYSTEM DOWN UPON HIGH TEMPERATURE ON GAC-5 DISCHARGE (CS-4). ⚠4
5. TEMPERATURE SENSOR TIT-002 SHUTS THE SYSTEM DOWN UPON HIGH TEMPERATURE ON GAC-4 DISCHARGE (CS-5). ⚠5

LEL METER CS-3 | CLASSIFIED ATMOSPHERE (CLASS 1, DIV 2) | NON-CLASSIFIED ATMOSPHERE

ANGLE WELL PUMP EPG MODEL TSP 2-3PT ½ HP | INSIDE ANGLE WELL VAULT RW-5 | LIQUID DETECTOR

FUTURE GAC FILTER

VAPOR PHASE GAC FILTERS: TIGG MOD# N-500 400-800 CFM | CS-4 | TIT 001 | TE 001 | CS-5 | TIT 002 | TE 002 | TO ATMOSPHERE | 4" PVC 40

ACTIVATED CARBON GAC-5 | ACTIVATED CARBON GAC-4 | ACTIVATED CARBON GAC-3 (SPARE) | SP-50 | SP-51 | SP-52

SEE SHEET NO. 4 FOR CONTINUATION

NOTE:

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AS-BUILT DRAWINGS

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REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ADDED BAG FILTER F-1C, ADDED NOTE.	10/25/13	
2	RE-ROUTED PIPE PER AS-BUILT CONDITIONS	10/29/13	
3	ADDED CHECK VALVE	10/29/13	
4	REMOVED BALL VALVE	10/29/13	
5	ADDED CS-2 AND FSL-100	11/08/13	
6	ADDED NOTE 3	11/08/13	
7	ADDED TEMPERATURE TRANSMITTERS TIT-001 AND TIT-002	12/5/16	

DESIGNED	CADD	SCALE
EL	SJM	NONE
CHECKED	APPROVED	APPROVED
RWS	RWS	X

Gannett Fleming
BALTIMORE, MARYLAND

CHEVRON PRODUCTS COMPANY
HOUSTON, TEXAS

FORMER CHEVRON FACILITY NO.122208-AREA A
CHILLUM, MARYLAND

DUAL PHASE EXTRACTION SYSTEM
PROCESS AND INSTRUMENTATION DIAGRAM

JOB NO. 55588
DATE JUNE 2012
CAD FILE 122208AA PID
SHEET NO. 9
9 OF 12

APPENDIX B

Area B Piping and Instrumentation Diagrams

CITY: SYRACUSE-NY DIVGROUP: 141ENV DB: K.SARTORI PIC: PM: TM: JOHN MARRS LYR:ON=*;OFF=*REF*
G:\ENVCADD\SYRACUSE\ACTIVE\00489710000\0000010\DWG\CONTRACTAREA_B\489710105_AB.dwg LAYOUT 5 SAVED: 11/5/2013 10:12 AM ACADVER: 18.1S (LMS TECH) PAGESETUP:.... PLOTSTYLETABLE: GFBALT_LWID.CTB PLOTTED: 11/5/2013 10:12 AM BY: SARTORI, KATHERINE
XREFS:
IMAGES:
122208-TB3 AGWR Flowing Logo 2-7-07.jpg

PRIMARY ELEMENT:

FLOW

- M — ELECTROMAGNETIC
- CORIOLIS
- THERMAL DISPERSION
- ULTRASONIC TRANSIT–TIME OR DOPPLER
- VENTURI
- ORIFICE PLATE
- PROPELLER OR TURBINE
- VORTEX
- FI — ROTAMETER
- FLUME
- FS — FLOW SWITCH
- WEIR

LEVEL

- BUBBLER TUBE
- ULTRASONIC
- CAPACITANCE
- ELECTRODES (W/HOLDER)
- FLOAT
- OPTICAL

TEMPERATURE

- TE — TEMPERATURE ELEMENT WITH WELL

ACTUATORS:

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- XX — MOTOR
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- E/H — ELECTROHYDRAULIC
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- S XX — SOLENOID
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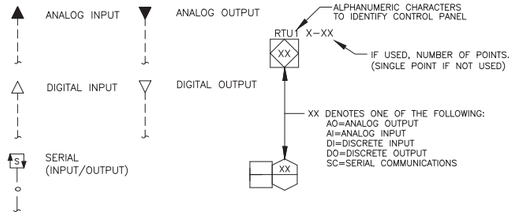
NNNX

XXX=FUNCTIONAL INSTRUMENT IDENTIFICATION LETTERS FROM INSTRUMENT IDENTIFICATION TABLE.

X=LETTER SUFFIX TO DISTINGUISH BETWEEN INSTRUMENTS IN LOOP WITH SAME FUNCTIONAL IDENTIFICATION. (USED AS REQ'D)

NNN=LOOP NUMBER

INPUTS & OUTPUTS INTERFACED WITH COMPUTER DATA ACQUISITION & CONTROL SYSTEM:



EQUIPMENT POWER:

XXX

120VAC POWER FROM POWER PANEL CIRCUIT BREAKER, UNLESS OTHERWISE NOTED, REQUIRED TO INSTRUMENT (TYP)

XXX DENOTES ONE OF THE FOLLOWING:

UPS=120VAC FROM UPS VIA FUSEBLOCK

208/3=208V, 3 PHASE FROM POWER PANEL CIRCUIT BREAKER

ANALYSIS INSTRUMENTS:

AE XX — EXPOSED PROBE OR GAS DETECTION

AE XX — TAPPED OR SAMPLED

AE XX — IN–LINE

XX DENOTES ONE OF THE FOLLOWING:
CLG=CHLORINE GAS
CLR=CHLORINE RESIDUAL
PH=PH
T=TURBIDITY
FLR=FLOURIDE
SCD=STREAMING CURRENT
PM=PARTICLE MONITOR
PC=PARTICLE COUNTER
TOC=TOTAL ORGANIC CARBON

EQUIPMENT:

- XX — CENTRIFUGAL PUMP (DRY PIT)
- XX — CENTRIFUGAL PUMP (WET PIT)
- EJECTOR, EDUCTOR
- METERING PUMP–CHEMICAL
- XX — CENTRIFUGAL COMPRESSOR OR BLOWER
- XX — RECIPROCATING COMPRESSOR (PD)
- XX — ROTARY COMPRESSOR (PD) OR BLOWER
- XX — MOTOR
- XX — MIXER
- VERTCAL TURBINE PUMP

XX DENOTES ONE OF THE FOLLOWING:
CS = CONSTANT SPEED
2S = TWO SPEED
VS = VARIABLE SPEED

- POSITIVE DISPLACEMENT PUMP

VALVE STATES:

- TWO–WAY VALVE, NORMALLY OPEN
- TWO–WAY VALVE, NORMALLY CLOSED
- THREE–WAY VALVE, TOTALLY–FILLED PORT BLOCKED AND PARTIALLY–FILLED PORT OPENED WHEN DEACTIVATED. PORT STATES REVERSE WHEN ACTIVATED.

EXPLANATORY NOTATIONS:

NN/XX — FLOW STREAM No NN TO SHEET No XX

FLOW STREAM TO OR FROM EQUIPMENT NOT SHOWN ON OTHER P&ID DRAWINGS

HAND SWITCHES

HS XX — SELECTOR SWITCH (MAINTAINED CONTACTS)

HMS XX — SPRING RETURN SWITCH OR PUSHBUTTONS (MOMENTARY CONTACTS)

XX DENOTES ONE OF THE FOLLOWING:
AM=AUTO/MANUAL
CAM=COMPUTER/AUTO/MANUAL
CL=COMPUTER/LOCAL
CM=COMPUTER/MANUAL
DOB=DRIVE/OFF/BYPASS
FOS=FAST/OFF/SLOW
FOR=FORWARD/OFF/REVERSE
FR=FORWARD/REVERSE
FS=FAST/SLOW
HOA=HAND/OFF/AUTO
KEY=KEYPAD
LOR=LOCAL/OFF/REMOTE
LOS=LOCKOUT/STOP
MFS=MODULATE FASTER/SLOWER
MOC=MODULATE OPEN/CLOSE
OC=OPEN/CLOSE
OO=ON/OFF
OSC=OPEN/STOP/CLOSE
SS=START/STOP
PB=PUSH BUTTON

SIGNAL CONVERTERS

X/X — SMALL CIRCLE SIGNIFIES LOGICAL INVERSION OF SIGNAL

X DENOTES ONE OF THE FOLLOWING:

A=ANALOG	O=ELECTROMAGNETIC, SONIC
B=BINIARY	P=PNEUMATIC
D=DIGITAL	PF=PULSE FREQUENCY
E=VOLTAGE	PD=PULSE DURATION
F=FREQUENCY	R=RESISTANCE
H=HYDRAULIC	
I=CURRENT	

MISCELLANEOUS:

- DIAPHRAGM SEAL
- ANNULAR DIAPHRAGM
- RUPTURE DISK (PRESSURE RELIEF)
- RUPTURE DISK (VACCUUM RELIEF)
- (REGULATED SIDE) PRESSURE REGULATOR
- VENT TO ATMOSPHERE
- AIR GAP
- TWO WAY VALVE FAIL OPEN
- TWO WAY VALVE FAIL CLOSE
- ANY VALVE, FAIL LOCKED (POSITION DOES NOT CHANGE)
- PINCH VALVE
- XP — PURGE SET X DENOTES: W=WATER A=AIR
- FLOW STRAIGHTENER
- X — EQUIPMENT CONNECTION WITH ELECTRICAL INTERLOCK
- XG — SIGHT GLASS X DENOTES: F=FLOW L=LEVEL
- PI — PRESSURE GAUGE
- SYSTEM/EQUIPMENT GROUND
- ISOLATED GROUND
- OMNIDIRECTIONAL ANTENNA
- DIRECTIONAL ANTENNA

ABBREVIATIONS:

A or AMP	AMPERE		
AC	ALTERNATING CURRENT	KW	KILOWATT
AFF	ABOVE FINISHED FLOOR	MTD	MOUNTED
AFG	ABOVE FINISHED GRADE	N/A	NOT APPLICABLE
AIC	AMPERE INTERRUPTING CAPACITY	NC	NORMALLY CLOSED
AS	AMMETER SELECTOR SWITCH	NO	NORMALLY OPEN
ATS	AUTO TRANSFER SWITCH	No	NUMBER
AUTO	AUTOMATIC	PNL	PANEL
AWG	AMERICAN WIRE GAUGE	PVC	POLYVINYL CHLORIDE (CONDUIT)
BLDG	BUILDING	RECP	RECEPTACLES
C	CONDUIT	RGS	RIGID GALVANIZED STEEL (CONDUIT)
CP	CONTROL PANEL	RVAT	REDUCED VOLTAGE AUTOTRANSFORMER
DIV	DIVISION	RVSS	REDUCED VOLTAGE SOLID STATE
EC	ELECTRICAL CONTRACTOR	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
EMT	ELECTRICAL METALLIC TUBING (CONDUIT)	TYP	TYPICAL
EF	EXHAUST FAN	UL	UNDERWRITER LABORATORIES
EP	EXPLOSION PROOF	UON	UNLESS OTHERWISE NOTED
F/T	FEED THROUGH	UPS	UNINTERRUPTIBLE POWER SUPPLY
FU	FUSE	V	VOLT
FO	FIBER OPTIC	VS	VOLTMETER SELECTOR SWITCH
GFI	GROUND FAULT INTERRUPTER	W	WIRE
GRD	GROUND	WP	WEATHERPROOF
HP	HORSEPOWER	WS	WATER SUPPLY
IG	ISOLATED GROUND	XFMR	TRANSFORMER
KV	KILOVOLT	1–PH	SINGLE PHASE
KVA	KILOVOLT AMPERE	3–PH	THREE PHASE

VALVES & GATES:

- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE GLOBE, GATE, PINCH OR OTHER IN–LINE VALVE
- ROTARY VALVE
- DIAPHRAM VALVE
- PLUG VALVE
- THREE WAY VALVE (ARROW IF SHOWN INDICATES FAIL OPEN PATH)
- TELESCOPING VALVE
- SLUICE GATE
- PREFABRICATED SLIDE GATE
- UNCLASSIFIED GATE (SEE SPECIFICATIONS)
- KNIFE GATE VALVE

INSTRUMENT/FUNCTION & LOCATION SYMBOLS

	FIELD (LOCAL) MOUNTED	PANEL MOUNTED		MOTOR CONTROL CENTER MOUNTED	
		ACCESSIBLE OR EXTERIOR	INACCESSIBLE OR INTERIOR	ACCESSIBLE OR EXTERIOR	INACCESSIBLE OR INTERIOR
DISCRETE INSTRUMENT	◯	◯	◯	◯	◯
SHARED DISPLAY/CONTROL	▢	▢	▢	▢	▢
COMPUTER FUNCTION	⬡	⬡	⬡	⬡	⬡
PROGRAMMABLE LOGIC CONTROL	◇	◇	◇	◇	◇
PILOT LIGHT	◯	◯	◯	◯	◯
HAND SWITCH MAINTAINED CONTACTS	HS	HS	HS	HS	HS
HAND SWITCH MOMENTARY CONTACTS	HMS	HMS	HMS	HMS	HMS
COMPOUND INSTRUMENTS (SHARE COMMON HOUSING)	◯◯	◯◯	◯◯	◯◯	◯◯

INSTRUMENT IDENTIFICATION TABLE ISA–S5.1–1984

LETTER	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (2)		ALARM		
B	BURNER, COMBUSTION			CLOSE, STOP, DECREASE (1) CONTROL	OFF (1)
C				OPEN, START, INCREASE (1)	
D		DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		ENABLED (1)
F	FLOW RATE	RATIO (FRACTION)			FAIL (1)
G			GLASS, VIEWING DEVICE		
H	HAND				HIGH (OPENED)
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW (CLOSED)
M	MOTOR, MOTION (1)	MOMENTARY		MOTOR (1)	MIDDLE OR INTERMEDIATE
N					ON OR OPERATE (1)
O			ORIFICE, RESTRICTION		OVERLOAD (1)
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	PUMP (1)	
Q	QUANTITY (2)	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY OR SOLENOID		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (2)		MULTIFUNCTION (2)	MULTIFUNCTION (2)	MULTIFUNCTION (2)
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED, (2)		UNCLASSIFIED (2)	UNCLASSIFIED (2)	UNCLASSIFIED (2)
Y	EVENT, STATE, PRESENCE			RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION			DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

(1) USER'S CHOICE
(2) WHEN USED, SYMBOL OR SIGNAL LINE IS INDICATED.

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NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
CME	SJM	NONE
CHECKED	APPROVED	APPROVED
EL	RWS	X

Gannett Fleming
BALTIMORE, MARYLAND
AGWR

CHEVRON PRODUCTS COMPANY
ATLANTA, GEORGIA

FORMER CHEVRON FACILITY NO. 122208
CHILLUM, MARYLAND

AREA B
INSTRUMENTATION LEGEND, ABBREVIATIONS, AND GENERAL NOTES

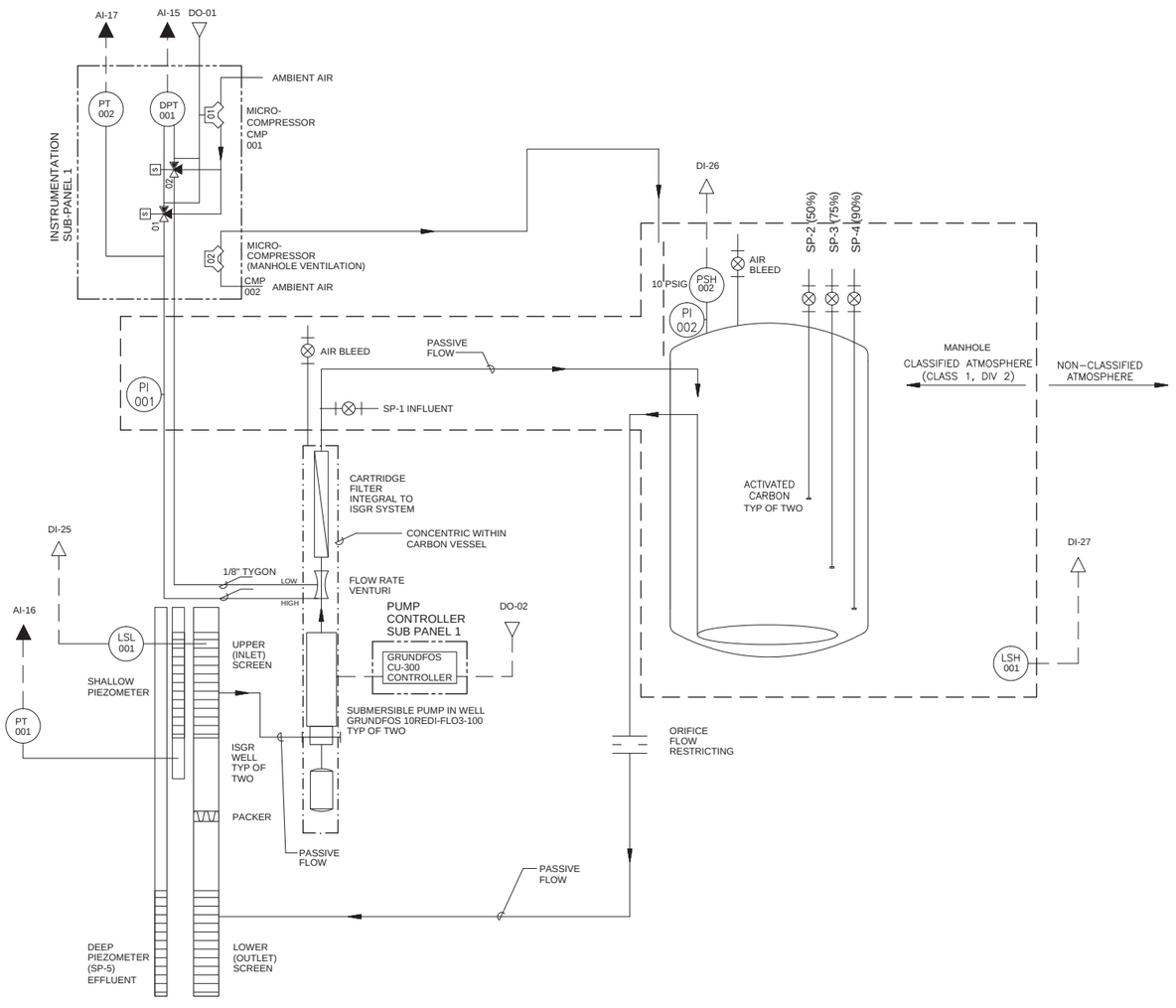
JOB NO.	SHEET NO.
50641	5
DATE	
JUNE 2013	
CAD FILE	
AB–LEG	5 OF 12

CPC CONTROL PANEL
EOS CONTROLER

WATER LEVEL IN WELL - PRES. TRANSDUCER
LOW WATER IN WELL - LEVEL LO
PRE-FILTER PRESSURE - TRANSMITTER
WATER FLOW RATE DIFF PRESSURE TRANSMITTER
VENTURI TUBE CLEARANCE
PID CONTROL - SUBMERSIBLE PUMP
HIGH PRESSURE - GAC VESSEL
HIGH WATER IN MANHOLE - LEVEL HI

ISGR-B1
CONTROL PANEL

AI-16 DI-25 AI-17 AI-15 DO-01 DO-02 DI-26 DI-27



LEGEND

- DISCRETE INPUT
- DISTRETE OUTPUT
- ANALOG INPUT
- ANALOG OUTPUT
- PSH — PRESSURE SWITCH HIGH
- LSH — LEVEL SWITCH HIGH
- LSL — LEVEL SWITCH LOW
- PT — PRESSURE TRANSMITTER
- PI — PRESSURE INDICATOR
- S / XX — SOLENOID
- XX — COMPRESSOR FROM LEGEND PAGE

NOTE: PIPING AND INSTRUMENTATION SHOWN IS FOR ONE OF TWO ESSENTIALLY IDENTICAL SYSTEM.

NOTE:
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NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
SW	SJM	1"=10'
CHECKED	APPROVED	APPROVED
EL	RWS	X

Gannett Fleming
BALTIMORE, MARYLAND
AGWR

CHEVRON PRODUCTS COMPANY
ATLANTA, GEORGIA

FORMER CHEVRON FACILITY NO. 122208
CHILLUM, MARYLAND

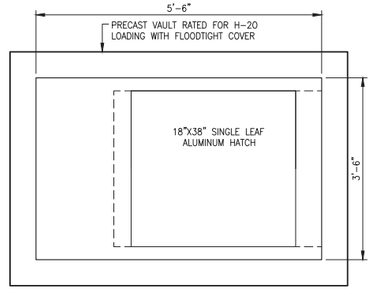
AREA B
P&ID WITH PLC – ISGR SYSTEMS

JOB NO.	SHEET NO.
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DATE	
JUNE 2013	
CAD FILE	
AB P&ID	6 OF 12

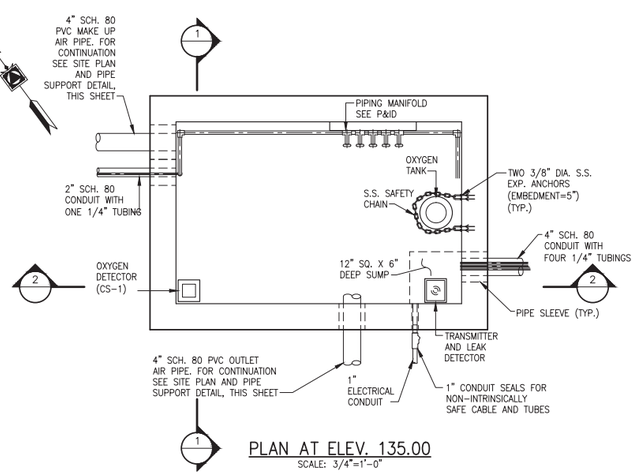
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XREFS:
IMAGES:
122208-TB3 AGWR Flowing Logo 2-7-07.jpg

APPENDIX C

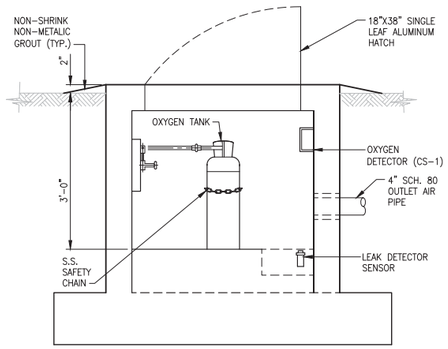
Area C Piping and Instrumentation Diagrams



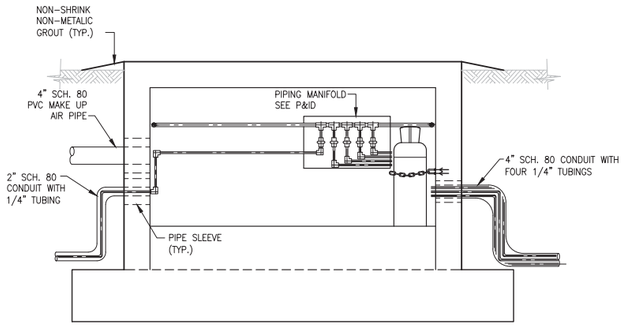
PLAN AT ELEV. 138.00
SCALE: 3/4"=1'-0"



PLAN AT ELEV. 135.00
SCALE: 3/4"=1'-0"



1 SECTION
SCALE: 3/4"=1'-0"



2 SECTION
SCALE: 3/4"=1'-0"

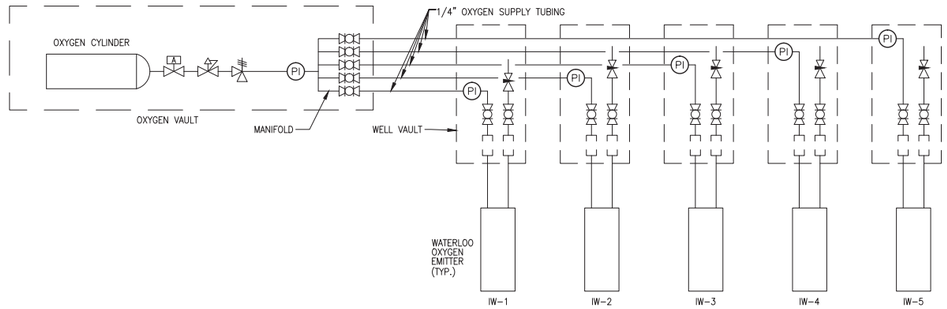
OXYGEN VAULT

CRITICAL SAFETY DEVICE:

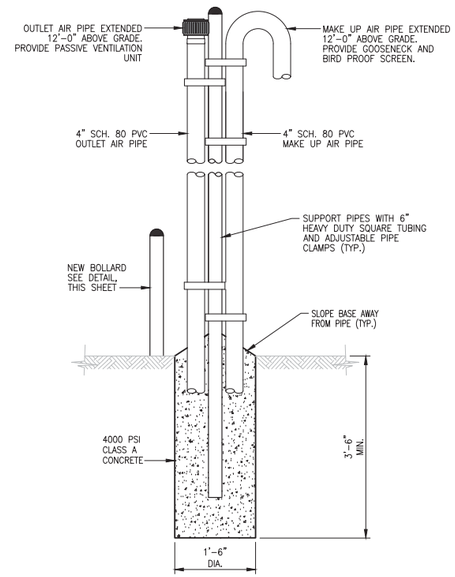
1. OXYGEN DETECTOR MONITORS OXYGEN LEVELS IN THE OXYGEN VAULT AND TRIGGERS ALARM WHEN CONDITIONS IN THE VAULT ARE UNSAFE (CS-1).

LEGEND

- FQI — FLOW TOTALIZING INDICATOR
- PI — PRESSURE INDICATING GAUGE
- (REGULATED SIDE) PRESSURE REGULATOR
- CYLINDER VALVE
- RELIEF VALVE
- BALL VALVE
- QUICK CONNECT
- NEEDLE VALVE



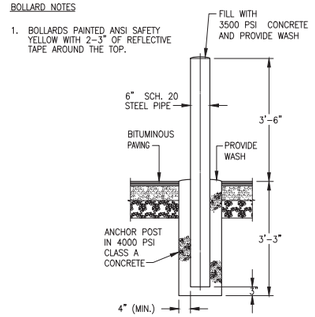
PROCESS AND INSTRUMENTATION DIAGRAM
SCALE: NOT TO SCALE



VENT PIPE SUPPORT SYSTEM
SCALE: NOT TO SCALE

BOLLARD NOTES

1. BOLLARDS PAINTED ANSI SAFETY YELLOW WITH 2-3" OF REFLECTIVE TAPE AROUND THE TOP.



SECTIONAL ELEVATION

BOLLARD
SCALE: NOT TO SCALE

NOTE:
BEGINNING OCTOBER 2013, THIS DRAWING HAS BEEN MODIFIED BY ARCADIS U.S. TO SHOW AS-BUILT CONDITIONS.

AS-BUILT DRAWINGS

1' 6" 0 1' 2' 3'
3/4" = 1'-0"

XREFS: 122208-TB2 xx-av-6rf.JPG
IMAGES:

SEAL

DATE:

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND

LICENSE NO. 33568

EXP DATE 09/12/12

ENGINEER: ROBERT W. SCRAFFORD
GANNETT FLEMING, INC.

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NO.	DESCRIPTION	DATE	BY
REVISIONS			
1	ADDED NOTE	11/22/13	

DESIGNED	CADD	SCALE
EL	EL	AS SHOWN
CHECKED	APPROVED	APPROVED
RWS	RWS	

Gannett Fleming
BALTIMORE, MARYLAND

CHEVRON PRODUCTS COMPANY
HOUSTON, TEXAS

FORMER CHEVRON FACILITY NO.122208-AREA C
CHILLUM, MARYLAND

AREA C
VAULT SECTIONS AND DETAILS
AND PROCESS AND INSTRUMENTATION DIAGRAM

JOB NO. 55588
DATE JUNE 2013
CAD FILE AC VAULTDET

SHEET NO. 4
4 OF 7

CITY: SYRACUSE-NY DIVGROUP: 141JENV DB: K.SARTORI PIC: PM: TM: JOHN MARRS LYR:ON=*;OFF=*REF* G:\ENVCAD\SYRACUSE\ACTIVE\00489710000000010WG\CONTRACTAREA_C\48971G04_AC.dwg LAYOUT: 4 SAVED: 11/21/2013 9:51 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/21/2013 9:51 AM BY: SARTORI, KATHERINE

APPENDIX D

Area A OMM Tables

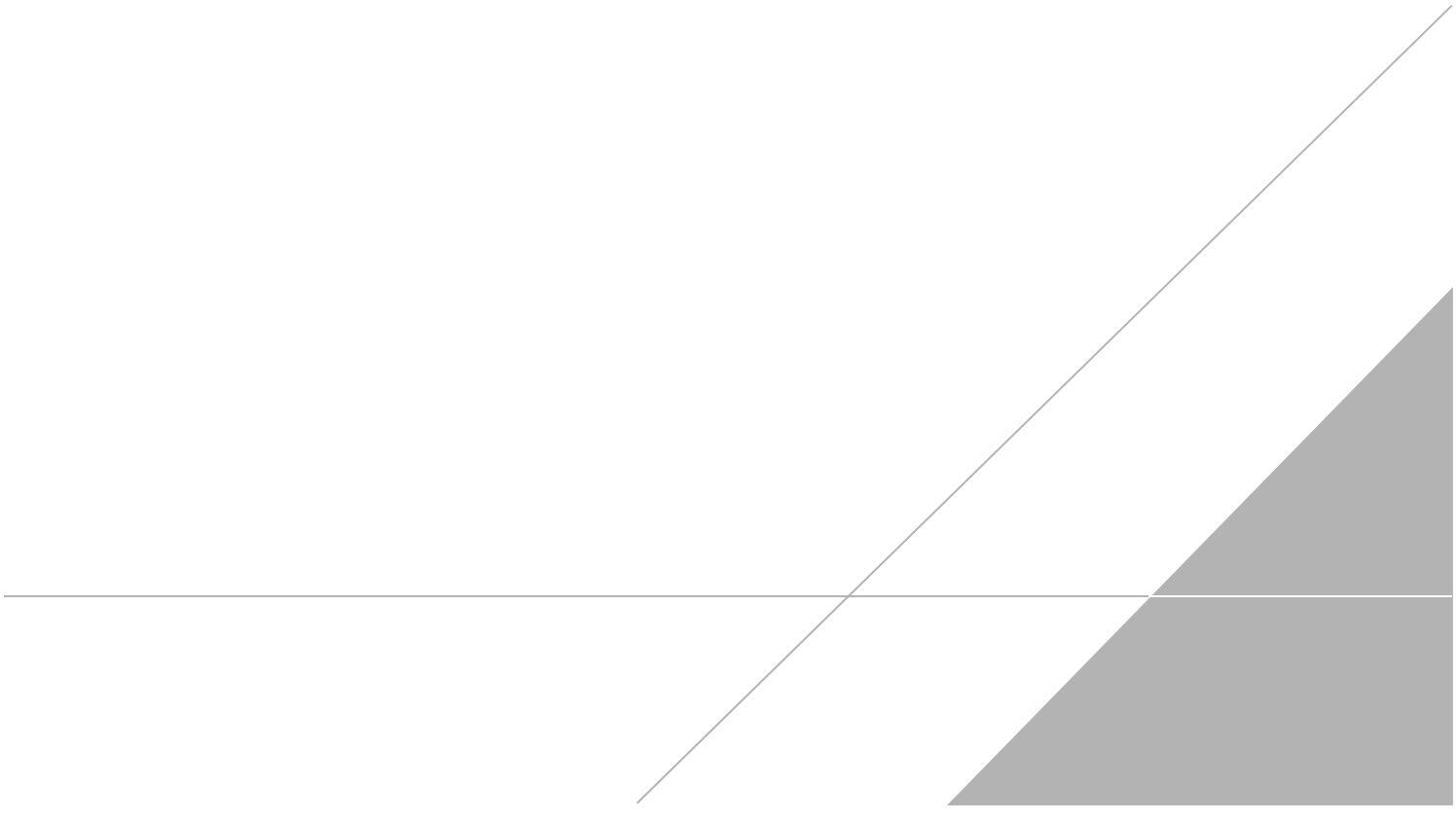


Table D-1
O & M Schedule for Area A: DPE System

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

		January				February				March				April				May				June				July				August				September				October				November				December			
	FREQUENCY	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
O & M Requirements	Weekly (see Table D-2)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
O & M Requirements	Monthly (see Table D-3)	X				X				X				X				X				X				X				X				X				X				X				X				X			
O & M Requirements	Quarterly (see Table D-4)											X												X										X																X		
O & M Requirements	Semi-Annually (see Table D-5)										X																								X																		
NPDES Permit Sample Collection	Weekly	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Air Stripper Air Permit Emissions Sample Collection	Monthly	X				X				X				X				X				X				X				X				X				X				X				X				X			
SVE/Catox Air Permit Emissions Sample Collection	Monthly	X				X				X				X				X				X				X				X				X				X				X				X				X			
CM Progress Report Submittal to USEPA	Semi-Annually				X																								X																						
DC DOT Occupancy Permit Renewal	Semi-Annually																							X																										X		
Discharge Monitoring Report/NPDES Permit submittal to MDE	Quarterly			X												X												X																								
Groundwater Gauging	Monthly				X				X				X				X				X				X				X				X				X				X				X				X			X
Groundwater Sampling	Semi-Annually												X																								X																
Soil Vapor Sampling	Semi-Annually												X																								X																

Notes:

"X" - represents the approximate timeframe the task is completed
Under each month, "1", "2", "3" and "4" represent the week the task was performed.

Table D-2
Corrective Measures Operations and Maintenance Plan for Area A: DPE System
Weekly OMM Checklist

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Groundwater Extraction System	Comments
Air Compressor (Saylor Beall VT-PL-755-120)	
Empty auto drain bucket	
Open manual drain to ensure operation of auto drain	
Pneumatic Pumps (QED AP4T) and Electric Pump (EPG SurePump)	
Check pumps for operation	
Vapor GAC Vessels (TIGG Corp. N-500)	
Drain condensate water from flexible piping	
Bag Filters (Rosedale Products LO618112P125CBPB)	
Remove spent filters and replace with new 10-micron filters	
Iron Sequestration Equipment	
Check metering pump (LMI Roytronic A 141-718SI) for operation and proper flow	
Soil Vapor Extraction System	**Comments**
Knock Out Tank (Custom Manufactured)	
Check to ensure tank is empty of water	
Catalytic Oxidizer (Falmouth Products Falco 300)	
Check for back pressure on influent line	
Check temperatures of sensors (T1, T2, T3, and T90)	Temperature logger USB port
General Housekeeping	**Comments**
Ensure that general condition of equipment, piping, fittings, structures, etc. is fit for operation	
Ensure the compound remains free from clutter with unobstructed access (i.e., housekeeping)	
Verify critical devices are labeled for easy identification	
Verify that emergency shut-off breaker is clearly labeled and unobstructed	
Verify that a “No Smoking” sign is posted in the trailer	
Sampling	**Comments**
Groundwater compliance sample collection	From SP-3
Soil Vapor field screening with Flame Ionization Detector (FID)	From SP-100 and SP-200
Air Stripper field screening with FID	From SP-50, SP-51, and SP-52
Operator Deliverables	**Comments**
Log Book Entries	
OMM Log/Data Sheets	
Sample documentation	
Waste documentation	
Repair/replace documentation	

Notes:
1. Waste oil shall be placed in a Department of Transportation approved container with secondary containment and transported to an approved facility for disposal.
2. Spent activated carbon shall be removed from the site by an approved contractor for proper disposal offsite.

Table D-3
Corrective Measures Operations and Maintenance Plan for Area A: DPE System
Monthly OMM Checklist

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Groundwater Extraction System	Comments
Air Compressor (Saylor Beall VT-PL-755-120)	
Check air filter	
Check crankcase breather filter	
Pneumatic Pumps (QED AP4T) and Electric Pump (EPG SurePump)	
Check pump times	
Vapor GAC Vessels (TIGG Corp. N-500)	
Drain condensate water from housing	
Test temperature sensor TIT-001 between VGAC vessels	
Test temperature sensor TIT-002 downstream of VGAC vessels	
GWE System	
Test critical devices	
Test oil/water separator & product tank high level switches on both shut down systems	
Test air/water separator high level switch shuts down system	
Soil Vapor Extraction System	**Comments**
Knock Out Tank (Custom Manufactured)	
Check knockout tank air filter and replace as needed	
SVE Blower (Tuthill M-D Pneumatics 4009-46L3)	
Check filter	
Check relief valve	
Inspect blower and motor for proper operation	
Check motor oil	
Check drive belt tension	
SVE System	
Test critical devices	
Sampling	**Comments**
Groundwater performance sample collection	From SP-1, SP-2, and SP-248 (2.5)
Soil vapor performance sample collection	From SP-100
Soil vapor compliance sample collection	From SP-200
Air stripper performance sample collection	From SP-50 and SP-51
Air stripper compliance sample collection	From SP-52
General	**Comments**
Gauge wells GP-27R, GP-30A, GP-35A, MP-7, MW-7, MW-16, MW-18, MW-22R, MW-24A, and RW-4	
Test enclosure Lower Explosive Limit (LEL) meter with alarm shuts system down on high level	
Test enclosure airflow switch shuts system down on low/no flow	
Test LEL calibration (recommended half-scale concentration of 50 %LEL)	

Notes:
1. Waste oil shall be placed in a Department of Transportation approved container with secondary containment and transported to an approved facility for disposal.
2. Spent activated carbon shall be removed from the site by an approved contractor for proper disposal offsite.

Table D-4
Corrective Measures Operations and Maintenance Plan for Area A: DPE System
Quarterly OMM Checklist

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Groundwater Extraction System	Comments
Air Compressor (Saylor Beall VT-PL-755-120)	
Change crankcase oil	
Oil/Water Separator (Hydro Quip AGM 2SS-60V)	
Inspect oil/water separator transfer pump for proper operation (AMT Model 3694-97)	
Air Stripper (QED EZ Stacker 4.4P)	
Clean air stripper	
Inspect gaskets	
Inspect air stripper transfer pump for proper operation (Grundfos CR8-60)	
Inspect air stripper blower for proper operation (New York Blower 2004 Aluminum; QED part no. 804034)	
Soil Vapor Extraction System	**Comments**
Knock Out Tank (Custom Manufactured)	
Check knockout tank transfer pump for proper operation (Moyno 33201)	

Notes:
1. Waste oil shall be placed in a Department of Transportation approved container with secondary containment and transported to an approved facility for disposal.
2. Spent activated carbon shall be removed from the site by an approved contractor for proper disposal offsite.

Table D-5
Corrective Measures Operations and Maintenance Plan for Area A: DPE System
Semi-Annual, Annual, As Needed OMM Checklist

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Groundwater Extraction System	Comments
Air Compressor (Saylor Beall VT-PL-755-120)	
Change air filter (as needed)	
Change crankcase breather filter (as needed)	
Pneumatic Pumps (QED AP4T) and Electric Pump (EPG SurePump)	
Clean and inspect pumps (semi-annually)	
Oil/Water Separator (Hydro Quip AGM 2SS-60V)	
Drain and clean (semi-annual)	
Verify oil/water separator & product tank are in Class 1 Div 2 electrical classification area (annually)	
Verify oil/water separator & product tank both vent to safe location (annually)	
Liquid GAC Vessels (Siemens PV 1000)	
Backwash vessels (as needed)	
Remove spent carbon and replace with new carbon (as needed, approximately Semi-annually)	
System Optimization (as required by the project team)	Minimum semi-annually
Soil Vapor Extraction System	**Comments**
SVE Blower (Tuthill M-D Pneumatics 4009-46L3)	
Verify blower is of non-sparking design (annually)	
Change motor oil (as needed)	
Catalytic Oxidizer (Falmouth Products Falco 300)	
Change catalyst (as needed)	
System Optimization (as required by the project team)	Minimum semi-annually
Sampling	**Comments**
Collect Groundwater Samples (semi-annually)	See Table 1
Collect Soil Vapor Samples (semi-annually)	From VW-1, VW-2, VW-3, and VW-4
General	**Comments**
Trim grass in the fenced enclosure (as needed)	
Verify enclosure - Class 1 Div 2 electrical classification area (annually)	
Verify MPE Class 1 Div 2 electrical classification area (annually)	

Notes:
1. Waste oil shall be placed in a Department of Transportation approved container with secondary containment and transported to an approved facility for disposal.
2. Spent activated carbon shall be removed from the site by an approved contractor for proper disposal offsite.

Table D-6
Non-Routine OMM Activities for Area A: DPE System

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date	Non-Routine Activity Performed
	2018
2/23/2018	A section of Schedule 80 2-inch diameter PVC piping located downstream of the Air Stripper Effluent Pump (P-3) came loose, and was replaced.
	2017
12/5/2017	SVE blower/motor coupler was replaced
12/5/2017	Oil-water separator transfer pump was replaced
10/9/2017	Control wire connections in the Programmable Logic Controller (PLC) were checked and tightened
8/7/2017	Oil-water separator level switch float tree was replaced
6/1/2017	Oil-water separator transfer pump, base, coupler, and guard were replaced
5/15/2017 - 5/26/2017	Monitoring well GP-30A was converted to DPE well GP-30R
5/19/2017	SVE blower variable frequency drive (VFD) was replaced
2/16/2017	Oil-water separator transfer pump, motor, coupler, relay, and contactor were replaced
2/13/2017	Well RW-5 pump was replaced
	2016
12/5/2016	New lower explosive limit (LEL) meter and temperature switches were installed
11/3/2016	SVE blower fan and motor coupling were replaced
9/1/2016	Air compressor belt replacement
7/12/2016	Well head airline was replaced
6/8/2016	Extraction well head compressed air tubing was replaced
5/4/2016	Air stripper float was replaced
2/4/2016	Oil/water separator transfer pump discharge nipple was replaced
1/29/2016	Lag liquid phase GAC vessel internal piping was replaced
	2015
10/2/2015 - 10/5/2015	System was shut down temporarily in preparation of imminent hurricane
8/4/2015	Extraction well compressed air tubing were replaced
6/30/2015	Carbon was removed from the lead carbon unit, and the internal perforated piping, which was found to be broken, was replaced
4/3/2015	A broken bag filter influent pipe was repaired and two bag filter lids and gaskets were replaced
3/20/2015	A broken pipe in the enclosure was repaired
2/23/2015 & 3/17/2015	The air compressor was initially repaired on February 23, 2015, to replace the motor starter and pressure switch. During the repair, the low oil switch shorted, causing damage to the new motor starter and pressure switch. The final compressor repair took place on March 17, 2015.
1/19/2015	The oil/water separator transfer pump (pump end only) was replaced
	2014
12/12/2014	A cracked tee at sample tap SP-2 was replaced.
12/9/2014	The vibration dampeners for oil/water separator transfer pump were replaced
10/31/2014	The oil/water separator transfer pump shaft coupler was sheared and the shaft coupler was replaced
10/3/2014 & 10/8/2014	During carbon change out on October 3, 2014, the drain port fitting of one of the liquid phase carbon vessels broke while closing the valve. The drain port fittings for both Area A liquid phase GAC vessels were replaced on October 8, 2014
9/23/2014	Leaking air tubing for well GP-27R was replaced.
8/27/2014	The oil/water separator transfer pump floor mount was loose, causing the motor/pump coupling to offset and fail, which lead to pump discharge pipe breakage. The oil/water separator transfer pump floor mount was reinforced and the motor/pump coupling and broken piping were replaced with the same materials as previous.
8/19/2014	The inlet and outlet nipple fittings of the oil/water separator transfer pump were replaced with galvanized threaded nipple fittings

Table D-6
Non-Routine OMM Activities for Area A: DPE System

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date	Non-Routine Activity Performed
	2014 (cont.)
8/13/2014	A broken threaded nipple fitting on the discharge of the oil/water separator transfer pump was replaced with an identical part
7/17/2014	The internal seals of the knockout tank transfer pump failed and as a result, the pump was unable to pump the knockout tank down. The pump was removed and replaced with an identical part.
Second/Third Quarter 2014	The pneumatic pump from well MW-17 was pulled, due to poor performance, repaired, and put back into service.
Second/Third Quarter 2014	A third bag filter was installed in parallel with the two exiting bag filters to increase system uptime.
Second/Third Quarter 2014	A bag filter cover clamp was replaced with an identical part.
Second/Third Quarter 2014	The catalytic oxidizer exhaust stack was replaced with identical parts.
6/18/2014	The SVE blower motor was replaced with an identical part.
6/16/2014	The angle well level transducer was replaced with an identical part.
5/14/2014	A defective valve associated with the oil/water separator was replaced with an identical part.
2/7/2014	Due to extreme cold weather conditions, the body of the knockout tank transfer pump cracked. The crack was identified prior to leaking and the pump was removed and replaced with an identical part.
2/7/2014	Due to extreme cold weather conditions, a valve and check valve associated with the oil/water separator cracked causing a small leak. The small leak filled the system enclosure sump triggering a system shut down. Water was contained within the system enclosure sump. Both valves were replaced with identical parts.

APPENDIX E

Area B OMM Tables

Table E-1
Routine Operations, Maintenance, and Monitoring Schedule for Area B: In-situ Groundwater Remediation

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Frequency	Task
GAC Exhaustion Monitoring	
Once per Month (Monitor Sample Analysis Results)	When detection is reported in the 75% sample port, calculate the time between system start-up (or when new carbon is installed) and detection of hydrocarbons at the 75% sample port. Estimate the time hydrocarbons will be detected at the 90% sample port. Prior to carbon change out, a sample will be collected from the effluent (deep piezometer) and the 90% sample port.
Inlet Filters	
Once every three months. More often if the operating pressure of the system increases significantly.	Remove and check the inlet filters. Replace filters if required. The pre-inlet filter pressure varies between 4 and 8 psi initially. As the inlet filters begin to load with sediment or other solids, the operating pressure will increase. This is an indication that the filters require inspection and perhaps replacement.
Granular Activated Carbon	
Once every three months. More often if the operating pressure of the system increases significantly.	Remove one or both of the oval manways to inspect the top of the GAC. If the GAC has developed a layer of iron fouling or other solids, remove the top few inches of GAC. The GAC removed is already exhausted; no contaminant removal capacity is lost in its removal. The operating pressures of the system were between 3 and 8 psi initially. As the top of the GAC begins to load with sediment or other solids, the operating pressure will increase. This is an indication that the top of the GAC requires inspection.

Table E-2
Non-Routine OMM Activities for Area B: In-situ Groundwater Remediation

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date	Non-Routine Activity Performed
2018	
No non-routine OMM activities performed through March 2018 reporting period	
2017	
No non-routine OMM activities performed	
2016	
No non-routine OMM activities performed	
2015	
1Q 2015	A broken ball valve on the ISGR-1 75% sample tap was replaced
2014	
2Q 2014	Due to extreme cold weather conditions, a PVC elbow in ISGR-2 cracked. Elbow was replaced with an identical part.
2Q 2014	A phone line connection was installed at Area B to improve system uptime/downtime monitoring.
2013	
4Q 2013	System improvements were made in 2013 to improve system uptime/downtime monitoring, including: utilization of a larger discharge orifice in ISGR-2 and adjustments to the submersible pump output in ISGR-2.

APPENDIX F

Area C OMM Tables

Table F-1
Routine Operations, Maintenance, and Monitoring Schedule for Area C: Oxygen Reactive Zone

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date: **Time:** **Operator:**

Frequency	Task
Each Visit	Record oxygen pressure at each wellhead
Each Visit	Record oxygen pressure in cylinder
Each Visit	Record oxygen concentration as displayed on oxygen detector
Each Visit	Remove liquids contained in equipment vault sump, if present
Each Visit	Verify alarms are working
Each Visit	Visually inspect fittings, tubing, and other components for signs of damage
Each Visit	Visually inspect operation of equipment vault hatch and hatch/vault seal
Each Visit	Visually inspect equipment vault for presence of product, oil residue, and/or organic build-up.
Monthly for First Quarter of Operation Quarterly Thereafter	Measure DO in all injection wells and monitoring wells MW-26A, MW-26B, and MW-58
Quarterly or More Frequently as Required	Adjust oxygen pressure to optimize dissolved oxygen based upon sampling results
Quarterly or More Frequently as Required	Clean emitter and check for biofouling
Quarterly or More Frequently as Required	Balance oxygen distribution between injection wells
As Required (Once Every 2.5 to 5 Months)	Replace oxygen cylinder

Table F-2
Non-Routine OMM Activities for Area C: Oxygen Reactive Zone

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date	Non-Routine Activity Performed
2018	
No non-routine OMM activities performed through March 2018 reporting period	
2017	
No non-routine OMM activities performed	
2016	
12/8/2016	The oxygen cylinder was replaced. During this period, the Area C system was checked for oxygen leakage by pulling the down-well components, checking connections, and performing leak testing. These activities were performed to resolve oxygen leakage issues and improve system uptime.
11/1/2016	The oxygen cylinder was replaced. During this period, the Area C system was checked for oxygen leakage by pulling the down-well components, checking connections, and performing leak testing. These activities were performed to resolve oxygen leakage issues and improve system uptime.
7/26/2016	The oxygen cylinder was replaced. During this period, the Area C system was checked for oxygen leakage by pulling the down-well components, checking connections, and performing leak testing. These activities were performed to resolve oxygen leakage issues and improve system uptime.
1/7/2016	The former oxygen distribution manifold was replaced with a stainless-steel manifold
2015	
11/13/2015	The electrical components of the vault, including the oxygen sensor and sump level sensor, were replaced with identical units
11/4/2015	The oxygen emitters were pulled, cleaned, and reinstalled
2014	
1Q 2014	Oxygen airline leak repair with identical parts
2013	
No non-routine OMM activities performed	

APPENDIX G

Area A DPE System – Total Fluids Extraction Data

Table G-1
Total Fluids Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Influent BTEX (µg/L)	Effluent BTEX (µg/L)	Treatment Efficiency (%)	Totalizer Reading (gallons)	Period Pumped (gallons)	Total Pumped (gallons)	Period Average (GPM)	Hydrocarbons Recovered		Operating Extraction Points
									Period (gallons)	Cumulative (gallons)	
1/21/13 9:48	ON	NS	0	-	48,980,806	0	61,685,728	0.00	-	933.29	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
1/28/13 11:47	ON	NS	NS	-	49,044,657	63,851	61,749,579	6.26	-	933.29	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
2/1/13 0:01	ON	NS	NS	-	49,075,121	30,464	61,780,043	6.03	-	933.29	Estimated
2/4/13 11:56	ON	382	0	100.0	49,105,471	30,350	61,810,393	6.03	1.38	934.67	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
2/11/13 10:12	ON	NS	0	-	49,164,164	58,693	61,869,086	5.88	-	934.67	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
2/18/13 11:11	ON	NS	0	-	49,223,755	59,591	61,928,677	5.88	-	934.67	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
2/25/13 9:30	ON	NS	NS	-	49,283,296	59,541	61,988,218	5.97	-	934.67	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
2/25/13 9:31	OFF	NS	NS	-	49,283,296	0	61,988,218	0.00	-	934.67	System off
2/25/13 11:30	ON	NS	0	-	49,283,296	0	61,988,218	0.00	-	934.67	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
3/1/13 0:01	ON	NS	NS	-	49,313,595	30,299	62,018,517	5.98	-	934.67	Estimated
3/4/13 9:50	ON	1,530	0	100.0	49,342,927	29,332	62,047,849	5.98	1.51	936.18	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
3/12/13 8:21	ON	NS	0	-	49,408,712	65,785	62,113,634	5.75	-	936.18	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
3/18/13 10:15	ON	NS	0	-	49,457,411	48,699	62,162,333	5.56	-	936.18	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
3/26/13 10:12	ON	NS	0	-	49,519,319	61,908	62,224,241	5.38	-	936.18	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
4/1/13 13:41	ON	1,243	0	100.0	49,567,190	47,871	62,272,112	5.41	2.07	938.26	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
4/8/13 10:30	ON	NS	0	-	49,619,823	52,633	62,324,745	5.32	-	938.26	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
4/15/13 10:00	ON	NS	0	-	49,670,966	51,143	62,375,888	5.09	-	938.26	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
4/22/13 9:00	ON	NS	0	-	49,723,236	52,270	62,428,158	5.22	-	938.26	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
4/30/13 13:22	ON	NS	NS	-	49,782,588	59,352	62,487,510	5.04	-	938.26	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
5/1/13 0:01	ON	NS	NS	-	49,785,630	3,042	62,490,552	4.76	-	938.26	Estimated
5/6/13 9:23	ON	144	0	100.0	49,822,579	36,949	62,527,501	4.76	1.18	939.44	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
5/14/13 9:54	ON	NS	0	-	49,880,363	57,784	62,585,285	5.00	-	939.44	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
5/20/13 9:00	ON	NS	0	-	49,919,170	38,807	62,624,092	4.52	-	939.44	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
5/28/13 11:26	ON	NS	0	-	49,970,125	50,955	62,675,047	4.37	-	939.44	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
6/1/13 0:01	ON	NS	NS	-	49,985,475	15,350	62,690,397	3.02	-	939.44	Estimated
7/1/13 7:00	ON	225.20	0.00	100.00	50,127,525	142050	62,832,447	3.26	0.38	939.81	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
7/7/13 20:30	OFF	NS	NS	-	50,179,749	52224	62,884,671	5.53	-	939.81	System off
7/8/13 8:30	ON	NS	0.00	-	50,179,749	0	62,884,671	0.00	-	939.81	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
7/15/13 7:45	ON	NS	0.00	-	50,224,405	44656	62,929,327	4.45	-	939.81	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
7/20/13 15:00	OFF	NS	NS	-	50,260,915	36510	62,965,837	4.78	-	939.81	System off
7/23/13 9:38	ON	NS	0.00	-	50,260,915	0	62,965,837	0.00	-	939.81	
7/29/13 7:00	ON	NS	0.00	-	50,301,088	40173	63,006,010	4.74	-	939.81	RW1 RW2 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
8/5/13 7:00	ON	341.00	0.00	100.00	50,343,174	42086	63,048,096	4.18	0.41	940.22	RW1 RW2 RW-4 MW-22 GP-27R GP-39R MW-7
8/12/13 12:30	ON	NS	0.00	-	50,382,943	39769	63,087,865	3.82	-	940.22	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
8/19/13 7:40	ON	NS	0.00	-	50,460,574	77631	63,165,496	7.93	-	940.22	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
8/26/13 8:00	ON	NS	NS	-	50,539,228	78654	63,244,150	7.79	-	940.22	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
9/1/13 13:04	OFF	NS	NS	-	50,608,831	69603	63,313,753	7.78	-	940.22	System off
9/4/13 10:35	OFF	NS	0.00	-	50,608,831	0	63,313,753	0.00	-	940.22	System off
9/4/13 11:50	ON	NS	NS	-	50,608,831	0	63,313,753	0.00	-	940.22	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
9/6/13 13:05	ON	NS	NS	-	50,627,524	18693	63,332,446	6.33	-	940.22	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7

See Notes on Page 10.

Table G-1
Total Fluids Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Influent BTEX (µg/L)	Effluent BTEX (µg/L)	Treatment Efficiency (%)	Totalizer Reading (gallons)	Period Pumped (gallons)	Total Pumped (gallons)	Period Average (GPM)	Hydrocarbons Recovered		Operating Extraction Points
									Period (gallons)	Cumulative (gallons)	
9/10/13 13:59	OFF	NS	NS	-	-	-	0	-	-	940.22	System off
9/12/13 12:00	ON	NS	NS	-	-	-	0	-	-	940.22	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
9/13/13 8:15	OFF	NS	NS	-	50,672,643	45119	63,377,565	37.13	-	940.22	System off
9/13/13 12:00	ON	NS	NS	-	50,672,643	0	63,377,565	0.00	-	940.22	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
9/15/13 12:00	OFF	NS	NS	-	50,674,231	1588	63,379,153	0.55	-	940.22	System off
9/17/13 9:00	OFF	NS	NS	-	50,674,231	0	63,379,153	0.00	-	940.22	System off
9/19/13 8:15	ON	NS	NS	-	50,674,231	0	63,379,153	0.00	-	940.22	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
9/19/13 16:00	OFF	3340.00	0.00	100.00	50,674,231	0	63,379,153	0.00	4.06	944.28	System off
9/30/13 7:55	ON	NS	NS	-	50,674,231	0	63,379,153	0.00	-	944.28	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
9/30/13 8:35	OFF	NS	0.00	-	50,678,184	3953	63,383,106	98.82	-	944.28	System off
10/10/13 9:45	OFF	2810.00	0.00	100.00	50,678,998	814	63,383,920	0.06	0.10	944.38	System off
10/11/13 12:00	ON	NS	NS	-	-	-	-	-	-	944.38	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
11/7/13 13:19	ON	NS	0.00	-	50,687,283	8285	63,392,205	0.21	-	944.38	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
11/13/13 8:00	ON	NS	NS	-	50,739,349	52066	63,444,271	6.26	-	944.38	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
11/14/13 8:25	ON	571.00	0.00	100.00	50,747,738	8389	63,452,660	5.73	0.77	945.15	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
11/21/13 0:00	ON	NS	NS	-	50,826,588	78850	63,531,510	8.23	-	945.15	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
11/26/13 11:00	ON	NS	0.00	-	50,892,219	65631	63,597,141	8.35	-	945.15	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
12/2/13 9:34	OFF	NS	NS	-	50,914,780	22561	63,619,702	2.64	-	945.15	System off
12/6/13 12:00	OFF	NS	NS	-	50,914,780	0	63,619,702	0.00	-	945.15	System off
12/18/13 0:00	ON	798.00	0.00	100.00	50,914,780	0	63,619,702	0.00	0.76	945.91	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
12/30/13 14:00	ON	NS	0.00	-	51,046,111	131331	63,751,033	7.25	-	945.91	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
1/2/14 9:34	OFF	NS	NS	-	51,075,832	29721	63,780,754	7.33	-	945.91	System off
1/6/14 8:30	OFF	NS	0.00	-	51,075,832	0	63,780,754	0	-	945.91	System off
1/6/14 10:00	ON	NS	NS	-	51,075,832	0	63,780,754	0	-	945.91	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
1/14/14 12:30	ON	NS	NS	-	51,162,520	86688	63,867,442	7	-	945.91	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
1/17/14 17:20	OFF	NS	NS	-	51,196,153	33633	63,901,075	7	-	945.91	System off
2/7/14 7:00	OFF	NS	NS	-	51,196,153	0	63,901,075	0	-	945.91	System off
2/7/14 8:50	ON	275	0	100.0	51,196,153	0	63,901,075	0	1.01	946.92	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/17/14 9:23	ON	NS	NS	-	51,296,448	100295	64,001,370	7	-	946.92	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/27/14 13:45	ON	NS	NS	-	51,396,673	100225	64,101,595	7	-	946.92	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/6/14 9:20	ON	79	0	100.0	51,469,106	72433	64,174,028	7	0.32	947.24	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/24/14 8:45	ON	NS	0	-	51,645,866	176760	64,350,788	7	-	947.24	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/8/14 17:00	OFF	NS	NS	-	51,814,501	168635	64,519,423	8	-	947.24	System off
4/11/14 9:00	OFF	NS	NS	-	51,814,501	0	64,519,423	0	-	947.24	System off
4/11/14 10:30	ON	NS	NS	-	51,814,501	0	64,519,423	0	-	947.24	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/17/14 10:50	ON	1150	0	100.0	51,879,432	64931	64,584,354	7	1.68	948.92	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/24/14 13:08	ON	NS	NS	-	51,903,104	23672	64,608,026	2	-	948.92	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/28/14 8:30	ON	NS	0	-	51,994,348	91244	64,699,270	17	-	948.92	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/4/14 17:16	OFF	NS	NS	-	52,051,990	57642	64,756,912	6	-	948.92	System off
5/15/14 12:33	OFF	NS	0	-	52,051,990	0	64,756,912	0	-	948.92	System off
5/15/14 14:50	ON	NS	NS	-	52,051,990	0	64,756,912	0	-	948.92	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/27/14 9:17	ON	1201	0	100.0	52,172,940	120950	64,877,862	7	2.30	951.22	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B

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Table G-1
Total Fluids Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Influent BTEX (µg/L)	Effluent BTEX (µg/L)	Treatment Efficiency (%)	Totalizer Reading (gallons)	Period Pumped (gallons)	Total Pumped (gallons)	Period Average (GPM)	Hydrocarbons Recovered		Operating Extraction Points
									Period (gallons)	Cumulative (gallons)	
6/6/14 11:35	ON	NS	NS	-	52,265,314	92374	64,970,236	6	-	951.22	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/12/14 15:00	ON	NS	0	100.0	-	-	-	-	-	951.22	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/23/14 11:39	ON	1844	0	100.0	52,428,218	162904	65,133,140	7	2.59	953.81	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/11/14 11:17	ON	NS	NS	-	52,575,308	147090	65,280,230	6	-	953.81	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/22/14 22:34	OFF	NS	NS	-	52,674,314	99006	65,379,236	6	-	953.81	System off
7/23/14 9:30	ON	1411	0	100.0	52,674,314	0	65,379,236	0	2.67	956.48	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
8/8/14 0:50	OFF	NS	NS	-	52,882,700	208386	65,587,622	9	-	956.48	System off
8/12/14 13:11	ON	NS	NS	-	52,882,700	0	65,587,622	0	-	956.48	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
8/18/14 10:30	OFF	NS	NS	-	52,893,550	10850	65,598,472	1	-	956.48	System off
8/27/14 12:00	ON	3110	0	100.0	52,893,550	0	65,598,472	0	3.30	959.78	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/9/14 8:15	ON	NS	NS	-	53,057,332	163782	65,762,254	9	-	959.78	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/11/14 9:00	ON	390	0	100.0	-	-	-	-	-	959.78	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/22/14 2:13	OFF	NS	NS	-	53,214,324	156992	65,919,246	9	-	959.78	System off
9/23/14 12:15	ON	NS	NS	-	53,214,324	0	65,919,246	0	-	959.78	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/24/14 16:20	OFF	NS	NS	-	53,227,678	13354	65,932,600	8	-	959.78	System off
9/30/14 12:00	OFF	NS	NS	-	53,227,678	0	65,932,600	0	-	959.78	System off
10/7/14 10:00	ON	974	0	100.0	53,229,347	1669	65,934,269	0	4.57	964.35	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/21/14 9:40	ON	NS	NS	-	53,410,873	181526	66,115,795	9	-	964.35	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/25/14 9:04	OFF	NS	NS	-	53,452,281	41408	66,157,203	7	-	964.35	System off
10/31/14 10:30	ON	NS	NS	-	53,452,281	0	66,157,203	0	-	964.35	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/6/14 9:15	ON	240	0	100.0	53,527,481	75200	66,232,403	9	1.21	965.56	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/21/14 13:48	OFF	NS	NS	-	53,718,945	191464	66,423,867	9	-	965.56	System off
11/25/14 8:45	ON	NS	NS	-	53,718,945	0	66,423,867	0	-	965.56	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/5/14 9:22	OFF	NS	NS	-	53,848,433	129488	66,553,355	9	-	965.56	System off
12/12/14 12:00	ON	NS	NS	-	53,848,570	137	66,553,492	0	-	965.56	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/12/14 15:59	OFF	NS	NS	-	53,850,958	2388	66,555,880	10	-	965.56	System off
12/16/14 12:00	ON	NS	NS	-	53,850,958	0	66,555,880	0	-	965.56	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/19/14 13:00	OFF	NS	NS	-	53,884,589	33631	66,589,511	8	-	965.56	System off

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Table G-1
Total Fluids Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Influent BTEX (µg/L)	Effluent BTEX (µg/L)	Treatment Efficiency (%)	Totalizer Reading (gallons)	Period Pumped (gallons)	Total Pumped (gallons)	Period Average (GPM)	Hydrocarbons Recovered		Operating Extraction Points
									Period (gallons)	Cumulative (gallons)	
12/22/14 10:30	ON	298	0	100.0	53,884,589	0	66,589,511	0	0.64	966.20	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/30/14 4:56	OFF	NS	NS	-	53,973,754	89165	66,678,676	8	-	966.20	System off
1/7/15 10:50	ON	NS	NS	-	53,973,754	0	66,678,676	0	-	966.20	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
1/7/15 12:15	OFF	NS	NS	-	53,973,754	0	66,678,676	0	-	966.20	System off
1/19/15 10:30	ON	NS	NS	-	53,973,754	0	66,678,676	0	-	966.20	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
1/22/15 6:50	OFF	NS	NS	-	54,010,854	37100	66,715,776	9	-	966.20	System off
1/27/15 9:26	ON	2025	0	100.0	54,010,854	0	66,715,776	0	0.98	967.18	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
1/31/15 12:23	OFF	NS	NS	-	54,062,083	51229	66,767,005	9	-	967.18	System off
3/17/15 10:20	OFF	NS	NS	-	54,062,083	0	66,767,005	0	-	967.18	System off
3/20/15 12:00	ON	NS	NS	-	54,062,083	0	66,767,005	0	-	967.18	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/31/15 12:00	OFF	NS	NS	-	54,062,083	0	66,767,005	0	-	967.18	System off
4/3/15 11:15	ON	NS	NS	-	54,063,781	1698	66,768,703	0	-	967.18	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/6/15 10:43	OFF	NS	NS	-	54,101,423	37642	66,806,345	9	-	967.18	System off
4/8/15 9:40	ON	2758	0	100.0	54,101,423	0	66,806,345	0	1.44	968.62	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/9/15 12:00	OFF	NS	NS	-	54,115,692	14269	66,820,614	9	-	968.62	System off
4/13/15 10:20	ON	NS	NS	-	54,115,692	0	66,820,614	0	-	968.62	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/25/15 2:41	OFF	NS	NS	-	54,257,443	141751	66,962,365	8	-	968.62	System off
4/28/15 9:30	ON	NS	NS	-	54,257,443	0	66,962,365	0	-	968.62	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/2/15 12:00	OFF	NS	NS	-	54,296,587	39144	67,001,509	7	-	968.62	System off
5/7/15 9:30	ON	3240	0	100.0	54,296,587	0	67,001,509	0	3.90	972.52	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/13/15 15:40	OFF	NS	NS	-	54,335,731	39144	67,040,653	4	-	972.52	System off
6/9/15 11:45	ON	NS	NS	-	54,335,731	0	67,040,653	0	-	972.52	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/9/15 16:37	OFF	NS	NS	-	54,337,665	1934	67,042,587	7	-	972.52	System off
6/30/15 9:40	ON	NS	NS	-	54,337,665	0	67,042,587	0	-	972.52	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/3/15 9:32	OFF	NS	NS	-	54,373,092	35427	67,078,014	8	-	972.52	System off
7/8/15 11:30	ON	NS	NS	-	54,373,092	0	67,078,014	0	-	972.52	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/15/15 10:00	ON	NS	NS	-	54,451,608	78516	67,156,530	8	-	972.52	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/17/15 5:00	OFF	NS	NS	-	54,474,484	22876	67,179,406	9	-	972.52	System off

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Table G-1
Total Fluids Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Influent BTEX (µg/L)	Effluent BTEX (µg/L)	Treatment Efficiency (%)	Totalizer Reading (gallons)	Period Pumped (gallons)	Total Pumped (gallons)	Period Average (GPM)	Hydrocarbons Recovered		Operating Extraction Points
									Period (gallons)	Cumulative (gallons)	
7/17/15 10:55	ON	NS	NS	-	54,474,484	0	67,179,406	0	-	972.52	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/20/15 17:57	OFF	NS	NS	-	54,511,772	37288	67,216,694	8	-	972.52	System off
7/27/15 10:30	ON	3210	0	100.0	54,511,772	0	67,216,694	0	4.63	977.15	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/29/15 16:27	OFF	NS	NS	-	54,535,178	23406	67,240,100	7	-	977.15	System off
7/31/15 12:50	ON	NS	NS	-	54,535,178	0	67,240,100	0	-	977.15	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/31/15 16:07	OFF	NS	NS	-	54,537,302	2124	67,242,224	11	-	977.15	System off
8/4/15 9:15	ON	126.8	0	100.0	54,537,302	0	67,242,224	0	0.28	977.43	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
8/5/15 1:51	OFF	NS	NS	-	54,554,323	17021	67,259,245	17	-	977.43	System off
8/7/15 11:30	ON	NS	NS	-	54,554,323	0	67,259,245	0	-	977.43	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
8/19/15 0:22	OFF	NS	NS	-	54,700,625	146302	67,405,547	9	-	977.43	System off
8/28/15 10:30	ON	NS	NS	-	54,700,625	0	67,405,547	0	-	977.43	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/1/15 10:37	ON	347	0	100.0	54,750,973	50348	67,455,895	9	2.84	980.27	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/3/15 11:04	OFF	NS	NS	-	54,774,970	23997	67,479,892	8	-	980.27	System off
9/4/15 12:50	ON	NS	NS	-	54,774,970	0	67,479,892	0	-	980.27	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/27/15 16:54	OFF	NS	NS	-	55,035,944	260974	67,740,866	8	-	980.27	System off
9/30/15 10:05	ON	NS	NS	-	55,035,944	0	67,740,866	0	-	980.27	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/2/15 15:00	OFF	NS	NS	-	55,060,700	24756	67,765,622	8	-	980.27	System off
10/5/15 12:00	ON	NS	NS	-	55,060,700	0	67,765,622	0	-	980.27	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/12/15 12:30	ON	1049	0	100.0	55,163,479	102779	67,868,401	10	1.92	982.19	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/20/15 11:50	ON	NS	NS	-	55,278,093	114614	67,983,015	10	-	982.19	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/7/15 22:03	OFF	NS	NS	-	55,535,644	257551	68,240,566	10	-	982.19	System off
11/13/15 9:20	ON	NS	NS	-	55,535,644	0	68,240,566	0	-	982.19	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/16/15 16:21	OFF	NS	NS	-	55,581,616	45972	68,286,538	10	-	982.19	System off
11/17/15 9:40	ON	234.8	0	100.0	55,581,616	0	68,286,538	0	1.79	983.97	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/8/15 9:00	ON	104.2	0	100.0	55,874,571	292955	68,579,493	10	0.33	984.31	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/21/15 10:38	ON	NS	NS	-	56,039,753	165182	68,744,675	9	-	984.31	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/31/15 5:25	OFF	NS	NS	-	56,169,896	130143	68,874,818	9	-	984.31	System off

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Table G-1
Total Fluids Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Influent BTEX (µg/L)	Effluent BTEX (µg/L)	Treatment Efficiency (%)	Totalizer Reading (gallons)	Period Pumped (gallons)	Total Pumped (gallons)	Period Average (GPM)	Hydrocarbons Recovered		Operating Extraction Points
									Period (gallons)	Cumulative (gallons)	
1/5/16 10:30	ON	NS	NS	-	56,169,896	0	68,874,818	0	-	984.31	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
1/26/16 13:13	OFF	NS	NS	-	56,437,411	267515	69,142,333	9	-	984.31	System off
1/29/16 11:55	ON	NS	NS	-	56,437,411	0	69,142,333	0	-	984.31	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/3/16 10:10	OFF	NS	NS	-	56,498,532	61121	69,203,454	9	-	984.31	System off
2/4/16 12:25	ON	NS	NS	-	56,498,532	0	69,203,454	0	-	984.31	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/11/16 13:04	ON	NS	NS	-	56,585,923	87391	69,290,845	9	-	984.31	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/22/16 10:04	ON	NS	0	-	56,720,363	134440	69,425,285	9	-	984.31	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/24/16 20:25	OFF	NS	NS	-	56,751,452	31089	69,456,374	9	-	984.31	System off
3/1/16 10:20	ON	1536	0	100.0	56,751,452	0	69,456,374	0	4.79	989.10	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/7/16 13:14	OFF	NS	NS	-	56,832,003	80551	69,536,925	9	-	989.10	System off
3/11/16 8:40	ON	NS	NS	-	56,832,003	0	69,536,925	0	-	989.10	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/11/16 11:28	OFF	NS	NS	-	56,833,833	1830	69,538,755	11	-	989.10	System off
3/11/16 13:20	ON	NS	NS	-	56,833,833	0	69,538,755	0	-	989.10	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/28/16 9:51	ON	NS	0	-	57,053,534	219701	69,758,456	9	-	989.10	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/29/16 9:00	OFF	NS	NS	-	57,078,784	25250	69,783,706	18	-	989.10	System off
3/29/16 10:45	ON	NS	NS	-	57,078,784	0	69,783,706	0	-	989.10	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/4/16 9:16	ON	408	0	100.0	57,143,134	64350	69,848,056	8	2.54	991.64	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/28/16 11:00	ON	NS	0	-	57,443,902	300768	70,148,824	9	-	991.64	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/3/16 10:04	ON	506	0	100.0	57,505,430	61528	70,210,352	9	1.10	992.74	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/4/16 1:31	OFF	NS	NS	-	57,513,521	8091	70,218,443	9	-	992.74	System off
5/4/16 9:55	ON	NS	NS	-	57,513,521	0	70,218,443	0	-	992.74	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/20/16 9:10	ON	NS	NS	-	57,707,550	194029	70,412,472	8	-	992.74	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/31/16 9:15	OFF	NS	0	-	57,844,030	136480	70,548,952	9	-	992.74	System off
5/31/16 12:00	ON	NS	NS	-	57,844,030	0	70,548,952	0	-	992.74	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/6/16 12:29	OFF	NS	NS	-	57,917,046	73016	70,621,968	8	-	992.74	System off
6/8/16 10:20	ON	NS	NS	-	57,917,046	0	70,621,968	0	-	992.74	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B

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Table G-1
Total Fluids Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Influent BTEX (µg/L)	Effluent BTEX (µg/L)	Treatment Efficiency (%)	Totalizer Reading (gallons)	Period Pumped (gallons)	Total Pumped (gallons)	Period Average (GPM)	Hydrocarbons Recovered		Operating Extraction Points
									Period (gallons)	Cumulative (gallons)	
6/13/16 10:20	ON	150.1	0	100.0	57,978,064	61018	70,682,986	8	1.03	993.77	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/28/16 9:14	ON	NS	0	-	58,158,001	179937	70,862,923	8	-	993.77	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/9/16 22:26	OFF	NS	NS	-	-	-	70,862,923	-	-	993.77	System off
7/12/16 9:55	ON	791	0	100.0	-	-	70,862,923	-	0.56	994.34	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/20/16 12:34	ON	NS	NS	-	58,382,682	224681	71,087,604	7	-	994.34	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/23/16 2:29	OFF	NS	NS	-	-	-	71,087,604	-	-	994.34	System off
7/26/16 10:00	ON	NS	NS	-	58,412,273	29591	71,117,195	3	-	994.34	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/1/16 10:00	ON	NS	0	-	58,412,273	0	71,117,195	0	-	994.34	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/2/16 23:21	OFF	NS	NS	-	58,438,732	26459	71,143,654	12	-	994.34	System off
9/8/16 10:40	ON	76.3	0	100.0	58,438,732	0	71,143,654	0	0.81	995.15	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/11/16 14:41	OFF	NS	NS	-	-	-	71,143,654	-	-	995.15	System off
10/9/16 9:16	OFF	NS	NS	-	58,727,256	288524	71,432,178	7	-	995.15	System off
10/11/16 8:23	ON	NS	NS	-	58,727,256	0	71,432,178	0	-	995.15	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/18/16 8:21	OFF	NS	NS	-	58,791,556	64300	71,496,478	6	-	995.15	System off
10/19/16 8:20	ON	NS	NS	-	58,791,556	0	71,496,478	0	-	995.15	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/20/16 17:05	OFF	NS	NS	-	58,804,364	12808	71,509,286	7	-	995.15	System off
10/24/16 9:48	ON	57.2	0	100.0	58,804,364	0	71,509,286	0	0.16	995.31	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/2/16 13:00	ON	NS	0	-	58,883,662	79298	71,588,584	6	-	995.31	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/3/16 9:30	ON	NS	NS	-	58,893,174	9512	71,598,096	8	-	995.31	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/15/16 9:05	ON	47.1	0	100.0	59,001,652	108478	71,706,574	6	0.07	995.38	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/1/16 14:00	ON	NS	NS	-	59,138,547	136895	71,843,469	6	-	995.38	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/2/16 9:00	OFF	NS	NS	-	59,143,658	5111	71,848,580	4	-	995.38	System off
12/8/16 13:32	ON	NS	0	-	59,143,658	0	71,848,580	0	-	995.38	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/9/16 8:00	OFF	NS	NS	-	59,148,769	5111	71,853,691	5	-	995.38	System off
12/19/16 9:30	ON	54.1	0	100.0	59,148,769	0	71,853,691	0	0.05	995.43	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/20/16 21:57	OFF	NS	NS	-	59,162,317	13548	71,867,239	6	-	995.43	System off

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Table G-1
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Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Influent BTEX (µg/L)	Effluent BTEX (µg/L)	Treatment Efficiency (%)	Totalizer Reading (gallons)	Period Pumped (gallons)	Total Pumped (gallons)	Period Average (GPM)	Hydrocarbons Recovered		Operating Extraction Points
									Period (gallons)	Cumulative (gallons)	
12/23/16 8:40	ON	NS	NS	-	59,162,317	0	71,867,239	0	-	995.43	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/29/16 8:00	OFF	NS	NS	-	59,163,915	1598	71,868,837	0	-	995.43	System off
1/5/17 10:00	ON	NS	0	-	59,164,074	20416	71,889,253	2	-	995.43	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
1/5/17 14:00	OFF	NS	NS	-	59,165,047	973	71,890,226	4	-	995.43	System off
2/15/17 10:25	ON	NS	NS	-	59,165,047	0	71,890,226	0	-	995.43	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/24/17 10:47	ON	1057	0	100.0	59,220,505	55458	71,945,684	4	0.34	995.77	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/28/17 11:00	ON	1345	0	100.0	59,245,076	24571	71,970,255	4	0.20	995.97	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/1/17 3:00	OFF	NS	NS	-	-	-	71,970,255	-	-	995.97	System off
3/2/17 9:20	ON	NS	0	-	-	-	71,970,255	-	-	995.97	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/8/17 10:30	ON	NS	NS	-	59,289,265	44189	72,014,444	4	-	995.97	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/10/17 17:12	OFF	NS	NS	-	59,302,964	13699	72,028,143	4	-	995.97	System off
3/15/17 9:47	ON	NS	NS	-	59,302,964	0	72,028,143	0	-	995.97	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/20/17 10:20	ON	1876	0	100.0	59,340,492	37528	72,065,671	5	1.02	996.99	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/28/17 10:15	ON	NS	NS	-	59,387,944	47452	72,113,123	4	-	996.99	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/31/17 9:16	ON	NS	NS	-	59,410,656	22712	72,135,835	5	-	996.99	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/3/17 8:30	ON	124	0	100.0	59,432,390	21734	72,157,569	5	0.61	997.60	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/11/17 14:31	OFF	NS	NS	-	59,515,461	83071	72,240,640	7	-	997.60	System off
4/13/17 10:00	ON	NS	NS	-	59,515,461	0	72,240,640	0	-	997.60	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/21/17 11:00	ON	NS	0	-	59,595,247	79786	72,320,426	7	-	997.60	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/6/17 16:40	OFF	NS	NS	-	59,707,457	112210	72,432,636	5	-	997.60	System off
6/1/17 12:00	ON	NS	NS	-	59,707,457	0	72,432,636	0	-	997.60	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/2/17 2:30	OFF	NS	NS	-	59,713,062	5605	72,438,241	6	-	997.60	System off
6/14/17 10:00	ON	NS	NS	-	59,713,062	0	72,438,241	0	-	997.60	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/15/17 8:14	OFF	NS	NS	-	59,727,466	14404	72,452,645	11	-	997.60	System off
6/16/17 13:30	ON	NS	NS	-	59,727,466	0	72,452,645	0	-	997.60	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B

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Table G-1
Total Fluids Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Influent BTEX (µg/L)	Effluent BTEX (µg/L)	Treatment Efficiency (%)	Totalizer Reading (gallons)	Period Pumped (gallons)	Total Pumped (gallons)	Period Average (GPM)	Hydrocarbons Recovered		Operating Extraction Points
									Period (gallons)	Cumulative (gallons)	
6/19/17 7:43	ON	NS	NS	-	59,754,834	27368	72,480,013	7	-	997.60	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/30/17 12:28	ON	NS	0	-	59,861,236	106402	72,586,415	7	-	997.60	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/1/17 13:00	OFF	NS	NS	-	59,870,942	9706	72,596,121	7	-	997.60	System off
7/13/17 12:30	ON	4460	0	100.0	59,870,942	0	72,596,121	0	6.70	1004.30	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
7/25/17 9:00	ON	NS	0	-	59,882,425	11483	72,607,604	1	-	1004.30	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
7/26/17 2:00	OFF	NS	NS	-	59,889,551	7126	72,614,730	7	-	1004.30	System off
8/13/17 11:40	ON	NS	NS	-	59,889,551	0	72,614,730	0	-	1004.30	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
8/16/17 14:50	ON	1509	0	100.0	59,909,916	20365	72,635,095	5	0.78	1005.08	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
8/19/17 3:50	OFF	NS	NS	-	59,936,075	26159	72,661,254	7	-	1005.08	System off
8/22/17 8:00	ON	NS	NS	-	59,936,075	0	72,661,254	0	-	1005.08	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
8/22/17 20:00	OFF	NS	NS	-	59,941,245	5170	72,666,424	7	-	1005.08	System off
8/23/17 7:45	ON	NS	NS	-	59,941,245	0	72,666,424	0	-	1005.08	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
8/24/17 12:50	ON	NS	0	-	59,954,435	13190	72,679,614	8	-	1005.08	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
9/5/17 11:50	ON	1539	0	100.0	60,087,792	133357	72,812,971	8	1.81	1006.88	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
9/6/17 20:00	OFF	NS	NS	-	60,104,324	16532	72,829,503	9	-	1006.88	System off
9/7/17 10:30	ON	NS	NS	-	60,104,324	0	72,829,503	0	-	1006.88	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
9/19/17 10:45	ON	NS	0	-	60,218,252	113928	72,943,431	7	-	1006.88	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
9/25/17 14:14	ON	NS	NS	-	60,284,439	66187	73,009,618	7	-	1006.88	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
10/3/17 13:30	ON	580	0	100.0	60,368,906	84467	73,094,085	7	1.99	1008.87	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
10/3/17 14:14	OFF	NS	NS	-	60,369,209	303	73,094,388	7	-	1008.87	System off
10/4/17 11:10	ON	NS	NS	-	60,369,209	0	73,094,388	0	-	1008.87	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
10/4/17 21:31	OFF	NS	NS	-	60,374,508	5299	73,099,687	9	-	1008.87	System off
10/6/17 10:40	ON	NS	NS	-	60,374,508	0	73,099,687	0	-	1008.87	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
10/7/17 1:29	OFF	NS	NS	-	60,381,973	7465	73,107,152	8	-	1008.87	System off
10/9/17 9:40	ON	NS	NS	-	60,381,973	0	73,107,152	0	-	1008.87	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
10/9/17 14:10	OFF	NS	NS	-	60,383,883	1910	73,109,062	7	-	1008.87	System off

See Notes on Page 10.

Table G-1
Total Fluids Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Influent BTEX (µg/L)	Effluent BTEX (µg/L)	Treatment Efficiency (%)	Totalizer Reading (gallons)	Period Pumped (gallons)	Total Pumped (gallons)	Period Average (GPM)	Hydrocarbons Recovered		Operating Extraction Points
									Period (gallons)	Cumulative (gallons)	
10/23/17 10:00	ON	NS	0	-	60,383,883	0	73,109,062	0	-	1008.87	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
10/24/17 6:44	OFF	NS	NS	-	60,392,591	8708	73,117,770	7	-	1008.87	System off
10/24/17 13:45	ON	NS	NS	-	60,392,591	0	73,117,770	0	-	1008.87	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
10/24/17 20:05	OFF	NS	NS	-	60,399,163	6572	73,124,342	17	-	1008.87	System off
11/1/17 10:00	ON	NS	NS	-	60,399,163	0	73,124,342	0	-	1008.87	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
11/1/17 21:21	OFF	NS	NS	-	60,403,930	4767	73,129,109	7	-	1008.87	System off
11/2/17 10:00	ON	NS	NS	-	60,404,476	546	73,129,655	1	-	1008.87	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
11/17/17 3:52	OFF	NS	NS	-	60,545,110	140634	73,270,289	7	-	1008.87	System off
11/29/17 10:25	OFF	22	0	100.0	60,545,110	0	73,270,289	0	0.35	1009.22	System off
11/30/17 10:15	OFF	NS	0	-	60,545,110	0	73,270,289	0	-	1009.22	System off
12/1/17 8:50	OFF	NS	0	-	60,545,110	0	73,270,289	0	-	1009.22	System off
12/5/17 12:17	ON	751	0	100.0	60,545,110	0	73,270,289	0	0.00	1009.22	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
12/7/17 14:37	OFF	NS	NS	-	60,566,024	20914	73,291,203	7	-	1009.22	System off
12/12/17 13:21	ON	NS	NS	-	60,566,024	0	73,291,203	0	-	1009.22	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
12/16/17 8:23	OFF	NS	NS	-	60,607,671	41647	73,332,850	8	-	1009.22	System off
3/1/18 7:40	ON	250	0	100.0	60,607,671	0	73,332,850	0	0.21	1009.43	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
3/2/18 9:40	OFF	NS	NS	-	60,616,188	8517	73,341,367	5	-	1009.43	System off
3/20/18 7:01	ON	NS	NS	-	60,616,188	0	73,341,367	0	-	1009.43	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
3/26/18 19:57	OFF	NS	NS	-	60,664,086	47898	73,389,265	5	-	1009.43	System off
3/27/18 10:00	ON	NS	NS	-	60,664,086	0	73,389,265	0	-	1009.43	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R
3/28/18 19:27	OFF	NS	NS	-	60,674,825	10739	73,400,004	5	-	1009.43	System off
3/29/18 8:00	ON	NS	0	-	60,674,825	0	73,400,004	0	-	1009.43	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-30R

Notes:
1. Hydrocarbons Recovered Period (gallons) = (avg. inf. conc.) x (e-6) x (1/0.2) x (3.785 L/gal) x (1 lb/453.6 g) x (gallons pumped) x (1 gal/6.26 lbs).
2. Formula assumes BTEX equals 20% of gasoline.

Table G-2
Total Fluids Extraction System Influent Analytical Results

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Naphthalene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)
1/2/13 14:00	450	780	NA	100	660	1,990	260
2/4/13 11:00	88	150	NA	15	129	382	150
3/4/13 10:00	290	580	NA	60	600	1,530	210
4/1/13 12:30	260	480	NA	43	460	1,243	220
5/6/13 8:50	45	55	NA	4	40	144	80
7/1/13 7:00	54	87	NA	9	75	225	50
8/5/13 9:45	84	130	NA	12	115	341	130
9/19/13 8:45	920	1,300	NA	190	930	3,340	210
10/10/13 9:45	800	1,100	NA	140	770	2,810	240
11/14/13 8:25	160	230	NA	22	159	571	160
12/18/13 9:30	220	320	NA	32	226	798	200
2/7/14 10:35	69	110	NA	16	80	275	87
3/6/14 9:40	16	30	NA	4	29	79	55
4/17/14 10:35	280	460	NA	50	360	1,150	210
5/27/14 9:45	320	460	NA	51	370	1,201	140
6/23/14 11:30	400	750	NA	84	610	1,844	260
7/23/14 10:00	330	540	33	71	470	1,444	160
8/27/14 10:30	730	1,300	61	140	940	3,171	170
9/11/14 9:30	91	140	23	18	141	413	130
10/7/14 12:00	230	360	65	44	340	1,039	160
11/6/14 9:30	54	89	22	10	87	262	97
12/22/14 12:30	70	100	38	14	114	336	100
1/27/15 14:05	490	720	46	99	670	2,025	160
4/8/15 10:45	650	930	58	150	970	2,758	210
5/7/15 11:10	830	1,100	120	220	970	3,240	230
7/27/15 10:40	790	1,100	100	170	1,050	3,210	210
8/4/15 12:40	23	37	23	5	39	127	55
9/1/15 11:00	75	120	21	16	115	347	92
10/12/15 12:10	210	400	26	43	370	1,049	130
11/17/15 10:40	36	75	31	9	84	235	59
12/8/15 9:10	17	31	17	3	36	104	53
1/5/16 11:25	71	91	30	10	67	269	73
2/11/16 13:30	22	38	22	4	38	124	54
3/1/16 12:35	470	520	33	83	430	1,536	160
4/4/16 9:45	110	160	13	13	112	408	89
5/3/16 10:15	130	180	14	24	158	506	78
6/13/16 10:25	37	54	9	5	45	150	54
7/12/16 12:15	190	320	23	32	226	791	110
9/8/16 11:00	16	22	12	3	23	76	55
10/24/16 9:25	8	14	17	2	17	57	46
11/15/16 9:35	8	16	7	2	14	47	40
12/19/16 10:30	10	11	15	2	16	54	58
2/24/17 13:00	280	370	30	47	330	1,057	170
2/28/17 12:00	380	440	37	68	420	1,345	210
3/20/17 9:55	600	610	39	77	550	1,876	160
4/3/17 8:50	28	34	20	4	38	124	53
6/19/17 8:00	18	24	26	43	24	135	53
7/13/17 12:30	1,400	1,600	100	170	1,190	4,460	240
8/16/17 14:30	420	520	38	61	470	1,509	240
9/5/17 12:50	410	590	29	60	450	1,539	210
10/3/17 9:00	150	210	17	21	182	580	89
11/29/17 10:25	5	5	<1	<1	<10	22	30
12/5/17 15:00	180	240	84	35	212	751	140
3/1/18 11:40	55	68	<1	<1	<10	250	50
4/3/18 9:35	19	25	16	3	27	90	59

Notes:
1. ND: Not Detected above reporting limit.
2. <##: Parameter not detected above the reporting limit.
3. NA: Not Analyzed.

Table G-3
Total Fluids Extraction System Effluent Analytical Results

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Naphthalene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)
1/21/13 12:30	<1	<1	NA	<1	<10	0	<1
2/4/13 11:15	<1	<1	NA	<1	<10	0	<1
2/11/13 12:38	<1	<1	NA	<1	<10	0	<1
2/18/13 11:00	<1	<1	NA	<1	<10	0	<1
2/25/13 12:20	<1	<1	NA	<1	<10	0	<1
3/4/13 10:15	<1	<1	NA	<1	<10	0	<1
3/12/13 9:15	<1	<1	NA	<1	<10	0	<1
3/18/13 12:00	<1	<1	NA	<1	<10	0	<1
3/26/13 11:00	<1	<1	NA	<1	<10	0	<1
4/1/13 12:45	<1	<1	NA	<1	<10	0	<1
4/11/13 14:30	<1	<1	NA	<1	<10	0	<1
4/15/13 11:00	<1	<1	NA	<1	<10	0	<1
4/22/13 11:15	<1	<1	NA	<1	<10	0	<1
5/6/13 9:05	<1	<1	NA	<1	<10	0	<1
5/14/13 10:20	<1	<1	NA	<1	<10	0	<1
5/20/13 9:00	<1	<1	NA	<1	<10	0	<1
5/28/13 14:00	<1	<1	NA	<1	<10	0	<1
7/1/13 8:05	<1	<1	NA	<1	<10	0	<1
7/8/13 11:30	<1	<1	NA	<1	<10	0	<1
7/15/13 7:45	<1	<1	NA	<1	<10	0	<1
7/23/13 11:00	<1	<1	NA	<1	<10	0	<1
7/29/13 7:00	<1	<1	NA	<1	<10	0	<1
8/5/13 9:00	<1	<1	NA	<1	<10	0	<1
8/12/13 12:30	<1	<1	NA	<1	<10	0	<1
8/19/13 7:40	<1	<1	NA	<1	<10	0	<1
9/19/13 9:20	<1	<1	NA	<1	<10	0	<1
9/30/13 8:30	<1	<1	NA	<1	<10	0	1
10/10/13 9:40	<1	<1	NA	<1	<10	0	<1
11/14/13 8:50	<1	<1	NA	<1	<10	0	<1
11/26/13 11:00	<1	<1	NA	<1	<10	0	<1
12/18/13 10:00	<1	<1	NA	<1	<10	0	<1
12/30/14:00	<1	<1	NA	<1	<10	0	<1
1/6/14 9:10	<1	<1	NA	<1	<10	0	<1
2/7/14 10:20	<1	<1	NA	<1	<10	0	<1
2/17/14 9:20	<1	<1	NA	<1	<10	0	<1
3/6/14 9:15	<1	<1	NA	<1	<10	0	<1
3/24/14 8:45	<1	<1	NA	<1	<10	0	1.6
4/17/14 10:50	<1	<1	NA	<1	<10	0	<1
4/28/14 8:30	<1	<1	NA	<1	<10	0	<1
5/15/14 15:30	<1	<1	NA	<1	<10	0	<1
5/27/14 9:15	<1	<1	NA	<1	<10	0	<1
6/12/14 15:00	<1	<1	NA	<1	<10	0	<1
6/23/14 11:00	<1	<1	NA	<1	<10	0	<1
7/11/14 11:10	<1	<1	NA	<1	<10	0	<1
7/23/14 10:15	<1	<1	<1	<1	<10	0	<1
8/13/14 12:00	<1	<1	<1	<1	<10	0	<1
8/27/14 10:45	<1	<1	<1	<1	<10	0	<1
9/11/14 9:45	<1	<1	<1	<1	<10	0	2
9/30/14 11:00	<1	<1	<1	<1	<10	0	1.7
10/7/14 12:15	<1	<1	<1	<1	<10	0	<1
10/21/14 9:40	<1	<1	<1	<1	<10	0	<1
11/6/14 10:00	<1	<1	<1	<1	<10	0	<1
11/25/14 9:40	<1	<1	<1	<1	<10	0	<1
12/12/14 13:00	<1	<1	<1	<1	<10	0	<1
12/22/14 12:45	<1	<1	<1	<1	<10	0	<1
1/7/15 11:20	<1	<1	<1	<1	<10	0	<1
1/27/15 13:35	<1	<1	<1	<1	<10	0	<1
4/8/15 10:30	<1	<1	<1	<1	<10	0	<1
4/28/15 9:50	<1	<1	<1	<1	<10	0	2
5/7/15 10:55	<1	<1	<1	<1	<10	0	1.4
6/9/15 13:00	<1	<1	<1	<1	<10	0	<1
7/8/15 13:00	<1	<1	<1	<1	<10	0	<1
7/27/15 10:40	<1	<1	<1	<1	<10	0	<1
8/4/15 12:40	<1	<1	<1	<1	<10	0	<1

See Notes on Page 2.

Table G-3
Total Fluids Extraction System Effluent Analytical Results

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Naphthalene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)
8/28/15 12:30	<1	<1	<1	<1	<10	0	<1
9/1/15 10:45	<1	<1	<1	<1	<10	0	<1
9/30/15 11:00	<1	<1	<1	<1	<10	0	<1
10/12/15 11:55	<1	<1	<1	<1	<10	0	<1
10/20/15 9:00	<1	<1	<1	<1	<10	0	<1
11/5/15 12:00	<1	<1	1.1	<1	<10	0	<1
11/17/15 10:40	<1	<1	<1	<1	<10	0	<1
12/8/15 9:10	<1	<1	<1	<1	<10	0	1.5
12/21/15 9:42	<1	<1	<1	<1	<10	0	1.9
1/5/15 11:10	<1	<1	<1	<1	<10	0	3
1/29/15 13:00	<1	<1	<1	<1	<10	0	<1
2/11/16 13:45	<1	<1	<1	<1	<10	0	<1
2/22/15 10:55	<1	<1	<1	<1	<10	0	<1
3/1/16 12:30	<1	<1	<1	<1	<10	0	<1
3/28/16 10:30	<1	<1	<1	<1	<10	0	<1
4/4/16 9:30	<1	<1	<1	<1	<10	0	<1
4/28/16 10:20	<1	<1	<1	<1	<10	0	<1
5/3/16 10:35	<1	<1	<1	<1	<10	0	1.1
5/31/16 13:10	<1	<1	<1	<1	<10	0	<1
6/13/16 10:25	<1	<1	<1	<1	<10	0	<1
6/28/16 9:10	<1	<1	<1	<1	<10	0	<1
7/12/16 12:15	<1	<1	<1	<1	<10	0	<1
7/29/16 8:45	<1	<1	<1	<1	<10	0	<1
9/1/16 14:00	<1	<1	<1	<1	<10	0	<1
9/8/16 11:15	<1	<1	<1	<1	<10	0	<1
10/13/16 8:20	<1	<1	<1	<1	<10	0	<1
10/24/16 9:10	<1	<1	<1	<1	<10	0	<1
11/2/16 13:40	<1	<1	<1	<1	<10	0	<1
11/15/16 9:25	<1	<1	<1	<1	<10	0	3.3
12/8/16 12:30	<1	<1	<1	<1	<10	0	<1
12/19/16 10:00	<1	<1	<1	<1	<10	0	<1
1/5/17 12:20	<1	<1	<1	<1	<10	0	<1
2/24/17 13:15	<1	<1	<1	<1	<10	0	<1
2/28/17 12:15	<1	<1	<1	<1	<10	0	<1
3/2/17 10:30	<1	<1	<1	<1	<10	0	<1
3/20/17 10:10	<1	<1	<1	<1	<10	0	<1
4/3/17 9:50	<1	<1	<1	<1	<10	0	1.1
4/21/17 8:50	<1	<1	<1	<1	<10	0	1.2
6/19/17 8:15	<1	<1	<1	<1	<2	0	<1
6/30/17 13:15	<1	<1	<1	<1	<2	0	<1
7/13/17 12:30	<1	<1	<1	<1	<3	0	<1
7/25/17 11:37	<1	<1	<1	<1	<10	0	<1
8/16/17 14:45	<1	<1	<1	<1	<10	0	<1
8/24/17 12:50	<1	<1	<1	<1	<10	0	<1
9/5/17 12:50	<1	<1	<1	<1	<10	0	<1
9/19/17 11:20	<1	<1	<1	<1	<10	0	<1
10/3/17 9:15	<1	<1	<1	<1	<10	0	<1
10/23/17 13:00	<1	<1	<1	<1	<10	0	<1
11/29/17 10:40	<1	<1	<1	<1	<10	0	<1
11/30/17 10:15	<1	<1	<1	<1	<10	0	<1
12/1/17 8:50	<1	<1	<1	<1	<10	0	<1
12/5/17 15:15	<1	<1	<1	<1	<10	0	<1
3/1/18 11:40	<1	<1	<1	<1	<10	0	<1
3/29/18 9:15	<1	<1	<1	<1	<10	0	<1
4/3/18 9:20	<1	<1	<1	<1	<10	0	<1

Notes:
1. ND: Not Detected above reporting limit.
2. <##: Parameter not detected above the reporting limit.
3. NA: Not Analyzed.

Table G-4
Air Stripper Vapor Carbon Influent Analytical Results

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	Comp ID	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	TPH-GRO (ppb)	Flow (CFM)	Extraction Rate Benzene (lbs/hr)	Extraction Rate TPH-GRO (lbs/day)
8/5/2013 10:55	SP-50	5	14	2	10	5900	280	-0.0002	0.3742
9/19/2013 9:40	SP-50	1300	1400	110	460	6400	280	0.0047	0.3377
10/10/2013 10:00	SP-50	1400	1300	120	470	7500	280	0.0046	0.2099
11/14/2013 9:30	SP-50	560	770	68	380	2500	280	0.0017	0.1369
12/19/2013 9:10	SP-50	300	330	27	150	2500	280	-0.0001	0.1369
2/27/2014 13:40	SP-50	510	800	52	290	5700	280	0.0015	0.3560
3/6/2014 10:00	SP-50	76	160	21	130	5700	280	-0.0001	0.2921
4/17/2014 10:45	SP-50	780	1100	92	520	4800	280	0.0023	0.2830
5/29/2014 9:00	SP-50	270	400	<68	240	2700	280	-0.0002	0.0183
6/23/2014 12:20	SP-50	16	35	6	35	<1800	280	-0.0010	-0.0274
7/23/2014 14:00	SP-50	940	1300	150	780	4300	280	0.0022	0.1643
8/27/2014 12:00	SP-50	2100	2700	250	1300	-	280	0.0042	-
9/30/2014 12:00	SP-50	41	50	5	33	640	280	-0.0005	-0.0876
10/21/2014 10:00	SP-50	590	630	56	370	4700	280	0.0014	0.2830
11/6/2014 10:05	SP-50	39	67	6	51	750	280	-0.0014	-0.2784
12/22/2014 12:50	SP-50	34	58	13	59	780	280	-0.0006	-0.1114
1/27/2015 14:10	SP-50	850	990	130	690	8400	280	0.0024	0.5477
4/8/2015 13:00	SP-50	22	27	3	20	520	280	-0.0006	-0.0803
5/7/2015 12:10	SP-50	110	130	17	94	1000	280	0.0001	-0.0274
7/31/2015 13:10	SP-50	78	130	15	130	<1400	280	-0.0023	-0.4655
8/28/2015 12:35	SP-50	9	20	<4.0	15	1100	280	-0.0030	-0.4929
9/30/2015 12:15	SP-50	10	20	<4.0	14	580	280	-0.0011	-0.1935
10/12/2015 12:15	SP-50	230	350	29	240	1800	280	0.0003	0.0274
12/8/2015 9:50	SP-50	360	540	48	400	2600	280	0.0010	0.1497
1/29/2016 14:00	SP-50	2200	1900	220	1400	11000	280	0.0080	0.8306
2/11/2016 14:20	SP-50	<4.0	7	<4.0	5	<500	280	-0.0004	-0.0639
3/1/2016 14:10	SP-50	1300	1200	130	860	7600	280	0.0039	0.4199
4/4/2016 10:00	SP-50	5	8	<4.0	8	<500	280	-0.0007	-0.0822
5/3/2016 10:45	SP-50	270	380	41	260	2700	280	0.0004	0.1369
7/12/2016 12:45	SP-50	<4.0	27	<4.0	<4.0	810	280	-0.0004	-0.1360
9/8/2016 14:00	SP-50	120	150	14	87	2400	280	-0.0002	0.0548
10/24/2016 10:00	SP-50	10	17	<4.0	11	<500	280	-0.0003	-0.0329
11/15/2016 10:10	SP-50	230	320	23	150	1800	280	0.0003	0.0456
12/23/2016 9:30	SP-50	21	29	<4.0	24	770	280	-0.0003	-0.0128
2/28/2017 14:00	SP-50	<4.0	9.7	<4.0	12	<500	280	-0.0005	-0.0456
3/20/2017 10:20	SP-50	12	27	<4.0	17	<500	280	-0.0003	-0.0822
4/28/2017 10:00	SP-50	65	64	5.5	43	580	280	-0.0004	-0.0748
6/19/2017 9:00	SP-50	4	18	<4.0	9.2	540	280	-0.0010	-0.0876
7/13/2017 14:30	SP-50	3900	3200	560	2700	26000	280	0.0140	2.1086
8/16/2017 15:00	SP-50	5100	4100	560	4000	35000	280	0.0137	1.6430
9/5/2017 12:50	SP-50	4	8	<2.0	9	<500	280	-0.0014	-0.2921
10/23/2017 14:00	SP-50	2700	650	<67	<67	<8400	280	0.0087	0.5020
12/12/2017 15:00	SP-50	90	110	13.0	95	990	280	0.0002	0.0447
3/1/2018 14:15	SP-50	41	42	<67	<67	4600	280	-0.0001	0.0639

Notes:

1. Pursuant to permit compliance verification, flow values were assumed to be maximum possible (280 CFM) for 7/2/2012 data and thereafter. Efforts are currently being made to calculate actual flow data. Reported valves will be updated following calculation of actual flow.

Table G-5
Air Stripper Vapor Carbon Effluent Analytical Results

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date	Comp ID	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	TPH-GRO (ppb)	Flow (CFM)	Discharge Rate Benzene (lbs/hr)	Discharge Rate TPH-GRO (lbs/day)
7/1/2013 9:25	SP-52	130	220	<48	100	<1000	280	0.0005	0.0913
8/5/2013 11:05	SP-52	70	93	5.5	37	<1800	280	0.0003	0.1643
9/19/2013 9:50	SP-52	52	53	<43	<130	2700	280	0.0002	0.2465
10/10/2013 10:10	SP-52	180	150	50	<129	5200	280	0.0007	0.4747
11/14/2013 9:40	SP-52	120	130	11	70	<1000	280	0.0005	0.0913
12/19/2013 9:00	SP-52	330	240	19	110	<1000	280	0.0013	0.0913
2/27/2014 13:50	SP-52	120	160	13	78	<1800	280	0.0005	0.1643
3/6/2014 1:10	SP-52	97	120	14	80	2500	280	0.0004	0.2282
4/17/2014 10:55	SP-52	180	160	23	180	<1700	280	0.0007	0.1552
5/29/2014 9:10	SP-52	320	380	<70	240	2500	280	0.0012	0.2282
6/23/2014 12:20	SP-52	290	360	44	250	2100	280	0.0011	0.1917
7/23/2014 14:14	SP-52	360	380	41	230	2500	280	0.0014	0.2282
8/27/2014 12:10	SP-52	990	1300	210	1200	-	280	0.0038	-
9/30/2014 12:10	SP-52	170	140	9.7	52	1600	280	0.0006	0.1460
10/21/2014 10:10	SP-52	210	210	17	110	1600	280	0.0008	0.1460
11/6/2014 10:15	SP-52	400	510	46	300	3800	280	0.0015	0.3469
12/22/2014 13:00	SP-52	180	220	26	160	2000	280	0.0007	0.1826
1/27/2015 14:20	SP-52	220	230	20	110	2400	280	0.0008	0.2191
4/8/2015 13:10	SP-52	180	180	12	77	1400	280	0.0007	0.1278
5/7/2015 12:20	SP-52	77	120	5.9	34	1300	280	0.0003	0.1187
7/31/2015 13:15	SP-52	670	1000	82	540	6500	280	0.0025	0.5933
8/28/2015 12:45	SP-52	810	960	99	620	6500	280	0.0031	0.5933
9/30/2015 12:20	SP-52	290	420	31	210	2700	280	0.0011	0.2465
10/12/2015 12:20	SP-52	150	270	17	140	1500	280	0.0006	0.1369
11/17/2015 11:05	SP-52	15	11	<4.0	7.1	580	280	0.0001	0.0529
12/8/2015 10:00	SP-52	94	30	<4.0	5.9	960	280	0.0004	0.0876
1/29/2016 14:10	SP-52	88	96	5.2	15	1900	280	0.0003	0.1734
2/11/2016 14:30	SP-52	100	130	<6.8	16	1200	280	0.0004	0.1095
3/1/2016 14:00	SP-52	270	260	15	54	3000	280	0.0010	0.2738
4/4/2016 10:10	SP-52	200	150	13	39	1400	280	0.0008	0.1278
5/3/2016 10:50	SP-52	170	130	13	62	1200	280	0.0006	0.1095
6/28/2016 9:40	SP-52	110	25	<4.0	<4.0	<500	280	0.0004	0.0456
7/12/2016 12:55	SP-52	100	110	11	93	2300	280	0.0004	0.2099
9/8/2016 14:10	SP-52	170	190	14	70	1800	280	0.0006	0.1643
10/24/2016 10:10	SP-52	100	100	10	67	860	280	0.0004	0.0785
11/15/2016 10:20	SP-52	140	140	12	77	1300	280	0.0005	0.1187
12/23/2016 9:40	SP-52	89	110	9.6	60	910	280	0.0003	0.0831
2/28/2017 14:10	SP-52	130	150	14	91	1000	280	0.0005	0.0913
3/20/2017 10:30	SP-52	92	100	4.7	21	1400	280	0.0003	0.1278
4/28/2017 10:05	SP-52	170	160	16	110	1400	280	0.0006	0.1278
6/19/2017 9:10	SP-52	270	210	17	90	1500	280	0.0010	0.1369
7/13/2017 14:35	SP-52	210	170	17	95	2900	280	0.0008	0.2647
8/16/2017 15:10	SP-52	1500	1100	88	460	17000	280	0.0057	1.5518
9/5/2017 13:10	SP-52	380	410	31	220	3700	280	0.0014	0.3377
10/23/2017 14:10	SP-52	420	290	<17	51	2900	280	0.0016	0.2647
12/12/2017 15:10	SP-52	27	13	<4.0	7.2	<500	280	0.0001	0.0456
3/1/2017 14:10	SP-52	80	51	<18	200	200	280	0.0003	0.3560

Notes:

1. Pursuant to permit compliance verification, flow values were assumed to be maximum possible (280 CFM) for 7/2/2012 data and thereafter. Efforts are currently being made to calculate actual flow data. Reported valves will be updated following calculation of actual flow.

APPENDIX H

Area A DPE System – Soil Vapor Extraction Data

Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

ARCADIS Design & Consultancy for natural and built assets

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
1/16/13 16:30	OFF	43,875.7	-	-	-	-	-	-	0.7	6,174.4	System off
1/21/13 10:00	ON	43,875.7	12	53	174	15.5	70.6	3.1	-	6,174.4	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
1/28/13 12:15	ON	44,046.3	12	259	172	536.7	-107.5	15.1	10.1	6,184.5	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *Effluent concentrations affected by weather conditions/humidity
2/4/13 12:00	ON	44,214.1	12	86	170	34.1	60.5	5.0	10.9	6,195.4	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
2/11/13 10:30	ON	44,380.6	12	85	170	36.3	57.0	4.9	5.3	6,200.8	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
2/18/13 11:20	ON	44,549.7	14	232	95	63.1	72.8	7.5	7.8	6,208.6	MW-22R RW-5 RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
2/25/13 9:30	ON	44,715.7	14	298	106	130.6	56.1	10.6	9.8	6,218.4	MW-22R RW-5 RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
3/4/13 9:48	ON	44,885.4	14	259	101	88.7	65.7	8.8	10.7	6,229.0	MW-22R RW-5 RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
3/12/13 8:24	ON	45,075.0	14	276	95	84.9	69.3	8.8	11.0	6,240.0	MW-22R RW-5 RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
3/18/13 12:13	ON	45,222.9	14	116	99	52.1	55.2	3.9	6.2	6,246.2	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
3/26/13 10:20	ON	45,412.9	13	167	102	68.7	58.8	5.7	6.0	6,252.2	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
4/1/13 13:30	ON	45,560.2	14	92	100	30.2	67.2	3.1	4.3	6,256.4	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
4/8/13 10:19	ON	45,725.0	14	181	98	75.1	58.5	6.0	4.9	6,261.4	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
4/15/13 10:00	ON	45,891.8	13	170	101	66.4	60.9	5.8	6.5	6,267.8	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
4/22/13 9:05	ON	46,059.8	14	134	99	44.5	66.8	4.5	5.6	6,273.4	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
4/30/13 13:23	ON	46,256.1	14	140	100	41.6	70.3	4.7	5.9	6,279.3	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
5/6/13 9:37	ON	46,369.3	14	136	99	63.6	53.2	4.5	4.2	6,283.6	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
5/14/13 9:59	ON	46,588.6	14	155	98	59.2	61.9	5.1	6.1	6,289.7	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
5/20/13 9:00	ON	46,731.4	14	195	95	74.3	62.0	6.3	5.3	6,295.0	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
5/27/13 12:30	OFF	46,902.9	-	-	-	-	-	-	7.1	6,302.1	System off
5/28/13 12:00	ON	46,902.9	14	71	104	20.1	71.8	2.5	-	6,302.1	MW-22R RW-1 MP-7 GP-39R GP-27R MW-17 MW-7 *FID Readings
5/29/13 15:30	OFF	46,930.4	-	-	-	-	-	-	0.4	6,302.5	System off
6/3/13 9:00	OFF	46,930.4	-	-	-	-	-	-	-	6,302.5	System off
7/1/13 9:15	ON	46781.60	14	143.40	130.24	38.30	73.29	6.32	22.50	6325.02	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
7/7/13 20:30	OFF	0.00	-	-	-	-	-	-	-	6325.02	System off
7/8/13 7:00	OFF	0.00	-	-	-	-	-	-	-	6325.02	System off
7/8/13 11:30	ON	46918.50	7	125.00	226.84	0.00	100.00	9.59	9.00	6334.02	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
7/15/13 0:00	ON	47084.40	6	8.70	223.40	0.80	90.80	0.66	5.20	6339.21	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
7/20/13 15:00	OFF	0.00	-	-	-	-	-	-	-	6339.21	System off
7/22/13 7:00	OFF	0.00	-	-	-	-	-	-	-	6339.21	System off
7/23/13 6:30	OFF	47215.00	13	-	131.75	-	-	-	0.68	6339.89	System off
7/23/13 9:50	ON	47215.00	-	-	-	-	-	-	-	6339.89	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
7/29/13 7:00	ON	47359.00	13	30.90	124.64	11.70	62.14	1.30	1.26	6341.15	RW1 RW2 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
8/3/13 3:00	OFF	0.00	-	-	-	-	-	-	-	6341.15	System off
8/5/13 7:00	OFF	47472.90	13	14.50	138.52	7.10	51.03	0.68	1.11	6342.26	System off
8/5/13 9:30	ON	47472.90	-	-	-	-	-	-	-	6342.26	RW1 RW2 RW-4 MW-22 GP-27R GP-39R MW-7
8/12/13 8:45	ON	47642.90	13	-	134.56	-	-	-	0.74	6343.00	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
8/19/13 7:00	ON	47808.20	8	9.10	148.02	0.00	100.00	0.46	0.47	6343.47	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
8/26/13 7:00	ON	47976.10	8	19.90	148.96	9.90	50.25	1.00	0.80	6344.27	RW1 RW2 RW3 RW-4 MW-22 PTWB GP-27R GP-39R MW-7
9/1/13 13:04	OFF	48125.70	-	-	-	-	-	-	-	6344.27	System off
9/4/13 10:30	OFF	48125.70	11	-	141.46	-	-	-	1.40	6345.67	System off
9/4/13 12:00	ON	48125.70	11	-	141.46	-	-	-	-	6345.67	RW1 RW2 RW3 RW-4 MW 17 MW-22 PTWB GP-27R GP-39R MW-7

See Notes on Page 11.

Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
9/6/13 13:00	ON	48175.30	10	-	143.38	-	-	-	-	6345.67	RW1 RW2 RW3 RW-4 MW 17 MW-22 PTWB GP-27R GP-39R MW-7
9/10/13 13:59	OFF	48289.50	-	-	-	-	-	-	-	6345.67	System off
9/13/13 7:00	OFF	48289.50	-	-	-	-	-	-	-	6345.67	System off
9/13/13 12:45	ON	48289.50	-	-	-	-	-	-	-	6345.67	RW1 RW2 RW3 RW-4 MW 17 MW-22 PTWB GP-27R GP-39R MW-7
9/15/13 12:00	OFF	48294.80	-	-	-	-	-	-	-	6345.67	System off
9/17/13 9:00	OFF	48294.80	-	-	0.00	-	-	-	-	6345.67	System off
9/19/13 8:00	OFF	48294.80	12	-	128.73	-	-	-	-	6345.67	System off
9/19/13 8:30	ON	48294.80	-	-	-	-	-	-	-	6345.67	RW1 RW2 RW3 RW-4 MW 17 MW-22 PTWB GP-27R GP-39R MW-7
9/19/13 16:30	OFF	48302.00	-	-	-	-	-	-	-	6345.67	System off
9/30/13 7:00	OFF	48302.00	-	-	-	-	-	-	-	6345.67	System off
10/10/13 7:00	OFF	48302.00	-	-	-	-	-	-	-	6345.67	System off
10/10/13 8:00	ON	48302.00	12	48.30	129.20	11.10	77.02	2.11	6.93	6352.59	RW1 RW2 RW3 RW-4 MW 17 MW-22 PTWB GP-27R GP-39R MW-7
10/11/13 2:27	OFF	48320.10	-	-	-	-	-	-	-	6352.59	System off
11/7/13 7:00	OFF	48320.10	12	-	131.81	-	-	-	9.33	6361.92	System off
11/7/13 13:25	ON	48320.10	-	-	-	-	-	-	-	6361.92	RW1 RW2 RW3 RW-4 MW 17 MW-22 PTWB GP-27R GP-39R MW-7
11/13/13 8:00	ON	48458.70	-	-	-	-	-	-	-	6361.92	RW1 RW2 RW3 RW-4 MW 17 MW-22 PTWB GP-27R GP-39R MW-7
11/14/13 8:40	ON	48481.30	12	-	127.43	-	-	-	-	6361.92	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
11/21/13 8:30	ON	48649.20	13	10.70	124.64	3.50	67.29	0.45	0.50	6362.42	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
11/26/13 9:40	ON	48792.60	-	-	-	-	-	-	-	6362.42	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
12/2/13 9:34	OFF	-	-	-	-	-	-	-	-	6362.42	System off
12/16/13 12:00	ON	-	-	-	-	-	-	-	-	6362.42	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
12/18/13 8:57	ON	48839.90	12	22.10	128.32	9.00	59.28	0.96	2.97	6365.39	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
12/30/13 13:13	ON	49132.20	12	-	127.87	-	-	-	-	6365.39	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
1/2/14 9:34	OFF	-	-	-	-	-	-	-	-	6365.39	System off
1/6/14 8:30	OFF	49200.50	12	-	167.23	-	-	-	-	6365.39	System off
1/6/14 10:00	ON	49200.50	-	-	-	-	-	-	-	6365.39	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
1/14/14 12:30	ON	49,396.7	12	-	137.29	-	-	-	-	6,365.4	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
1/17/14 17:20	OFF	49,474.3	-	-	-	-	-	-	-	6,365.4	System off
2/7/14 7:00	OFF	49,474.3	-	-	-	-	-	-	-	6,365.4	System off
2/17/14 9:00	OFF	-	-	-	-	-	-	-	-	6,365.4	System off
2/27/14 7:30	OFF	49,567.4	12	-	135.18	-	-	-	-	6,365.4	System off
2/27/14 11:50	ON	49,567.4	-	-	-	-	-	-	-	6,365.4	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/6/14 9:17	ON	49,731.0	12	-	133.91	-	-	-	-	6,365.4	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/24/14 8:35	ON	50,112.4	12	91	128.29	24.7	72.8	3.9	36.8	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/8/14 17:00	OFF	50,481.1	-	-	-	-	-	-	-	6,402.2	System off
4/11/14 10:45	ON	50,481.1	-	-	-	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/17/14 10:51	ON	50,589.6	12	-	126.50	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/22/14 17:00	OFF	50,623.8	-	-	-	-	-	-	-	6,402.2	System off
4/24/14 13:00	ON	50,623.8	12	-	139.72	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/24/14 17:00	OFF	50,629.0	-	-	-	-	-	-	-	6,402.2	System off

See Notes on Page 11.

Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
4/28/14 8:00	ON	50,629.0	12	-	153.12	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/28/14 20:00	OFF	50,638.1	-	-	-	-	-	-	-	6,402.2	System off
4/29/14 12:00	ON	50,638.1	-	-	-	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/30/14 17:45	OFF	50,667.8	-	-	-	-	-	-	-	6,402.2	System off
5/4/14 17:16	OFF	50,667.8	-	-	-	-	-	-	-	6,402.2	System off
5/15/14 15:00	ON	50,667.8	-	-	-	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/15/14 17:05	OFF	50,669.8	-	-	-	-	-	-	-	6,402.2	System off
5/16/14 9:30	ON	50,669.8	-	-	-	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/17/14 18:48	OFF	50,703.9	-	-	-	-	-	-	-	6,402.2	System off
5/23/14 10:00	ON	50,703.9	-	-	-	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/23/14 14:53	OFF	50,707.0	-	-	-	-	-	-	-	6,402.2	System off
5/27/14 10:00	ON	50,707.0	-	-	-	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/28/14 14:53	OFF	50,735.6	-	-	-	-	-	-	-	6,402.2	System off
5/29/14 9:15	ON	50,735.6	-	-	-	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/30/14 20:39	OFF	50,774.3	-	-	-	-	-	-	-	6,402.2	System off
6/6/14 14:04	OFF	50,774.3	-	-	-	-	-	-	-	6,402.2	System off
6/18/14 14:00	ON	50,774.3	12	-	132.72	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/23/14 12:25	ON	50,891.9	12	-	137.89	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/24/14 14:00	ON	-	-	-	-	-	-	-	-	6,402.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/25/14 15:12	OFF	-	-	-	-	-	-	-	-	6,402.2	System off
7/17/14 13:00	ON	50,931.8	12.0	17	161.57	6.4	62.4	0.9	47.6	6,449.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/18/14 21:00	OFF	50,939.5	-	-	-	-	-	-	-	6,449.7	System off
7/21/14 12:00	ON	50,939.5	12.0	-	148.77	-	-	-	-	6,449.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/21/14 22:34	OFF	50,950.2	-	-	-	-	-	-	-	6,449.7	System off
7/23/14 10:00	ON	50,950.2	12.0	-	152.16	-	-	-	-	6,449.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
8/8/14 0:50	OFF	51,325.7	-	-	-	-	-	-	-	6,449.7	System off
8/12/14 13:30	ON	51,325.7	12.0	-	146.46	-	-	-	-	6,449.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
8/14/14 2:30	OFF	51,362.3	-	-	-	-	-	-	-	6,449.7	System off
8/18/14 10:45	OFF	51,362.3	-	-	-	-	-	-	-	6,449.7	System off
8/27/14 13:00	ON	51,362.3	12.5	-	152.59	-	-	-	-	6,449.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/9/14 8:30	ON	51,870.6	12.0	13	158.73	5.1	60.8	0.7	6.8	6,456.6	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/22/14 2:13	OFF	52,176.8	-	-	-	-	-	-	-	6,456.6	System off
9/23/14 14:00	ON	52,176.8	12.0	-	156.94	-	-	-	-	6,456.6	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B

See Notes on Page 11.

Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
9/24/14 16:20	OFF	52,203.1	-	-	-	-	-	-	-	6,456.6	System off
9/30/14 12:00	OFF	52,203.1	-	-	-	-	-	-	-	6,456.6	System off
10/7/14 10:45	ON	52,203.1	12.0	-	148.77	-	-	-	-	6,456.6	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/21/14 9:35	ON	52,541.3	11.0	37	126.22	11.0	70.3	1.6	7.9	6,464.5	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/25/14 9:04	OFF	52,601.2	-	-	-	-	-	-	-	6,464.5	System off
10/31/14 10:45	ON	52,601.2	12.0	-	139.31	-	-	-	-	6,464.5	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/6/14 9:15	ON	52,744.7	12.0	31	126.50	16.0	48.4	1.3	3.6	6,468.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/21/14 13:48	OFF	53,109.6	-	-	-	-	-	-	-	6,468.2	System off
11/25/14 8:45	ON	53,109.6	12.0	-	128.29	-	-	-	-	6,468.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/9/14 9:35	OFF	53,350.8	-	-	-	-	-	-	-	6,468.2	System off
12/12/14 12:15	ON	53,350.8	11.0	-	147.25	-	-	-	-	6,468.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/16/14 11:30	OFF	53,356.4	-	-	-	-	-	-	-	6,468.2	System off
12/22/14 10:30	ON	53,356.4	12.0	18	135.18	4.1	77.2	0.8	7.8	6,476.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/30/14 4:56	OFF	53,365.4	-	-	-	-	-	-	-	6,476.0	System off
1/7/15 4:56	ON	53,365.4	-	-	-	-	-	-	-	6,476.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
1/7/15 12:15	OFF	53,365.4	-	-	-	-	-	-	-	6,476.0	System off
1/19/15 10:45	ON	53,365.4	11.0	-	137.60	-	-	-	-	6,476.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
1/22/15 6:50	OFF	53,434.6	-	-	-	-	-	-	-	6,476.0	System off
1/27/15 13:25	ON	53,434.6	11.0	13	143.15	4.1	68.5	0.6	4.1	6,480.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
1/31/15 12:23	OFF	53,529.0	-	-	-	-	-	-	-	6,480.1	System off
3/17/15 14:30	OFF	53,529.0	-	-	-	-	-	-	-	6,480.1	System off
3/20/15 13:10	ON	53,597.9	-	-	-	-	-	-	-	6,480.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/31/15 12:00	OFF	53,607.9	-	-	-	-	-	-	-	6,480.1	System off
4/3/15 12:30	ON	53,607.9	13.0	-	137.32	-	-	-	-	6,480.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/6/15 10:43	OFF	53,678.2	-	-	-	-	-	-	-	6,480.1	System off
4/8/15 10:00	ON	53,678.2	12.0	2	143.36	1.6	27.3	0.1	4.1	6,484.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/9/15 12:00	OFF	53,704.7	-	-	-	-	-	-	-	6,484.2	System off
4/13/15 10:42	ON	53,704.7	-	-	-	-	-	-	-	6,484.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/25/15 2:41	OFF	53,984.4	-	-	-	-	-	-	-	6,484.2	System off

See Notes on Page 11.

Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
4/28/15 10:00	ON	53,984.4	12.0	-	142.57	-	-	-	-	6,484.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/2/15 12:00	OFF	54,063.3	-	-	-	-	-	-	-	6,484.2	System off
5/7/15 10:00	ON	54,063.3	-	4	-	-	-	-	-	6,484.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/13/15 15:40	OFF	54,142.2	-	-	-	-	-	-	-	6,484.2	System off
6/9/15 0:00	ON	54,142.2	13.0	-	140.03	-	-	-	-	6,484.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/9/15 16:37	OFF	54,146.6	-	-	-	-	-	-	-	6,484.2	System off
6/30/15 10:00	ON	54,146.8	-	-	-	-	-	-	-	6,484.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/3/15 9:32	OFF	54,219.1	-	-	-	-	-	-	-	6,484.2	System off
7/8/15 11:30	ON	54,219.1	12.0	-	150.70	-	-	-	-	6,484.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/13/15 8:34	OFF	54,348.5	-	-	-	-	-	-	-	6,484.2	System off
7/15/15 10:00	ON	54,348.5	12.0	-	150.32	-	-	-	-	6,484.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/17/15 5:00	OFF	54,391.8	-	-	-	-	-	-	-	6,484.2	System off
7/17/15 10:55	ON	54,391.8	12.0	-	139.75	-	-	-	-	6,484.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/20/15 17:57	OFF	54,471.0	-	-	-	-	-	-	-	6,484.2	System off
7/27/15 10:30	ON	54,471.0	12.5	4	136.16	1.6	60.0	0.2	2.5	6,486.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/29/15 16:27	OFF	54,525.0	-	-	-	-	-	-	-	6,486.7	System off
7/31/15 12:52	ON	54,525.0	-	-	-	-	-	-	-	6,486.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/31/15 16:07	OFF	54,528.2	-	-	-	-	-	-	-	6,486.7	System off
8/4/15 9:15	ON	54,528.2	-	-	-	-	-	-	-	6,486.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
8/5/15 1:51	OFF	54,544.3	-	-	-	-	-	-	-	6,486.7	System off
8/7/15 11:45	ON	54,544.3	-	-	-	-	-	-	-	6,486.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
8/19/15 12:27	OFF	54,824.1	-	-	-	-	-	-	-	6,486.7	System off
8/28/15 10:35	ON	54,824.1	10.0	5	148.98	2.4	52.9	0.3	1.1	6,487.8	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/1/15 10:40	ON	54,918.2	10.0	8	151.08	4.4	47.0	0.4	0.2	6,488.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/3/15 11:03	OFF	54,935.9	-	-	-	-	-	-	-	6,488.0	System off
9/4/15 13:00	ON	54,935.9	-	-	-	-	-	-	-	6,488.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/27/15 16:54	OFF	55,492.4	-	-	-	-	-	-	-	6,488.0	System off

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Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
9/30/15 10:25	ON	55,492.4	11.0	-	143.98	-	-	-	-	6,488.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/2/15 15:00	OFF	55,544.1	-	-	-	-	-	-	-	6,488.0	System off
10/5/15 12:10	ON	55,544.1	12.0	-	136.47	-	-	-	-	6,488.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/12/15 13:20	ON	55,713.4	11.0	34	130.91	14.0	58.8	1.5	6.5	6,494.5	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
10/20/15 11:52	ON	55,903.9	11.0	-	133.62	-	-	-	-	6,494.5	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/7/15 22:03	OFF	56,341.2	-	-	-	-	-	-	-	6,494.5	System off
11/13/15 13:00	ON	56,341.2	11.0	-	132.72	-	-	-	-	6,494.5	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
11/16/15 16:21	OFF	56,416.7	-	-	-	-	-	-	-	6,494.5	System off
11/17/15 10:20	ON	56,416.7	12.0	27	134.79	10.0	63.0	1.2	7.7	6,502.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/8/15 9:14	ON	56,919.5	10.5	98	136.23	30.0	69.4	4.5	9.4	6,511.6	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/21/15 10:45	ON	57,233.1	12.0	-	112.27	-	-	-	-	6,511.6	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/31/15 17:25	OFF	57,480.3	-	-	-	-	-	-	-	6,511.6	System off
1/5/16 11:00	ON	57,480.3	13.0	-	108.56	-	-	-	-	6,511.6	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
1/26/16 13:13	OFF	57,987.7	-	-	-	-	-	-	-	6,511.6	System off
1/29/16 12:25	ON	57,987.7	13.0	77	113.86	30.0	61.0	3.0	30.2	6,541.8	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/3/16 10:10	OFF	58,106.2	-	-	-	-	-	-	-	6,541.8	System off
2/4/16 12:52	ON	58,106.2	13.0	-	111.96	-	-	-	-	6,541.8	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/11/16 13:07	ON	58,274.5	12.0	50	106.56	47.0	6.0	1.8	4.8	6,546.6	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/22/16 10:07	ON	58,535.5	12.0	-	103.32	-	-	-	-	6,546.6	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/24/16 20:25	OFF	58,594.0	-	-	-	-	-	-	-	6,546.6	System off
3/1/16 10:45	ON	58,594.0	12.5	63	114.59	9.7	84.6	2.4	6.3	6,552.9	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/7/16 13:14	OFF	58,741.4	-	-	-	-	-	-	-	6,552.9	System off
3/11/16 9:00	ON	58,741.4	13.0	-	114.33	-	-	-	-	6,552.9	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/11/16 11:28	OFF	58,745.5	-	-	-	-	-	-	-	6,552.9	System off
3/11/16 13:25	ON	58,745.5	13.0	-	114.33	-	-	-	-	6,552.9	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B

See Notes on Page 11.

Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
3/28/16 10:16	ON	59,149.4	12.0	-	101.65	-	-	-	-	6,552.9	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/29/16 9:00	OFF	59,196.8	-	-	-	-	-	-	-	6,552.9	System off
3/29/16 10:45	ON	59,196.8	-	-	-	-	-	-	-	6,552.9	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/4/16 9:19	ON	59,315.4	11.5	72	103.02	13.0	81.9	2.5	13.2	6,566.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/28/16 11:05	ON	59,388.7	12.0	-	97.08	-	-	-	-	6,566.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/3/16 10:12	ON	59,494.8	12.0	68	99.39	7.5	89.0	2.3	10.9	6,577.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/4/16 1:31	OFF	59,510.6	-	-	-	-	-	-	-	6,577.0	System off
5/4/16 10:04	ON	59,510.6	12.0	-	106.03	-	-	-	-	6,577.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/20/16 9:14	ON	59,893.7	12.0	-	112.27	-	-	-	-	6,577.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/31/16 9:15	OFF	60,158.3	-	-	-	-	-	-	-	6,577.0	System off
5/31/16 12:15	ON	60,158.3	12.0	-	111.76	-	-	-	-	6,577.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/6/16 0:29	OFF	60,303.8	-	-	-	-	-	-	-	6,577.0	System off
6/8/16 10:30	ON	60,303.8	-	-	-	-	-	-	-	6,577.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/13/16 0:27	ON	60,425.8	12.0	-	91.05	-	-	-	-	6,577.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/28/16 9:10	ON	60,623.6	11.0	59	112.70	13.0	78.0	2.2	19.9	6,596.9	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/7/16 11:33	OFF	60,842.2	-	-	-	-	-	-	-	6,596.9	System off
7/12/16 9:55	ON	60,842.2	13.5	27	139.12	3.7	86.3	1.3	4.0	6,600.9	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/16/16 22:47	OFF	60,927.7	-	-	-	-	-	-	-	6,600.9	System off
7/20/16 12:34	ON	60,927.7	13.5	-	133.39	-	-	-	-	6,600.9	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/23/16 2:29	OFF	60,989.8	-	-	-	-	-	-	-	6,600.9	System off
7/26/16 10:00	ON	-	-	-	-	-	-	-	-	6,600.9	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/1/16 10:00	ON	60,989.8	14.0	-	137.00	-	-	-	-	6,600.9	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/2/16 23:21	OFF	61,027.5	-	-	-	-	-	-	-	6,600.9	System off
9/8/16 10:40	ON	61,027.5	12.0	10	137.67	5.8	42.0	0.5	7.9	6,608.8	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
9/11/16 14:41	OFF	61,051.7	-	-	-	-	-	-	-	6,608.8	System off
11/3/16 9:30	ON	61,180.8	10.0	-	180.01	-	-	-	-	6,608.8	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B

See Notes on Page 11.

Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
11/15/16 9:05	ON	61,470.1	10.0	15	171.40	3.5	76.7	0.9	6.9	6,615.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/1/16 14:00	ON	61,839.3	-	-	-	-	-	-	-	6,615.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/2/16 9:00	OFF	61,858.4	-	-	-	-	-	-	-	6,615.7	System off
12/8/16 13:32	ON	61,858.4	-	-	-	-	-	-	-	6,615.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/9/16 23:49	OFF	61,868.7	-	-	-	-	-	-	-	6,615.7	System off
12/19/16 9:50	ON	61,868.7	10.0	-	178.27	-	-	-	-	6,615.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
12/20/16 21:57	OFF	61,905.6	-	-	-	-	-	-	-	6,615.7	System off
12/23/16 8:40	ON	61,905.6	-	4	-	1.6	60.0	-	-	6,615.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
1/5/17 8:00	OFF	61,910.3	-	-	-	-	-	-	-	6,615.7	System off
2/15/17 10:22	ON	61,910.4	-	-	-	-	-	-	-	6,615.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/20/17 10:54	OFF	62,031.2	-	-	-	-	-	-	-	6,615.7	System off
2/24/17 0:00	ON	62,031.2	10.0	-	178.27	-	-	-	-	6,615.7	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
2/27/17 17:46	OFF	62,110.3	-	-	-	-	-	-	-	6,615.7	System off
2/28/17 11:00	ON	62,110.3	11.0	1	171.69	2.3	-360.0	0.0	7.4	6,623.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/1/17 3:00	OFF	62,136.2	-	-	-	-	-	-	-	6,623.1	System off
3/2/17 9:20	ON	62,136.2	11.0	-	172.04	-	-	-	-	6,623.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/2/17 11:20	ON	-	11.0	-	186.42	-	-	-	-	6,623.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/3/17 11:20	OFF	-	-	-	-	-	-	-	-	6,623.1	System off
3/6/17 0:00	ON	-	-	-	-	-	-	-	-	6,623.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/7/17 0:00	OFF	62,234.9	-	-	-	-	-	-	-	6,623.1	System off
3/8/17 10:30	ON	62,234.9	10.0	-	174.70	-	-	-	-	6,623.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/8/17 13:03	ON	62,237.8	10.3	-	173.37	-	-	-	-	6,623.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/10/17 17:12	OFF	62,237.8	-	-	-	-	-	-	-	6,623.1	System off
3/15/17 9:45	ON	62,237.8	10.0	-	180.03	-	-	-	-	6,623.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/15/17 18:36	OFF	62,246.5	-	-	-	-	-	-	-	6,623.1	System off
3/20/17 10:20	ON	62,246.5	10.0	11	199.31	5.6	49.1	0.7	1.1	6,624.3	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/20/17 20:00	OFF	62,256.1	-	-	-	-	-	-	-	6,624.3	System off

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Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
3/21/17 9:30	ON	62,256.1	12.0	-	155.16	-	-	-	-	6,624.3	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/21/17 11:10	OFF	62,258.6	-	-	-	-	-	-	-	6,624.3	System off
3/28/17 10:25	ON	62,258.6	12.0	-	170.16	-	-	-	-	6,624.3	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/31/17 11:10	ON	62,329.1	12.0	-	166.11	-	-	-	-	6,624.3	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
3/31/17 20:18	OFF	62,341.2	-	-	-	-	-	-	-	6,624.3	System off
4/3/17 8:30	ON	62,341.2	13.0	-	172.90	-	-	-	-	6,624.3	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/11/17 14:31	OFF	62,539.0	-	-	-	-	-	-	-	6,624.3	System off
4/13/17 10:20	ON	62,539.0	13.0	-	163.01	-	-	-	-	6,624.3	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
4/21/17 10:45	ON	62,731.9	13.0	-	160.36	-	-	-	-	6,624.3	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
5/6/17 16:40	OFF	63,098.9	-	-	-	-	-	-	-	6,624.3	System off
6/1/17 14:00	ON	63,098.9	13.0	-	177.48	-	-	-	-	6,624.3	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/2/17 2:30	OFF	63,112.6	-	-	-	-	-	-	-	6,624.3	System off
6/14/17 10:10	ON	63,112.6	15.0	-	139.59	-	-	-	-	6,624.3	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/15/17 20:14	OFF	63,146.8	-	-	-	-	-	-	-	6,624.3	System off
6/16/17 13:35	ON	63,146.8	-	-	-	-	-	-	-	6,624.3	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/19/17 7:44	ON	63,213.3	14.0	46	139.89	22.0	52.2	2.2	23.3	6,647.5	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
6/30/17 12:28	ON	63,482.1	14.0	-	140.25	-	-	-	-	6,647.5	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B
7/1/17 13:00	OFF	63,506.7	-	-	-	-	-	-	-	6,647.5	System off
7/13/17 11:00	ON	63,506.7	14.0	71	134.74	47.0	33.8	3.2	10.3	6,657.8	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
7/25/17 9:00	ON	63,518.4	14.0	-	135.49	-	-	-	-	6,657.8	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
7/26/17 8:00	OFF	63,541.5	-	-	-	-	-	-	-	6,657.8	System off
8/13/17 13:00	ON	63,541.5	-	-	-	-	-	-	-	6,657.8	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
8/16/17 14:50	ON	63,593.0	15.0	220	104.29	160.0	27.3	7.8	31.4	6,689.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
8/19/17 10:50	OFF	63,661.1	-	-	-	-	-	-	-	6,689.2	System off
8/22/17 8:00	ON	63,661.1	15.0	-	102.00	-	-	-	-	6,689.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
8/22/17 19:30	OFF	63,671.1	-	-	-	-	-	-	-	6,689.2	System off

See Notes on Page 11.

Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
8/23/17 9:20	ON	63,671.1	15.0	-	106.09	-	-	-	-	6,689.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
8/24/17 12:50	ON	63,697.0	15.0	-	108.30	-	-	-	-	6,689.2	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
9/1/17 18:33	OFF	63,824.3	-	-	-	-	-	-	-	6,689.2	System off
9/5/17 11:50	ON	63,824.3	14.0	79	114.07	57.0	27.8	3.0	17.2	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
9/6/17 16:00	OFF	63,828.0	-	-	-	-	-	-	-	6,706.4	System off
9/7/17 11:00	ON	63,828.0	14.0	-	114.95	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
9/8/17 6:00	OFF	63,852.3	-	-	-	-	-	-	-	6,706.4	System off
9/8/17 11:00	ON	63,852.3	14.0	-	109.56	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
9/9/17 7:45	OFF	63,904.1	-	-	-	-	-	-	-	6,706.4	System off
9/13/17 12:45	ON	63,904.1	13.0	-	132.15	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
9/14/17 6:54	OFF	63,923.1	-	-	-	-	-	-	-	6,706.4	System off
9/15/17 11:45	ON	63,923.1	13.0	-	128.45	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
9/16/17 5:29	OFF	63,941.9	-	-	-	-	-	-	-	6,706.4	System off
9/19/17 10:50	ON	63,941.9	13.0	-	131.34	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
9/20/17 6:09	OFF	63,962.2	-	-	-	-	-	-	-	6,706.4	System off
9/21/17 12:00	ON	63,962.2	12.0	-	136.47	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
9/21/17 18:14	OFF	-	-	-	-	-	-	-	-	6,706.4	System off
9/25/17 8:00	ON	-	-	-	-	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
9/25/17 10:51	OFF	-	-	-	-	-	-	-	-	6,706.4	System off
9/25/17 14:10	ON	-	-	-	-	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
9/25/17 15:26	OFF	63,974.6	-	-	-	-	-	-	-	6,706.4	System off
10/3/17 9:30	ON	63,974.6	14.0	-	145.54	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
10/3/17 14:14	OFF	63,981.2	-	-	-	-	-	-	-	6,706.4	System off
10/4/17 11:15	ON	63,981.2	14.0	-	144.84	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
10/4/17 21:31	OFF	63,991.5	-	-	-	-	-	-	-	6,706.4	System off
10/6/17 10:40	ON	63,991.5	-	-	-	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
10/7/17 1:29	OFF	64,010.1	-	-	-	-	-	-	-	6,706.4	System off

See Notes on Page 11.

Table H-1
Soil Vapor Extraction System Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	System Status	Hour Meter (Hours)	Manifold Vacuum (in. Hg)	Influent (ppmv)	Influent (SCFM)	Effluent (ppmv)	Treatment Efficiency	Hydrocarbons Recovered			Operating Extraction Points
								(lbs/day)	Period (gallons)	Cumulative (gallons)	
10/9/17 9:40	ON	64,010.1	14.0	-	155.59	-	-	-	-	6,706.4	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
10/9/17 14:10	OFF	64,013.9	-	-	-	-	-	-	-	6,706.4	System off
10/23/17 10:20	ON	64,013.9	14.5	43	139.50	8.7	79.8	2.0	19.6	6,726.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
10/24/17 6:44	OFF	64,034.3	-	-	-	-	-	-	-	6,726.0	System off
10/24/17 13:45	ON	64,034.3	-	-	-	-	-	-	-	6,726.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
10/24/17 20:05	OFF	64,042.3	-	-	-	-	-	-	-	6,726.0	System off
11/1/17 10:00	ON	64,042.3	14.0	-	127.83	-	-	-	-	6,726.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
11/1/17 21:21	OFF	64,053.7	-	-	-	-	-	-	-	6,726.0	System off
11/2/17 10:00	ON	64,053.7	-	-	-	-	-	-	-	6,726.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
11/4/17 15:50	OFF	64,081.7	-	-	-	-	-	-	-	6,726.0	System off
12/5/17 12:17	ON	64,081.7	14.0	-	132.86	-	-	-	-	6,726.0	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
12/7/17 14:37	OFF	64,133.7	-	-	-	-	-	-	-	6,726.0	System off
12/12/17 13:21	ON	64,133.7	14.0	22	140.60	5.7	74.1	1.0	12.1	6,738.1	MW-7, RW-1, RW-2, RW-3, RW-4, RW-5, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
12/16/17 8:23	OFF	64,224.7	-	-	-	-	-	-	-	6,738.1	System off
3/1/18 7:40	ON	64,224.7	14.5	13	122.05	4.5	65.4	0.5	9.6	6,747.7	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
3/2/18 9:40	OFF	64,339.7	-	-	-	-	-	-	-	6,747.7	System off
3/20/18 7:01	ON	64,339.7	14.5	-	119.16	-	-	-	-	6,747.7	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
3/26/18 19:57	OFF	64,494.7	-	-	-	-	-	-	-	6,747.7	System off
3/27/18 10:40	ON	64,494.7	14.0	-	128.22	-	-	-	-	6,747.7	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306
3/28/18 19:27	OFF	64,530.8	-	-	-	-	-	-	-	6,747.7	System off
3/29/18 10:00	ON	64,530.8	13.5	-	128.22	-	-	-	-	6,747.7	MW-7, RW-1, RW-2, RW-3, RW-4, MW-17, MW-22R, GP-39R, GP-27R, PTW-B, GP-306

Notes:
1. Hydrocarbons recovered are expressed as toluene (MW = 92 g/mol @ 77F).
2. Hydrocarbons Recovered (lbs/day) = (inf. conc.) x (92 g/mol) x (mol/24.45 L) x (e-6) x (inf. flow) x (28.32 L/ft3) x (1440 min/day) x (1 lb/453.6 g).
3. Hydrocarbons Recovered Period (gallons) = (avg. inf. conc.) x (92 g/mol) x (mol/24.45 L) x (e-6) x (avg. inf. flow) x (28.32 L/ft3) x (runtime in minutes) x (1 lb/453.6 g) x (gal/6.39 lb).

Table H-2
Soil Vapor Extraction System Influent Analytical Results

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylene (µg/L)	TPH (µg/L)	Flow (SCFM)	Extraction Rate	
							Benzene (lbs/hour)	TPH (lbs/day)
1/2/13 14:19	1.20	8.40	2.50	17.00	310	176	0.0008	4.92
2/4/13 11:35	1.00	6.00	1.70	12.00	300	170	0.0006	4.60
3/28/13 14:15	1.30	4.30	0.67	4.60	420	102	0.0005	3.85
4/1/13 13:15	13.00	43.00	6.30	45.00	420	100	0.0049	3.79
5/6/13 9:45	1.00	2.80	0.55	4.10	350	99	0.0004	3.11
7/1/13 9:15	<0.19	1.15	<0.19	2.26	147	130	0.0001	1.72
8/5/13 10:50	0.15	0.36	0.05	0.40	107	138	0.0001	1.33
9/19/13 10:35	<0.14	0.28	<0.19	<0.19	57	128	0.0001	0.66
10/10/13 10:15	<0.14	0.24	0.23	<0.19	43	129	0.0001	0.50
11/14/13 9:45	0.08	0.38	0.08	0.89	93	127	0.0000	1.06
12/19/13 9:15	0.05	0.25	<0.06	0.71	82	128	0.0000	0.95
2/27/14 13:55	0.28	1.90	0.44	4.20	360	135	0.0001	4.38
3/6/14 10:15	0.17	0.95	0.22	2.20	250	134	0.0001	3.01
4/17/14 11:05	1.00	3.40	0.64	4.10	390	127	0.0005	4.44
5/29/14 9:15	<0.570	1.60	<0.770	2.30	110	-	-	-
6/23/14 0:00	<0.571	1.50	0.32	2.10	120	138	0.0002	1.49
7/23/14 14:15	0.14	0.84	0.26	2.10	69	154	0.0001	0.95
8/27/14 12:10	0.11	0.41	0.08	0.59	-	150	0.0001	-
9/30/14 12:15	0.12	0.36	0.09	0.72	54	-	-	-
10/21/14 10:15	0.32	1.10	0.24	2.10	150	125	0.0001	1.68
11/6/14 10:20	0.23	0.99	0.22	1.90	130	125	0.0001	1.47
12/22/14 13:05	0.17	0.93	0.22	2.00	73	134	0.0001	0.88
1/27/15 14:25	0.12	0.61	0.14	1.20	-	143	0.0001	-
4/8/15 13:35	0.08	0.24	0.06	0.61	9	143	0.0000	0.12
5/7/15 12:00	0.24	0.59	0.16	0.96	19	-	-	-
7/27/15 11:00	3.90	5.00	0.67	3.90	36	136	0.0020	0.44
8/28/15 12:50	0.35	0.69	0.15	0.72	21	149	0.0002	0.28
9/1/15 11:20	0.21	0.45	0.07	0.51	34	151	0.0001	0.46
10/12/15 12:20	0.62	1.70	0.23	2.40	140	131	0.0003	1.65
11/17/15 11:15	0.41	1.90	0.28	3.10	110	135	0.0002	1.33
12/8/15 10:20	1.30	7.30	1.30	13.00	400	136	0.0007	4.90
1/29/16 14:10	1.20	4.60	0.80	8.10	320	114	0.0005	3.28
2/11/16 14:15	0.38	3.90	0.61	6.00	200	107	0.0002	1.92
3/1/16 14:20	0.60	4.00	0.64	7.30	260	115	0.0003	2.68
4/4/16 10:15	0.52	4.40	0.82	9.30	290	103	0.0002	2.69
5/3/16 11:00	0.70	5.60	0.98	9.80	280	91	0.0002	2.29
6/28/16 9:30	0.46	3.50	0.67	6.20	240	113	0.0002	2.43
7/12/16 13:00	0.35	1.50	0.25	2.50	110	139	0.0002	1.38
9/8/16 14:15	0.06	0.15	< 0.017	0.13	43	138	0.0000	0.53
11/15/16 10:05	0.14	0.45	0.07	0.88	62	171	0.0001	0.96
12/23/16 9:45	0.03	0.09	< 0.017	0.15	16	-	-	-
2/28/17 14:15	< 0.013	< 0.015	< 0.017	< 0.017	< 2.0	172	0.0000	0.03
3/20/17 12:00	0.19	0.41	0.07	0.67	45	199	0.0001	0.81
4/28/17 10:15	0.33	2.00	0.46	4.50	190	-	-	-
6/19/17 9:05	0.30	2.00	0.31	4.20	190	140	0.0002	2.39
7/13/17 14:45	0.20	1.60	0.27	4.20	290	135	0.0001	3.51
8/16/17 15:15	2.70	10.00	1.80	20.00	910	104.29	0.0011	8.53
9/5/17 12:50	0.66	4.10	0.78	7.70	320	114	0.0003	3.28
10/23/17 14:15	0.140	1.6	0.49	5	180	139	0.0001	2.26
12/12/17 15:15	0.12	0.27	0.04	0.47	91	141	0.0001	1.15
3/1/18 14:00	0.01	0.04	0.02	0.07	51	141	0.0000	0.64

Notes:
1. Benzene (lbs/h) = (benzene conc.) x (e-6) x (1 lb/453.6 g) x (flow) x (28.32 L/ft3) x (60 min/hr).
2. TPH (lbs/day) = (TPH conc.) x (e-6) x (1 lb/453.6 g) x (flow) x (28.32 L/ft3) x (1440 min/day).
3. ug/L = (ppmv) x (MW g/mol) x (mol/24.45 L), where MW benzene = 78 and MW TPH = 92.
4. BTEX values after 7/1/2013 were converted from ppb.

Table H-3
Soil Vapor Extraction System Effluent Analytical Results

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylene (µg/L)	TPH (µg/L)	Flow (SCFM)	Discharge Rate	
							Benzene (lbs/hour)	TPH (lbs/day)
1/2/13 14:30	0.21	1.2	0.31	2.3	82	176	0.0001	1.30
2/4/13 11:40	0.19	0.81	0.2	1.4	79	170	0.0001	1.21
3/28/13 14:20	0.27	0.76	0.12	0.88	140	102	0.0001	1.28
4/1/13 13:20	0.033	0.097	<.0043	1.2	140	100	0.0000	1.26
5/6/13 9:50	-	-	-	-	110	99	-	0.98
7/1/13 7:00	<0.06	0.25	<0.06	0.14	32	130	0.0000	0.37
8/5/13 10:40	0.02	0.04	0.01	0.05	6	139	0.0000	0.07
9/19/13 10:40	<0.14	<0.14	<0.14	<0.14	18	129	0.0001	0.21
10/10/13 10:20	<0.14	<0.14	<0.14	<0.19	15	129	0.0001	0.17
11/14/13 9:50	0.01	0.04	<0.01	0.08	18	127	0.0000	0.21
12/18/13 9:20	<0.01	0.03	<0.02	0.04	27	128	0.0000	0.31
2/27/14 14:00	0.04	0.17	<0.05	0.34	90	135	0.0000	1.09
3/6/14 10:20	0.04	0.17	0.05	0.40	82	134	0.0000	0.99
4/17/14 11:00	0.073	0.25	0.08	0.61	37	127	0.0000	0.42
5/29/14 9:20	<0.280	0.40	<0.380	0.52	44	-	-	-
6/24/14 14:00	<0.281	0.20	0.04	0.310	32	138	0.0000	0.40
7/23/14 14:20	0.042	0.20	0.07	0.510	26	154	0.0000	0.36
8/27/14 12:20	0.033	0.110	0.023	0.160	-	150	0.0000	-
9/30/14 12:20	0.029	0.079	0.019	0.140	21	-	-	-
10/21/14 10:15	0.076	0.21	0.042	0.38	45	125	0.0000	0.50
11/6/14 10:20	0.087	0.410	0.090	0.810	66	125	0.0000	0.74
12/22/14 13:10	0.035	0.220	0.051	0.310	17	134	0.0000	0.21
1/27/15 14:30	0.03	0.130	0.029	0.250	-	143.15	0.0000	-
4/8/15 13:20	0.038	0.099	<0.021	0.170	6.4	143.36	0.0000	0.08
7/27/15 11:15	0.078	0.140	0.025	0.150	6.7	136	0.0000	0.08
8/28/15 12:55	0.110	0.21	0.05	0.07	2	149	0.0001	0.03
9/1/15 11:25	0.077	0.14	0.02	0.180	18	151	0.0000	0.24
10/12/15 12:35	0.170	0.42	0.07	0.68	56	131	0.0001	0.66
11/17/15 11:20	0.110	0.45	0.10	1.000	42	135	0.0001	0.51
12/8/15 10:30	0.340	1.50	0.28	2.70	120	136	0.0002	1.47
1/29/16 14:20	0.250	1.40	0.21	2.000	120	114	0.0001	1.23
2/11/16 14:40	0.310	2.00	0.43	3.50	190	107	0.0001	1.82
3/1/16 14:15	0.040	0.24	0.04	0.480	40	115	0.0000	0.41
4/4/16 10:20	0.054	0.37	0.09	0.82	52	103	0.0000	0.48
5/3/16 11:05	0.045	0.24	0.06	0.580	31	91	0.0000	0.25
6/28/16 9:20	0.054	0.37	0.09	0.89	51	113	0.0000	0.52
7/12/16 13:00	0.075	0.08	0.01	0.110	4	139	0.0000	0.05
9/8/16 14:20	0.017	0.07	< 0.017	0.04	24	138	0.0000	0.30
11/15/16 10:00	0.013	0.04	< 0.017	0.083	14	171	0.0000	0.22
12/23/16 9:50	< 0.013	0.02	< 0.017	0.01	2	-	-	-
2/28/17 14:20	0.027	0.06	< 0.017	0.087	9	172	0.0000	0.14
3/20/17 12:05	0.100	0.21	0.03	0.15	23	199	0.0001	0.41
4/28/17 10:20	0.210	1.10	0.23	2.000	110	-	-	-
6/19/17 9:20	0.17	0.900	0.110	1.200	88.00	140	0.0001	1.11
7/13/17 14:45	0.120	0.730	0.090	1.2	190	135	0.0001	2.30
8/16/17 15:20	1.8	6.5	0.850	9	650	104.29	0.0007	6.09
9/5/17 12:50	0.45	2.8	0.48	4.7	230	114	0.0002	2.36
10/23/17 14:20	<0.013	0.029	<0.017	0.061	36	139	0.0000	0.45
12/12/17 15:20	<0.013	0.022	<0.017	0.027	23	141	0.0000	0.29
3/1/18 14:05	<0.013	0.035	<0.017	0.050	4.5	142	0.0000	0.06

Notes:
1. Benzene (lbs/h) = (benzene conc.) x (e-6) x (1 lb/453.6 g) x (flow) x (28.32 L/ft3) x (60 min/hr).
2. TPH (lbs/day) = (TPH conc.) x (e-6) x (1 lb/453.6 g) x (flow) x (28.32 L/ft3) x (1440 min/day).
3. ug/L = (ppmv) x (MW g/mol) x (mol/24.45 L), where MW benzene = 78 and MW TPH = 92.
4. One Tedlar bag containing the effluent air sample collected on 5/6/13 ruptured during shipment to the laboratory. As a result, no sample was available for analysis of benzene, toluene, ethylbenzene, and xylenes.
5. BTEX values after 7/1/2013 were converted from ppb.

APPENDIX I

Area B ISGR System Data

Table I-1
In-Situ Groundwater Remediation Wells Monitoring Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

ARCADIS Design & Consultancy for natural and built assets

ID	Date	On/Off Status	Hour Meter	Totalizer Reading	Flow Rate (GPM)	Influent Pressure (PSI)	Pump Set Point (%)	Pump Temp. (°C)	Pump Speed (RPM)	Power Input (W)	Power Consump. (kWh)	Sensor #1 (%)	# of Starts	Operating Hours
ISGR-1	9/30/2013 12:19	ON	813.3	-	2	8	21	41	5800	90	80	67.9	280	-
	10/30/2013 7:00	ON	1533.5	554574	0.4	8.9	21	40	5800	90	150	21.3	730	1532
	11/21/2013 11:30	OFF	2061.4	598433	0.8	3.6	28	42	6200	100	208	36.1	1175	2060
	11/21/2013 13:00	ON	-	-	1.8	9.3	45	29	7500	170	208	58.7	1179	2060
	11/26/2013 11:30	OFF	2181.5	-	1	17.5	45	31	7400	190	230	30.7	1243	2178
	12/12/2013 9:10	OFF	2310.3	-	1	0.7	60	23	0	0	266	31	1245	2308
	12/18/2013 11:35	ON	2456.2	-	1.5	14.9	60	29	7400	200	298	43.3	1251	2454
	2/7/2014 12:45	ON	3679.8	-	0.7	4.9	70	51	8200	190	514	24.7	1257	3678
	2/17/2014 13:00	ON	-	-	-	-	-	-	-	-	-	-	-	-
	3/6/2014 13:00	ON	4329.5	-	0.6	3.8	70	51	8100	180	640	24.4	1257	4328
	3/24/2014 9:15	YES	4756.8	-	0.6	3.6	70	51	8200	180	722	41.1	1257	4756
	4/11/2014 11:45	YES	5143.2	-	1.5	3.8	70	51	8200	180	796	38.3	1257	5144
	4/25/2014 10:15	YES	5597.7	-	1.4	4.0	73	50	8100	180	884	41.7	1257	5598
	5/12/2014 10:46	YES	5934.2	-	1.7	4.3	73	50	8100	180	948	54	1257	5936
	5/20/2014 12:34	YES	6126.9	-	1.8	3.7	73	38	8200	180	986	58.7	1262	6128
	6/23/2014 14:02	NO	6399.2	-	1.9	3.5	73	30	8200	180	1038	65.4	1264	6402
	7/23/2014 11:00	YES	7116.3	-	1.9	3.7	73	46	8200	180	1174	62.5	1266	7120
	8/13/2014 13:00	YES	7742.1	-	1.5	3.3	73	51	8100	180	1298	44.6	1268	7746
	9/8/2014 8:00	YES	-	-	1.3	0.6	80	31	8400	180	1338	38	1270	7982
	10/7/2014 10:35	YES	-	-	1.2	2.2	83	41	8400	180	1479	-	1272	-
	11/6/2014 12:10	YES	-	-	1.3	2.4	86	47	8400	180	1607	43	1273	-
	12/9/2014 11:00	YES	10139.3	-	1.5	2.6	90	53	8400	180	1772	48.9	1274	10146
	1/27/2015 10:06	YES	11312	-	1.3	2.9	90	54	8400	190	2006	37.3	1274	11322
	3/4/2015 10:30	NO	11939.4	-	1.3	1.9	90	26	8400	190	2132	21.6	1275	11950
	4/28/2015 12:00	YES	13260.2	-	1.6	3.5	90	50	8400	190	5400	48	1280	13272
	5/7/2015 9:00	YES	-	-	1.6	3.6	90	48	8400	190	2444	50.6	1280	13490
	6/23/2015 11:05	NO	14285.5	-	1.6	2.8	90	29	8400	200	2608	49.6	1285	14300
	7/27/2015 12:55	YES	15103.3	-	1.9	3.9	90	49	8400	190	2774	59.1	1285	15118
	8/28/2015 11:23	YES	15869.7	-	1.9	3.6	90	53	8400	190	2930	48	1285	15886
	9/1/2015 12:41	YES	15967	-	1.9	3.5	90	53	8400	190	2948	61.9	1304	15984
	10/20/2015 13:45	YES	17144.1	-	1.4	2.7	95	51	8700	210	3188	43.3	1305	17164
	11/17/2015 12:30	YES	17815.8	-	1.4	4.2	95	52	8700	210	3338	47.7	1305	17836
	12/21/2015 11:42	YES	18631	-	1.5	4.1	95	56	8700	210	3522	47.4	1307	18652
	1/5/2016 12:46	YES	18992	-	1.4	3.9	95	55	8700	210	3602	44.3	1307	19014
	1/29/2016 13:10	NO	19504.7	-	2.5	2.9	95	30	8700	220	3716	100	1308	19528
	2/22/2016 13:08	YES	20080.7	-	1.6	4.3	95	51	8700	210	3846	50.6	1308	20104
	3/1/2016 13:45	NO	201345	-	1.2	2.8	95	28	8700	210	3858	41.7	1309	20158
	3/28/2016 12:02	YES	20779.8	-	1.5	5.5	95	46	8700	210	4002	44.3	1309	20806
	4/4/2016 11:33	NO	20910.9	-	2.5	3.2	90	31	8200	180	4032	100	1312	20936
	5/20/2016 10:02	YES	22013.3	-	1.5	4.9	90	54	8700	210	4274	48	1312	22040
	6/13/2016 13:35	YES	22592.8	-	2.1	5.3	90	53	8700	210	4402	72.6	1313	22622
	7/29/2016 8:15	NO	23002.8	-	1.4	3.9	90	30	8700	220	4494	41.1	1316	23032
	8/16/2016 12:58	YES	23439.5	-	1.7	4.9	90	49	8700	200	4590	55.6	1375	23470
	9/14/2016 10:00	YES	-	-	1.7	2.9	90	51	8700	200	-	56.9	1397	-
	10/24/2016 11:03	YES	25093.5	-	1.8	4.5	90	53	8700	200	4944	57.5	1429	25126

Table I-1
In-Situ Groundwater Remediation Wells Monitoring Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

ARCADIS Design & Consultancy for natural and built assets

ID	Date	On/Off Status	Hour Meter	Totalizer Reading	Flow Rate (GPM)	Influent Pressure (PSI)	Pump Set Point (%)	Pump Temp. (°C)	Pump Speed (RPM)	Power Input (W)	Power Consump. (kWh)	Sensor #1 (%)	# of Starts	Operating Hours
ISGR-1 (cont.)	11/15/2016 12:08	NO	25522.6	-	2.1	3.2	90	31	8700	220	5036	89.3	1433	25556
	12/17/2016 13:00	NO	26242.4	-	1.2	3.8	90	31	8700	210	5190	37.0	1436	26278
	1/5/2017 12:40	YES	26650.4	-	1.9	5.0	90	56	8700	200	5278	63.1	1436	26686
	2/7/2017 12:50	YES	27442.5	-	2.1	5.8	93	59	8900	190	5452	71.7	1436	27480
	3/20/2017 14:20	YES	28427.1	-	1.4	3.3	93	52	9100	210	5680	41.4	2724	28466
	4/3/2017 12:30	NO	28620.6	-	1.6	6.8	90	40	9200	220	5274	49.9	2726	28660
	5/26/2017 11:16	NO	29890.9	-	0	1.8	90	51	0	0	6022	36.4	2731	29392
	6/19/2017 10:10	NO	30465.8	-	1.4	2.6	90	29	6300	80	6022	43.6	2762	30100
	7/13/2017 15:30	YES	31046.2	-	0	2.9	90	49	9200	380	6391	41.2	2803	30692
	8/24/2017 14:15	NO	31638.9	-	0	1.1	90	30	10400	380	6448	34.2	2846	31276
	9/19/2017 12:53	YES	32261.6	-	1.8	8.4	93	70	10400	320	6662	55.9	2847	31898
	10/9/2017 12:35	YES	32741.3	-	0.6	6.3	95	73	10700	270	6834	23.8	3158	32372
	11/29/2017 12:30	NO	33917.8	-	0.5	2.5	90	32	10000	230	7112	22.5	3162	33550
	12/12/2017 14:00	YES	34231	-	0.6	3.9	95	71	10400	250	7198	23.8	3164	33864
	1/6/2018 15:00	NO	34326.4	-	1.3	2.3	90	40	9200	270	7286	28.2	3176	34183
	2/23/2018 14:00	NO	34455.2	-	1.2	2.5	90	62	9200	280	7262	37.0	3195	34088
	3/1/2018 12:58	YES	34598.7	-	1.7	2.7	94	73	10700	270	7304	52.8	3195	34232
ISGR-2	9/30/2013 12:21	OFF	828.5	-	0	0.1	22	25	0	0	50	20	4342	528
	10/30/2013 7:00	OFF	1068.3	21663	0	0.1	STOP	22	0	0	76	20	4344	768
	11/21/2013 11:30	ON	1595.1	21663	0	0.1	42	31	7200	160	142	20	4348	1294
	11/21/2013 13:00	ON	2063.5	-	0	8.2	55	32	8000	210	144	20	4350	1296
	11/26/2013 12:20	ON	17159	-	0	10.9	50	33	8000	210	170	-	4350	1416
	12/12/2013 9:30	OFF	1727.8	-	0	0.7	50	22	0	0	172	20	4351	1428
	12/18/2013 9:00	OFF	1728.5	-	2.4	1.6	50	34	8000	230	172	90.9	4357	1428
	2/7/2014 12:50	NO	-	-	-	-	-	-	-	-	-	-	-	-
	2/17/2014 13:00	OFF	1982.1	-	2.5	0.8	50	22	0	0	194	100	4470	1682
	3/6/2014 14:00	OFF	2005.3	-	2.5	3.8	70	29	8100	230	196	100	4497	1706
	3/24/2014 9:20	NO	2279.1	-	-	-	-	-	-	-	-	-	-	-
	4/11/2014 12:37	YES	2279.4	-	1.8	6.5	70	31	8300	240	262	58.7	4511	1980
	4/25/2014 10:50	NO	2429.8	-	2.4	6.7	80	31	8300	230	274	88.3	4524	2130.4
	5/12/2014 10:48	YES	2466.1	-	1.6	4.0	80	31	8300	230	284	22.5	4525	2166.7
	5/20/2014 12:36	NO	2559.5	-	0	0.1	80	27	8300	240	306	20	4534	2260
	6/23/2014 14:05	NO	2628	-	2.5	4.1	83	26	8300	230	310	20.1	-	2328.5
	7/23/2014 12:00	NO	3174.0	-	2.5	3.6	90	29	8100	230	330	100	4550	2876
	8/13/2014 13:02	YES	3799.8	-	2.5	4.0	90	26	2400	10	338	100	4556	3502
	9/8/2014 8:20	NO	-	-	0	0.8	93	31	8300	230	340	20	4558	3738
	10/7/2014 11:30	YES	-	-	0	0.5	93	35	8300	230	275	20	4568	-
	11/6/2014 11:45	YES	-	-	2.5	6.5	93	50	8300	220	310	20	4577	-
	12/9/2014 11:05	YES	5500.0	-	2.5	7.5	93	38	6600	120	56	100	4595	5204
	1/27/2015 10:06	YES	6672.7	-	2.5	7.5	93	39	6600	120	710	100	4595	6378
	3/4/2015 10:00	YES	7536.5	-	2.5	10.8	93	41	8000	190	862	100	4601	7242
	4/28/2015 12:05	YES	8594.2	-	2.5	11.2	95	30	6800	130	1006	100	4887	8302
	5/7/2015 9:00	YES	8811.3	-	2.5	10.7	95	31	6800	140	1038	100	4887	8518
	6/23/2015 11:07	NO	9619.6	-	0	0.1	90	31	8700	260	1252	20	4893	9328
	7/27/2015 12:50	YES	10389	-	2.5	6.4	90	27	2400	10	1310	100	4900	10098

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In-Situ Groundwater Remediation Wells Monitoring Data

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

ID	Date	On/Off Status	Hour Meter	Totalizer Reading	Flow Rate (GPM)	Influent Pressure (PSI)	Pump Set Point (%)	Pump Temp. (°C)	Pump Speed (RPM)	Power Input (W)	Power Consump. (kWh)	Sensor #1 (%)	# of Starts	Operating Hours
ISGR-2 (cont.)	8/28/2015 11:25	YES	11155.5	-	2.5	6.1	90	27	2400	10	1318	100	4900	10866
	9/1/2015 12:40	YES	11252.8	-	2.5	6	90	27	2400	10	1320	100	4900	10962
	10/20/2015 13:47	YES	12429.9	-	2.5	5.1	90	27	2400	10	1332	100	4900	12142
	11/17/2015 12:30	YES	13101.6	-	2.5	5.3	90	28	2400	280	1340	100	4902	12814
	12/21/2015 11:45	YES	13916.8	-	2.5	11.6	90	43	8100	210	1522	100	4904	13630
	1/5/2016 12:46	YES	14277.8	-	2.5	11.1	90	44	8200	210	1604	100	4904	13992
	1/29/2016 13:10	YES	14854.2	-	2.5	12.2	90	43	8200	200	1732	100	4904	14568
	2/22/2016 13:08	YES	15430.2	-	2.5	12.3	90	45	8100	210	1858	100	4904	15146
	3/1/2016 13:45	YES	15622.8	-	2.5	9	90	38	5800	90	1898	100	4920	15338
	3/28/2016 12:02	YES	16268	-	2.5	7.9	90	34	5800	90	1960	100	4920	15984
	4/4/2016 11:33	NO	16399.1	-	0	5.1	90	27	8700	250	1972	20	4923	16116
	5/20/2016 10:02	YES	17500.6	-	0	0	90	43	8700	240	2084	20	4933	17218
	6/13/2016 13:35	YES	18081	-	0	0.1	90	44	8700	240	2232	20	4934	17798
	7/29/2016 8:15	NO	-	-	-	-	90	29	8700	240	2336	20	4939	18210
	8/16/2016 12:58	YES	18927.6	-	0	0.1	90	44	8700	240	2448	20	4941	18646
	9/14/2016 10:00	YES	-	-	0	0	90	46	8700	240	-	20	4941	-
	10/24/2016 11:03	YES	20581.7	-	0	0	90	48	8700	240	2872	20	4941	20302
	11/15/2016 12:08	NO	21010.8	-	0	0	90	32	8700	240	2980	20	4945	20732
	12/17/2016 13:00	NO	21730.6	-	0.1	0	90	28	8700	240	3158	20	4948	21454
	1/5/2017 12:45	YES	22138.7	-	0.1	0	90	49	8700	230	3260	20	4948	21862
	2/7/2017 12:52	YES	22930.8	-	0	0	90	49	8700	240	3456	20	4948	22654
	3/20/2017 14:25	YES	23915.3	-	0	0	90	51	8700	230	3700	20	4948	23640
	4/3/2017 12:30	NO	24108.8	-	0	0	90	35	8700	230	3746	20	4950	23834
	5/26/2017 11:15	YES	25379.1	-	2.5	8.6	90	35	6400	100	4098	100	4951	25106
	6/19/2017 10:12	YES	25954.1	-	2.5	8.3	90	34	6400	100	4140	100	4953	25682
	7/13/2017 15:35	YES	26535.6	-	2.5	2	90	32	8000	110	4187	100	4954	26263.5
	8/24/2017 14:15	NO	27127.2	-	2.5	1.1	90	29	8300	210	4266	100	4955	26856
	9/19/2017 12:55	YES	27749.9	-	2.5	9.7	90	48	8300	200	4400	100	4955	27480
	10/9/2017 12:39	YES	28229.6	-	2.5	9.4	90	48	8400	200	4502	100	4955	27960
	11/29/2017 12:35	NO	29406.1	-	2.5	3.7	90	29	8400	220	4740	100	4963	29138
	12/12/2017 14:05	YES	29719.2	-	2.5	7.8	90	31	8200	210	4810	100	4967	29452
	1/6/2018 15:00	NO	29814.3	-	2.5	6.1	90	41	6300	100	4840	100	4972	29547
	2/23/2018 14:00	NO	29943.4	-	2.5	7.2	90	37	6300	100	4860	100	4976	29676
	3/1/2018 13:00	YES	30086.9	-	2.5	7.5	90	32	6300	100	4874	100	4976	29820

Table I-2
Carbon Performance Analytical Results

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	MTBE (µg/L)	TPH-GRO (µg/L)
ISGR-1 Influent	9/30/2013	4.2	89	210	392	NA	<2	3,000
	10/30/2013	5.9	74	320	498	NA	<5	9,200
	11/26/2013	8.8	20	67	126	NA	5.9	2,300
	12/18/2013	11	19	72	122	NA	9.9	1,800
	2/7/2014	2.0	6.9	4.1	68	NA	1.5	2,100
	3/6/2014	<1	3.1	7.1	33.4	NA	1.4	820
	4/9/2014	<1	<1	1.3	<10	NA	1.6	230
	5/12/2014	<1	<1	<1	<10	NA	1.7	<100
	6/23/2014	<1	<1	<1	<10	NA	1.4	120
	7/23/2014	<1	5.4	21	50	10	<1	2,400
	8/18/2014	<1	<1	<1	<10	<1	<1	120
	9/11/2014	<1	12	29	58	NA	<1	1,100
	10/7/2014	<1	3.1	22	8.5	7	<1	520
	11/6/2014	<1	13	56	24	17	<1	940
	12/9/2014	<1	4.1	110	30	31	<1	1,500
	1/27/2015	<1	4.2	67	10.6	4.5	<1	670
	3/4/2015	<1	17	36	43	50	<1	2,200
	4/28/2015	<1	<1	1.9	<10	5.4	<1	520
	5/7/2015	<1	<1	3.6	<10	14	<1	1200
	6/23/2015	<1	1.6	15	<10	11	<1	510
	7/27/2015	<1	<1	3.1	<10	10	<1	910
	8/28/2015	<1	<1	<1	<10	<1	<1	<100
	9/1/2015	<1	<1	<1	<10	<1	<1	<100
	10/20/2015	<1	1.7	15	<10	2.7	<1	260
	11/17/2015	<1	11	23	105	22	<1	1600
	12/21/2015	<1	4.6	2.4	61	2	<1	1100
	1/5/2016	<1	<1	<1	9.9	<1	<1	690
	2/22/2016	<1	<1	<1	<10	2.7	<1	1300
	3/28/2016	<1	2.4	1.9	10.7	1.3	<1	590
	4/4/2016	<1	1.4	2.2	9.1	5.3	<1	100
	5/3/2016	<1	<1	<1	7.6	1.2	<1	300
	6/13/2016	<1	<1	<1	<10	2.0	<1	510
	7/30/2016	1.2	18	58	54	35.0	<1	1800
	8/17/2016	<1	1.6	1.7	11.6	4.2	<1	430
	9/15/2016	<1	<1	<1	12.5	3.1	<1	550
	10/25/2016	<1	<1	<1	<10	<1	1.2	170
	11/16/2016	<1	9.1	25	33	5.1	<1	770
	12/19/2016	<1	1.1	5.5	<10	1.4	<1	210
	1/5/2017	<1	<1	1.0	<10	<1	1.2	140
	2/7/2017	<1	<1	<1	<10	<1	1.1	<100
	3/20/2017	<1	<1	<1	<10	<1	<1	650
	4/3/2017	1.7	22	91	106	26	1.7	1000
	5/26/2017	NS	NS	NS	NS	NS	NS	NS
	6/19/2017	<8	33	240	170	43	<8	2300

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5801 Riggs Road, Chillum, MD

ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	MTBE (µg/L)	TPH-GRO (µg/L)
ISGR-1 -50%	9/30/2013	<1	<1	<1	<10	NA	<1	<100
	10/30/2013	<1	<1	<1	<10	NA	<1	<100
	11/26/2013	<1	<1	<1	<10	NA	<1	<100
	12/18/2013	<1	<1	<1	<10	NA	<1	<100
	2/7/2014	<1	<1	<1	<10	NA	<1	<100
	3/6/2014	<1	<1	<1	<10	NA	<1	<100
	4/9/2014	<1	<1	<1	<10	NA	<1	<100
	5/12/2014	<1	<1	<1	<10	NA	<1	<100
	6/23/2014	<1	<1	<1	<10	NA	<1	<100
	7/23/2014	<1	<1	<1	<10	<1	<1	<100
	8/18/2014	<1	<1	<1	<10	<1	<1	<100
	9/11/2014	<1	<1	<1	<10	NA	<1	<100
	10/7/2014	<1	<1	<1	<10	<1	<1	<100
	11/6/2014	<1	<1	<1	<10	<1	<1	<100
	12/9/2014	<1	<1	<1	<10	<1	<1	<100
	1/27/2015	<1	<1	<1	<10	<1	<1	<100
	3/4/2015	<1	<1	<1	<10	<1	<1	<100
	4/28/2015	<1	<1	<1	<10	<1	<1	<100
	5/7/2015	<1	<1	<1	<10	<1	<1	<100
	6/23/2015	<1	<1	<1	<10	<1	<1	<100
	7/27/2015	<1	<1	<1	<10	<1	<1	<100
	8/28/2015	<1	<1	<1	<10	<1	<1	<100
	9/1/2015	<1	<1	<1	<10	<1	<1	<100
	10/20/2015	<1	<1	<1	<10	<1	<1	<100
	11/17/2015	<1	<1	<1	<10	<1	<1	<100
	12/21/2015	<1	<1	<1	<10	<1	<1	<100
	1/5/2016	<1	<1	<1	<10	<1	<1	<100
	2/22/2016	<1	<1	<1	<10	<1	<1	<100
	3/28/2016	<1	<1	<1	<10	<1	<1	<100
	4/4/2016	<1	<1	<1	<10	<1	<1	<100
	5/3/2016	<1	<1	<1	<10	<1	<1	<100
	6/13/2016	<1	<1	<1	<10	<1	<1	<100
	7/30/2016	<1	<1	<1	<10	<1	<1	<100
	8/17/2016	<1	<1	<1	<10	<1	<1	<100
	9/15/2016	<1	<1	<1	<10	<1	<1	<100
	10/25/2016	<1	<1	<1	<10	<1	<1	<100
	11/16/2016	<1	<1	<1	<10	<1	<1	<100
	12/19/2016	<1	<1	<1	<10	<1	<1	<100
	1/5/2017	<1	<1	<1	<10	<1	<1	<100
	2/7/2017	<1	<1	<1	<10	<1	<1	<100
	3/20/2017	<1	<1	<1	<10	<1	<1	<100
	4/3/2017	<1	<1	<1	<10	<1	<1	<100
	5/26/2017	<1	<1	<1	<10	<1	<1	<100
	6/19/2017	<1	<1	<1	<2	<1	<1	<25

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ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	MTBE (µg/L)	TPH-GRO (µg/L)
ISGR-1 -75%	9/30/2013	<1	<1	<1	<10	NA	<1	<100
	10/30/2013	<1	<1	<1	<10	NA	<1	<100
	11/26/2013	<1	<1	<1	<10	NA	<1	<100
	12/18/2013	<1	<1	<1	<10	NA	<1	<100
	2/7/2014	<1	<1	<1	<10	NA	<1	<100
	3/6/2014	<1	<1	<1	<10	NA	<1	<100
	4/9/2014	<1	<1	<1	<10	NA	<1	<100
	5/12/2014	<1	<1	<1	<10	NA	<1	<100
	6/23/2014	<1	<1	<1	<10	NA	<1	<100
	7/23/2014	<1	<1	<1	<10	<1	<1	<100
	8/18/2014	<1	<1	<1	<10	<1	<1	<100
	9/11/2014	<1	<1	<1	<10	NA	<1	<100
	10/7/2014	<1	<1	<1	<10	<1	<1	<100
	11/6/2014	<1	<1	<1	<10	<1	<1	<100
	12/9/2014	<1	<1	<1	<10	<1	<1	<100
	1/27/2015	<1	<1	<1	<10	<1	<1	<100
	3/4/2015	<1	<1	<1	<10	<1	<1	<100
	4/28/2015	<1	<1	<1	<10	<1	<1	<100
	5/7/2015	<1	<1	<1	<10	<1	<1	<100
	6/23/2015	<1	<1	<1	<10	<1	<1	<100
	7/27/2015	<1	<1	<1	<10	<1	<1	<100
	8/28/2015	<1	<1	<1	<10	<1	<1	<100
	9/1/2015	<1	<1	<1	<10	<1	<1	<100
	10/20/2015	<1	<1	<1	<10	<1	<1	<100
	11/17/2015	<1	<1	<1	<10	<1	<1	<100
	12/21/2015	<1	<1	<1	<10	<1	<1	<100
	1/5/2016	<1	<1	<1	<10	<1	<1	<100
	2/22/2016	<1	<1	<1	<10	<1	<1	<100
	3/28/2016	<1	<1	<1	<10	<1	<1	<100
	4/4/2016	<1	<1	<1	<10	<1	<1	<100
	5/3/2016	<1	<1	<1	<10	<1	<1	<100
	6/13/2016	<1	<1	<1	<10	<1	<1	<100
	7/30/2016	<1	<1	<1	<10	<1	<1	<100
	8/17/2016	<1	<1	<1	<10	<1	<1	<100
	9/15/2016	<1	<1	<1	<10	<1	<1	<100
	10/25/2016	<1	<1	<1	<10	<1	<1	<100
	11/16/2016	<1	<1	<1	<10	<1	<1	<100
	12/19/2016	<1	<1	<1	<10	<1	<1	<100
	1/5/2017	<1	<1	<1	<10	<1	<1	<100
	2/7/2017	<1	<1	<1	<10	<1	<1	<100
	3/20/2017	<1	<1	<1	<10	<1	<1	<100
	4/3/2017	<1	<1	<1	<10	<1	<1	<100
	5/26/2017	<1	<1	<1	<10	<1	<1	<100
	6/19/2017	<1	<1	<1	<2	<1	<1	<25

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ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	MTBE (µg/L)	TPH-GRO (µg/L)
ISGR-1 -90%	9/30/2013	<1	<1	<1	<10	NA	<1	<100
	10/30/2013	<1	<1	<1	<10	NA	<1	<100
	11/26/2013	<1	<1	<1	<10	NA	<1	<100
	12/18/2013	<1	<1	<1	<10	NA	<1	<100
	2/7/2014	<1	<1	<1	<10	NA	<1	<100
	3/6/2014	<1	<1	<1	<10	NA	<1	<100
	4/9/2014	<1	<1	<1	<10	NA	<1	<100
	5/12/2014	<1	<1	<1	<10	NA	<1	<100
	6/23/2014	<1	<1	<1	<10	NA	<1	<100
	7/23/2014	<1	<1	<1	<10	<1	<1	<100
	8/18/2014	<1	<1	<1	<10	<1	<1	<100
	9/11/2014	<1	<1	<1	<10	NA	<1	<100
	10/7/2014	<1	<1	<1	<10	<1	<1	<100
	11/6/2014	<1	<1	<1	<10	<1	<1	<100
	12/9/2014	<1	<1	<1	<10	<1	<1	<100
	1/27/2015	<1	<1	<1	<10	<1	<1	<100
	3/4/2015	<1	<1	<1	<10	<1	<1	<100
	4/28/2015	<1	<1	<1	<10	<1	<1	<100
	5/7/2015	<1	<1	<1	<10	<1	<1	<100
	6/23/2015	<1	<1	<1	<10	<1	<1	<100
	7/27/2015	<1	<1	<1	<10	<1	<1	<100
	8/28/2015	<1	<1	<1	<10	<1	<1	<100
	9/1/2015	<1	<1	<1	<10	<1	<1	<100
	10/20/2015	<1	<1	<1	<10	<1	<1	<100
	11/17/2015	<1	<1	<1	<10	<1	<1	<100
	12/21/2015	<1	<1	<1	<10	<1	<1	<100
	1/5/2016	<1	<1	<1	<10	<1	<1	<100
	2/22/2016	<1	<1	<1	<10	<1	<1	<100
	3/28/2016	<1	<1	<1	<10	<1	<1	<100
	4/4/2016	<1	<1	<1	<10	<1	<1	<100
	5/3/2016	<1	<1	<1	<10	<1	<1	<100
	6/13/2016	<1	<1	<1	<10	<1	<1	<100
	7/30/2016	<1	<1	<1	<10	<1	<1	<100
	8/17/2016	<1	<1	<1	<10	<1	<1	<100
	9/15/2016	<1	<1	<1	<10	<1	<1	<100
	10/25/2016	<1	<1	<1	<10	<1	<1	<100
	11/16/2016	<1	<1	<1	<10	<1	<1	<100
	12/19/2016	<1	<1	<1	<10	<1	<1	<100
	1/5/2017	<1	<1	<1	<10	<1	<1	<100
	2/7/2017	<1	<1	<1	<10	<1	<1	<100
	3/20/2017	<1	<1	<1	<10	<1	<1	<100
	4/3/2017	<1	<1	<1	<10	<1	<1	<100
	5/26/2017	<1	<1	<1	<10	<1	<1	<100
	6/19/2017	<1	<1	<1	<2	<1	<1	<25

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5801 Riggs Road, Chillum, MD

ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	MTBE (µg/L)	TPH-GRO (µg/L)
ISGR-2 Influent	9/30/2013	44	5.2	30	17.2	NA	69	480
	10/30/2013	3.9	1.1	5.8	<10	NA	43	170
	11/26/2013	34	2.3	16	12.8	NA	64	500
	12/19/2013	3	<1	<1	<10	NA	6.9	<100
	2/17/2014	1.3	<1	<1	<10	NA	2.8	<100
	3/6/2014	1.0	<1	<1	<10	NA	1.8	<100
	4/9/2014	<1	<1	<1	<10	NA	7.8	<100
	5/12/2014	<1	<1	<1	<10	NA	1.9	<100
	6/23/2014	5.9	<1	<1	<10	NA	5.7	<100
	7/23/2014	4.1	<1	<1	<10	<1	3.9	<100
	8/18/2014	<1	<1	<1	<10	<1	3.0	<100
	9/11/2014	5.9	<1	<1	<10	NA	15	<100
	10/7/2014	<1	<1	<1	<10	<1	1.8	<100
	11/6/2014	2.3	<1	<1	<10	<1	6.4	<100
	12/9/2014	5.2	<1	<1	<10	<1	20	<100
	1/27/2015	<1	<1	<1	<10	<1	1.7	<100
	3/4/2015	<1	<1	<1	<10	<1	23	<100
	3/20/2015	<1	<1	<1	<10	<1	<1	<100
	4/28/2015	6.8	<1	1.2	<10	1.2	57	150
	5/7/2015	7.0	<1	2.7	<10	<1	41	170
	6/23/2015	<1	<1	<1	<10	<1	7.9	<100
	7/27/2015	<1	<1	<1	<10	<1	13	<100
	8/28/2015	<1	<1	<1	<10	<1	22	<100
	9/1/2015	<1	<1	<1	<10	<1	13	<100
	10/20/2015	<1	<1	<1	<10	<1	16	<100
	11/17/2015	<1	<1	<1	<10	<1	<1	<100
	12/21/2015	1.1	<1	<1	<10	<1	24	<100
	1/5/2016	2.8	<1	<1	<10	<1	23	<100
	2/22/2016	2.0	<1	<1	<10	<1	9.2	<100
	3/28/2016	1.5	<1	<1	<10	<1	12	<100
	4/4/2016	<1	<1	<1	<10	<1	21	<100
	5/3/2016	<1	<1	<1	<10	<1	<1	<100
	5/20/2016	2.0	<1	<1	<10	<1	22	<100
	6/13/2016	<1	<1	<1	<10	<1	24	<100
	7/30/2016	<1	<1	<1	<10	<1	2.4	<100
	8/17/2016	<1	<1	<1	<10	<1	28	<100
	9/15/2016	<1	<1	<1	<10	<1	25	<100
	10/25/2016	<1	<1	<1	<10	<1	18	<100
	11/16/2016	<1	<1	<1	<10	<1	1.1	<100
	12/19/2016	<1	<1	<1	<10	<1	7.9	<100
	1/5/2017	<1	<1	<1	<10	<1	19	<100
	2/7/2017	<1	<1	<1	<10	<1	18	<100
	3/20/2017	<1	<1	<1	<10	<1	21	<100
	4/3/2017	<1	<1	<1	<10	<1	<1	<100
	5/26/2017	3.8	<1	<1	<10	<1	30	<100
	6/19/2017	3.8	<1	<1	<2	<1	28	47

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ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	MTBE (µg/L)	TPH-GRO (µg/L)
ISGR-2 -50%	9/30/2013	<1	<1	<1	<10	NA	<1	<100
	10/30/2013	<1	<1	<1	<10	NA	<1	<100
	11/26/2013	<1	<1	<1	<10	NA	<1	<100
	12/19/2013	<1	<1	<1	<10	NA	<1	<100
	2/17/2014	<1	<1	<1	<10	NA	<1	<100
	3/6/2014	<1	<1	<1	<10	NA	<1	<100
	4/9/2014	<1	<1	<1	<10	NA	<1	<100
	5/12/2014	<1	<1	<1	<10	NA	<1	<100
	6/23/2014	<1	<1	<1	<10	NA	<1	<100
	7/23/2014	<1	<1	<1	<10	<1	<1	<100
	8/18/2014	<1	<1	<1	<10	<1	<1	<100
	9/11/2014	<1	<1	<1	<10	NA	<1	<100
	10/7/2014	<1	<1	<1	<10	<1	<1	<100
	11/6/2014	<1	<1	<1	<10	<1	<1	<100
	12/9/2014	<1	<1	<1	<10	<1	<1	<100
	1/27/2015	<1	<1	<1	<10	<1	<1	<100
	3/4/2015	<1	<1	<1	<10	<1	<1	<100
	3/20/2015	<1	<1	<1	<10	<1	<1	<100
	4/28/2015	<1	<1	<1	<10	<1	<1	<100
	5/7/2015	<1	<1	<1	<10	<1	<1	<100
	6/23/2015	<1	<1	<1	<10	<1	<1	<100
	7/27/2015	<1	<1	<1	<10	<1	<1	<100
	8/28/2015	<1	<1	<1	<10	<1	<1	<100
	9/1/2015	<1	<1	<1	<10	<1	<1	<100
	10/20/2015	<1	<1	<1	<10	<1	<1	<100
	11/17/2015	<1	<1	<1	<10	<1	<1	<100
	12/21/2015	<1	<1	<1	<10	<1	<1	<100
	1/5/2016	<1	<1	<1	<10	<1	<1	<100
	2/22/2016	<1	<1	<1	<10	<1	<1	<100
	3/28/2016	<1	<1	<1	<10	<1	<1	<100
	4/4/2016	<1	<1	<1	<10	<1	<1	<100
	5/3/2016	<1	<1	<1	<10	<1	<1	<100
	5/20/2016	<1	<1	<1	<10	<1	<1	<100
	6/13/2016	<1	<1	<1	<10	<1	<1	<100
	7/30/2016	<1	<1	<1	<10	<1	<1	<100
	8/17/2016	<1	<1	<1	<10	<1	<1	<100
	9/15/2016	<1	<1	<1	<10	<1	<1	<100
	10/25/2016	<1	<1	<1	<10	<1	<1	<100
	11/16/2016	<1	<1	<1	<10	<1	<1	<100
	12/19/2016	<1	<1	<1	<10	<1	<1	<100
	1/5/2017	<1	<1	<1	<10	<1	<1	<100
	2/7/2017	<1	<1	<1	<10	<1	<1	<100
	3/20/2017	<1	<1	<1	<10	<1	<1	<100
	4/3/2017	<1	<1	<1	<10	<1	<1	<100
	5/26/2017	<1	<1	<1	<10	<1	<1	<100
	6/19/2017	<1	<1	<1	<2	<1	<1	<25

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ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	MTBE (µg/L)	TPH-GRO (µg/L)
ISGR-2 -75%	9/30/2013	<1	<1	<1	<10	NA	<1	<100
	10/30/2013	<1	<1	<1	<10	NA	<1	<100
	11/26/2013	<1	<1	<1	<10	NA	<1	<100
	12/19/2013	<1	<1	<1	<10	NA	<1	<100
	2/17/2014	<1	<1	<1	<10	NA	<1	<100
	3/6/2014	<1	<1	<1	<10	NA	<1	<100
	4/9/2014	<1	<1	<1	<10	NA	<1	<100
	5/12/2014	<1	<1	<1	<10	NA	<1	<100
	6/23/2014	<1	<1	<1	<10	NA	<1	<100
	7/23/2014	<1	<1	<1	<10	<1	<1	<100
	8/18/2014	<1	<1	<1	<10	<1	<1	<100
	9/11/2014	<1	<1	<1	<10	NA	<1	<100
	10/7/2014	<1	<1	<1	<10	<1	<1	<100
	11/6/2014	<1	<1	<1	<10	<1	<1	<100
	12/9/2014	<1	<1	<1	<10	<1	<1	<100
	1/27/2015	<1	<1	<1	<10	<1	<1	<100
	3/4/2015	<1	<1	<1	<10	<1	<1	<100
	3/20/2015	<1	<1	<1	<10	<1	<1	<100
	4/28/2015	<1	<1	<1	<10	<1	<1	<100
	5/7/2015	<1	<1	<1	<10	<1	<1	<100
	6/23/2015	<1	<1	<1	<10	<1	<1	<100
	7/27/2015	<1	<1	<1	<10	<1	<1	<100
	8/28/2015	<1	<1	<1	<10	<1	<1	<100
	9/1/2015	<1	<1	<1	<10	<1	<1	<100
	10/20/2015	<1	<1	<1	<10	<1	<1	<100
	11/17/2015	<1	<1	<1	<10	<1	<1	<100
	12/21/2015	<1	<1	<1	<10	<1	<1	<100
	1/5/2016	<1	<1	<1	<10	<1	<1	<100
	2/22/2016	<1	<1	<1	<10	<1	<1	<100
	3/28/2016	<1	<1	<1	<10	<1	<1	<100
	4/4/2016	<1	<1	<1	<10	<1	<1	<100
	5/3/2016	<1	<1	<1	<10	<1	<1	<100
	5/20/2016	<1	<1	<1	<10	<1	<1	<100
	6/13/2016	<1	<1	<1	<10	<1	<1	<100
	7/30/2016	<1	<1	<1	<10	<1	<1	<100
	8/17/2016	<1	<1	<1	<10	<1	<1	<100
	9/15/2016	<1	<1	<1	<10	<1	<1	<100
	10/25/2016	<1	<1	<1	<10	<1	<1	<100
	11/16/2016	<1	<1	<1	<10	<1	<1	<100
	12/19/2016	<1	<1	<1	<10	<1	<1	<100
	1/5/2017	<1	<1	<1	<10	<1	<1	<100
	2/7/2017	<1	<1	<1	<10	<1	<1	<100
	3/20/2017	<1	<1	<1	<10	<1	<1	<100
	4/3/2017	<1	<1	<1	<10	<1	<1	<100
	5/26/2017	<1	<1	<1	<10	<1	<1	<100
	6/19/2017	<1	<1	<1	<2	<1	<1	<25

See Notes on Page 8.

Table I-2
Carbon Performance Analytical Results

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	MTBE (µg/L)	TPH-GRO (µg/L)
ISGR-2 -90%	9/30/2013	<1	<1	<1	<10	NA	<1	<100
	10/30/2013	<1	<1	<1	<10	NA	<1	<100
	11/26/2013	<1	<1	<1	<10	NA	<1	<100
	12/19/2013	<1	<1	<1	<10	NA	<1	<100
	2/17/2014	<1	<1	<1	<10	NA	<1	<100
	3/6/2014	<1	<1	<1	<10	NA	<1	<100
	4/9/2014	<1	<1	<1	<10	NA	<1	<100
	5/12/2014	<1	<1	<1	<10	NA	<1	<100
	6/23/2014	<1	<1	<1	<10	NA	<1	<100
	7/23/2014	<1	<1	<1	<10	<1	<1	<100
	8/18/2014	<1	<1	<1	<10	<1	<1	<100
	9/11/2014	<1	<1	<1	<10	NA	<1	<100
	10/7/2014	<1	<1	<1	<10	<1	<1	<100
	11/6/2014	<1	<1	<1	<10	<1	<1	<100
	12/9/2014	<1	<1	<1	<10	<1	<1	<100
	1/27/2015	<1	<1	<1	<10	<1	<1	<100
	3/4/2015	<1	<1	<1	<10	2.7	<1	<100
	3/20/2015	<1	<1	<1	<10	<1	<1	<100
	4/28/2015	<1	<1	<1	<10	<1	<1	<100
	5/7/2015	<1	<1	<1	<10	<1	<1	<100
	6/23/2015	<1	<1	<1	<10	<1	<1	<100
	7/27/2015	<1	<1	<1	<10	<1	<1	<100
	8/28/2015	<1	<1	<1	<10	<1	<1	<100
	9/1/2015	<1	<1	<1	<10	<1	<1	<100
	10/20/2015	<1	<1	<1	<10	<1	<1	<100
	11/17/2015	<1	<1	<1	<10	<1	<1	<100
	12/21/2015	<1	<1	<1	<10	<1	<1	<100
	1/5/2016	<1	<1	<1	<10	<1	<1	<100
	2/22/2016	<1	<1	<1	<10	<1	<1	<100
	3/28/2016	<1	<1	<1	<10	<1	<1	<100
	4/4/2016	<1	<1	<1	<10	<1	<1	<100
	5/3/2016	<1	<1	<1	<10	<1	5.8	<100
	5/20/2016	<1	<1	<1	<10	<1	<1	<100
	6/13/2016	<1	<1	<1	<10	<1	<1	<100
	7/30/2016	<1	<1	<1	<10	<1	<1	<100
	8/17/2016	<1	<1	<1	<10	<1	<1	<100
	9/15/2016	<1	<1	<1	<10	<1	<1	<100
	10/25/2016	<1	<1	<1	<10	<1	<1	<100
	11/16/2016	<1	<1	<1	<10	<1	<1	<100
	12/19/2016	<1	<1	<1	<10	<1	<1	<100
	1/5/2017	<1	<1	<1	<10	<1	<1	<100
	2/7/2017	<1	<1	<1	<10	<1	<1	<100
	3/20/2017	<1	<1	<1	<10	<1	<1	<100
	4/3/2017	<1	<1	<1	<10	<1	<1	<100
	5/26/2017	<1	<1	<1	<10	<1	<1	<100
	6/19/2017	<1	<1	<1	<2	<1	<1	<25

Notes
1. Non-detect concentration values were represented as half of the respective Minimum Detection Level as identified in the laboratory analytical reports (5 µg/l) for the Total Xylenes concentration calculation.
2. NA = Not Analyzed.
3. NS = Not sampled.

APPENDIX J

Area C ORZ System Data

Table J-1
Oxygen Reactive Zone Monitoring Data

ARCADIS Design & Consultancy for natural and built assets

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date	Time	Tank Pressure (PSI)	Tank Regulator Pressure (PSI)	Well Regulator Pressure (PSI)	Oxygen Sensor (%)
9/17/2013	1230	1,850	60	10	20.9
10/30/2013	1300	1,600	60	10	20.9
11/14/2013	1500	1,000	60	12	20.9
11/21/2013	1300	1,300	80	12	20.9
12/12/2013	1300	950	15	15	20.9
1/28/2014	1620	0	0	0	20.9
2/27/2014	0700	2,200	15	15	20.9
3/6/2014	1500	1800	13	14	20.9
3/24/2014	1300	1700	90	15	20.9
4/11/2014	1400	1600	80	14	20.9
5/27/2014	0850	1300	80	15	20.9
6/23/2014	1530	1050	100	15	20.9
7/23/2014	1500	800	18	18	20.9
8/27/2014	1430	400	20	20	20.9
9/8/2014	1300	200	20	18	20.9
9/22/2014	1000	0	0	0	20.9
10/21/2014	1545	1550	18	18	20.9
11/6/2014	1430	1400	18	18	20.9
12/22/2014	1200	1000	18	18	20.9
1/27/2015	1300	0	18	18	20.9
2/24/2015	1400	1500	18	18	20.9
3/12/2015	0800	0	0	0	20.9
2/22/2016	1500	0	0	0	23.9
3/17/2016	1300	1800	15	15	22.3
4/4/2016	1300	1600	18	15	22.4
5/31/2016	1500	750	18	18	21.9
6/13/2016	1300	400	18	18	20.9
7/26/2016	1300	1800	18	18	20.6
8/10/2016	1300	800	18	18	20.6
9/28/2016	1300	-	-	-	-
11/1/2016	1300	1800	18	18	21.9
11/15/2016	1300	100	15	15	21.3
12/8/2016	1300	1800	18	18	21.0
12/19/2016	1300	1700	18	18	21.0
1/5/2017	1430	1600	15	15	21.0
2/7/2017	1500	1500	15	15	20.9
3/15/2017	1200	1250	13	13	20.8
4/3/2017	1530	1000	13	13	20.8
5/6/2017	1430	800	13	13	20.9
6/19/2017	1200	350	13	13	21.0
7/25/2017	1030	150	12	12	20.9
8/24/2017	1300	1850	15	15	20.8
9/19/2017	1300	1500	15	15	20.9
10/23/2017	1300	1350	15	15	20.9
11/1/2017	1300	1100	15	15	21
12/7/2017	1300	620	15	15	20.8
1/22/2018	1300	120	15	15	20.9
2/28/2018	1300	0	15	15	20.9
3/1/2018	1300	1900	14	14	20.9

Table J-2
Dissolved Oxygen Measurements

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Date	IW-1	IW-2	IW-3	IW-4	IW-5	MW-26A	MW-26B	MW-58
	Dissolved Oxygen (mg/L)							
9/30/2013	4.02	7.72	5.27	3.04	8.92	1.24	0.92	3.33
10/30/2013	4.92	5.59	5.42	8.45	0.27	0.75	1.09	0.51
11/27/2013	12.69	11.21	11.09	5.82	4.19	0.92	1.21	1.69
1/29/2014	0.43	0.75	1.39	1.23	1.71	1.62	1.39	2.29
4/26/2014	8.5	6.12	6.51	6.3	1.8	0.4	0.78	1.71
8/27/2014	32.71	14.98	20.21	24.29	1.64	1.15	1.94	1.35
10/23/2014	11.98	8.3	6.96	3.71	2.03	0.56	0.5	3.03
3/24/2016	13.75	12.23	13.06	9.87	3.4	1.23	1.44	0.61
6/28/2016	6.25	5.42	7.13	4.63	1.09	0.98	1.01	1.11
9/29/2016	1.33	8.52	7.16	3.94	7.32	2.7	3.74	7.33
11/1/2016	10.03	8.10	4.19	2.18	3.62	0.93	0.87	4.14
2/7/2017	3.51	2.32	4.19	5.20	1.73	1.75	2.21	3.17
5/10/2017	1.62	1.41	4.11	4.13	1.88	2.32	3.24	3.96
8/22/2017	1.88	1.48	1.57	3.75	1.4	0.92	2.08	2.58
11/3/2017	7.14	9.02	4.43	1.77	6.22	0.74	0.63	2.96
3/28/2018	8.62	0.9	1.25	3.69	1.01	2.69	4.34	2.27

Note:
Readings collected using YSI Incorporated 6-series multiparameter water quality meter.

Table J-3
Geochemical Measurements

Corrective Measures 5-Year Assessment Report
Former Chevron Facility 122208
5801 Riggs Road, Chillum, MD

Well ID	Date	Ferrous Iron (mg/L)	Alkalinity as CaCO3 (mg/L)	Sulfate (mg/L)	Nitrate - N as N (mg/L)	pH	Specific Conductivity (mS/cm)	ORP (mV)	Temperature (°C)
MW-58	7/26/2016	0.078	< 1.0	36	1.7	4.8	0.351	177.4	19.92
	9/29/2016	< 0.10	6.6	42	1.4	6.59	0.215	219.4	24.78
	5/10/2017	< 0.10	1.8	36	1.9	4.66	0.405	273.5	13.76
	8/22/2017	0.19	< 5.0	37.3	2.2	5.73	0.145	184.7	25.3
MW-59	7/26/2016	NS	NS	NS	NS	NS	NS	NS	NS
	9/29/2016	0.18	5.9	27	0.051	4.43	0.245	300.4	21.71
	5/10/2017	0.10	4.0	36	1.5	4.83	0.377	260.1	12.79
	8/22/2017	0.72	6.1	34.5	1.5	4.80	0.217	246.2	23.06
MW-60	7/26/2016	NS	NS	NS	NS	NS	NS	NS	NS
	9/29/2016	15	160	24	< 0.25	5.74	0.506	52.4	21.45
	5/10/2017	16	110	22	<0.050	5.83	0.512	65.3	12.08
	8/22/2017	< 0.50	119	30.5	0.24	4.86	0.418	129.6	22.98
MW-26A	7/26/2016	6.8	230	< 5.0	0.12	6.13	0.473	74.6	31.05
	9/29/2016	16	200	< 5.0	< 0.25	6.5	0.392	4.0	23.74
	5/10/2017	14	220	< 5.0	< 0.050	6.21	0.258	206.6	15.40
	8/22/2017	< 0.10	243	< 5.0	< 0.050	6.01	0.519	-48.3	26.83
MW-26B	7/26/2016	< 0.050	1.8	37	2.3	4.44	0.367	263	24.27
	9/29/2016	< 0.10	< 1.0	39	2.2	4.33	0.433	265.3	22.72
	5/10/2017	< 0.10	4.9	38	1.8	4.95	0.390	253.2	14.87
	8/22/2017	< 0.10	< 5.0	41.1	1.9	4.87	0.366	229.3	26.4

Notes:
NS = Not sampled.
Readings collected using YSI Incorporated 6-series multiparameter water quality meter.

APPENDIX K

Groundwater Iso-Contraction Maps

N

Eastern Avenue

Oglethorpe Street

Nicholson Street

8th Street

Nicholson Street

Clay Body

MW-21 (7.0)
GP-44A (ND)
MW-15 (ND)
GP-35A (320)
MW-7 (260)
RW-3 (180)
MW-5 (NS)
RW-1 (260)
MW-45 (11)
RW-2 (340)
RW-4 (2,900)
500
MP-40
GP-41A (2.2)
MW-46 (1.2)
MW-48 (ND)
MW-50(1) (2.2)
MW-6 (ND)
GP-30A (16,900)
5000
(2,400)
MP-7
GP-27R (24)
GP-39R (210)
MW-47 (1510)
MW-49 (ND)
MW-51 (4.9)
GP-24A (ND)
PTW-B (ND)
(NS)
RW-5
MW-16 (ND)
MW-17 (190)
MW-22R (2,300)
MW-23 (ND)
PTW-A
MP-20
50
MW-18 (5.0)
MW-19 (ND)
GP-2E(45-50) (320)
GP-2F(45-50) (NS)
5
MW-25A (ND)
MW-30R (NS)
MW-24A (ND)
5
MW-61A (29)
GP-7A(20-25) (ND)
GP-9A(20-25) (ND)
GP-11A(20-25) (ND)
MW-41A (ND)
MW-62A (ND)
MW-38 (ND)
MW-39R (ND)
MW-40 (ND)
MW-27A (ND)
MW-44A (ND)
MW-42 (ND)
MW-26A (ND)
MW-43A (ND)
MW-53 (2.7)
MW-29A (ND)
MW-60 (ND)
MW-54 (ND)
MW-31A (NS)
MW-55 (ND)
MW-52 (NS)
MW-33S (NS)
MW-33A (ND)
MW-28A (ND)

Legend

- Former Chevron Facility 122208 Property Line
- Property Lines
- Structures/Sidewalks
- —5— Inferred Benzene Isoconcentration Contour (ug/L) March and April 2013 (Dashed where estimated)
- Monitoring Well with Benzene Concentration (ug/L) March and April 2013
- Abandoned Monitoring Well
- Dual-Phase Extraction Recovery Well
- Abandoned Dual-Phase Extraction Recovery Well
- Soil Vapor Extraction Recovery Well
- ND Not Detected above Laboratory reporting limits
- NS Not Sampled

NOTES:
(1) MW-50 concentration not used because the Benzene appeared to originate from a different upgradient source.
(2) GP-27R and MW-16 concentrations not used in contouring.
(3) MW-20, MW-32, and MW-34A do not appear on this map.

0 100
SCALE IN FEET

NO.	DESCRIPTION	DATE	BY
REVISIONS			

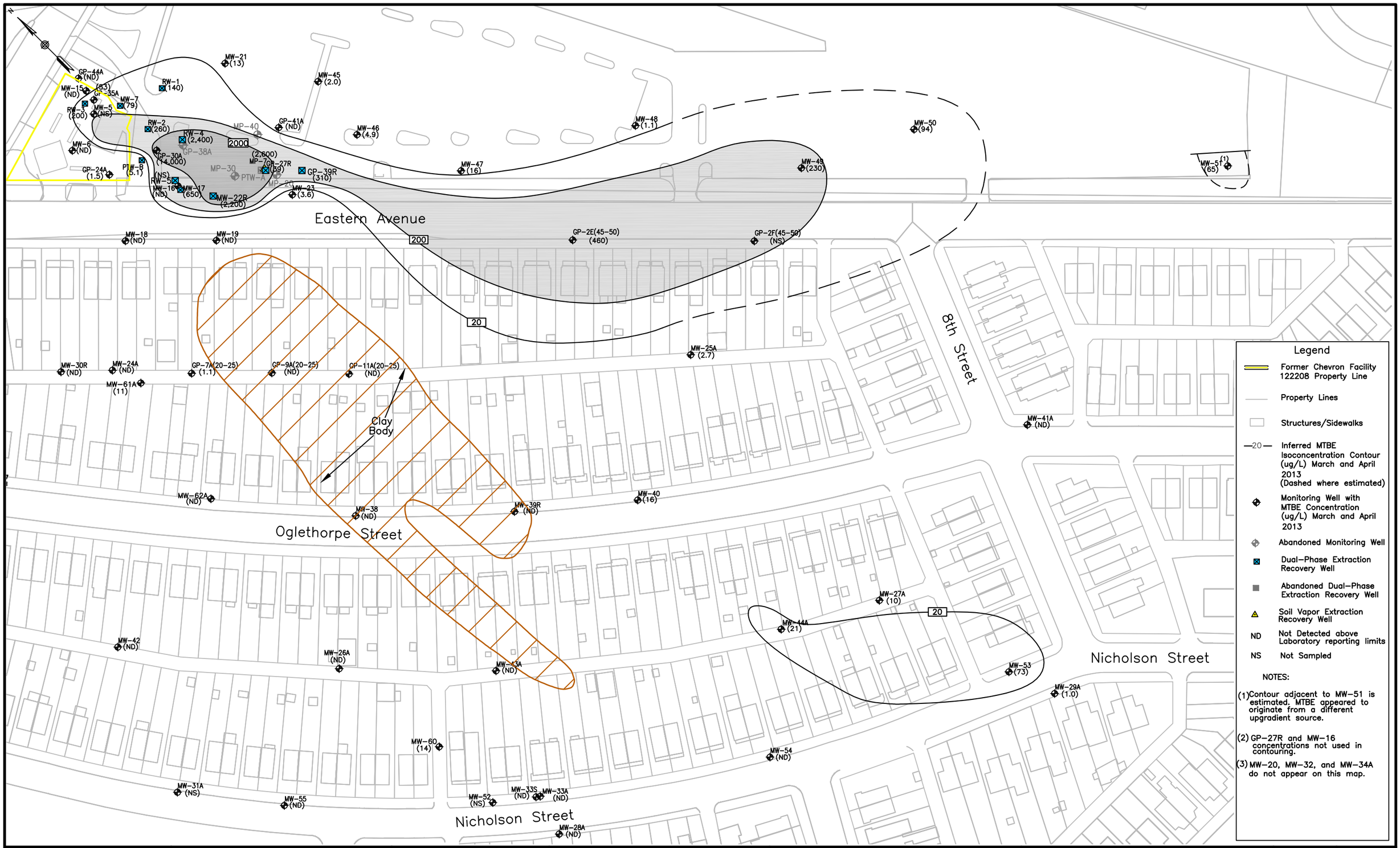
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DKB	DKB	1"=100'
CHECKED	APPROVED	APPROVED
JK	RWS	

Gannett Fleming
BALTIMORE, MARYLAND

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
HOUSTON, TEXAS
FORMER CHEVRON FACILITY NO. 122208
CHILLUM, MARYLAND

Benzene Concentrations in Shallow Monitoring Wells April 2013

JOB NO. 55588
DATE 06/13/13
CAD FILE Shallow Benzene
SHEET NO. K-1



Legend

- Former Chevron Facility 122208 Property Line
- Property Lines
- Structures/Sidewalks
- —20— Inferred MTBE Isoconcentration Contour (ug/L) March and April 2013 (Dashed where estimated)
- Monitoring Well with MTBE Concentration (ug/L) March and April 2013
- Abandoned Monitoring Well
- Dual-Phase Extraction Recovery Well
- Abandoned Dual-Phase Extraction Recovery Well
- Soil Vapor Extraction Recovery Well
- ND Not Detected above Laboratory reporting limits
- NS Not Sampled

NOTES:

(1) Contour adjacent to MW-51 is estimated. MTBE appeared to originate from a different upgradient source.

(2) GP-27R and MW-16 concentrations not used in contouring.

(3) MW-20, MW-32, and MW-34A do not appear on this map.

0 100
SCALE IN FEET

NO.	DESCRIPTION	DATE	BY
REVISIONS			

DESIGNED	CADD	SCALE
DKB	DKB	1"=100'
CHECKED	APPROVED	APPROVED
JK	RWS	

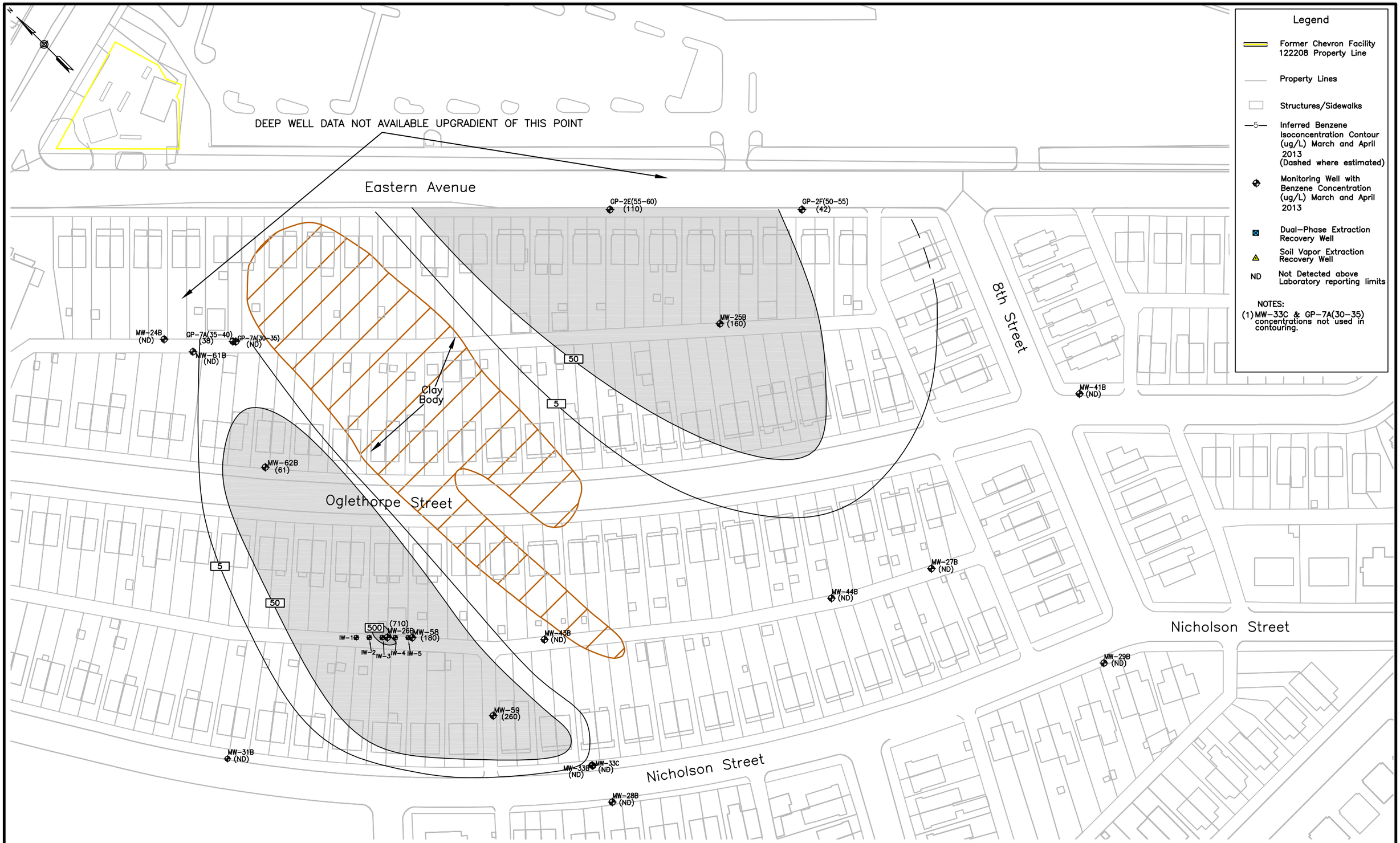
Gannett Fleming
BALTIMORE, MARYLAND

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
HOUSTON, TEXAS

FORMER CHEVRON FACILITY NO. 122208
CHILLUM, MARYLAND

MTBE Concentrations in Shallow Monitoring Wells March and April 2013

JOB NO.	SHEET NO.
55588	K-2
DATE	
06/14/13	
CAD FILE	
Shallow MTBE	



0 100
SCALE IN FEET

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
DKB	DKB	1"=100'
CHECKED	APPROVED	APPROVED
JK	RWS	

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CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
HOUSTON, TEXAS

FORMER CHEVRON FACILITY NO. 122208
CHILLUM, MARYLAND

Benzene Concentrations in Deep Monitoring Wells March and April 2013

JOB NO.	SHEET NO.
55588	K-3
DATE	
06/14/13	
CAD FILE	
Deep Benzene	

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

Eastern Avenue

8th Street

Nicholson Street

Nicholson Street

Oglethorpe Street

Clay Body

GP-2E(55-60) (440)

GP-2F(50-55) (360)

MW-25B (250)

MW-24B (ND)

GP-7A(35-40) (170)

GP-7A(30-35) (ND)

MW-61B (16)

MW-62B (77)

MW-41B (14)

MW-27B (120)

MW-44B (81)

MW-29B (88)

MW-43B (7.9)

(390)

MW-26B

MW-58 (140)

IW-1

IW-2

IW-3

IW-4

IW-5

200

MW-59 (250)

MW-31B (ND)

MW-33B (1.9)

MW-33C (ND)

MW-28B (2.8)

20

Legend

- Former Chevron Facility 122208 Property Line
- Property Lines
- Structures/Sidewalks
- —20— Inferred MTBE Isoconcentration Contour (ug/L) March and April 2013 (Dashed where estimated)
- Monitoring Well with MTBE Concentration (ug/L) March and April 2013
- Dual-Phase Extraction Recovery Well
- Soil Vapor Extraction Recovery Well
- ND Not Detected above Laboratory reporting limits

NOTE:
(1) MW-33C & GP-7A(30-35) concentrations not used in contouring.

0 100
SCALE IN FEET

NO.	DESCRIPTION	DATE	BY
REVISIONS			

DESIGNED	CADD	SCALE
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CHECKED	APPROVED	APPROVED
JK	RWS	

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BALTIMORE, MARYLAND

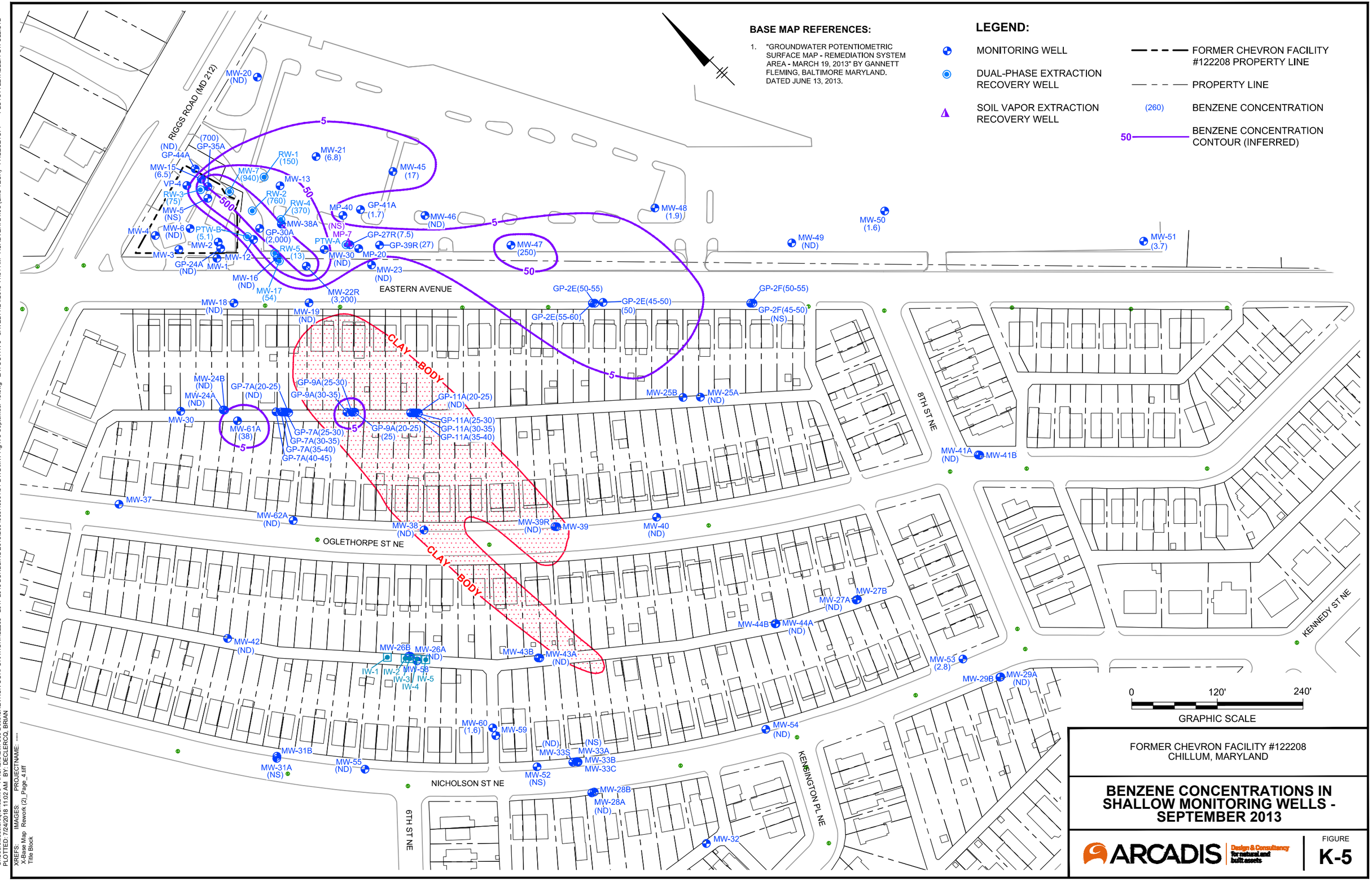
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
HOUSTON, TEXAS

FORMER CHEVRON FACILITY NO. 122208
CHILLUM, MARYLAND

MTBE Concentrations in Deep Monitoring Wells March and April 2013

JOB NO.	DATE	CAD FILE
55588	06/17/13	Deep MTBE

SHEET NO. K-4



FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - SEPTEMBER 2013

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-5

CITY: SYRACUSE NY DIV/GROUP: ENV/CAD DB: E. KRAHMER LD:(Opt) PIC: M. FLEISCHNER PM: D. DIXON TM: W. KAHL TR: C. RICHARDSON LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-5-September 13.dwg LAYOUT: K-5 SAVED: 7/24/2018 11:01 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:02 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map Rework (2)_Page_4.tiff
Title Block

BASE MAP REFERENCES:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
6TH ST NE
8TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

MW-20 (ND)
MW-21 (ND)
MW-45 (ND)
MW-15 (ND)
GP-44A (ND)
GP-35A (ND)
MW-5 (NS)
RW-1 (89)
MW-13
RW-4 (150)
VP-4
RW-3 (29)
MW-7 (200)
RW-2 (300)
MW-6 (ND)
PTW-B (11)
MW-38A
MP-40
GP-41A (ND)
PTW-A
GP-27R (6)
MW-46 (4.7)
MW-4 (ND)
RW-5 (13)
MP-7
GP-39R (24)
MW-2
MW-30
MW-47 (ND)
MW-3
MW-1
MW-12
MP-20
GP-24A (ND)
GP-30A (2,500)
MW-23 (2.1)
MW-16 (ND)
MW-48 (1)
MW-50 (110)
MW-49 (230)
MW-51 (50)
MW-18 (ND)
MW-17 (21)
MW-19 (ND)
MW-22R (3,000)
GP-2E(50-55)
GP-2E(45-50) (280)
GP-2E(55-60)
GP-2F(45-50) (NS)
GP-2F(50-55)
GP-9A(25-30)
GP-9A(30-35)
GP-7A(20-25) (ND)
MW-24A (ND)
MW-24B
MW-30
MW-61A (ND)
GP-11A(20-25) (ND)
GP-11A(25-30)
GP-11A(30-35)
GP-11A(35-40)
MW-25B
MW-25A (1.1)
GP-7A(25-30)
GP-7A(30-35)
GP-7A(35-40)
GP-7A(40-45)
GP-9A(20-25) (230)
MW-41A (ND)
MW-41B
MW-37
MW-62A
MW-38 (ND)
MW-39R (ND)
MW-39
MW-40 (4.5)
MW-27A (7.4)
MW-27B
MW-44A (25)
MW-44B
MW-42 (ND)
(ND) MW-26A
MW-26B
IW-1
IW-2
IW-3
IW-4
IW-5
MW-58
MW-43B
MW-43A (ND)
MW-53 (110)
MW-29B
MW-29A (1.4)
MW-60 (12)
MW-59
MW-54 (ND)
MW-31B
MW-31A (NS)
MW-55 (ND)
(NS) MW-33S
(NS) MW-33A
MW-33B
MW-33C
MW-52 (NS)
MW-28B
MW-28A (ND)
MW-32

20
200
2,000

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - SEPTEMBER 2013

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-6

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: M.FLEISCHNER PM: D. DIXON TM: W. KAHL TR: C. RICHARDSON LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-6-September 13.dwg LAYOUT: K-6 SAVED: 3/3/2014 9:32 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:04 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES PROJECTNAME: ---
X-Base Map Rework (2)_Page_5.tiff
Title Block

BASE MAP REFERENCES:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (260) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

RIGGS ROAD (MD 212)

EASTERN AVENUE

8TH ST NE

OGLETHORPE ST NE

KENNEDY ST NE

NICHOLSON ST NE

6TH ST NE

KENSINGTON PL NE

CLAY BODY

MW-20, MW-21, MW-45, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, MW-38A, MP-40, GP-41A, MW-46, MW-48, MW-50, MW-4, MW-6, PTW-B, GP-30A, MW-12, MW-2, GP-24A, RW-5, MW-3, MW-30, MP-20, MW-16, MW-1, MW-17, MW-22R, MW-23, MP-7, GP-27A, PTW-A, GP-39A, MW-47, MW-49, MW-51

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2F(50-55) (48), GP-2F(45-50), GP-2E(55-60) (65), MW-24A, GP-7A(20-25), MW-24B (ND), GP-9A(25-30), GP-9A(30-35), GP-11A(20-25), MW-30, MW-61B (ND), GP-7A(25-30), GP-7A(30-35) (ND), GP-7A(35-40) (25), GP-7A(40-45), GP-9A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), MW-25B (260), MW-25A, MW-41A, MW-41B (ND), MW-37, MW-62A (34), MW-38, MW-39R, MW-39, MW-40, MW-42, MW-26B (570), MW-26A, MW-58 (250), IW-1, IW-2, IW-3, IW-4, IW-5, MW-43B (ND), MW-43A, MW-27A, MW-27B (ND), MW-44B (ND), MW-44A, MW-53, MW-29B (ND), MW-29A, MW-60, MW-59 (240), MW-54, MW-31B (ND), MW-31A, MW-55, MW-33S, MW-33A, MW-33B (ND), MW-33C (ND), MW-52, MW-28B (ND), MW-28A, MW-32

5, 50, 5, 50, 5, 50, 5

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - SEPTEMBER 2013

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-7

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: M.FLEISCHNER PM: D. DIXON TM: W. KAHL TR: C. RICHARDSON LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-7-September 13.dwg LAYOUT: K-7 SAVED: 7/24/2018 11:06 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:06 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map Rework_Page_6.tiff
Title Block

BASE MAP REFERENCES:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (320) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

RIGGS ROAD (MD 212)
EASTERN AVENUE
8TH ST NE
OGLETHORPE ST NE
NICHOLSON ST NE
6TH ST NE
KENSINGTON PL NE
KENNEDY ST NE

MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-12, MW-13, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22R, MW-23, MW-24A, MW-24B (ND), MW-25A, MW-25B (320), MW-26A, MW-26B (200), MW-27A, MW-27B (96), MW-28A, MW-28B (4.3), MW-29A, MW-29B (88), MW-30, MW-31A, MW-31B (1.4), MW-32, MW-33A, MW-33B (ND), MW-33C (1.2), MW-33S, MW-37, MW-38, MW-38A, MW-39, MW-39R, MW-40, MW-41A, MW-41B (12), MW-42, MW-43A, MW-43B (5.4), MW-44A, MW-44B (59), MW-45, MW-46, MW-47, MW-48, MW-49, MW-50, MW-51, MW-52, MW-53, MW-54, MW-55, MW-58 (110), MW-59 (220), MW-60, MW-61B (25), MW-62A (66)

GP-2E(50-55), GP-2E(45-50), GP-2E(55-60) (290), GP-2F(50-55) (320), GP-2F(45-50), GP-7A(20-25), GP-7A(25-30), GP-7A(30-35) (ND), GP-7A(35-40) (230), GP-7A(40-45), GP-9A(30-35), GP-9A(25-30), GP-9A(20-25), GP-11A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-24A, GP-27A, GP-30A, GP-35A, GP-39A, GP-41A, GP-44A

RW-1, RW-2, RW-3, RW-4, RW-5, VP-4, PTW-A, PTW-B, MP-7, MP-20, MP-30, MP-40

IW-1, IW-2, IW-3, IW-4, IW-5

CLAY BODY

20, 200

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - SEPTEMBER 2013

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-8

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: M.FLEISCHNER PM: D. DIXON TM: W. KAHL TR: C. RICHARDSON LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdecerq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-8-September 13.dwg LAYOUT: K-8 SAVED: 7/24/2018 11:08 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:08 AM BY: DECLERCQ, BRIAN
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CITY: SYRACUSE,NY DIV/GROUP: ENVCAD DB: E. KRAHMER, K.SARTORI LD:(Opt) PIC: M. FLEISCHNER PM: D. DIXON TM: W. KAHL TR: C. RICHARDSON LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bkeler.cp\OneDrive - ARCADIS\BM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-9-April 14.dwg LAYOUT: K-9 SAVED: 7/24/2018 11:09 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:09 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCES:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (770) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
CLAY BODY
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - APRIL 2014

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-9

BASE MAP REFERENCES:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (160) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENSINGTON PL NE
KENNEDY ST NE
CLAY BODY

MW-20 (ND) GP-44A (13) GP-35A (NS) MW-5 MW-15 (ND) VP-4 RW-3 (6.6) MW-7 (73) RW-1 (90) MW-13 RW-2 (170) RW-4 (1,600) MW-21 (12) MW-45 (2.0) MW-40 (ND) GP-41A PTW-A MW-46 (4.7) MW-48 (2.0) MW-50 (74) MW-4 (ND) MW-6 PTW-B (17) MW-2 MW-3 MW-1 MW-12 MW-38A MP-7 (2,200) RW-5 (3.2) MP-30 GP-27R (68) GP-39R (160) MW-47 (43) MW-49 (200) MW-51 (62) GP-30A (3,500) GP-24A (ND) MW-16 (ND) MW-17 (3,700) MW-19 (ND) MW-22R (1,500) MP-20 MW-23 (1.9) MW-18 (ND) GP-2E(50-55) GP-2E(45-50) (130) GP-2E(55-60) GP-2F(45-50) (NS) GP-2F(50-55) ISGR-2S (ND) ISGR-2D (ND) ISGR-1S ISGR-1D GP-9A(30-35) GP-9A(25-30) GP-7A(20-25) (ND) GP-11A(20-25) (ND) MW-24A (ND) MW-24B MW-30R (ND) MW-61A (2.0) GP-11A(25-30) GP-11A(30-35) GP-11A(35-40) GP-7A(25-30) GP-7A(30-35) GP-7A(35-40) GP-7A(40-45) GP-9A(20-25) (ND) MW-25B MW-25A (ND) MW-41A (ND) MW-41B MW-37 MW-62A (ND) MW-62B MW-38 (ND) MW-39R (ND) MW-39 MW-40 (1.8) MW-27A (13) MW-27B MW-42 (2.3) MW-26B MW-26A (ND) IW-1 IW-2 IW-3 IW-4 IW-5 MW-58 MW-43B MW-43A (ND) MW-44A (7.1) MW-44B MW-53 (76) MW-29B MW-29A (ND) MW-60 (12) MW-59 MW-54 (ND) MW-31B MW-31A (NS) MW-55 (ND) MW-33S (NS) MW-33A (ND) MW-33B MW-33C MW-52 (NS) MW-28B MW-28A (ND) MW-32

20 200 2,000

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - APRIL 2014

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-10

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER, K.SARTORI LD:(Opt) PIC: M. FLEISCHNER PM: D. DIXON TM: W. KAHL TR: C. RICHARDSON LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-10-April 14.dwg LAYOUT: K-10 SAVED: 7/24/2018 11:11 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:11 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

BASE MAP REFERENCES:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (260) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)

EASTERN AVENUE

OGLETHORPE ST NE

NICHOLSON ST NE

8TH ST NE

6TH ST NE

KENNEDY ST NE

KENSINGTON PL NE

0 120' 240'

GRAPHIC SCALE

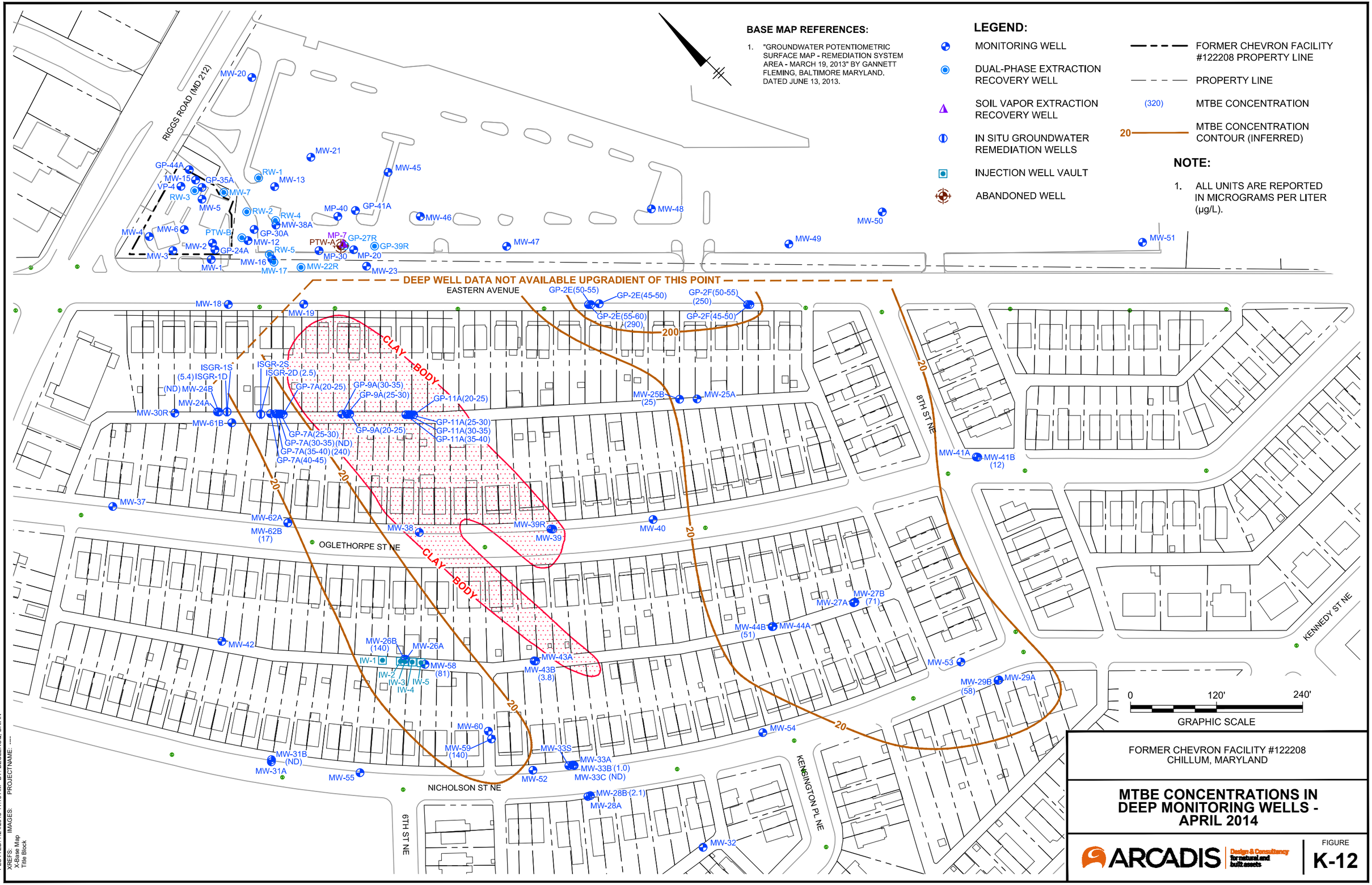
FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - APRIL 2014

ARCADIS Design & Consultancy for natural and built assets

FIGURE K-11

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER, K.SARTORI LD:(Opt) PIC: M. FLEISCHNER PM: D. DIXON TM: W. KAHL TR: C. RICHARDSON LYR:(On|Off)=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-11-April 14.dwg LAYOUT: K-11 SAVED: 8/13/2014 2:05 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:12 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block



FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - APRIL 2014

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-12

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER, K.SARTORI LD:(Opt) PIC: M. FLEISCHNER PM: D. DIXON TM: W. KAHL TR: C. RICHARDSON LYR:(On|Off)=*OFF*
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PLOTTED: 7/24/2018 11:13 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (770) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
CLAY BODY
8TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
6TH ST NE

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - SEPTEMBER 2014

ARCADIS Design & Consultancy for natural and built assets

FIGURE K-13

CITY: SYRACUSE,NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: M.FLEISCHNER PM/TM: D. DIXON TR: C. RICHARDSON LYR:(On)ON=*;OFF=*REF*
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PLTFULL.CTB PLOTTED: 7/24/2018 11:15 AM BY: DECLERCQ, BRIAN

XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) BENZENE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
6TH ST NE
8TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

MW-20 (NS) GP-44A GP-35A (13) (NS) MW-5 MW-15 (ND) VP-4 RW-3 (21) (NS) MW-6 MW-4 PTW-B (33) MW-2 MW-3 MW-1 MW-12 GP-24A (NS) GP-30A (4,900) MW-16 (NS) MW-17 (2,800) MW-18 (NS) MW-19 (ND) MW-22R (1,500) MW-23 (NS) MW-21 (15) RW-1 (87) MW-13 MW-7 (62) RW-2 (130) RW-4 (1,400) MW-38A RW-5 (48) MP-7 (1,300) MP-30 MP-40 MW-45 (ND) (NS) GP-41A PTW-A GP-27R (57) MP-20 GP-39R (220) MW-46 (NS) MW-48 (NS) MW-47 (ND) MW-50 (43) MW-49 (110) MW-51 (49) 20 200 2,000

GP-2E(50-55) GP-2E(45-50) (75) GP-2E(55-60) GP-2F(45-50) (NS) GP-2F(50-55)

ISGR-2S ISGR-2D ISGR-1S ISGR-1D GP-9A(30-35) GP-9A(25-30) GP-7A(20-25) (NS) GP-11A(20-25) (NS) MW-24A (NS) MW-24B MW-30R (NS) MW-61A (1.1) GP-11A(25-30) GP-11A(30-35) GP-11A(35-40) GP-7A(25-30) GP-7A(30-35) GP-7A(35-40) GP-7A(40-45) GP-9A(20-25) (NS) MW-25B MW-25A (NS)

MW-41A (NS) MW-41B

MW-37 MW-62A (NS) MW-62B MW-38 (NS) MW-39R (NS) MW-39 MW-40 (1.9) MW-27A (1.7) MW-27B MW-44A (6.2) MW-44B MW-43B MW-43A (NS) MW-42 (NS) MW-26B MW-26A (NS) MW-58 IW-1 IW-2 IW-3 IW-4 IW-5 MW-53 (110) MW-29B MW-29A (NS) MW-60 (NS) MW-59 MW-54 (NS) MW-31B MW-31A (NS) MW-55 (NS) MW-33S (NS) MW-33A MW-33B MW-33C MW-52 (NS) MW-28B MW-28A (NS) MW-32

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - SEPTEMBER 2014

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-14

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: M.FLEISCHNER PM/TM: D. DIXON TR: C. RICHARDSON LYR:(On|Off|Ref)=ON;*;OFF;*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-14-September 14.dwg LAYOUT: K-14 SAVED: 11/7/2014 1:56 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:17 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (770) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)
EASTERN AVENUE
8TH ST NE
OGLETHORPE ST NE
KENNEDY ST NE
NICHOLSON ST NE
6TH ST NE
KENSINGTON PL NE

MW-20, MW-21, MW-45, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, MW-38A, MP-40, GP-41A, MW-46, MW-48, MW-50, MW-4, MW-6, PTW-B, GP-30A, MW-12, MP-7, GP-27R, PTW-A, GP-39R, MW-47, MW-49, MW-51, MW-2, GP-24A, RW-5, MP-30, MP-20, MW-3, MW-16, MW-22R, MW-1, MW-17, MW-23

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2E(55-60) (40), GP-2F(50-55) (43), GP-2F(45-50), ISGR-1S, ISGR-1D, ISGR-2S, ISGR-2D, GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-24A (NS), MW-24B, MW-25B (430), MW-25A, MW-30R, MW-61B, GP-7A(25-30), GP-7A(30-35) (NS), GP-7A(35-40) (25), GP-7A(40-45), GP-9A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), MW-41A, MW-41B (NS), MW-37, MW-62A, MW-62B (40), MW-38, MW-39R, MW-39, MW-40, MW-26B (520), MW-26A, MW-58 (120), IW-1, IW-2, IW-3, IW-4, IW-5, MW-43A, MW-43B (ND), MW-27A, MW-27B (ND), MW-44B (ND), MW-44A, MW-42, MW-53, MW-29B (ND), MW-29A, MW-60, MW-59 (120), MW-54, (NS) MW-31B, MW-31A, MW-55, MW-33S, MW-33A, MW-33B (NS), MW-33C (NS), MW-52, MW-28B (NS), MW-28A, MW-32

5, 50, 500

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - SEPTEMBER 2014

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-15

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: M.FLEISCHNER PM/TM: D. DIXON TR: C. RICHARDSON LYR:(On)(Off)*REF*
C:\Users\bdecerq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-15-September 14.dwg LAYOUT: K-15 SAVED: 11/10/2014 9:23 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE:
PLTFULL.CTB PLOTTED: 7/24/2018 11:18 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) BENZENE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT
8TH ST NE
OGLETHORPE ST NE
NICHOLSON ST NE
6TH ST NE
KENSINGTON PL NE
KENNEDY ST NE
CLAY BODY
CLAY BODY

MW-20, MW-21, MW-45, MW-48, MW-50, MW-51, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-1, MW-13, RW-3, MW-5, RW-2, RW-4, MW-38A, MP-40, GP-41A, MW-46, MW-4, MW-6, PTW-B, GP-30A, MW-12, MP-7, GP-27R, PTW-A2, GP-39R, MW-47, MW-49, MW-2, GP-24A, RW-5, MW-3, MW-1, MW-16, MW-17, MP-30, MW-22R, MP-20, MW-23

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2F(50-55) (350), GP-2E(55-60) (190), GP-2F(45-50), ISGR-1S, ISGR-1D, ISGR-2S, ISGR-2D, (NS) MW-24B, MW-24A, GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-25B (430), MW-25A, MW-30R, MW-61B, GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-7A(25-30), GP-9A(20-25), GP-7A(30-35) (NS), GP-7A(35-40) (220), GP-7A(40-45), MW-41A, MW-41B (NS), MW-37, MW-62A, MW-62B (71), MW-38, MW-39R, MW-39, MW-40, MW-27A, MW-27B (72), MW-44B (42), MW-44A, MW-42, MW-26B (230), MW-26A, IW-1, IW-2, IW-3, IW-4, IW-5, MW-58 (82), MW-43A, MW-43B (2.1), MW-53, MW-29B (80), MW-29A, MW-60, MW-59 (170), MW-54, MW-31B (NS), MW-31A, MW-55, MW-33S, MW-33A, MW-33B (NS), MW-33C (NS), MW-52, MW-28B (NS), MW-28A, MW-32

200, 20

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - SEPTEMBER 2014

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-16

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: M.FLEISCHNER PM/TM: D. DIXON TR: C. RICHARDSON LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdederco\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-16-September 14.dwg LAYOUT: K-16 SAVED: 11/10/2014 9:29 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE:
PLTFULL.CTB PLOTTED: 7/24/2018 11:20 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (510) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY
CLAY BODY

MW-20 (ND)
MW-21 (4.7)
MW-45 (16)
MW-46 (ND)
MW-47 (94)
MW-48 (ND)
MW-49 (ND)
MW-50 (ND)
MW-51 (1.5)
MW-4 (ND)
MW-5 (NS)
MW-6 (ND)
MW-7 (510)
MW-15 (ND)
VP-4
RW-1 (290)
RW-2 (270)
RW-3 (73)
RW-4 (1,700)
RW-5 (160)
MW-13
MW-38A (2,900)
MW-1
MW-2
MW-3
MW-12
MW-16 (ND)
MW-17 (2,700)
MW-18 (ND)
MW-19 (ND)
MW-22R (2,200)
MW-23 (ND)
MW-20
MP-30
MP-40
MP-7 (NS)
PTW-A
PTW-B (18)
GP-24A (NS)
GP-30A
GP-35A (400)
GP-44A (ND)
GP-41A (ND)
GP-27R (3.2)
GP-39R (1.8)
GP-2E(50-55)
GP-2E(45-50) (ND)
GP-2E(55-60)
GP-2F(50-55)
GP-2F(45-50) (NS)
ISGR-1S (ND)
ISGR-1D
ISGR-2S (ND)
ISGR-2D
MW-24A (NS)
MW-24B
MW-30R (ND)
MW-61A (1.9)
GP-9A(30-35)
GP-9A(25-30) (NS)
GP-9A(20-25) (NS)
GP-11A(20-25) (ND)
GP-11A(25-30)
GP-11A(30-35)
GP-11A(35-40)
GP-7A(20-25) (NS)
GP-7A(25-30)
GP-7A(30-35)
GP-7A(35-40)
GP-7A(40-45)
MW-25A (ND)
MW-25B
MW-41A (ND)
MW-41B
MW-37
MW-62A (ND)
MW-62B
MW-38 (NS)
MW-39R (NS)
MW-39
MW-40 (ND)
MW-42 (ND)
MW-26A (ND)
MW-26B
MW-58
IW-1
IW-2
IW-3
IW-4
IW-5
MW-43A (ND)
MW-43B
MW-44A (ND)
MW-44B
MW-27A (ND)
MW-27B
MW-53 (9.3)
MW-29A (ND)
MW-29B
MW-60 (2.6)
MW-59
MW-31A (NS)
MW-31B
MW-55 (ND)
MW-33S (NS)
MW-33A (ND)
MW-33B
MW-33C
MW-52 (NS)
MW-54 (ND)
MW-28A (NS)
MW-28B
MW-32

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - APRIL 2015

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-17

CITY: SYRACUSE,NY DIVGROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM/TM: D. DIXON TR: C. RICHARDSON LYR:(On)=On*;Off=*REF*
C:\Users\dedierc\OneDrive - ARCADIS\BM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-17-April 15.dwg LAYOUT: K-17 SAVED: 6/29/2015 9:46 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:21 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (930) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
6TH ST NE
8TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

MW-20 (ND)
MW-21 (13)
MW-45 (2.9)
MW-48 (1.4)
MW-50 (5)
MW-49 (73)
MW-51 (45)
MW-47 (24)
MW-46 (3)
MW-23 (1.2)
MW-22R (1,500)
MW-16 (1.3)
MW-17 (1,900)
MW-19 (ND)
MW-18 (ND)
GP-2E(55-60) (24)
GP-2E(50-55)
GP-2E(45-50) (38)
GP-2F(45-50) (NS)
GP-2F(50-55)
MW-25B
MW-25A (ND)
MW-41A (ND)
MW-41B
MW-37
MW-62A (ND)
MW-62B
MW-38 (NS)
MW-39R (NS)
MW-39
MW-40 (11)
MW-27A (ND)
MW-27B
MW-44A (8)
MW-44B
MW-53 (82)
MW-29B
MW-29A (1.1)
MW-42 (ND)
MW-26B
MW-26A (ND)
MW-58 (51)
MW-43B
MW-43A (ND)
MW-60 (9.8)
MW-59
MW-54 (ND)
MW-31B
MW-31A (NS)
MW-55 (ND)
MW-52 (NS)
MW-33S (NS)
MW-33A (ND)
MW-33B
MW-33C
MW-28B
MW-28A (NS)
MW-32
MW-30R (ND)
MW-61A (ND)
MW-24A (NS)
MW-24B
ISGR-1S (ND)
ISGR-1D
ISGR-2S (ND)
ISGR-2D
GP-7A(20-25) (NS)
GP-9A(30-35)
GP-9A(25-30)
GP-11A(20-25) (ND)
GP-11A(25-30)
GP-11A(30-35)
GP-11A(35-40)
GP-7A(25-30) (ND)
GP-7A(30-35)
GP-7A(35-40)
GP-7A(40-45)
GP-9A(20-25) (NS)
MW-4
MW-3
MW-2
MW-1
MW-12
MW-6
VP-4
RW-3 (33)
MW-15 (ND)
GP-44A (ND)
GP-35A (11)
MW-5 (NS)
MW-7 (89)
RW-1 (110)
RW-2 (140)
MW-13
RW-4 (930)
MW-38A
MP-40
GP-41A (ND)
PTW-A
GP-27R (9.8)
MP-20
GP-39R (65)
MP-7 (NS)
MP-30
RW-5 (37)
PTW-B (20)
GP-30A (970)
GP-24A (NS)
IW-1
IW-2
IW-3
IW-4
IW-5
20
200

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: K.M. ABBOTT PM/TM: D. DIXON TR: C. RICHARDSON LYR:(On)(Off)=*OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-18-April 15.dwg LAYOUT: K-18 SAVED: 6/29/2015 10:00 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:22 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - APRIL 2015

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-18

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (150) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE

MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-12, MW-13, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22R, MW-23, MW-24A, MW-24B (ND), MW-25A, MW-25B (150), MW-26A, MW-26B (320), MW-27A, MW-27B (ND), MW-28A, MW-28B (ND), MW-29A, MW-29B (ND), MW-30R, MW-31A, MW-31B (ND), MW-32, MW-33A, MW-33B (ND), MW-33C (ND), MW-33S, MW-37, MW-38, MW-38A, MW-39, MW-39R, MW-40, MW-41A, MW-41B (ND), MW-42, MW-43A, MW-43B (ND), MW-44A, MW-44B (ND), MW-45, MW-46, MW-47, MW-48, MW-49, MW-50, MW-51, MW-52, MW-53, MW-54, MW-55, MW-58 (57), MW-59 (120), MW-60, MW-61B (ND), MW-62A, MW-62B (9.6)

GP-2E(50-55), GP-2E(45-50), GP-2E(55-60) (ND), GP-2F(50-55) (49), GP-2F(45-50), GP-7A(20-25), GP-7A(25-30), GP-7A(30-35) (NS), GP-7A(35-40) (5.3), GP-7A(40-45), GP-9A(20-25), GP-9A(25-30), GP-9A(30-35), GP-11A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-24A, GP-27R, GP-30A, GP-35A, GP-39R, GP-41A, GP-44A, ISGR-1D (ND), ISGR-1S, ISGR-2D (ND), ISGR-2S, MP-7, MP-20, MP-30, MP-40, PTW-A, PTW-B, RW-1, RW-2, RW-3, RW-4, RW-5, VP-4, IW-1, IW-2, IW-3, IW-4, IW-5

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - APRIL 2015

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-19

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM/TM: D. DIXON TR: C. RICHARDSON LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-19-April 15.dwg LAYOUT: K-19 SAVED: 6/29/2015 10:05 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:23 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)

EASTERN AVENUE

OGLETHORPE ST NE

NICHOLSON ST NE

8TH ST NE

6TH ST NE

KENNEDY ST NE

KENSINGTON PL NE

MW-20, MW-21, MW-45, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, MW-38A, MP-40, GP-41A, MW-46, MW-48, MW-50, MW-4, MW-6, PTW-B, GP-30A, MW-12, MP-7, GP-27R, PTW-A2, GP-39R, MW-47, MW-49, MW-51, MW-2, GP-24A, RW-5, MP-30, MP-20, MW-3, MW-16, MW-22R, MW-23, MW-1, MW-17

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2F(50-55) (270), GP-2E(55-60) (24), GP-2F(45-50), ISGR-1S, ISGR-2S, (4.3) ISGR-1D, ISGR-2D (2.4), (ND) MW-24B, MW-24A, GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-25B (230), MW-25A, MW-30R, MW-61B (15), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-7A(25-30), GP-7A(30-35), GP-7A(35-40) (23), GP-7A(40-45), GP-9A(20-25), MW-41A, MW-41B (12), MW-37, MW-62A, MW-62B (30), MW-38, MW-39R, MW-39, MW-40, MW-27A, MW-27B (68), MW-44B (37), MW-44A, MW-42, MW-26B (150), MW-26A, IW-1, IW-2, IW-3, IW-4, IW-5, MW-58 (51), MW-43A, MW-43B (2.3), MW-53, MW-29B (120), MW-29A, MW-60, MW-59 (160), MW-33S, MW-33A, MW-33B (1.1), MW-33C (1.2), MW-54, MW-31B (ND), MW-31A, MW-55, MW-52, MW-28B (5.7), MW-28A, MW-32

20, 200

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - APRIL 2015

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-20

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM/TM: D. DIXON TR: C. RICHARDSON LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-20-April 15.dwg LAYOUT: K-20 SAVED: 6/29/2015 10:12 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:25 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (180) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - SEPTEMBER / OCTOBER 2015

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-21

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: C. RICHARDSON LYR:(On|Off)=*OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-21-October 15.dwg LAYOUT: K-21 SAVED: 7/24/2018 11:26 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:26 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) BENZENE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - SEPTEMBER / OCTOBER 2015

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-22

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: C. RICHARDSON LYR:(On|Off)=*OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0000\01-DWG\MW-Fig K-22-October 15.dwg LAYOUT: K-22 SAVED: 1/18/2016 2:11 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:28 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (770) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)

EASTERN AVENUE

OGLETHORPE ST NE

NICHOLSON ST NE

8TH ST NE

6TH ST NE

KENNEDY ST NE

KENSINGTON PL NE

MW-20, MW-21, MW-45, MW-48, MW-50, MW-51, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, MW-38A, MP-40, GP-41A, MW-46, MW-4, MW-6, PTW-B, GP-30A, MW-12, MP-7, GP-27R, PTW-A, GP-39R, MW-47, MW-49, MW-2, GP-24A, RW-5, MW-3, MW-16, MP-30, MP-20, MW-1, MW-17, MW-22R, MW-23

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2E(55-60) (2.1), GP-2F(50-55) (53), GP-2F(45-50), ISGR-1S, (ND) ISGR-1D, ISGR-2S, ISGR-2D (ND), GP-7A(20-25), GP-9A(30-35), MW-24A, (NS) MW-24B, GP-9A(25-30), GP-11A(20-25), (94) MW-25B, MW-25A, MW-30R, MW-61B (ND), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-9A(20-25), GP-7A(25-30), GP-7A(30-35), GP-7A(35-40) (ND), GP-7A(40-45), MW-41A, MW-41B (NS)

MW-37, MW-62A, MW-62B (8.2), MW-38, MW-39R, MW-39, MW-40, MW-27A, MW-27B (ND), MW-42, MW-26B (600), MW-26A, MW-58 (110), IW-1, IW-2, IW-3, IW-4, IW-5, MW-43A, MW-43B (ND), MW-44B (ND), MW-44A, MW-53, MW-29B (ND), MW-29A, MW-60, MW-59 (110), (NS) MW-31B, MW-31A, MW-55, MW-33S, MW-33A, MW-33B (NS), MW-33C (NS), MW-52, MW-54, MW-28B (NS), MW-28A, MW-32

-5, -50, -500

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - SEPTEMBER / OCTOBER 2015

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-23

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: C. RICHARDSON LYR:(On|Off)=*OFF=*REF*
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PLOTTED: 7/24/2018 11:29 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) BENZENE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

MW-20, MW-21, MW-45, MW-48, MW-50, MW-51, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, MW-38A, MP-40, GP-41A, MW-46, MW-4, MW-6, PTW-B, GP-30A, MW-12, MP-7, GP-27R, PTW-A2, GP-39R, MW-47, MW-49, MW-2, GP-24A, RW-5, MW-3, MW-16, MP-30, MP-20, MW-1, MW-17, MW-22R, MW-23

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2E(55-60) (34), GP-2F(50-55) (360), GP-2F(45-50), ISGR-1S, (1.3) ISGR-1D, ISGR-2S, ISGR-2D (4.6), (NS) MW-24B, GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-24A, MW-30R, MW-61B (10), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-9A(20-25), GP-7A(25-30), GP-7A(30-35), GP-7A(35-40) (ND), GP-7A(40-45), MW-25B (190), MW-25A, MW-41A, MW-41B (NS), MW-37, MW-62A, MW-62B (36), MW-38, MW-39R, MW-39, MW-40, MW-27A, MW-27B (91), MW-42, MW-26B (320), MW-26A, IW-1, IW-2, IW-3, IW-4, IW-5, MW-58 (140), MW-43A, MW-43B (ND), MW-44B (42), MW-44A, MW-53, MW-29B (77), MW-29A, MW-60, MW-59 (200), MW-33S, MW-33A, MW-33B (NS), MW-33C (NS), MW-54, MW-31B (NS), MW-31A, MW-55, MW-52, MW-28B (NS), MW-28A, MW-32

20, 200

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - SEPTEMBER / OCTOBER 2015

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-24

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: C. RICHARDSON LYR:(On|Off)=*OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-24-October 15.dwg LAYOUT: K-24 SAVED: 7/24/2018 11:30 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:31 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (180) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - MARCH 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-25

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-25-March 16.dwg LAYOUT: K-25 SAVED: 7/24/2018 11:32 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:32 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).
2. RW-5 IS ANGLED AT 30° OFF HORIZONTAL TOWARDS EASTERN AVENUE, AND WAS NOT USED IN DEVELOPMENT OF THE CONTOUR.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MID 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

MW-20 (NS)
MW-21 (ND)
MW-45 (ND)
MW-48 (NS)
MW-50 (13)
MW-49 (82)
MW-51 (46)
MW-47 (ND)
MW-23 (NS)
MW-22R (1,000)
MW-16 (NS)
MW-17 (2,300)
MW-19 (NS)
MW-18 (NS)
GP-44A (NS)
GP-35A (ND)
MW-5 (NS)
MW-15 (ND)
VP-4
RW-3 (25)
MW-7 (53)
RW-1 (70)
RW-2 (120)
MW-13
RW-4 (1,100)
MW-40
GP-41A (NS)
PTW-A
GP-27R (57)
MW-46 (NS)
MW-4 (NS)
MW-6
PTW-B (39)
MW-38A
RW-5 (SEE NOTE 2)
(8,1)
MP-7
MP-20
GP-39R (49)
MW-2
MW-12
MW-3
MW-1
MP-30
2,000
GP-30A (1,200)
GP-24A
GP-2E(50-55)
GP-2E(45-50) (8.8)
GP-2F(45-50)
GP-2E(55-60)
GP-2F(50-55)
ISGR-2S
ISGR-2D
ISGR-1S (ND)
ISGR-1D
GP-9A(30-35)
GP-9A(25-30)
GP-7A(20-25)
GP-11A(20-25) (NS)
MW-24A
MW-24B
MW-30R (NS)
MW-61A (ND)
GP-11A(25-30)
GP-11A(30-35)
GP-11A(35-40)
GP-7A(25-30)
GP-7A(30-35)
GP-7A(35-40)
GP-7A(40-45)
GP-9A(20-25)
MW-25B
MW-25A (NS)
MW-41A (NS)
MW-41B
MW-37
MW-62A (NS)
MW-62B
MW-38
MW-39R
MW-39
MW-40 (4.8)
MW-27A (ND)
MW-27B
MW-44A (6.3)
MW-44B
MW-42 (NS)
MW-26B
MW-26A (NS)
MW-58
MW-43B
MW-43A (NS)
IW-1
IW-2
IW-3
IW-4
IW-5
MW-53 (65)
MW-29B
MW-29A (NS)
MW-60 (NS)
MW-59
MW-54 (NS)
MW-31B
MW-31A (NS)
MW-55 (NS)
(ND) MW-33S
(NS) MW-33A
MW-33B
MW-33C
MW-52 (NS)
MW-28B
MW-28A
MW-32

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - MARCH 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-26

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-26-March 16.dwg LAYOUT: K-26 SAVED: 7/24/2018 11:34 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:34 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (770) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)

EASTERN AVENUE

OGLETHORPE ST NE

NICHOLSON ST NE

8TH ST NE

6TH ST NE

KENNEDY ST NE

KENSINGTON PL NE

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - MARCH 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE K-27

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-27-March 16.dwg LAYOUT: K-27 SAVED: 7/18/2016 9:03 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:35 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

EASTERN AVENUE

8TH ST NE

KENNEDY ST NE

OGLETHORPE ST NE

NICHOLSON ST NE

6TH ST NE

KENSINGTON PL NE

CLAY BODY

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - MARCH 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-28

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-28-March 16.dwg LAYOUT: K-28 SAVED: 7/24/2018 11:36 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:36 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (180) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - OCTOBER 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-29

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
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PLOTTED: 7/24/2018 11:38 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).
2. RW-5 IS ANGLED AT 30° OFF HORIZONTAL TOWARDS EASTERN AVENUE, AND WAS NOT USED IN DEVELOPMENT OF THE CONTOUR.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MID 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

MW-20 (ND)
MW-21 (9.7)
MW-45 (2.8)
MW-48 (1.7)
MW-50 (5.2)
MW-51 (41)
MW-49 (26)
MW-47 (12)
MW-46 (4.1)
MW-23 (ND)
MW-22R (660)
MW-16 (1.5)
MW-17 (2,100)
MW-18 (ND)
MW-19 (NS)
GP-2E(50-55)
GP-2E(45-50) (5.1)
GP-2F(45-50)
GP-2E(55-60)
GP-2F(50-55)
MW-25B
MW-25A (ND)
MW-41A (ND)
MW-41B
ISGR-2S (ND)
ISGR-2D
ISGR-1S (ND)
ISGR-1D
GP-9A(30-35)
GP-9A(25-30)
GP-7A(20-25)
GP-11A(20-25) (ND)
GP-11A(25-30)
GP-11A(30-35)
GP-11A(35-40)
GP-9A(20-25)
GP-7A(25-30)
GP-7A(30-35)
GP-7A(35-40)
GP-7A(40-45)
MW-24A
MW-24B
VW-01
MW-30R (DRY)
MW-61A (ND)
MW-37
MW-62A (ND)
MW-62B
MW-38
MW-39R
MW-39
MW-40 (12)
MW-27A (1.9)
MW-27B
VW-02
MW-44A (5.8)
MW-44B
MW-42 (ND)
MW-26A (ND)
MW-26B
MW-58
MW-43B
MW-43A (ND)
IW-1
IW-2
IW-3
IW-4
IW-5
MW-53 (110)
VW-04
MW-29A (1.5)
MW-29B
MW-60 (9.0)
MW-59
MW-54 (ND)
MW-31B
MW-31A
MW-55 (ND)
MW-52
MW-33S
MW-33A (ND)
MW-33B
MW-33C
VW-03
MW-28B
MW-28A
MW-32
MW-15 (ND)
GP-44A (NS)
GP-35A (ND)
MW-5
MW-7 (1,100)
RW-1 (110)
MW-13
VP-4
RW-3 (120)
RW-2 (130)
RW-4 (810)
MW-40
GP-41A (ND)
PTW-A
GP-27R (39)
MW-4
MW-6 (ND)
PTW-B (31)
MW-38A
RW-5 (SEE NOTE 2)
MP-7 (NS)
MP-20
GP-39R (22)
MW-2
MW-3
MW-1
MW-12
MP-30
GP-30A (68)
GP-24A
200
20
2,000

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - OCTOBER 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-30

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
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PLOTTED: 7/24/2018 11:39 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (770) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE

MW-20, MW-21, MW-45, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, MW-38A, MP-40, GP-41A, MW-46, MW-48, MW-50, MW-4, MW-6, PTW-B, GP-30A, MW-12, MP-7, GP-27R, PTW-A, MW-2, GP-24A, RW-5, MP-30, MP-20, GP-39R, MW-47, MW-49, MW-51, MW-3, MW-1, MW-16, MW-17, MW-22R, MW-23

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2E(55-60) (ND), GP-2F(50-55) (5.3), GP-2F(45-50), ISGR-1S, ISGR-1D (ND), ISGR-2S, ISGR-2D (ND), GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-24A, MW-24B (ND), MW-30R, VW-01, MW-61B (ND), GP-9A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-7A(25-30), GP-7A(30-35) (NS), GP-7A(35-40) (5.6), GP-7A(40-45), (27) MW-25B, MW-25A, MW-41A, MW-41B (ND)

MW-37, MW-62A, MW-62B (5.8), MW-38, MW-39R, MW-39, MW-40, MW-42, MW-26B (260), MW-26A, MW-58 (220), IW-1, IW-2, IW-3, IW-4, IW-5, MW-43A, MW-43B (ND), MW-27B (ND), MW-27A, VW-02, MW-44B (ND), MW-44A, VW-04, MW-53, MW-29B (ND), MW-29A, MW-60, MW-59 (110), MW-54, MW-31B (ND), MW-31A, MW-55, MW-52, VW-03, MW-33S, MW-33A, MW-33B (5.4), MW-33C (ND), MW-28B (ND), MW-28A, MW-32

5, 50

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - OCTOBER 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-31

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-31-October 16.dwg LAYOUT: K-31 SAVED: 7/24/2018 11:41 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:41 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE

CLAY BODY

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - OCTOBER 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-32

CITY: SYRACUSE NY DIV/GROUP: ENV/CAD DB: E. KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
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PLOTTED: 7/24/2018 11:42 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (180) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - APRIL 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE K-33

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BU\NDLING\2018\B0049337.0004\01-DWG\MW-Fig K-33-April 17.dwg LAYOUT: K-33 SAVED: 7/19/2017 3:19 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:44 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).
2. RW-5 IS ANGLED AT 30° OFF HORIZONTAL TOWARDS EASTERN AVENUE, AND WAS NOT USED IN DEVELOPMENT OF THE CONTOUR.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENSINGTON PL NE
KENNEDY ST NE
CLAY BODY

MW-20 (ND)
GP-44A (ND) GP-35A (NS) MW-5 (52) MW-7 (81) RW-1 MW-21 (7)
MW-15 (ND) VP-4 RW-3 (ND) MW-13 (100) RW-2 RW-4 (510) MW-40 (ND) GP-41A PTW-A MW-45 (1.7)
MW-4 MW-6 (ND) PTW-B (15) MW-38A RW-5 (SEE NOTE 2) MP-7 (NS) GP-27R (23) MW-46 (1.4) MW-48 (1) MW-50 (1.4)
MW-2 MW-12 MP-20 GP-39R (27)
MW-3 MW-1 GP-30R (880) MP-30 MW-47 (8.3) MW-49 (20) MW-51 (22)
GP-24A MW-23 (1.5)
MW-16 (NS) MW-17 (2,400) MW-22R (1,200)
MW-18 (ND) MW-19
GP-2E(50-55) GP-2E(45-50) (1.9) GP-2F(45-50)
GP-2E(55-60) GP-2F(50-55)
ISGR-2S (ND) ISGR-2D ISGR-1S (ND) ISGR-1D GP-9A(30-35) GP-7A(20-25) GP-9A(25-30) GP-11A(20-25) (ND)
MW-25B MW-25A (ND)
MW-24A VW-01 MW-30R (NS) MW-24B MW-61A (1.7) GP-11A(25-30) GP-11A(30-35) GP-11A(35-40)
GP-7A(25-30) GP-7A(30-35) GP-7A(35-40) GP-7A(40-45) GP-9A(20-25)
MW-41A (ND) MW-41B
MW-37
MW-62A (ND) MW-62B MW-38 MW-39R MW-39 MW-40 (14)
MW-27A (ND) MW-27B VW-02
MW-42 (ND) MW-26B MW-26A (ND) MW-43B MW-44A MW-44B (1.4)
IW-1 IW-2 IW-3 IW-4 IW-5 MW-58 MW-43A (ND)
(71) MW-53 VW-04 MW-29B MW-29A (ND)
MW-60 (7.9) MW-59 MW-54 (ND)
MW-31B MW-31A MW-55 (ND) MW-52 VW-03 MW-33S (ND) MW-33A MW-33B MW-33C
MW-28B MW-28A
MW-32

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - APRIL 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE K-34

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-34-April 17.dwg LAYOUT: K-34 SAVED: 7/19/2017 3:21 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:45 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (770) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)

EASTERN AVENUE

OGLETHORPE ST NE

NICHOLSON ST NE

8TH ST NE

6TH ST NE

KENNEDY ST NE

KENSINGTON PL NE

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - APRIL 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE K-35

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-35-April 17.dwg LAYOUT: K-35 SAVED: 7/19/2017 3:23 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:47 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)

EASTERN AVENUE

OGLETHORPE ST NE

NICHOLSON ST NE

8TH ST NE

6TH ST NE

KENNEDY ST NE

KENSINGTON PL NE

MW-20, MW-21, MW-45, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, MW-38A, MP-40, GP-41A, MW-46, MW-48, MW-50, MW-4, MW-6, PTW-B, GP-30R, MW-12, MP-7, GP-27R, PTW-A2, GP-39R, MW-47, MW-49, MW-51, MW-2, GP-24A, RW-5, MP-30, MP-20, MW-3, MW-16, MW-22R, MW-1, MW-17, MW-23

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2F(50-55) (180), GP-2E(55-60) (37), GP-2F(45-50), ISGR-1S, ISGR-2S, (2.0) ISGR-1D, ISGR-2D (5.4), (ND) MW-24B, GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-24A, MW-30R, VW-01, MW-61B (9.1), GP-9A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-7A(25-30), GP-7A(30-35), GP-7A(35-40) (64), GP-7A(40-45), MW-25B (150), MW-25A, MW-41A, MW-41B (7.4), MW-37, MW-62A, MW-62B (27), MW-38, MW-39R, MW-39, MW-40, MW-27A, MW-27B (68), VW-02, MW-42, MW-26B (110), MW-26A, IW-1, IW-2, IW-3, IW-4, IW-5, MW-58 (62), MW-43A, MW-43B (1.7), MW-44B (30), MW-44A, VW-04, MW-53, MW-29B (65), MW-29A, MW-60, MW-59 (170), MW-54, MW-31B (ND), MW-31A, MW-52, MW-33S, MW-33A, MW-33B (12), MW-33C (ND), VW-03, MW-55, MW-28B (3.3), MW-28A, MW-32

20

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - APRIL 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-36

CITY: SYRACUSE NY DIV/GROUP: ENV/CAD DB: E. KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-36-April 17.dwg LAYOUT: K-36 SAVED: 7/19/2017 3:25 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:48 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (180) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - AUGUST 2016

ARCADIS Design & Consultancy for natural and built assets

FIGURE K-37

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BU\NDLING\2018\B0049337.0004\01-DWG\MW-Fig K-37-August 17.dwg LAYOUT: K-37 SAVED: 7/24/2018 11:49 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:50 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).
2. RW-5 IS ANGLED AT 30° OFF HORIZONTAL TOWARDS EASTERN AVENUE, AND WAS NOT USED IN DEVELOPMENT OF THE CONTOUR.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MID 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - AUGUST 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-38

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-38-August 17.dwg LAYOUT: K-38 SAVED: 7/24/2018 10:06 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:51 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (100) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)

EASTERN AVENUE

OGLETHORPE ST NE

NICHOLSON ST NE

8TH ST NE

6TH ST NE

KENNEDY ST NE

KENSINGTON PL NE

MW-20, MW-21, MW-45, MW-48, MW-50, MW-51, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, GP-41A, MW-46, MW-4, MW-6, PTW-B, GP-30R, MW-12, MP-7, GP-27R, GP-39R, MW-47, MW-49, MW-2, GP-24A, RW-5, MW-3, MW-16, MW-22R, MW-23, MW-1, MW-17

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2F(50-55) (ND), GP-2F(45-50), GP-2E(55-60) (ND), ISGR-1S, ISGR-1D (ND), ISGR-2S, ISGR-2D (ND), GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-24A, MW-24B (NS), MW-30R, VW-01, MW-61B (ND), GP-9A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-7A(25-30), GP-7A(30-35) (NS), GP-7A(35-40) (ND), GP-7A(40-45), 5, (88) MW-25B, 50, MW-25A, MW-41A, MW-41B (NS), MW-37, MW-62A, MW-62B (3.6), MW-38, MW-39R, MW-39, MW-40, MW-27B (ND), MW-27A, VW-02, MW-44B (ND), MW-44A, MW-42, MW-26B (270), MW-26A, MW-58 (110), MW-43A, MW-43B (NS), IW-1, IW-2, IW-3, IW-4, IW-5, 5, 50, MW-60, MW-59 (100), MW-54, VW-04, MW-53, MW-29B (ND), MW-29A, MW-31B (NS), MW-31A, MW-55, MW-52, VW-03, MW-33S, MW-33A, MW-33B (NS), MW-33C (NS), MW-28B (ND), MW-28A, MW-32

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - AUGUST 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-39

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-39-August 17.dwg LAYOUT: K-39 SAVED: 7/24/2018 10:06 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:52 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (150) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE

MW-20, MW-21, MW-45, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, GP-41A, MW-46, MW-48, MW-50, MW-4, MW-6, PTW-B, GP-30R, MW-12, MP-7, GP-27R, GP-39R, MW-47, MW-49, MW-51, MW-2, GP-24A, RW-5, MW-3, MW-16, MW-22R, MW-23, MW-1, MW-17

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2F(50-55) (170), GP-2E(55-60) (ND), GP-2F(45-50), ISGR-1S, (ND) ISGR-1D, ISGR-2S, ISGR-2D (ND), (NS) MW-24B, GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-24A, MW-30R, VW-01, MW-61B (10), GP-9A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), (150) MW-25B, MW-25A, GP-7A(25-30), GP-7A(30-35), GP-7A(35-40) (ND), GP-7A(40-45), MW-41A, MW-41B (NS)

MW-37, MW-62A, MW-62B (24), MW-38, MW-39R, MW-39, MW-40, MW-27A, MW-27B (91), VW-02, MW-44B (36), MW-44A, MW-42, MW-26B (110), MW-26A, IW-1, IW-2, IW-3, IW-4, IW-5, MW-58 (85), MW-43A, MW-43B (NS), VW-04, MW-53, MW-29B (65), MW-29A, MW-60, MW-59 (190), MW-54, MW-31B (NS), MW-31A, MW-55, MW-52, MW-33S, MW-33A, MW-33B (NS), MW-33C (NS), VW-03, MW-28B (91), MW-28A, MW-32

20

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - AUGUST 2017

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-40

CITY: SYRACUSE NY DIV/GROUP: ENV/CAD DB: E. KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-40-August 17.dwg LAYOUT: K-40 SAVED: 7/24/2018 10:06 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:53 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (180) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENSINGTON PL NE
KENNEDY ST NE
CLAY BODY

MW-20 (ND)
MW-21 (3.1)
MW-45 (2.1)
MW-46 (ND)
MW-48 (ND)
MW-50 (ND)
MW-49 (ND)
MW-51 (ND)
MW-47 (86)
GP-35A (420)
GP-44A (NS)
MW-15 (4.8)
VP-4
RW-3 (40)
MW-5 (NS)
MW-4
MW-6 (ND)
PTB-B (1.5)
MW-2
MW-3
GP-24A
MW-1
MW-12
MW-7
RW-1 (520)
MW-13
RW-2 (290)
RW-4 (1,700)
GP-30R (90)
MW-22R (2,000)
RW-5 (NS)
MW-16 (ND)
MW-17 (1,900)
MW-18 (ND)
MW-19 (ND)
MP-7
GP-27R (ND)
GP-39R (ND)
GP-41A (ND)
MW-23 (ND)
GP-2E(50-55)
GP-2E(45-50) (ND)
GP-2F(50-55)
GP-2F(45-50)
GP-2E(55-60)
ISGR-1S (ND)
ISGR-1D
ISGR-2S (ND)
ISGR-2D
GP-9A(30-35)
GP-9A(25-30)
GP-9A(20-25)
GP-11A(20-25) (ND)
GP-11A(25-30)
GP-11A(30-35)
GP-11A(35-40)
GP-7A(20-25)
GP-7A(25-30)
GP-7A(30-35)
GP-7A(35-40)
GP-7A(40-45)
MW-24B
MW-24A
VW-01
MW-30R (NS)
MW-61A (4.8)
MW-25B
MW-25A (ND)
MW-41A (ND)
MW-41B
MW-37
MW-62A (ND)
MW-62B
MW-38
MW-39R
MW-39
MW-40 (ND)
MW-27A (ND)
MW-27B
VW-02
MW-44B
MW-44A (ND)
MW-26B
MW-26A (ND)
MW-58
MW-43B
MW-43A (ND)
IW-1
IW-2
IW-3
IW-4
IW-5
VW-04
MW-53 (ND)
MW-29B
MW-29A (ND)
MW-42 (ND)
MW-60 (1.7)
MW-59
MW-54 (ND)
MW-31B
MW-31A
MW-55 (ND)
MW-52
VW-03
(NS) MW-33S
(ND) MW-33A
MW-33B
MW-33C
MW-28B
MW-28A
MW-32

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN SHALLOW MONITORING WELLS - MARCH 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-41

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-41-March 18.dwg LAYOUT: K-41 SAVED: 7/24/2018 10:00 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:54 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).
2. RW-5 IS ANGLED AT 30° OFF HORIZONTAL TOWARDS EASTERN AVENUE, AND WAS NOT USED IN DEVELOPMENT OF THE CONTOUR.

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (110) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MID 212)
EASTERN AVENUE
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE
CLAY BODY

MW-20 (ND)
MW-21 (6.3)
MW-45 (ND)
MW-48 (ND)
MW-50 (1.1)
MW-51 (9.9)
MW-49 (17)
MW-47 (6.9)
MW-46 (2.0)
GP-27R (3.9)
GP-41A (ND)
GP-39R (5.3)
MP-7
MW-23 (ND)
MW-22R (1,200)
MW-16 (ND)
MW-17 (1,200)
MW-19 (ND)
MW-18 (ND)
GP-24A
GP-30R (140)
PTW-B (3.6)
RW-1 (120)
RW-2 (130)
RW-4 (510)
RW-5 (NS)
MW-13
MW-7
GP-35A (ND)
GP-44A (NS)
MW-15 (ND)
VP-4
RW-3 (ND)
MW-5 (NS)
MW-6 (ND)
MW-4
MW-2
MW-1
MW-3
MW-12
GP-2E(50-55)
GP-2E(45-50) (ND)
GP-2F(45-50)
GP-2E(55-60)
GP-2F(50-55)
MW-25B
MW-25A (ND)
MW-41A (ND)
MW-41B
ISGR-2S (ND)
ISGR-2D
ISGR-1S (ND)
ISGR-1D
GP-9A(30-35)
GP-9A(25-30)
GP-7A(20-25)
GP-11A(20-25) (ND)
GP-11A(25-30)
GP-11A(30-35)
GP-11A(35-40)
GP-9A(20-25)
GP-7A(25-30)
GP-7A(30-35)
GP-7A(35-40)
GP-7A(40-45)
MW-24A
MW-24B
VW-01
MW-30R (NS)
MW-61A (2.5)
MW-37
MW-62A (ND)
MW-62B
MW-38
MW-39R
MW-39
MW-40 (9.5)
MW-27A (1.1)
MW-27B
VW-02
MW-44A (3.0)
MW-44B
MW-42 (ND)
MW-26A (ND)
MW-26B
MW-58
MW-43B
MW-43A (ND)
IW-1
IW-2
IW-3
IW-4
IW-5
(21) MW-53
VW-04
MW-29B
MW-29A (ND)
MW-60 (6.7)
MW-59
MW-54 (ND)
MW-31B
MW-31A
MW-55 (ND)
MW-52
(NS) MW-33S
(ND) MW-33A
MW-33B
MW-33C
VW-03
MW-28B
MW-28A
MW-32

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN SHALLOW MONITORING WELLS - MARCH 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-42

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclerc\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-42-March 18.dwg LAYOUT: K-42 SAVED: 7/24/2018 10:00 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:55 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (100) BENZENE CONCENTRATION
- 50 BENZENE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT

CLAY BODY

RIGGS ROAD (MD 212)

EASTERN AVENUE

OGLETHORPE ST NE

NICHOLSON ST NE

8TH ST NE

6TH ST NE

KENNEDY ST NE

KENSINGTON PL NE

MW-20, MW-21, MW-45, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, GP-41A, MW-46, MW-48, MW-50, MW-4, MW-6, PTW-B, GP-30R, MW-12, MP-7, GP-27R, GP-39R, MW-47, MW-49, MW-51, MW-2, GP-24A, RW-5, MW-3, MW-16, MW-1, MW-17, MW-22R, MW-23

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2F(50-55) (NS), GP-2F(45-50), GP-2E(55-60) (ND), ISGR-1S, (ND) ISGR-1D, ISGR-2S, ISGR-2D (ND), GP-7A(20-25), GP-9A(30-35), MW-24A, (ND) MW-24B, GP-9A(25-30), GP-11A(20-25), MW-30R, VW-01, MW-61B (ND), GP-9A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-7A(25-30), GP-7A(30-35), GP-7A(35-40) (ND), GP-7A(40-45), 5, (130) MW-25B, 50, MW-25A, MW-41A, MW-41B (ND)

MW-37, MW-62A, MW-62B (2.1), MW-38, MW-39R, MW-39, MW-40, MW-27B (ND), MW-27A, VW-02, MW-42, MW-26B (170), MW-26A, MW-58 (65), IW-1, IW-2, IW-3, IW-4, IW-5, MW-43A, MW-43B (ND), MW-44B (ND), MW-44A, VW-04, MW-53, MW-29B (ND), MW-29A, MW-60, MW-59 (68), MW-54, MW-31B (ND), MW-31A, MW-55, MW-52, VW-03, MW-33S, MW-33A, MW-33B (3.5), MW-33C (ND), MW-28B (ND), MW-28A, MW-32

0 120' 240'

GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS IN DEEP MONITORING WELLS - MARCH 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-43

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM/TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-43-March 18.dwg LAYOUT: K-43 SAVED: 7/24/2018 10:00 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:56 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ----
X-Base Map
Title Block

BASE MAP REFERENCE:

1. "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

1. ALL UNITS ARE REPORTED IN MICROGRAMS PER LITER (µg/L).

LEGEND:

- MONITORING WELL
- DUAL-PHASE EXTRACTION RECOVERY WELL
- SOIL VAPOR EXTRACTION RECOVERY WELL
- SOIL VAPOR MONITORING WELL
- IN SITU GROUNDWATER REMEDIATION WELLS
- INJECTION WELL VAULT
- ABANDONED WELL
- FORMER CHEVRON FACILITY #122208 PROPERTY LINE
- PROPERTY LINE
- (150) MTBE CONCENTRATION
- 20 MTBE CONCENTRATION CONTOUR (INFERRED)
- ND NON DETECT
- NS NOT SAMPLED

RIGGS ROAD (MD 212)
EASTERN AVENUE
DEEP WELL DATA NOT AVAILABLE UPGRADIENT OF THIS POINT
CLAY BODY
OGLETHORPE ST NE
NICHOLSON ST NE
8TH ST NE
6TH ST NE
KENNEDY ST NE
KENSINGTON PL NE

MW-20, MW-21, MW-45, RW-1, MW-13, GP-44A, MW-15, GP-35A, VP-4, MW-7, RW-3, MW-5, RW-2, RW-4, GP-41A, MW-46, MW-48, MW-50, MW-4, MW-6, PTW-B, GP-30R, MW-12, MP-7, GP-27R, GP-39R, MW-47, MW-49, MW-51, MW-2, GP-24A, RW-5, MW-3, MW-16, MW-22R, MW-23, MW-1, MW-17

MW-18, MW-19, GP-2E(50-55), GP-2E(45-50), GP-2F(50-55) (NS), GP-2E(55-60) (ND), GP-2F(45-50), ISGR-1S, ISGR-2S, (ND) ISGR-1D, ISGR-2D (1.7), (ND) MW-24B, GP-7A(20-25), GP-9A(30-35), GP-9A(25-30), GP-11A(20-25), MW-24A, MW-30R, VW-01, MW-61B (1.5), (120) MW-25B, MW-25A, GP-9A(20-25), GP-11A(25-30), GP-11A(30-35), GP-11A(35-40), GP-7A(25-30), GP-7A(30-35), GP-7A(35-40) (ND), GP-7A(40-45), MW-41A, MW-41B (9.5), MW-37, MW-62A, MW-62B (18), MW-38, MW-39R, MW-39, MW-40, MW-27B (75), MW-27A, VW-02, MW-44B (32), MW-44A, MW-42, MW-26B (77), MW-26A, IW-1, IW-2, IW-3, IW-4, IW-5, MW-58 (48), MW-43A, MW-43B (ND), VW-04, MW-53, MW-29B (42), MW-29A, MW-60, MW-59 (120), MW-54, MW-31B (ND), MW-31A, MW-52, MW-33S, MW-33A, MW-33B (12), MW-33C (ND), VW-03, MW-55, MW-28B (2.1), MW-28A, MW-32

20, 20, 20, 20

0 120' 240'
GRAPHIC SCALE

FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

MTBE CONCENTRATIONS IN DEEP MONITORING WELLS - MARCH 2018

ARCADIS Design & Consultancy for natural and built assets

FIGURE
K-44

CITY: SYRACUSE NY DIV/GROUP: ENV/CAD DB: E. KRAHMER, R. ALLEN LD:(Opt) PIC: K. M. ABBOTT PM: L. VOGEL TM: D. DIXON TR: J. MARRS LYR:(Opt)ON=*;OFF=*REF*
C:\Users\bdeclercq\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\122208 - 2017-2018 BUNDLING\2018\B0049337.0004\01-DWG\MW-Fig K-44-March 18.dwg LAYOUT: K-44 SAVED: 7/24/2018 10:00 AM ACADVER: 21.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 7/24/2018 11:57 AM BY: DECLERCQ, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
X-Base Map
Title Block

APPENDIX L

Well Construction Log – GP-30R

Date Start/Finish: 5/17/2017
Drilling Company: Parratt Wolff
Driller's Name: Joshua Ellingworth
Drilling Method: Hollow Stem Auger
Auger Size: 6.25" ID
Rig Type: IR A300
Sampling Method: No samples collected

Latitude: 38.961382
Longitude: 76.996525
Casing Elevation: NA

Borehole Depth: 55.5' bgs
Surface Elevation: NA

Descriptions By: Jordan Bukovsky

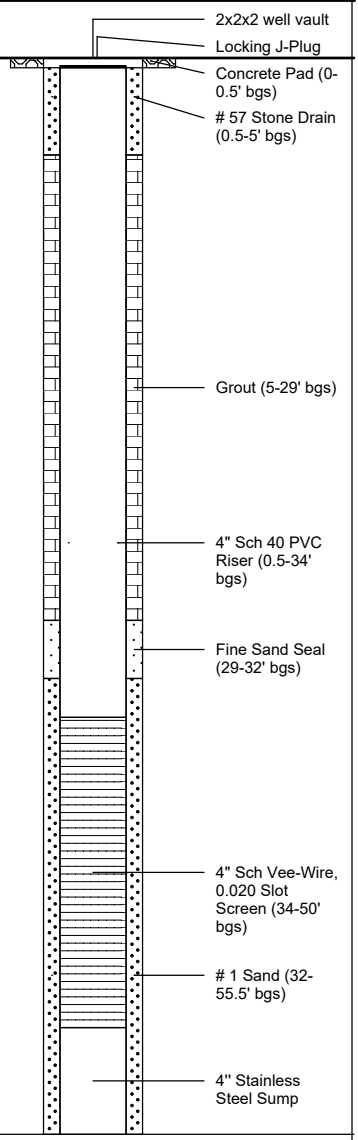
Well/Boring ID: **GP-30R**

Client: Former Chevron Facility # 122208

Location: 5801 Riggs Road, Chillum, Maryland

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description
0	0									GP-30R was installed by over-drilling GP-30A. Samples were not collected during installation. See GP-30A log for lithology.
5	-5									
10	-10									
15	-15									
20	-20									
25	-25									
		1	0-55.5	NA	NA	NA	NA			
30	-30									
35	-35									
40	-40									
45	-45									
50	-50									
55	-55									End of boring at 55.5' bgs.
60	60									

Well/Boring Construction



ARCADIS Design & Consultancy for natural and built assets

Remarks: bgs = below ground surface; NA = Not Applicable/Available.

Well has not been surveyed

* Soft dig (air knife) methods used from 0-8' bgs

State of Maryland Well Completion Report, Sequence No. C1-42203, Permit No. PG-94-2280

APPENDIX M

Waste Manifest from GP-30A Conversion

SO #0015242717

Site Address: 5801 Riggs Rd
Chillum, MD 20782
Site #722208

Matt Thompson - 713-385-8139
CEMC Waste Desk - 877-386-6044

SC PPW 5/30/2017

WORK ORDER NO. ~~BT-1701901831-001~~ CHIF 240237

DOCUMENT NO. 0059598 **STRAIGHT BILL OF LADING**

TRANSPORTER 1 ~~Clean Harbors Environmental Services, Inc.~~ **VEHICLE ID #** 4345

EPA ID # ~~MAD039322250~~ **TRANS. 1 PHONE** ~~(781) 792-5000~~

TRANSPORTER 2 _____ **VEHICLE ID #** _____

EPA ID # _____ **TRANS. 2 PHONE** _____

DESIGNATED FACILITY Clean Harbors of Baltimore Inc	**SHIPPER** Chevron Environmental Management Company - Locatio
FACILITY EPA ID # MDD980555189	**SHIPPER EPA ID #** NONEREQUIRED
ADDRESS 1910 Russell Street	**ADDRESS** Waste Tracking Desk PO Box 6004
CITY Baltimore **STATE** MD **ZIP** 21230	**CITY** San Ramon **STATE** CA **ZIP** 94583

CONTAINERS NO. & SIZE	TYPE	HM	DESCRIPTION OF MATERIALS	TOTAL QUANTITY	UNIT WT/VOL
XX 1	CM		A. NON DOT REGULATED MATERIAL, (PETROLEUM CONTAMINATED SOIL)	75	YI
			B.		
			C.		
			D.		
			E.		
			F.		
			G.		
			H.		

SPECIAL HANDLING INSTRUCTIONS EMERGENCY PHONE #: (800) 483-3710 GENERATOR: Chevron Environmental Managem Company - Locatio

A.CH1448778B

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SHIPPER	**PRINT** Authorized Agent for Chevron Jordan Burkovsky	**SIGN**	**DATE** 6/19/17
TRANSPORTER 1	**PRINT** Brad Dikeman	**SIGN**	**DATE** 6/19/17
TRANSPORTER 2	**PRINT**	**SIGN**	**DATE**
RECEIVED BY	**PRINT**	**SIGN**	**DATE**

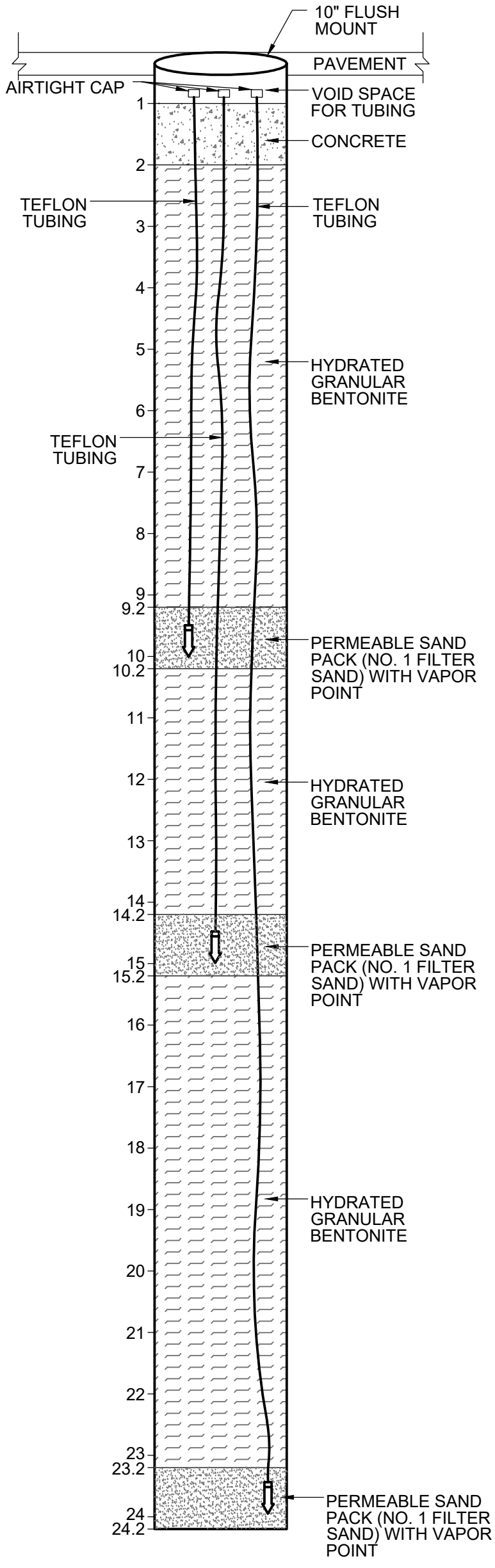
4

CHI 107

APPENDIX N

Vapor Intrusion Investigation Documentation

CITY: MANCHESTER DIV/GROUP: ENVCAD DB: T.HALLIWELL PM: TM:
G:\ENVCAD\MANCHESTER\ACT\B0049337\0004\00011\SVI\B0049337-CV1-3.dwg LAYOUT: X SAVED: 10/10/2017 3:36 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 10/10/2017 3:36 PM BY: HALLIWELL, TRISH



NOTE:

VAPOR PROBE IS CONSTRUCTED WITH A 6-INCH. 0.4375-INCH OUTER DIAMETER WOVEN WIRE SOIL VAPOR SCREEN IMPLANT WITH A 0.25-INCH OUTER DIAMETER TEFLON LINED SAMPLE TUBING ATTACHED.

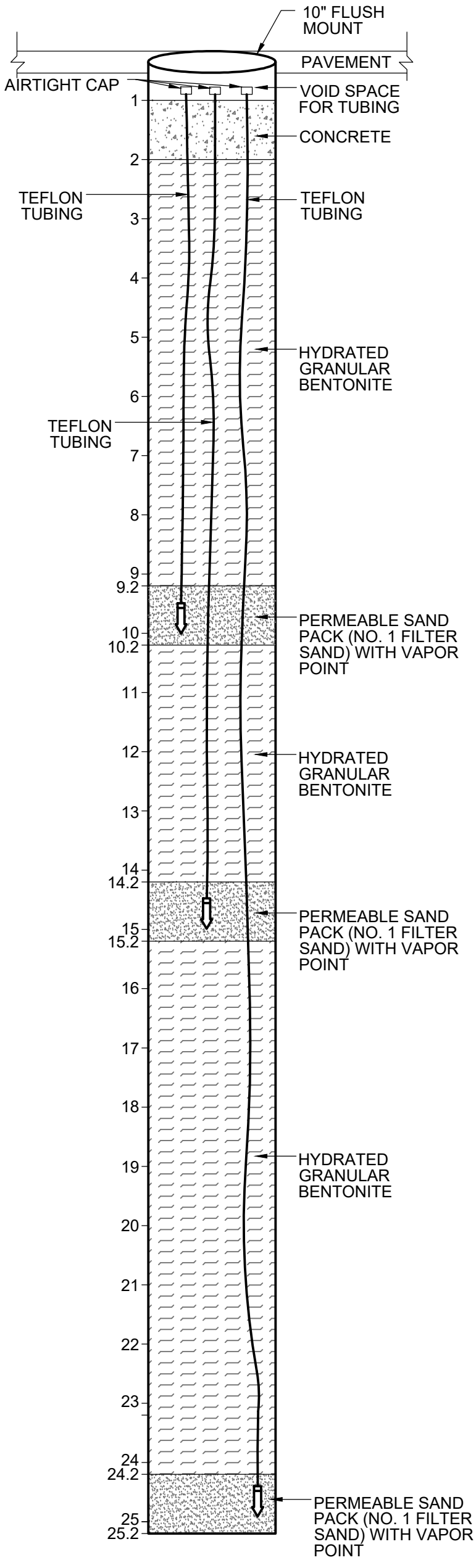
CHEVRON FACILITY #122208
RIGGS ROAD AND EASTERN AVENUE
CHILLUM, MARYLAND

MULTI-LEVEL SOIL VAPOR PROBE SCHEMATIC DIAGRAM CV-1 AND CV-2

ARCADIS Design & Consultancy for natural and built assets

FIGURE
N-1

CITY: MANCHESTER DIV/GROUP: ENVCAD DB: T.HALLIWELL PM: TM:
G:\ENVCAD\MANCHESTER\ACT\B0049337\0004\00011\SVI\B0049337-CV1-3.dwg LAYOUT: X (2) SAVED: 10/10/2017 1:37 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 10/10/2017 1:37 PM BY: HALLIWELL, TRISH



NOTE:

VAPOR PROBE IS CONSTRUCTED WITH A 6-INCH. 0.4375-INCH OUTER DIAMETER WOVEN WIRE SOIL VAPOR SCREEN IMPLANT WITH A 0.25-INCH OUTER DIAMETER TEFLON LINED SAMPLE TUBING ATTACHED.

CHEVRON FACILITY #122208
RIGGS ROAD AND EASTERN AVENUE
CHILLUM, MARYLAND

MULTI-LEVEL SOIL VAPOR PROBE SCHEMATIC DIAGRAM CV-3

ARCADIS Design & Consultancy for natural and built assets

FIGURE
N-2

Building Survey and Product Inventory Form

Directions: This form must be completed for each building or area planned to be evaluated for the study.

Preparer's Name: Sarah Matteson

Date/Time Prepared: 1/25/10

Preparer's Affiliation: ARCADIS

Phone No.: 410-935-7555

Purpose of Investigation: VI investigation

1. OCCUPANT:

Interviewed (Y) / N

Last Name: _____ First Name: Fabian

Address: _____

County: _____

Home Phone: — Office Phone: _____

Number of Occupants/Persons at this Location: 2-3

Age of Occupants: N/A

2. OWNER OR LANDLORD: (Check if Same as Occupant ✓)

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS:

Type of Building: (circle appropriate response)

Residential	School	(Commercial)/Multi-use
Industrial	Church	Other:_____

If the Property is Residential, Type? (circle appropriate response)

Ranch		2-Family 3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If Multiple Units, How Many? _____

If the Property is Commercial, Type?

Business Type(s) Retail (gas station)

Does it include residences (i.e., multi-use)? Y (N) If yes, how many? _____

Other Characteristics:

Number of Floors 1 Building Age unknown

Is the Building Insulated? Y / N How Air-Tight? Tight / (Average) / Not Tight

4. AIRFLOW:

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow Between Floors

_____

_____

_____

Airflow Near Source

Outdoor Air Infiltration

Infiltration Into Air Ducts

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS: (circle all that apply)

a.	**Above grade construction:**	wood frame	(concrete)	stone brick	
b.	**Basement type:**	full	crawlspace	slab	other N/A
c.	**Basement floor:**	concrete	dirt	stone	other N/A
d.	**Basement floor:**	uncovered	covered	covered with N/A	
e.	**Concrete floor:**	unsealed	sealed	sealed with (Tiled)	
f.	**Foundation walls:**	poured	block stone	other N/A	
g.	**Foundation walls:**	unsealed	sealed	sealed with (stucco)	
h.	**The basement is:**	wet	damp	dry	moldy
i.	**The basement is:**	finished	unfinished	partially finished	

j. **Sump present?** Y / (N)

k. **Water in sump?** Y / N / (NA)

Basement/lowest level depth below grade:_____(feet) N/A

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

Floor drains (2)

Are the basement walls or floor sealed with waterproof paint or epoxy coatings? Y / N N/A

6. HEATING, VENTILATING, AND AIR CONDITIONING: (circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

(Hot air circulation)	Heat pump	Hot water baseboard
Space heaters	Stream radiation	Radiant floor
Electric baseboard	Wood stove	Outdoor wood boiler
Other _____		

The primary type of fuel used is:

(Natural gas)	Fuel oil	Kerosene
Electric	Propane	Solar
Wood coal		

Domestic hot water tank fueled by: Natural gas

Boiler/furnace located in: Basement Outdoors (Main Floor) Other_____

Air conditioning: (Central Air) Window Units Open Windows None

Are there air distribution ducts present? (Y) / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

In ceiling, multiple returns

7. OCCUPANCY:

Is basement/lowest level occupied? (Full-time) Occasionally Seldom Almost Never

General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage):

Basement —

1st Floor Retail (gas station) + Kitchen

2nd Floor —

3rd Floor —

4th Floor —

8. FACTORS THAT MAY influence INDOOR AIR QUALITY:

a. **Is there an attached garage?** Y / (N)

b. **Does the garage have a separate heating unit?** Y / N / (NA)

c. **Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)?**
Y / (N) / NA Please specify: _____

d. **Has the building ever had a fire?** Y / (N) When? _____

e. **Is a kerosene or unvented gas space heater present?** Y / (N) Where? _____

f. **Is there a workshop or hobby/craft area?** Y / (N) Where & Type? _____

g. **Is there smoking in the building?** Y / (N) How frequently? _____

h. **Have cleaning products been used recently?** (Y) / N When & Type? Soap / bleach - daily/regularly

i. **Have cosmetic products been used recently?** Y / (N) When & Type? _____

j. Has painting/staining been done in the last 6 months? Y / (N) Where & When? _____

k. **Is there new carpet, drapes or other textiles?** **Y / (N) Where & When?** _____

l. **Have air fresheners been used recently?** (Y) / N When & Type? Bathrooms

m. **Is there a kitchen exhaust fan?** (Y) / N If yes, where _____

n. **Is there a bathroom exhaust fan?** (Y) / N If yes, where vented? _____

o. **Is there a clothes dryer?** **Y / (N) If yes, is it vented outside?** Y / N

p. **Has there been a pesticide application?** Y / (N) When & Type? _____

q. **Are there odors in the building?** Y / (N)

If yes, please describe: _____

Do any of the building occupants use solvents (e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist) at work? Y / (N)

If yes, what types of solvents are used? N/A

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (circle appropriate response)

Yes, use dry-cleaning regularly (weekly) (No)

Yes, use dry-cleaning infrequently (monthly or less) (Unknown)

Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N - Unknown

Date of Installation: _____

Is the system active or passive? Active/Passive

Are there any Outside Contaminant Sources? (circle appropriate responses)

Contaminated site with 1000-foot radius? Y / N Specify _____

Other stationary sources nearby (e.g., gas stations, emission stacks, etc.): Heavy vehicle traffic (located @ busy intersection)

Heavy vehicle traffic nearby (or other mobile sources): yes (see above)

9. **WATER AND SEWAGE:**

Water Supply: (Public Water) Drilled Well Driven Well Dug Well Other: _____

Sewage Disposal: (Public Sewer) Septic Tank Leach Field Dry Well Other: _____

10. RELOCATION INFORMATION: (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: N/A

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

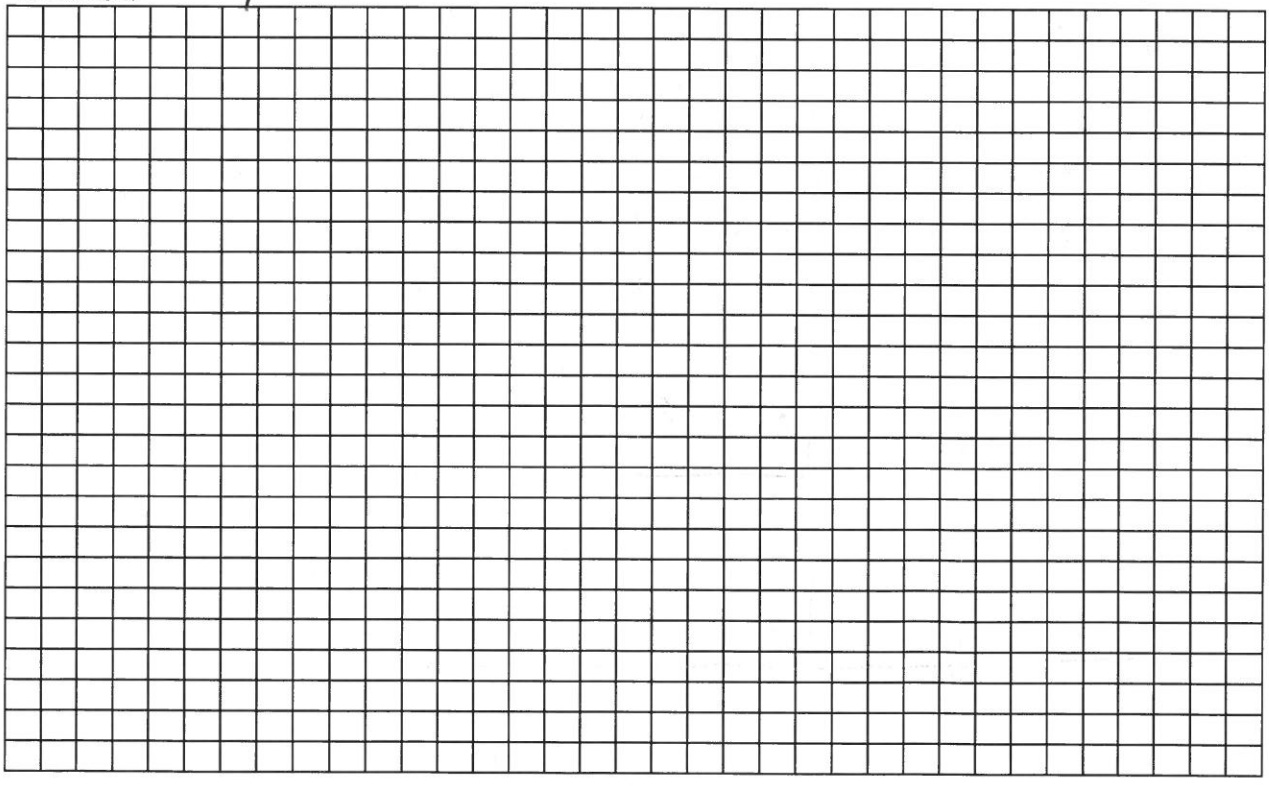
c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

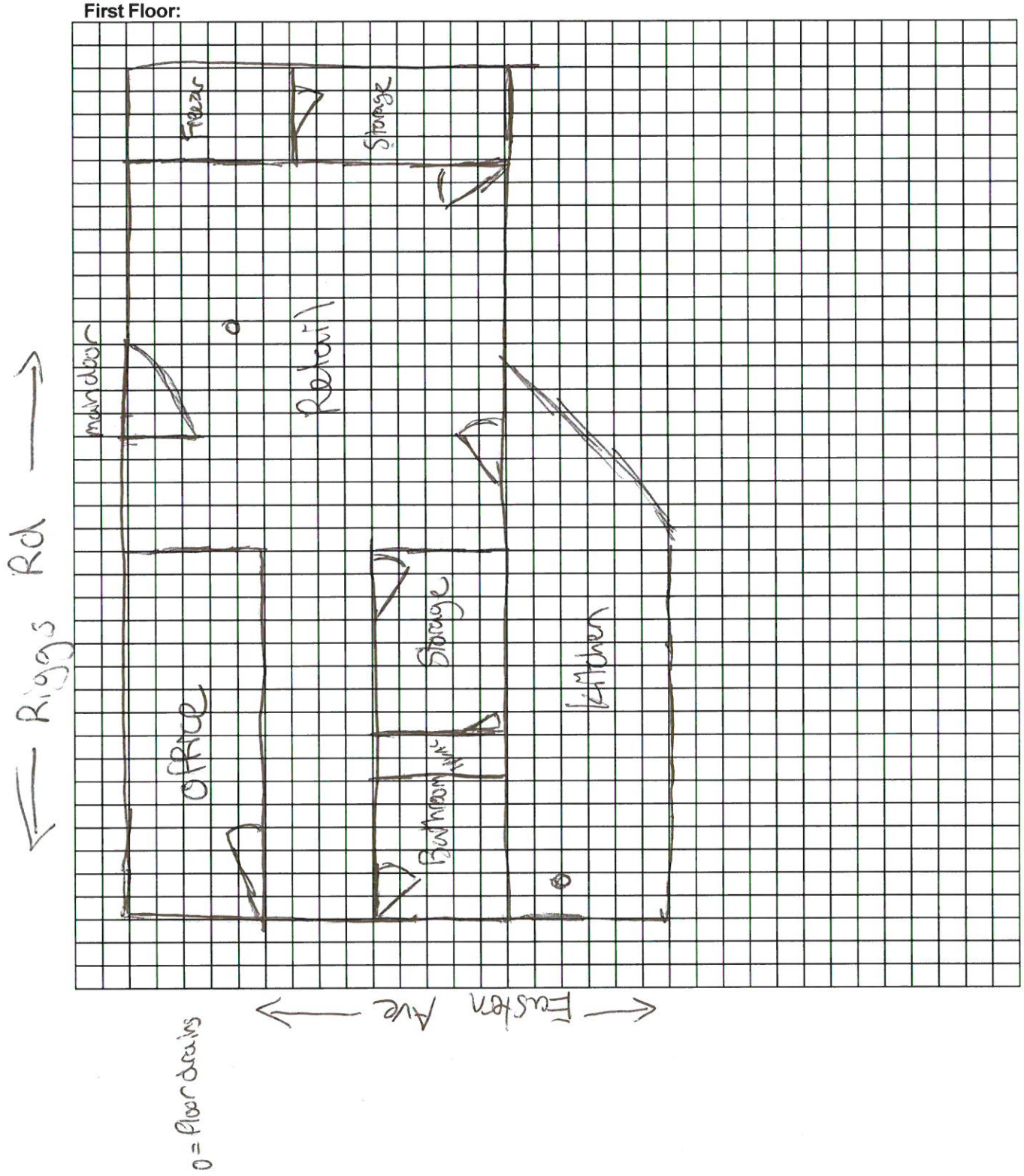
11. FLOOR PLANS:

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement: N/A



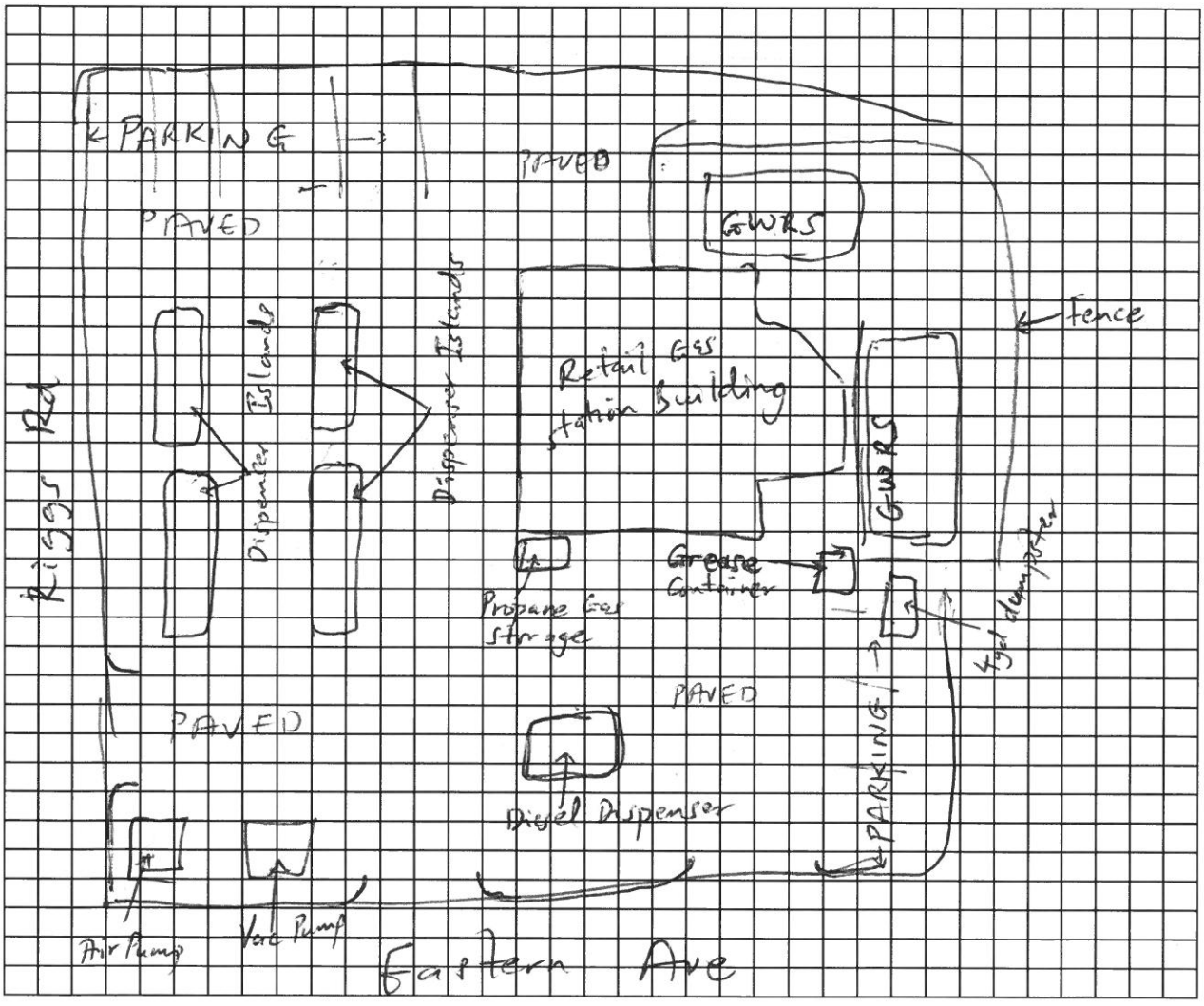
First Floor:


Riggs Rd
Eastern Ave
0 = floor drains
main door
Retail
Freezer
Storage
OFFICE
Storage
Bathroom
Kitchen

12. OUTDOOR PLOT:

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s), and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



GWRS - Groundwater Remediation System

13. PRODUCT INVENTORY FORM:

Make and Model of field instrument used: PID MiniRAE 2000

List specific products found in the residence or area that have the potential to affect indoor air quality (e.g., gasoline or kerosene storage cans, glues, paints, cleaning solvents/products, polishes/waxes, new furniture/ carpet, nail polish/hairspray/cologne).

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo** Y/N
Storage Room	Multipurpose cleaner	210 FLOZ	Good		Background	Y
"	Floor Cleaner	N/A	"		"	"
"	Dishwash Liquid	25.35 FLOZ	"		"	"
"	Bleach	3.78 QT	"		"	"
"	Ice melt (pellets)	50 lb bag	Fair - not closed		"	"
"	Concrete Cleaner	N/A (in box)	Good		"	"
"	CAT outdoor cleaning supplies	N/A (in box)	Good		"	"

SO#0015242717 Chevron PM: Matt Thompson 713-375-6139
Site: 122206

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) 1704118716 SC PPW 6/7/2017 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number. NONE REQUIRED	2. Page 1 of 1	3. Emergency Response Phone (800) 483-3718	4. Manifest Tracking Number 011040289 FLE

GENERATOR

5. Generator's Name and Mailing Address
Chevron Environmental Management Company Locatio
Pb Waste Trucking Dept PO Box 6044
San Ramon, CA 94583
Generator's Phone: 877-246-6044

Generator's Site Address (if different than mailing address)
SAME
5701 Ross Rd
Chattanooga, TN 37412
Site #122206

6. Transporter 1 Company Name
Clean Harbors Environmental Services, Inc

U.S. EPA ID Number
MAD039322250

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors Chattanooga LLC
3300 Cummings Road
Chattanooga TN 37419
Facility's Phone: (423)821-6926

U.S. EPA ID Number
TND982141392

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON DOT REGULATED MATERIAL, (PETROLEUM CONTAMINATED SOIL)	5	DM	2500	P	
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1 CM1493265
5x55

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Jordan Burkovsky — Signature — Month 6 Day 23 Year 17

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Dennis Davis — Signature — Month 6 Day 23 Year 17
Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name — Signature — Month Day Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

GENERATOR'S INITIAL COPY

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

APPENDIX O

LPH Characterization and Monitoring Laboratory Reports

February 21st, 2018

Kristen Audette
Arcadis
7550 Teague Rd
Suite 210
Hanover, MD 21076

RE: CHEVRON #122208 CHILLUM
Project Number: 122208

Pace Analytical received one sample on January 31st, 2018 for analysis labeled MP-7-P-180126. Per client request, the following analyses were performed:

1. C3-C36 Whole Oil Molecular Characterization Gas Chromatography "Fingerprint" by GC/FID
2. C3-C12 PIANO Quantitative Molecular Characterization by GC/MS
3. Flashpoint – Subcontracted to Pace Greensburg
4. Viscosity – Subcontracted to Clark Testing
5. Density – Subcontracted to Clark Testing

The sample was performed in house under laboratory number **25475**.

Please call the lab at 412-826-5245, or you may email any questions or concerns to Lauren.McGrath@pacelabs.com regarding any analytical data reports.

Respectfully submitted,

Lauren E. McGrath

Lauren E. McGrath
Project Manager

Pace Analytical®
Energy Services™

(C3-C36) Whole-Oil Molecular Characterization
Gas Chromatography "Fingerprint"
by GC/FID

Includes Semi-quantitative screening of over 90 gasoline range PIANO compounds

2/1/2018

Pace ID	25475-1
Sample ID	MP-7-P-180126

Evaporation

n-Pentane / n-Heptane	0.54
2-Methylpentane / 2-Methylheptane	2.53

Waterwashing

Benzene / Cyclohexane	1.60
Toluene / Methylcyclohexane	9.09
Aromatics / Total Paraffins (n+iso+cyc)	0.99
Aromatics / Naphthenes	8.02

Biodegradation

(C4 - C8 Para + Isopara) / C4 - C8 Olefins	12.45
3-Methylhexane / n-Heptane	1.51
Methylcyclohexane / n-Heptane	0.52
Isoparaffins + Naphthenes / Paraffins	5.68

Octane rating

2,2,4,-Trimethylpentane / Methylcyclohexane	6.46

Relative percentages - Bulk hydrocarbon composition as PIANO

% Paraffinic	7.24
% Isoparaffinic	35.09
% Aromatic	48.01
% Naphthenic	5.99
% Olefinic	3.67

2/1/2018

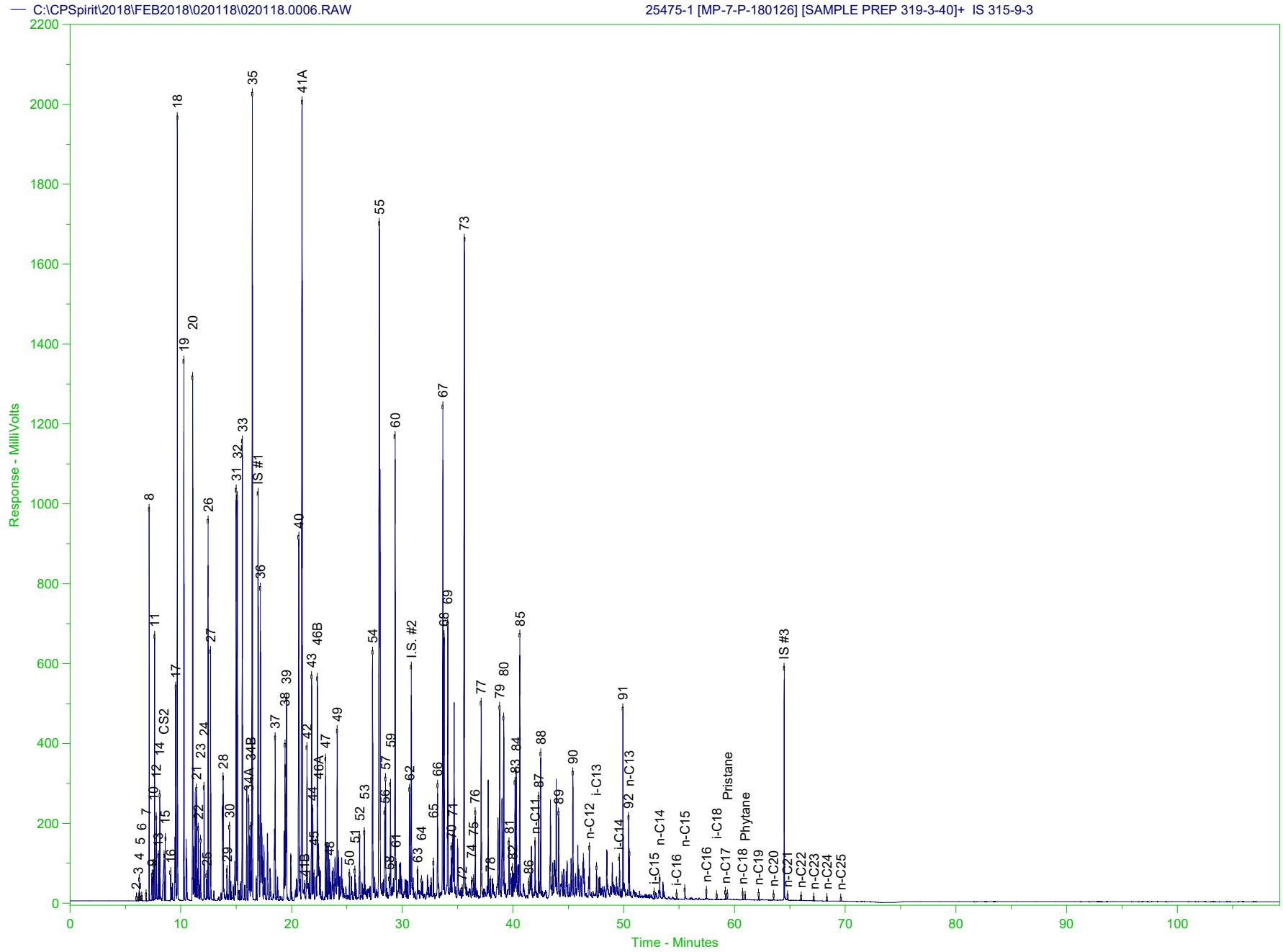
Pace ID		25475-1
Sample ID		MP-7-P-180126
		Relative Area %
1	Propane	0.00
2	Isobutane	0.00
3	Isobutene	0.00
4	Butane/Methanol	0.05
5	trans-2-Butene	0.00
6	cis-2-Butene	0.00
7	3-Methyl-1-butene	0.01
8	Isopentane	1.16
9	1-Pentene	0.09
10	2-Methyl-1-butene	0.12
11	Pentane	0.91
12	trans-2-Pentene	0.34
13	cis-2-Pentene/t-Butanol	0.20
14	2-Methyl-2-butene	0.52
15	2,2-Dimethylbutane	0.19
16	Cyclopentane	0.11
17	2,3-Dimethylbutane/MTBE	0.92
18	2-Methylpentane	3.34
19	3-Methylpentane	2.29
20	Hexane	2.42
21	trans-2-Hexene	0.52
22	3-Methylcyclopentene	0.34
23	3-Methyl-2-pentene	0.30
24	cis-2-Hexene	0.54
25	3-Methyl-trans-2-pentene	0.11
26	Methylcyclopentane	1.81
27	2,4-Dimethylpentane	1.27
28	Benzene	0.64
29	5-Methyl-1-hexene	0.19
30	Cyclohexane	0.40
31	2-Methylhexane/TAME	2.50
32	2,3-Dimethylpentane	2.12
33	3-Methylhexane	2.56
34A	1-trans-3-Dimethylcyclopentane	0.53
34B	1-cis-3-Dimethylcyclopentane	0.44
35	2,2,4-Trimethylpentane	5.70
I.S. #1	α,α,α-Trifluorotoluene	0.00

2/1/2018

Pace ID		25475-1
Sample ID		MP-7-P-180126
		Relative Area %
36	n-Heptane	1.70
37	Methylcyclohexane	0.88
38	2,5-Dimethylhexane	0.87
39	2,4-Dimethylhexane	1.37
40	2,3,4-Trimethylpentane	2.85
41	Toluene/2,3,3-Trimethylpentane	8.01
42	2,3-Dimethylhexane	1.00
43	2-Methylheptane	1.32
44	4-Methylheptane	0.49
45	3,4-Dimethylhexane	0.24
46A	3-Ethyl-3-methylpentane	0.22
46B	1,4-Dimethylcyclohexane	1.29
47	3-Methylheptane	0.84
48	2,2,5-Trimethylhexane	0.21
49	n-Octane	1.00
50	2,2-Dimethylheptane	0.14
51	2,4-Dimethylheptane	0.16
52	Ethylcyclohexane	0.53
53	2,6-Dimethylheptane	0.40
54	Ethylbenzene	1.62
55	m+p Xylenes	8.53
56	4-Methyloctane	0.52
57	2-Methyloctane	0.68
58	3-Ethylheptane	0.16
59	3-Methyloctane	0.75
60	o-Xylene	3.23
61	1-Nonene	0.26
62	n-Nonane	0.67
I.S.#2	p-Bromofluorobenzene	0.00
63	Isopropylbenzene	0.20
64	3,3,5-Trimethylheptane	0.12
65	2,4,5-Trimethylheptane	0.20
66	n-Propylbenzene	0.72
67	1-Methyl-3-ethylbenzene	3.53
68	1-Methyl-4-ethylbenzene	1.47
69	1,3,5-Trimethylbenzene	1.99
70	3,3,4-Trimethylheptane	0.32

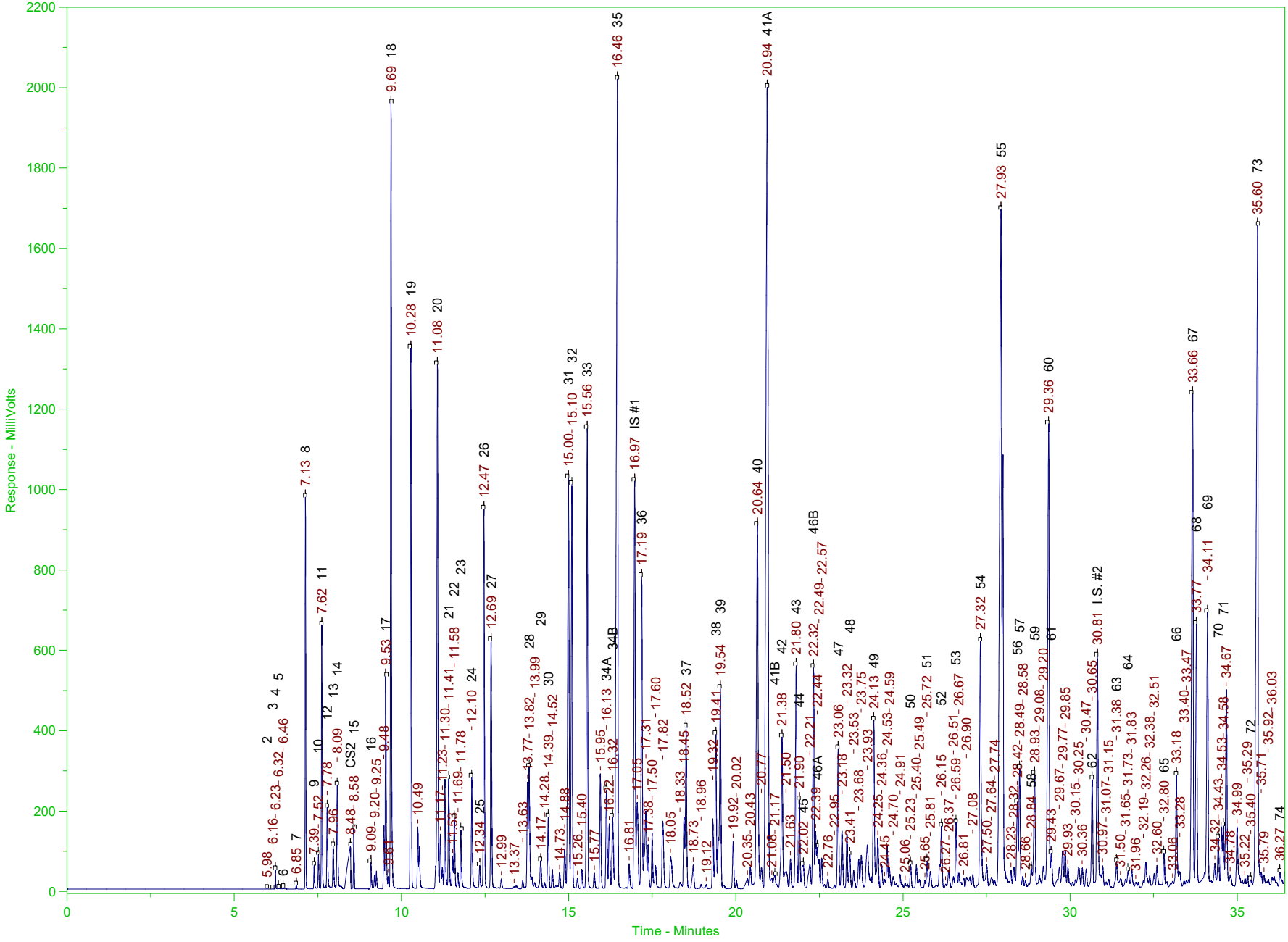
2/1/2018

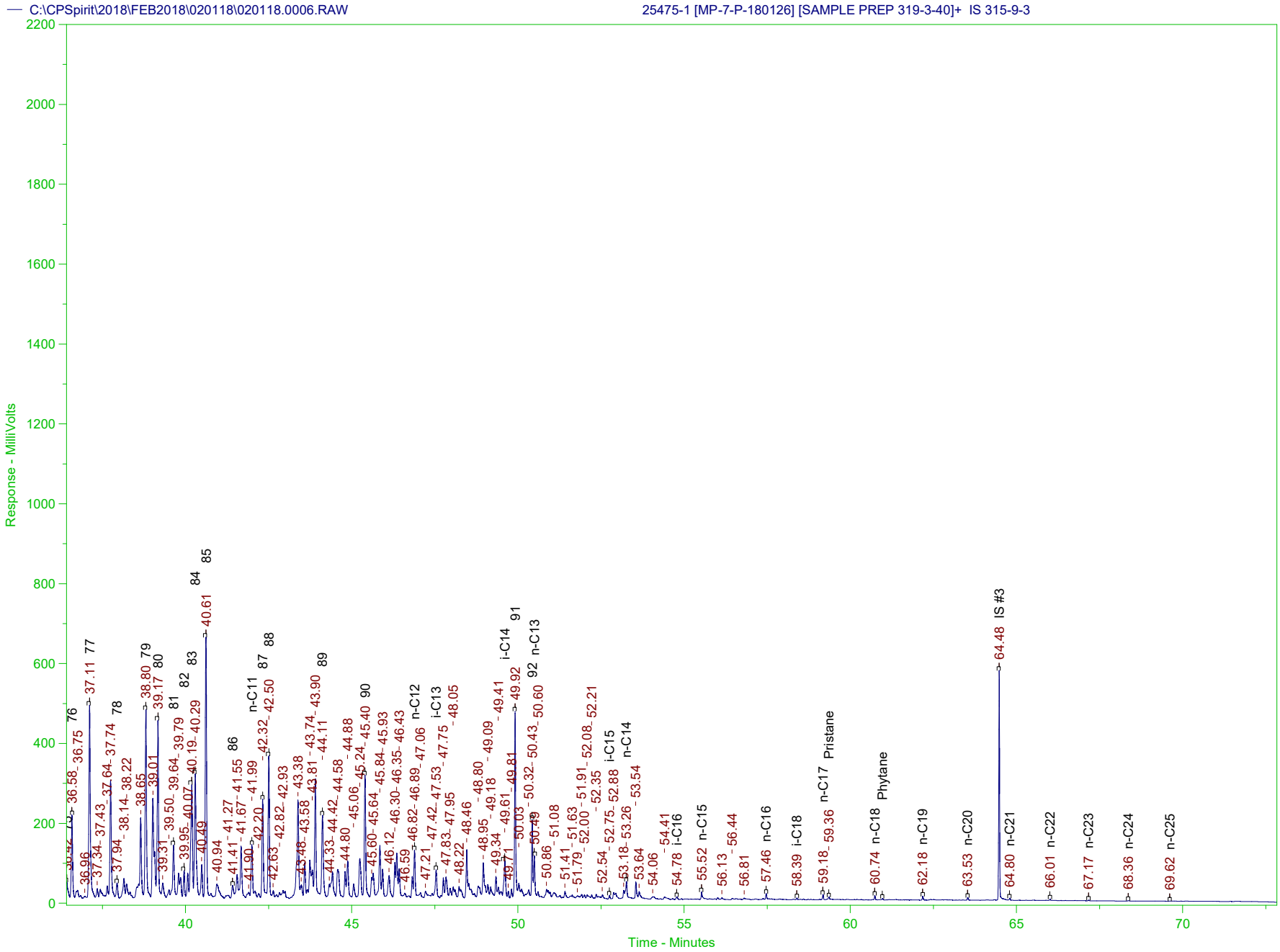
Pace ID		25475-1
Sample ID		MP-7-P-180126
		Relative Area %
71	1-Methyl-2-ethylbenzene	0.34
72	3-Methylnonane	0.05
73	1,2,4-Trimethylbenzene	5.50
74	Isobutylbenzene	0.12
75	sec-Butylbenzene	0.15
76	n-Decane	0.49
77	1,2,3-Trimethylbenzene	1.34
78	Indan	0.10
79	1,3-Diethylbenzene	1.22
80	1,4-Diethylbenzene	1.10
81	n-Butylbenzene	0.39
82	1,3-Dimethyl-5-ethylbenzene	0.16
83	1,4-Dimethyl-2-ethylbenzene	0.90
84	1,3-Dimethyl-4-ethylbenzene	0.94
85	1,2-Dimethyl-4-ethylbenzene	1.62
86	Undecene	0.11
87	1,2,4,5-Tetramethylbenzene	0.63
88	1,2,3,5-Tetramethylbenzene	0.84
89	1,2,3,4-Tetramethylbenzene	0.64
90	Naphthalene	0.80
91	2-Methyl-naphthalene	0.92
92	1-Methyl-naphthalene	0.35
I.S.#3	5α-Androstane	0.00

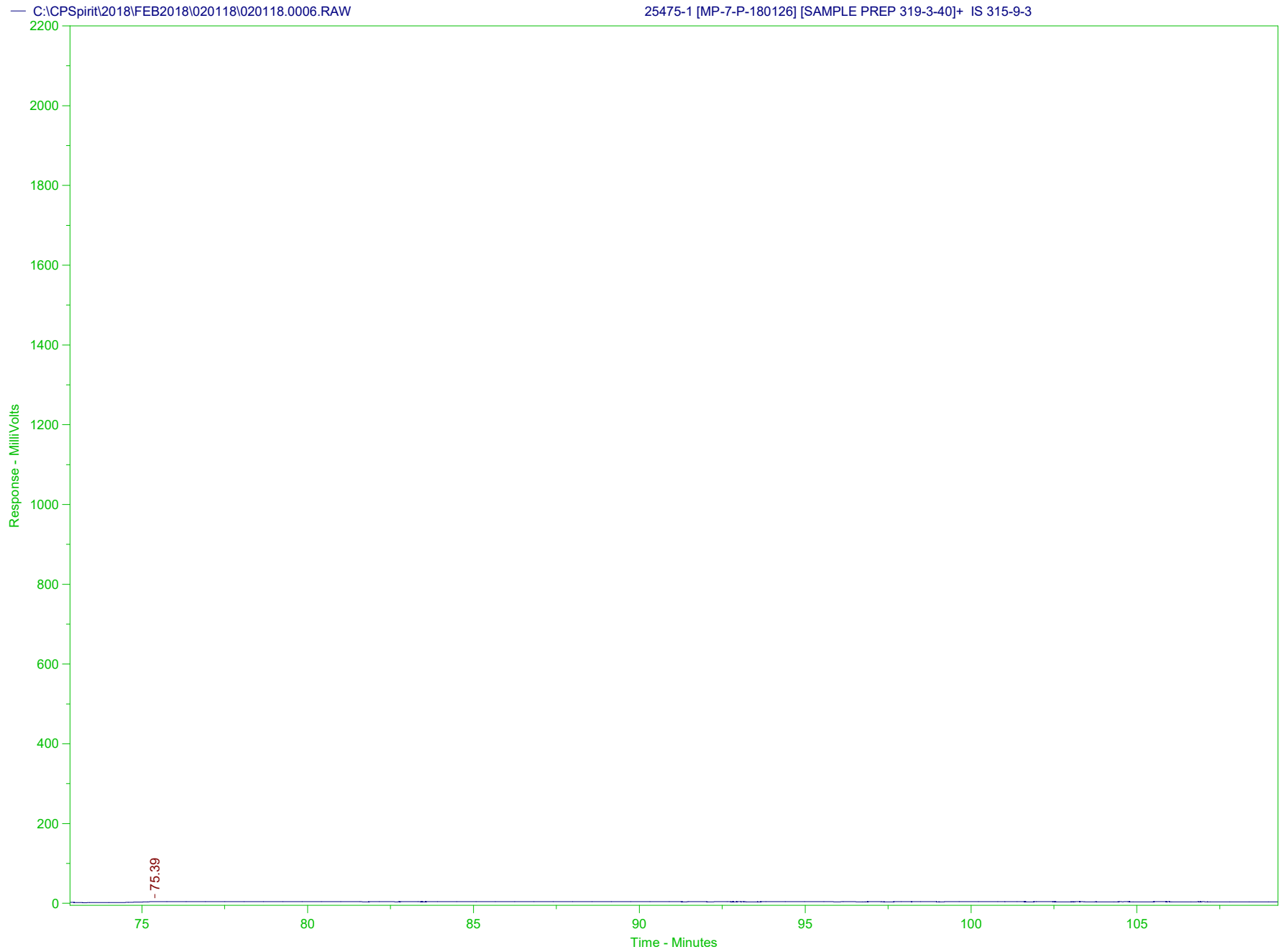

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25475-1 [MP-7-P-180126] [SAMPLE PREP 319-3-40]+ IS 315-9-3
Response - MilliVolts
Time - Minutes
CS2
IS #1
I.S. #2
IS #3
Pristane
Phytane
i-C12
i-C13
i-C14
i-C15
i-C16
i-C18
n-C11
n-C13
n-C14
n-C15
n-C16
n-C17
n-C18
n-C19
n-C20
n-C21
n-C22
n-C23
n-C24
n-C25

C:\CPSpirit\2018\FEB2018\020118\020118.0006.RAW

25475-1 [MP-7-P-180126] [SAMPLE PREP 319-3-40]+ IS 315-9-3




C:\CPSpirit\2018\FEB2018\020118\020118.0006.RAW
25475-1 [MP-7-P-180126] [SAMPLE PREP 319-3-40]+ IS 315-9-3
Response - MilliVolts
Time - Minutes
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
40
45
50
55
60
65
70
36.58 76
36.75
37.11 77
37.34
37.43
37.64
37.74 78
37.94
38.14
38.22
38.65
38.80 79
39.01
39.17 80
39.31
39.50
39.64
39.79 81
39.95
40.07
40.19
40.29 82
40.49
40.61 83 84 85
40.94
41.27
41.41
41.55 86
41.67
41.90
41.99
42.20
42.32
42.50 n-C11 87 88
42.63
42.82
42.93
43.38
43.48
43.58
43.74
43.81
43.90 89
44.11
44.33
44.42
44.58
44.80
44.88
45.06
45.24
45.40 90
45.60
45.64
45.84
45.93
46.12
46.30
46.35
46.43
46.59
46.82
46.89
47.06 n-C12
47.21
47.42
47.53 i-C13
47.75
47.83
47.95
48.05
48.22
48.46
48.80
48.95
49.09
49.18
49.34
49.41
49.61
49.71
49.81 i-C14 91
49.92 92 n-C13
50.03
50.32
50.43
50.49
50.60
50.86
51.08
51.41
51.63
51.79
51.91
52.00
52.08
52.21
52.35
52.54
52.75
52.88 i-C15
53.18
53.26 n-C14
53.54
53.64
54.06
54.41
54.78 i-C16
55.52 n-C15
56.13
56.44
56.81
57.46 n-C16
58.39 i-C18
59.18
59.36 n-C17 Pristane
60.74 n-C18 Phytane
62.18 n-C19
63.53 n-C20
64.48 IS #3
64.80 n-C21
66.01 n-C22
67.17 n-C23
68.36 n-C24
69.62 n-C25


C:\CPSpirit\2018\FEB2018\020118\020118.0006.RAW
25475-1 [MP-7-P-180126] [SAMPLE PREP 319-3-40]+ IS 315-9-3
Response - MilliVolts
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
75.39
75
80
85
90
95
100
105
Time - Minutes

Sample Name = **25475-1 [MP-7-P-180126] [SAMPLE PREP 319-3-40]+ IS 315-9-3**

Instrument = Instrument 1
Heading 1 =
Heading 2 =

Acquisition Port = DP#

Raw File Name = **C:\CPSpirit\2018\FEB2018\020118\020118.0006.RAW**
Method File Name = C:\CPSpirit\C344.met
Calibration File Name = C:\CPSpirit\CALIBRATIONS\2018\011918.cal

Date Taken (end) = 2/1/2018 9:53:15 PM
Method Version = 44
Calibration Version = 2

Peak Name	Ret. Time	Area %	Area
2	5.98	0.0009	1463.54
3	6.16	0.0004	699.27
4	6.23	0.0347	57479.53
5	6.32	0.0012	1962.97
6	6.46	0.0030	5007.60
7	6.85	0.0085	13984.83
8	7.13	0.8218	1359603.00
9	7.39	0.0623	103110.20
10	7.52	0.0862	142588.10
11	7.62	0.6443	1065964.00
12	7.78	0.2420	400307.00
13	7.96	0.1433	237089.40
14	8.09	0.3677	608237.30
CS2	8.48	0.4072	673688.40
15	8.58	0.1360	225001.20
16	9.09	0.0776	128364.20
	9.20	0.0378	62535.10
	9.25	0.0540	89325.38
	9.48	0.1708	282570.90
17	9.53	0.6511	1077101.00
	9.61	0.0365	60445.98
18	9.69	2.3531	3892861.00
19	10.28	1.6172	2675361.00
	10.49	0.3377	558634.60
20	11.08	1.7092	2827663.00
	11.17	0.1792	296524.30
	11.23	0.0755	124851.70
	11.30	0.3643	602759.70
21	11.41	0.3681	608897.90
	11.53	0.1048	173456.30
22	11.58	0.2379	393594.60
	11.69	0.0545	90166.11
23	11.78	0.2122	351092.30
24	12.10	0.3829	633385.70
25	12.34	0.0805	133135.40
26	12.47	1.2741	2107760.00
27	12.69	0.8967	1483455.00
	12.99	0.0359	59409.49
	13.37	0.0052	8639.43
	13.63	0.0304	50296.39
	13.77	0.3586	593177.70
28	13.82	0.4524	748379.40
	13.99	0.0312	51642.46
29	14.17	0.1373	227181.50
	14.28	0.0260	43072.37
30	14.39	0.2820	466581.10
	14.52	0.0758	125364.80
	14.73	0.0670	110777.00
	14.88	0.1629	269507.20
31	15.00	1.7656	2920946.00
32	15.10	1.4971	2476706.00
	15.26	0.0420	69401.99
	15.40	0.0747	123569.60
33	15.56	1.8030	2982819.00
	15.77	0.0649	107284.90
	15.95	0.4309	712821.10
34A	16.13	0.3739	618542.30
	16.22	0.2610	431789.70

Peak Name	Ret. Time	Area %	Area
34B	16.32	0.3131	517923.10
35	16.46	4.0182	6647551.00
	16.81	0.1069	176838.90
IS #1	16.97	1.6262	2690337.00
	17.05	0.4365	722057.30
36	17.19	1.1973	1980782.00
	17.31	0.4619	764083.70
	17.38	0.1733	286682.40
	17.50	0.2199	363782.30
	17.60	0.1100	181907.00
	17.82	0.3537	585071.80
	18.05	0.2138	353731.20
	18.33	0.0411	68067.59
	18.45	0.2728	451224.70
37	18.52	0.6223	1029500.00
	18.73	0.1258	208167.80
	18.96	0.0188	31177.55
	19.12	0.0194	32020.51
	19.32	0.2661	440244.30
38	19.41	0.6172	1021109.00
39	19.54	0.9653	1596881.00
	19.92	0.1876	310417.50
	20.02	0.0340	56277.28
	20.35	0.0822	135936.00
	20.43	0.1199	198404.60
40	20.64	2.0106	3326306.00
	20.77	0.1079	178522.70
41A	20.94	5.6548	9354952.00
	21.08	0.0587	97151.55
41B	21.17	0.1008	166683.90
42	21.38	0.7038	1164250.00
	21.50	0.1667	275795.00
	21.63	0.1246	206116.40
43	21.80	0.9290	1536920.00
44	21.90	0.3431	567678.10
45	22.02	0.1711	283103.00
	22.21	0.1794	296837.30
46B	22.32	0.9095	1504607.00
	22.39	0.2192	362625.80
46A	22.44	0.1552	256811.50
	22.49	0.1102	182252.50
	22.57	0.1207	199645.70
	22.76	0.0415	68674.15
	22.95	0.0138	22777.99
47	23.06	0.5913	978227.90
	23.18	0.2799	463077.80
	23.32	0.2163	357867.10
48	23.41	0.1456	240904.80
	23.53	0.0906	149957.80
	23.68	0.1248	206396.50
	23.75	0.1713	283457.90
	23.93	0.3689	610321.90
49	24.13	0.7053	1166805.00
	24.25	0.2565	424282.40
	24.36	0.0970	160514.50
	24.45	0.0377	62316.52
	24.53	0.1865	308582.90
	24.59	0.0964	159475.10
	24.70	0.0674	111569.90
	24.91	0.0788	130433.30
	25.06	0.0231	38198.11
50	25.23	0.0957	158289.60
	25.40	0.1124	186009.90
	25.49	0.0458	75829.42
	25.65	0.0289	47753.02
51	25.72	0.1121	185436.40
	25.81	0.0823	136111.00
52	26.15	0.3738	618313.90
	26.27	0.0180	29782.13
	26.37	0.0962	159157.30

Peak Name	Ret. Time	Area %	Area
	26.51	0.0566	93667.37
53	26.59	0.2814	465570.90
	26.67	0.0889	147092.00
	26.81	0.0485	80237.58
	26.90	0.0765	126490.10
	27.08	0.0631	104344.30
54	27.32	1.1455	1895084.00
	27.50	0.1458	241254.70
	27.64	0.0834	137973.00
	27.74	0.0354	58530.09
55	27.93	6.0192	9957936.00
	28.23	0.0801	132490.60
	28.32	0.1097	181533.90
56	28.42	0.3678	608408.10
57	28.49	0.4775	789872.90
	28.58	0.0496	82028.52
	28.66	0.0328	54321.40
58	28.84	0.1155	191103.00
59	28.93	0.5292	875498.30
	29.08	0.0918	151820.40
	29.20	0.1140	188592.20
60	29.36	2.2803	3772387.00
61	29.43	0.1800	297772.30
	29.67	0.1539	254589.50
	29.77	0.1900	314364.70
	29.85	0.1548	256049.60
	29.93	0.1076	178023.40
	30.15	0.0359	59406.46
	30.25	0.1417	234456.30
	30.36	0.0828	137004.60
	30.47	0.0839	138838.00
62	30.65	0.4710	779220.20
I.S. #2	30.81	1.0794	1785712.00
	30.97	0.0975	161243.50
	31.07	0.0276	45611.28
	31.15	0.0371	61349.11
63	31.38	0.1426	235846.70
	31.50	0.0558	92291.33
	31.65	0.0399	66062.15
64	31.73	0.0835	138173.90
	31.83	0.0829	137179.90
	31.96	0.0145	23958.27
	32.19	0.0273	45153.40
	32.26	0.1387	229489.60
	32.38	0.0466	77117.46
	32.51	0.0690	114195.40
	32.60	0.1209	200038.70
65	32.80	0.1421	235022.70
	33.06	0.0440	72733.84
66	33.18	0.5101	843930.30
	33.28	0.0869	143821.20
	33.40	0.0276	45733.89
	33.47	0.0299	49520.34
67	33.66	2.4937	4125504.00
68	33.77	1.0381	1717359.00
69	34.11	1.4023	2319845.00
	34.32	0.1320	218307.40
70	34.43	0.2229	368699.10
	34.53	0.2528	418268.10
71	34.58	0.2422	400605.00
	34.67	0.8328	1377824.00
	34.78	0.0774	128082.20
	34.99	0.3332	551211.40
	35.22	0.0360	59551.78
	35.29	0.0433	71702.45
72	35.40	0.0361	59721.29
73	35.60	3.8777	6415114.00
	35.71	0.0600	99218.39
	35.79	0.0462	76408.27
	35.92	0.0342	56635.46

Peak Name	Ret. Time	Area %	Area
	36.03	0.0173	28677.20
74	36.27	0.0869	143806.00
75	36.42	0.1041	172298.30
76	36.58	0.3448	570418.40
	36.75	0.0477	78978.74
	36.96	0.0129	21380.66
77	37.11	0.9420	1558372.00
	37.34	0.0445	73693.05
	37.43	0.0792	130953.80
	37.64	0.0573	94768.83
	37.74	0.5456	902621.70
78	37.94	0.0729	120651.80
	38.14	0.0972	160770.50
	38.22	0.0532	87986.52
	38.65	0.4703	778006.70
79	38.80	0.8620	1426062.00
	39.01	0.6268	1037011.00
80	39.17	0.7731	1278978.00
	39.31	0.0901	149107.10
	39.50	0.0474	78364.66
81	39.64	0.2763	457177.00
	39.79	0.2134	353026.20
82	39.95	0.1128	186530.00
	40.07	0.1099	181799.30
83	40.19	0.6323	1046081.00
84	40.29	0.6601	1091993.00
	40.49	0.1574	260384.60
85	40.61	1.1415	1888402.00
	40.94	0.1526	252386.80
	41.27	0.0299	49508.62
86	41.41	0.0748	123722.30
	41.55	0.1398	231241.80
	41.67	0.2741	453473.10
	41.90	0.0414	68568.72
n-C11	41.99	0.2382	394103.80
	42.20	0.0206	34097.68
87	42.32	0.4471	739582.60
88	42.50	0.5925	980130.50
	42.63	0.0273	45243.61
	42.82	0.0117	19335.15
	42.93	0.0121	20065.83
	43.38	0.6083	1006423.00
	43.48	0.0804	132979.20
	43.58	0.1564	258737.20
	43.74	0.2384	394367.30
	43.81	0.1428	236285.40
	43.90	0.5592	925181.10
89	44.11	0.4509	745878.30
	44.33	0.0734	121398.80
	44.42	0.1970	325913.50
	44.58	0.2303	381013.80
	44.80	0.1192	197144.80
	44.88	0.2028	335540.70
	45.06	0.0800	132386.50
	45.24	0.2581	427002.30
90	45.40	0.5670	938055.50
	45.60	0.0827	136843.00
	45.64	0.1246	206055.20
	45.84	0.2770	458213.90
	45.93	0.1313	217256.70
	46.12	0.1631	269817.40
	46.30	0.1413	233785.00
	46.35	0.1992	329471.60
	46.43	0.1381	228539.10
	46.59	0.0369	60978.26
	46.82	0.0813	134532.70
n-C12	46.89	0.2066	341778.60
	47.06	0.0377	62367.25
	47.21	0.0644	106487.10
	47.42	0.0222	36722.76

Peak Name	Ret. Time	Area %	Area
i-C13	47.53	0.1471	243375.20
	47.75	0.0854	141200.00
	47.83	0.1214	200882.60
	47.95	0.0517	85578.37
	48.05	0.0890	147168.80
	48.22	0.0942	155766.40
	48.46	0.3038	502578.30
	48.80	0.0861	142459.40
	48.95	0.1848	305704.60
	49.09	0.0590	97676.33
	49.18	0.0459	75985.13
	49.34	0.0686	113557.90
	49.41	0.0285	47159.31
i-C14	49.61	0.1786	295391.40
	49.71	0.0199	32984.47
	49.81	0.0273	45229.05
91	49.92	0.6464	1069292.00
	50.03	0.0383	63307.91
	50.32	0.0234	38726.95
92	50.43	0.2474	409213.50
n-C13	50.49	0.1419	234742.80
	50.60	0.0178	29392.85
	50.86	0.0889	147115.90
	51.08	0.0393	65040.84
	51.41	0.0292	48238.70
	51.63	0.0242	40083.93
	51.79	0.0175	28998.50
	51.91	0.0189	31189.84
	52.00	0.0159	26273.42
	52.08	0.0261	43145.32
	52.21	0.0162	26721.33
	52.35	0.0393	64998.67
	52.54	0.0243	40127.12
i-C15	52.75	0.0128	21105.63
	52.88	0.0108	17815.41
	53.18	0.0263	43486.95
n-C14	53.26	0.0905	149786.40
	53.54	0.0622	102821.20
	53.64	0.0333	55039.90
	54.06	0.0253	41871.43
	54.41	0.0212	35007.46
i-C16	54.78	0.0113	18741.20
n-C15	55.52	0.0359	59470.46
	56.13	0.0073	12013.09
	56.44	0.0060	9882.91
	56.81	0.0155	25711.53
n-C16	57.46	0.0194	32102.84
i-C18	58.39	0.0055	9162.95
n-C17	59.18	0.0159	26267.10
Pristane	59.36	0.0165	27281.35
n-C18	60.74	0.0116	19125.47
n-C19	62.18	0.0119	19708.79
n-C20	63.53	0.0084	13927.19
IS #3	64.48	0.6664	1102457.00
n-C21	64.80	0.0055	9100.03
n-C22	66.01	0.0035	5848.78
n-C23	67.17	0.0019	3170.07
n-C24	68.36	0.0010	1730.91
n-C25	69.62	0.0005	887.40
	75.39	0.0170	28125.66

Total Area = 1.65435E+08 Total Height = 5.454087E+07 Total Amount = 0

Pace Analytical®
Energy Services™

(C3-C12) Quantitative Molecular Characterization by GC/MS - full scan mode

PIANO, Oxygenated Blending Agents, Lead Scavengers, MMT & Thiophenes

Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: 25475-1
Collected: 1/26/2018
Received: 1/31/2018
Matrix: Product

Client ID: MP-7-P-180126

Project: CHEVRON #122208 CHILLUM
Project #: 122208
Collected by: Jordan Bukovsky

Analyzed: 2/16/2018
Q Method: 021318.M

CONSTITUENTS	CLASS	ABBR.	ssRL mg/kg	RESULT mg/kg	QUALIFIER
Isopentane (2-Methylbutane)	I	IP	40.0	1858.8	
1-Pentene	O	1P	40.0	270.7	
2-Methyl-1-butene	O	2M1B	40.0	570.8	
Pentane (nC5)	P	C5	40.0	2811.6	
trans-2-pentene	O	T2P	40.0	1512.5	
cis-2-pentene	O	C2P	40.0	1617.8	
2-Methyl-2-butene (t)	O	2M2B	800.0	2894.4	D
2,2-Dimethylbutane (t)	I	22DMB	40.0	462.2	
Cyclopentane	N	CYP	40.0	2334.6	
2,3-Dimethylbutane	I	23DMB	800.0	3494.4	D
2-Methylpentane	I	2MP	800.0	7554.7	D
Methyl-tert-butyl ether (MTBE)	ADD	MTBE	40.0	40.0	U
3-Methylpentane	P	3MP	800.0	11302.4	D
1-Hexene	O	1HX	40.0	3607.7	
Hexane (nC6)	P	C6	40.0	13882.4	
Di-isopropyl ether (DIPE)	ADD	DIPE	40.0	40.0	U
trans-2-hexene (t)	O	T2HE	40.0	4611.4	
2-Methyl-2-pentene (t)	O	2M2P	40.0	2049.9	
cis-2-hexene (t)	O	C2HE	40.0	2928.0	
cis-3-Methyl-2-pentene (t)	O	C3M2P	40.0	1740.3	
Ethyl-tert-butyl ether (ETBE)	ADD	ETBE	40.0	40.0	U
2,2-Dimethylpentane (t)	I	22DMP	40.0	349.5	
Methylcyclopentane	N	MCYP	40.0	9907.4	
2,4-Dimethylpentane	I	24DMP	800.0	5451.6	D
1,2-Dichloroethane (EDC)	ADD	EDC	40.0	40.0	U
Benzene	A	B	40.0	2628.9	
3,3-Dimethylpentane (t)	I	33DMP	40.0	1011.3	
Thiophene	S	THIO	40.0	40.0	U
Cyclohexane	N	CYH	40.0	1955.5	
2-Methylhexane	I	2MH	800.0	11687.9	D
2,3-Dimethylpentane	I	23DMP	800.0	9914.5	D
Tert-amyl methyl ether (TAME)	ADD	TAME	40.0	40.0	U

Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: 25475-1
Collected: 1/26/2018
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Matrix: Product

Client ID: MP-7-P-180126

Project: CHEVRON #122208 CHILLUM
Project #: 122208
Collected by: Jordan Bukovsky

Analyzed: 2/16/2018
Q Method: 021318.M

CONSTITUENTS	CLASS	ABBR.	ssRL mg/kg	RESULT mg/kg	QUALIFIER
3-Methylhexane	I	3MH	800.0	10846.1	D
trans-1,3-Dimethylcyclopentane (t)	N	T13DMCYP	40.0	3202.7	
cis-1,3-Dimethylcyclopentane (t)	N	C13DMCYP	40.0	803.2	
trans-1,2-Dimethylcyclopentane (t)	N	T12DMCYP	40.0	1152.9	
2,2,4-Trimethylpentane (isooctane)	I	224TMP	800.0	30253.7	D
1-Heptene	O	1HP	40.0	3290.4	
Heptane (nC7)	P	C7	40.0	10359.5	
trans-2-heptene (t)	O	T2HP	800.0	5295.9	D
Methylcyclohexane	N	MCYH	800.0	6063.6	D
2,5-Dimethylhexane	I	25DMH	40.0	8500.6	
2,2,3-Trimethylpentane	I	233TMP	40.0	1990.7	
2,4-Dimethylhexane	I	24DMH	800.0	5749.5	D
2,3,4-Trimethylpentane	I	234TMP	800.0	12921.4	D
2,3,3-Trimethylpentane	I	233TMP	800.0	9021.0	D
Toluene	A	T	800.0	28806.9	D
2-Methylthiophene	S	2MTHIO	40.0	99.6	
2,3-Dimethylhexane	I	23DMH	800.0	3601.9	D
3-Methylthiophene	S	3MTHIO	40.0	64.5	
2-Methylheptane	I	2MHP	800.0	3891.8	D
4-Methylheptane (t)	I	4MHP	40.0	2382.6	
3-Methylheptane	I	3MHP	800.0	4606.1	D
3-Ethylhexane	I	3EHX	40.0	2644.7	
1,2-Dibromoethane (EDB)	ADD	EDB	40.0	40.0	U
1-Octene	O	1O	40.0	1278.9	
Octane (nC8)	P	C8	40.0	8361.1	
2,4-Dimethylheptane (t)	I	24DMHP	40.0	12167.8	
2,5-Dimethylheptane (t)	I	25DMHP	40.0	14430.4	
Ethylbenzene	A	EB	800.0	8090.3	D
2-Ethylthiophene	S	2ETHIO	40.0	40.0	U
2,3-Dimethylheptane (t)	I	23DMHP	40.0	13063.6	
m-Xylene	A	MX	800.0	29421.7	D
p-Xylene	A	PX	800.0	11328.9	D

Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: 25475-1
Collected: 1/26/2018
Received: 1/31/2018
Matrix: Product

Client ID: MP-7-P-180126

Project: CHEVRON #122208 CHILLUM
Project #: 122208
Collected by: Jordan Bukovsky

Analyzed: 2/16/2018
Q Method: 021318.M

CONSTITUENTS	CLASS	ABBR.	ssRL mg/kg	RESULT mg/kg	QUALIFIER
4-Methyloctane (t)	I	4MO	800.0	1010.4	D
2-Methyloctane (t)	I	2MO	800.0	2168.6	D
3-Methyloctane (t)	I	3MO	800.0	3503.3	D
Styrene	A	STRE	40.0	129.9	
o-Xylene	A	OX	800.0	16073.8	D
1-Nonene	O	1N	40.0	1423.4	
Nonane (nC9)	P	C9	40.0	5313.9	
Isopropylbenzene (cumene)	A	IPROPB	40.0	932.4	
n-Propylbenzene	A	NPRPPB	800.0	3447.1	D
1-Methyl-3-ethylbenzene	A	1M3EB	800.0	18633.9	D
1-Methyl-4-ethylbenzene	A	1M4EB	800.0	4485.4	D
1,3,5-Trimethylbenzene (mesitylene)	A	135TMB	800.0	9423.6	D
1-Methyl-2-ethylbenzene	A	1M2EB	800.0	6123.6	D
1,2,4-Trimethylbenzene	A	124TMB	800.0	29216.7	D
1-Decene	O	1D	40.0	769.8	
Decane (nC10)	P	C10	40.0	2447.7	
sec-Butylbenzene	A	SBUB	40.0	508.4	
1-Methyl-3-isopropylbenzene (m-cymene)	A	1M3IPROPB	40.0	955.9	
1-Methyl-4-isopropylbenzene (p-cymene)	A	1M4IPROPB	40.0	305.3	
Indane	A	IA	40.0	3773.1	
Indene	A	IE	40.0	365.0	
1-Methyl-2-isopropybenzene (o-cymene)	A	1M2IPROPB	40.0	72.1	
1-Methyl-3-propylbenzene	A	1M3PROPB	800.0	6088.6	D
1-Methyl-4-propylbenzene	A	1M4PROPB	40.0	3222.9	
n-Butylbenzene	A	NBB	40.0	1669.3	
1,3-Dimethyl-5-ethylbenzene	A	13DM5EB	800.0	6921.7	D
1,2,diethylbenzene	A	12DEB	40.0	521.4	
1-Methyl-2-propylbenzene	A	1M2PROPB	40.0	2233.7	
1,4-Dimethyl-2-ethylbenzene	A	14DM2EB	800.0	4338.4	D
1,3-Dimethyl-4-ethylbenzene	A	13DM4EB	40.0	4239.7	
1,2-Dimethyl-4-ethylbenzene	A	12DM4EB	800.0	8120.0	D
1,3-Dimethyl-2-ethylbenzene	A	13DM2EB	40.0	502.5	

Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: 25475-1
Collected: 1/26/2018
Received: 1/31/2018
Matrix: Product
Client ID: MP-7-P-180126

Project: CHEVRON #122208 CHILLUM
Project #: 122208
Collected by: Jordan Bukovsky
Analyzed: 2/16/2018
Q Method: 021318.M

CONSTITUENTS	CLASS	ABBR.	ssRL mg/kg	RESULT mg/kg	QUALIFIER
1,2-Dimethyl-3-ethylbenzene	A	12DM3EB	40.0	2058.1	
Undecane (nC11)	P	C11	40.0	1338.0	
1,2,4,5-Tetramethylbenzene	A	1245TMB	40.0	3521.9	
1,2,3,5-Tetramethylbenzene (t)	A	1235TMB	800.0	4924.2	D
n-Pentylbenzene	A	NPYB	40.0	771.6	
Naphthalene	A	N	40.0	3794.1	
Benzothiophene	S	BTHIO	40.0	127.4	
Dodecane (nC12)	P	C12	40.0	893.2	
1,2,3,4-Tetramethylbenzene (t)	A	1234TMB	40.0	1670.2	
MMT	ADD	MMT	40.0	40.0	U
2-Methylnaphthalene	A	2MN	40.0	4228.8	
1-Methylnaphthalene	A	1MN	40.0	1984.9	

1,2-Dichloroethane-d4 (RS)	119.30	%
Toluene-d8 (RS)	111.68	%
p-Bromofluorobenzene (RS)	104.21	%

ssRL - Sample Specific Reporting Limit
Results listed as U would have been reported if present at or above the listed ssRL
J - Values greater than the ssRL but less than the PQL (3 x ssRL).
D - Secondary dilution perfomed
Q - Surrogate recovery limit exceedance
I - Matrix Interference
NC - Not calibrated
Note: Extracted by EPA 5030 (Purge and Trap).

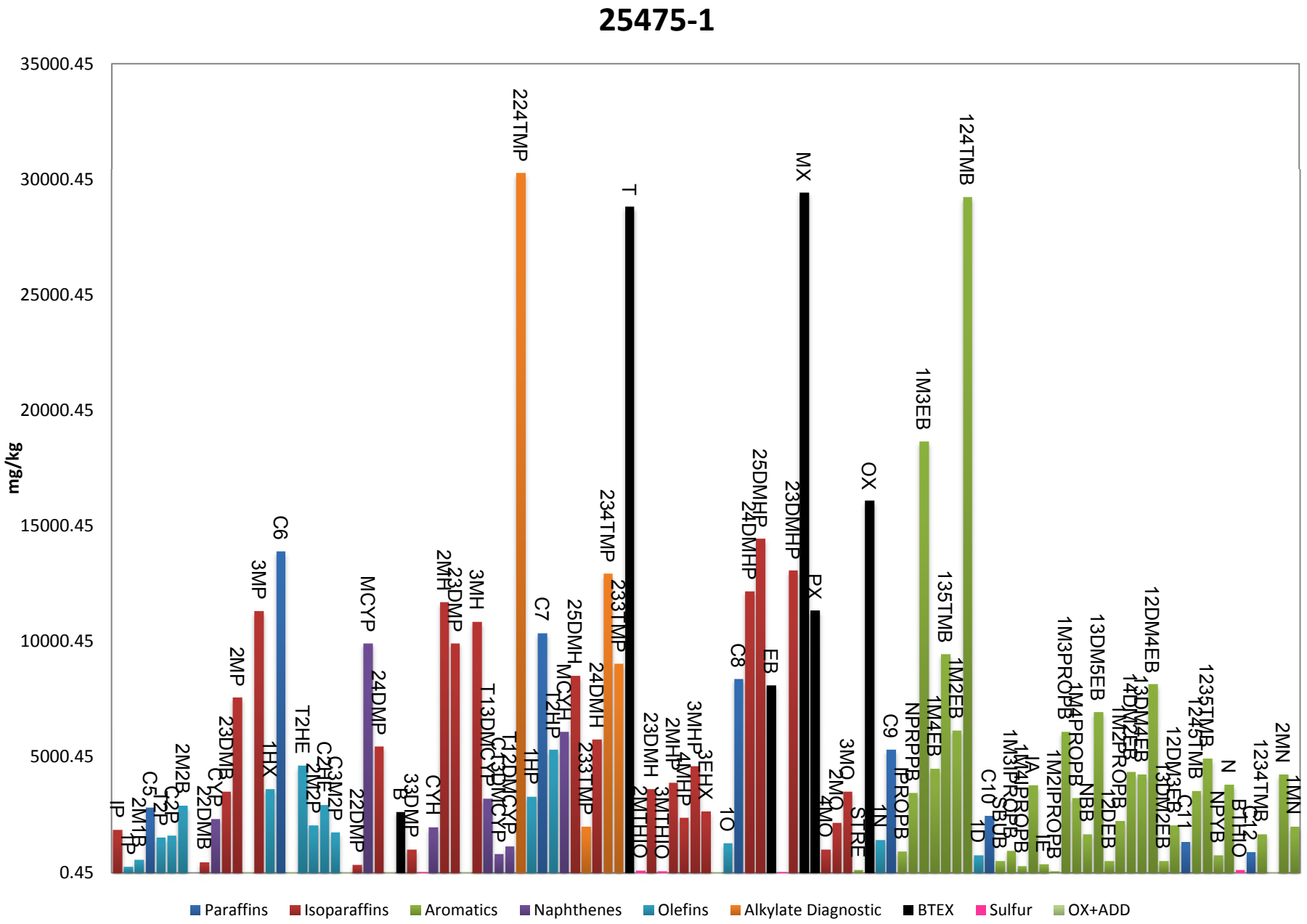
US631

021318-PROD8.D & dilution 021318-PROD5.D

Submitted by,
Pace Energy Services, LLC

PAES ID	**25475-1**
Sample ID	**MP-7-P-180126**
Evaporation	
n-Pentane / (n-Pentane+n-Heptane)	0.21
2-Methylpentane / (2-Methylpentane+2-Methylheptane)	0.66
Waterwashing	
Benzene / (Benzene+Cyclohexane)	0.57
Toluene / (Toluene+Methylcyclohexane)	0.83
Aromatics / Total Paraffins (n+iso+cyc)	0.88
Aromatics / Naphthenes	9.27
wt% < o-xylene	68.78
Biodegradation	
(C4-C8 Para +Isopara) / C4-C8 Olefins	7.30
3-Methylhexane / n-Heptane	1.05
Methylcyclohexane / n-Heptane	0.59
Isoparaffins + Naphthenes / Paraffins	4.87
Diagnostic Ratios (Refining Properties)	
2,2,4-Trimethylpentane / (2,2,4-Trimethylpentane+Methylcyclohexane)	0.8
2,2,4-Trimethylpentane / Total TMPs	0.56
nC9 / Isopropylbenzene	5.70
nC10 / 1-Methyl-2-ethylbenzene	0.40
nC11 / 1,4-Dimethyl-2-ethylbenzene	0.31
iC5 / (iC5+nC5)	0.40
(2-methylhexane + 2,3dimethylpentane) / (3-methylhexane + 2,4 dimethylpentane)	1.33
Naphthalene / (Naphthalene+nC12)	0.81
Methylcyclohexane/(Methylcyclohexane+Toluene)	0.17
Toluene/n-Octane	3.45
Oxygenates & Other (mg/kg)	
Methyl-tert-butyl ether (MTBE)	U
Di-isopropyl ether (DIPE)	U
Ethyl-tert-butyl ether (ETBE)	U
Tert-amyl methyl ether (TAME)	U
MMT	U
Lead Scavengers (mg/kg)	
1,2-Dichloroethane (EDC)	U
1,2-Dibromoethane (EDB)	U
Sulfur containing HCs (mg/kg)	
Thiophene	U
2-Methylthiophene	99.61
3-Methylthiophene	64.51
2-Ethylthiophene	U
Benzothiophene	127.41
Relative Percentages	
% Paraffinic	8.5
% Isoparaffinic	36.5
% Aromatic	43.9
% Naphthenic	4.7
% Olefinic	6.3

SAMPLE HISTOGRAM



Pace Analytical®
Energy Services™

Supporting Quality Control Results

Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: **021318-BLKA.D**
Collected:
Received:
Matrix:

Project: **CHEVRON #122208 CHILLUM**
Project #: **122208**
Collected by:

QC type: **Method Blank**
Analyzed: **2/16/2018**
Q Method: **020518.M**

CONSTITUENTS	ssRL ug/L	RESULT ug/L	QUAL
Isopentane (2-Methylbutane)	0.8	0.8	U
1-Pentene	0.8	0.8	U
2-Methyl-1-butene	0.8	0.8	U
Pentane (nC5)	0.8	0.8	U
trans-2-pentene	0.8	0.8	U
cis-2-pentene	0.8	0.8	U
2-Methyl-2-butene (t)	0.8	0.8	U
2,2-Dimethylbutane (t)	0.8	0.8	U
Cyclopentane	0.8	0.8	U
2,3-Dimethylbutane	0.8	0.8	U
2-Methylpentane	0.8	0.8	U
Methyl-tert-butyl ether (MTBE)	0.8	0.8	U
3-Methylpentane	0.8	0.8	U
1-Hexene	0.8	0.8	U
Hexane (nC6)	0.8	0.8	U
Di-isopropyl ether (DIPE)	0.8	0.8	U
trans-2-hexene (t)	0.8	0.8	U
2-Methyl-2-pentene (t)	0.8	0.8	U
cis-2-hexene (t)	0.8	0.8	U
cis-3-Methyl-2-pentene (t)	0.8	0.8	U
Ethyl-tert-butyl ether (ETBE)	0.8	0.8	U
2,2-Dimethylpentane (t)	0.8	0.8	U
Methylcyclopentane	0.8	0.8	U
2,4-Dimethylpentane	0.8	0.8	U
1,2-Dichloroethane (EDC)	0.8	0.8	U
Benzene	0.8	0.8	U
3,3-Dimethylpentane (t)	0.8	0.8	U
Thiophene	0.8	0.8	U
Cyclohexane	0.8	0.8	U
2-Methylhexane	0.8	0.8	U
2,3-Dimethylpentane	0.8	0.8	U
Tert-amyl methyl ether (TAME)	0.8	0.8	U

Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: **021318-BLKA.D**
Collected:
Received:
Matrix:

Project: **CHEVRON #122208 CHILLUM**
Project #: **122208**
Collected by:

QC type: **Method Blank**
Analyzed: **2/16/2018**
Q Method: **020518.M**

CONSTITUENTS	ssRL ug/L	RESULT ug/L	QUAL
3-Methylhexane	0.8	0.8	U
trans-1,3-Dimethylcyclopentane (t)	0.8	0.8	U
cis-1,3-Dimethylcyclopentane (t)	0.8	0.8	U
trans-1,2-Dimethylcyclopentane (t)	0.8	0.8	U
2,2,4-Trimethylpentane (isooctane)	0.8	0.8	U
1-Heptene	0.8	0.8	U
Heptane (nC7)	0.8	0.8	U
trans-2-heptene (t)	0.8	0.8	U
Methylcyclohexane	0.8	0.8	U
2,5-Dimethylhexane	0.8	0.8	U
2,2,3-Trimethylpentane	0.8	0.8	U
2,4-Dimethylhexane	0.8	0.8	U
2,3,4-Trimethylpentane	0.8	0.8	U
2,3,3-Trimethylpentane	0.8	0.8	U
Toluene	0.8	0.8	U
2-Methylthiophene	0.8	0.8	U
2,3-Dimethylhexane	0.8	0.8	U
3-Methylthiophene	0.8	0.8	U
2-Methylheptane	0.8	0.8	U
4-Methylheptane (t)	0.8	0.8	U
3-Methylheptane	0.8	0.8	U
3-Ethylhexane	0.8	0.8	U
1,2-Dibromoethane (EDB)	0.8	0.8	U
1-Octene	0.8	0.8	U
Octane (nC8)	0.8	0.8	U
2,4-Dimethylheptane (t)	0.8	0.8	U
2,5-Dimethylheptane (t)	0.8	0.8	U
Ethylbenzene	0.8	0.8	U
2-Ethylthiophene	0.8	0.8	U
2,3-Dimethylheptane (t)	0.8	0.8	U
m-Xylene	0.8	0.8	U
p-Xylene	0.8	0.8	U



Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: **021318-BLKA.D**
Collected:
Received:
Matrix:

Project: **CHEVRON #122208 CHILLUM**
Project #: **122208**
Collected by:

QC type: **Method Blank**
Analyzed: **2/16/2018**
Q Method: **020518.M**

CONSTITUENTS	ssRL ug/L	RESULT ug/L	QUAL
4-Methyloctane (t)	0.8	0.8	U
2-Methyloctane (t)	0.8	0.8	U
3-Methyloctane (t)	0.8	0.8	U
Styrene	0.8	0.8	U
o-Xylene	0.8	0.8	U
1-Nonene	0.8	0.8	U
Nonane (nC9)	0.8	0.8	U
Isopropylbenzene (cumene)	0.8	0.8	U
n-Propylbenzene	0.8	0.8	U
1-Methyl-3-ethylbenzene	0.8	0.8	U
1-Methyl-4-ethylbenzene	0.8	0.8	U
1,3,5-Trimethylbenzene (mesitylene)	0.8	0.8	U
1-Methyl-2-ethylbenzene	0.8	0.8	U
1,2,4-Trimethylbenzene	0.8	0.8	U
1-Decene	0.8	0.8	U
Decane (nC10)	0.8	0.8	U
sec-Butylbenzene	0.8	0.8	U
1-Methyl-3-isopropylbenzene (m-cymene)	0.8	0.8	U
1-Methyl-4-isopropylbenzene (p-cymene)	0.8	0.8	U
Indane	0.8	0.8	U
Indene	0.8	0.8	U
1-Methyl-2-isopropybenzene (o-cymene)	0.8	0.8	U
1-Methyl-3-propylbenzene	0.8	0.8	U
1-Methyl-4-propylbenzene	0.8	0.8	U
n-Butylbenzene	0.8	0.8	U
1,3-Dimethyl-5-ethylbenzene	0.8	0.8	U
1,2,diethylbenzene	0.8	0.8	U
1-Methyl-2-propylbenzene	0.8	0.8	U
1,4-Dimethyl-2-ethylbenzene	0.8	0.8	U
1,3-Dimethyl-4-ethylbenzene	0.8	0.8	U
1,2-Dimethyl-4-ethylbenzene	0.8	0.8	U
1,3-Dimethyl-2-ethylbenzene	0.8	0.8	U

Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: **021318-BLKA.D**
Collected:
Received:
Matrix:

Project: **CHEVRON #122208 CHILLUM**
Project #: **122208**
Collected by:

QC type: **Method Blank**
Analyzed: **2/16/2018**
Q Method: **020518.M**

CONSTITUENTS	ssRL ug/L	RESULT ug/L	QUAL
1,2-Dimethyl-3-ethylbenzene	0.8	0.8	U
Undecane (nC11)	0.8	0.8	U
1,2,4,5-Tetramethylbenzene	0.8	0.8	U
1,2,3,5-Tetramethylbenzene (t)	0.8	0.8	U
n-Pentylbenzene	0.8	0.8	U
Naphthalene	0.8	0.8	U
Benzothiophene	0.8	0.8	U
Dodecane (nC12)	0.8	0.8	U
1,2,3,4-Tetramethylbenzene (t)	0.8	0.8	U
MMT	0.8	0.8	U
2-Methylnaphthalene	0.8	0.8	U
1-Methylnaphthalene	0.8	0.8	U
1,2-Dichloroethane-d4 (RS) %		111	0
Toluene-d8 (RS) %		107	0
p-Bromofluorobenzene (RS) %		102	0

ssRL - Sample Specific Reporting Limit
Results listed as U would have been reported if present at or above the listed ssRL
B - Exceeds PQL - 3 x ssRL
Q - Surrogate recovery limit exceedance
NC - Not calibrated
J - Values greater than the ssRL but less than the PQL.
Note: Extracted by EPA 5030 (Purge and Trap).

US631
021318-BLKA.D

Submitted by,
Pace Energy Services, LLC

Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: 021318-LCS25A.D
Collected:
Received:
Matrix:

Project: CHEVRON #122208 CHILLUM
Project #: 122208
Collected by:

QC type: LCS
Analyzed: 2/16/2018
Q Method: 020518.M

CONSTITUENTS	RESULT ug/L	Recovery %	Spike Conc. ug/L	QUAL
1-Pentene	25.0	100.1	25.0	
Pentane (nC5)	30.2	120.7	25.0	
Cyclopentane	19.6	78.6	25.0	
1-Hexene	33.0	132.0	25.0	
Hexane (nC6)	45.3	140.0	25.0	
Di-isopropyl ether (DIPE)	23.6	94.2	25.0	
Ethyl-tert-butyl ether (ETBE)	22.8	91.0	25.0	
2,4-Dimethylpentane	37.8	136.1	25.0	
Benzene	22.9	91.6	25.0	
Cyclohexane	30.6	122.2	25.0	
Tert-amyl methyl ether (TAME)	20.3	81.4	25.0	
2,2,4-Trimethylpentane (isooctane)	44.1	132.3	25.0	
Heptane (nC7)	45.3	138.1	25.0	
Toluene	22.3	89.0	25.0	
Octane (nC8)	36.6	132.5	25.0	
Ethylbenzene	24.2	96.8	25.0	
m-Xylene	18.0	71.8	25.0	
p-Xylene	21.5	85.8	25.0	
o-Xylene	19.4	77.7	25.0	
Nonane (nC9)	21.5	86.2	25.0	
n-Propylbenzene	19.3	77.2	25.0	
1,3,5-Trimethylbenzene (mesitylene)	18.8	75.2	25.0	
1-Decene	18.7	74.9	25.0	
Decane (nC10)	20.1	80.4	25.0	
n-Butylbenzene	19.3	77.2	25.0	
n-Pentylbenzene	18.5	74.1	25.0	
Dodecane (nC12)	133.3	146.7	75.0	LQ
1,2-Dichloroethane-d4 (RS)		112		
Toluene-d8 (RS)		112		
p-Bromofluorobenzene (RS)		98		

ssRL - Sample Specific Reporting Limit
Q - Surrogate recovery limit exceedance
I - Matrix Interference
NC - Not calibrated
LQ - Percent difference exceedance (50 - 140)
Note: Extracted by EPA 5030 (Purge and Trap).

US631
021318-LCS25A.D

Submitted by,
Pace Energy Services, LLC



Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: **021318-LCSD25A.D**
Collected:
Received:
Matrix:

Project: **CHEVRON #122208 CHILLUM**
Project #: **122208**
Collected

QC type: **LCSD**
Analyzed: **2/16/2018**
Q Method: **020518.M**

CONSTITUENTS	RESULT ug/L	Recovery %	Spike Conc. ug/L	RPD %	QUAL
1-Pentene	24.9	99.6	25.0	0.6	
Pentane (nC5)	29.2	116.8	25.0	3.2	
Cyclopentane	17.9	71.7	25.0	9.0	
1-Hexene	29.9	119.5	25.0	10.0	
Hexane (nC6)	45.8	142.0	25.0	1.1	
Di-isopropyl ether (DIPE)	23.4	93.4	25.0	0.9	
Ethyl-tert-butyl ether (ETBE)	22.5	90.2	25.0	0.9	
2,4-Dimethylpentane	35.3	132.1	25.0	6.8	
Benzene	20.5	82.1	25.0	10.9	
Cyclohexane	27.4	109.4	25.0	11.0	
Tert-amyl methyl ether (TAME)	20.4	81.5	25.0	0.2	
2,2,4-Trimethylpentane (isooctane)	41.2	135.9	25.0	6.7	
Heptane (nC7)	40.6	139.4	25.0	10.9	
Toluene	20.9	83.6	25.0	6.3	
Octane (nC8)	32.6	130.3	25.0	11.7	
Ethylbenzene	21.7	86.9	25.0	10.8	
m-Xylene	16.9	67.7	25.0	5.8	
p-Xylene	18.6	74.4	25.0	14.3	
o-Xylene	17.6	70.6	25.0	9.7	
Nonane (nC9)	20.2	80.9	25.0	6.4	
n-Propylbenzene	17.5	70.1	25.0	9.7	
1,3,5-Trimethylbenzene (mesitylene)	16.8	67.1	25.0	11.3	
1-Decene	17.3	69.1	25.0	7.9	
Decane (nC10)	18.1	72.4	25.0	10.5	
n-Butylbenzene	18.0	72.0	25.0	6.9	
n-Pentylbenzene	17.7	70.9	25.0	4.5	
Dodecane (nC12)	121.6	149.2	75.0	9.1	
1,2-Dichloroethane-d4 (RS)		123			
Toluene-d8 (RS)		107			
p-Bromofluorobenzene (RS)		95			

ssRL - Sample Specific Reporting Limit
Q - Surrogate recovery limit exceedance
I - Matrix Interference
NC - Not calibrated
RQ - Percent difference exceeded (15)
LQ - Percent difference exceedance (50 - 140)
Note: Extracted by EPA 5030 (Purge and Trap).

US631
021318-LCSD25A.D

Submitted by,
Pace Energy Services, LLC

Kristen Audette
Arcadis
7550 Teague Rd., Ste 210
Hanover, MD 21076

Lab ID: **013118-SRM200.D**
Collected:
Received:
Matrix: **Product/Soil**

Project: **CHEVRON #122208 CHILLUM**
Project #: **122208**
Collected by:

QC type: **NIST SRM 2295**
Analyzed:
Q Method: **020518.M**

CONSTITUENTS	RESULT mg/kg	ssRL mg/kg	D Flag	NIST Result mg/kg	Passing Diff. %	Actual Diff. %	QUAL
1-Pentene	4649.0	842.1	D	7400.0	40	45.7	SQ
Pentane (nC5)	16300.1	842.1	D	35700.0	40	74.6	SQ
Methyl-tert-butyl ether (MTBE)	76971.5	842.1	D	145400.0	40	61.5	SQ
Hexane (nC6)	41916.2	842.1	D	37000.0	40	12.5	
2,4-Dimethylpentane	98081.9	842.1	D	79000.0	40	21.6	
Benzene	6706.4	126.3		9900.0	40	38.5	
Thiophene	222.7	126.3		260.0	40	15.4	
Cyclohexane	89413.8	842.1	D	88400.0	40	1.1	
2,2,4-Trimethylpentane (isooctane)	157408.4	842.1	D	118000.0	40	28.6	
1-Heptene	18963.1	842.1	D	15000.0	40	23.3	
Heptane (nC7)	109534.7	842.1	D	77700.0	40	34.0	
Toluene	67209.4	842.1	D	78900.0	40	16.0	
3-Methylthiophene	303.0	126.3		300.0	40	1.0	
Octane (nC8)	81540.4	842.1	D	79800.0	40	2.2	
Ethylbenzene	19468.6	842.1	D	19600.0	40	0.7	
m,p-Xylenes	49528.1	1684.2	D	58700.0	40	16.9	
o-Xylene	16431.0	842.1	D	19700.0	40	18.1	
1,3,5-Trimethylbenzene (mesitylene)	15463.2	842.1	D	19700.0	40	24.1	
1,2,4-Trimethylbenzene	15318.2	842.1	D	20010.0	40	26.6	
Decane (nC10)	55442.8	126.3		41400.0	40	29.0	
1,2,4,5-Tetramethylbenzene	7629.5	126.3		9600.0	40	22.9	
Naphthalene	9023.5	126.3		11500.0	40	24.1	
Benzothiophene	376.7	126.3		440.0	40	15.5	
1,2-Dichloroethane-d4 (RS) %	111						
Toluene-d8 (RS) %	109						
p-Bromofluorobenzene (RS) %	104						

ssRL - Sample Specific Reporting Limit
D - Secondary dilution perfomed
Q - Surrogate recovery limit exceedance
SQ - SRM percent difference exceeded
I - Matrix Interference
NC - Not calibrated
Note: Extracted by EPA 5030 (Purge and Trap).

US631
013118-SRM200.D

Submitted by,
Pace Energy Services, LLC

Pace Analytical®
www.pacelabs.com

220 William Pitt Way
Pittsburgh, PA 15238
412-826-5245

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

25475

Page: 1 of 1

010591

Section A Required Client Information:

Company: Arcadis
Address: 7550 Teague Rd
Hanover, MD 21076 Ste 210
Email To: Kristen.audette@arcadis.com
Phone: 443-359-9512 Fax:
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: Kristen Audette
Copy To: Rich Kappes
Purchase Order No.: B0049337
Project Name: Chevron #122208 Chillum
Project Number: 122208

Section C Invoice Information:

Attention: Kristen Audette
Company Name: Arcadis
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER
UST RCRA OTHER

Site Location STATE: MD

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	TSP	BAK	Zinc Acetate & NaOH	Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N): Density/Viscosity	GC/FID crude oil	Flashpoint	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MP-7-P-180126	P	G			1/26/18	1600		12	X								X	X	X			
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Jordan Butkovsky	1/26/18	1600	David F Hillegass Pace	1/29/18	1324				
	David F Hillegass Pace	1/29/18	1812	Kenneth Eddy	1-29-18	1810				
	Kenneth Eddy	1-29-18	2150	Unintelligible Pace	1-29-18	2150	4.5	Y	N	Y
	Michael Fu	1-31-18	1350	Leon	1.31.18	1355				

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Jordan Butkovsky
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 01/26/18

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

25475

Pace Analytical

Client Name: Arcadis Project #

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other

Label
LIMS Login

Tracking #:

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Thermometer Used 7 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 4.6 °C Correction Factor: -0.1 °C Final Temp: 4.5 °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: AM 1-30-18

Comments:	Yes	No	N/A	
Chain of Custody Present:	X			1.
Chain of Custody Filled Out:	X			2.
Chain of Custody Relinquished:	X			3.
Sampler Name & Signature on COC:	X			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	X			5.
Samples Arrived within Hold Time:	X			6.
Short Hold Time Analysis (<72hr remaining):		X		7.
Rush Turn Around Time Requested:		X		8.
Sufficient Volume:	X			9.
Correct Containers Used:	X			10.
-Pace Containers Used:		X		
Containers Intact:	X			11.
Orthophosphate field filtered			X	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			X	13.
Organic Samples checked for dechlorination:			X	14.
Filtered volume received for Dissolved tests			X	15.
All containers have been checked for preservation.			X	16.
All containers needing preservation are found to be in compliance with EPA recommendation.			X	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed AM / Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			X	17.
Trip Blank Present:		X		18.
Trip Blank Custody Seals Present			X	
Rad Aqueous Samples Screened > 0.5 mrem/hr			X	Initial when completed: / Date:

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution:

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

***PM review** is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Cooler Receipt Form

Client Name: Arcadis Project: Chevron # 122208 Lab Work Order: 25475

A. **Shipping/Container Information** (circle appropriate response)

Courier: FedEx UPS USPS Client (Other: Pace G) **Air bill Present:** Yes No

Tracking Number: _____

Custody Seal on Cooler/Box Present: Yes (No) **Seals Intact:** Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam (Other: _____)

Type of Ice: (Wet) Blue None **Ice Intact:** (Yes) Melted

Cooler Temperature: 1°C **Radiation Screened:** Yes (No) **Chain of Custody Present:** (Yes) No

Comments: _____

B. **Laboratory Assignment/Log-in** (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact	✓			
Were samples in separate bags			✓	
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
PAES containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)			✓	
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	
Headspace present?			✓	

Comments: _____

_____

Cooler contents examined/received by : KY **Date:** 1.31.18

Project Manager Review : _____ **Date:** 1/31/18



Subcontracted Analyses

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

February 06, 2018

Mark Mikesell
Pace Analytical Energy Services
220 William Pitt Way
Pittsburgh, PA 15238

RE: Project: 25475
Pace Project No.: 30242543

Dear Mark Mikesell:
Enclosed are the analytical results for sample(s) received by the laboratory on February 02, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

David A. Pichette
david.pichette@pacelabs.com
(724)850-5617
Project Manager

Enclosures

cc: Ms. Ruth Welsh, Pace Analytical Energy Services

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 25475
Pace Project No.: 30242543

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
L-A-B DOD-ELAP Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Certification
Wyoming Certification #: 8TMS-L

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 25475
Pace Project No.: 30242543

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30242543001	**254750001 MP-7-P-180126**	Solid	01/26/18 10:00	02/02/18 17:10

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: 25475
Pace Project No.: 30242543

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30242543001	**254750001 MP-7-P-180126**	EPA 1010	SEF	1

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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 25475
Pace Project No.: 30242543

Method: **EPA 1010**
Description: 1010 Flashpoint,Closed Cup
Client: Pace Analytical Energy Services, LLC
Date: February 06, 2018

General Information:
1 sample was analyzed for EPA 1010. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 287071

1c: Duplicate aliquot tested; Ignited at room temperature

- 254750001 MP-7-P-180126 (Lab ID: 30242543001)
  - Flashpoint

This data package has been reviewed for quality and completeness and is approved for release.

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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: 25475
Pace Project No.: 30242543

Sample: 254750001 MP-7-P-180126 **Lab ID: 30242543001** Collected: 01/26/18 10:00 Received: 02/02/18 17:10 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
1010 Flashpoint,Closed Cup	Analytical Method: EPA 1010								
Flashpoint	**<60**	deg F	60.0		1		02/05/18 18:28		1c

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: 25475
Pace Project No.: 30242543

QC Batch: 287071 Analysis Method: EPA 1010
QC Batch Method: EPA 1010 Analysis Description: 1010 Flash Point, Closed Cup
Associated Lab Samples: 30242543001

METHOD BLANK: 1407588 Matrix: Water
Associated Lab Samples: 30242543001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Flashpoint	deg F	>200	60.0		02/05/18 16:08	

SAMPLE DUPLICATE: 1407589

Parameter	Units	10418765003 Result	Dup Result	RPD	Max RPD	Qualifiers
Flashpoint	deg F	>200	>200			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 25475
Pace Project No.: 30242543

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1c Duplicate aliquot tested; Ignited at room temperature

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 25475
Pace Project No.: 30242543

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30242543001	**254750001 MP-7-P-180126**	EPA 1010	287071		

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CHAIN-OF-CUSTODY RECORD

Pace Analytical

Phone: (412) 826-5245 Pace Analytical Energy Services, LLC - 220 William Pitt Way - Pittsburgh, PA 15238 Fax: (412) 826-3433

SEND TO: Pace DUE DATE: 2/15/2018

Results to: ruth.welsh@pacelabs.com
mark.mikesell@pacelabs.com

Lab Proj. # 25475

Invoice to: ruth.welsh@pacelabs.com

WO# : 30242543

30242543

Company: Pace Analytical Energy Services, LLC
Co. Address: 220 William Pitt Way, Pittsburgh, PA 15238
Phone #: 412-826-5245
Fax #: 412-826-3433

State of Origin: PA

Preservatives
1 -Unpreserved 4-HCL
2- H2SO4 5-NaOH+Zn Ace.
3- HNO3

Sample ID	Sample Type: Water	Sample Type: Oil	Date	Time	# Bottles	Preservatives	Parameters Requested: Flashpoint	Remarks
254750001 MP-7-P-180126		X	1/26/18	10:00	4	1	X	

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:
L.McGrath	PAES	1/31/2018	17:00		Pace	2/2/18	0555
Relinquished by:	Company: Pace	Date: 2/2/18	Time: 710	Received by:	Company: Pace	Date: 2/2/18	Time: 1710
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Pace Energy Project # 30242543

Label #: 74
LIMS Login: ANL

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: N/A

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Thermometer Used 8 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 2.1 °C Correction Factor: 0.0 °C Final Temp: 2.1 °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: ZH 2/2/18

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC: -Includes date/time/ID (PM 2-2-18) Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used:		✓		
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation.			✓	16.
All containers needing preservation are found to be in compliance with EPA recommendation.			✓	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed ZH. Date/time of preservation
				Lot # of added preservative
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:			✓	18.
Trip Blank Custody Seals Present			✓	
Rad Aqueous Samples Screened > 0.5 mrem/hr			✓	Initial when completed: Date:

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Pace Analytical Energy Services
Contact: Lauren McGrath
Address: Pace
,
Ph: 412-826-2378 Fax:
Email: lauren.mcgrath@pacelabs.com

FINAL REPORT
This report and the data within has completed QA/QC review

Fuels & Lubrication Lab
1801 Route 51 South
Building 9
Jefferson Hills, PA 15025
Ph: 412-387-1001
Fax: 412-387-1028

Primary Contact	Pittsburgh, PA
PO#	25475
Tracking #	408275-1
Client Sample #	254750001 MP-7-P-180126
Received Date	02/05/2018

Digital Density at 68°F (20°C)

Test Code: D4052M / Method: D4052 mod.

Result Date		02/06/2018
Result	*g/cm3*	0.77793

Comments

D4052 Digital Density was run at 20°C.

Viscosity at 20C

Test Code: D445 at 20C / Method: D445

Result Date		02/06/2018
Visc @20°C	*cSt*	0.74217

General Diagnostic Notes

Additional detail may be available if requested, at standard Clark consulting rates.

Authorized Signature

Analyst:  Date: 02/06/2018

Pat Stockton

Disclaimer: The reported results relate only to the samples received for testing.

APPENDIX P

VMS Sampling Results

Robert Speer, P.E.
Project Manager

Chevron Environmental Management Company
4800 Fournace Place
Bellaire, TX 77401
Tel 713-432-2142
Fax 866-677-7255
rspeer@chevron.com

June 28, 2013

Mr. Andrew Fan
Technical Support Branch (3WC23)
Waste & Chemicals Management Branch
United States Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

RE: Annual Vapor Mitigation System Indoor Air Sampling Report – Year 4, 2013
Former Chevron Facility 122208
5801 Riggs Road, Chillum, Maryland

Dear Mr. Fan:

Chevron Environmental Management Company (Chevron) is submitting this report for the former Chevron service station located at 5801 Riggs Road, Chillum, Maryland (former Chevron Facility 122208). This report provides a summary of field sampling methods and results for the 2013 annual Vapor Mitigation System (VMS) indoor air sampling event conducted at 5818 Eastern Avenue in April 2013.

INTRODUCTION

VMS were installed at three residences (746 Oglethorpe Street, 5818 Eastern Avenue, and 5824 Eastern Avenue) in late 2008. An Interim Measures Work Plan for Vapor Sampling and Mitigation for monitoring these systems was approved by the U.S. Environmental Protection Agency (EPA) (Gannett Fleming, 2008). Annual VMS monitoring sampling events were required by EPA for three residences in the Riggs Park neighborhood: 746 Oglethorpe Street, 5824 Eastern Avenue, and 5818 Eastern Avenue. An initial round of sampling activities was completed in 2010, and by the end of 2012, a total of three VMS monitoring sampling events had been completed over three consecutive years at two of the residences (746 Oglethorpe Street and 5824 Eastern Avenue). In comparison, only two VMS monitoring sampling events had been completed at 5818 Eastern Avenue during the same timeframe due to access restrictions to the property. No exceedences of EPA Indoor Air Standards were detected at the 746 Oglethorpe Street and 5824 Eastern Avenue properties during the three rounds of annual sampling that were completed. As a result, EPA approved the discontinuation of VMS operation and monitoring at these two residences. One additional round of sampling to be conducted in Spring 2013 was required by EPA for 5818 Eastern Avenue before discontinuation of VMS operations and monitoring at that property could be approved. In response, annual VMS monitoring sampling activities were attempted at 5818 Eastern Avenue in April 2013. This report summarizes the methods and results of the April 2013 indoor air sampling activities, as required by the approved Work Plan.

Continued…

DRAFT

METHODS AND PROCEDURES

Annual system monitoring consists of five separate tasks:

1. Sampling of indoor and ambient air while the mitigation systems are running;
2. Shutting down the VMS and sampling of indoor and ambient air after an equilibration period;
3. Sampling sub-slab soil vapor from the discharge stack;
4. Measuring differential pressure across the basement slab; and
5. Measuring the air flow rate from the VMS fan/blower.

Air Sampling

The annual indoor air sampling event at 5818 Eastern Avenue was conducted over the time period of April 17, 2013 through June 7, 2013. The inability to schedule access to the property led to a delay of approximately 6 weeks between the "system on" and "system off" sampling events.

System On Sampling

Indoor air sampling was completed at 5818 Eastern Avenue using procedures that were consistent with sampling events conducted in previous years at all residences. The procedure included completion of two separate sampling events, one under "system on" conditions and a follow-up round of sampling under "system off" conditions. Upon first arrival to 5818 Eastern Avenue (i.e., prior to performing indoor air sampling) on April 17, 2013, Gannett Fleming (GF) and Arcadis personnel confirmed that the VMS system was operating properly. Next, prior to initiating indoor air sampling, an attempt was made to complete an interview of the resident. The resident declined completion of the interview on the first day of sampling due to time restrictions; however, general guidelines to follow during sampling were still provided. Third, the GF and Arcadis sample team used a ppbRAE photo-ionization detector (PID) to screen both the first floor and basement of the residence for the presence of volatile organic compounds (VOCs). An indoor air building survey was also completed at this time. Fourth, a 6-Liter stainless steel air sampling canister with 24-hour flow controller was set up in the front room of the basement in a central location consistent with previous sampling events, an area in which air flow is unrestricted. The sample canister was placed on a plastic table with the intake height set at approximately 2.5 feet above the floor surface. Sampling was subsequently initiated and the GF and Arcadis sampling team departed from the residence. The sample canister was allowed to draw in air for approximately 24 hours.

GF and Arcadis personnel returned to the residence on April 18, 2013, approximately 24 hours after initiation of the indoor air sample. After entering the residence, the sample team completed an interview of the resident and subsequently stopped and retrieved the sample canister in the basement. The sample team then moved outside to perform differential pressure monitoring using an Omniguard 4 differential pressure monitor at the ports located on the rear exterior wall of the property.

An ambient (outdoor) air sample was collected concurrently with the indoor air sample, starting and ending within approximately 20 minutes of the indoor air sample. The ambient air sample was collected using a 6-Liter stainless steel air sampling canister with 24-hour flow controller, which was installed on a tripod in the front yard of the 5818 Eastern Avenue property with an intake height of approximately 6 feet above the ground surface. The ambient air sample was allowed to draw in air for approximately 24 hours, after which time GF and Arcadis sampling personnel returned to the property to end the sampling and

retrieve the canister. All indoor and ambient air sample canisters were submitted to Air Toxics of Folsom, California for analysis using EPA Method TO-15 (Full Scan) (Table 2).

The end point of the "system on" sampling event represented the beginning of an equilibration period. Prior to departing the residence, the VMS was shut down, the breaker controlling power to the VMS was locked in the off position, and the discharge stack was sealed using a knife valve.

System Off Sampling

After a period of approximately seven weeks, GF personnel returned to the residence of 5818 Eastern Avenue on June 6, 2013 to perform "system off sampling," which represents conditions with the VMS not running. The procedure used for "system off" sampling was identical to that used during "system on" sampling, with one exception, detailed below. After GF personnel ensured that the VMS was still powered off, a ppbRAE PID was used to screen the basement for the presence of VOCs, a brief building survey was completed, and the building occupant was interviewed and provided with general guidelines for the sampling process. Two Six-liter canisters were then placed in locations identical to the initial "system on" indoor air samples and sampling was initiated. An ambient air sampling canister was also placed in the identical location to those of the initial samples to allow for concurrent sampling. Sampling was terminated after approximately 24 hours and the sample canisters were retrieved by GF personnel. All indoor and ambient air sample canisters were submitted to Air Toxics of Folsom, California for analysis using EPA Method TO-15 (Full Scan) (Table 2).

Grab samples of indoor air and ambient air were also collected in 1-liter tedlar bags while the system was powered off. The grab samples were submitted to the University of Southern California for radon analysis using proprietary methods (Table 3).

Discharge Stack Soil Vapor Sampling

At 5818 Eastern Avenue, the discharge stack soil vapor sampling was conducted prior to the VMS being restarted (Table 1). First, the VMS fan/blower was used to purge three volumes of air from the section of piping between the slab penetration and the sample port. Next, the knife valve located below the fan/blower on the VMS was closed to prevent ambient air from moving into the discharge stack. The sample was subsequently collected from sample ports in the VMS stack using 1-liter stainless-steel, summa-type canisters. Sample canisters were submitted to Air Toxics of Folsom, California for analysis of BTEX, MTBE, and difluoroethane (leak detection compound) using EPA Method TO-15 (modified) (Table 2).

Grab samples of discharge stack soil vapor were also collected in 1-liter tedlar bags while the system was powered off at 5818 Eastern Avenue. The grab samples were submitted to the University of Southern California for radon analysis using proprietary methods (Table 3).

Differential Pressure and Air Flow Rate Measurements

Differential pressure measurements were collected using an Omniguard 4 differential pressure recorder while the VMS was operating. The measurements were compared to the differential pressure goals that were established by EPA and American Society for Testing and Materials (ASTM) (now ASTM International) to determine whether or not the system was operating efficiently (Table 4) (EPA, 2008b; ASTM, 2003).

Deviations from the Work Plan

The following deviations from the Work Plan were encountered during the sampling event:

- The work plan indicates that the sampling is to be conducted during the "cooler months" from October through April when vapor intrusion is theoretically most evident. The sampling at 5818 Eastern Avenue, however, was conducted during in May and June 2013 due to property access issues;

- The work plan indicates that residents will be interviewed on the first day of sampling activities; however, the resident at 5818 Eastern Avenue declined being interviewed on the first day of "system on" indoor air sampling due to time limitations;

- The work plan indicates that potential sources of off-gassing VOCs would be eliminated from the residences prior to initiating air sampling. During "system on sampling," the resident stated that a gasoline/oil mixture (i.e., a potential source of off-gassing VOCs) was being stored next to the furnace for use with his lawnmower. The resident requested that the gasoline/oil mixture not be removed from the basement. The gasoline/oil container was screened using the ppbRAE PID and no VOCs were detected. The resident subsequently returned the gasoline/oil container to the rear room of the basement and closed the door connecting the front and rear rooms. The gasoline/oil mixture remained in the basement throughout the duration of sampling; and

- The work plan indicates that a brief PID survey would be completed on the second day of each sampling event prior to retrieval of sample canisters. No PID survey was completed prior to retrieval of sample canisters during the "system on" sampling event.

RESULTS AND CONCLUSIONS

General Observations

This annual sampling event was conducted at a slightly later and warmer time of year than previous sampling events. Ambient temperatures during sampling ranged from approximately 58° to 78°F and the mechanical heating system at 5818 Eastern Avenue was not being used. The heating season (i.e., colder months when mechanical heating is used) is generally considered to be the time of the year when vapor intrusion is most evident.

Weather conditions remained generally consistent during collection of the "system on" samples. Conditions were clear and sunny on April 17, 2013, when sampling was initiated, and a brief period of light rain (i.e., 0 inches total rainfall accumulation actually reported for the day) was encountered on April 18, 2013, when sampling was ended.

Upon entering the 5818 Eastern Avenue property on April 17, 2013, the resident declined completion of an interview due to having to leave in a short period of time. A ppbRAE PID was used by the GF and Arcadis sampling team to screen both the first floor and basement of the property for VOCs and a general inspection of those areas was completed to look for potentially off-gassing items. On the first floor of the property, a maximum concentration of 42 ppb VOCs was detected and strong odor of incense was encountered. In the basement of the property, no VOCs were detected during the ppbRAE PID survey.

The resident acknowledged that a gasoline/oil mixture was being stored next to the furnace in the rear room of the basement and requested that it not be removed from the house during sampling. No VOCs

were detected when screening the gasoline/oil container with the ppbRAE PID. The gasoline/oil container was then placed back in the rear room of the basement by the resident and the door connecting the front and rear room of the basement was closed. It could not be confirmed if the door remained closed after the sample team departed from the residence.

Before leaving the property, the VMS system was turned off and knife valve engaged.

Gannett Fleming Staff returned to 5818 on June 6, 2013 to set canisters with 24-hour flow controllers for retrieval the following morning. The weather was overcast and breezy with possible rain predicted during the night. An ambient sample was placed on the front lawn of the residence inside of a protective cage at a height of approximately 5 feet. The system off sample and a co located quality control sample were set in the basement of the residence. During the system off building survey, the resident removed a gas can and lawn mower outside of the house. Before moving the gas can, the air surrounding the can was scanned with a PPB RAE and no detections were noted. In the main room of the basement, a survey with the PPB RAE detected voc concentrations in the basement air ranging from approximately 58-138ppb.

During the system off interview with the resident, he mentioned that the large crack in the front window of the house had appeared during the earthquake in fall of 2011 and that the brickwork and foundation had split as well. Staff could not verify the existence of foundation cracks visibly as the basement walls were finished with sheet rock.

The "system off" samples were collected June 7, 2013. Weather was rainy with a slight breeze. During the interior PPB RAE survey while retrieving the sample canisters, VOC readings ranging from 177-275ppb were recorded within the main room of the basement. No changes to the space were visibly evident from the previous day but as the resident and field tech were leaving, the resident lit a large stick of incense in the upstairs living room and left the house.

Indoor and Ambient Air

The following conclusions were developed based on the annual VMS indoor and ambient air results:

- Benzene was detected in the indoor sample at 5818 Eastern at a concentration of 8.0 $\mu g/m^3$ when the VMS was running (system on), and 8.5 $\mu g/m^3$ seven weeks later when the VMS was not running (system off). Both of these values are above the EPA Conservative Indoor Air Standard for benzene of 8 $\mu g/m^3$. It was verified that the VMS was functioning properly with an Omniguard differential pressure meter tied into ports above and below the slab. Benzene was not detected at a detection limit of 3.7 $\mu g/m^3$ in the soil vapor collected below the basement slab and was not detected in the outside (ambient) air. Additionally, the technicians who arrived to collect the system-off sample noticed a strong odor of burning incense emanating from the doorway. The absence of benzene from the soil vapor beneath the concrete slab (stack or sub-slab samples) and the observations made by field staff strongly suggest that the benzene detected in the basement of 5818 was the result of activities within the household and therefore was likely not the result of vapor intrusion;

- With the exception of the benzene concentrations detected in the system on and the system off samples for 5818 Eastern Avenue, analytical results for all indoor air samples were less than the indoor air standards identified by EPA in correspondence to Chevron dated June 20, 2007 and the "Final Decision and Response to Comments" (EPA, 2008a) (Table 2);

- The results of samples obtained while the VMS were powered off were comparable to those obtained while the VMS were operating.

Discharge Stack Soil Vapor

The analytical results for sub-slab soil vapor collected from the discharge stack prior to VMS reactivation revealed very low detections of BTEX and no MTBE at 5818 Eastern Avenue.

The compound 1,1-difluoroethane was used as a tracer compound to check for the presence of leakage of ambient air into the sample during discharge stack soil vapor sampling at all residences. Paper towels were saturated with duster spray containing 1,1-difluoroethane and positioned around the sampling port on the discharge stack while sampling took place. Thus, an elevated detection of 1,1-difluoroethane would be considered indicative of potential leakage during sampling.

The tracer compound 1,1-difluoroethane was detected at 25 $\mu g/m^3$ which is above the laboratory reporting limits of 13 $\mu g/m^3$ in the discharge stack soil vapor samples collected at 5818 Eastern Avenue; therefore, this may be an indication that a very minor leak occurred during sampling.

This result is consistent with observations regarding the sample port feeling loose. Based upon the non-detect result for the tracer at 5824 Eastern Avenue, the use of modeling clay from previous years appeared to be effective and is recommended during future sampling events (if required) to ensure an adequate seal where connections no longer appear to be airtight. The analytical results for this residence were similar to previous years and well below the EPA Indoor Air Standards.

Radon Sampling

Radon concentrations in the soil vapor have been historically higher than indoor and outdoor concentrations at each of the residences (Table 3). An attenuation factor was calculated using the analytical results for the indoor, outdoor, and soil vapor radon samples for each residence. The low attenuation factors suggest that the basement slabs are an effective barrier against vapor intrusion.

Differential Pressure and Air Flow Rate Measurements

Differential pressure monitoring completed at 5818 Eastern Avenue during the "system on" sampling event indicated the presence of a positive differential pressure (+0.006) in the sub-slab relative to outdoor air (Table 4). This result failed to achieve the sub-slab depressurization goal established by EPA (-0.016). The positive differential pressure result indicated that the flow of air was from the sub-slab into the residence, thus indicating that the VMS was not functioning properly. Upon restarting of the VMS system, readings were taken an hour after the system was restarted and the differential pressure meter showed a reading of (-0.002) which indicated that the VMS was generating positive indoor pressure.

System Effectiveness and Remedial Endpoint

Based on Section 5.7 of the approved Interim Measures Work Plan for Vapor Sampling and Mitigation (Gannett Fleming, 2008), if the data trend over three consecutive years suggests that continuous operation of any vapor mitigation system installed is no longer necessary to protect human health, Chevron may petition EPA for system termination review.

Chevron requests that operation and monitoring of the VMS at 5818 Eastern Avenue be discontinued for the following reasons:

- Chevron has operated and maintained the vapor mitigation systems for a period of approximately 3.5 years from the date of initial operation;

- Chevron has performed three annual system monitoring sampling events at 5818 Eastern Avenue during the time of year when vapor intrusion would be most prevalent.

- Soil vapor concentrations below the residences are well below the EPA Indoor Air Standards. Considering that the basement slab at these residences has been proven to attenuate vapor intrusion using the radon sampling results, it is very unlikely that the EPA Indoor Air Standards would ever be exceeded even if the systems were turned off permanently.

If termination of Chevron's operation is approved, the residence owner will be consulted to determine whether the system will be removed from the building or left in place. If the residence owner requests in writing that Chevron remove the system, Chevron will remove the system at its expense. If the residence owner requests in writing that the system be left in place, Chevron will not remove the system and the residence owner will be responsible for all costs associated with further maintenance and operation of the system.

Please contact the undersigned at (713) 432-2142 if you have any questions or need additional information.

Sincerely,

Robert Speer, P.E.
Project Manager

cc: R. Montero, DDOE
Residents

Attachments

Tables:

Table 1. Summary of Samples Collected
Table 2. Air and Soil Vapor Results
Table 3. Radon Analysis
Table 4. Differential Pressure Measurements

Air Toxics, Ltd. Laboratory Analytical Reports

References:

American Society for Testing and Materials (ASTM International), 2003. Standard Practice for Installing Radon Mitigation Systems in Existing LowRise Residential Buildings. Designation: E 2121-03. February 2003.

Gannett Fleming, 2008. Interim Measures Work Plan for Vapor Sampling and Mitigation at Residences, Former Chevron Facility 122208, 5801 Riggs Road, Chillum, Maryland. Dated July 2008.

U.S. Environmental Protection Agency (EPA), 2008a. Final Decision and Response to Comments, Chevron Gasoline Release at Chillum, Maryland. Dated April 3, 2008.

U.S. Environmental Protection Agency (EPA), 2008b. Indoor Air Vapor Intrusion Mitigation Approaches. Office of Research and Development National Risk Management Research Laboratory. Dated October 2008.

TABLES

Table 1. Summary of Samples Collected in 2013
Annual Vapor Mitigation System Sampling
Former Chevron Facility 122208
5801 Riggs Road, Chillum, Maryland

Residence	Sample ID	Date Collected	Parameters Analyzed	Sample Description
5818 Eastern Avenue	5818EasternAve(ON)	4/18/2013	TO-15	6-L Summa 24-hour sample in house basement with VMS system on
	5818EasternAve(A)(ON)	4/18/2013	TO-15	6-L Summa 24-hour sample in front yard of property with VMS system on
	5818Eastern(AOFF)2013	6/7/2013	TO-15	6-L Summa 24-hour sample in house basement with VMS system off
	5818Eastern(OFF)CL2013	6/7/2013	TO-15	6-L Summa 24-hour sample in house front yard with VMS system off
	5818Eastern(OFF)Stack2013	6/7/2013	TO-15	6-L Summa 24-hour sample taken from VMS stack with VMS system off
	5818Eastern(OFF)2013	6/7/2013	TO-15	6-L Summa 24-hour sample taken from VMS stack with VMS system off

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Table 2. Air and Soil Vapor Results
Annual Vapor Mitigation System Sampling
Former Chevron Facility 122208
5801 Riggs Road, Chillum, Maryland

Chevron

Residence	Compound	Year Sampled	EPA Standards[1] ($\mu g/m^3$)	System ON		System OFF			
				Indoor ($\mu g/m^3$)	Ambient ($\mu g/m^3$)	Indoor ($\mu g/m^3$)	Co-Located	Ambient ($\mu g/m^3$)	Discharge Stack (sub-slab) ($\mu g/m^3$)
746 Oglethorpe Street	Benzene	2010	8	0.64	0.69	1.1	NS	0.85	<3.6
		2011		0.63	<0.8	0.66	0.74	<1.2	<8
		2012		0.88	0.9	0.57	1.6	0.56	<4.1
	Toluene	2010	5,000	1.4	0.7	2.2	NS	1.5	<4.2
		2011		1.4	<0.94	1.5	1.8	1.9	<9.5
		2012		2.4	3	2	3	0.87	<4.9
	Ethylbenzene	2010	1,000	<0.69	<0.69	<0.75	NS	<0.70	<4.8
		2011		<0.69	<1.1	<0.7	<0.76	<1.6	<11
		2012		<0.74	<0.62	<0.67	<0.73	<0.73	<5.6
	Total Xylenes	2010	100	<1.38	<1.38	1.5	NS	<1.4	<9.6
		2011		1.1	<2.2	1.2	1.2	<3.2	<22
		2012		1.84	1.1	1.23	1.93	1.46	1.12
	MTBE	2010	17	<0.57	<0.57	<0.62	NS	<0.58	<4.0
		2011		<0.57	<0.9	<0.58	<0.63	<1.3	<9.1
		2012		<0.62	1.14	1.23	0.6	<0.60	<4.6
	1,1-Difluoroethane	2010	None Established	NA	NA	NA	NS	NA	NA
		2011		NA	NA	NA	NA	NA	52,000
		2012		NA	NA	NA	NA	NA	670
5818 Eastern Avenue[2]	Benzene	2011	8	3.4	0.6	2.1	NS	0.59	<3.7
		2012		12	0.54	16	NS	0.56	<3.9
		2013		8.0	0.60	8.5	6.9	ND	ND
	Toluene	2011	5,000	12	0.87	8.6	NS	0.85	<4.4
		2012		65	1.1	96	NS	1.3	<4.6
		2013		18	1.1	18	16	ND	6.2
	Ethylbenzene	2011	1,000	2.2	<0.62	1.6	NS	<0.61	<5
		2012		16	<0.69	20	NS	<0.67	<5.2
		2013		3.4	<0.70	ND	ND	ND	ND
	Total Xylenes	2011	100	10.4	<1.24	7.3	NS	<1.22	<10
		2012		75	<1.38	90	NS	<1.34	23.7
		2013		15.6	<1.40	9.2	6.8	ND	8
	MTBE	2011	17	<0.56	<0.52	<1.1	NS	<0.51	<4.2
		2012		<0.62	<0.57	<1.2	NS	<0.56	<4.4
		2013		<0.57	<0.58	ND	ND	ND	ND
	1,1-Difluoroethane	2011	None Established	NA	NA	NA	NS	NA	<12
		2012		NA	NA	NA	NS	NA	<13
		2013		NA	NA	NA	NA	NA	25

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Table 2. Air and Soil Vapor Results
Annual Vapor Mitigation System Sampling
Former Chevron Facility 122208
5801 Riggs Road, Chillum, Maryland

Chevron

Residence	Compound	Year Sampled	EPA Standards[1] ($\mu g/m^3$)	System ON		System OFF			
				Indoor ($\mu g/m^3$)	Ambient ($\mu g/m^3$)	Indoor ($\mu g/m^3$)	Co-Located	Ambient ($\mu g/m^3$)	Discharge Stack (sub-slab) ($\mu g/m^3$)
5824 Eastern Avenue	Benzene	2010	8	0.76	0.79	1.3	1.2	1.1	<3.8
		2011		<5.1	<0.52	0.58	NS	<0.48	<3.9
		2012		0.86	0.82	0.92	NS	0.55	<4.0
	Toluene	2010	5,000	1.8	1.1	3.7	3.5	2.8	<4.4
		2011		<6.1	0.63	2.7	NS	0.6	<4.6
		2012		1.8	1.6	1.2	NS	0.61	<4.7
	Ethylbenzene	2010	1,000	<0.76	<0.71	<0.76	<0.89	<0.70	<5.1
		2011		<7	<0.71	<0.72	NS	<0.65	<5.2
		2012		<0.76	<0.66	<0.78	NS	<0.70	<5.5
	Total Xylenes	2010	100	<1.52	<1.42	3.17	1.5	1.6	<10.2
		2011		<14	<1.42	0.81	NS	<1.30	<10.4
		2012		1.55	<.46	<1.56	NS	<1.4	11
	MTBE	2010	17	<0.63	<0.59	<0.63	<0.74	<0.58	<4.2
		2011		<5.8	<0.59	<0.59	NS	<0.54	<4.4
		2012		<0.63	<0.55	<0.64	NS	<0.58	<4.5
	1,1-Difluoroethane	2010	None Established	NA	NA	NA	NA	NA	NA
		2011		NA	NA	NA	NS	NA	<13
		2012		NA	NA	NA	NS	NA	<14

Abbreviations:

NA: Not analyzed
NS: Not sampled
ND: Not detected
$\mu g/m^3$: micrograms per meter cubed
<: less than the reporting limit

Notes:

1. Indoor air standards identified by EPA in correspondence to Chevron dated June 20, 2007 and the "Final Decision and Response to Comments" (EPA, 2008)
2. No samples were collected at 5818 Eastern Avenue in 2010 because the resident denied access.
3. Only discharge stack (sub-slab soil vapor samples) are analyzed for 1,1-Difluoroethane, which is used as a tracer compound to detect sample train leakage.

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Chevron

Table 3. Radon Analysis
Annual Vapor Mitigation System Sampling
Former Chevron Facility 122208
5801 Riggs Road, Chillum, Maryland

Residence	Year Sampled	Indoor Air (pCi/L)	Outdoor Air (pCi/L)	Soil Vapor (pCi/L)	Attenuation Factor
746 Oglethorpe Street	2010	0.24	0.02	4.8	0.046
	2011	0.33	0.06	2.6	0.127
	2012	0.41	0.09	10.3	0.040
5818 Eastern Avenue	2011	NS	NS	NS	-
	2012	0.56	0.05	NS	-
	2013	5.90	0.07	87	0.0678
5824 Eastern Avenue	2010	0.23	0.12	226	0.001
	2011	0.59	0	256	0.0023
	2012	0.32	0.02	270	0.0012

Abbreviations:

pCi/L: Picocuries per liter
NS: Not sampled

Notes:

1) Samples were collected in two tedlar bags at each location and analyzed separately. The values that resulted in the highest attenuation factor were used.
2) The laboratory performed analysis of co-located samples for 746OGLE(OFF)2012. The highest resulting concentration per sample location was presented in this table.
3) During the 2011 sampling event, no samples were collected at 5818 Eastern Avenue for radon analysis.
4) During the 2012 sampling event, no soil vapor sample was collected at 5818 Eastern Avenue for radon analysis.

Table 4. Differential Pressure Measurements
Annual Vapor Mitigation System Sampling
Former Chevron Facility 122208
5801 Riggs Road, Chillum, Maryland

Residence	Date	Time	VMS Status	Measurement (in.WC)
5818 Eastern Avenue	5/9/2012	10:32 AM	ON	+0.006
5818 Eastern Avenue	4/18/2013	9:40 AM	ON	+0.006
5818 Eastern Avenue	6/7/2013	11:45 AM	ON	-0.002
			EPA Sub-Slab Depressurization Goal	-0.016
			ASTM Sub-Slab Depressurization Goal	-0.025

Abbreviations:
in. WC: inches of water column

Notes:
1) Measurements were collected using an Omniguard 4 differential pressure recorder.

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LAB REPORTS

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5/3/2013
Mr. Brent Chapman
Gannett Fleming
7133 Rutherford Road
Suite 300
Baltimore MD 21244

Project Name: Chillum
Project #: 122208
Workorder #: 1304454

Dear Mr. Brent Chapman

The following report includes the data for the above referenced project for sample(s) received on 4/19/2013 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

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WORK ORDER #: 1304454

Work Order Summary

CLIENT:	Mr. Brent Chapman Gannett Fleming 7133 Rutherford Road Suite 300 Baltimore, MD 21244	**BILL TO:**	Accounts Payable Gannett Fleming 7133 Rutherford Road Suite 300 Baltimore, MD 21244
PHONE:	443-348-2017	**P.O. #**	56755
FAX:	410-298-3940	**PROJECT #**	122208 Chillum
DATE RECEIVED:	04/19/2013	**CONTACT:**	Ausha Scott
DATE COMPLETED:	05/03/2013		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	5818EasternAve(ON)	Modified TO-15	5.5 "Hg	4.4 psi
02A	5818EasternAve(A)(ON)	Modified TO-15	5.2 "Hg	5 psi
03A	Lab Blank	Modified TO-15	NA	NA
04A	CCV	Modified TO-15	NA	NA
05A	LCS	Modified TO-15	NA	NA
05AA	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 05/03/13

Technical Director

Certification numbers: AZ Licensure AZ0775, CA NELAP - 12282CA, NY NELAP - 11291,
TX NELAP - T104704434-12-4, UT NELAP CA009332012-3, WA NELAP - C935
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2012, Expiration date: 10/17/2013.
Eurofins Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Gannett Fleming
Workorder# 1304454

Two 6 Liter Summa Canister (100% Certified) samples were received on April 19, 2013. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: 5818EasternAve(ON)

Lab ID#: 1304454-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.53	0.79	2.6
Chloromethane	0.16	1.7	0.33	3.5
1,3-Butadiene	0.16	2.2	0.35	4.9
Freon 11	0.16	0.22	0.89	1.2
Ethanol	0.80	820 E	1.5	1500 E
Acetone	0.80	28	1.9	67
2-Propanol	0.80	20	2.0	49
Hexane	0.16	3.5	0.56	12
2-Butanone (Methyl Ethyl Ketone)	0.80	1.6	2.3	4.7
Chloroform	0.16	1.3	0.78	6.3
Cyclohexane	0.16	0.92	0.55	3.2
2,2,4-Trimethylpentane	0.80	1.6	3.7	7.7
Benzene	0.16	2.5	0.51	8.0
1,2-Dichloroethane	0.16	0.85	0.64	3.4
Heptane	0.16	1.3	0.65	5.3
Bromodichloromethane	0.16	0.21	1.1	1.4
Toluene	0.16	4.9	0.60	18
Ethyl Benzene	0.16	0.78	0.69	3.4
m,p-Xylene	0.16	2.6	0.69	11
o-Xylene	0.16	1.0	0.69	4.6
Styrene	0.16	0.25	0.68	1.1
Propylbenzene	0.16	0.17	0.78	0.84
4-Ethyltoluene	0.16	0.74	0.78	3.6
1,3,5-Trimethylbenzene	0.16	0.28	0.78	1.4
1,2,4-Trimethylbenzene	0.16	0.85	0.78	4.2

Client Sample ID: 5818EasternAve(A)(ON)

Lab ID#: 1304454-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.62	0.80	3.1
Chloromethane	0.16	0.64	0.33	1.3
Freon 11	0.16	0.25	0.91	1.4

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Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: 5818EasternAve(A)(ON)

Lab ID#: 1304454-02A

Ethanol	0.81	3.5	1.5	6.6
Acetone	0.81	6.8	1.9	16
Benzene	0.16	0.19	0.52	0.60
Toluene	0.16	0.30	0.61	1.1

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Client Sample ID: 5818EasternAve(ON)

Lab ID#: 1304454-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042908**	**Date of Collection:**	**4/18/13 9:10:00 AM**
Dil. Factor:	**1.59**	**Date of Analysis:**	**4/29/13 01:43 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.53	0.79	2.6
Freon 114	0.16	Not Detected	1.1	Not Detected
Chloromethane	0.16	1.7	0.33	3.5
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,3-Butadiene	0.16	2.2	0.35	4.9
Bromomethane	0.80	Not Detected	3.1	Not Detected
Chloroethane	0.80	Not Detected	2.1	Not Detected
Freon 11	0.16	0.22	0.89	1.2
Ethanol	0.80	820 E	1.5	1500 E
Freon 113	0.16	Not Detected	1.2	Not Detected
1,1-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Acetone	0.80	28	1.9	67
2-Propanol	0.80	20	2.0	49
Carbon Disulfide	0.80	Not Detected	2.5	Not Detected
3-Chloropropene	0.80	Not Detected	2.5	Not Detected
Methylene Chloride	0.32	Not Detected	1.1	Not Detected
Methyl tert-butyl ether	0.16	Not Detected	0.57	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Hexane	0.16	3.5	0.56	12
1,1-Dichloroethane	0.16	Not Detected	0.64	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.80	1.6	2.3	4.7
cis-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Tetrahydrofuran	0.80	Not Detected	2.3	Not Detected
Chloroform	0.16	1.3	0.78	6.3
1,1,1-Trichloroethane	0.16	Not Detected	0.87	Not Detected
Cyclohexane	0.16	0.92	0.55	3.2
Carbon Tetrachloride	0.16	Not Detected	1.0	Not Detected
2,2,4-Trimethylpentane	0.80	1.6	3.7	7.7
Benzene	0.16	2.5	0.51	8.0
1,2-Dichloroethane	0.16	0.85	0.64	3.4
Heptane	0.16	1.3	0.65	5.3
Trichloroethene	0.16	Not Detected	0.85	Not Detected
1,2-Dichloropropane	0.16	Not Detected	0.73	Not Detected
1,4-Dioxane	0.16	Not Detected	0.57	Not Detected
Bromodichloromethane	0.16	0.21	1.1	1.4
cis-1,3-Dichloropropene	0.16	Not Detected	0.72	Not Detected
4-Methyl-2-pentanone	0.16	Not Detected	0.65	Not Detected
Toluene	0.16	4.9	0.60	18
trans-1,3-Dichloropropene	0.16	Not Detected	0.72	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.87	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
2-Hexanone	0.80	Not Detected	3.2	Not Detected

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Client Sample ID: 5818EasternAve(ON)

Lab ID#: 1304454-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042908**	**Date of Collection:**	**4/18/13 9:10:00 AM**
Dil. Factor:	**1.59**	**Date of Analysis:**	**4/29/13 01:43 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.16	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.2	Not Detected
Chlorobenzene	0.16	Not Detected	0.73	Not Detected
Ethyl Benzene	0.16	0.78	0.69	3.4
m,p-Xylene	0.16	2.6	0.69	11
o-Xylene	0.16	1.0	0.69	4.6
Styrene	0.16	0.25	0.68	1.1
Bromoform	0.16	Not Detected	1.6	Not Detected
Cumene	0.16	Not Detected	0.78	Not Detected
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
Propylbenzene	0.16	0.17	0.78	0.84
4-Ethyltoluene	0.16	0.74	0.78	3.6
1,3,5-Trimethylbenzene	0.16	0.28	0.78	1.4
1,2,4-Trimethylbenzene	0.16	0.85	0.78	4.2
1,3-Dichlorobenzene	0.16	Not Detected	0.96	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.96	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.82	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.96	Not Detected
1,2,4-Trichlorobenzene	0.80	Not Detected	5.9	Not Detected
Hexachlorobutadiene	0.80	Not Detected	8.5	Not Detected

E = Exceeds instrument calibration range.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: 5818EasternAve(A)(ON)

Lab ID#: 1304454-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042907**	**Date of Collection:**	**4/18/13 8:57:00 AM**
Dil. Factor:	**1.62**	**Date of Analysis:**	**4/29/13 01:07 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.62	0.80	3.1
Freon 114	0.16	Not Detected	1.1	Not Detected
Chloromethane	0.16	0.64	0.33	1.3
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,3-Butadiene	0.16	Not Detected	0.36	Not Detected
Bromomethane	0.81	Not Detected	3.1	Not Detected
Chloroethane	0.81	Not Detected	2.1	Not Detected
Freon 11	0.16	0.25	0.91	1.4
Ethanol	0.81	3.5	1.5	6.6
Freon 113	0.16	Not Detected	1.2	Not Detected
1,1-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Acetone	0.81	6.8	1.9	16
2-Propanol	0.81	Not Detected	2.0	Not Detected
Carbon Disulfide	0.81	Not Detected	2.5	Not Detected
3-Chloropropene	0.81	Not Detected	2.5	Not Detected
Methylene Chloride	0.32	Not Detected	1.1	Not Detected
Methyl tert-butyl ether	0.16	Not Detected	0.58	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Hexane	0.16	Not Detected	0.57	Not Detected
1,1-Dichloroethane	0.16	Not Detected	0.66	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.81	Not Detected	2.4	Not Detected
cis-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Tetrahydrofuran	0.81	Not Detected	2.4	Not Detected
Chloroform	0.16	Not Detected	0.79	Not Detected
1,1,1-Trichloroethane	0.16	Not Detected	0.88	Not Detected
Cyclohexane	0.16	Not Detected	0.56	Not Detected
Carbon Tetrachloride	0.16	Not Detected	1.0	Not Detected
2,2,4-Trimethylpentane	0.81	Not Detected	3.8	Not Detected
Benzene	0.16	0.19	0.52	0.60
1,2-Dichloroethane	0.16	Not Detected	0.66	Not Detected
Heptane	0.16	Not Detected	0.66	Not Detected
Trichloroethene	0.16	Not Detected	0.87	Not Detected
1,2-Dichloropropane	0.16	Not Detected	0.75	Not Detected
1,4-Dioxane	0.16	Not Detected	0.58	Not Detected
Bromodichloromethane	0.16	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	0.74	Not Detected
4-Methyl-2-pentanone	0.16	Not Detected	0.66	Not Detected
Toluene	0.16	0.30	0.61	1.1
trans-1,3-Dichloropropene	0.16	Not Detected	0.74	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.88	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
2-Hexanone	0.81	Not Detected	3.3	Not Detected

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Client Sample ID: 5818EasternAve(A)(ON)

Lab ID#: 1304454-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042907**	**Date of Collection:**	**4/18/13 8:57:00 AM**
Dil. Factor:	**1.62**	**Date of Analysis:**	**4/29/13 01:07 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.16	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.2	Not Detected
Chlorobenzene	0.16	Not Detected	0.74	Not Detected
Ethyl Benzene	0.16	Not Detected	0.70	Not Detected
m,p-Xylene	0.16	Not Detected	0.70	Not Detected
o-Xylene	0.16	Not Detected	0.70	Not Detected
Styrene	0.16	Not Detected	0.69	Not Detected
Bromoform	0.16	Not Detected	1.7	Not Detected
Cumene	0.16	Not Detected	0.80	Not Detected
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
Propylbenzene	0.16	Not Detected	0.80	Not Detected
4-Ethyltoluene	0.16	Not Detected	0.80	Not Detected
1,3,5-Trimethylbenzene	0.16	Not Detected	0.80	Not Detected
1,2,4-Trimethylbenzene	0.16	Not Detected	0.80	Not Detected
1,3-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.84	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
1,2,4-Trichlorobenzene	0.81	Not Detected	6.0	Not Detected
Hexachlorobutadiene	0.81	Not Detected	8.6	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1304454-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042906**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/29/13 11:50 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.10	Not Detected	0.49	Not Detected
Freon 114	0.10	Not Detected	0.70	Not Detected
Chloromethane	0.10	Not Detected	0.21	Not Detected
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,3-Butadiene	0.10	Not Detected	0.22	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.10	Not Detected	0.56	Not Detected
Ethanol	0.50	Not Detected	0.94	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Acetone	0.50	Not Detected	1.2	Not Detected
2-Propanol	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	0.50	Not Detected	1.6	Not Detected
Methylene Chloride	0.20	Not Detected	0.69	Not Detected
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected
trans-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Hexane	0.10	Not Detected	0.35	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.10	Not Detected	0.49	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Cyclohexane	0.10	Not Detected	0.34	Not Detected
Carbon Tetrachloride	0.10	Not Detected	0.63	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.10	Not Detected	0.32	Not Detected
1,2-Dichloroethane	0.10	Not Detected	0.40	Not Detected
Heptane	0.10	Not Detected	0.41	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
1,2-Dichloropropane	0.10	Not Detected	0.46	Not Detected
1,4-Dioxane	0.10	Not Detected	0.36	Not Detected
Bromodichloromethane	0.10	Not Detected	0.67	Not Detected
cis-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
Toluene	0.10	Not Detected	0.38	Not Detected
trans-1,3-Dichloropropene	0.10	Not Detected	0.45	Not Detected
1,1,2-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected
2-Hexanone	0.50	Not Detected	2.0	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1304454-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042906**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/29/13 11:50 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.10	Not Detected	0.85	Not Detected
1,2-Dibromoethane (EDB)	0.10	Not Detected	0.77	Not Detected
Chlorobenzene	0.10	Not Detected	0.46	Not Detected
Ethyl Benzene	0.10	Not Detected	0.43	Not Detected
m,p-Xylene	0.10	Not Detected	0.43	Not Detected
o-Xylene	0.10	Not Detected	0.43	Not Detected
Styrene	0.10	Not Detected	0.42	Not Detected
Bromoform	0.10	Not Detected	1.0	Not Detected
Cumene	0.10	Not Detected	0.49	Not Detected
1,1,2,2-Tetrachloroethane	0.10	Not Detected	0.69	Not Detected
Propylbenzene	0.10	Not Detected	0.49	Not Detected
4-Ethyltoluene	0.10	Not Detected	0.49	Not Detected
1,3,5-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
1,3-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,4-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
alpha-Chlorotoluene	0.10	Not Detected	0.52	Not Detected
1,2-Dichlorobenzene	0.10	Not Detected	0.60	Not Detected
1,2,4-Trichlorobenzene	0.50	Not Detected	3.7	Not Detected
Hexachlorobutadiene	0.50	Not Detected	5.3	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: CCV

Lab ID#: 1304454-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/29/13 08:44 AM**	

Compound	%Recovery
Freon 12	99
Freon 114	97
Chloromethane	95
Vinyl Chloride	102
1,3-Butadiene	98
Bromomethane	110
Chloroethane	106
Freon 11	100
Ethanol	114
Freon 113	97
1,1-Dichloroethene	98
Acetone	105
2-Propanol	108
Carbon Disulfide	103
3-Chloropropene	115
Methylene Chloride	97
Methyl tert-butyl ether	111
trans-1,2-Dichloroethene	104
Hexane	111
1,1-Dichloroethane	102
2-Butanone (Methyl Ethyl Ketone)	104
cis-1,2-Dichloroethene	103
Tetrahydrofuran	107
Chloroform	98
1,1,1-Trichloroethane	100
Cyclohexane	111
Carbon Tetrachloride	118
2,2,4-Trimethylpentane	106
Benzene	100
1,2-Dichloroethane	101
Heptane	112
Trichloroethene	99
1,2-Dichloropropane	97
1,4-Dioxane	110
Bromodichloromethane	102
cis-1,3-Dichloropropene	113
4-Methyl-2-pentanone	116
Toluene	99
trans-1,3-Dichloropropene	116
1,1,2-Trichloroethane	107
Tetrachloroethene	103
2-Hexanone	116

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Client Sample ID: CCV

Lab ID#: 1304454-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/29/13 08:44 AM**	

Compound	%Recovery
Dibromochloromethane	110
1,2-Dibromoethane (EDB)	110
Chlorobenzene	99
Ethyl Benzene	110
m,p-Xylene	112
o-Xylene	115
Styrene	114
Bromoform	118
Cumene	115
1,1,2,2-Tetrachloroethane	104
Propylbenzene	108
4-Ethyltoluene	108
1,3,5-Trimethylbenzene	106
1,2,4-Trimethylbenzene	103
1,3-Dichlorobenzene	98
1,4-Dichlorobenzene	102
alpha-Chlorotoluene	107
1,2-Dichlorobenzene	100
1,2,4-Trichlorobenzene	90
Hexachlorobutadiene	99

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: LCS

Lab ID#: 1304454-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/29/13 09:43 AM**	

Compound	%Recovery
Freon 12	104
Freon 114	101
Chloromethane	88
Vinyl Chloride	109
1,3-Butadiene	104
Bromomethane	104
Chloroethane	104
Freon 11	103
Ethanol	122
Freon 113	101
1,1-Dichloroethene	106
Acetone	105
2-Propanol	110
Carbon Disulfide	129
3-Chloropropene	133 Q
Methylene Chloride	98
Methyl tert-butyl ether	113
trans-1,2-Dichloroethene	123
Hexane	112
1,1-Dichloroethane	102
2-Butanone (Methyl Ethyl Ketone)	107
cis-1,2-Dichloroethene	107
Tetrahydrofuran	103
Chloroform	102
1,1,1-Trichloroethane	106
Cyclohexane	113
Carbon Tetrachloride	117
2,2,4-Trimethylpentane	108
Benzene	102
1,2-Dichloroethane	102
Heptane	107
Trichloroethene	104
1,2-Dichloropropane	100
1,4-Dioxane	110
Bromodichloromethane	104
cis-1,3-Dichloropropene	115
4-Methyl-2-pentanone	119
Toluene	102
trans-1,3-Dichloropropene	114
1,1,2-Trichloroethane	106
Tetrachloroethene	102
2-Hexanone	116

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Client Sample ID: LCS

Lab ID#: 1304454-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/29/13 09:43 AM**	

Compound	%Recovery
Dibromochloromethane	107
1,2-Dibromoethane (EDB)	110
Chlorobenzene	99
Ethyl Benzene	109
m,p-Xylene	114
o-Xylene	114
Styrene	116
Bromoform	113
Cumene	115
1,1,2,2-Tetrachloroethane	102
Propylbenzene	108
4-Ethyltoluene	102
1,3,5-Trimethylbenzene	105
1,2,4-Trimethylbenzene	97
1,3-Dichlorobenzene	98
1,4-Dichlorobenzene	101
alpha-Chlorotoluene	106
1,2-Dichlorobenzene	98
1,2,4-Trichlorobenzene	75
Hexachlorobutadiene	77

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: LCSD

Lab ID#: 1304454-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/29/13 10:25 AM**	

Compound	%Recovery
Freon 12	97
Freon 114	95
Chloromethane	82
Vinyl Chloride	102
1,3-Butadiene	98
Bromomethane	99
Chloroethane	101
Freon 11	98
Ethanol	100
Freon 113	96
1,1-Dichloroethene	101
Acetone	96
2-Propanol	104
Carbon Disulfide	123
3-Chloropropene	129
Methylene Chloride	92
Methyl tert-butyl ether	107
trans-1,2-Dichloroethene	117
Hexane	109
1,1-Dichloroethane	99
2-Butanone (Methyl Ethyl Ketone)	105
cis-1,2-Dichloroethene	102
Tetrahydrofuran	98
Chloroform	98
1,1,1-Trichloroethane	101
Cyclohexane	109
Carbon Tetrachloride	112
2,2,4-Trimethylpentane	105
Benzene	102
1,2-Dichloroethane	102
Heptane	111
Trichloroethene	103
1,2-Dichloropropane	99
1,4-Dioxane	108
Bromodichloromethane	106
cis-1,3-Dichloropropene	114
4-Methyl-2-pentanone	118
Toluene	102
trans-1,3-Dichloropropene	114
1,1,2-Trichloroethane	104
Tetrachloroethene	104
2-Hexanone	118

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Client Sample ID: LCSD

Lab ID#: 1304454-05AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**c042904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 4/29/13 10:25 AM**	

Compound	%Recovery
Dibromochloromethane	108
1,2-Dibromoethane (EDB)	110
Chlorobenzene	102
Ethyl Benzene	110
m,p-Xylene	118
o-Xylene	120
Styrene	122
Bromoform	111
Cumene	118
1,1,2,2-Tetrachloroethane	102
Propylbenzene	115
4-Ethyltoluene	111
1,3,5-Trimethylbenzene	115
1,2,4-Trimethylbenzene	109
1,3-Dichlorobenzene	106
1,4-Dichlorobenzene	110
alpha-Chlorotoluene	114
1,2-Dichlorobenzene	104
1,2,4-Trichlorobenzene	96
Hexachlorobutadiene	90

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	104	70-130

INDOOR AIR BUILDING SURVEY FORM PAGE 1 OF 3

Building Address: 5618 Eastern Avenue

Property Contact: Daniel Mitchel O wner / Renter / other: _____

Contact's Phone: ~~home~~ cell (202) 422 0045 work ( )_____ cell ( )_____

Building occupants: Children under age 13 _____ Children age 13-18 _____ Adults 2

How long in this residence? 2-3 years

History of wet basement or flooding?

No

General Description of Building Construction and Materials:

Brick Exterior

How many occupied stories does the building have? 1
Does someone sleep in the basement? N

Has the building been weatherized with any of the following? (Circle all that apply)
Insulation Storm Windows Energy-Efficient Windows Other (specify) _____

Approximately how much of the basement is below grade level?
Total wall area: 50%
Total wall area in contact with soil: 25%

Basement Floor Description:

Carpeted

Basement Walls Description:

Moisture, water, or wet floors or walls observed or sensed:

No

Is a basement sump present? (Y/N) _____ Sufficient water for sampling? (Y/N) _____
Sump Construction:_____

Does the basement have any observable characteristics that might permit soil vapor entry? (i.e. cracks in concrete, crack at wall/floor, pipe penetrations):

Building address: _____
Date: _____

INDOOR AIR BUILDING SURVEY FORM PAGE 2 OF 3

Heating and Ventilation System(s) Present

What type of heating system(s) are used in this building? (Circle all that apply)

Hot Air Circulation	Heat Pump	Stream Radiation	Wood Stove
Hot Air Radiation	Unvented Kerosene heater	Electric Baseboard	Other (specify) _____

What type(s) of fuel(s) are used in this building? (Circle all that apply)

Natural Gas	Electric	Coal	Other (specify) _____
Fuel Oil	Wood	Solar	

What type of mechanical ventilation systems are present in the building? (Circle all that apply)

Central Air Conditioning	Mechanical Fans	Bathroom Ventilation Fan
Individual Air Conditioning Units	Kitchen Range Hood	Air-to-Air Heat Exchanger
Open windows	Other (specify) _____	

Do any occupants of the building smoke? *Yes* / (No) How often? _____

Has anyone smoked within the building within the last 48 hours? *Yes* / (No) Incense

Do the occupants of the building have their clothes dry-cleaned? *Yes / No*

When were dry-cleaned clothes last brought into the building? Not recently

Have the occupants ever noticed any unusual odors in the building? *Yes* / (No)

Describe (with location): _____

Any known spills of a chemical immediately outside or inside the building? *Yes* / (No)

Describe (with location): _____

Has the building been treated with any insecticides/pesticides? If so, what chemicals are used and how often are they applied? No

Do any of the occupants apply pesticides/herbicides in the yard or garden? If so, what chemicals are used and how often are they applied? No

Any use of chemicals not listed above? *Yes* / No

Building address: _____

Date: _____

INDOOR AIR BUILDING SURVEY FORM PAGE 3 OF 3

Indoor Contaminant Sources

Identify all potential indoor sources found on the first floor and basement levels, the location of the sources, and whether the item was removed from the building at least 48 hours prior to indoor air sampling event.

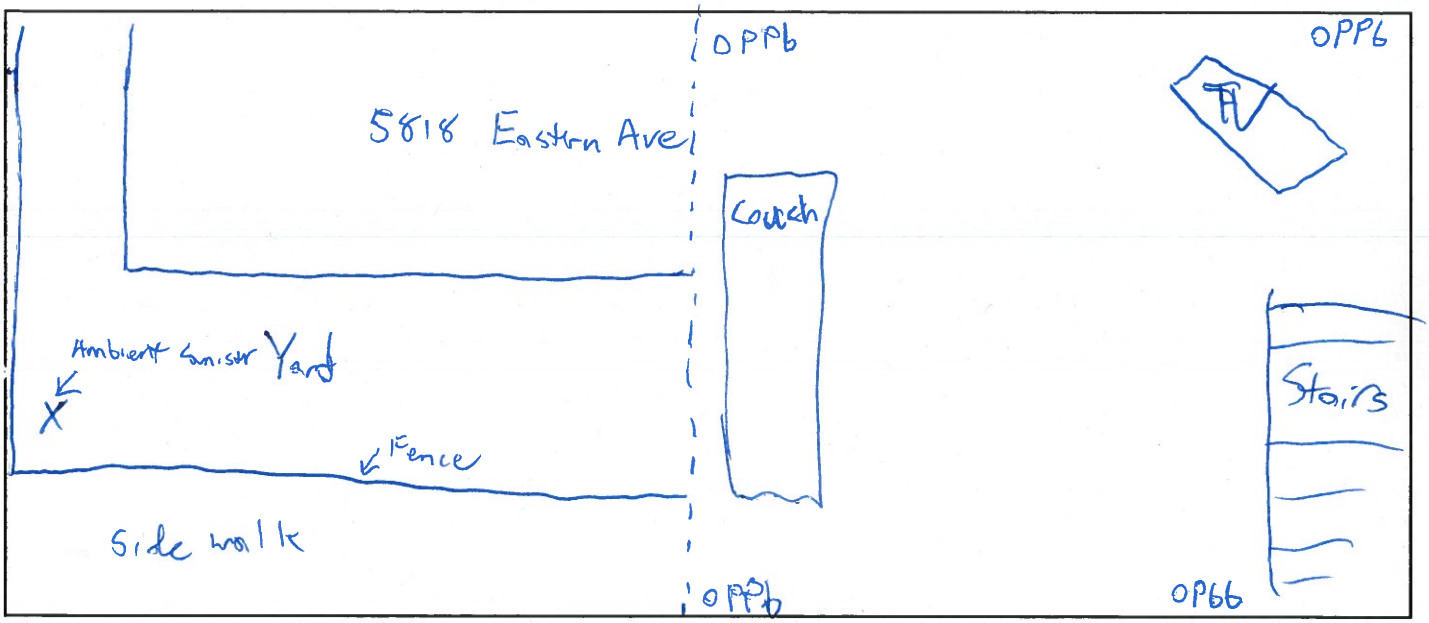
Potential Sources	Location(s)	Removed Prior to Sampling? (Yes / No / NA)
Gasoline storage cans		N
Gas-powered equipment		
Kerosene storage cans		
Paints / thinners / strippers		
Cleaning solvents		
Oven cleaners		
Carpet / upholstery cleaners		
Moth balls		
Polishes / waxes		
Insecticides		
Furniture / floor polish		
Nail polish / polish remover		
Hairspray		
Cologne / perfume		
Air fresheners		
Hobbies - glues, paints, etc.		
Fireplace		NA
Wood stove or kerosene burner		NA
New furniture / upholstery		NA
New carpeting / flooring		NA
Recent painting in building?		NA
Medical Equipment		NA

Sampling Information Form Page 1 of 2

Property Address:

Sample ID	Canister ID	Location	Start Pressure/ Temperature	End Pressure/ Temperature	Sample Start Date / Time	Sample End Date / Time
5818A(ON)	~~11635~~ 34273	Ambient	64°F / 30.18	58.8°F / 30.23	4/17/13 0940	4/18/13 0857
5818(ON)	~~11644~~ 12703	Indoor	72°F / 31.32	72°F / 31.23	4/17/13 0920	4/18/13 0910

Sketch Sample Location(s)



Weather Conditions During Sampling

Outside Temperature (°F): 64° F

Inside Temperature (°F): 73° F

Prevailing wind direction and speed: ESE 2 mph

Describe the general weather conditions (e.g., sunny, cloudy, rain): Sunny

Was there any significant precipitation (greater than 0.1 inches) within 12 hours preceding the sampling event? Yes

Type of ground cover (e.g., grass, pavement, etc.) outside the building: Paved Sidewalk / Grass

Did residents follow instruction provided? (Yes) / No

Oil and Gas for weedeater Stored Downstairs*

1.7 PPL detected in Living Room while arriving premises. Smells of ...

Sampling Information Form Page 2 of 2

If not, describe deviations _____

_____

General Observations

Doors and windows: Closed/Open (circle one)

Mechanical heating system: Operating/Off (circle one)

Mechanical fans: Off/On (circle one)

Additional information pertinent to data interpretation? _____

_____

Sample and survey conducted by: Brad Mowbray Date: 4/17/13

APPENDIX Q

Hydrographs and Trend Graphs

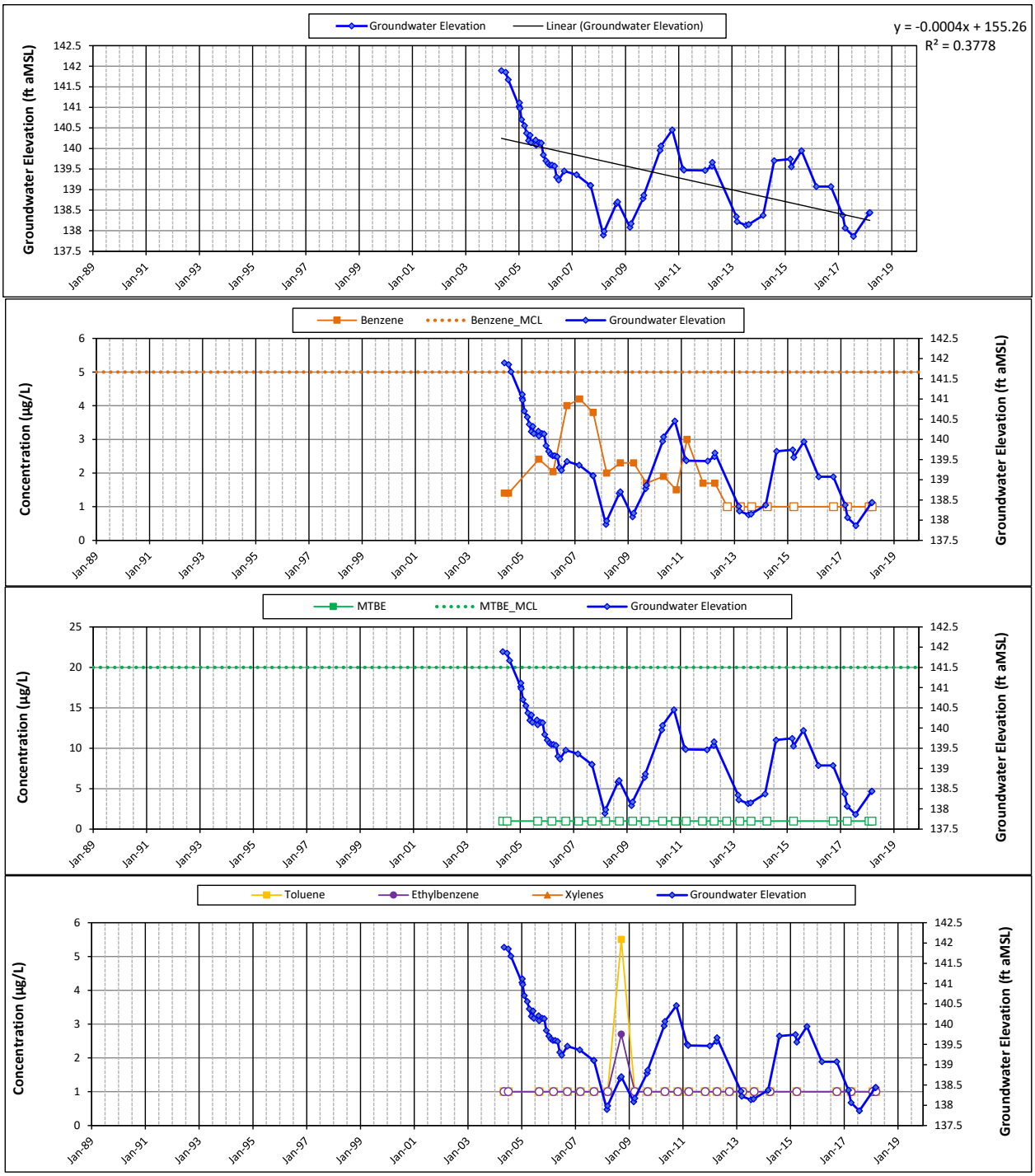
TIME SERIES GRAPHS
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND

Well ID	Area
MW-20	BKGD
MW-21	BKGD
MW-45	BKGD
MW-46	BKGD
GP-24A	A
GP-27R (GP-27A)	A
GP-30R (GP-30A)	A
GP-35A	A
GP-39R (GP-39A)	A
GP-41A	A
GP-44A	A
MP-7	A
MW-1	A
MW-12	A
MW-13	A
MW-15	A
MW-16	A
MW-17	A
MW-18	A
MW-19	A
MW-2	A
MW-22R (MW-22)	A
MW-23	A
MW-3	A
MW-4	A
MW-5	A
MW-6	A
MW-7	A
PTW-B	A
RW-1	A
RW-2	A
RW-3	A
RW-4	A
RW-5	A
VP-4	A
GP-7A(20-25)	B
GP-7A(25-30)	B
GP-7A(30-35)	B
GP-7A(35-40)	B
GP-7A(40-45)	B
ISGR-1 Deep	B
ISGR-1 Shallow	B
ISGR-2 Deep	B
ISGR-2 Shallow	B
MW-24A	B

Well ID	Area
MW-24B	B
MW-30R (MW-30)	B
MW-61A	B
MW-61B	B
MW-62A	B
MW-62B	B
MW-26A	C
MW-26B	C
MW-28A	C
MW-28B	C
MW-33A	C
MW-33B	C
MW-33C	C
MW-33S	C
MW-52	C
MW-58	C
MW-59	C
MW-60	C
GP-11A(20-25)	CLAY
GP-11A(25-30)	CLAY
GP-11A(30-35)	CLAY
GP-11A(35-40)	CLAY
GP-9A(20-25)	CLAY
GP-9A(25-30)	CLAY
GP-9A(30-35)	CLAY
MW-38	CLAY
MW-39R	CLAY
MW-47	EAST-LOT
MW-48	EAST-LOT
MW-49	EAST-LOT
MW-50	EAST-LOT
MW-51	EAST-LOT
GP-2E(45-50)	EAST-RES
GP-2E(50-55)	EAST-RES
GP-2E(55-60)	EAST-RES
GP-2F(45-50)	EAST-RES
GP-2F(50-55)	EAST-RES
MW-25A	EAST-RES
MW-25B	EAST-RES
MW-40	EAST-RES
MW-41A	EAST-RES
MW-41B	EAST-RES
MW-27A	SE-RES
MW-27B	SE-RES
MW-29A	SE-RES

Well ID	Area
MW-29B	SE-RES
MW-34A	SE-RES
MW-34B	SE-RES
MW-44A	SE-RES
MW-44B	SE-RES
MW-53	SE-RES
MW-54	SE-RES
MW-32	SW-RES
MW-31A	WEST-RES
MW-31B	WEST-RES
MW-37	WEST-RES
MW-42	WEST-RES
MW-43A	WEST-RES
MW-43B	WEST-RES
MW-55	WEST-RES

TIME SERIES GRAPHS FOR MW-20
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

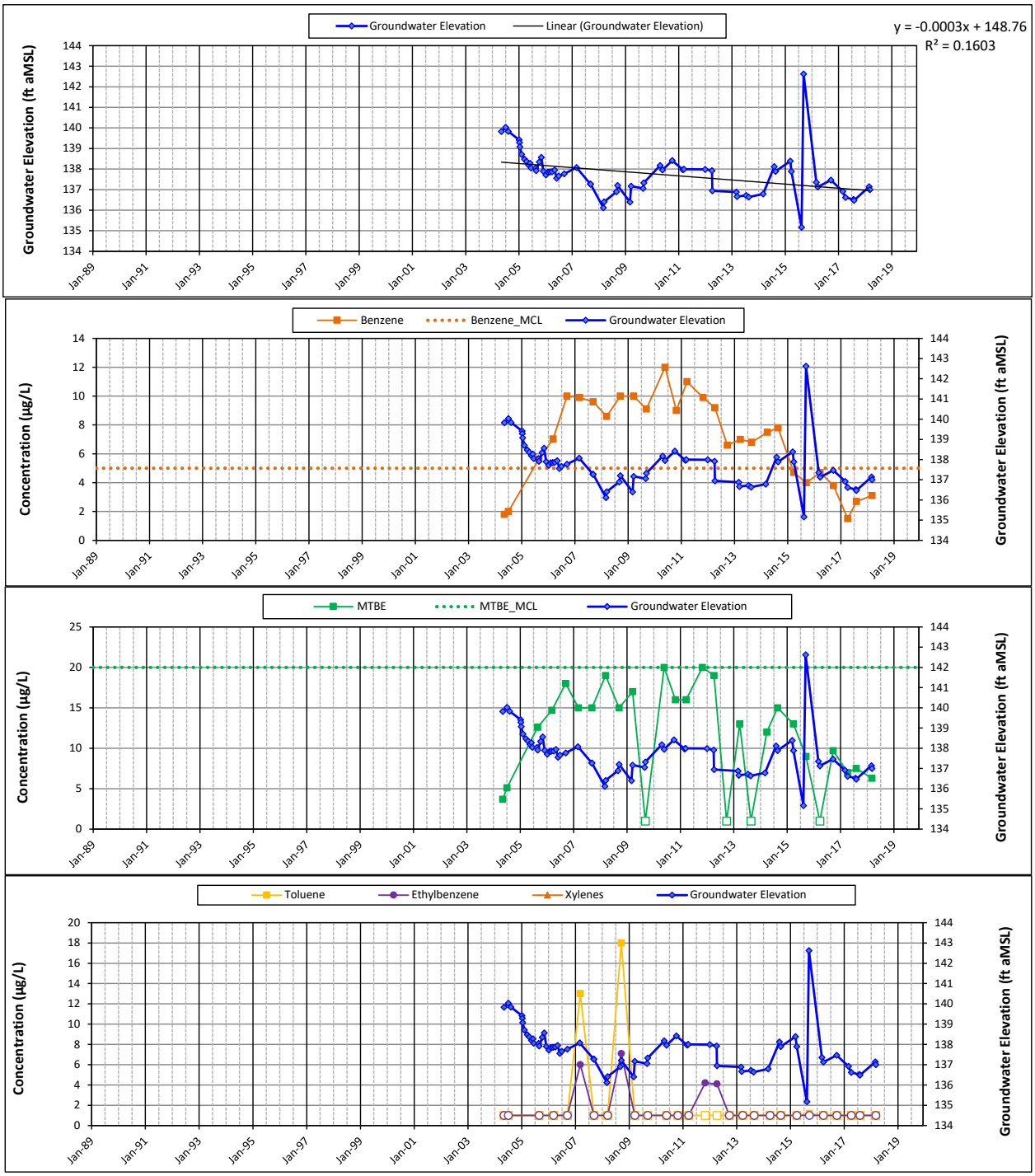
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-21
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

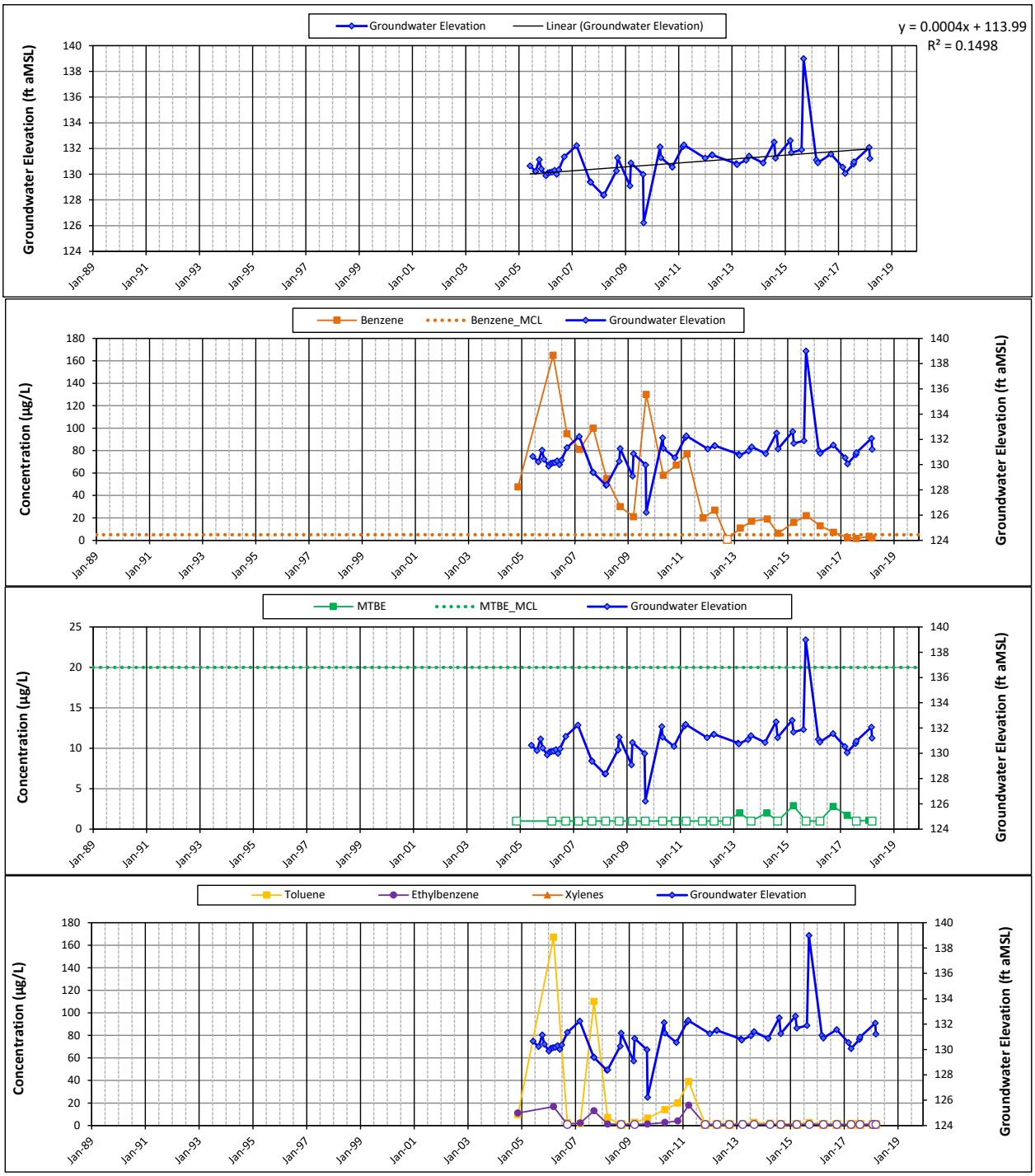
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-45
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

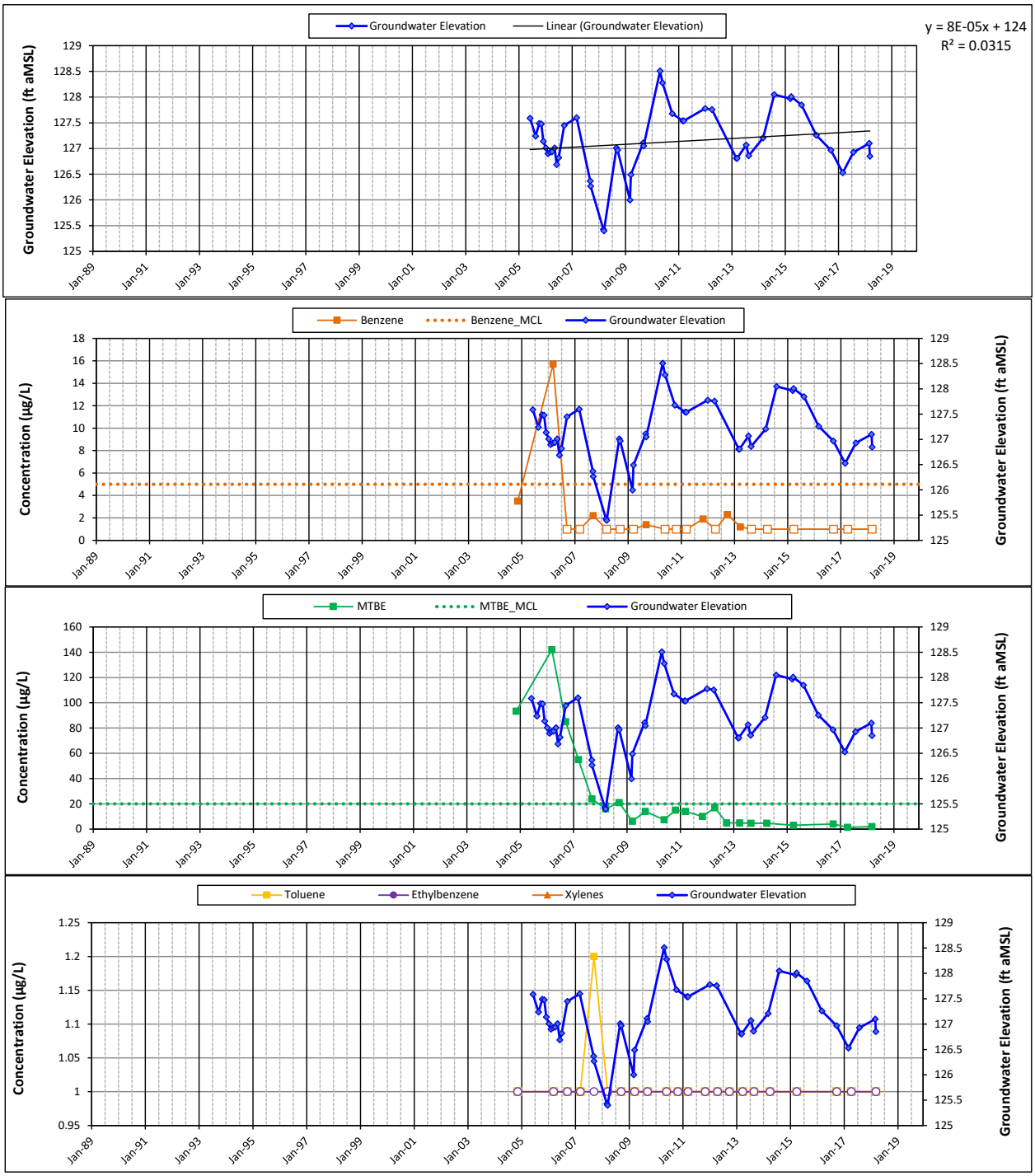
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-46
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

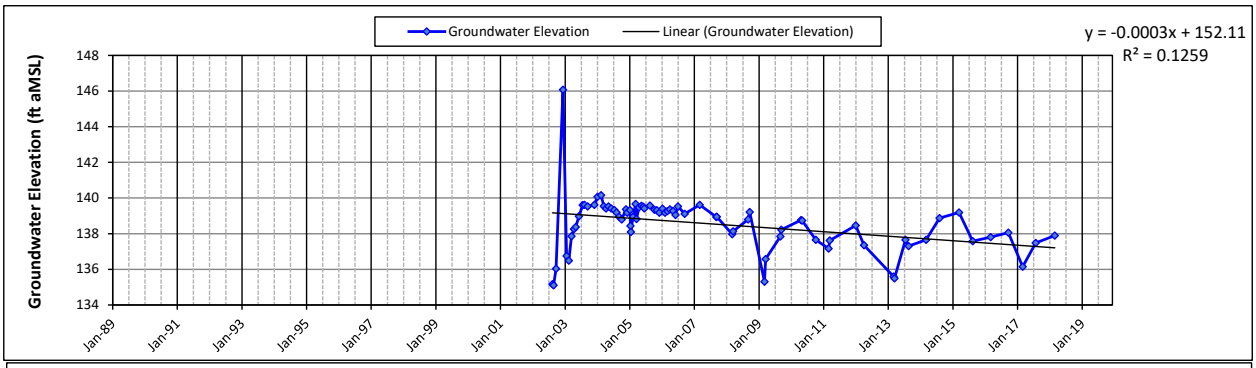
ft aMSL Feet above mean sea level

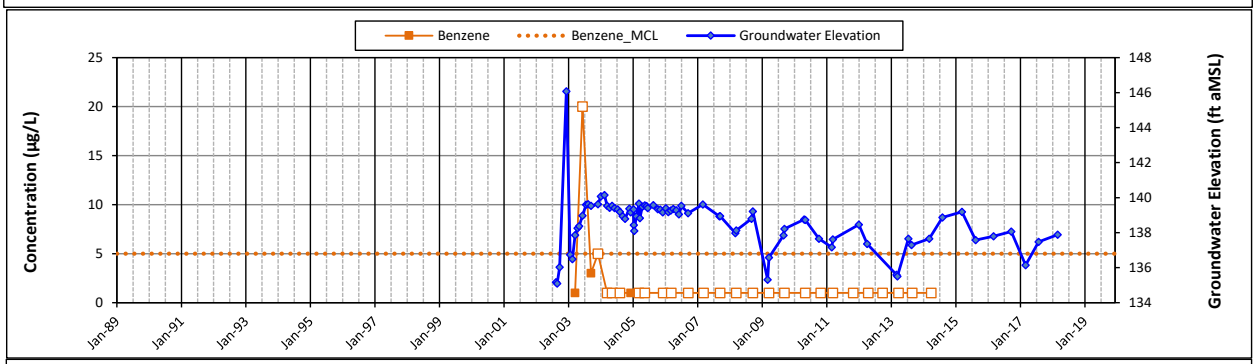
µg/L Micrograms per liter

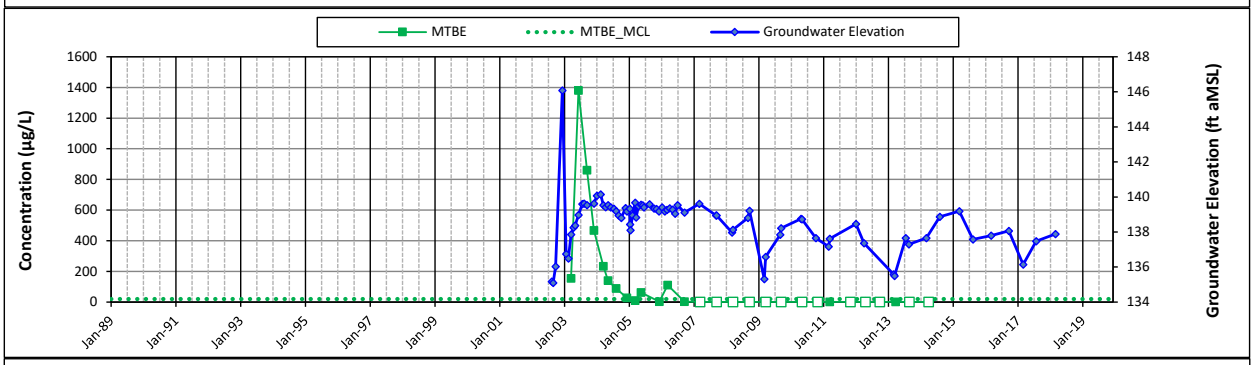
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

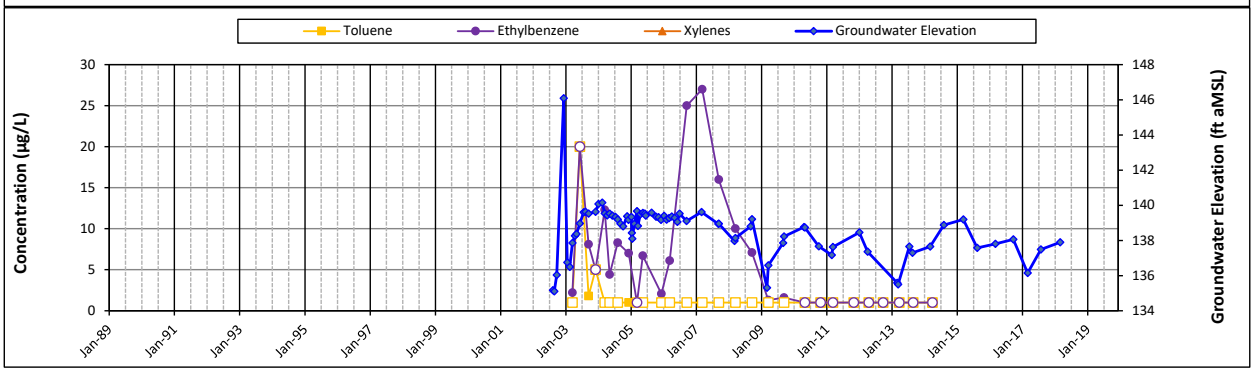
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-24A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

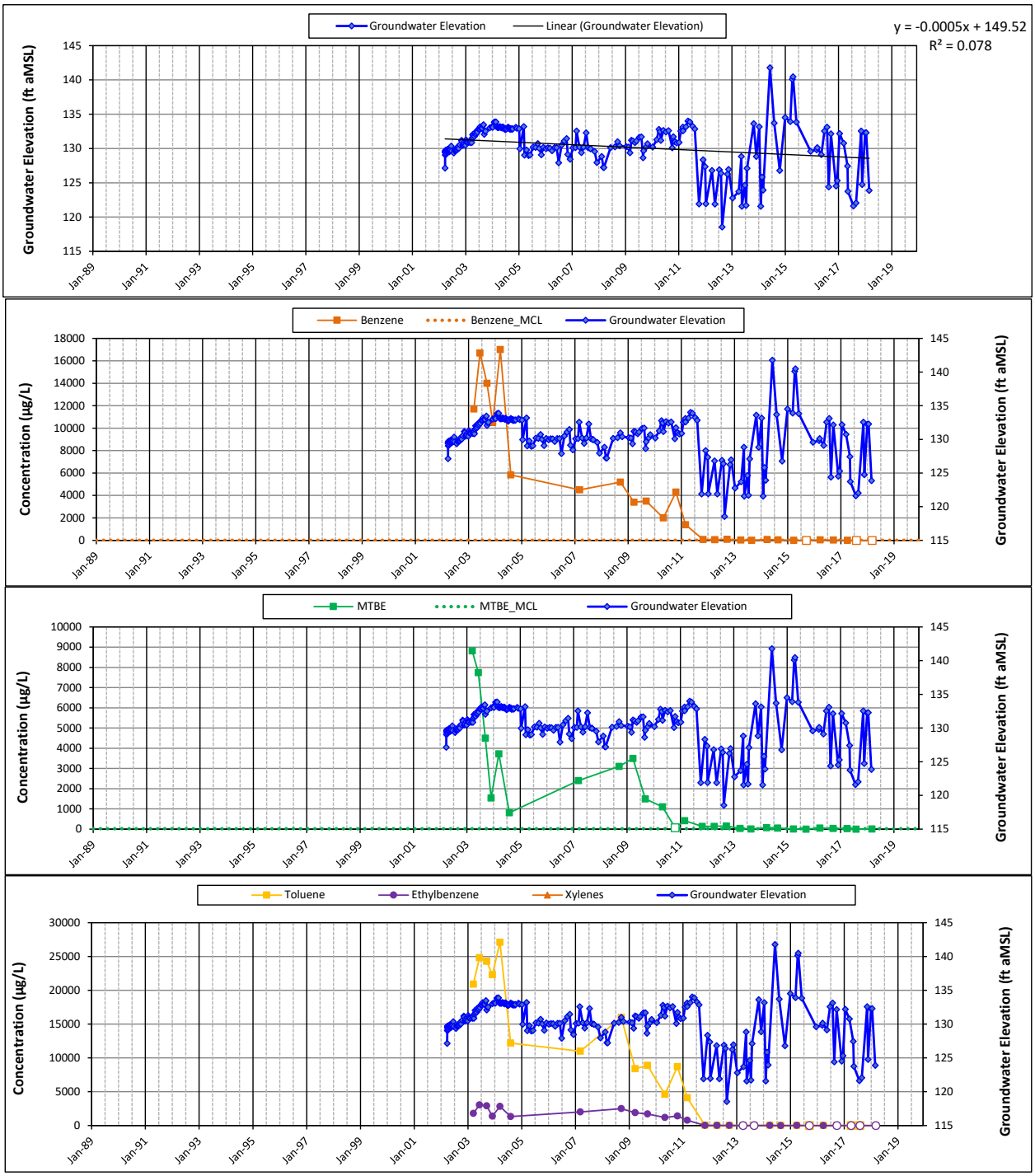
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-27R
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

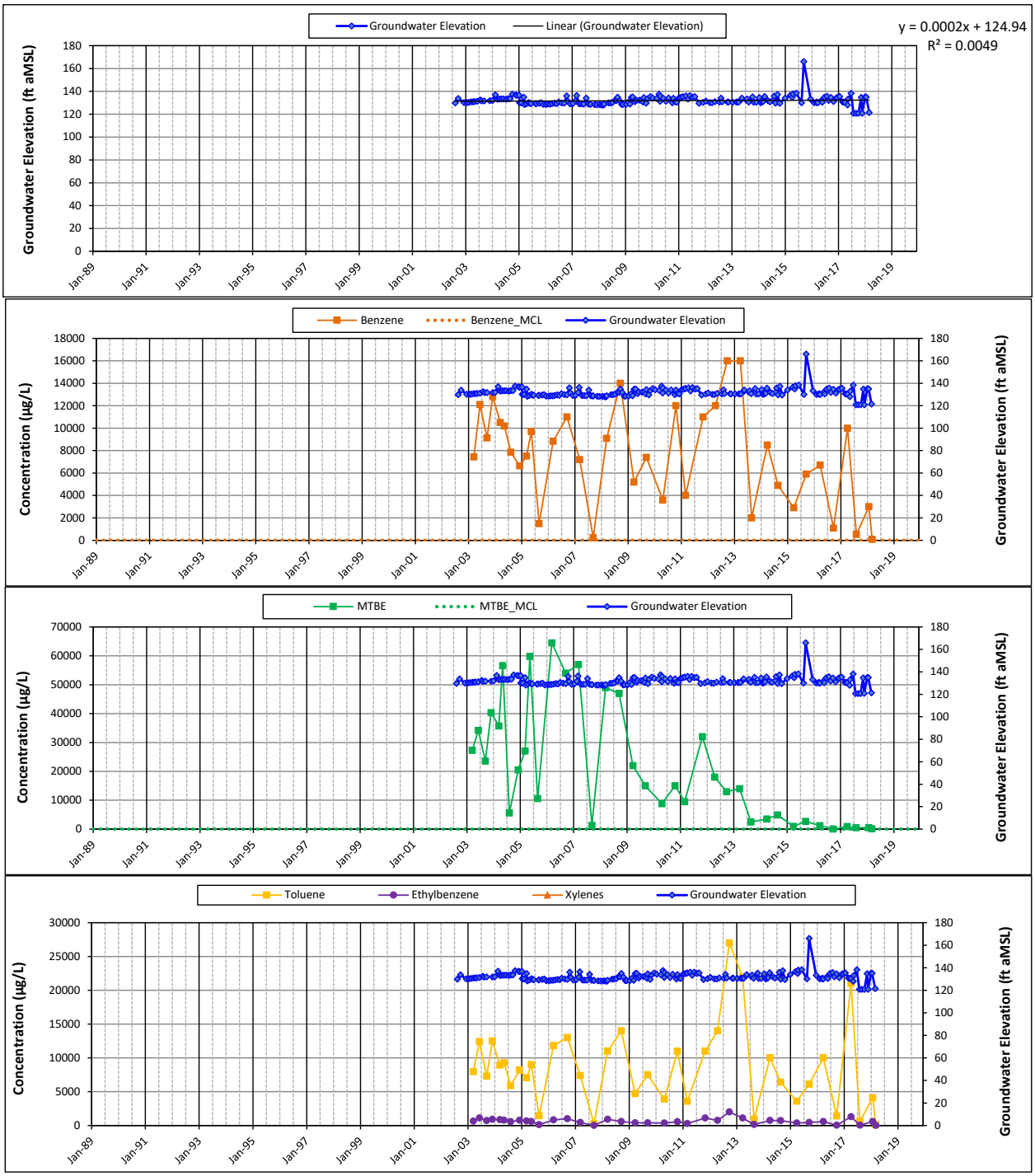
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-30R
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

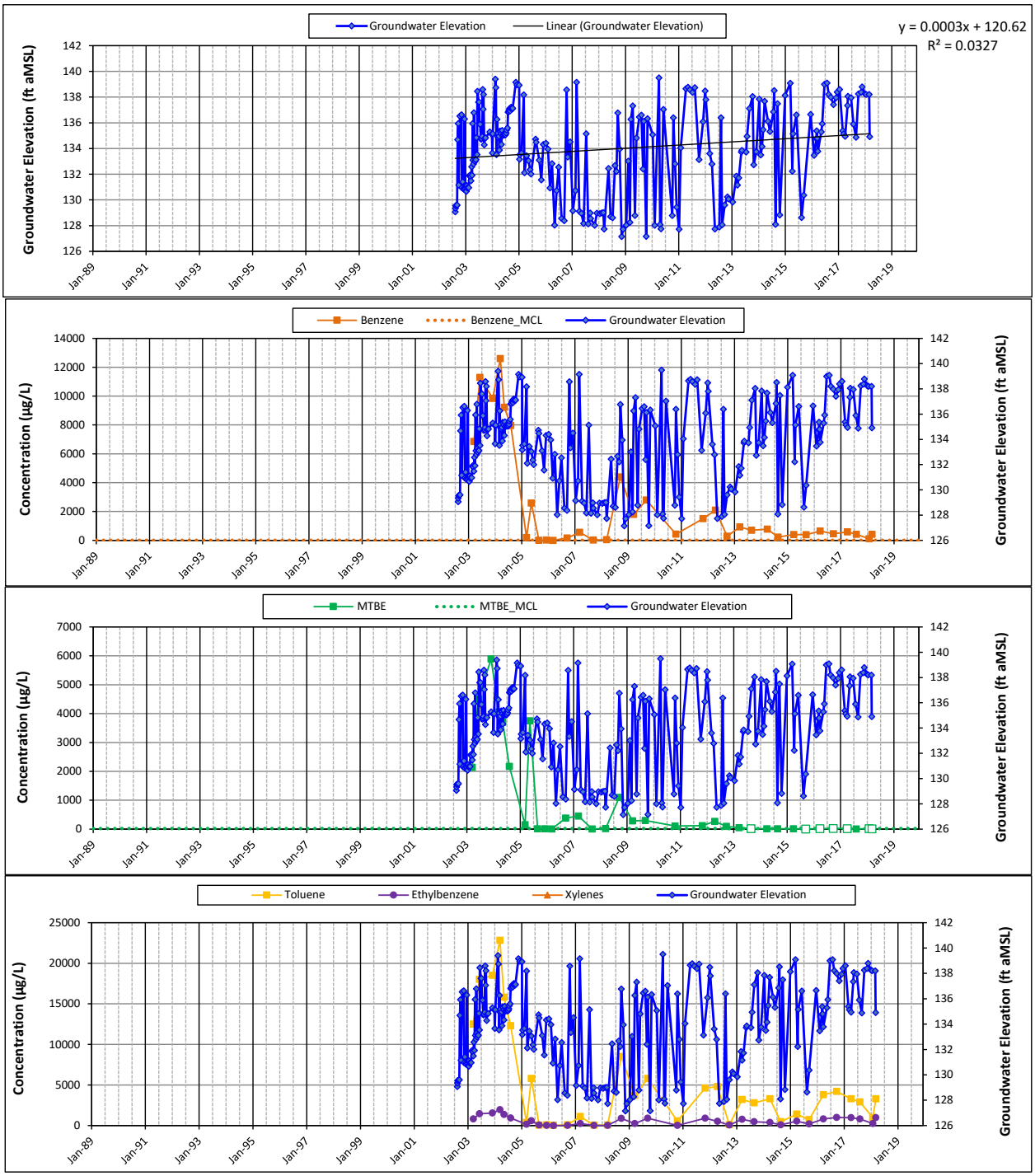
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-35A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

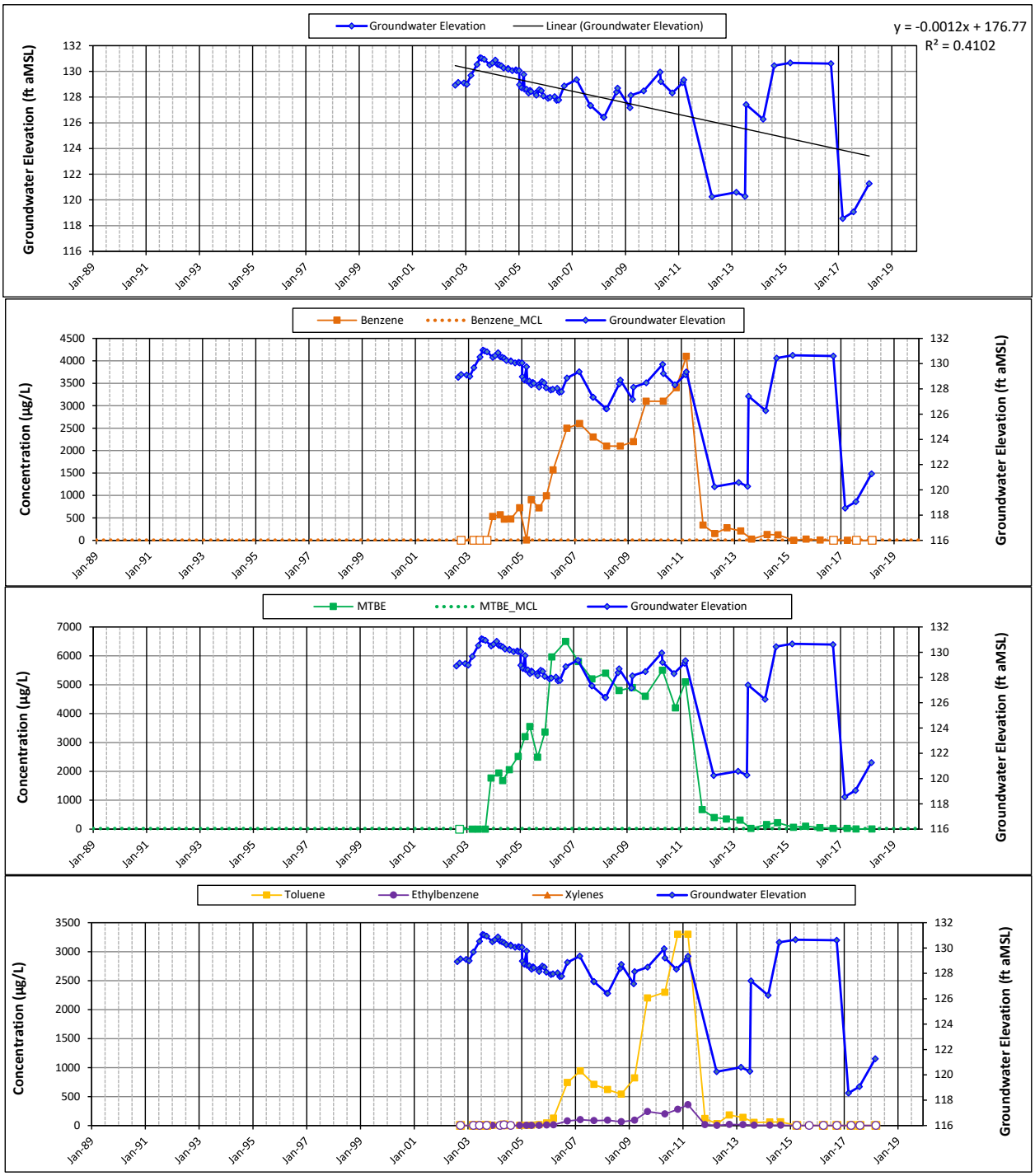
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-39R
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

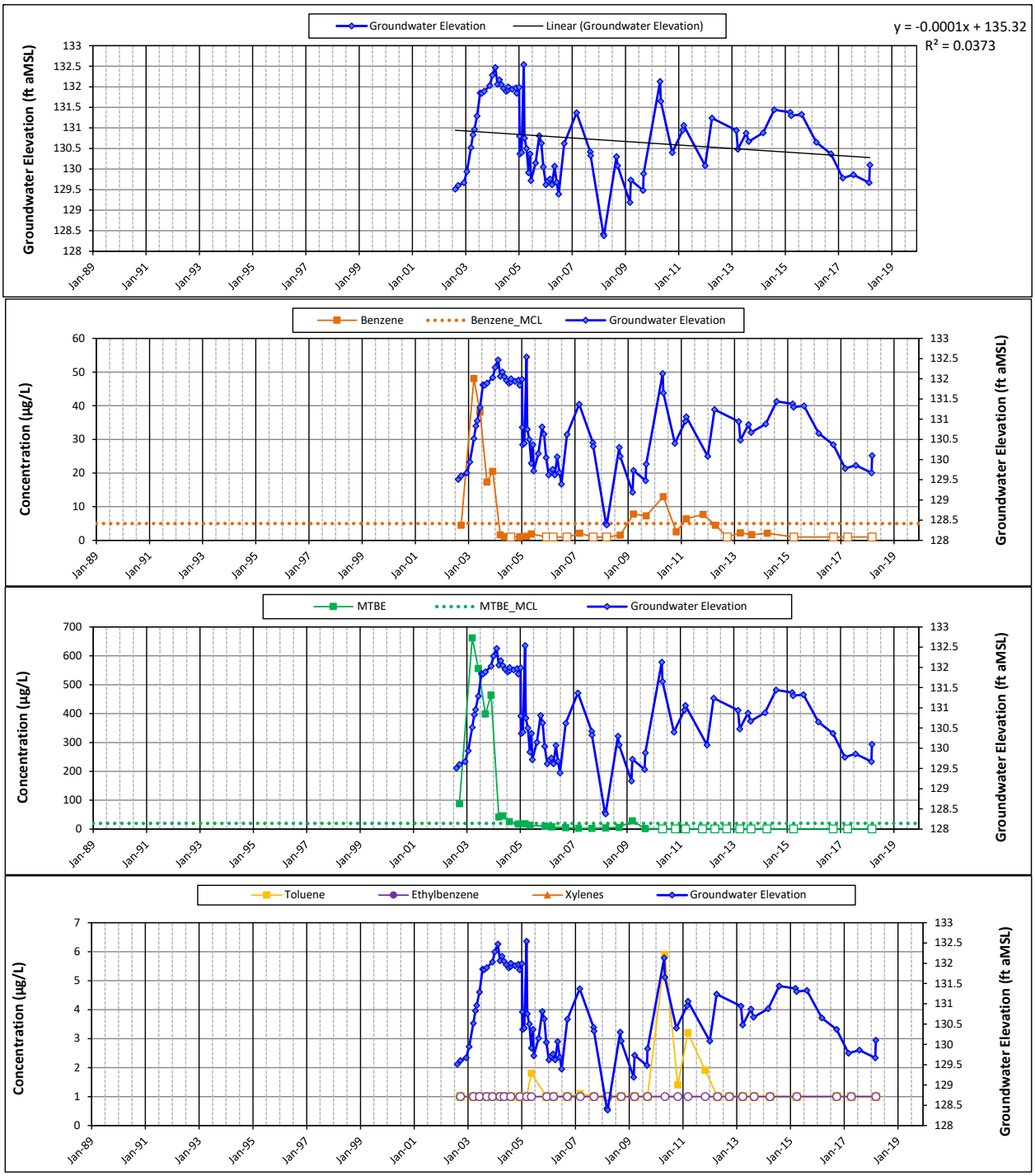
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-41A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

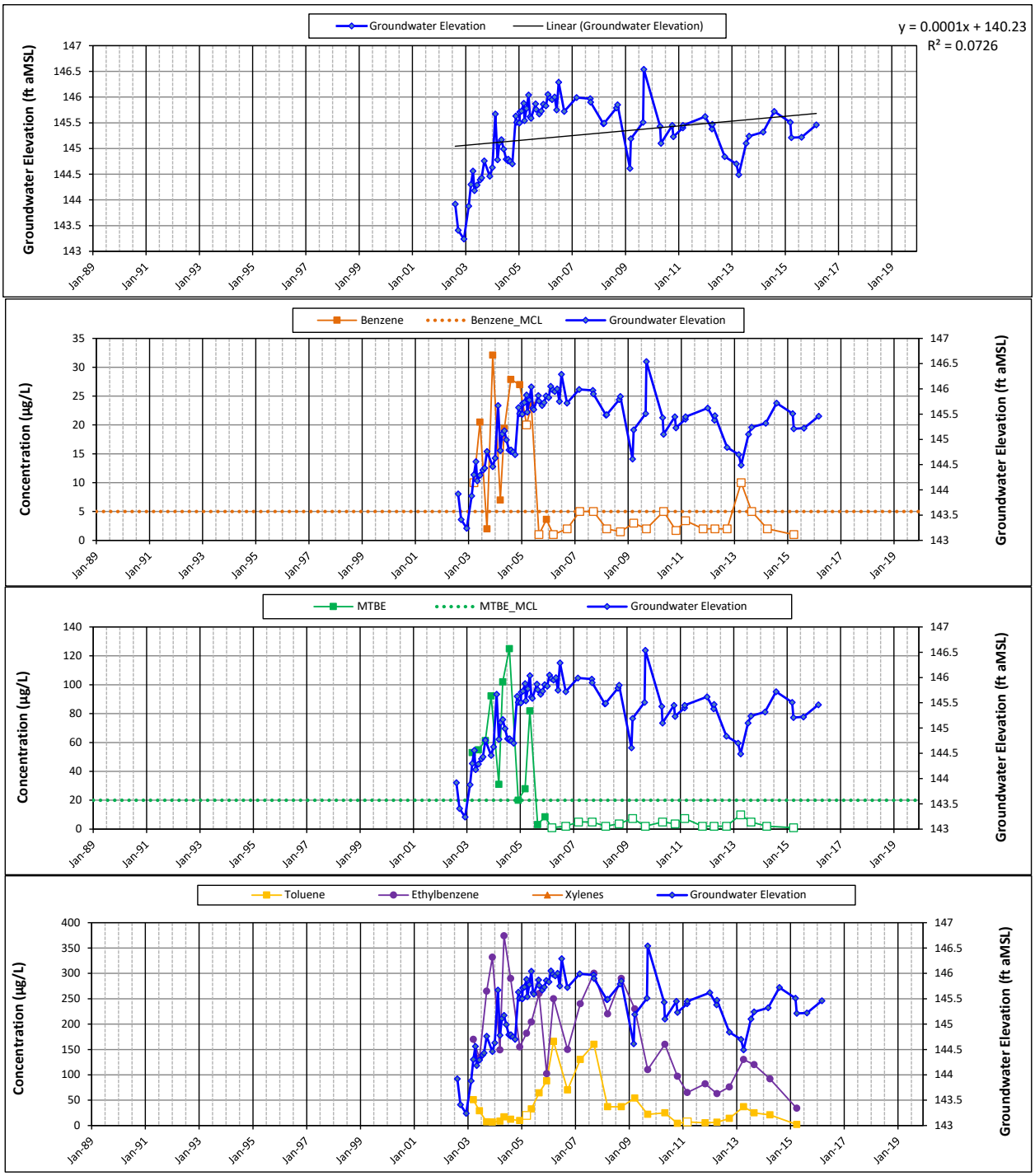
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-44A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

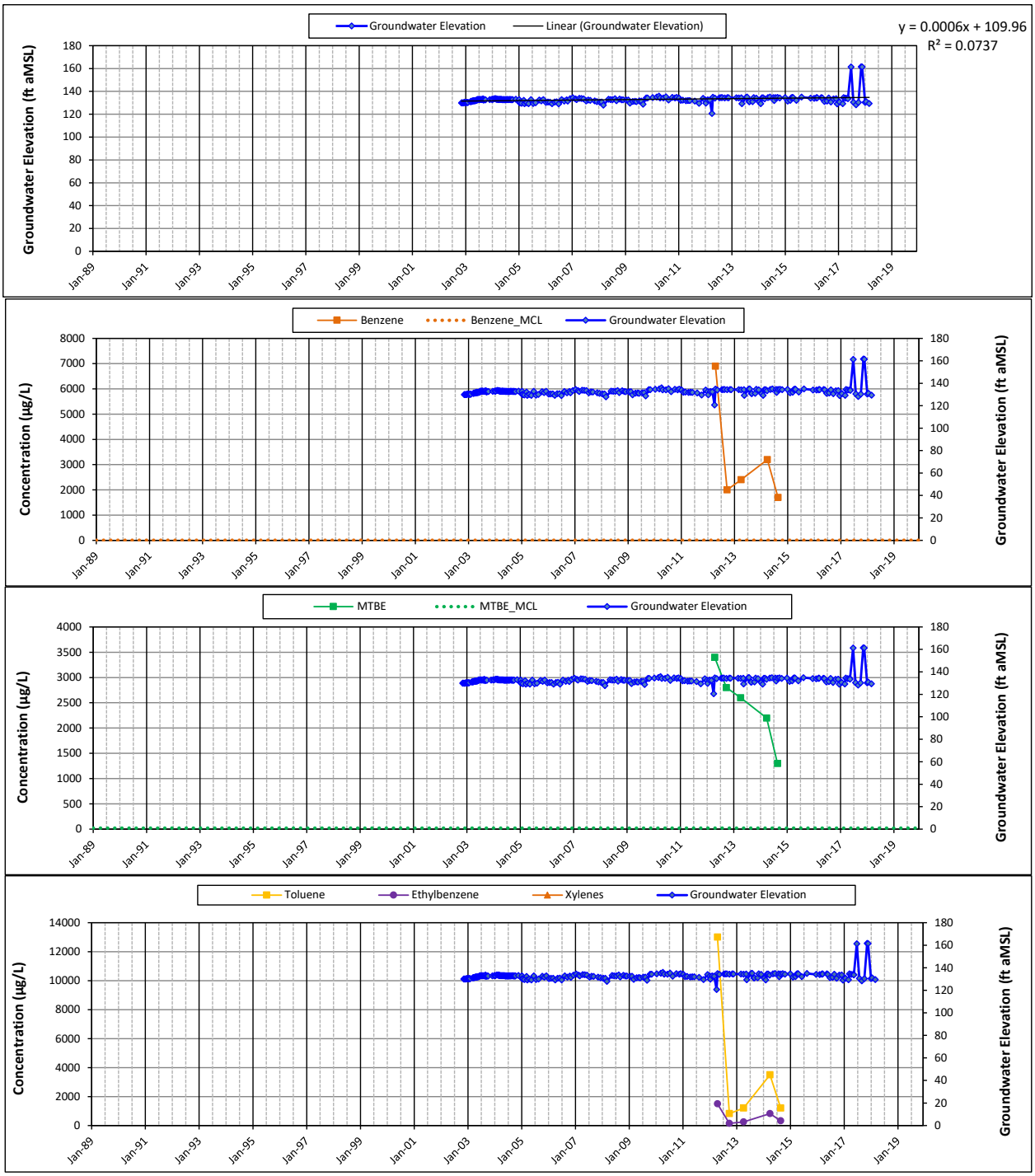
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MP-7
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

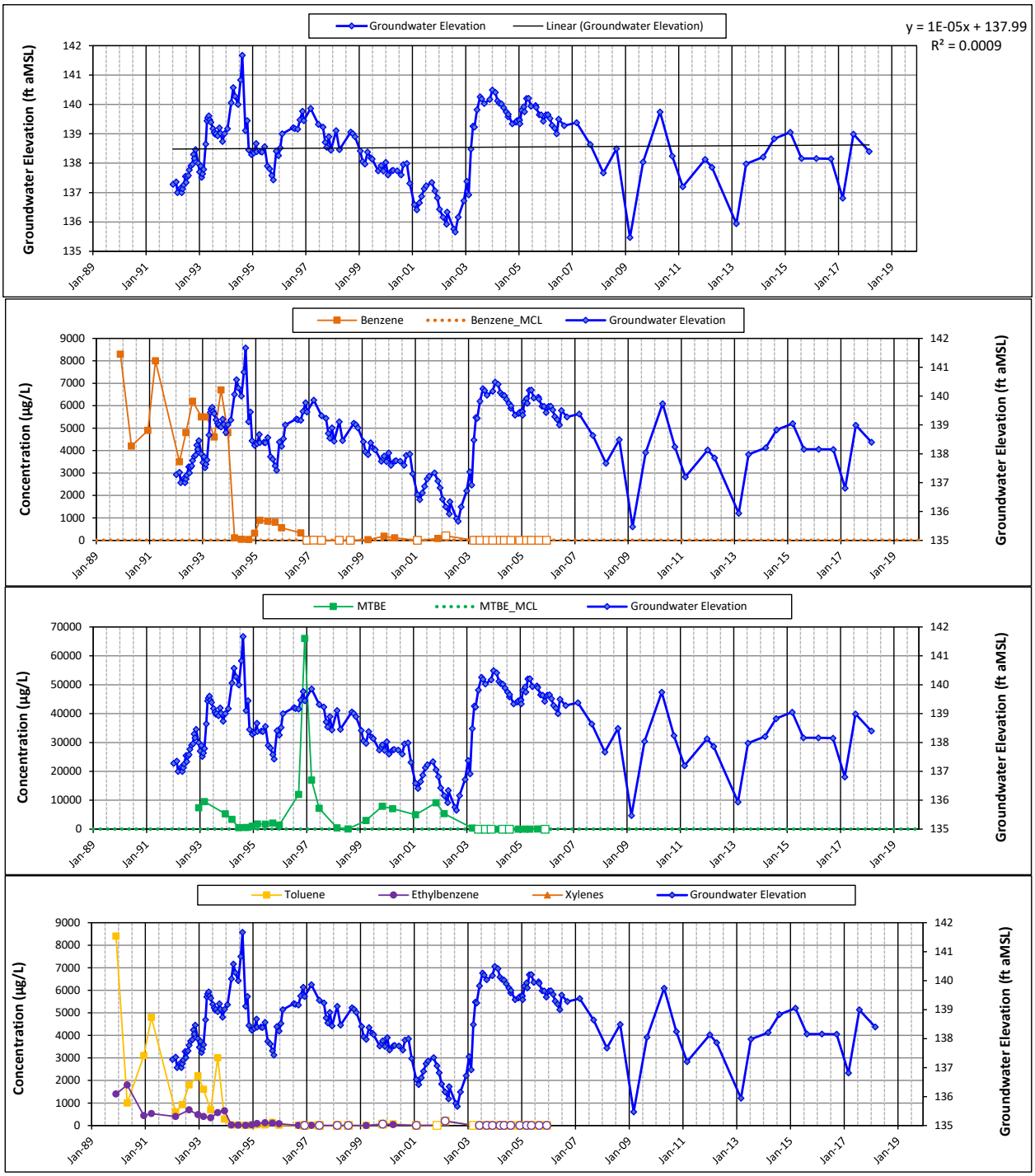
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-1
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

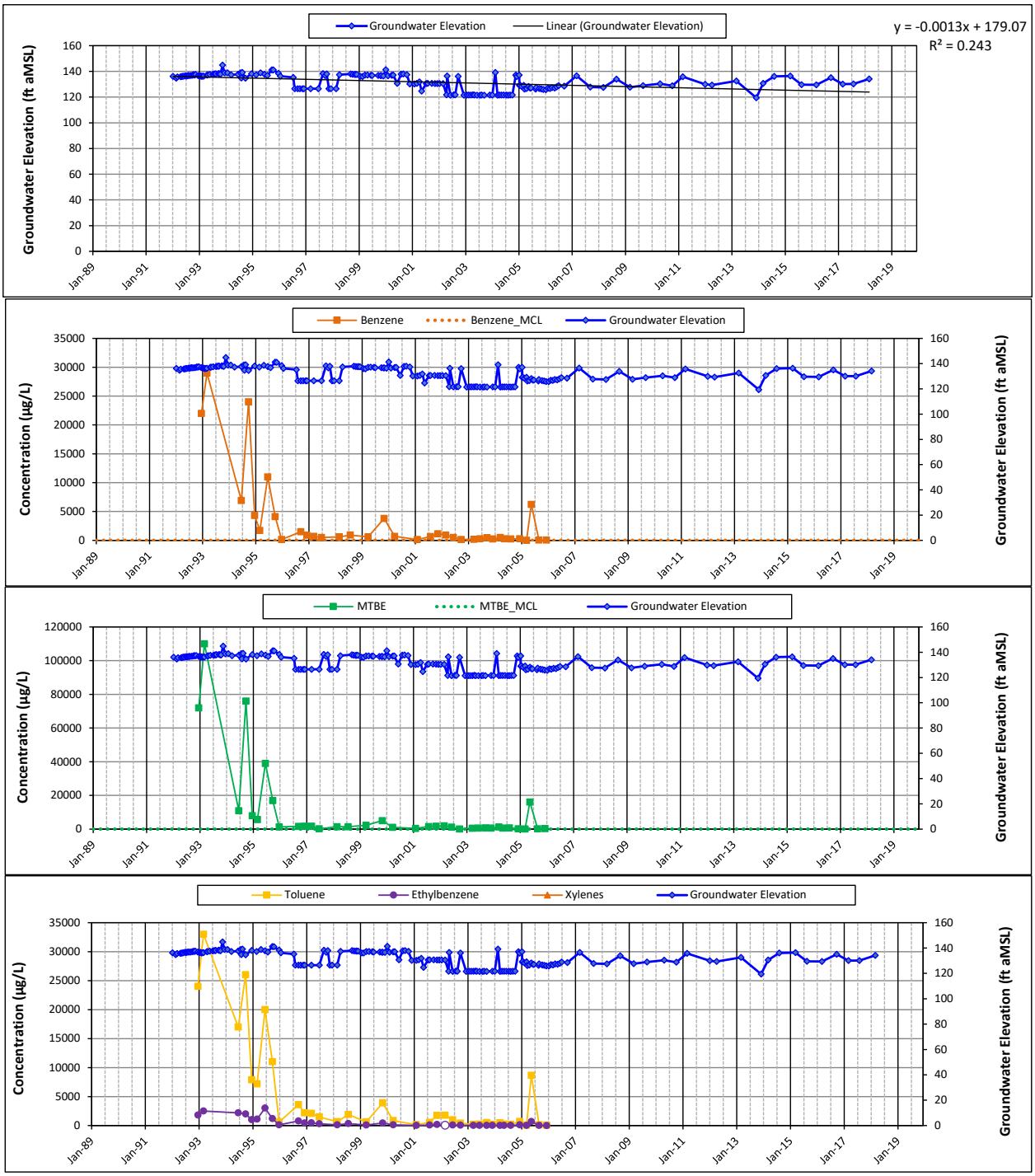
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-12
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

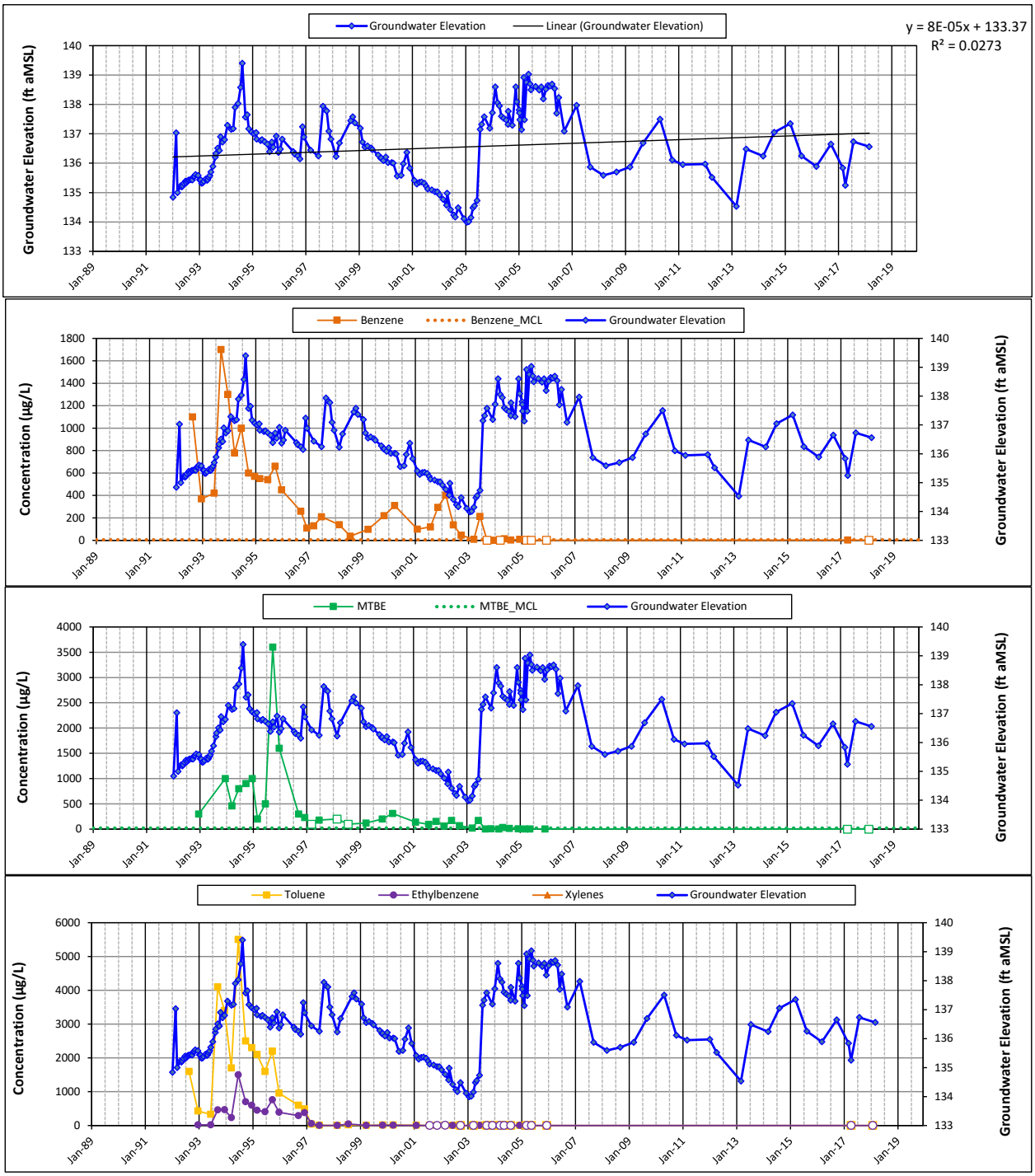
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-13
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

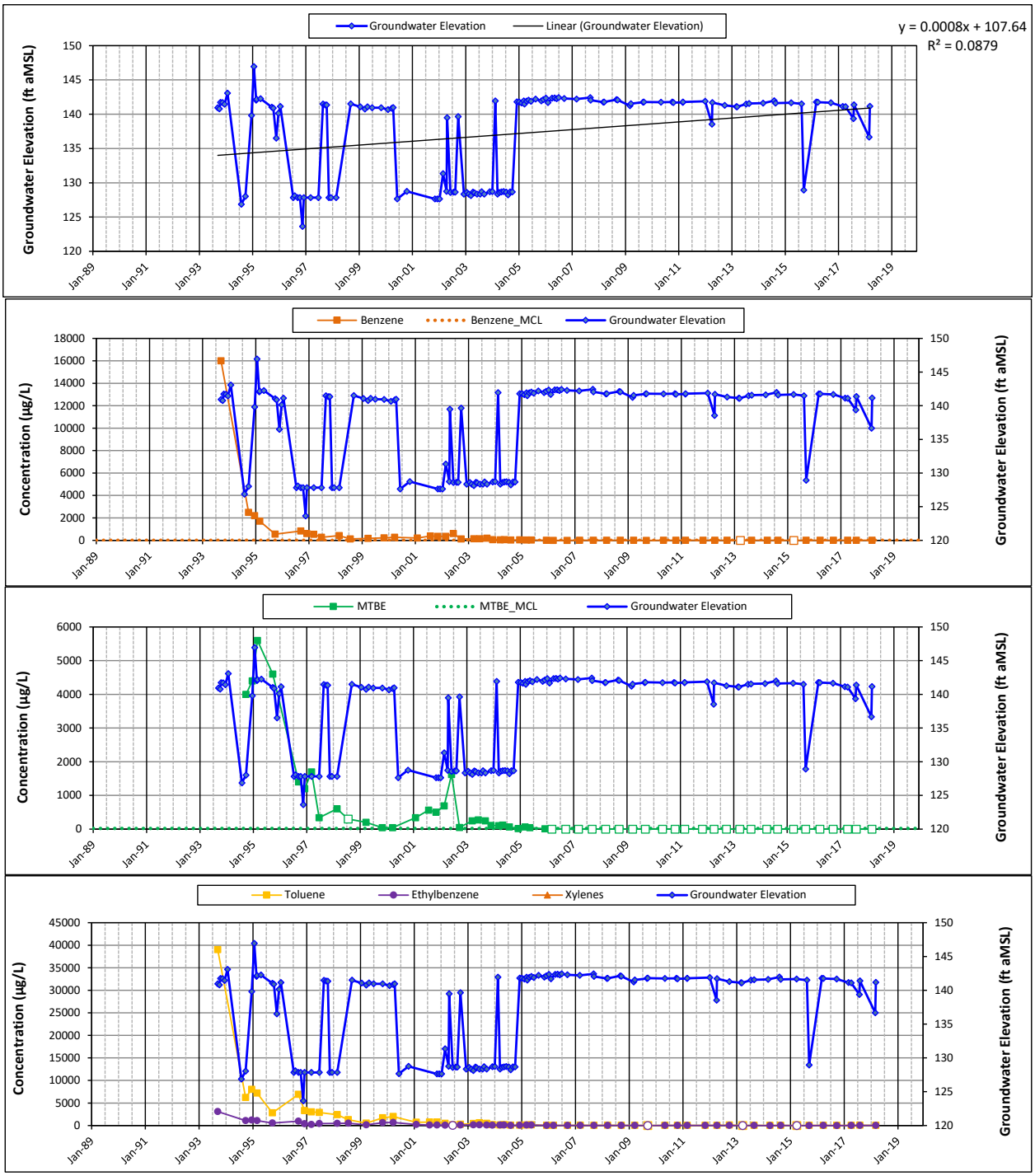
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-15
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

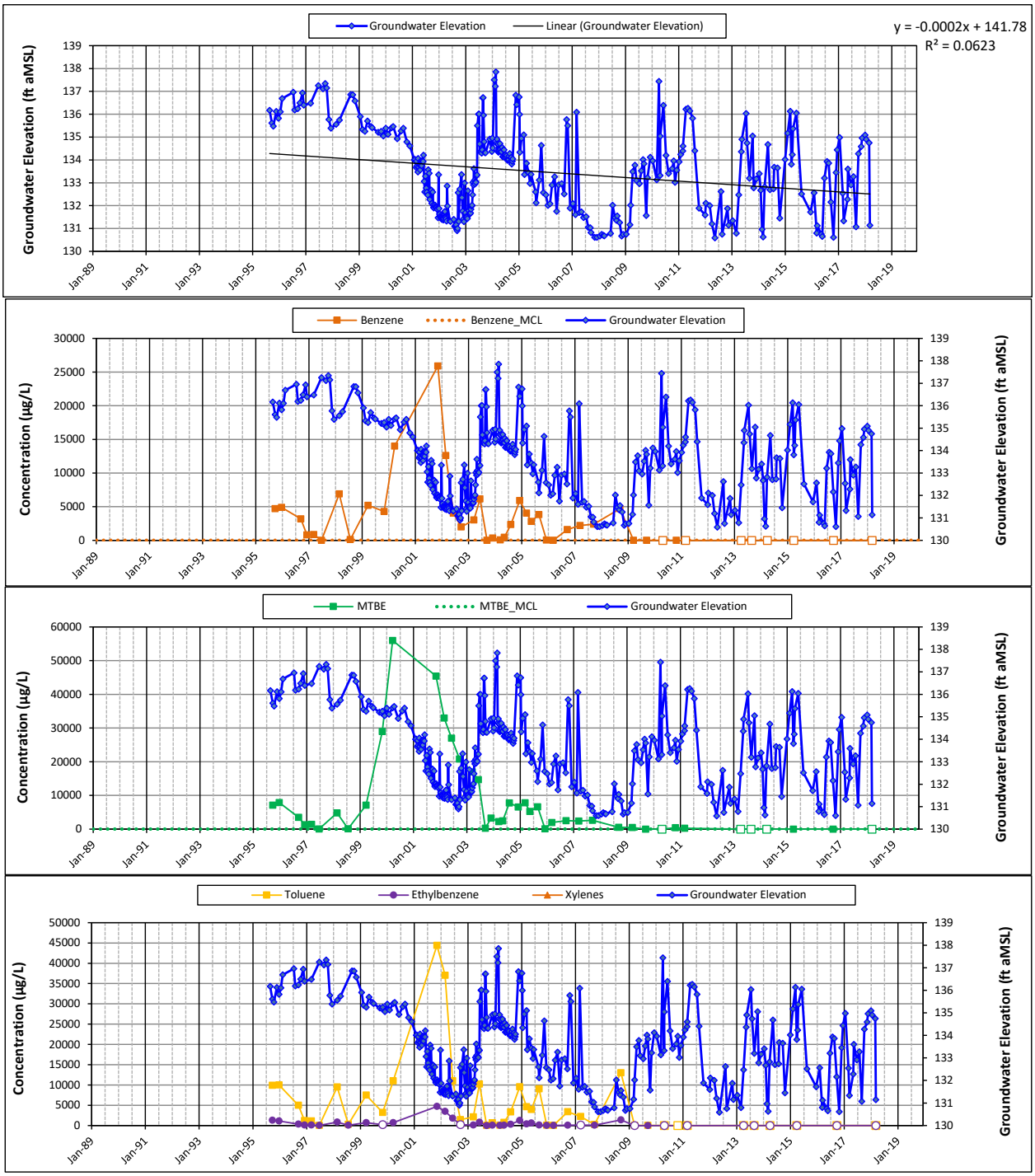
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-16
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

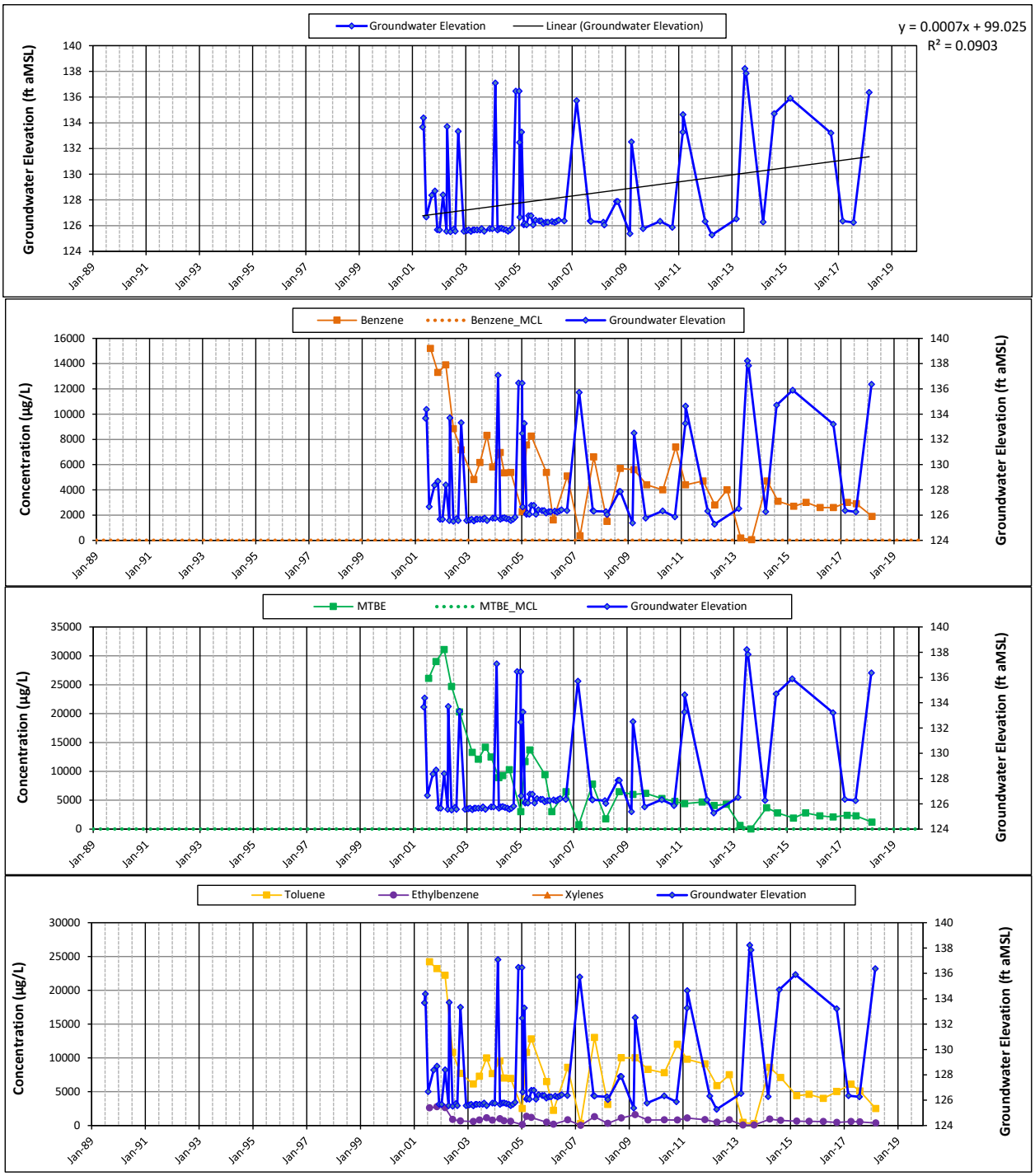
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-17
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

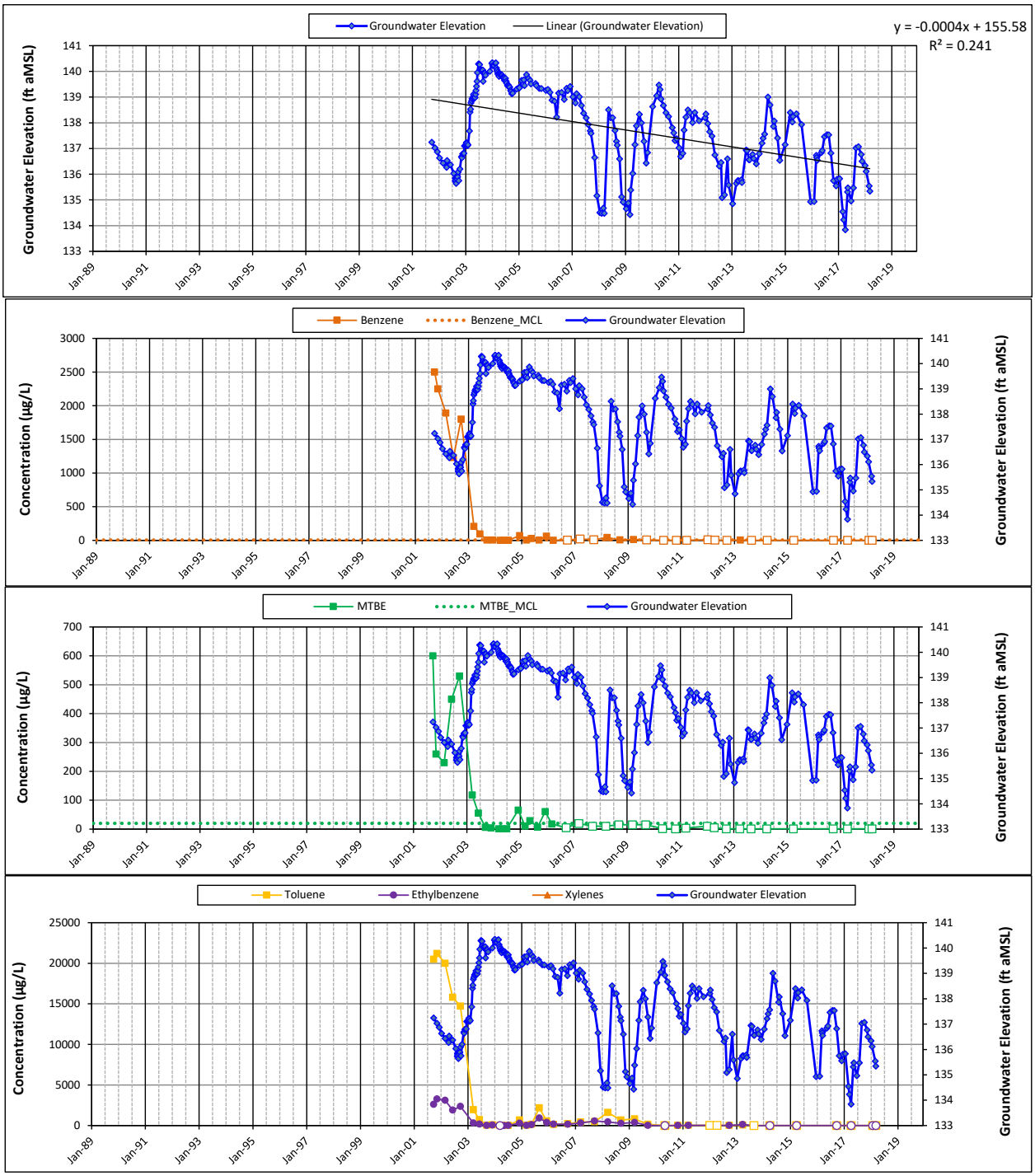
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-18
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

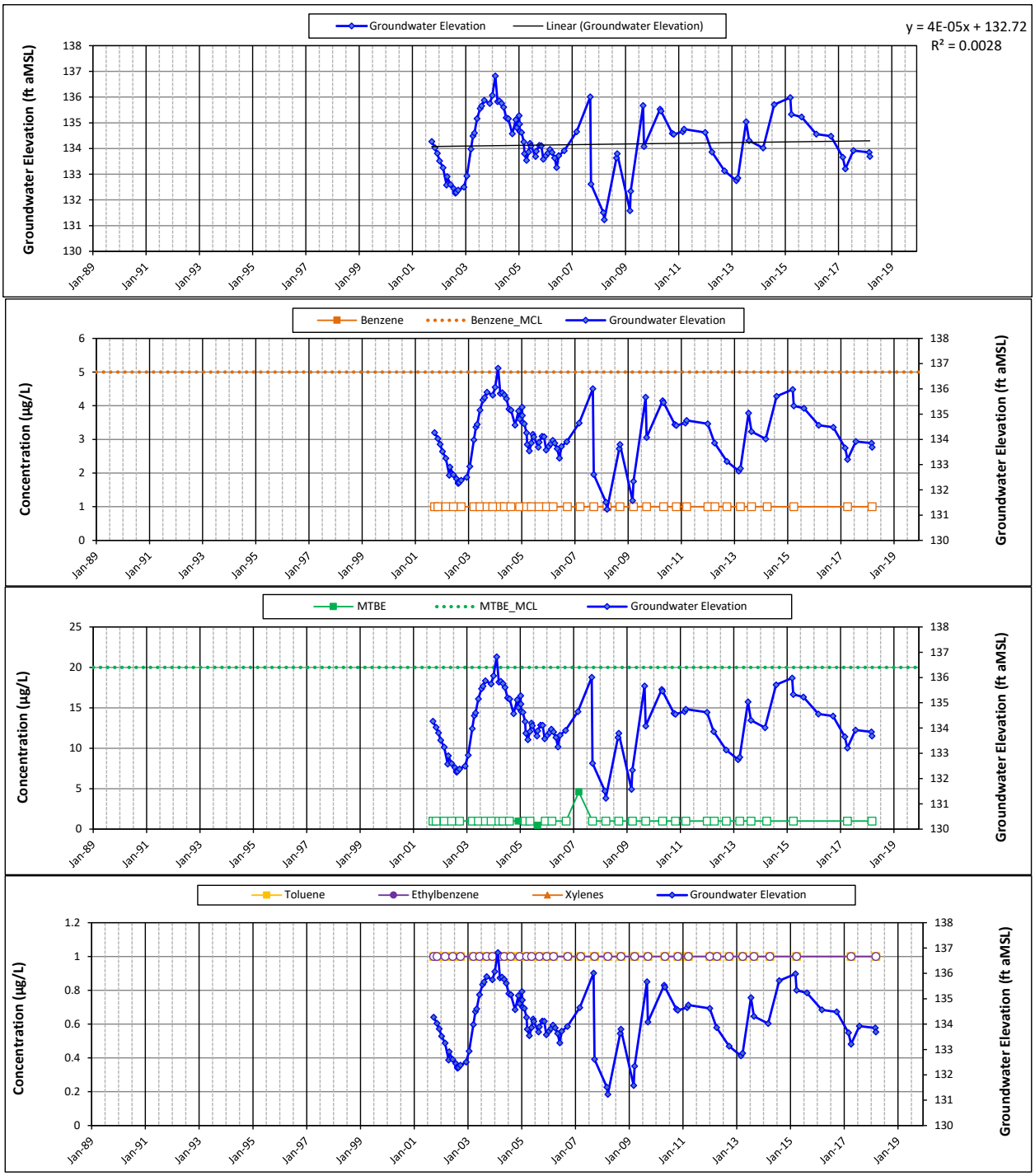
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-19
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

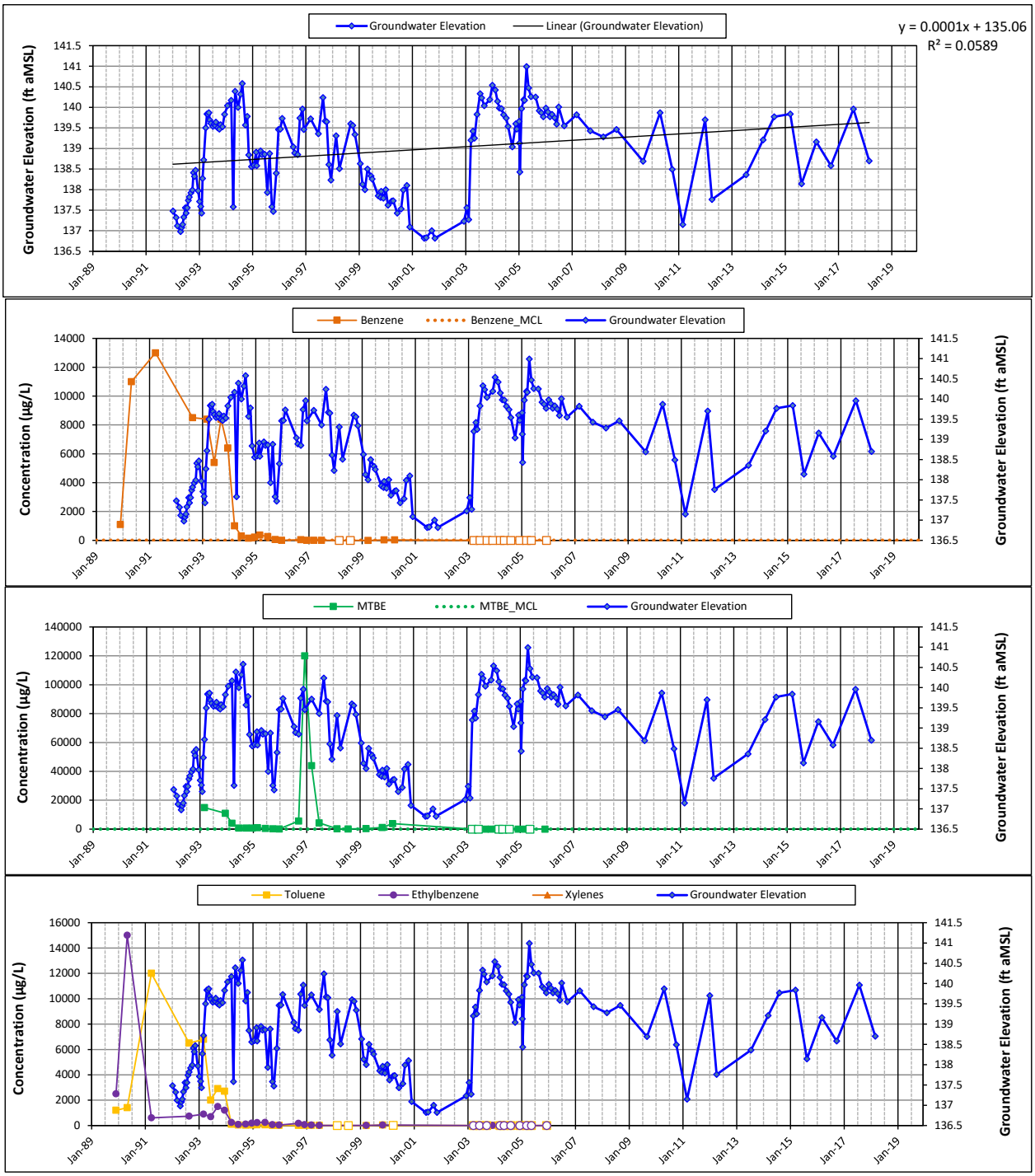
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-2
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

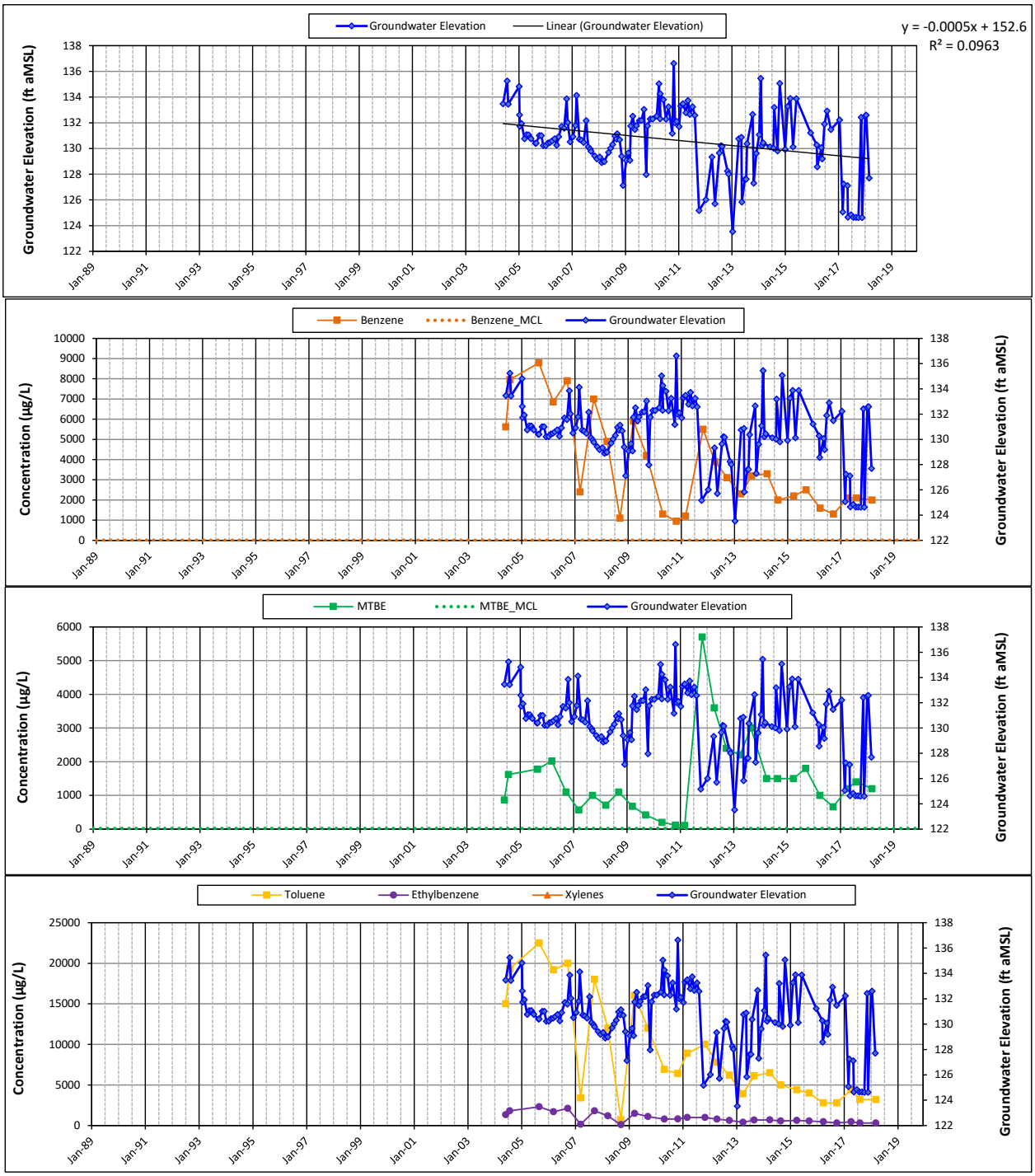
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-22R
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

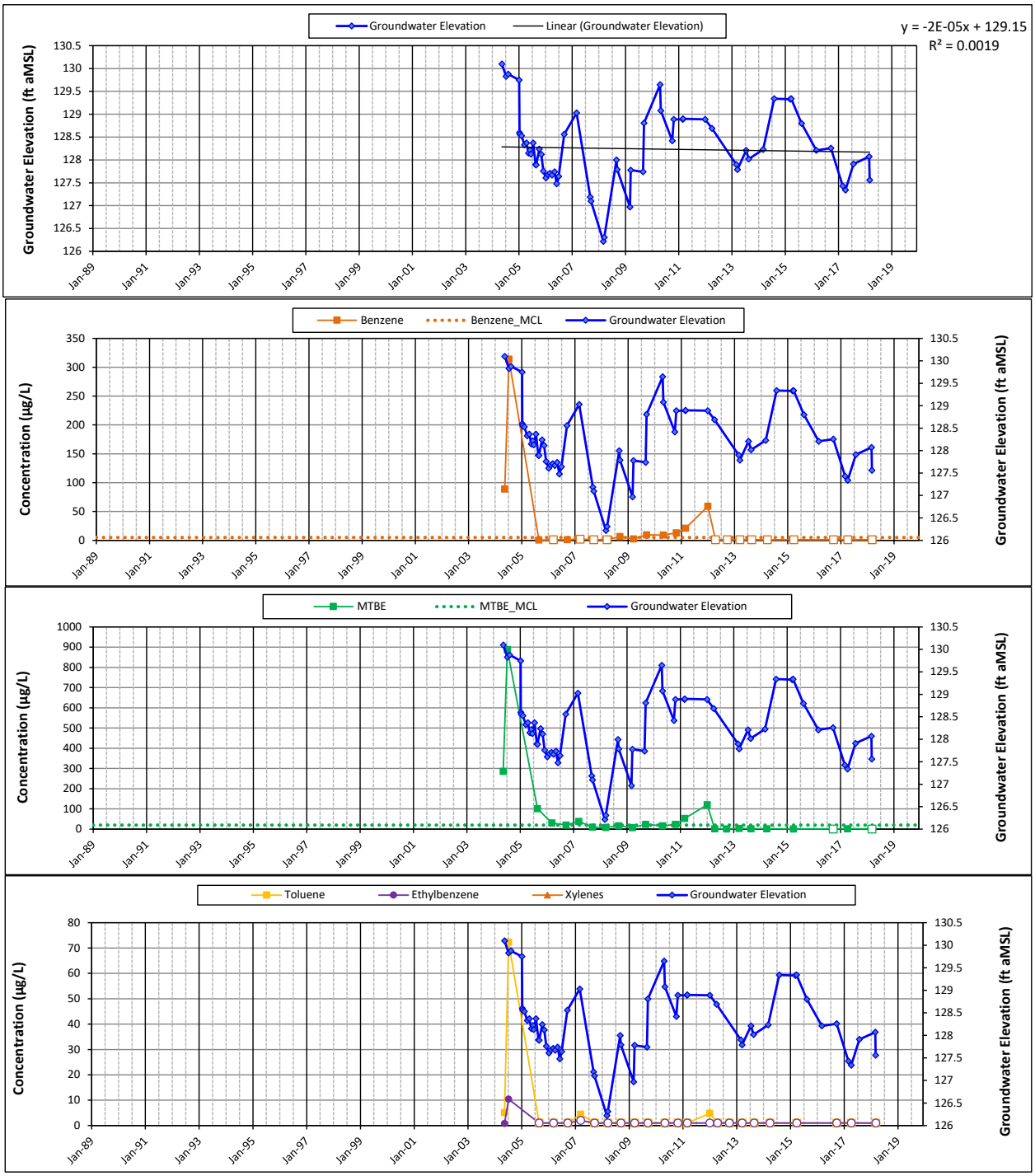
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-23
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

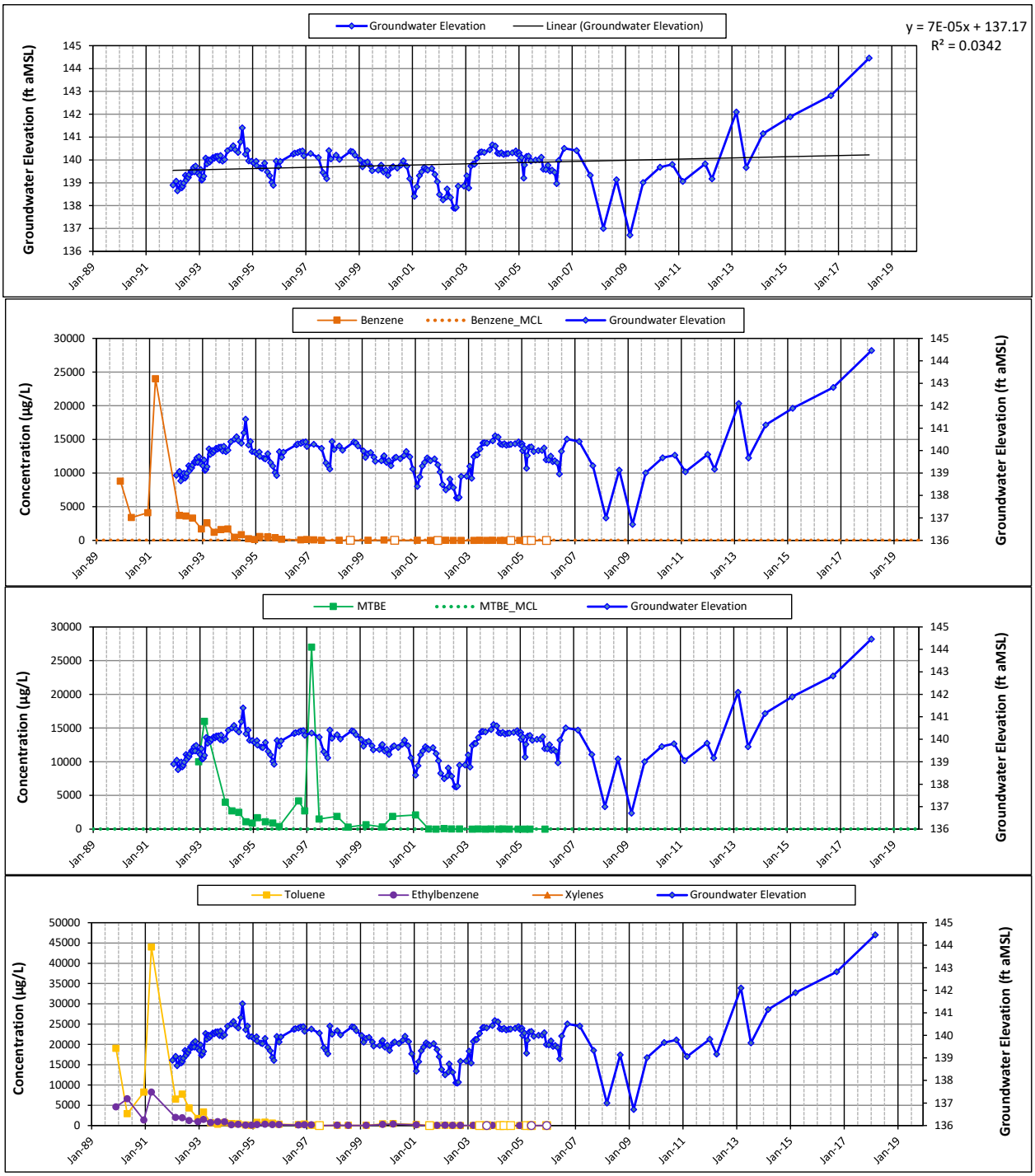
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-3
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

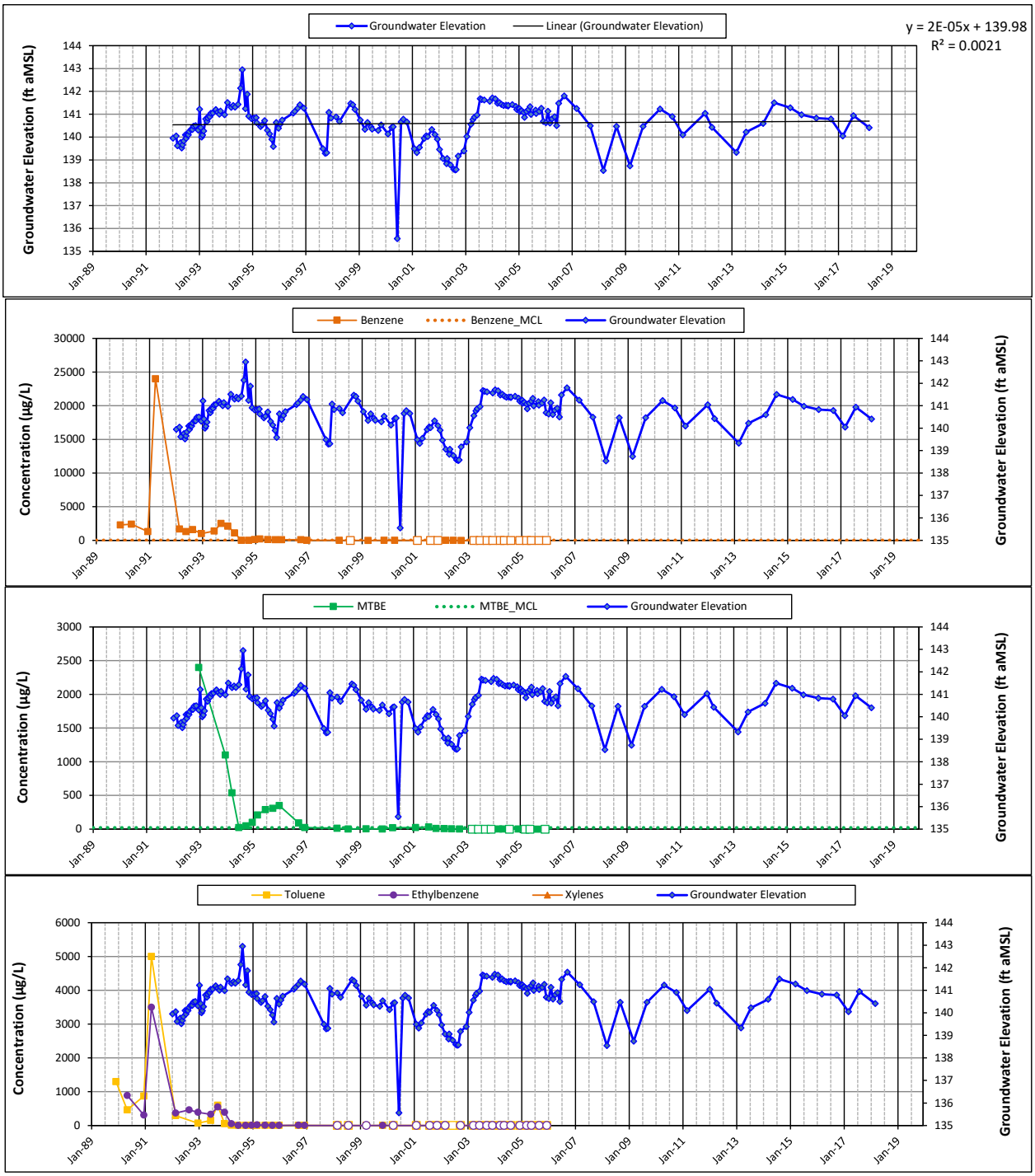
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-4
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

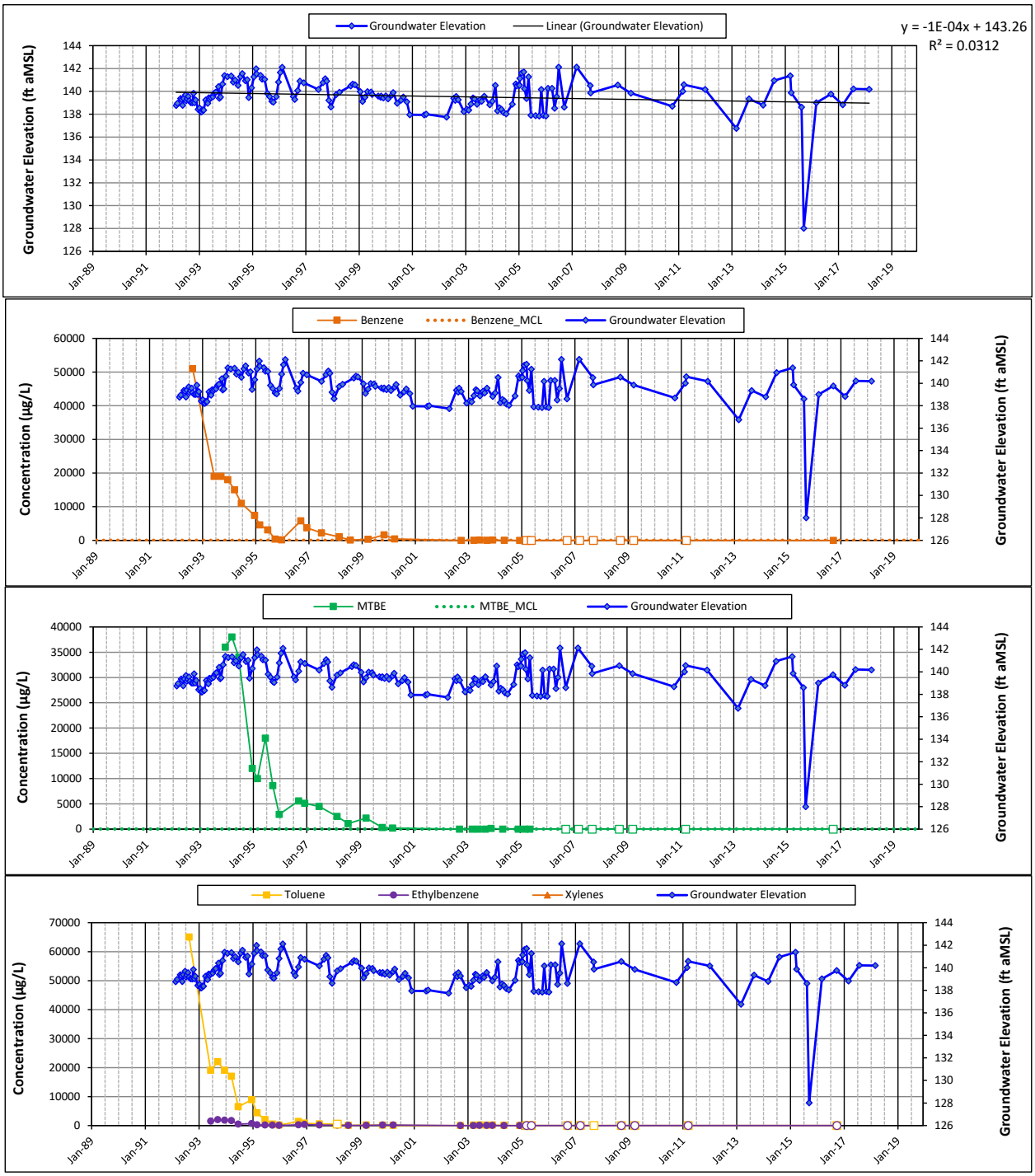
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-5
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

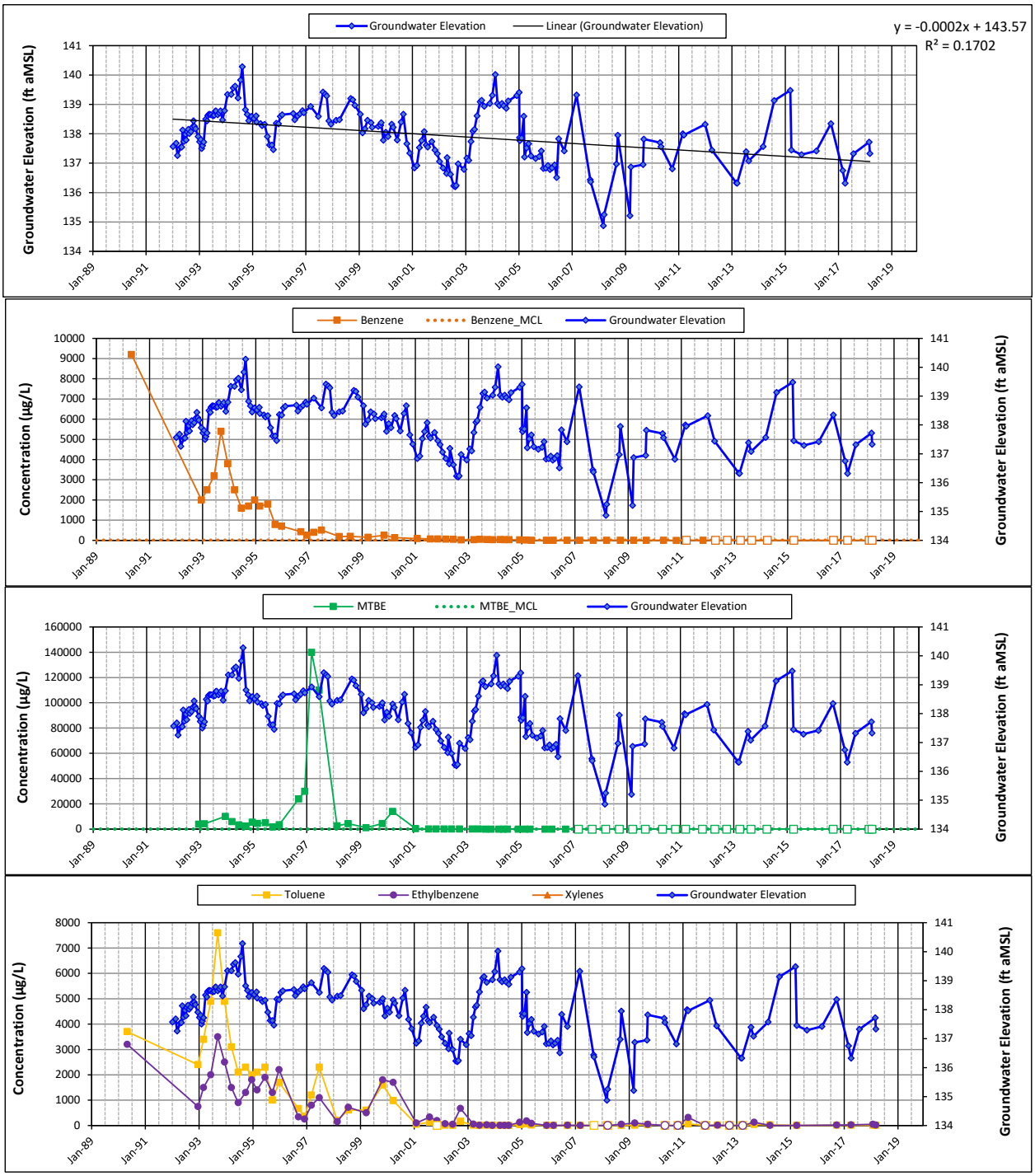
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-6
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

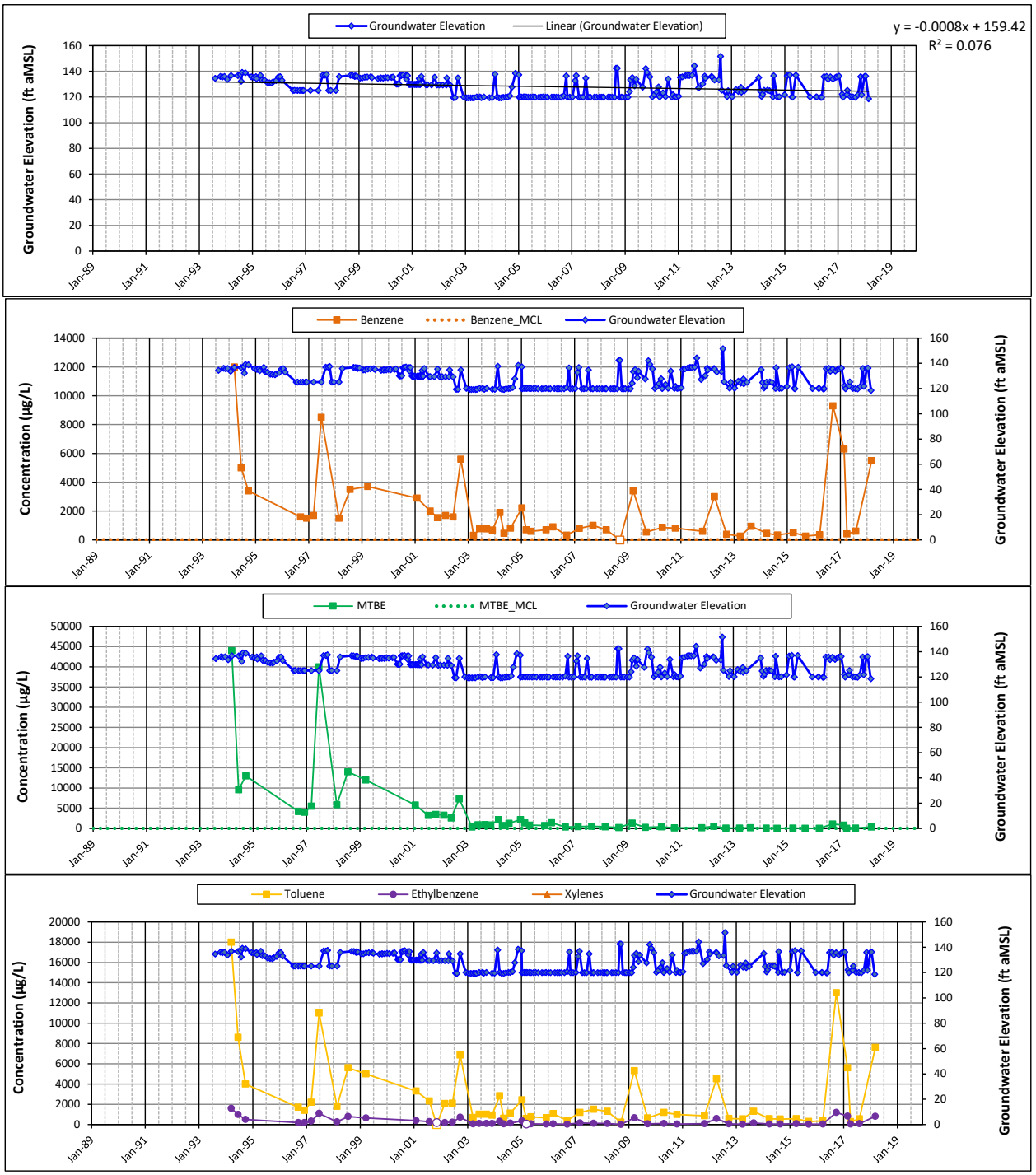
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-7
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

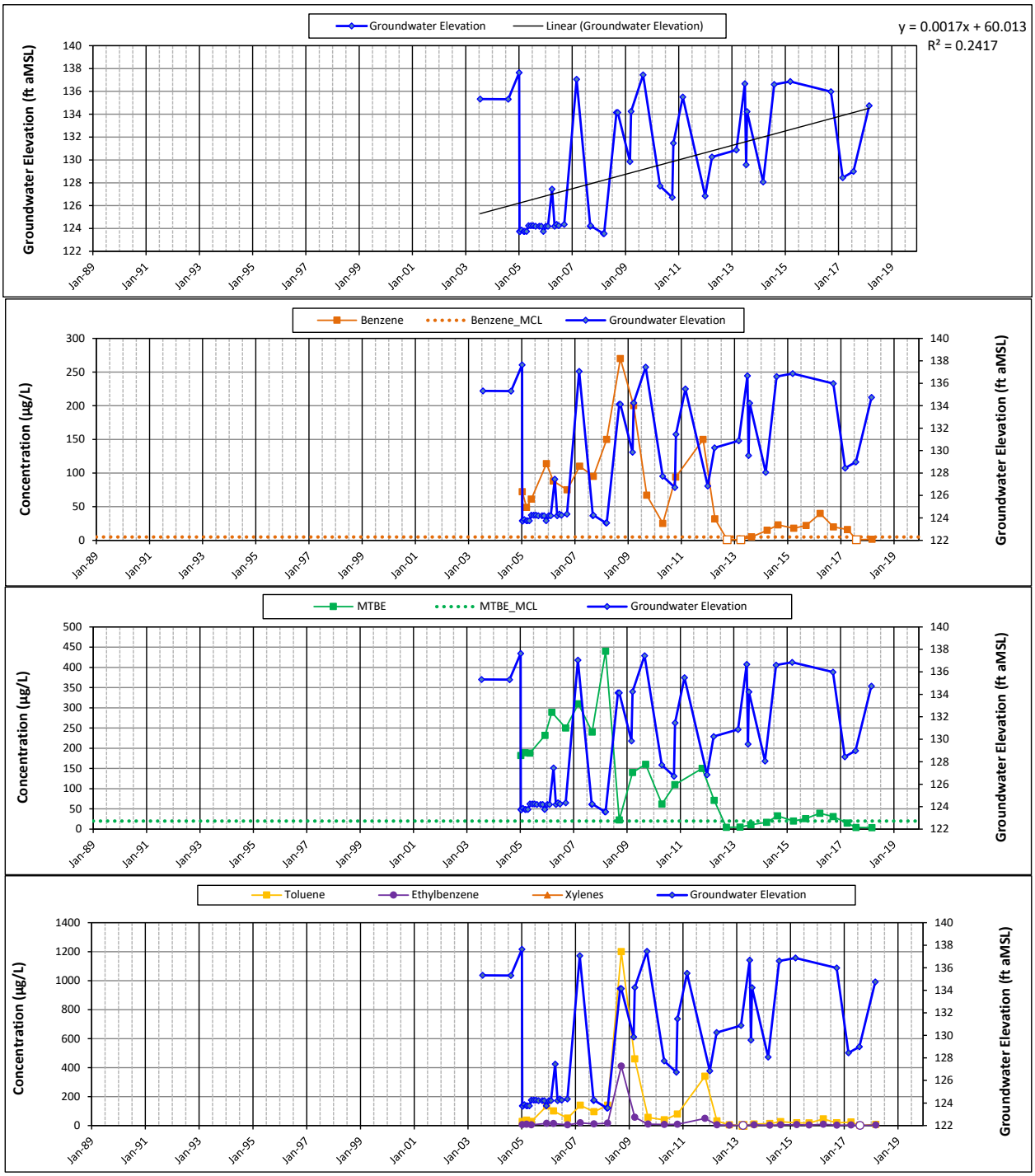
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR PTW-B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

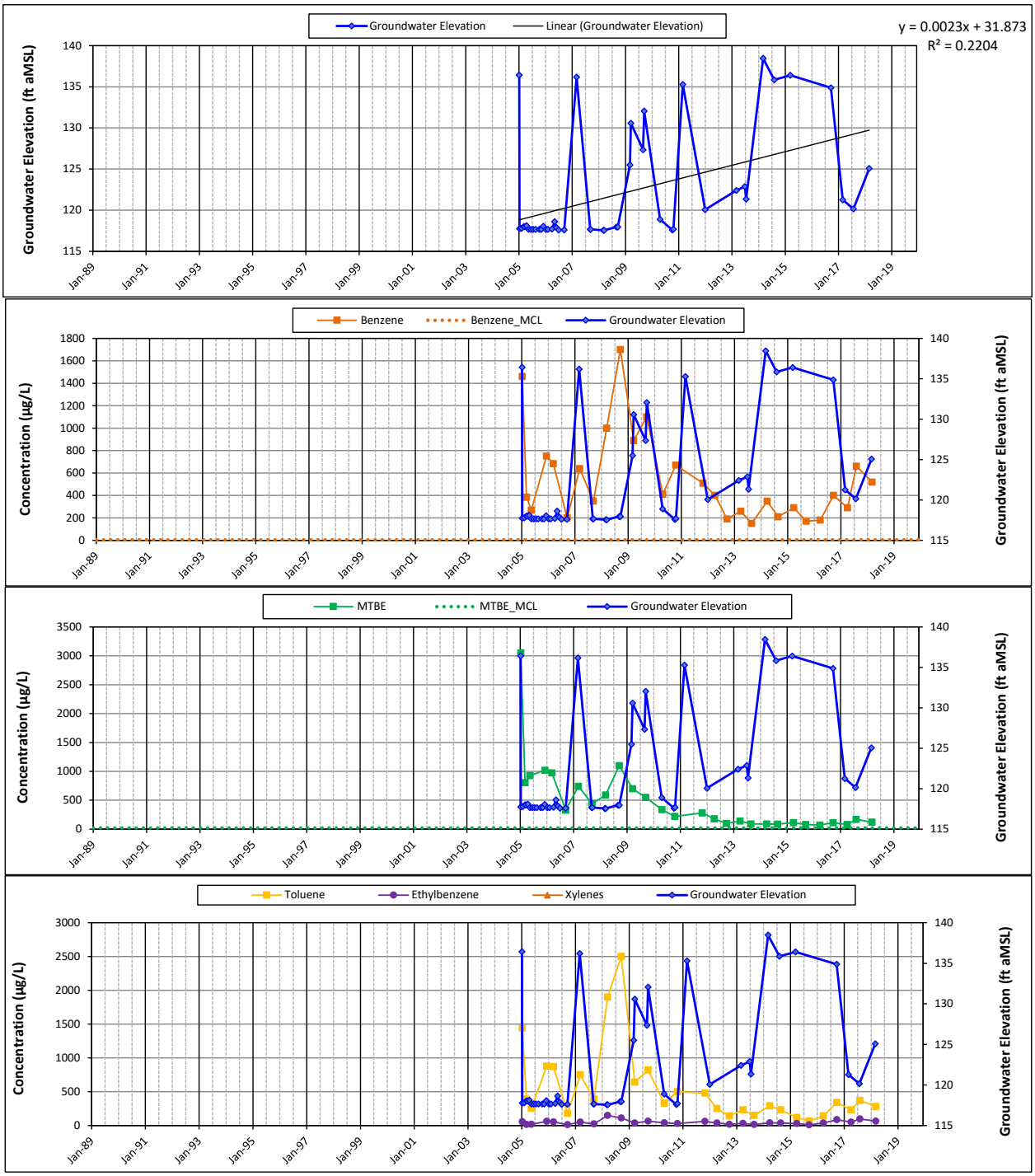
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR RW-1
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

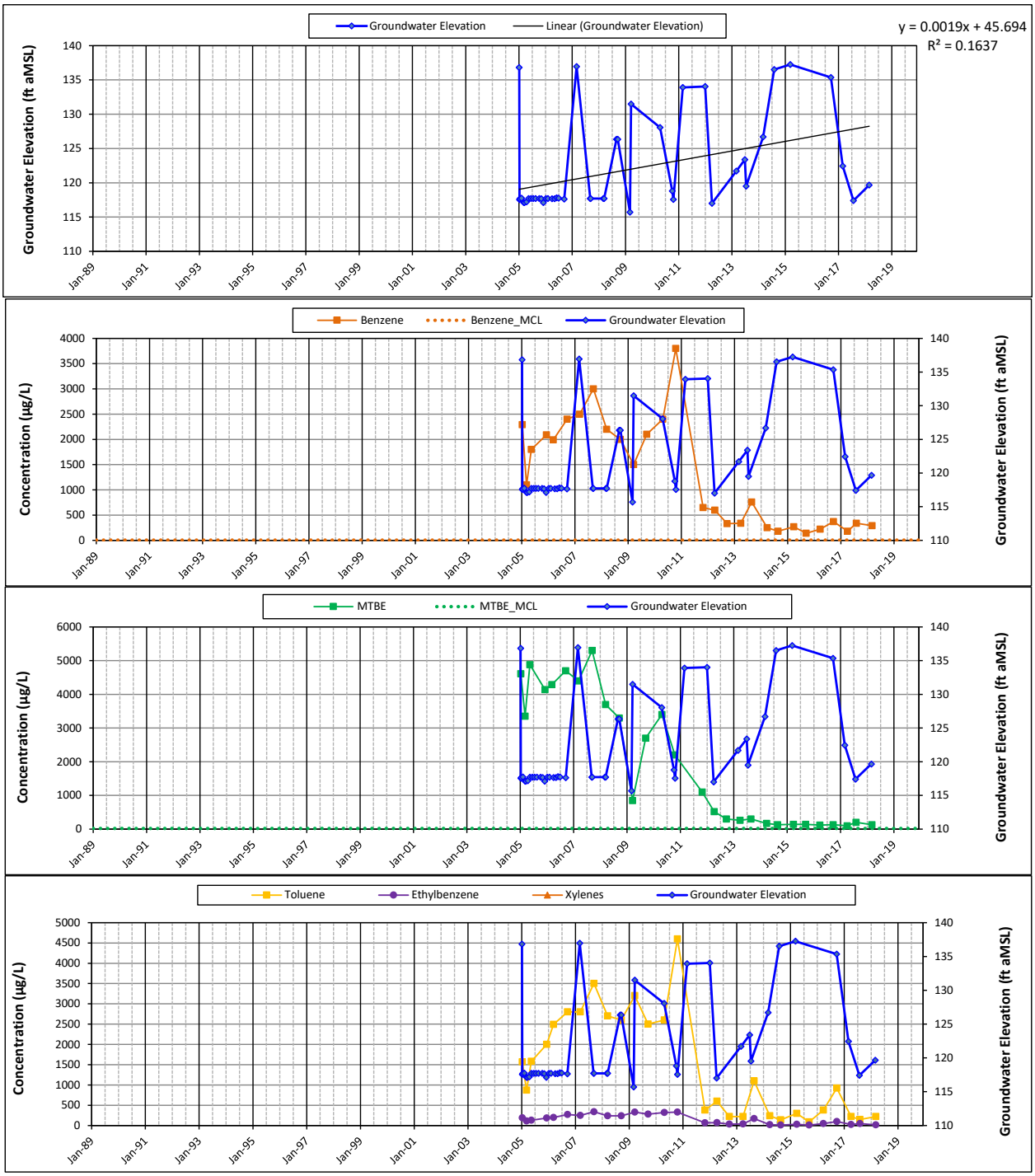
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR RW-2
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

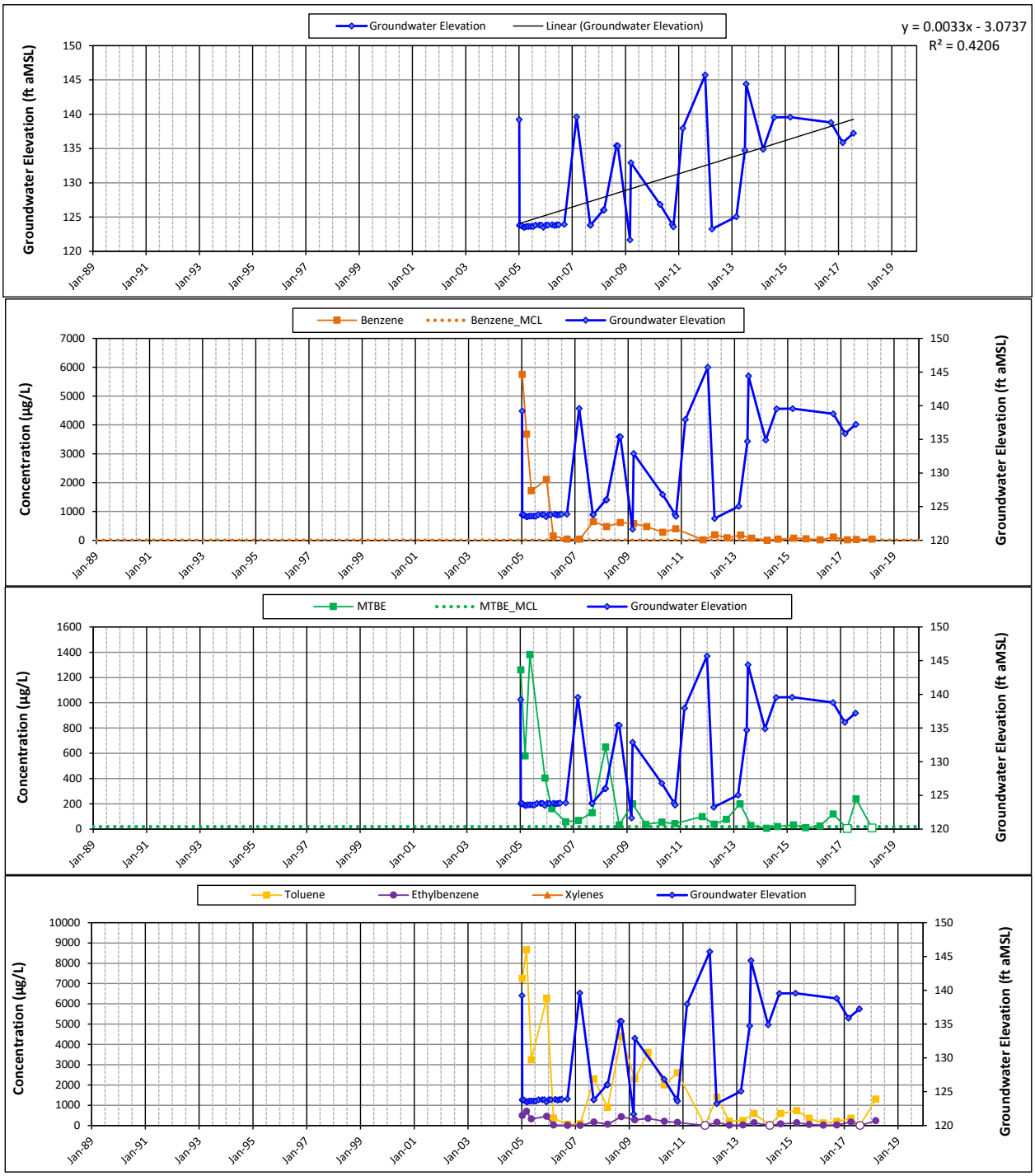
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR RW-3
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

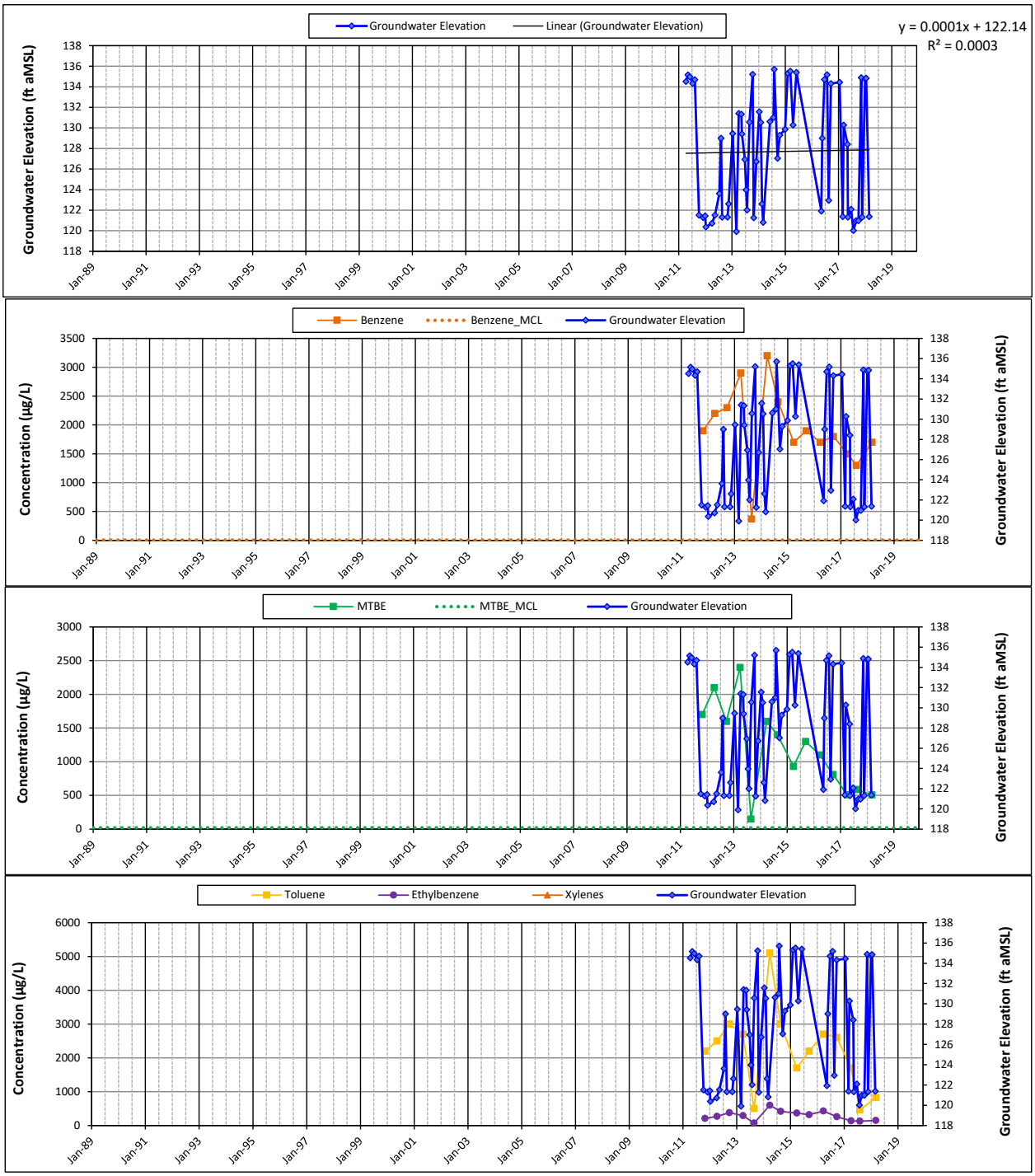
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR RW-4
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR RW-5
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND

GROUNDWATER ELEVATIONS ARE NOT RECORDED FOR RW-5



Notes:

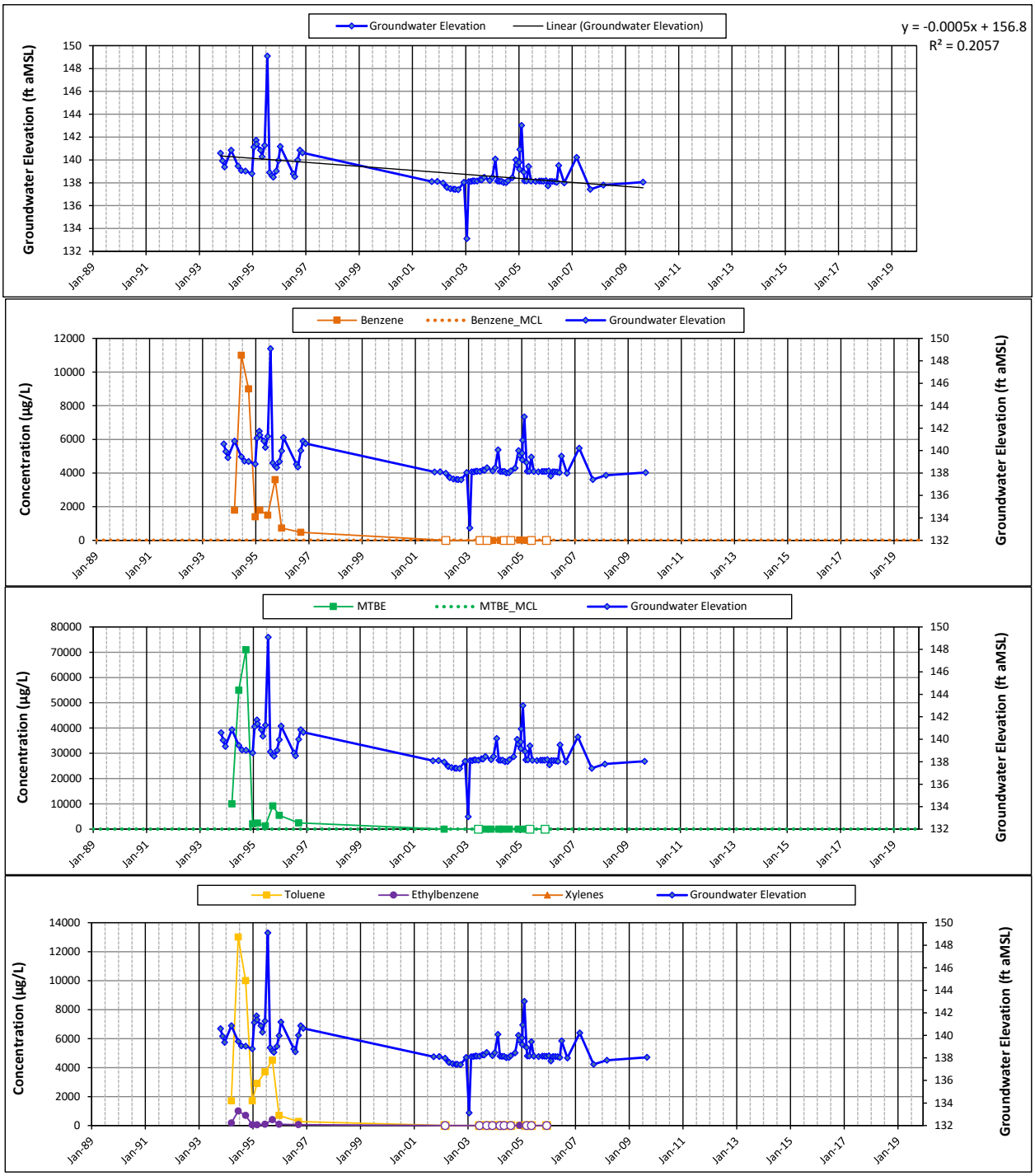
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR VP-4
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

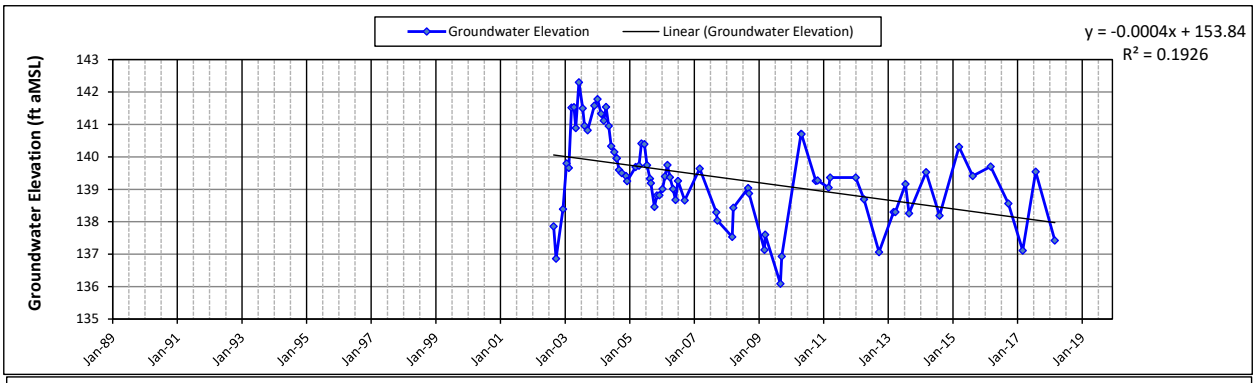
ft aMSL Feet above mean sea level

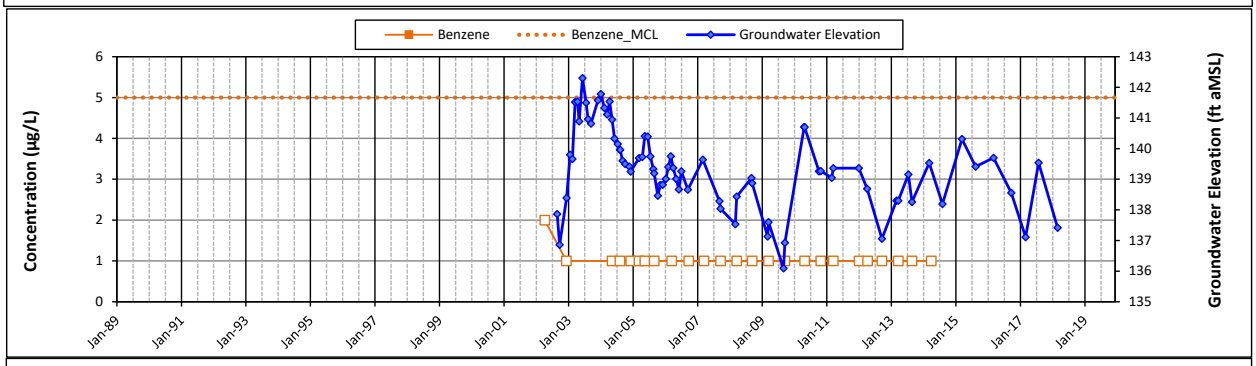
µg/L Micrograms per liter

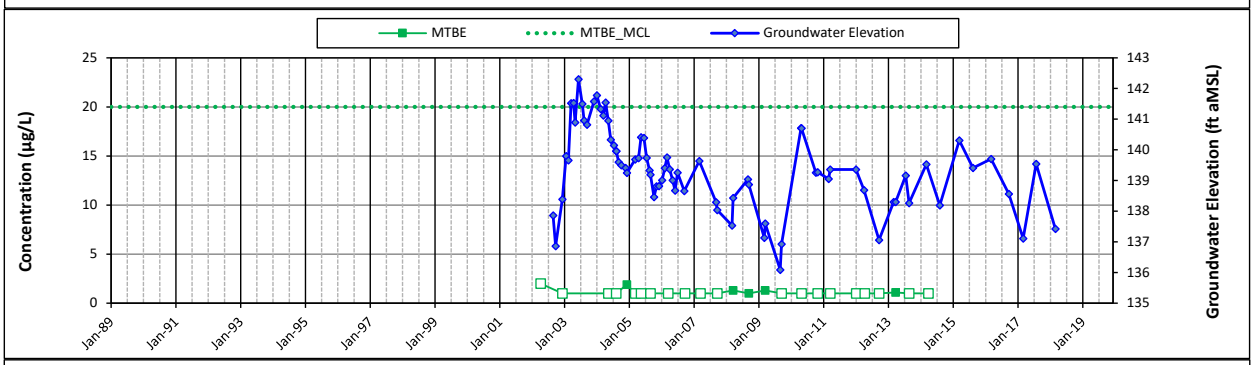
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

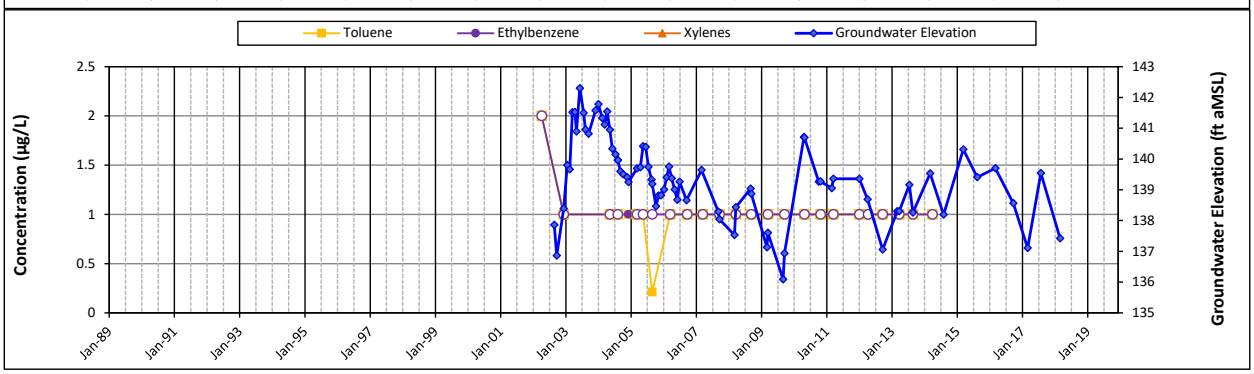
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-7A(20-25)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

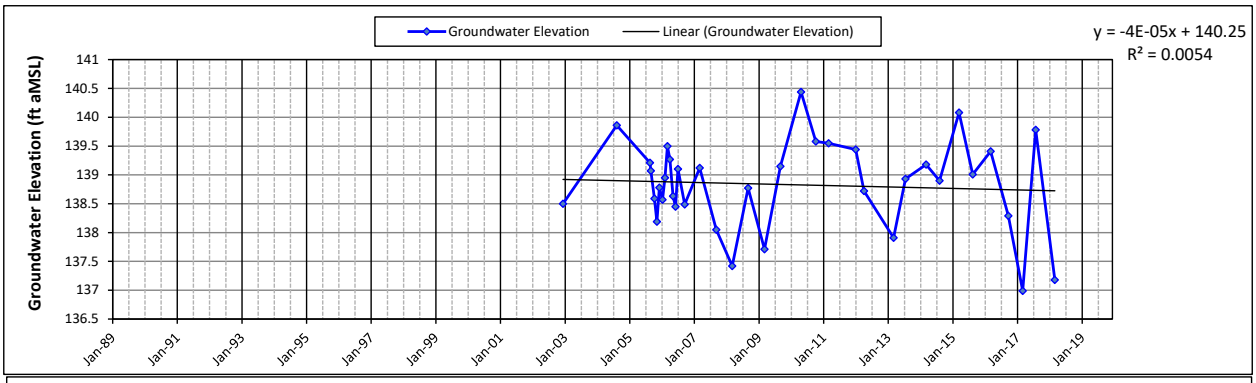
ft aMSL Feet above mean sea level

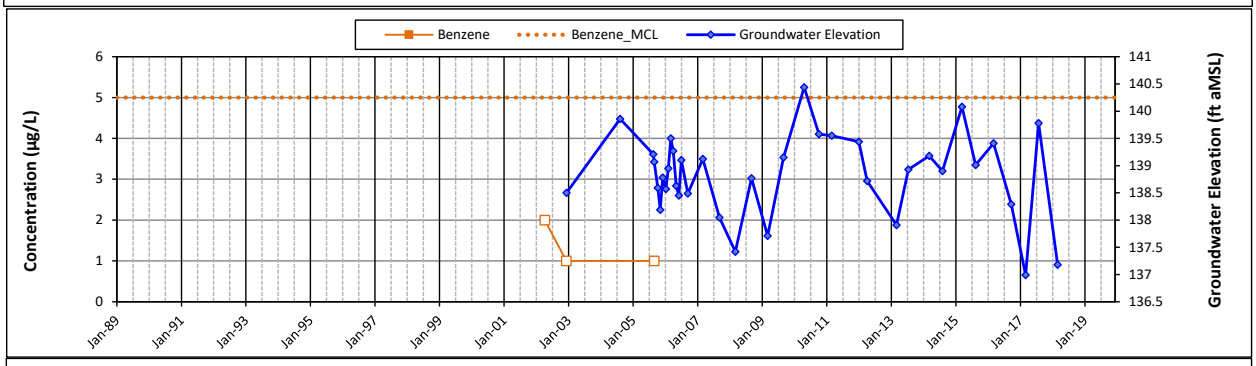
µg/L Micrograms per liter

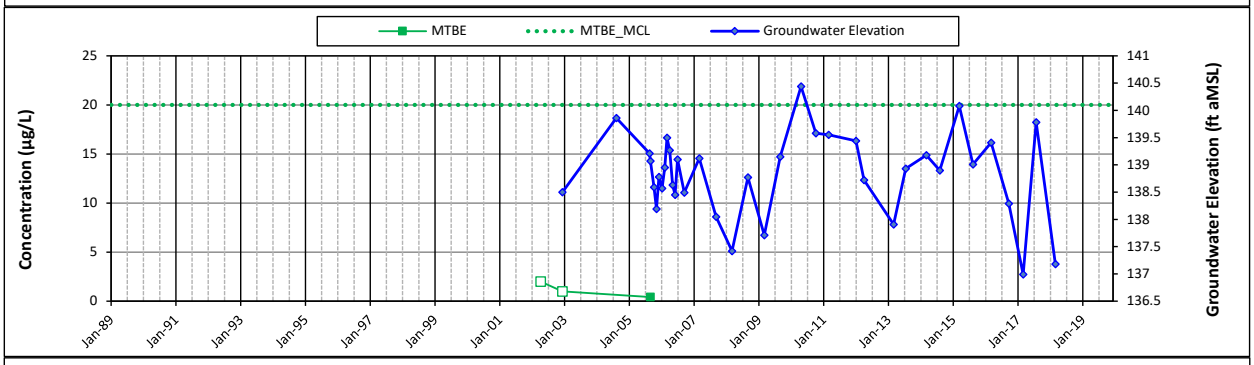
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

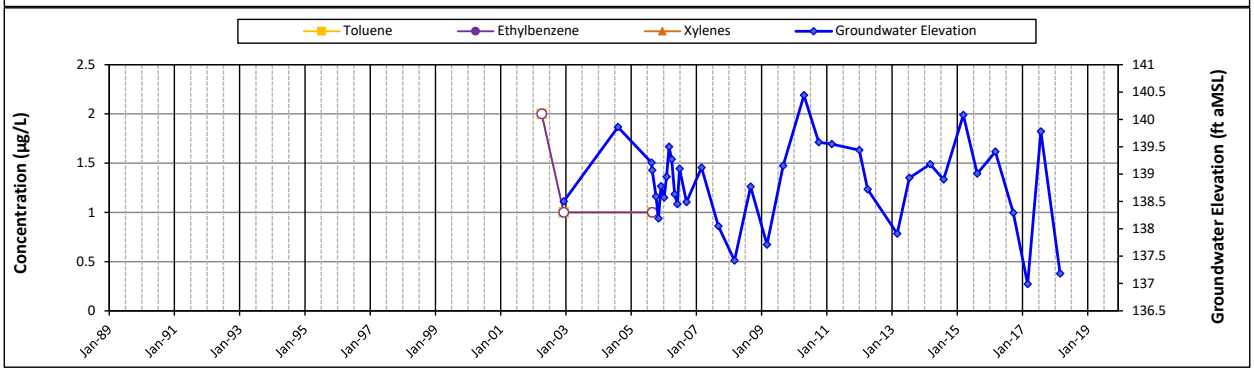
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-7A(25-30)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

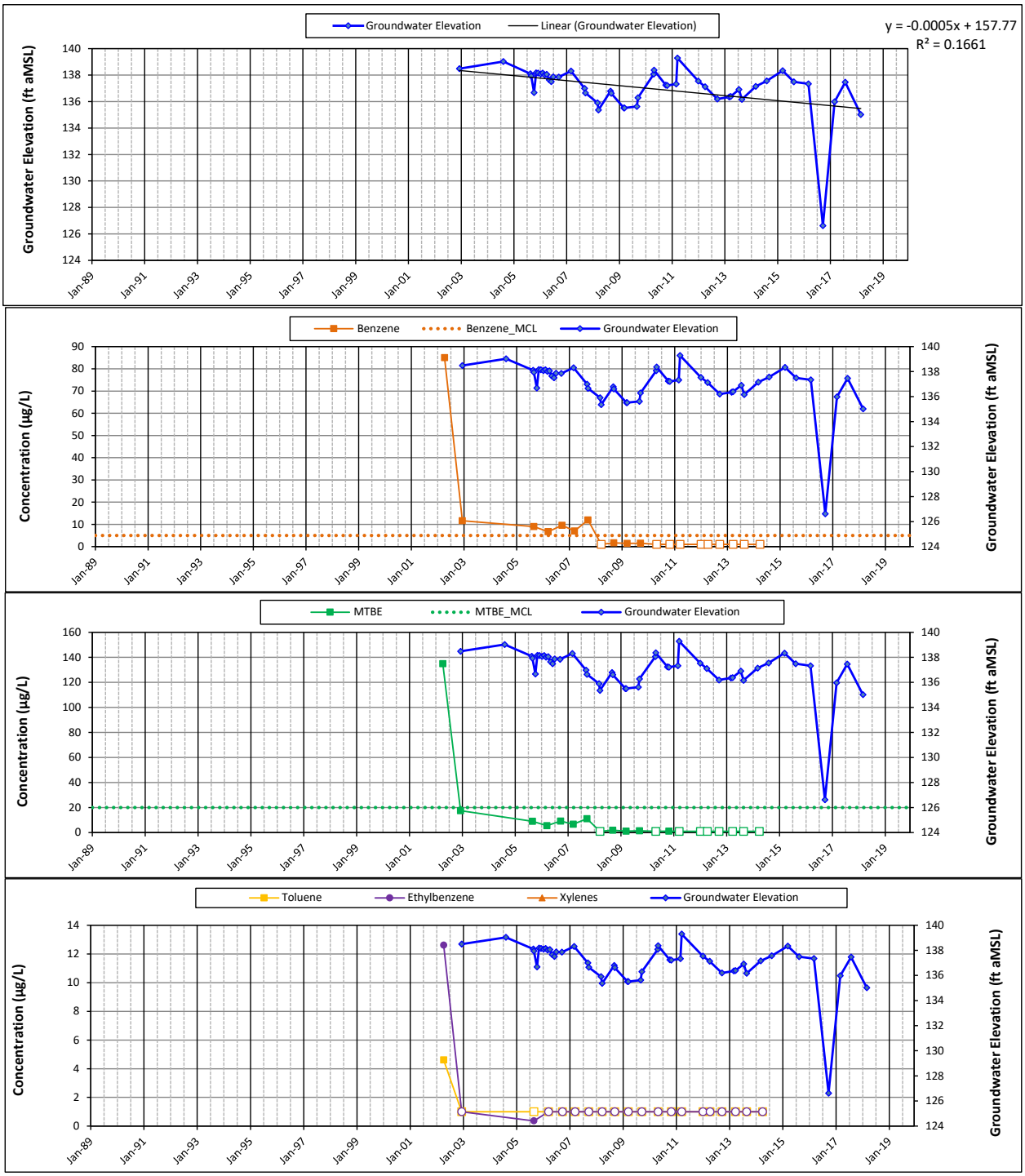
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-7A(30-35)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

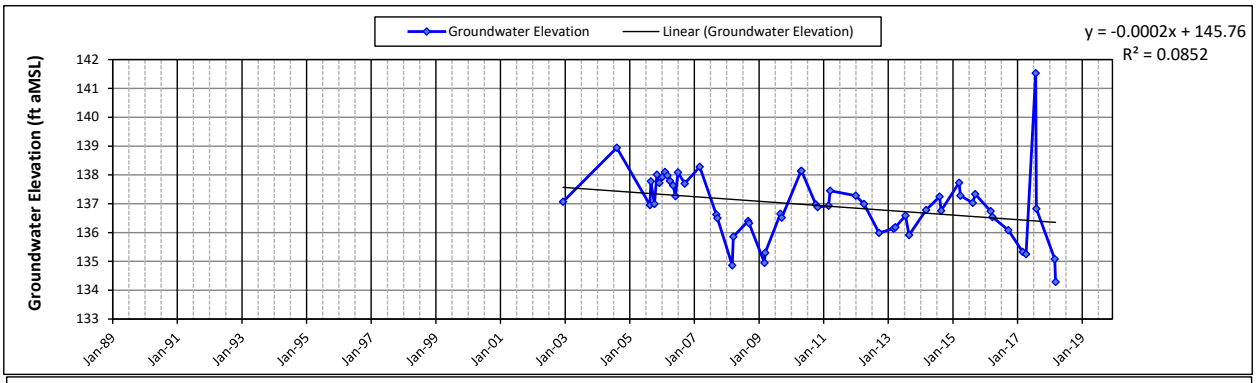
ft aMSL Feet above mean sea level

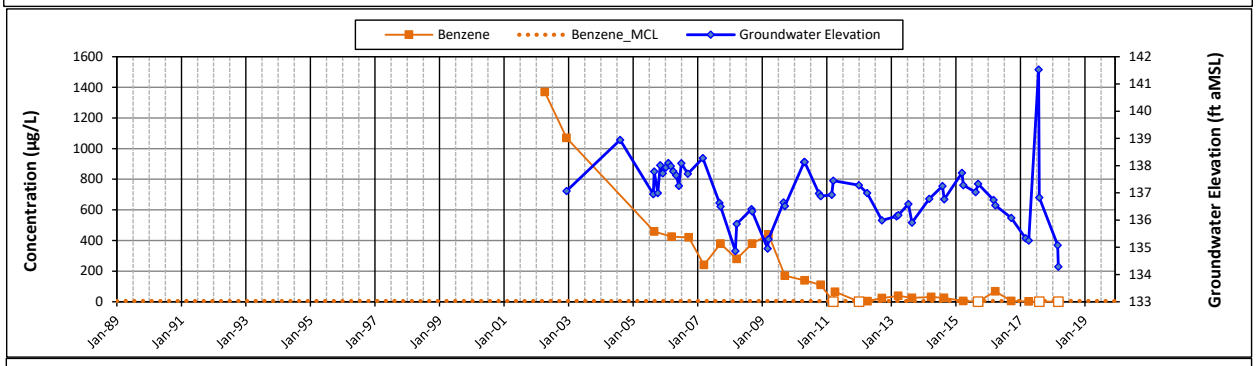
µg/L Micrograms per liter

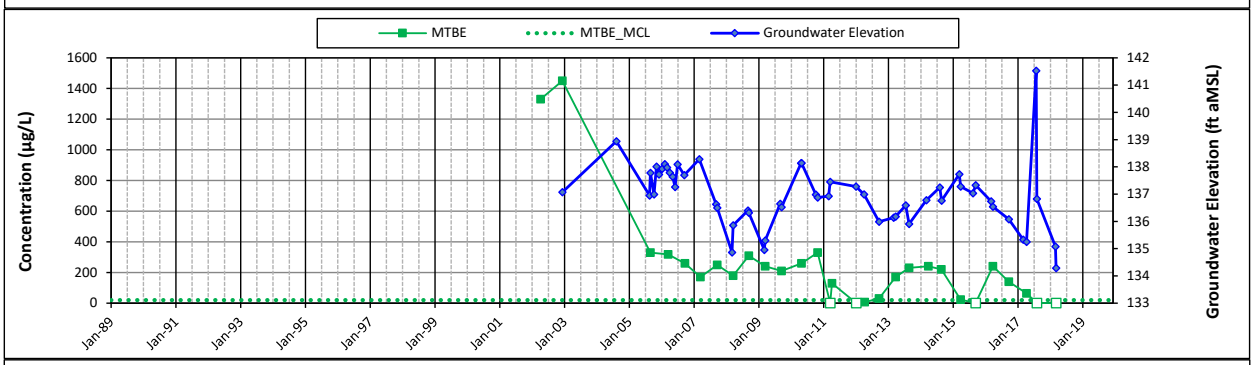
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

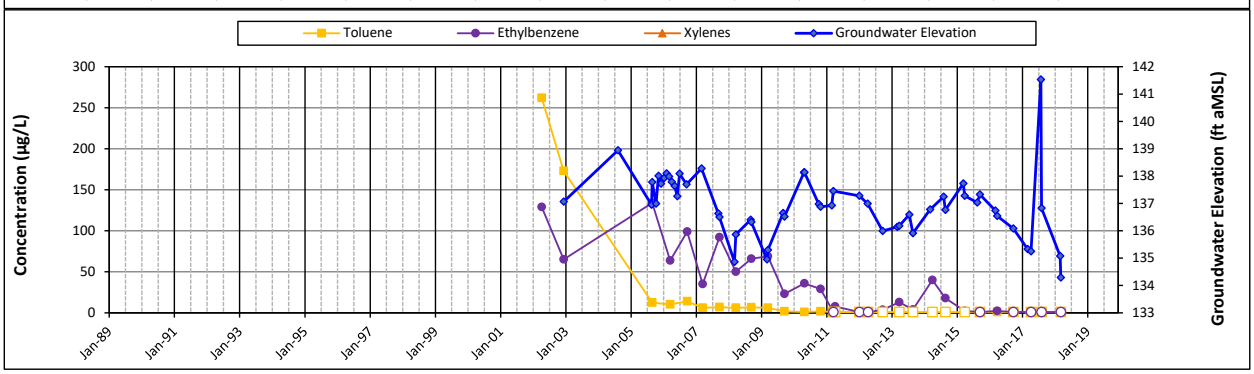
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-7A(35-40)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

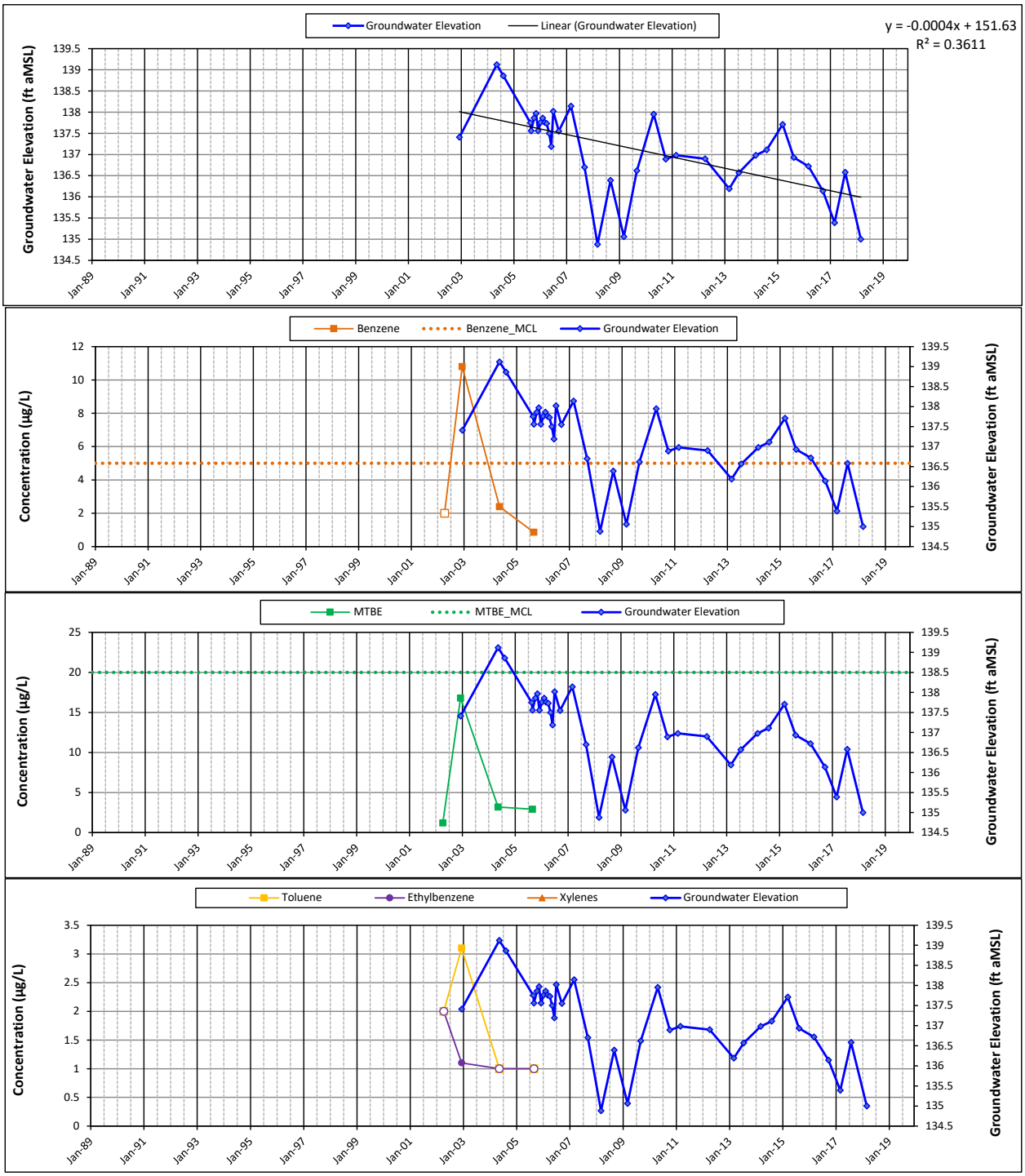
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-7A(40-45)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

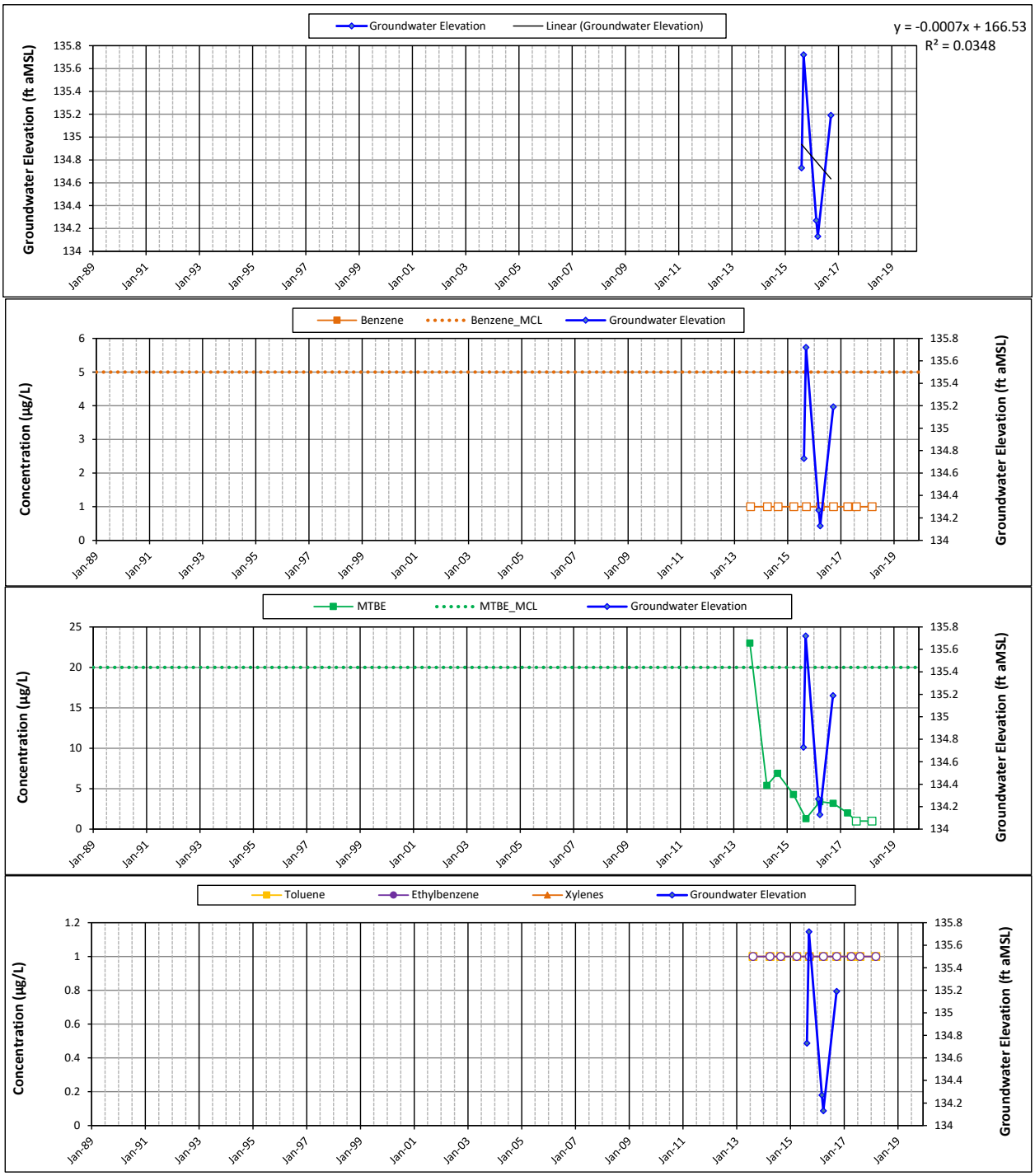
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR ISGR-PD1
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

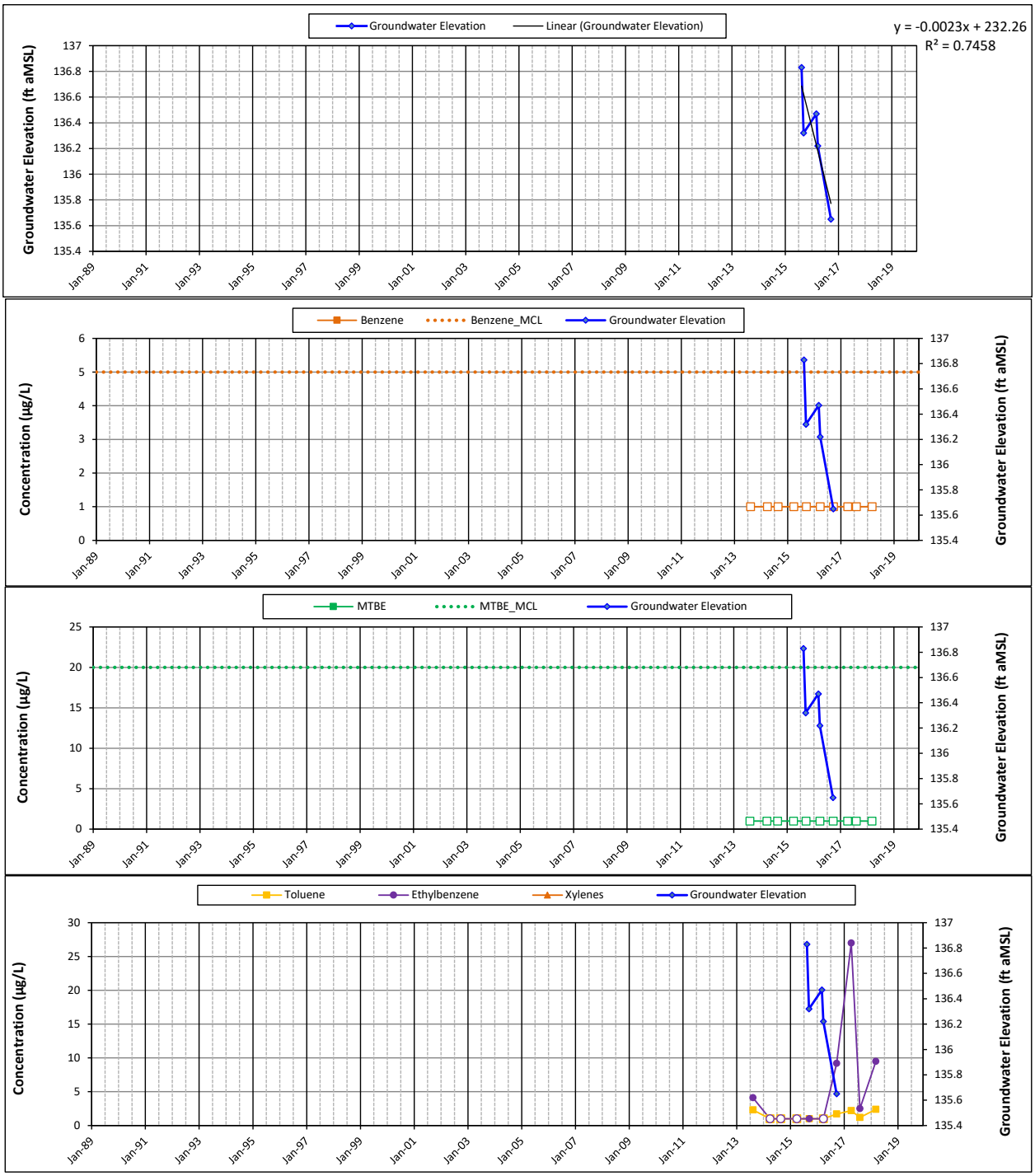
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR ISGR-PS1
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

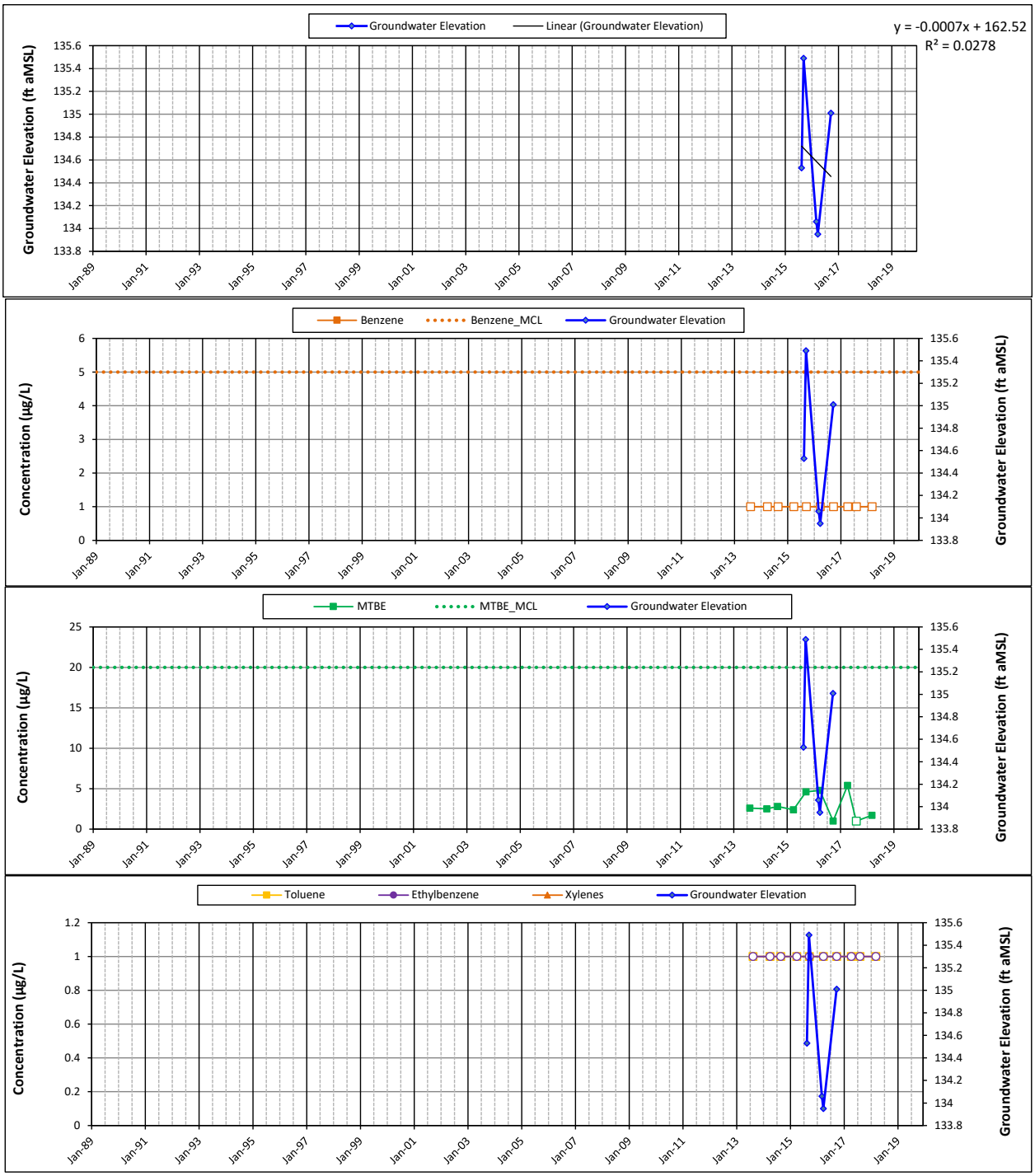
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR ISGR-PD2
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

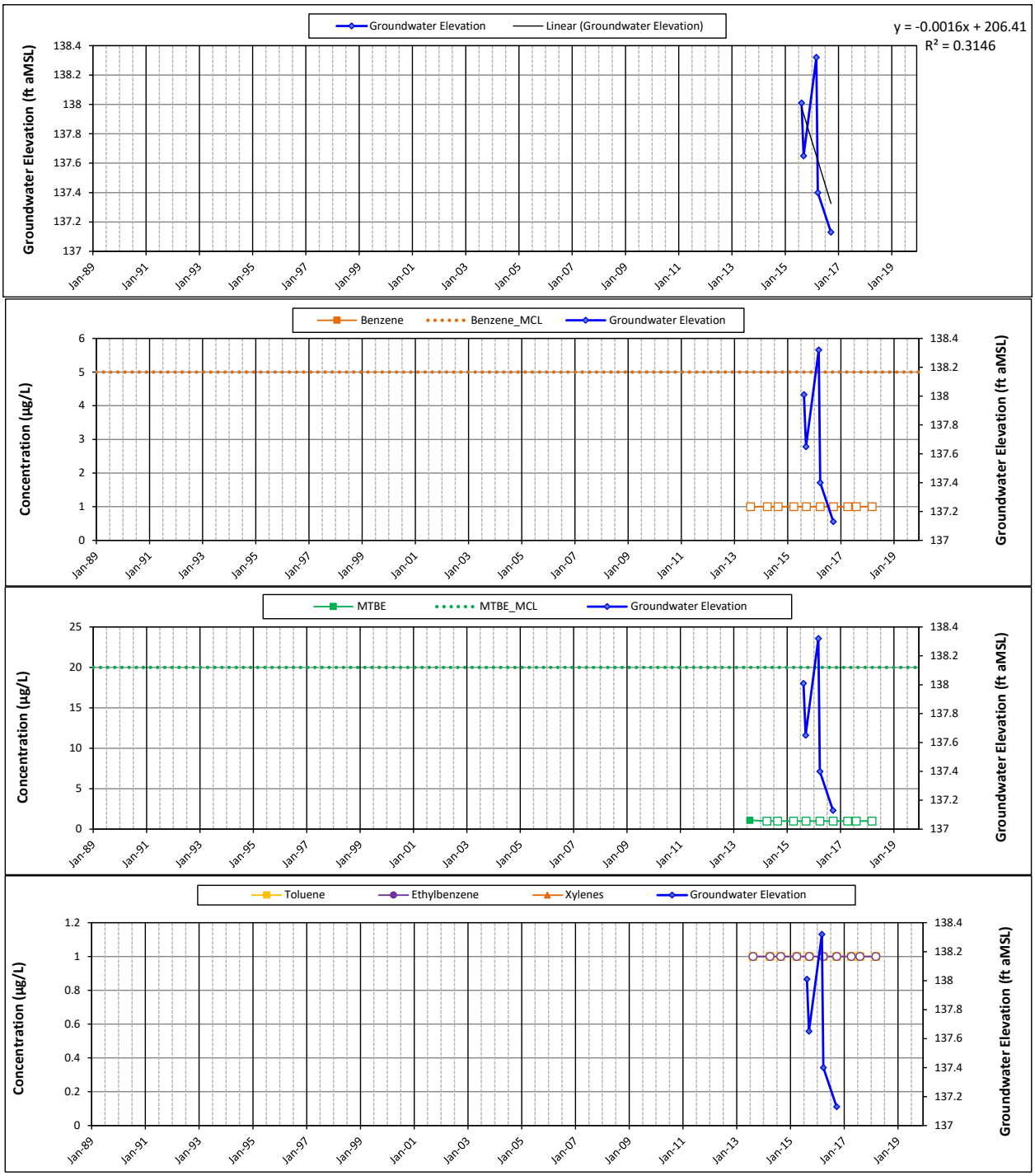
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR ISGR-PS2
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

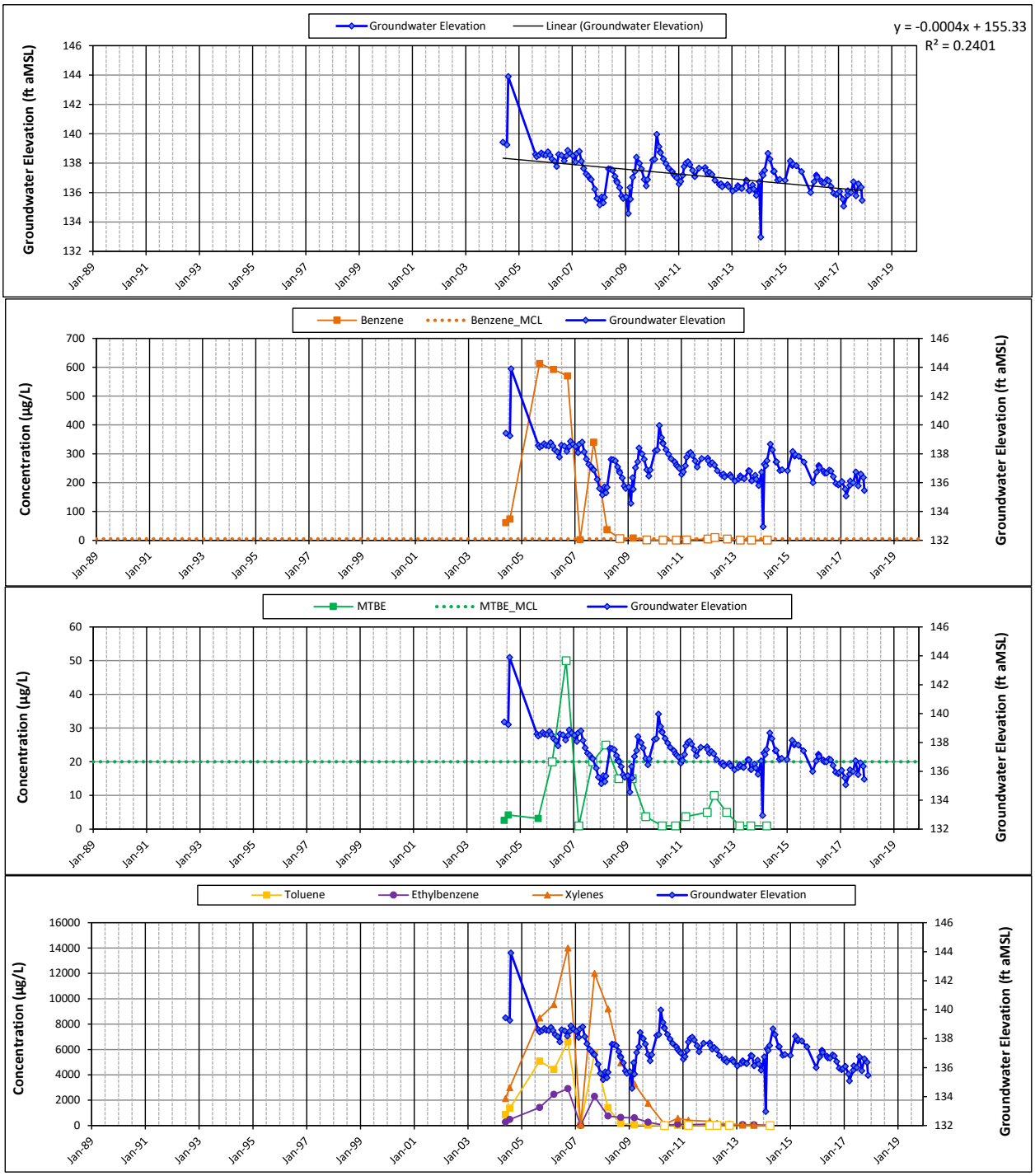
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-24A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

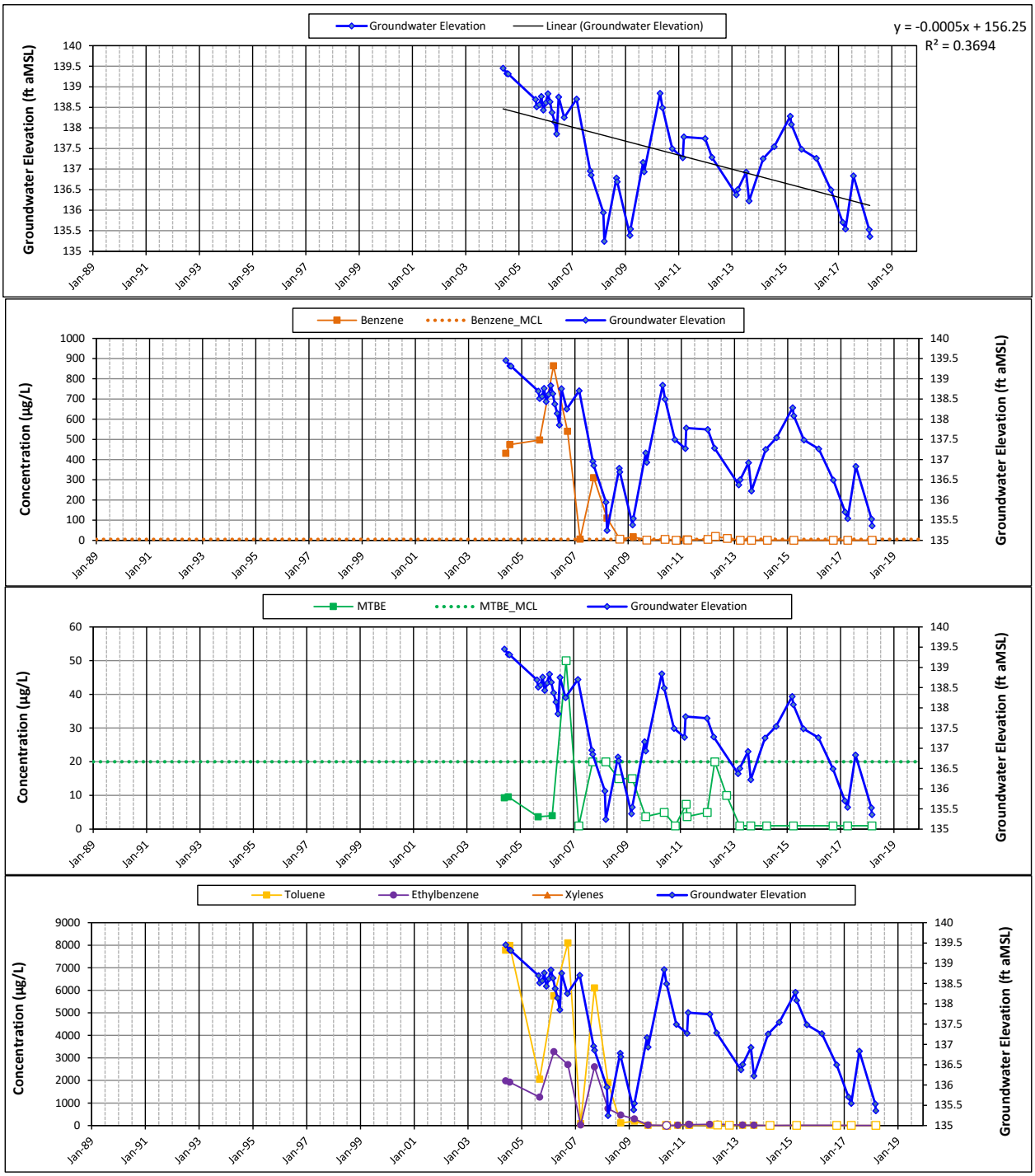
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-24B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

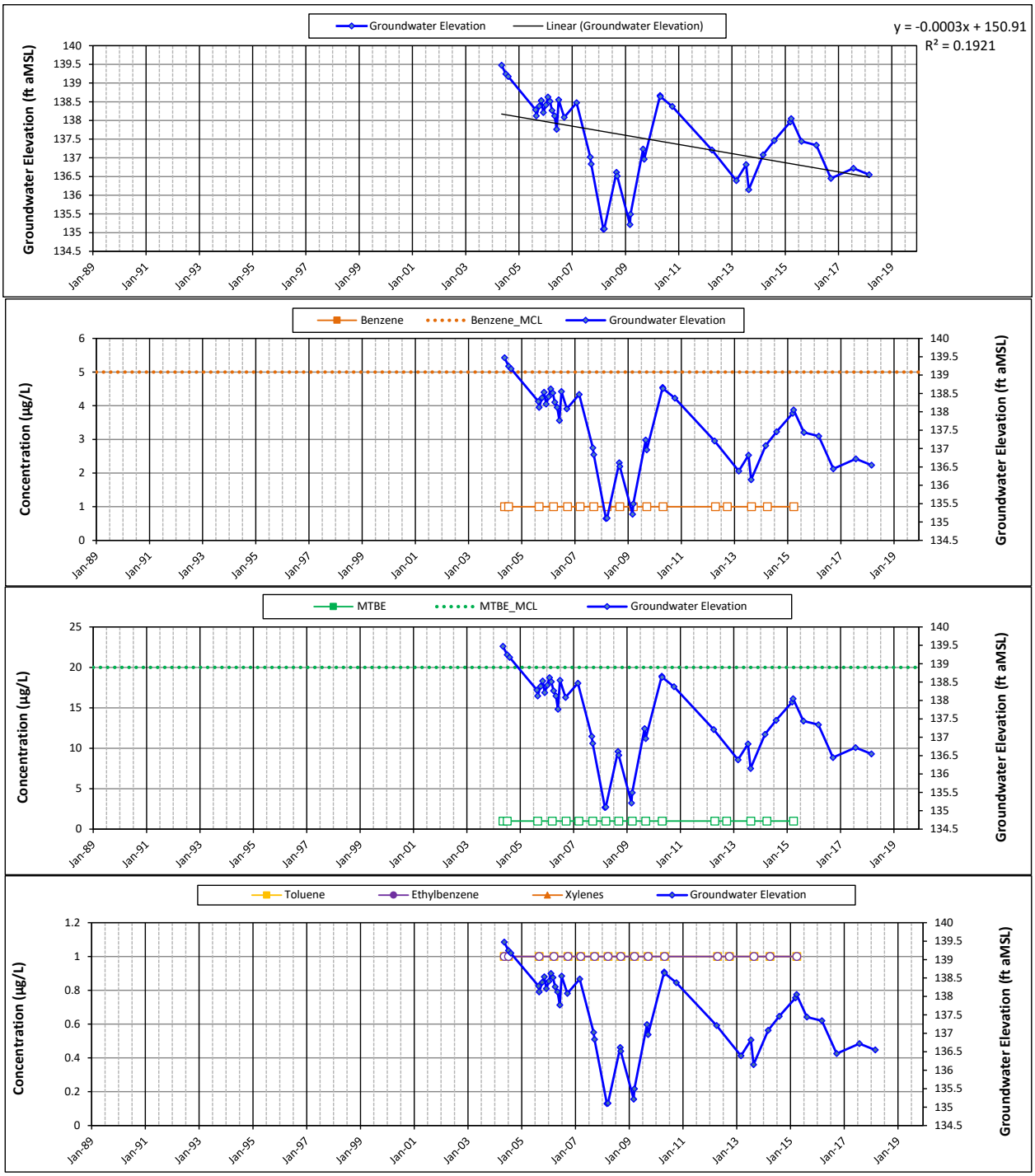
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-30R
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

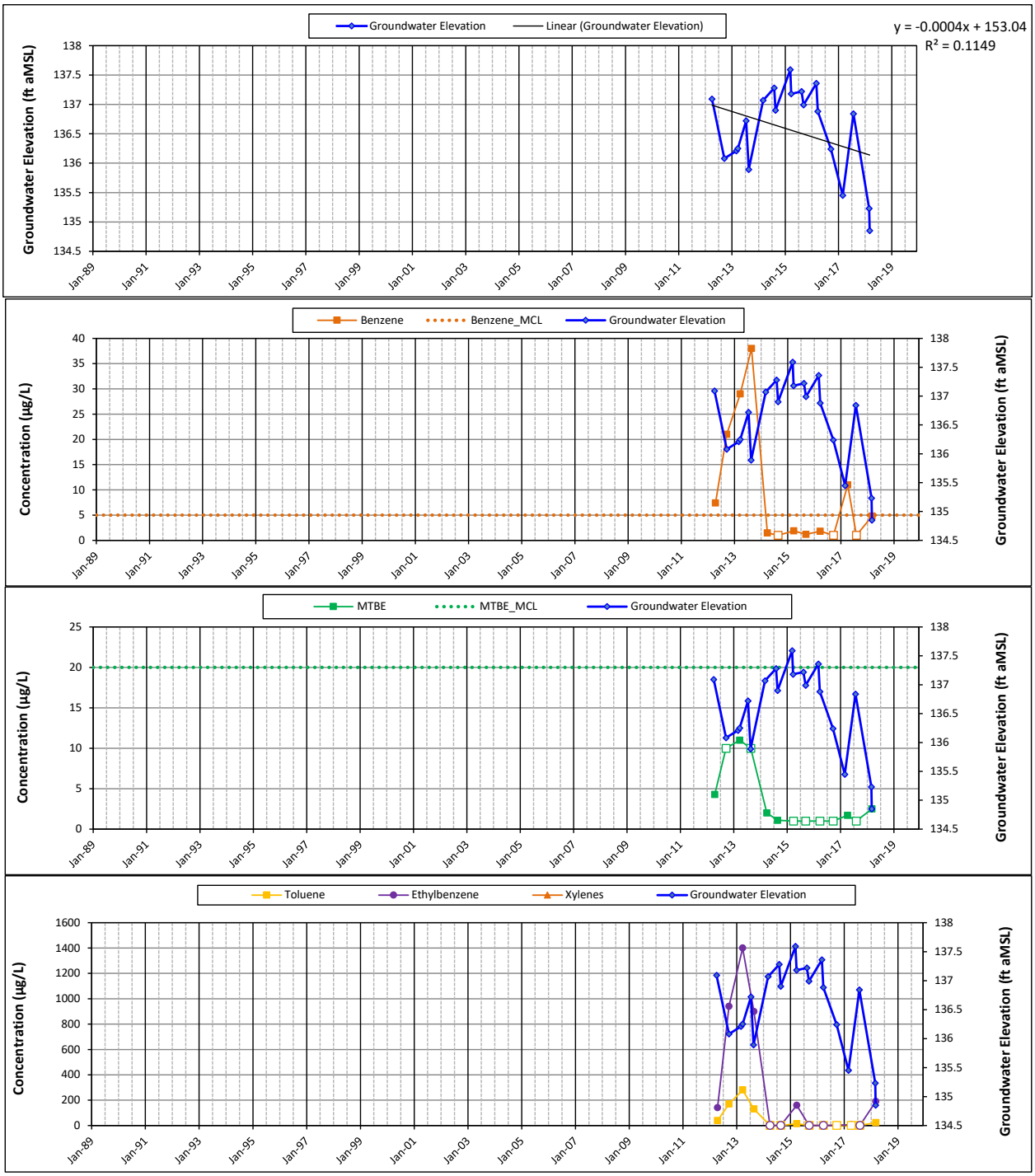
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-61A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

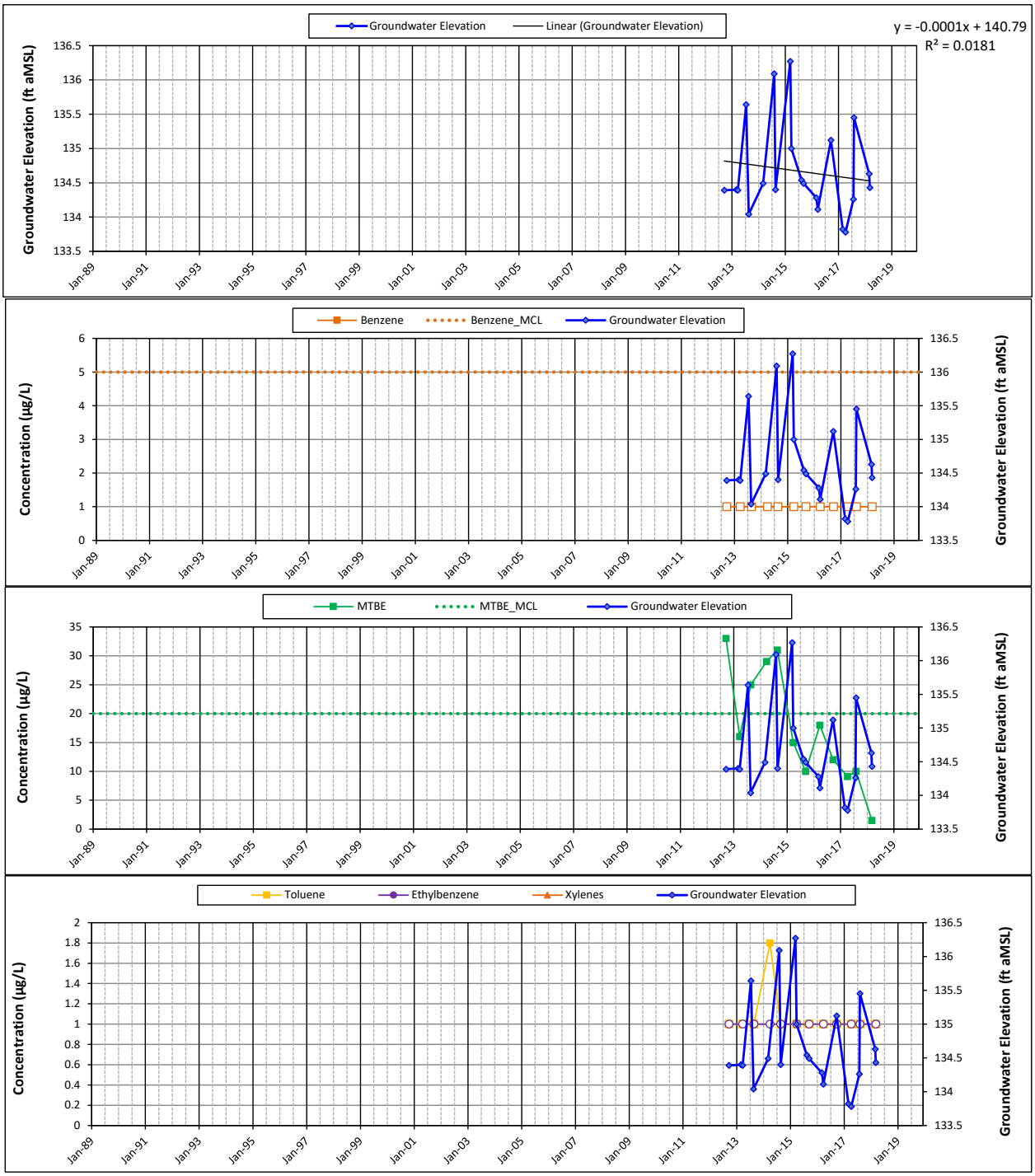
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-61B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

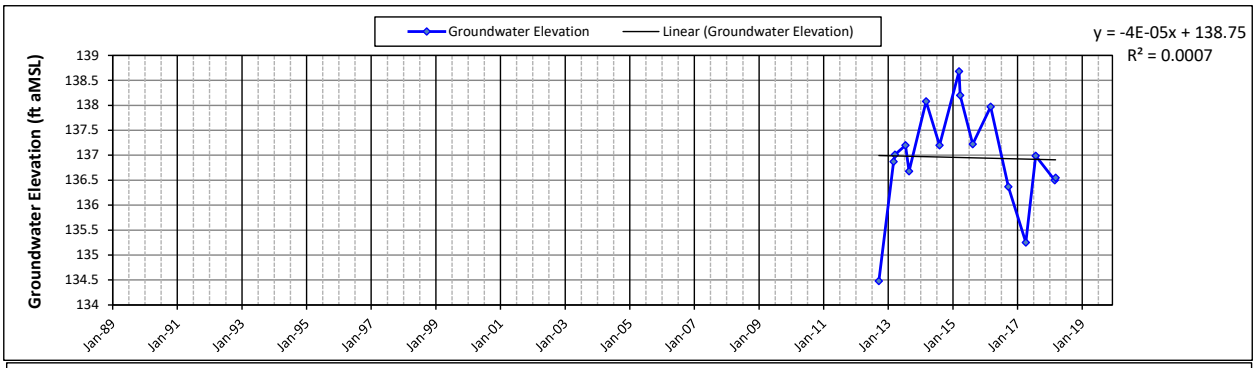
ft aMSL Feet above mean sea level

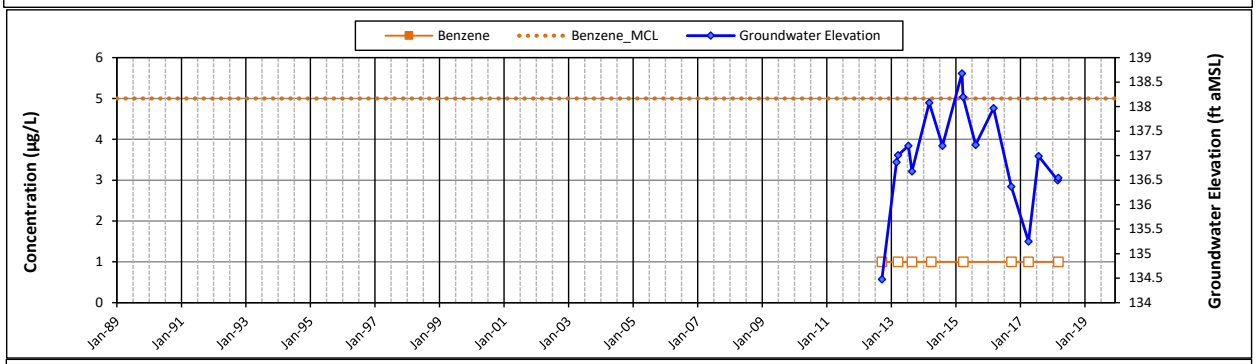
µg/L Micrograms per liter

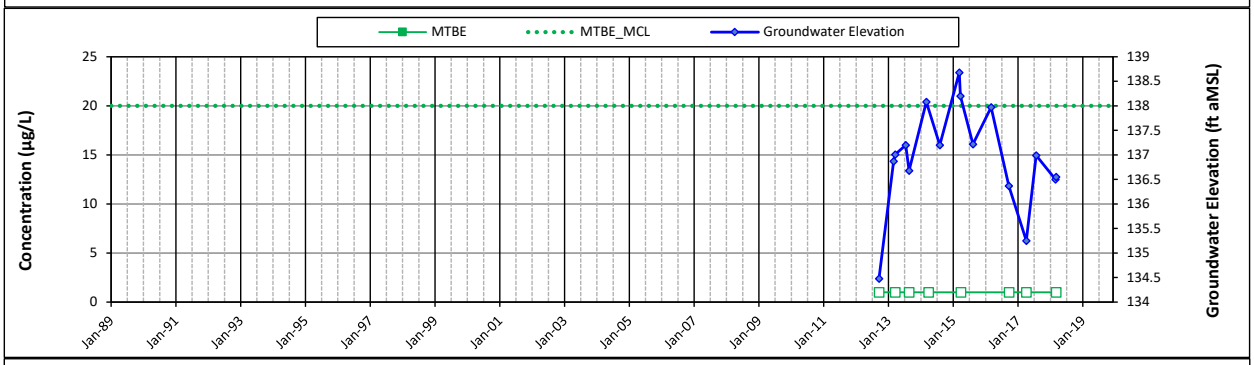
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

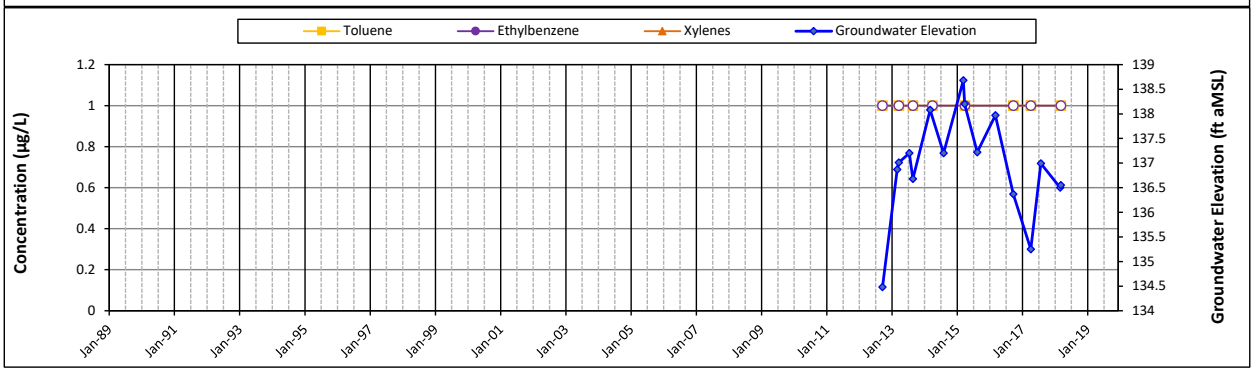
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-62A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

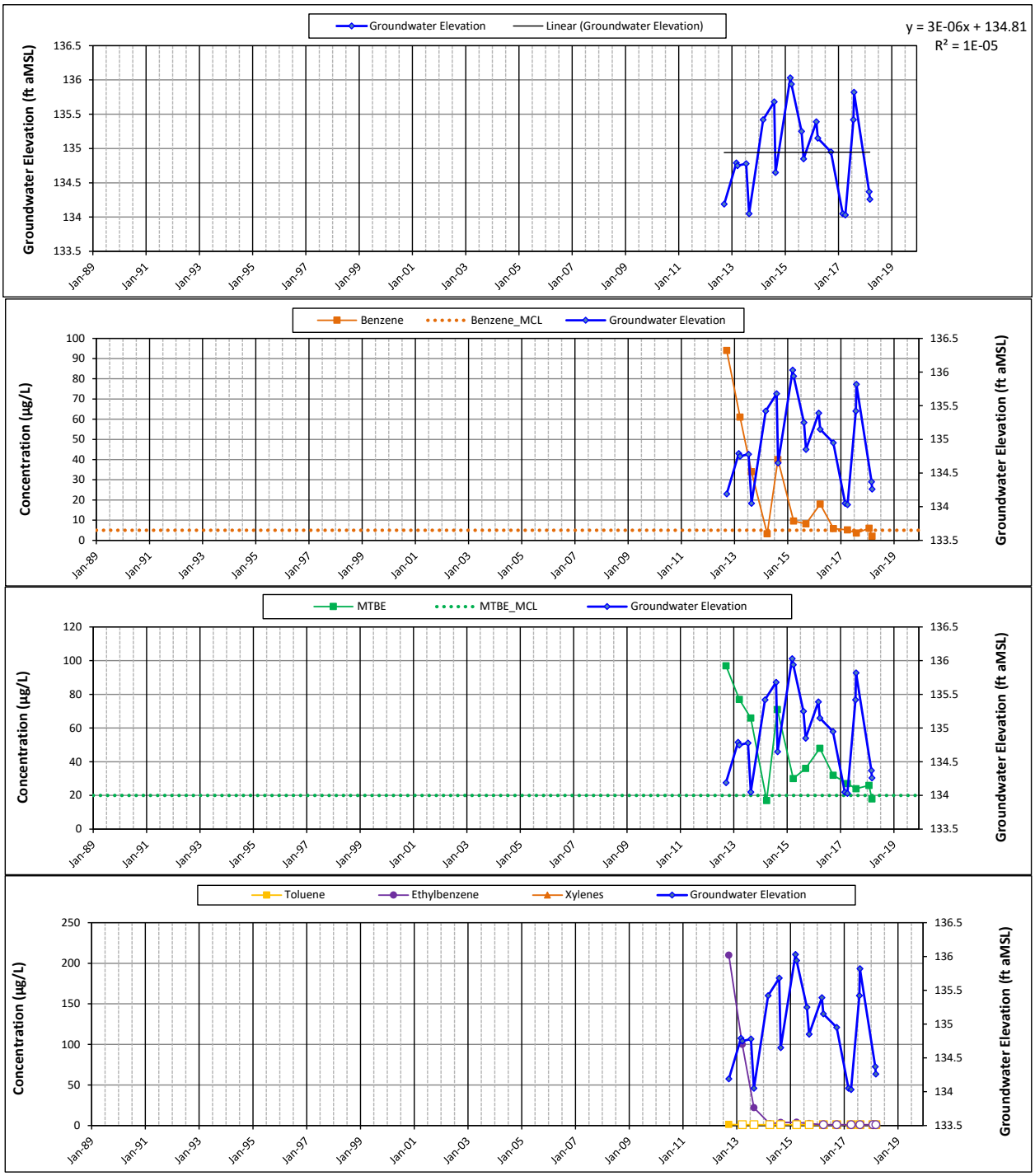
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-62B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

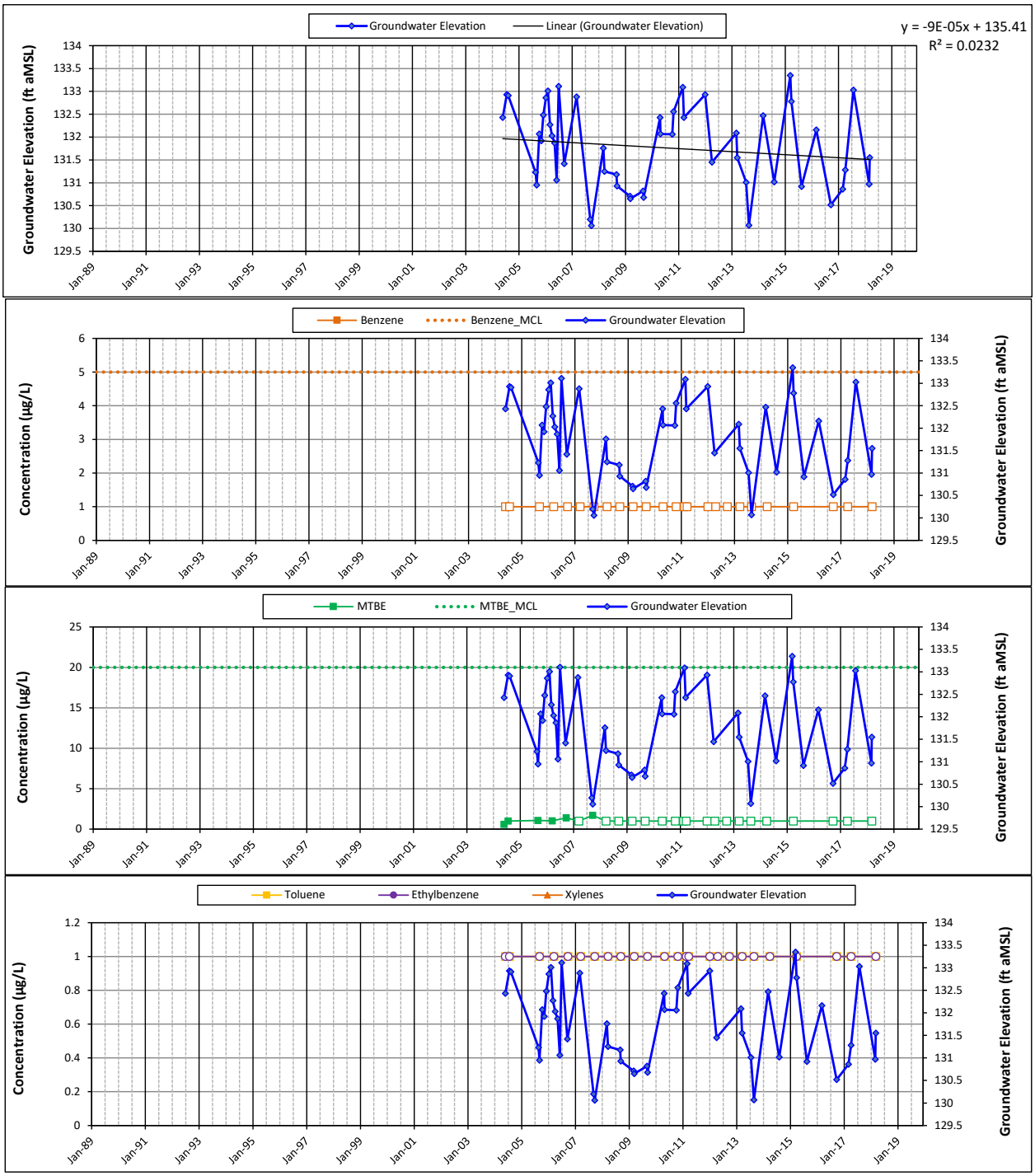
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-26A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

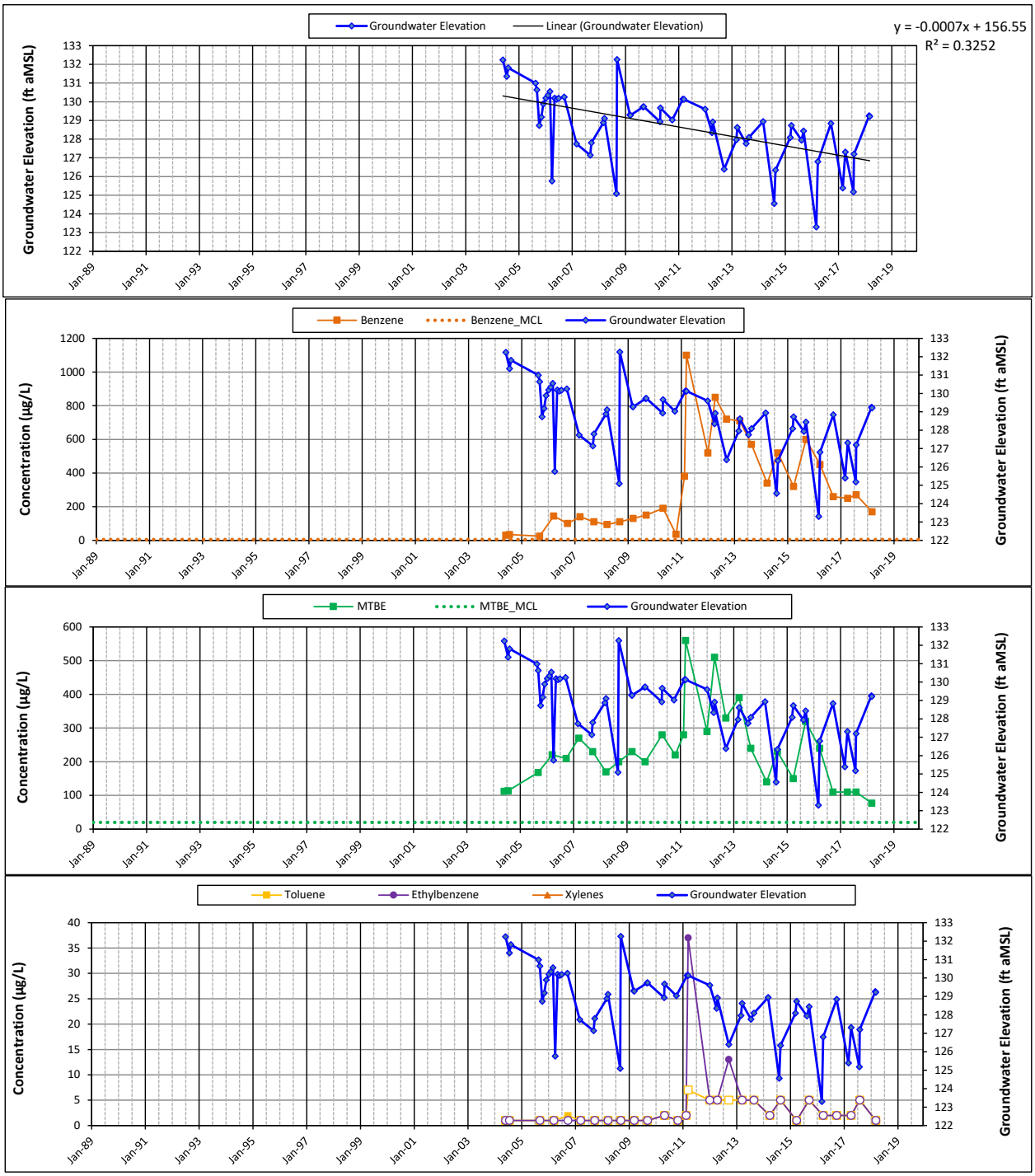
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-26B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

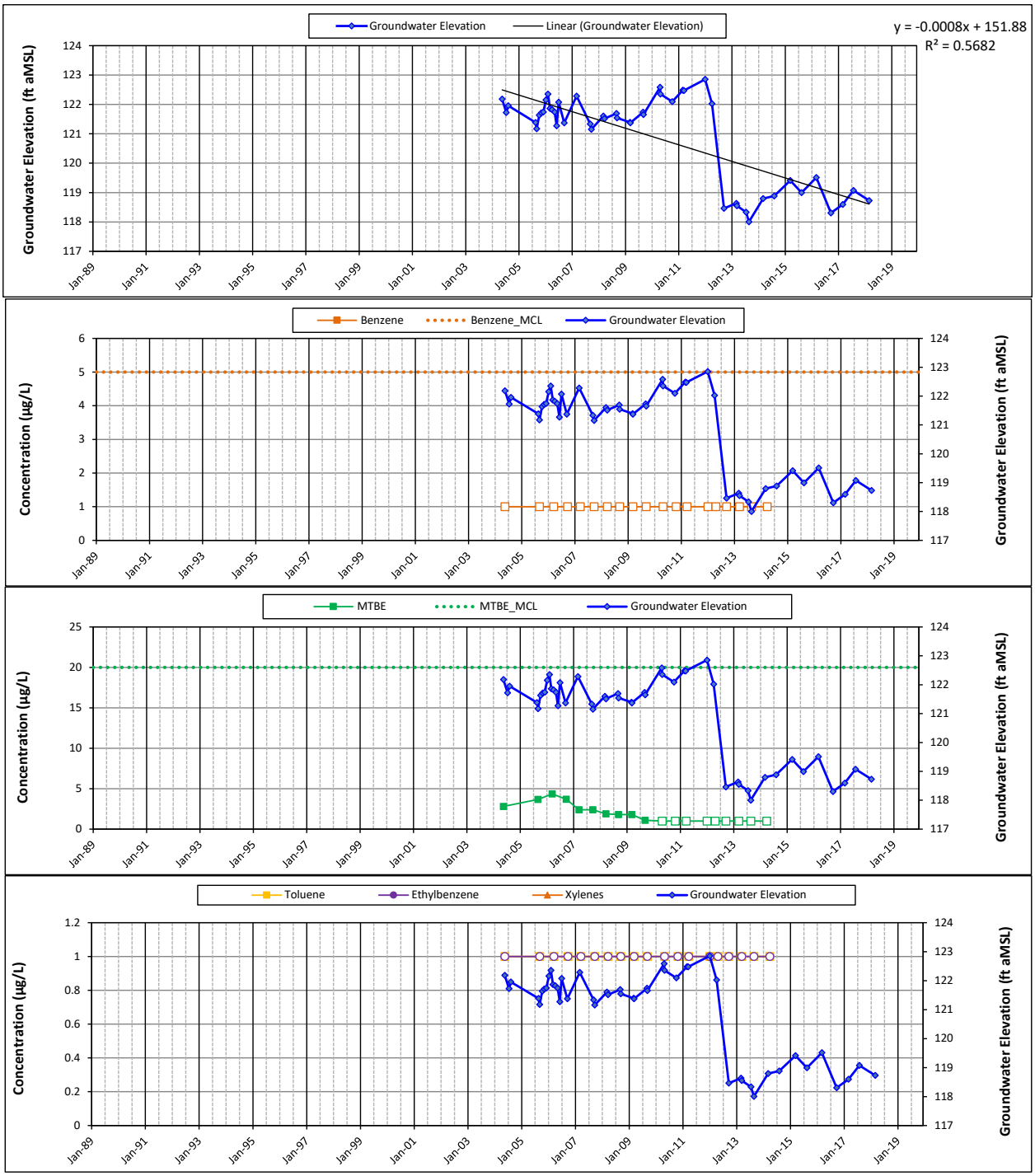
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-28A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

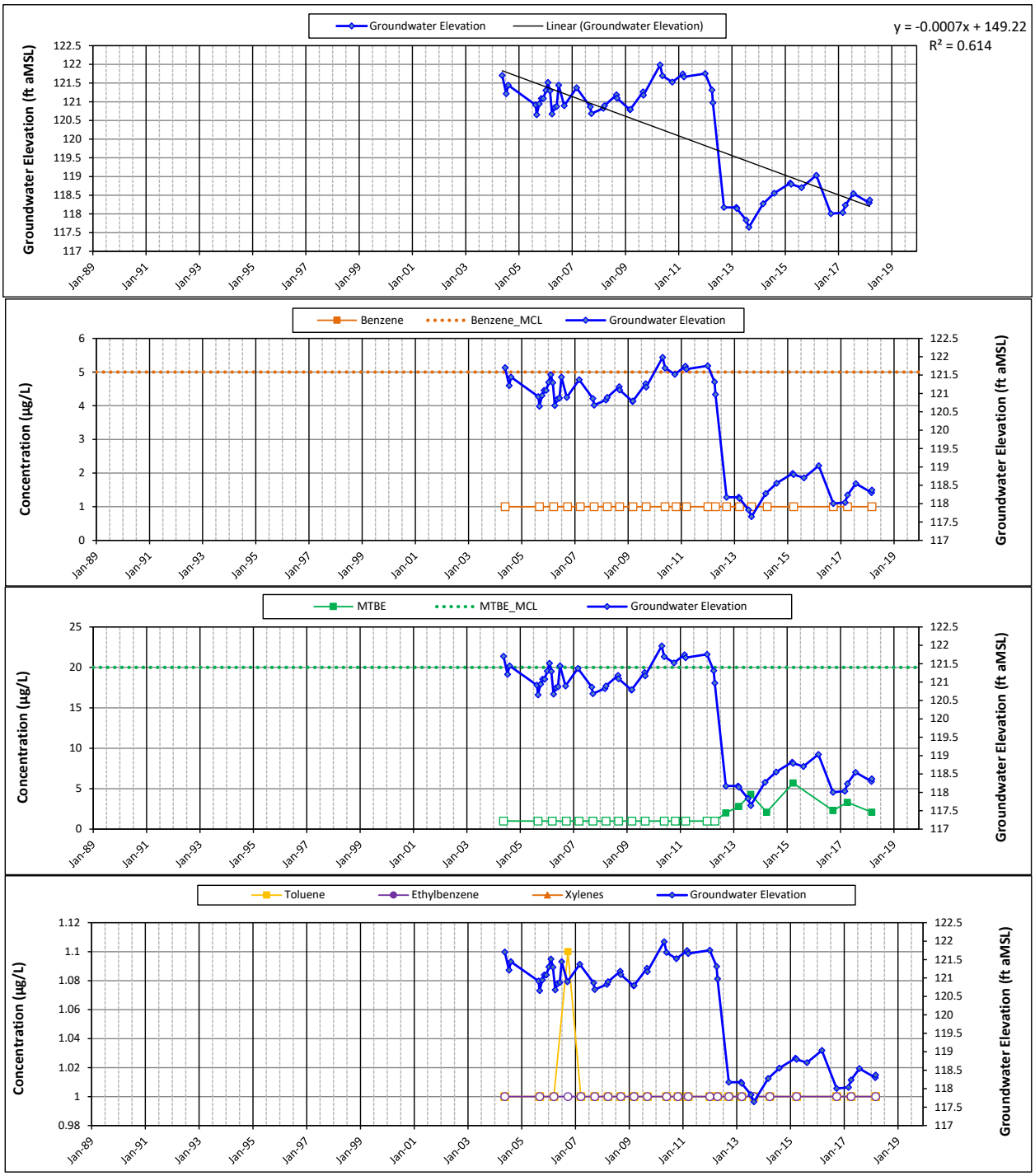
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-28B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

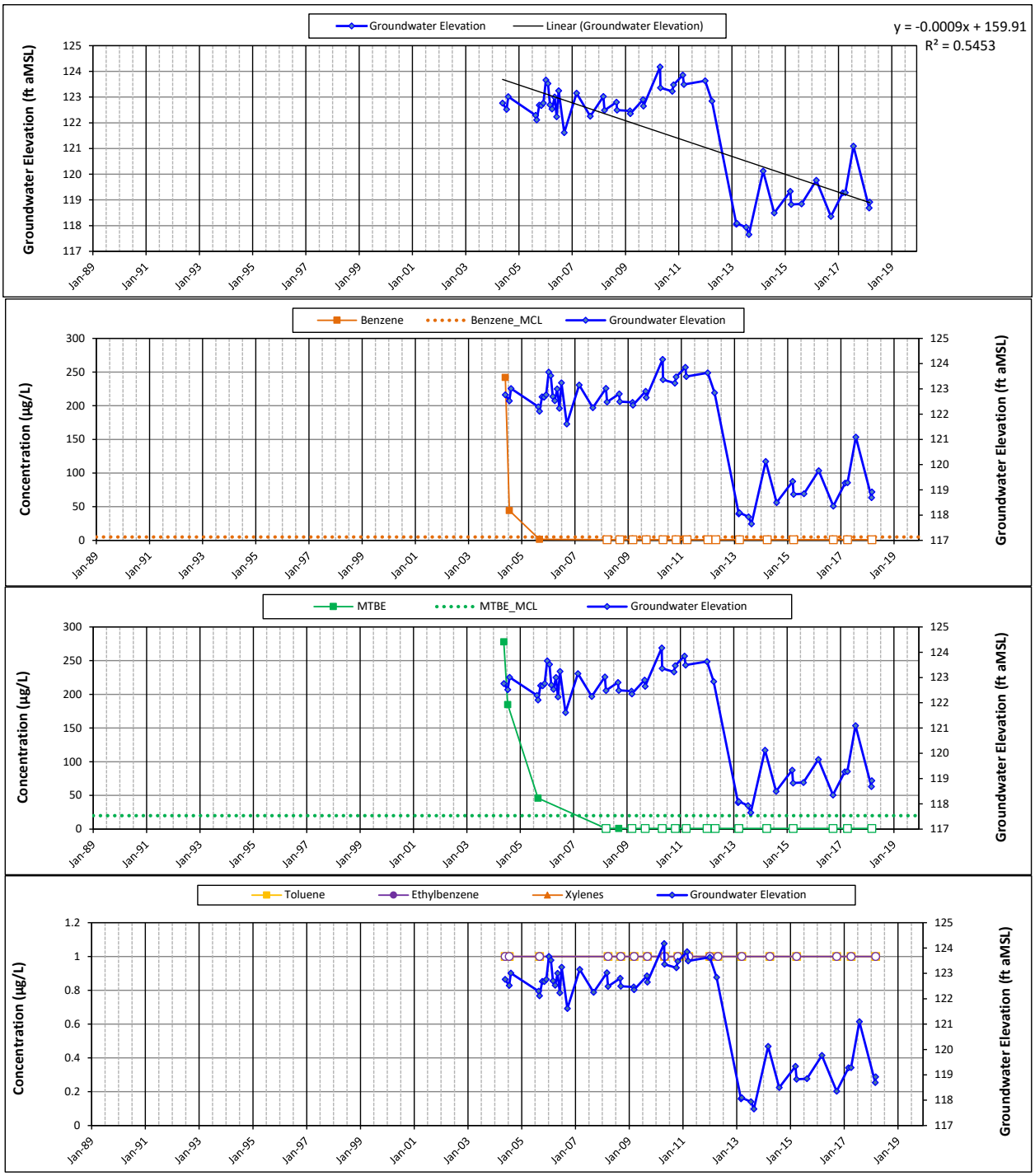
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-33A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

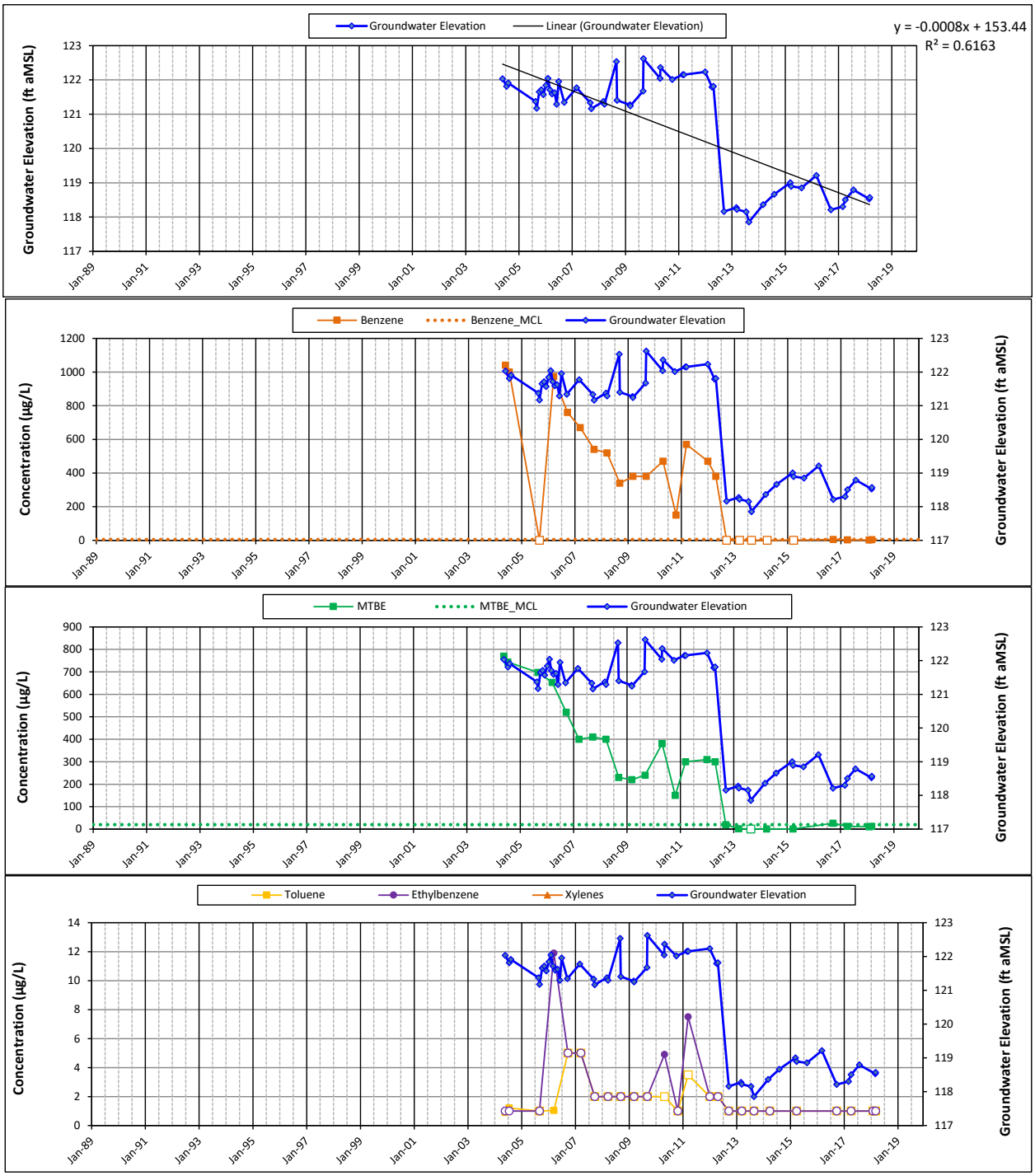
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-33B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

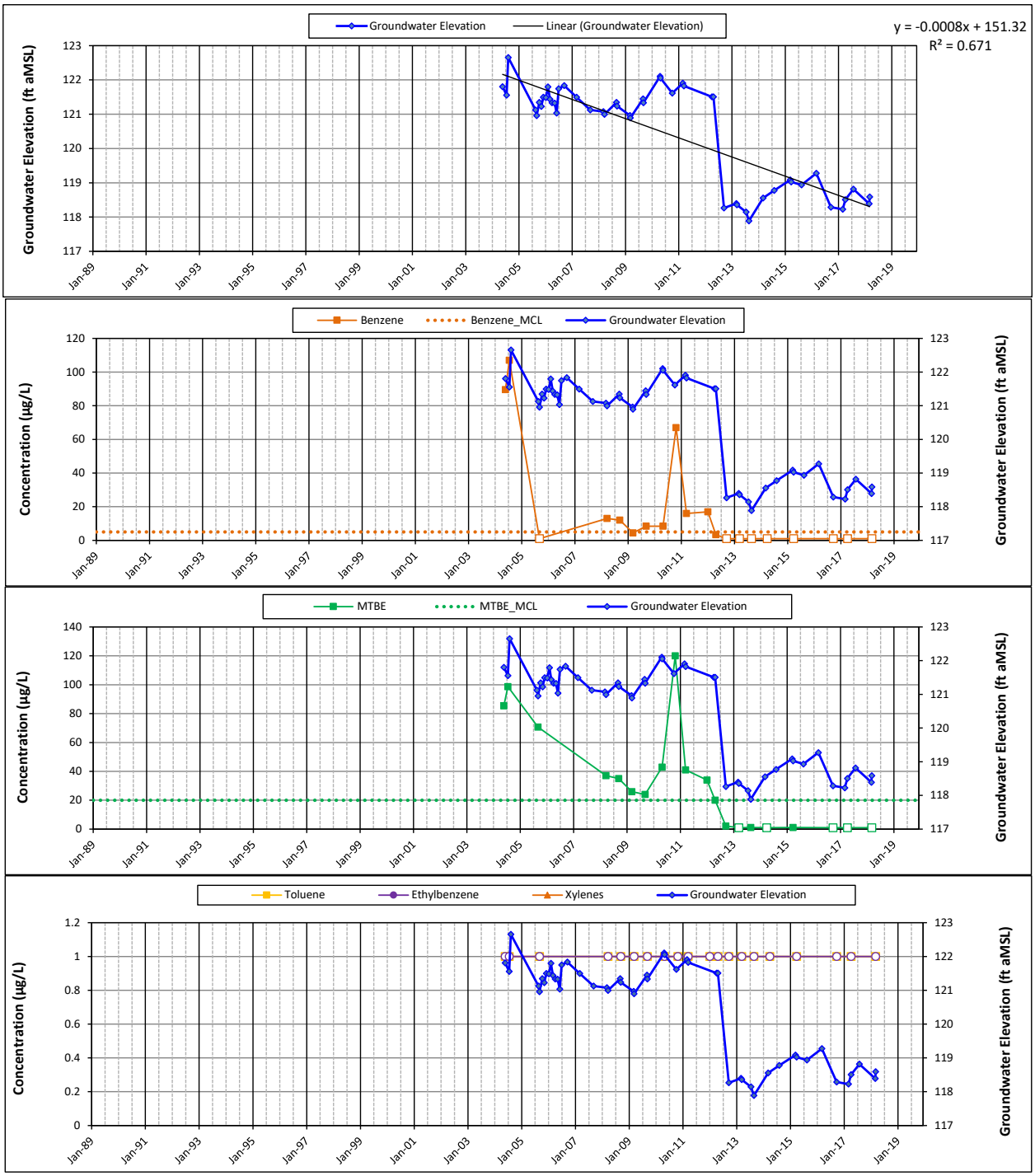
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-33C
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

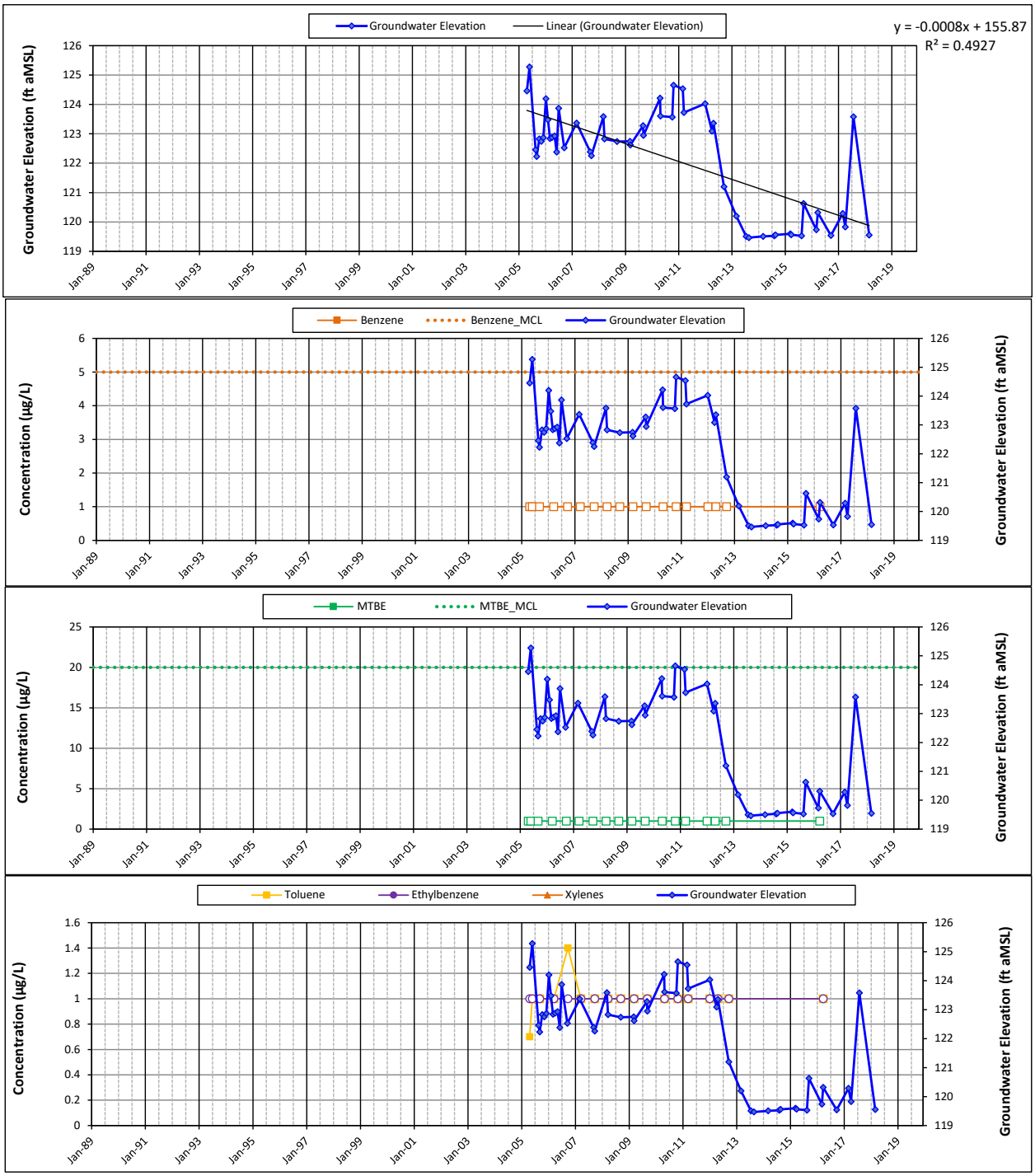
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-33S
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

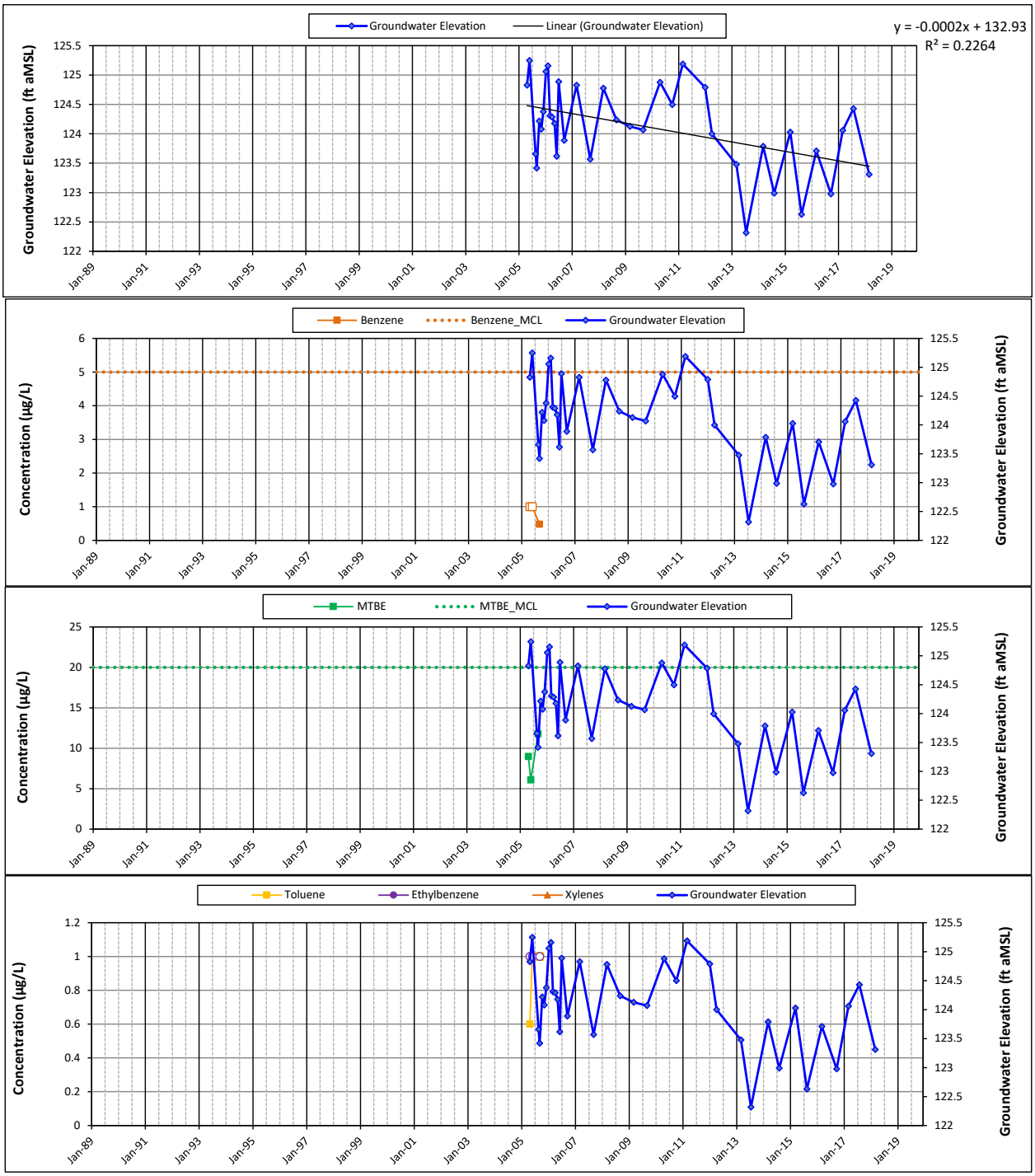
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-52
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

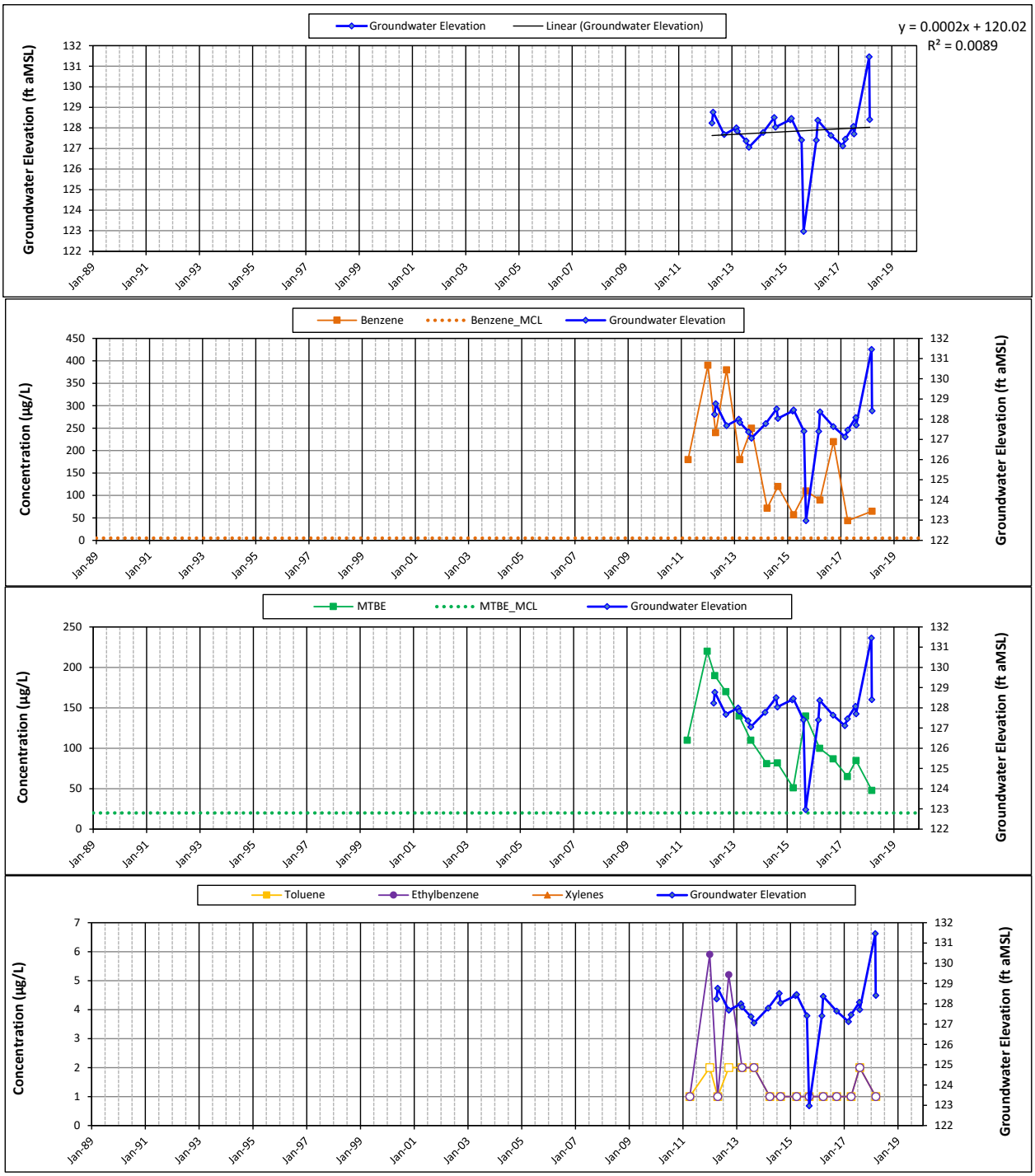
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-58
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

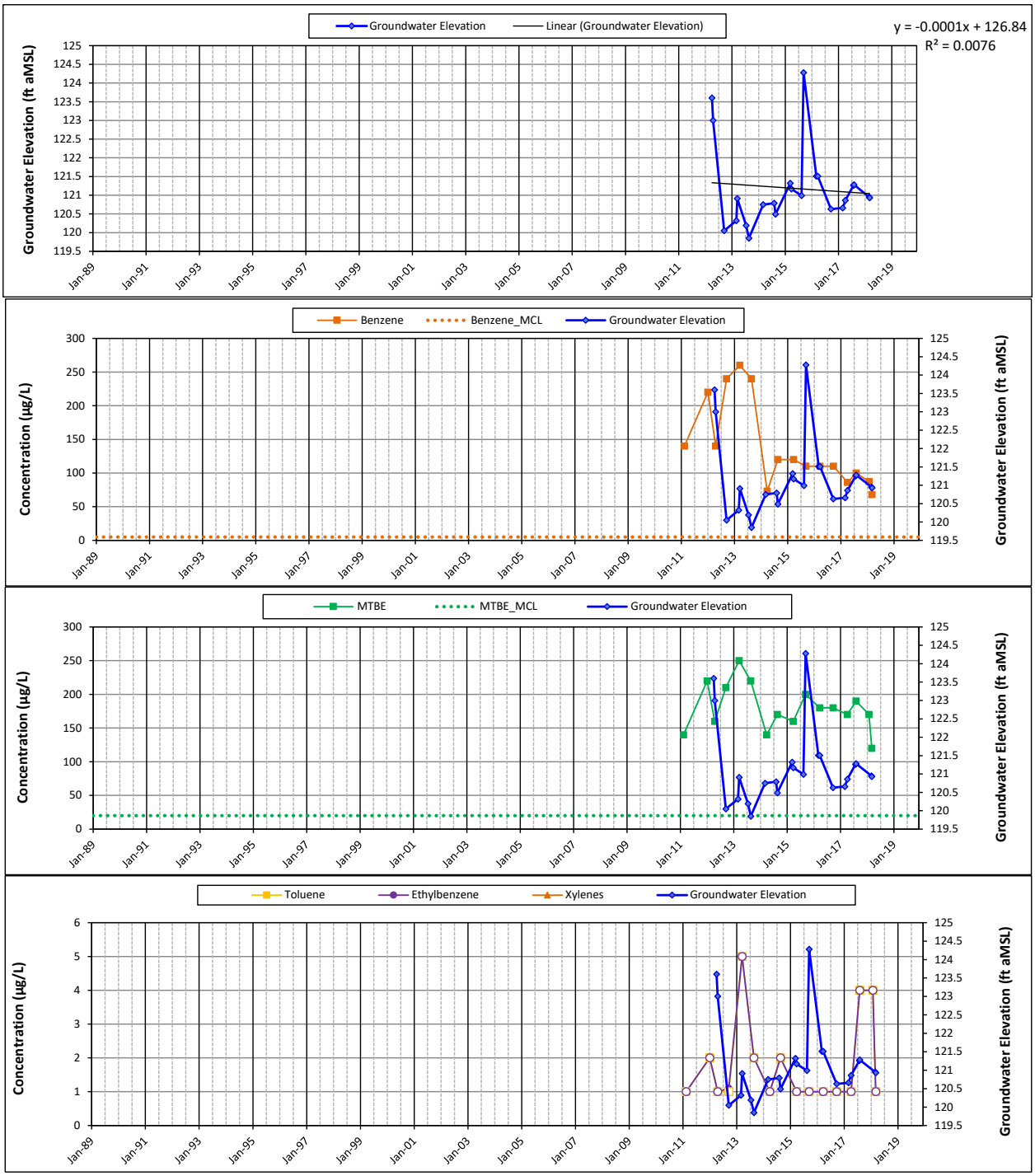
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-59
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

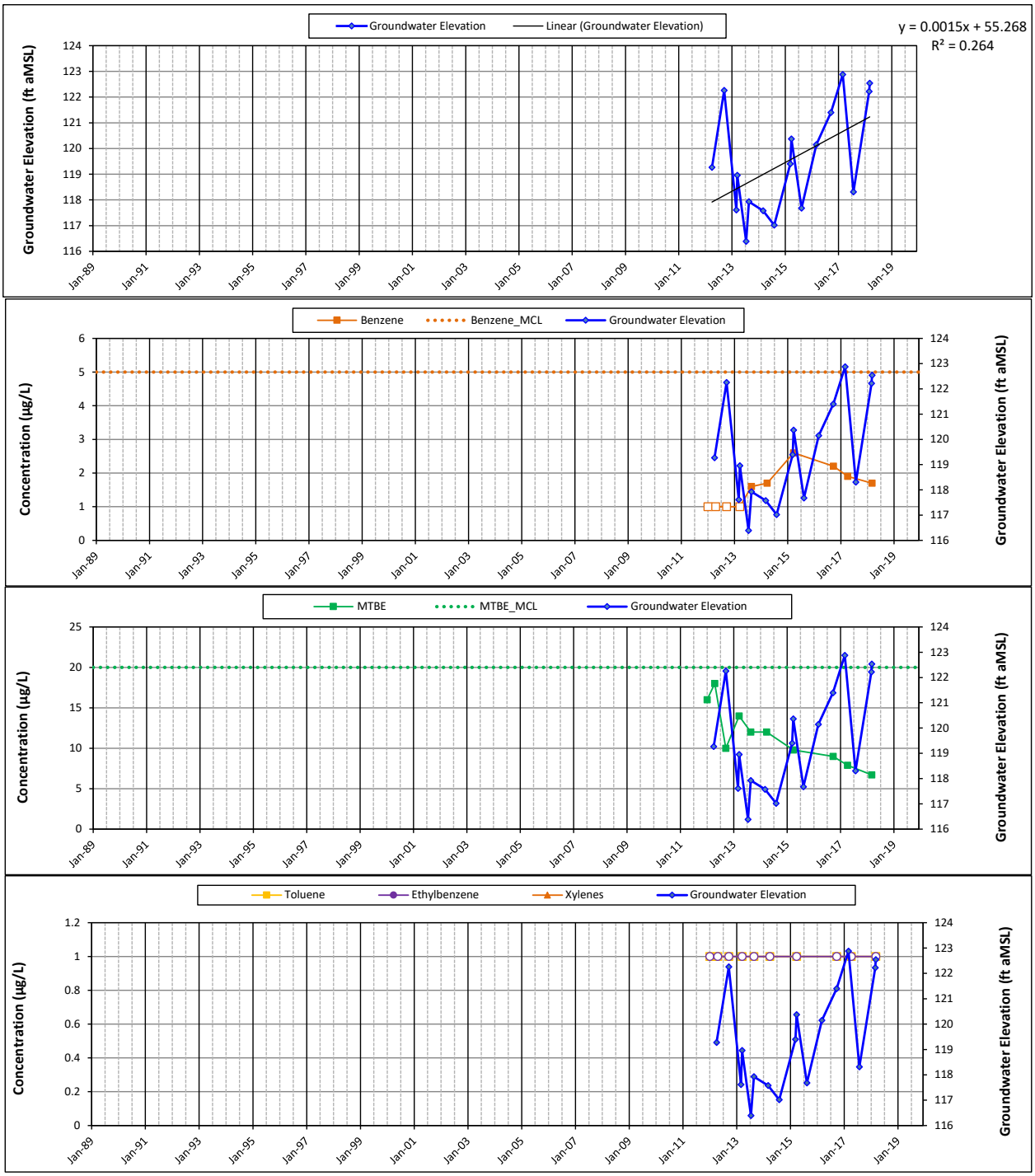
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-60
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

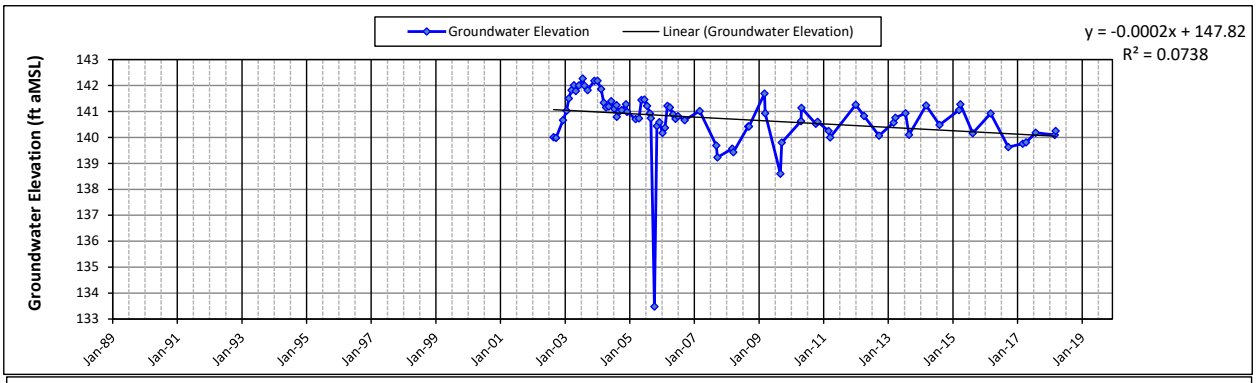
ft aMSL Feet above mean sea level

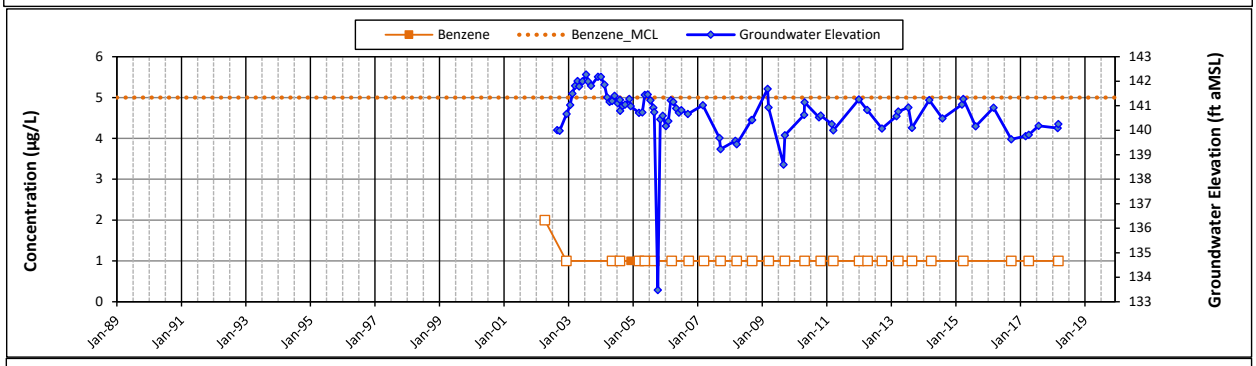
µg/L Micrograms per liter

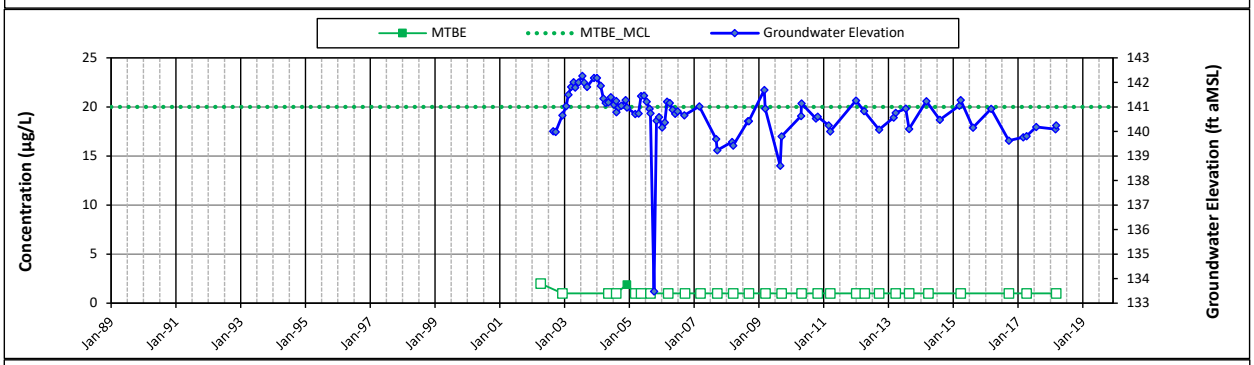
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

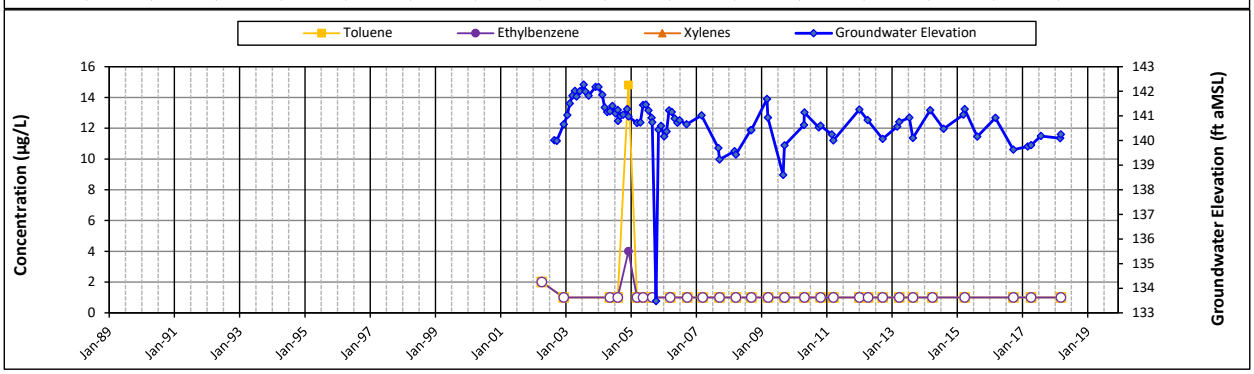
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-11A(20-25)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

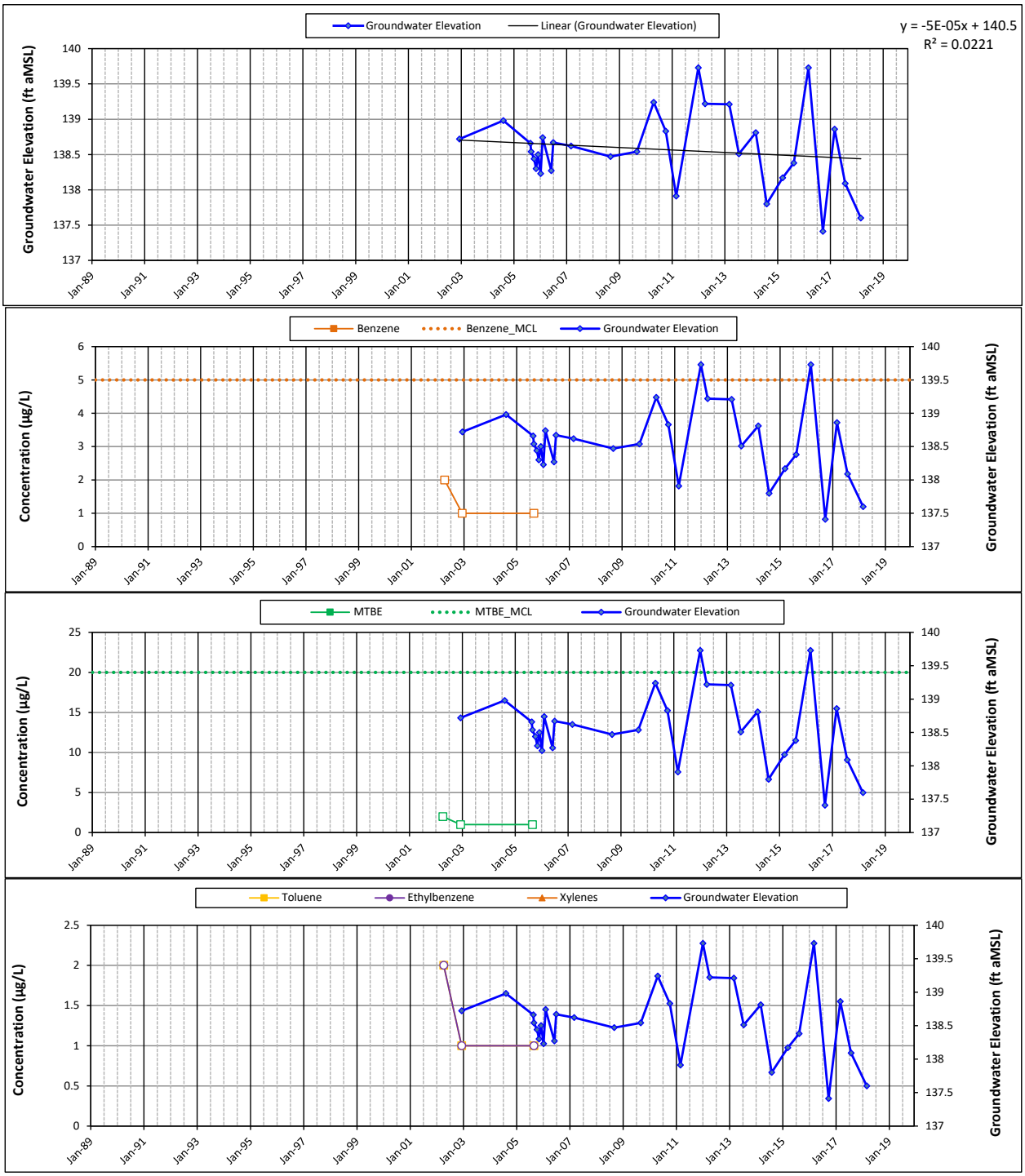
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-11A(25-30)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

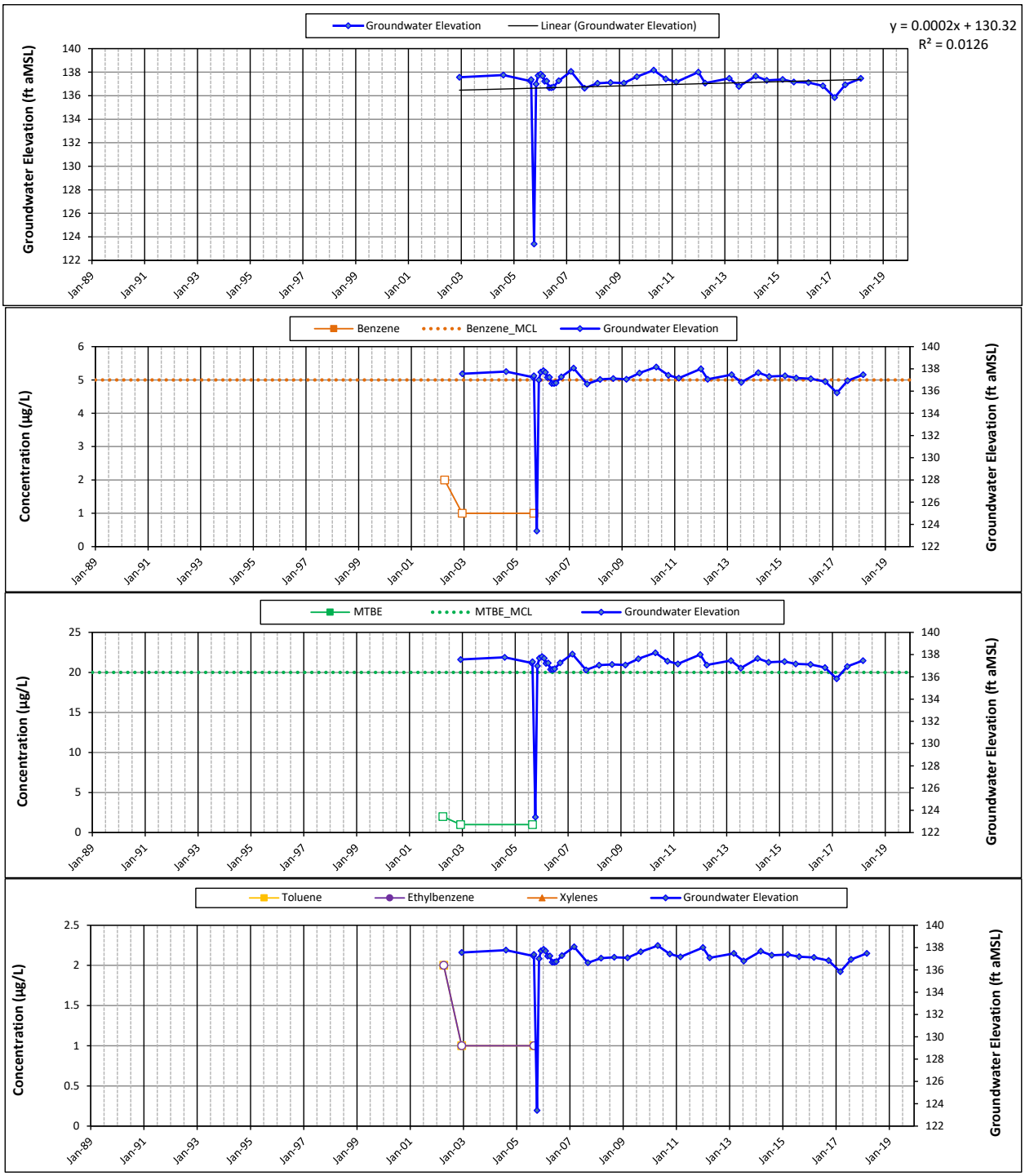
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-11A(30-35)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

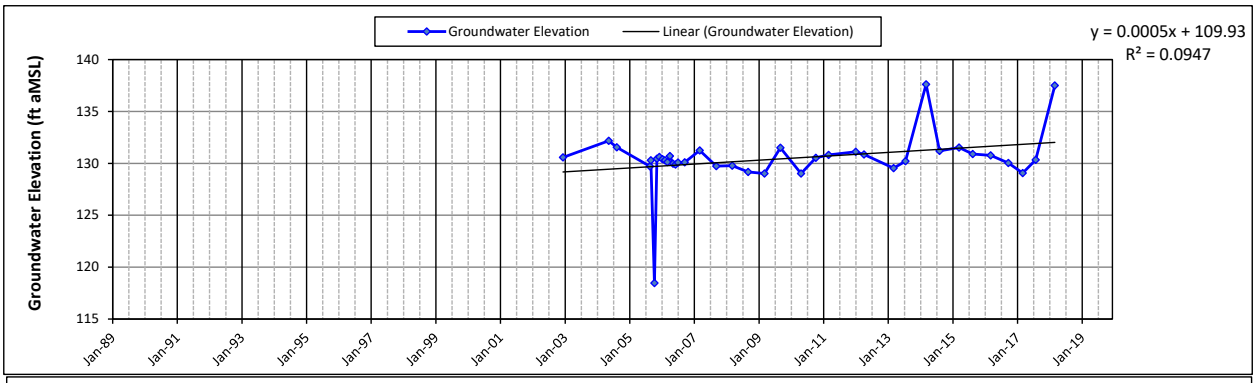
ft aMSL Feet above mean sea level

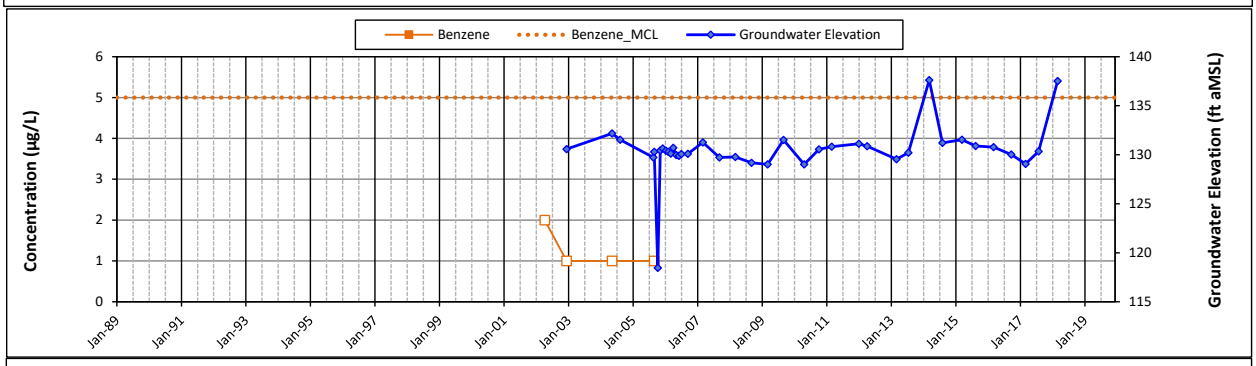
µg/L Micrograms per liter

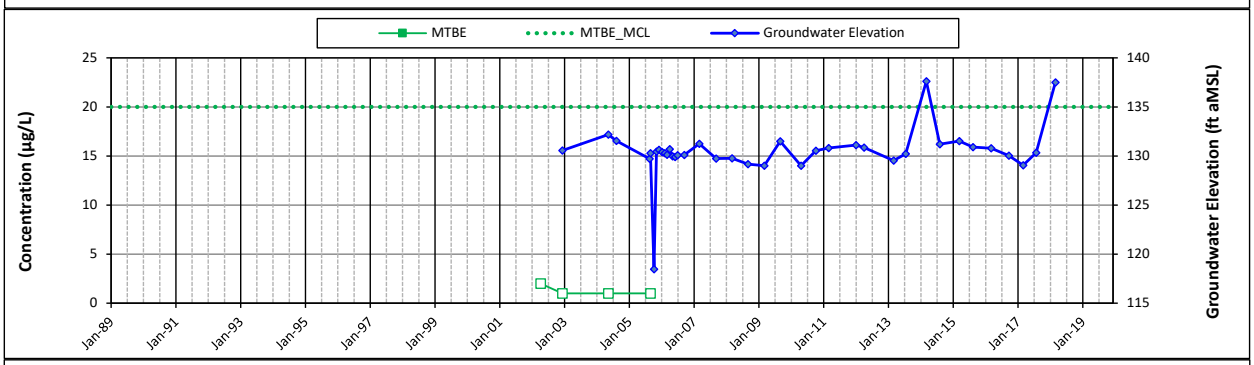
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

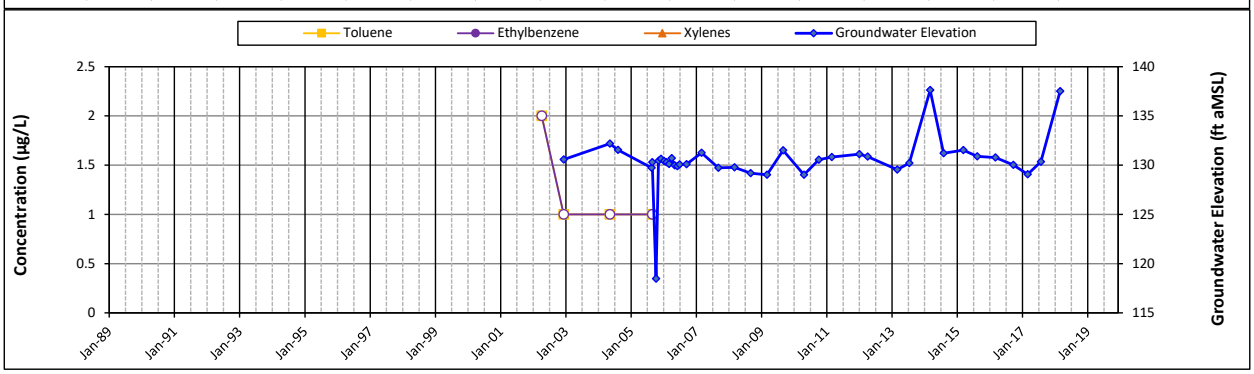
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-11A(35-40)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

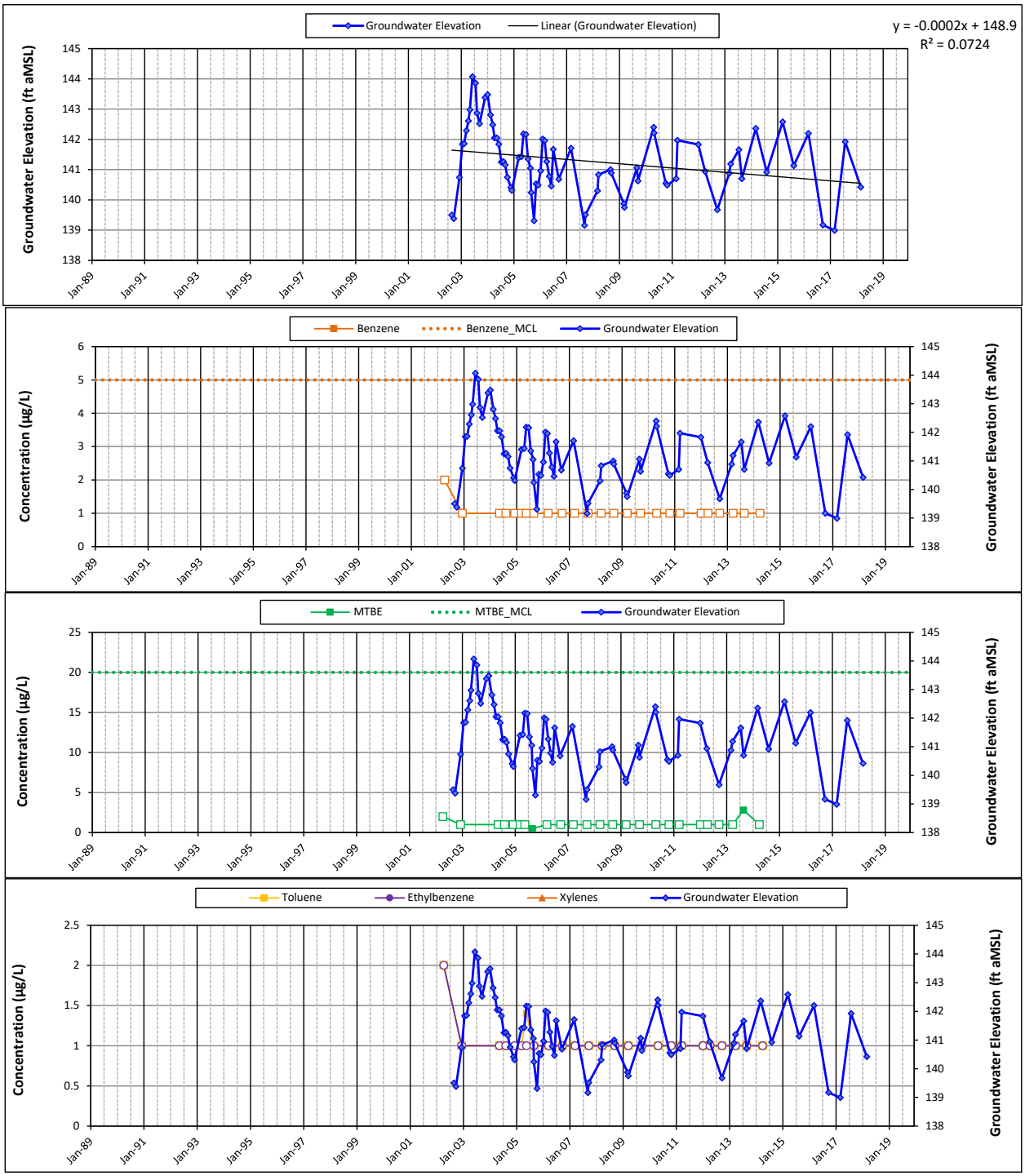
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-9A(20-25)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

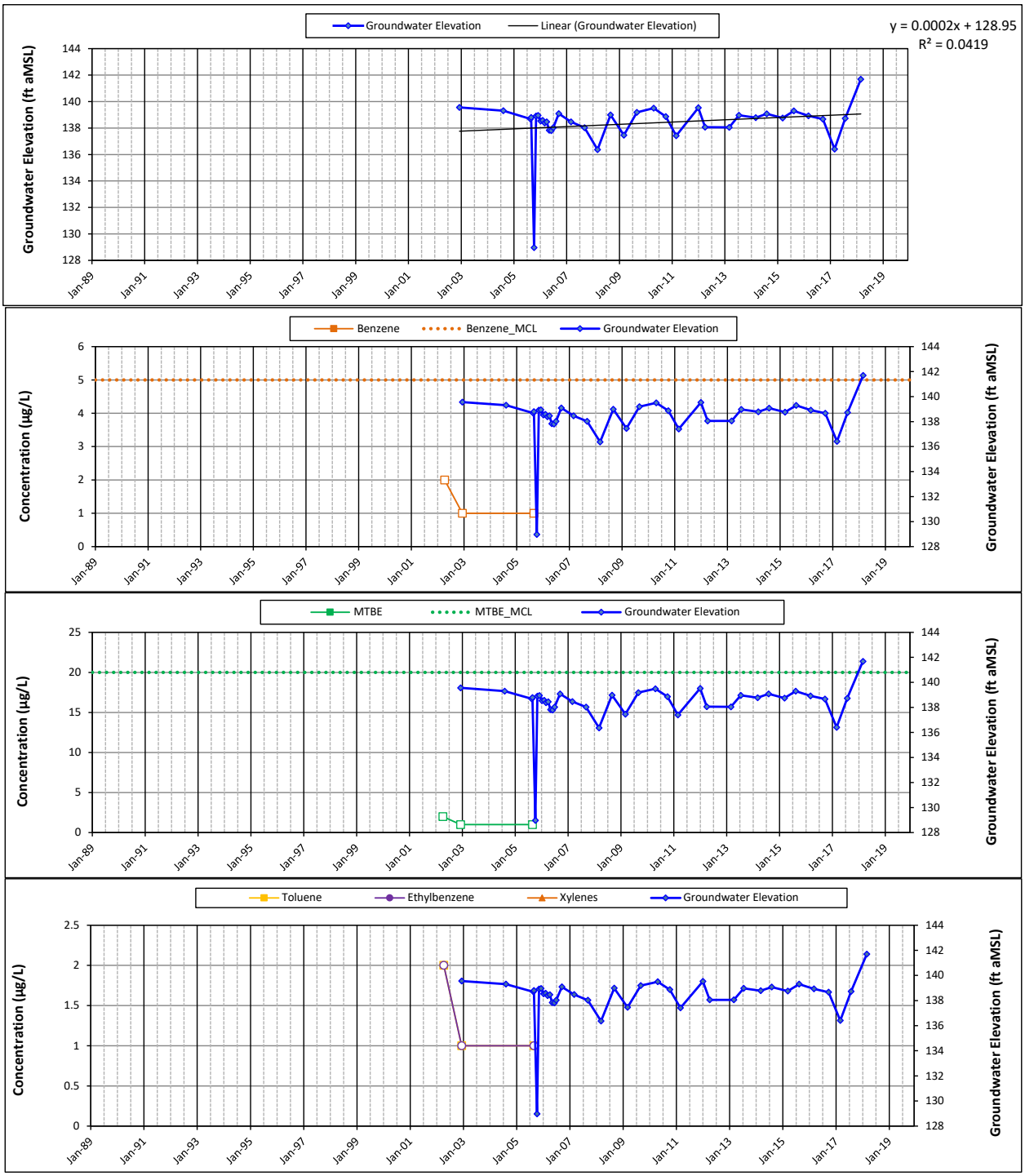
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-9A(25-30)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

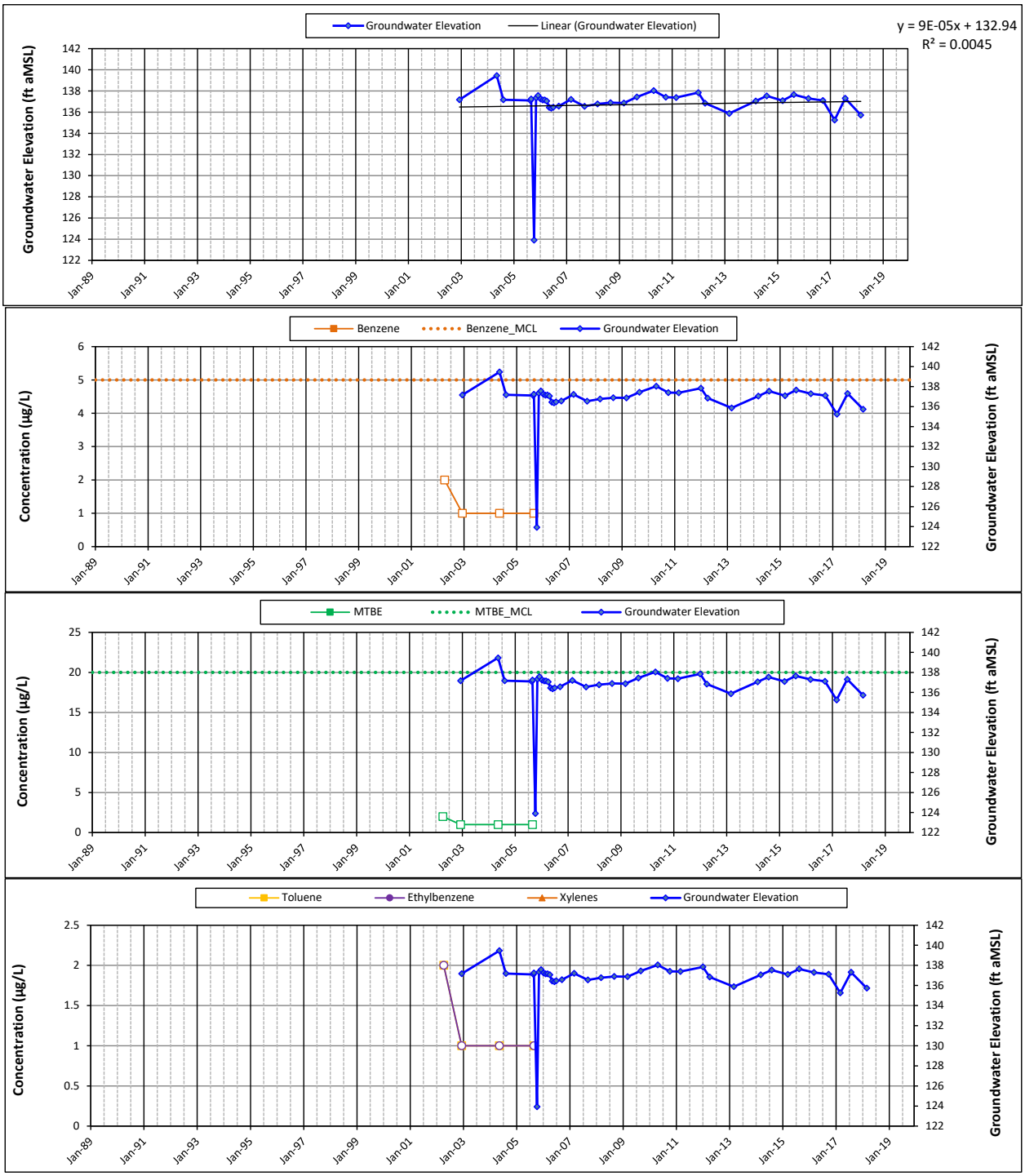
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-9A(30-35)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

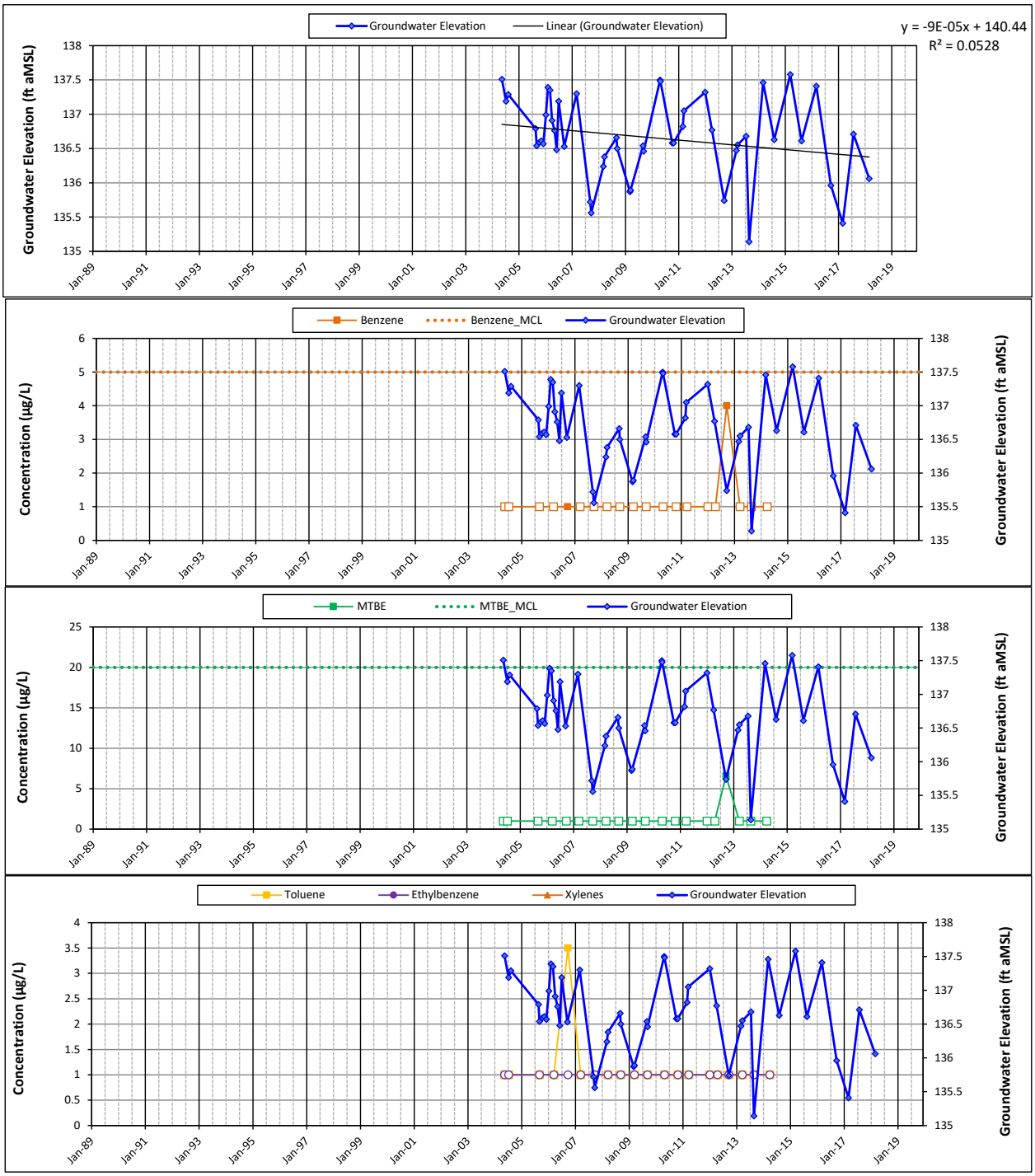
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-38
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

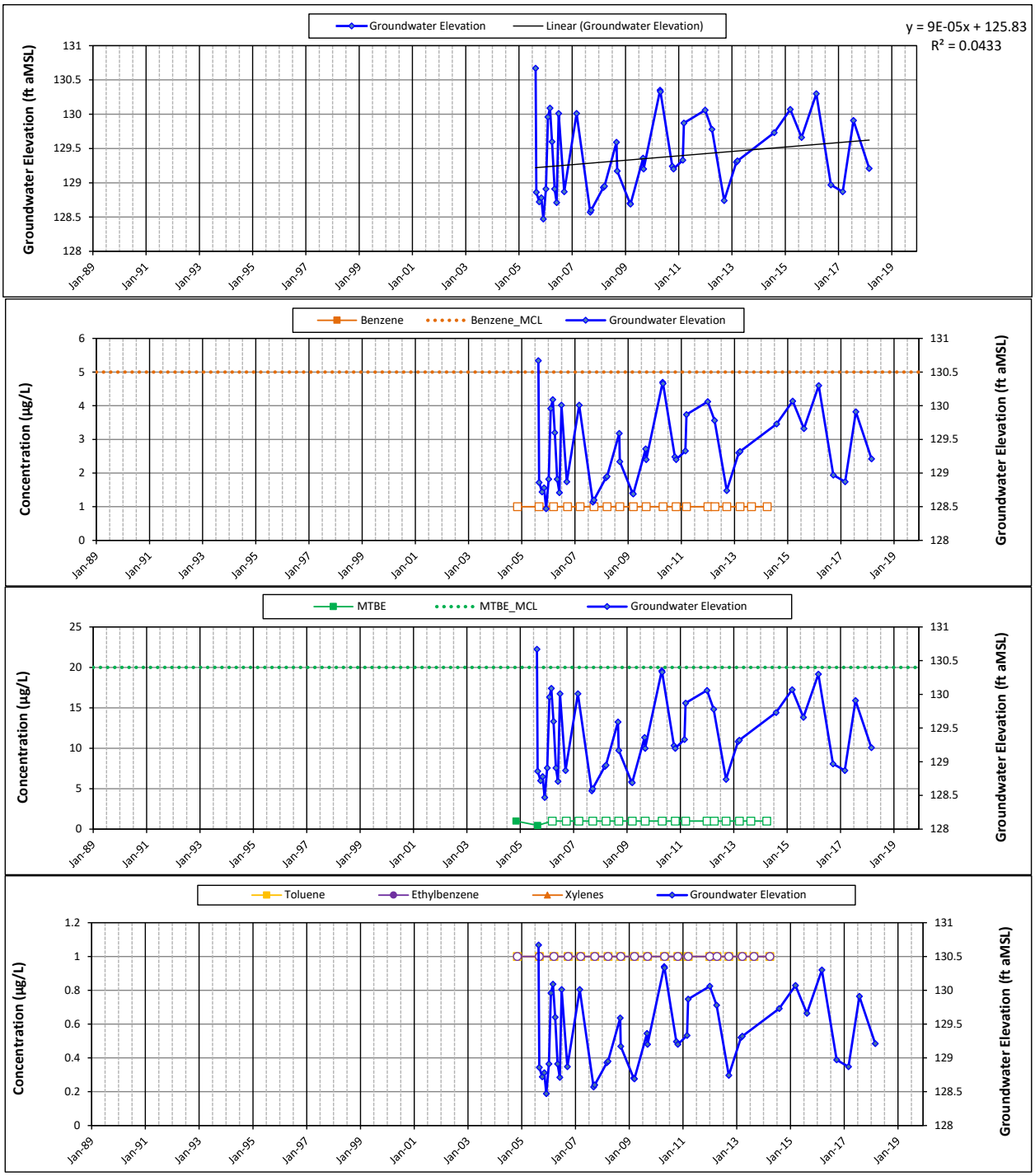
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-39R
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

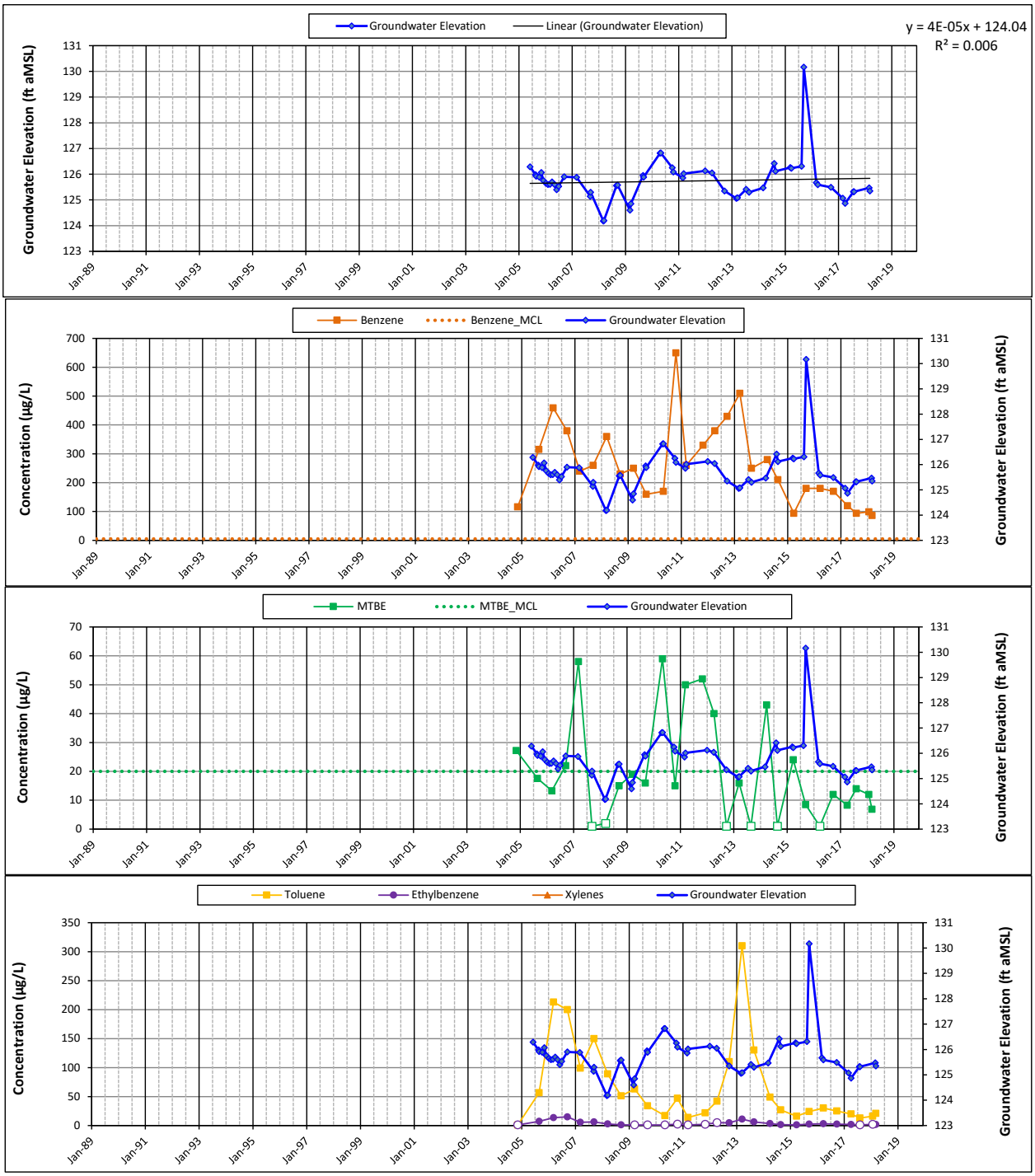
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-47
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

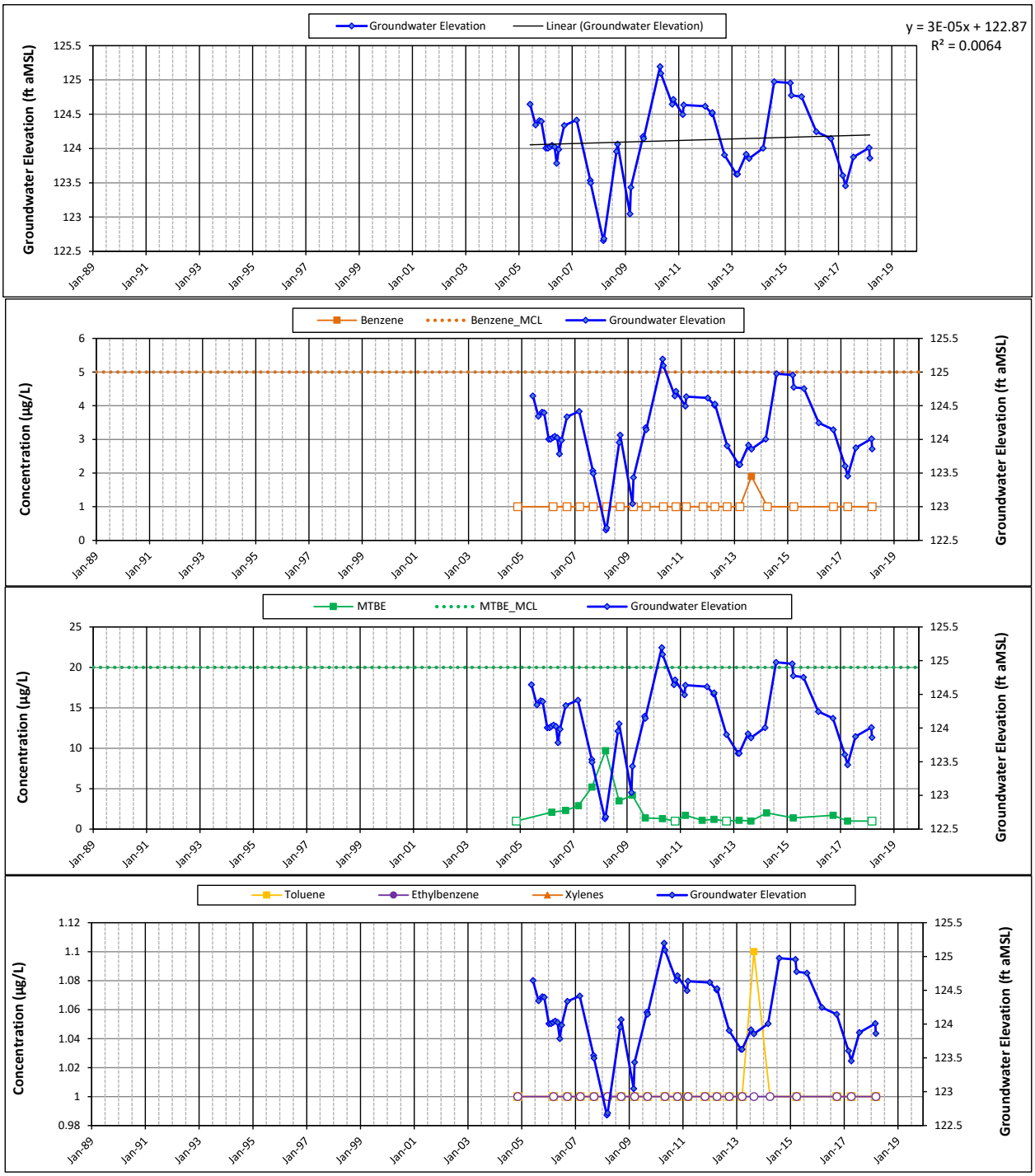
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-48
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

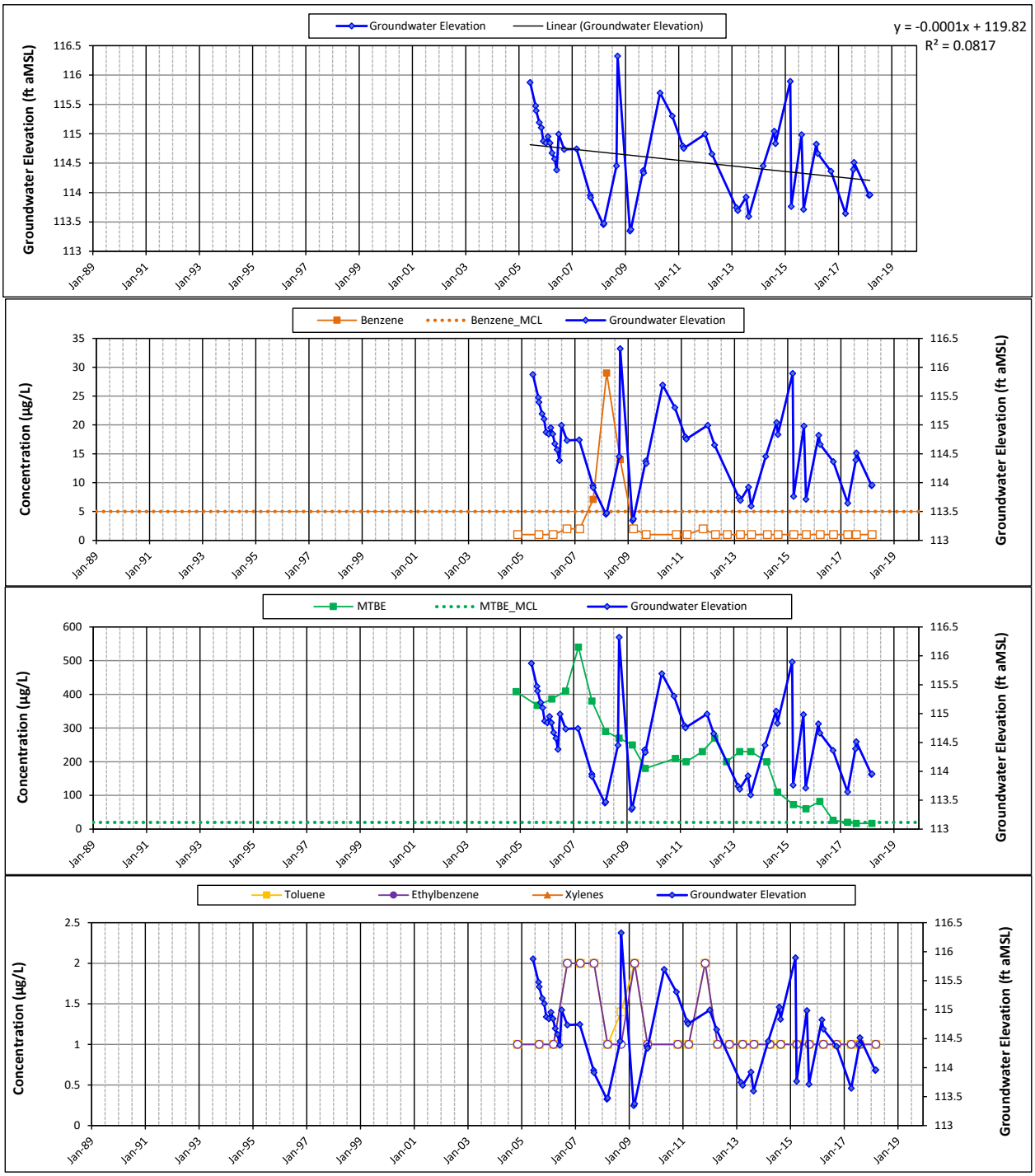
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-49
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

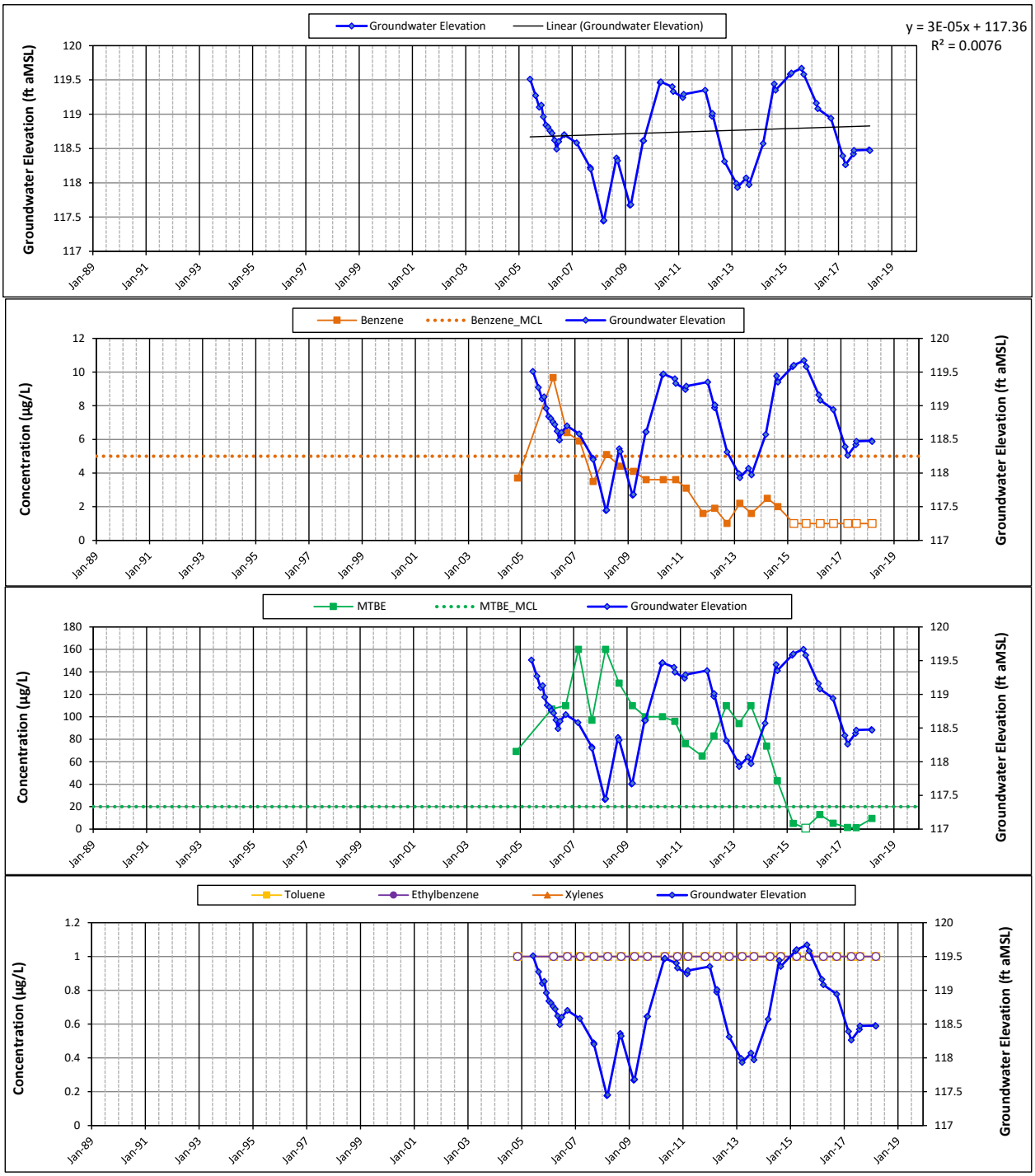
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-50
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

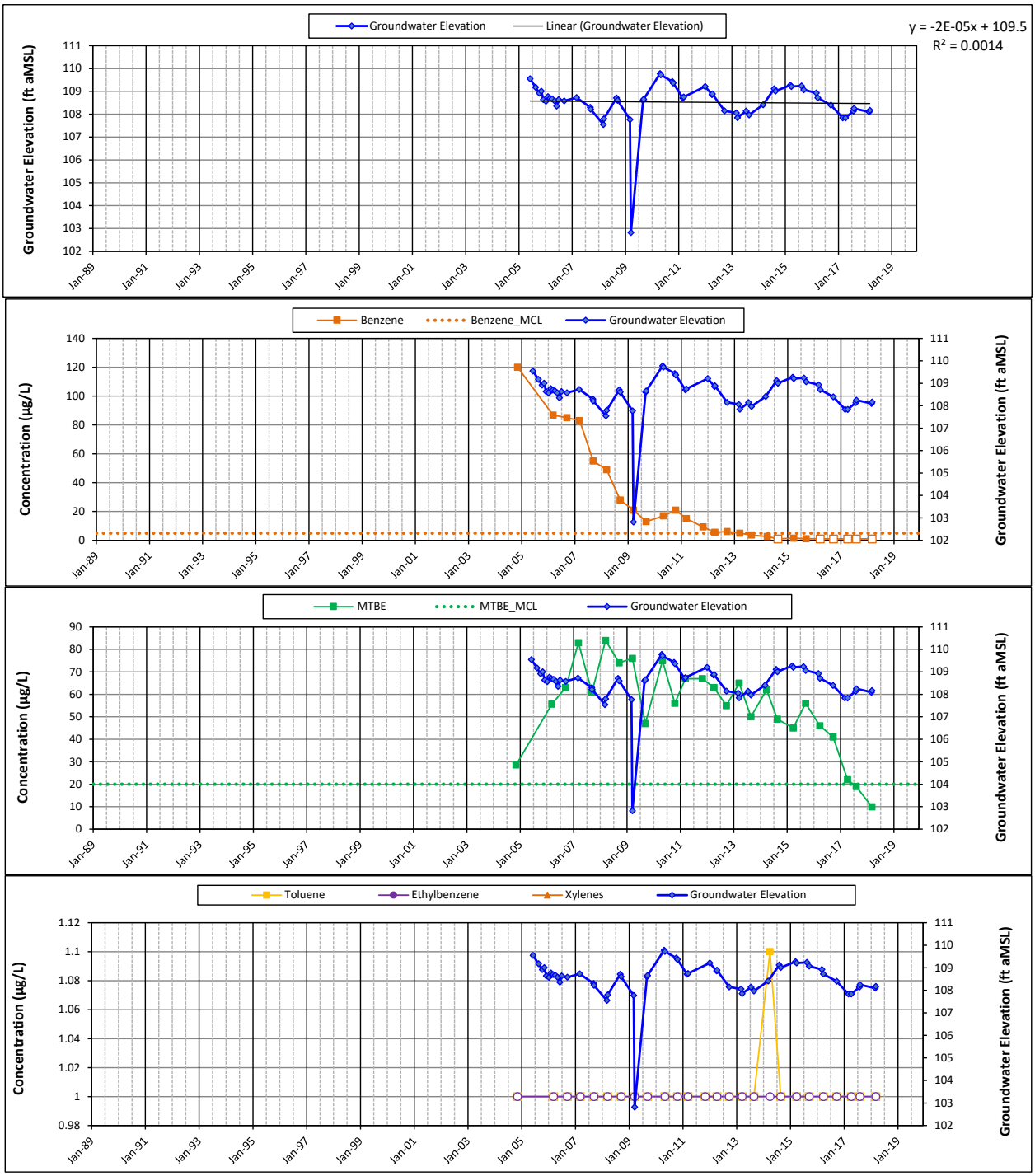
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-51
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

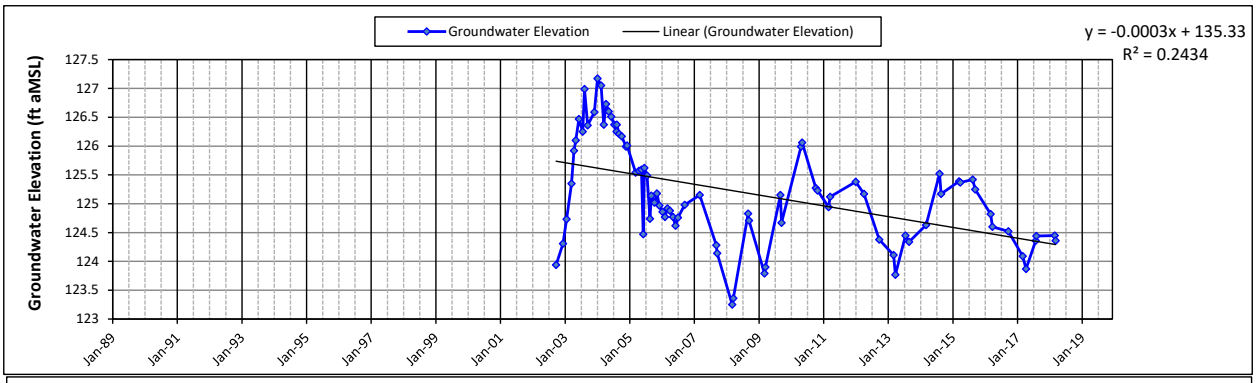
ft aMSL Feet above mean sea level

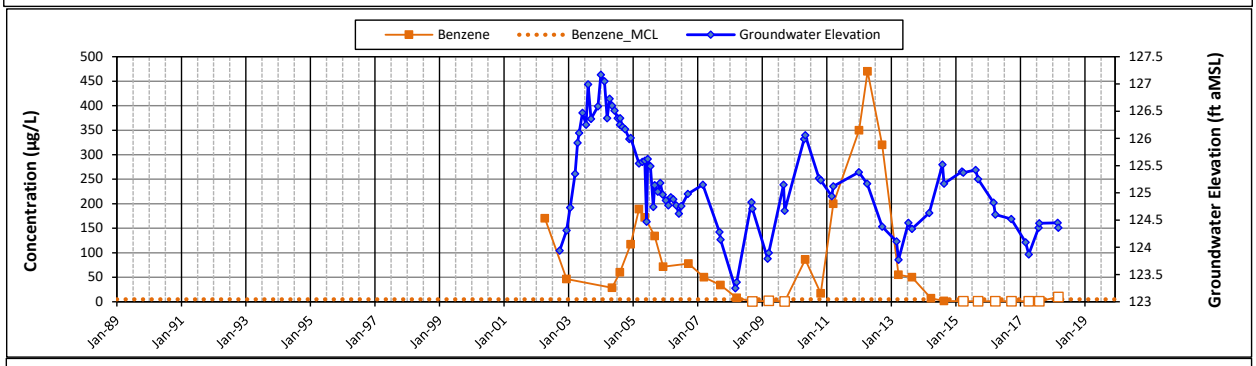
µg/L Micrograms per liter

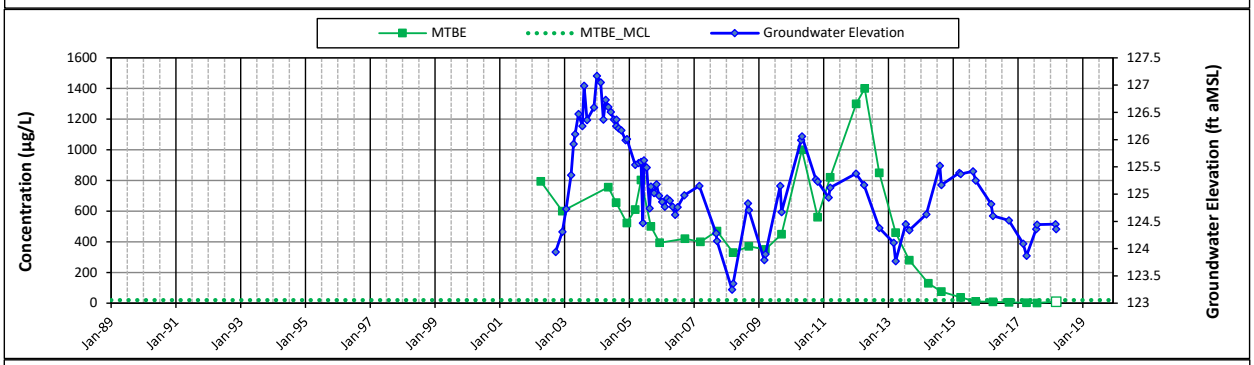
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

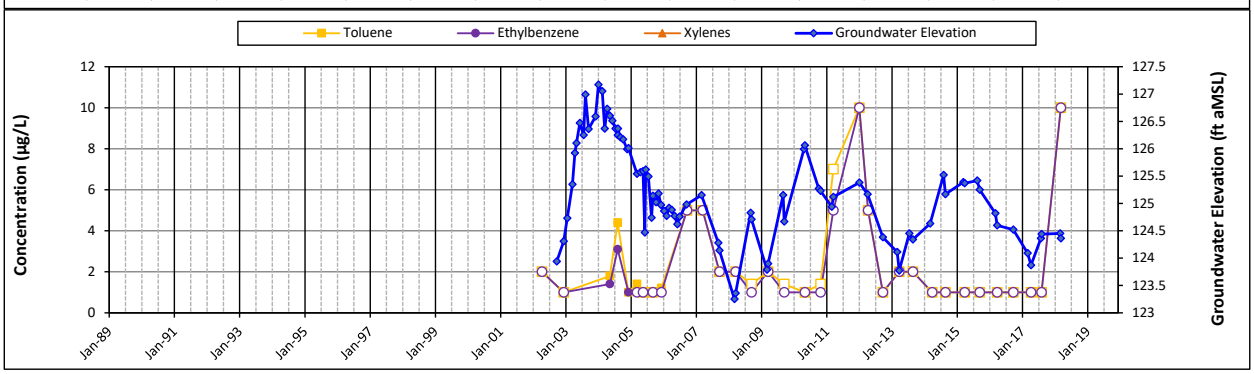
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-2E(45-50)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

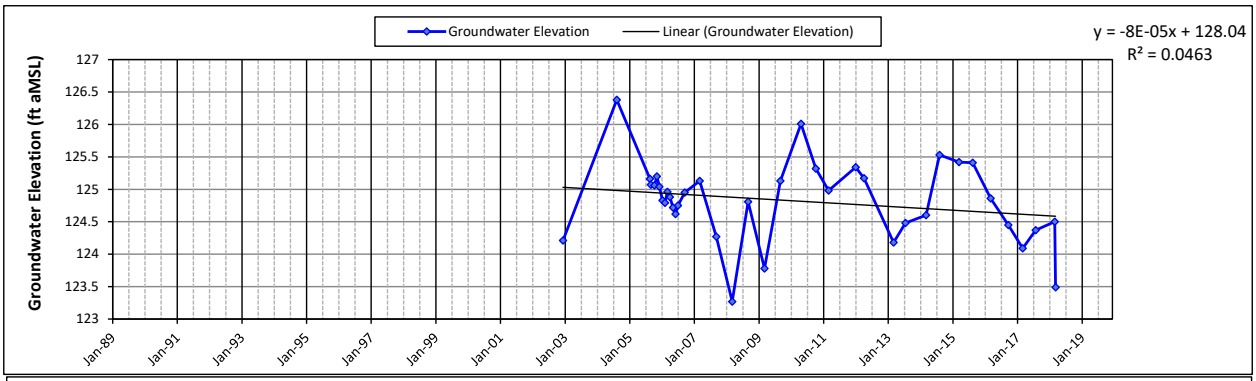
ft aMSL Feet above mean sea level

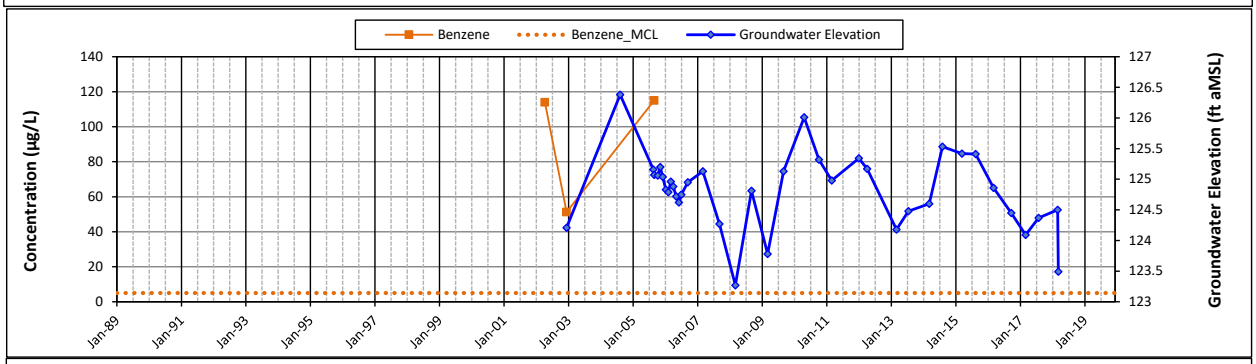
µg/L Micrograms per liter

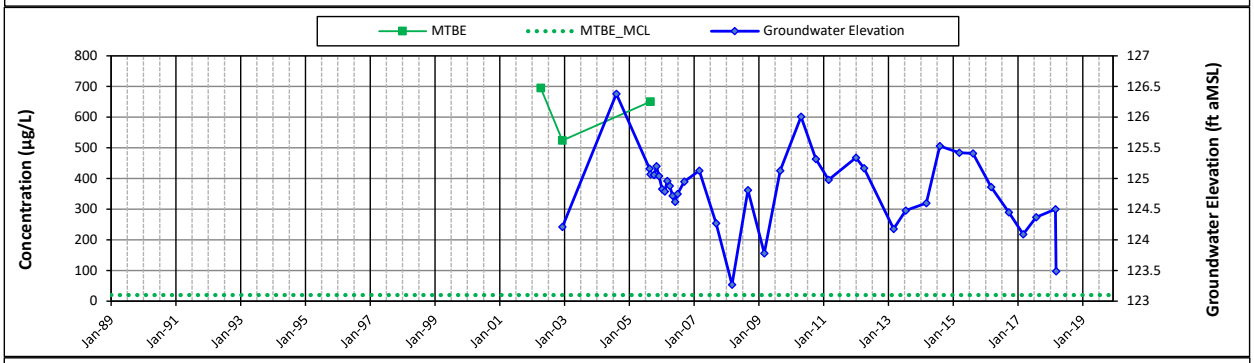
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

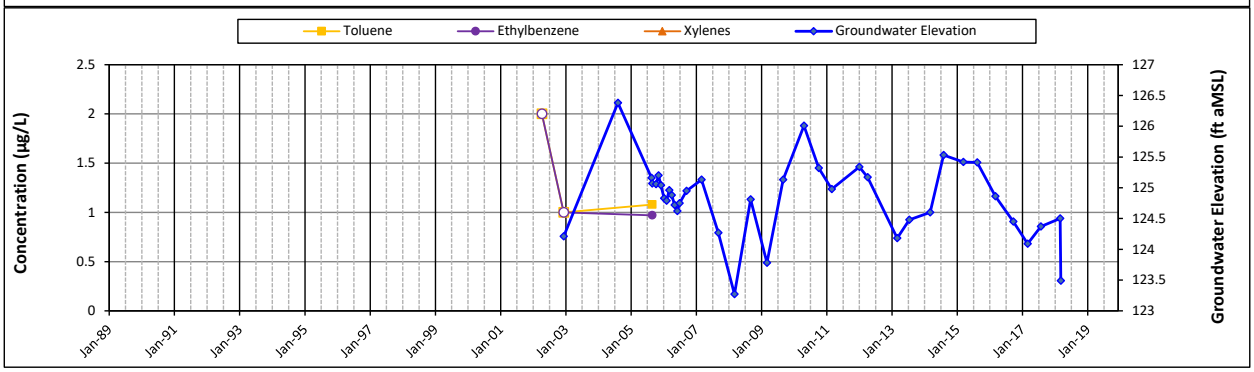
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-2E(50-55)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

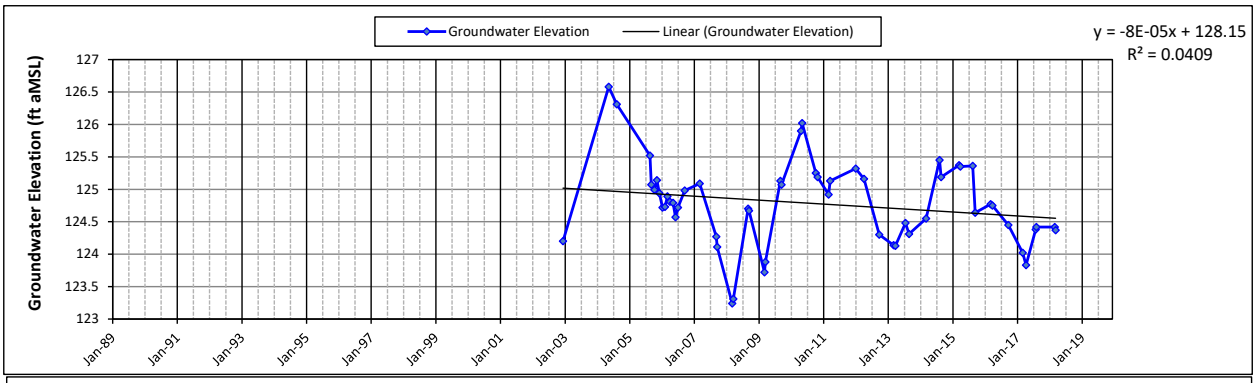
ft aMSL Feet above mean sea level

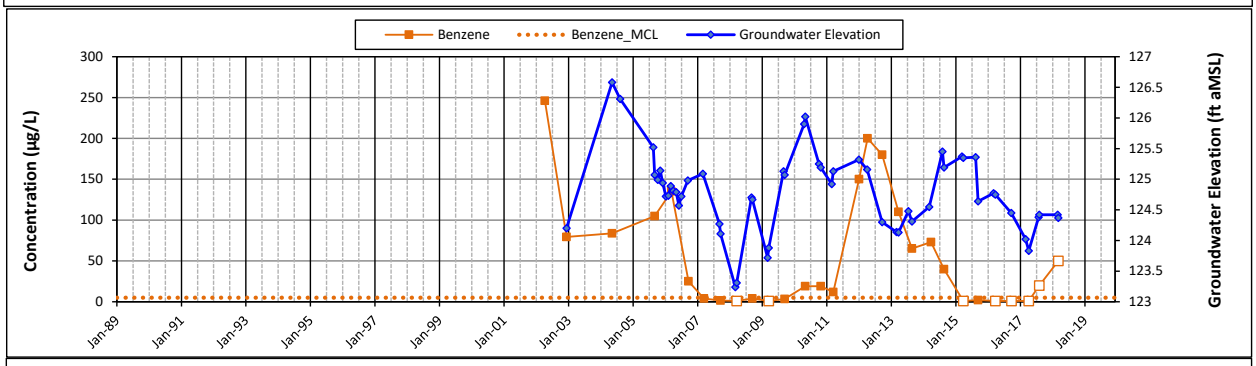
µg/L Micrograms per liter

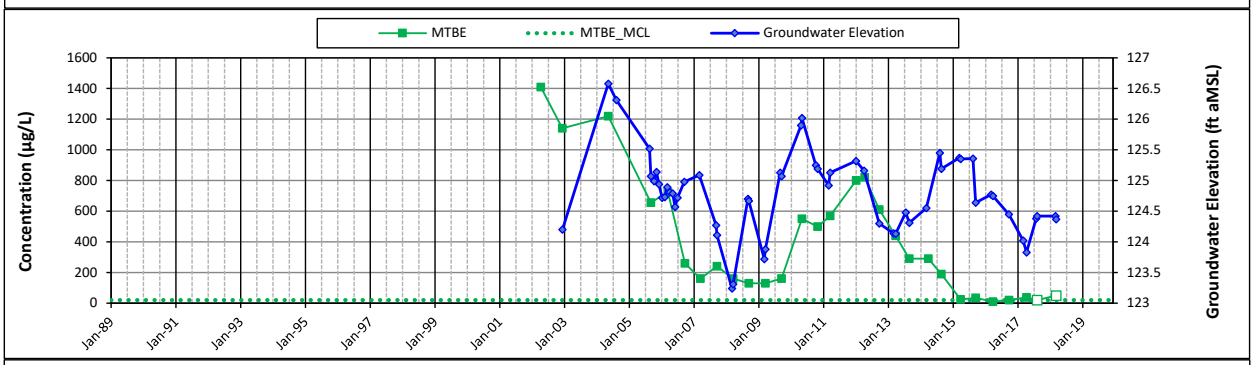
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

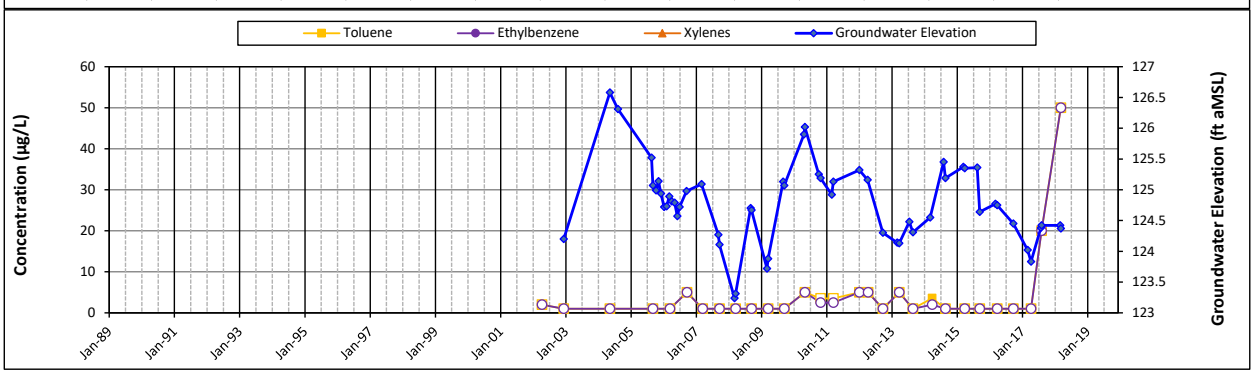
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-2E(55-60)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

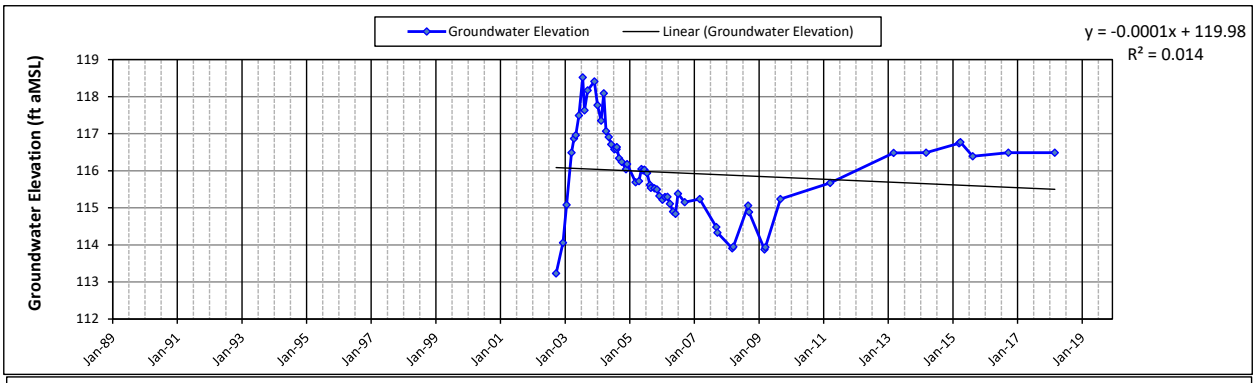
ft aMSL Feet above mean sea level

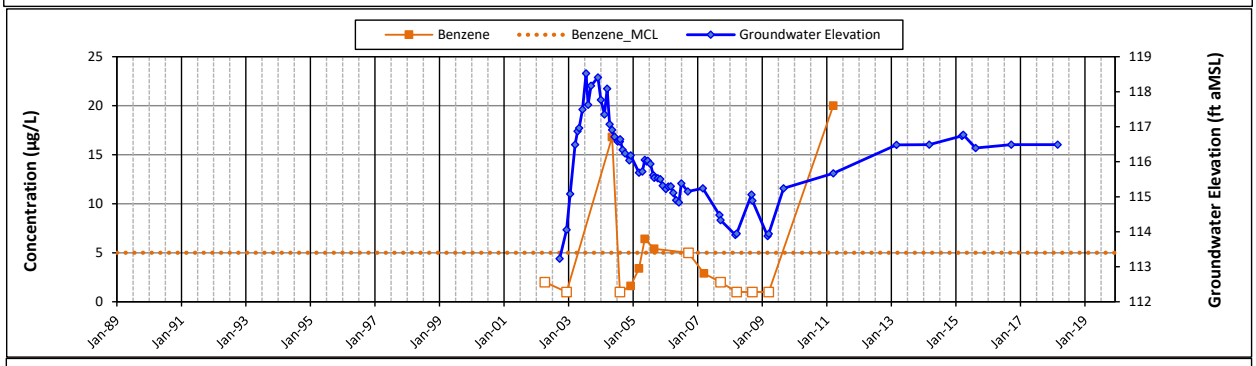
µg/L Micrograms per liter

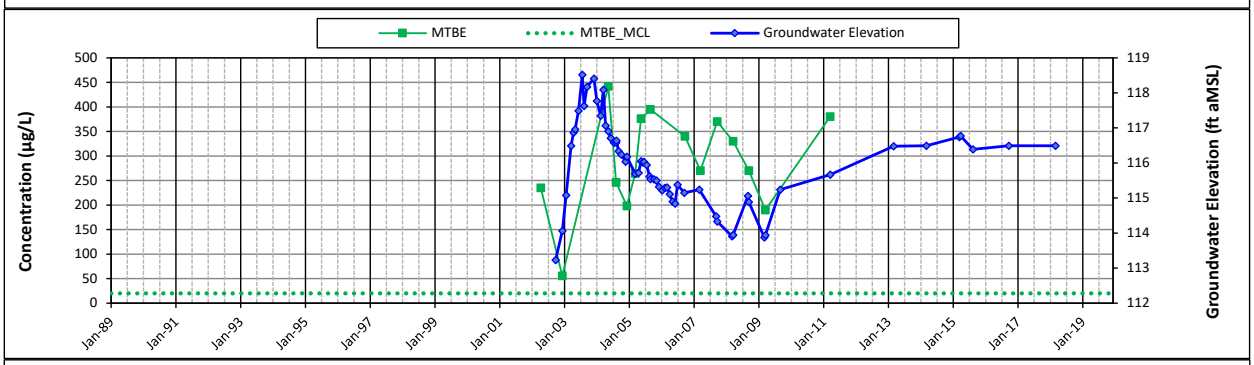
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

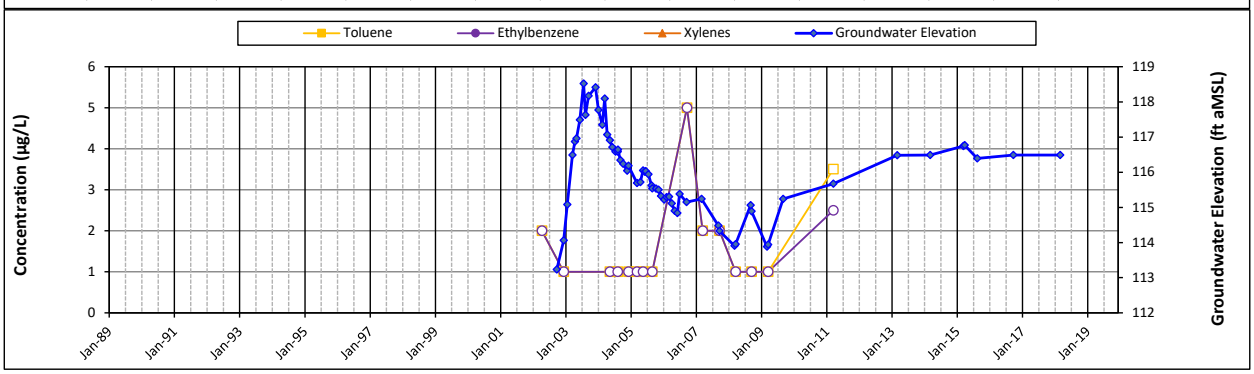
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-2F(45-50)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

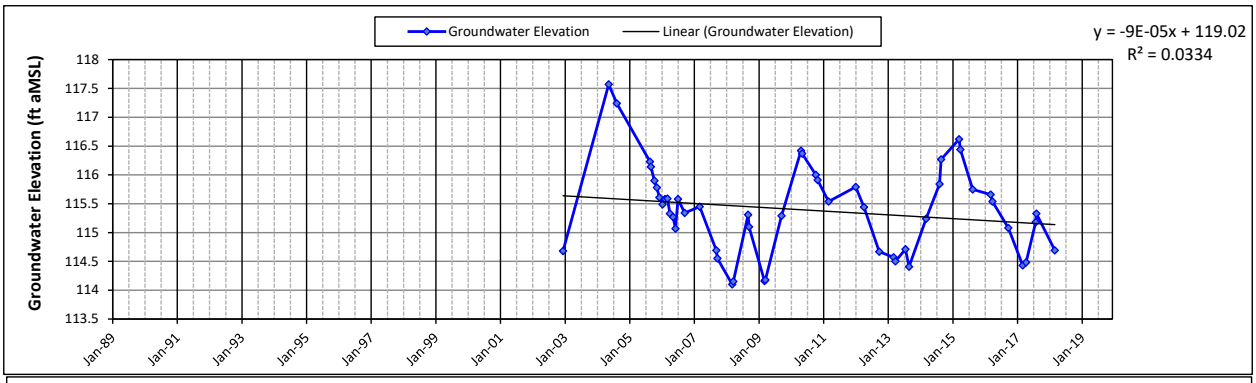
ft aMSL Feet above mean sea level

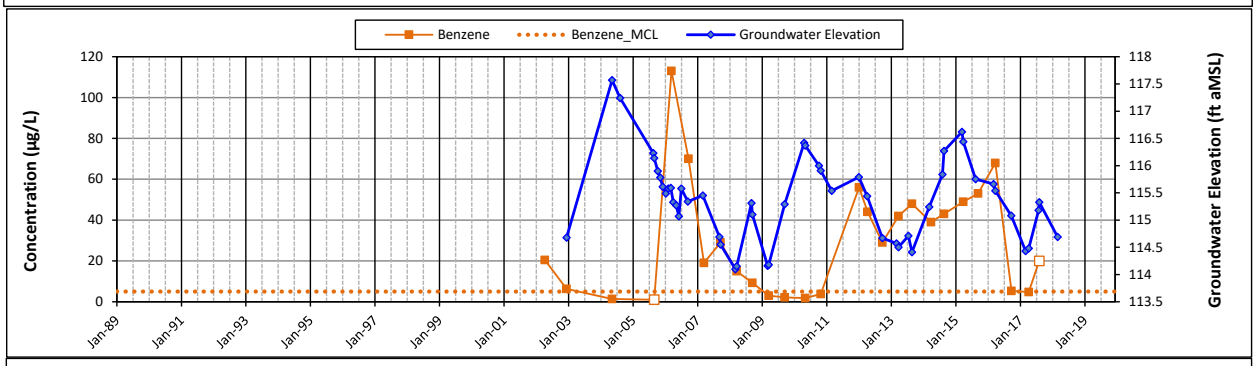
µg/L Micrograms per liter

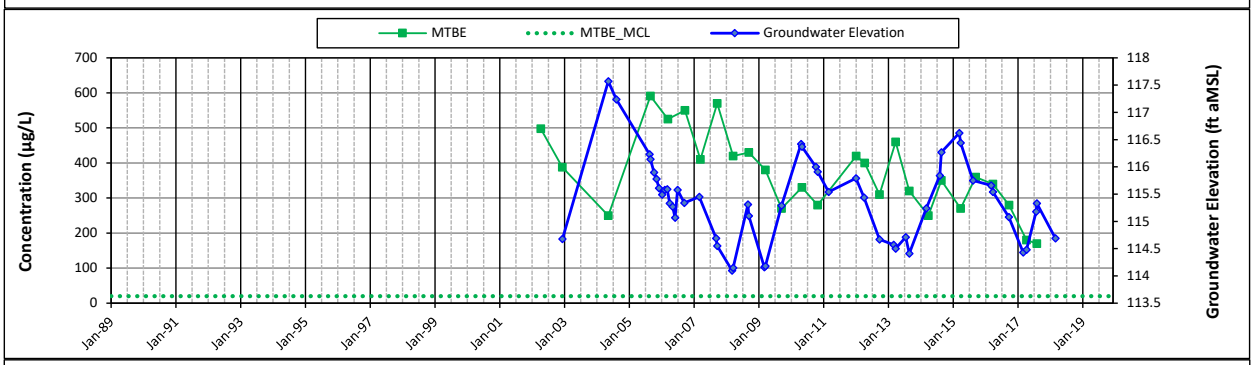
White data points indicate analyte concentration was not detected above laboratory method reporting limit.

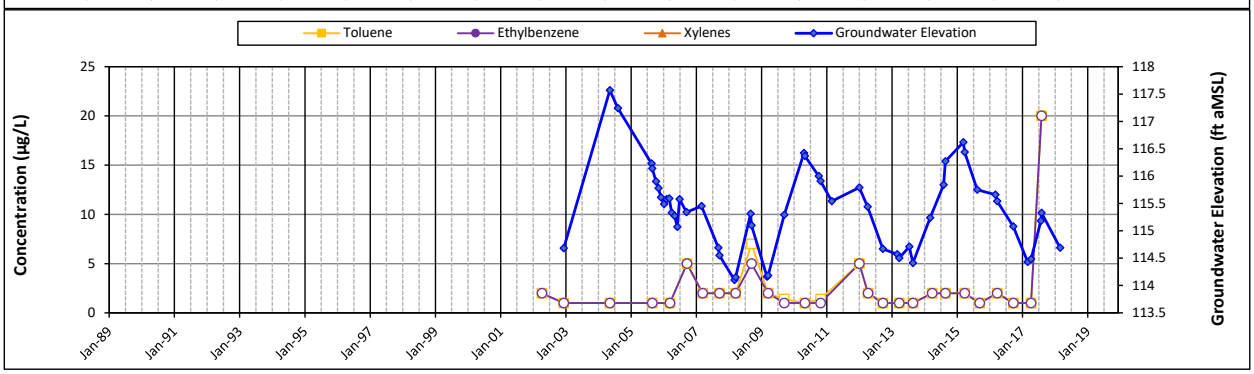
Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR GP-2F(50-55)
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND









Notes:

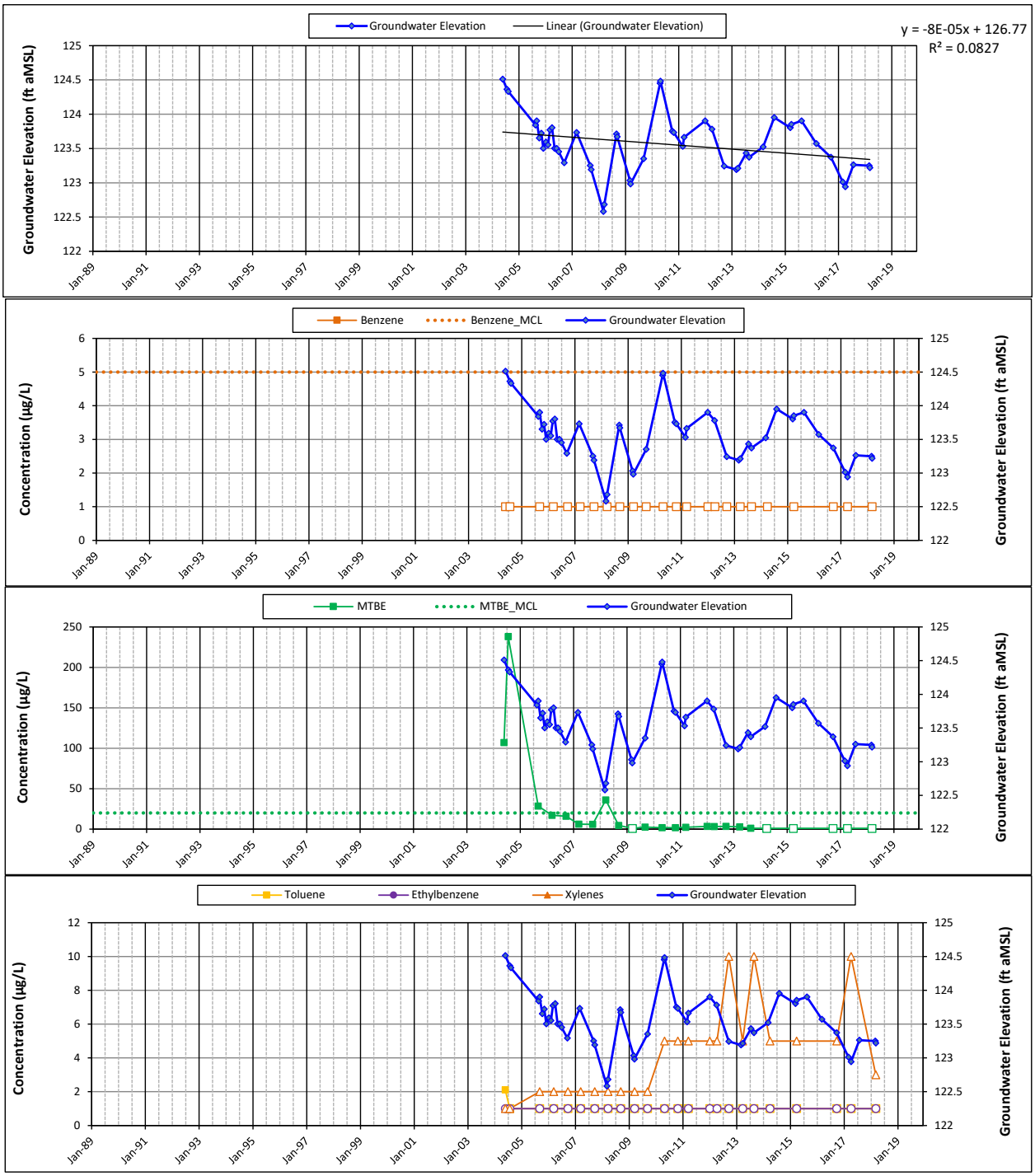
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-25A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

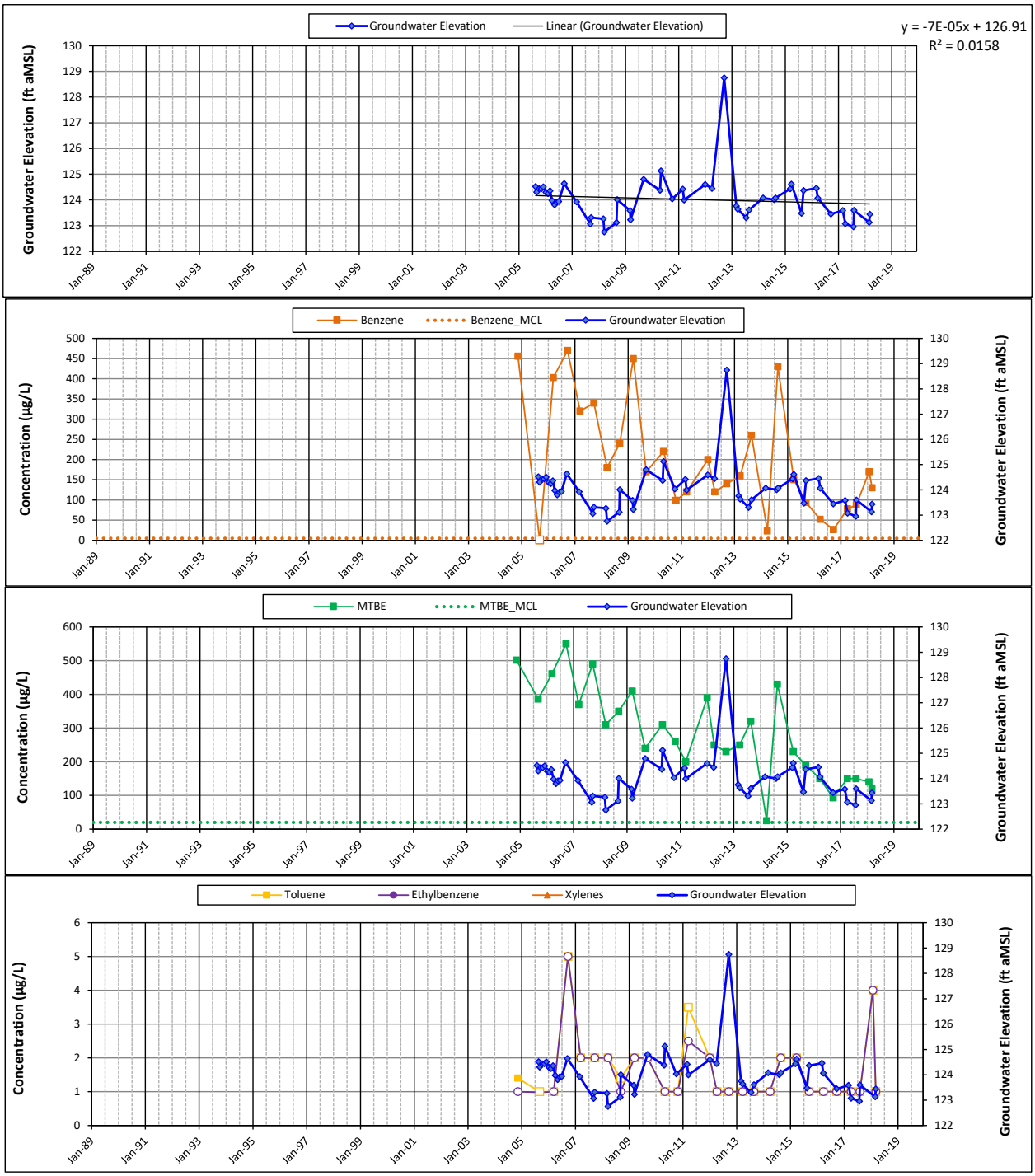
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-25B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

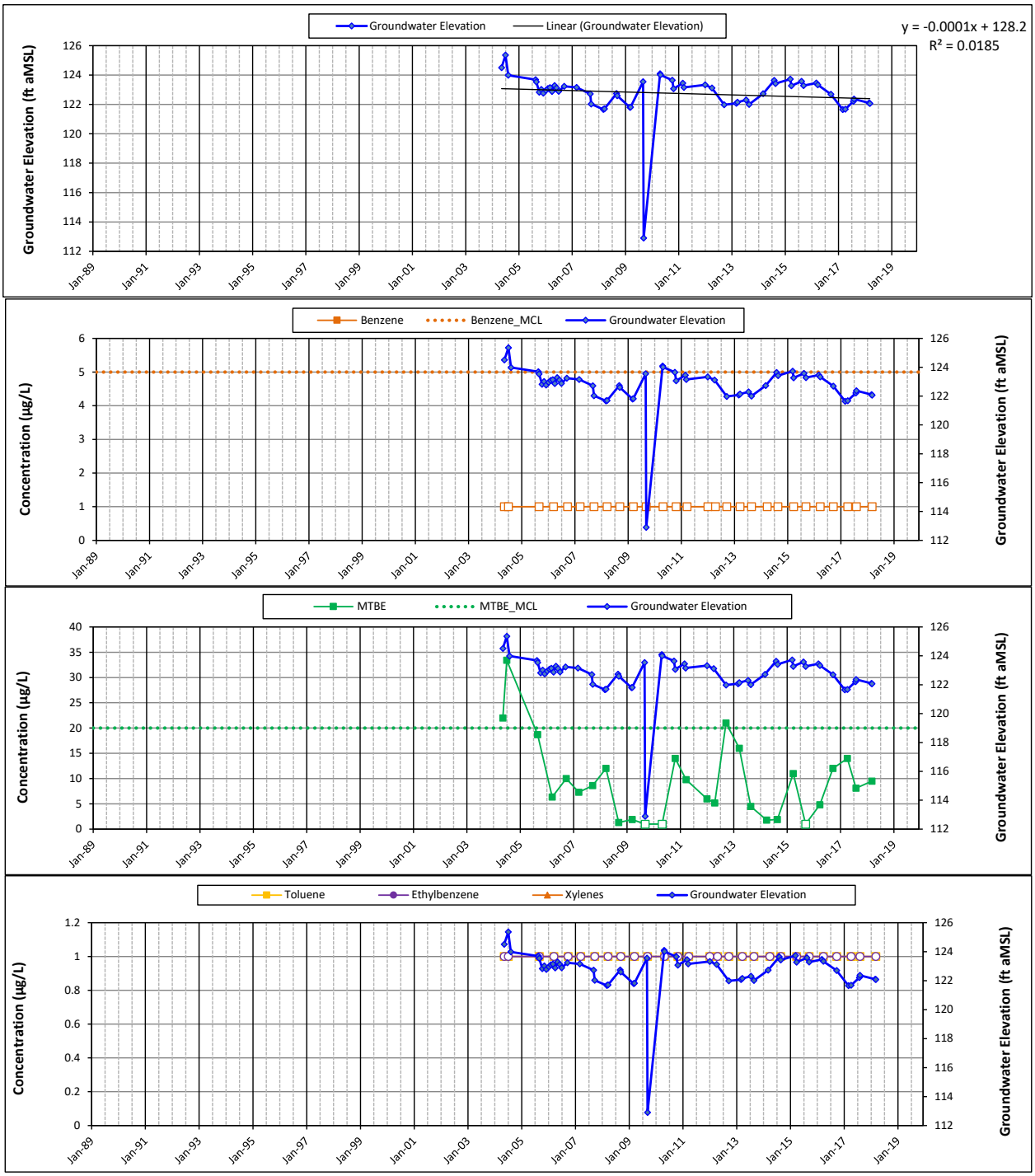
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-40
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

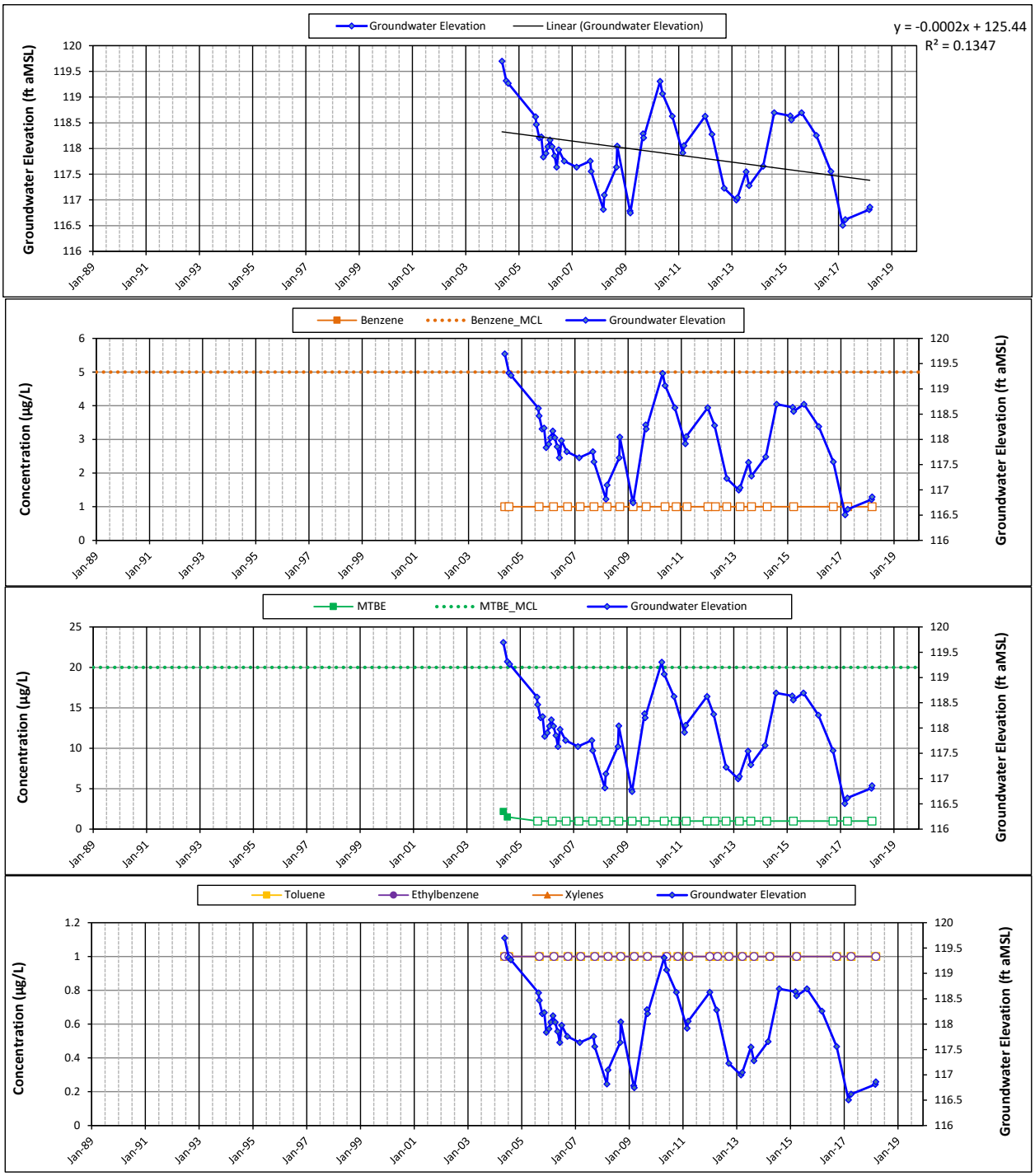
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-41A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

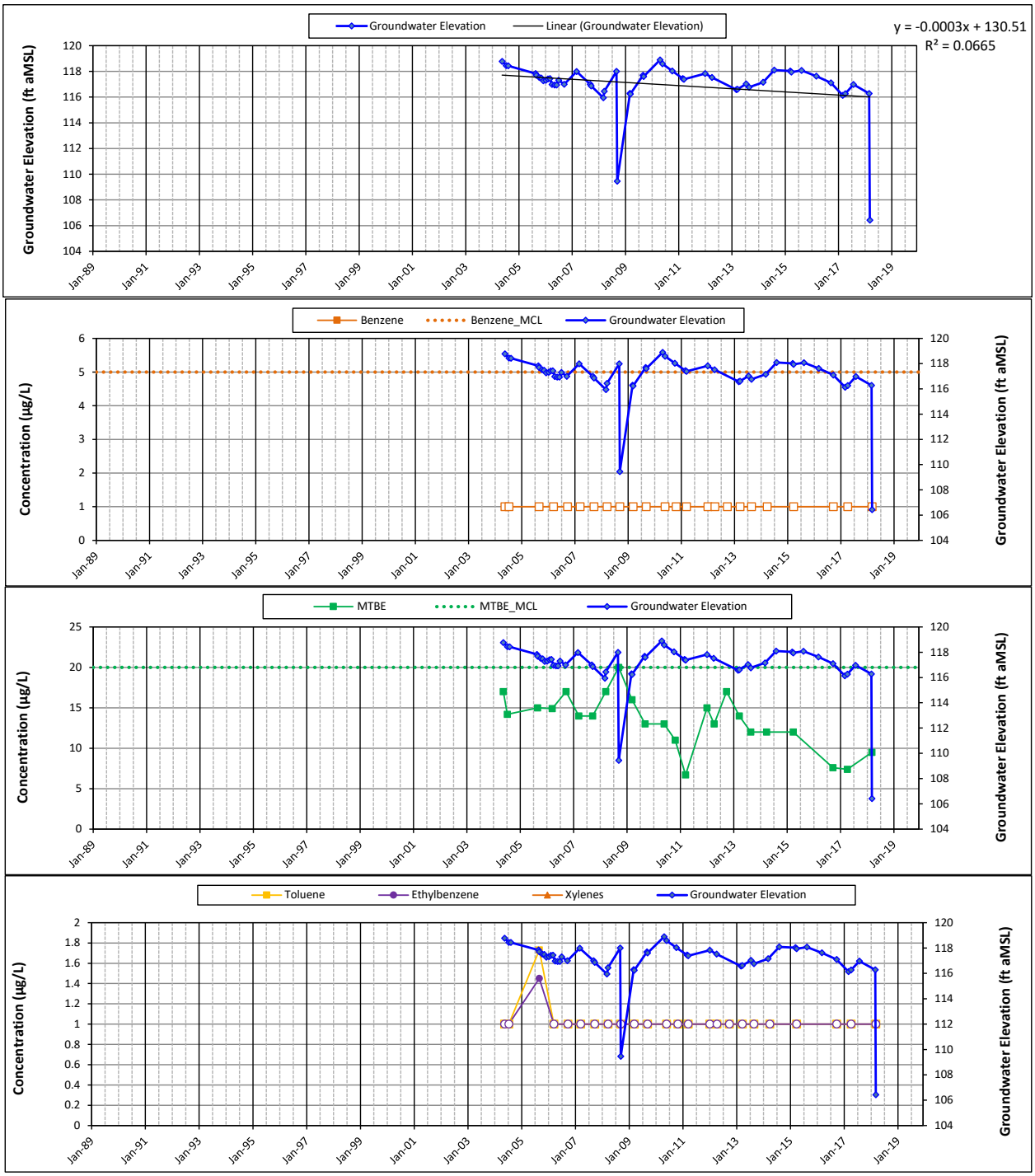
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-41B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

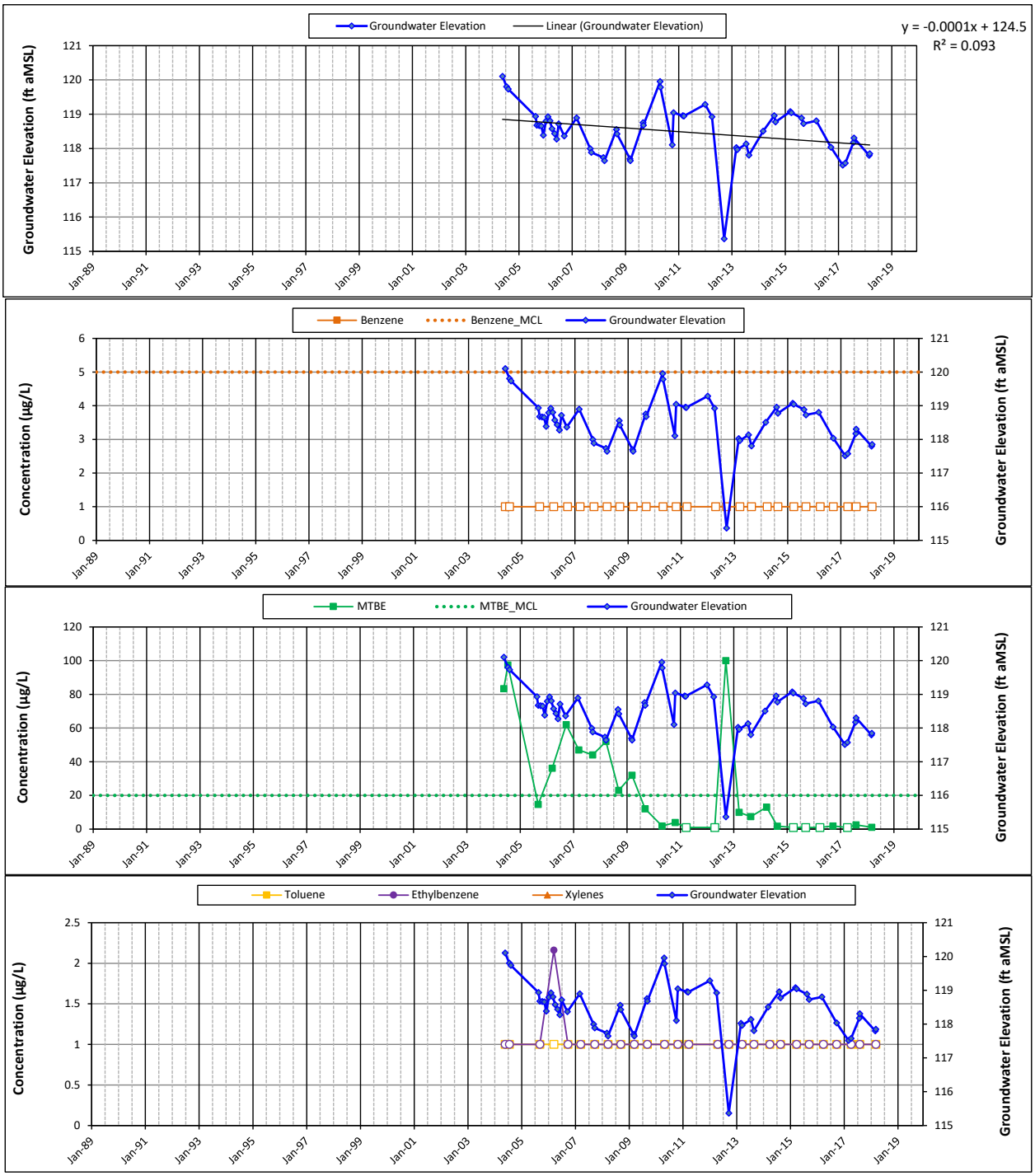
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-27A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

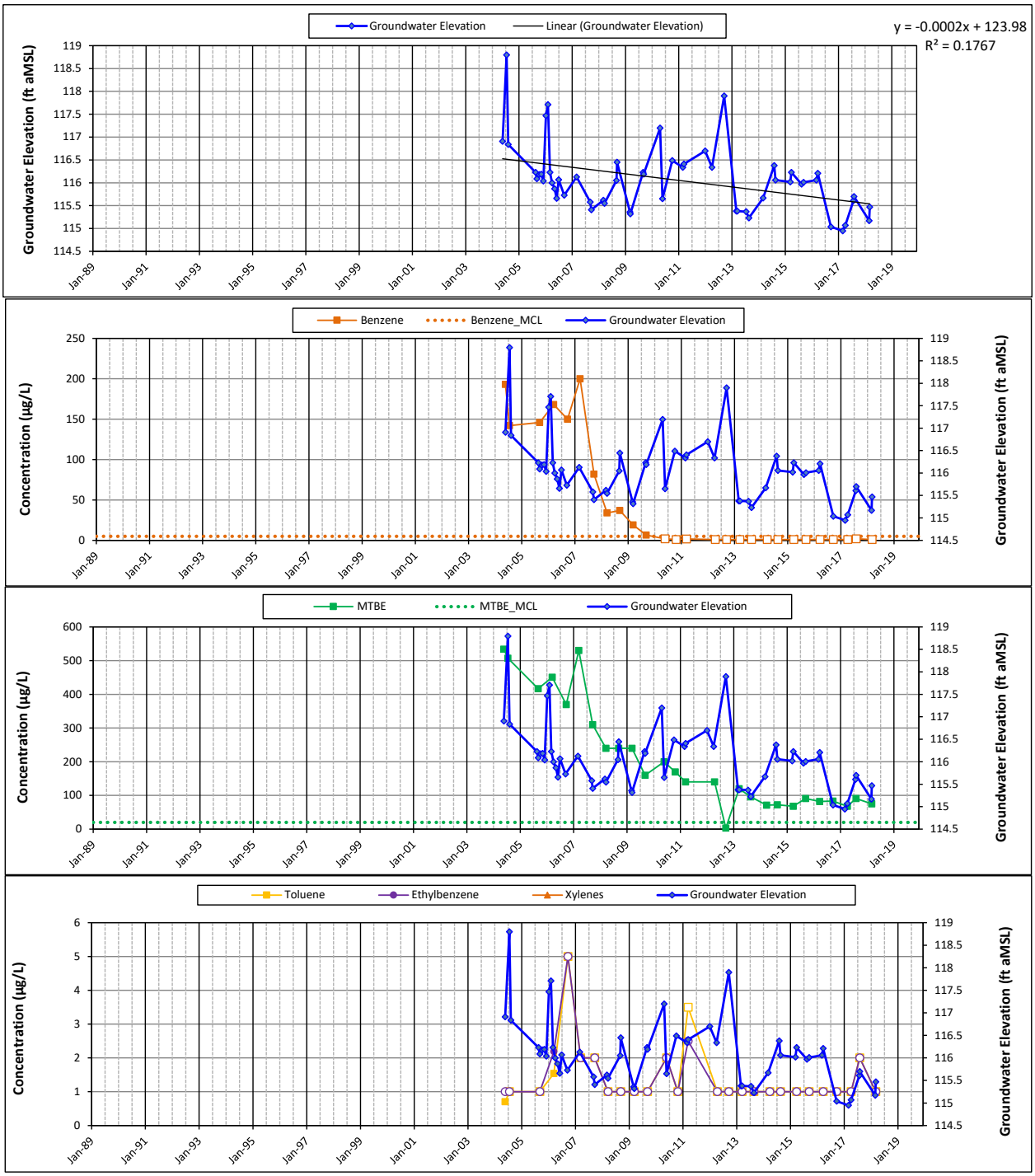
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-27B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

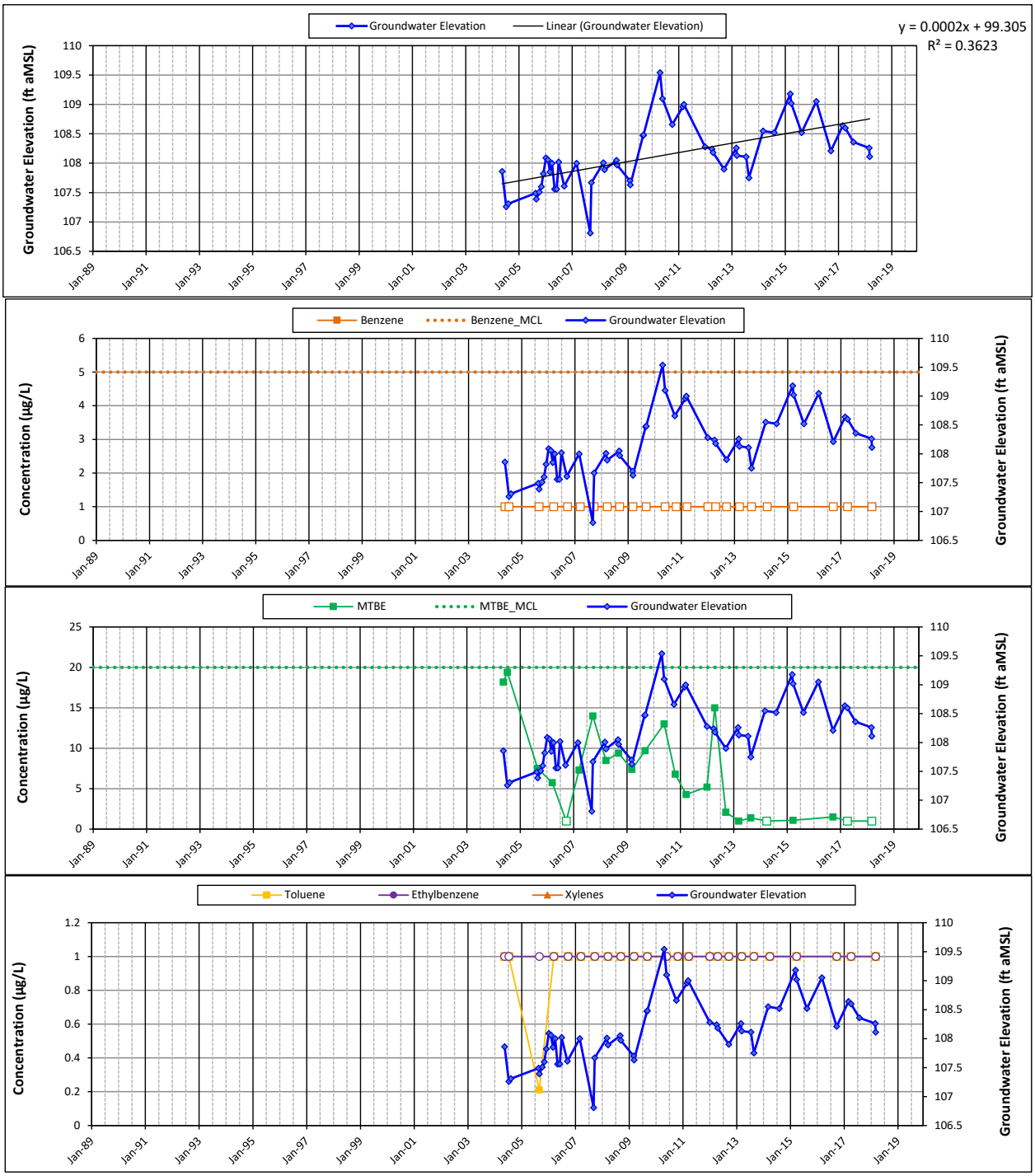
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-29A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

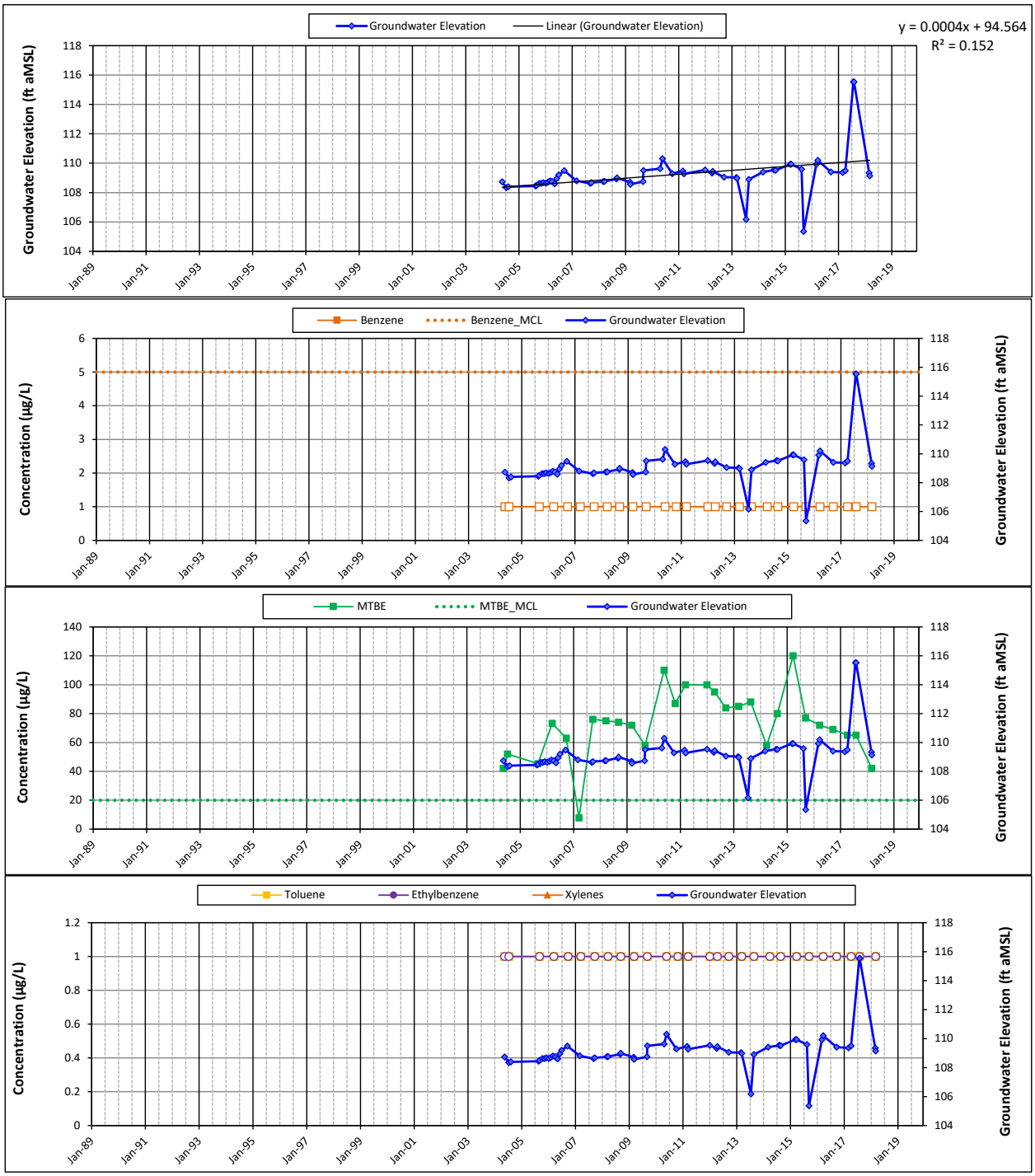
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-29B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

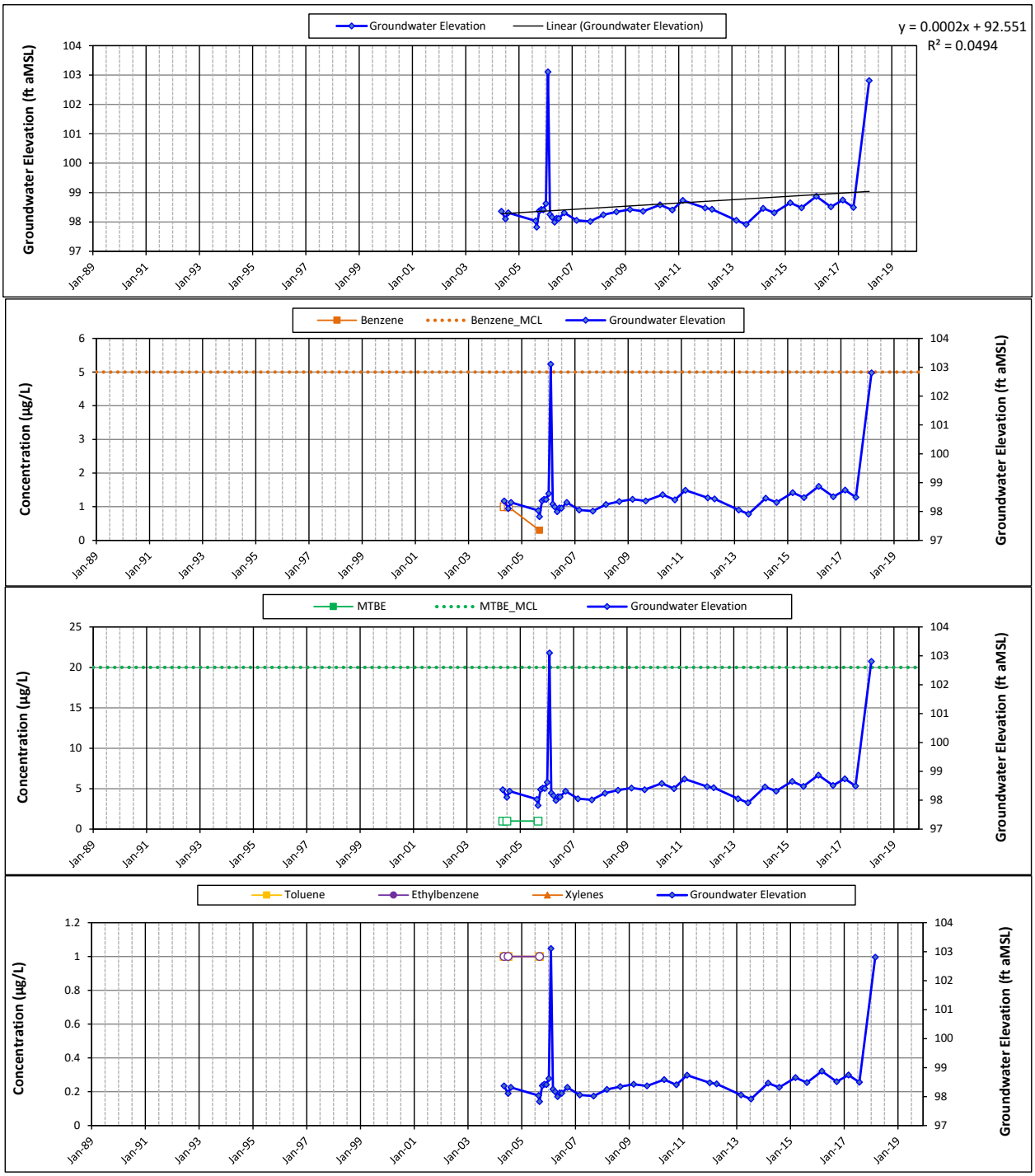
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-34A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

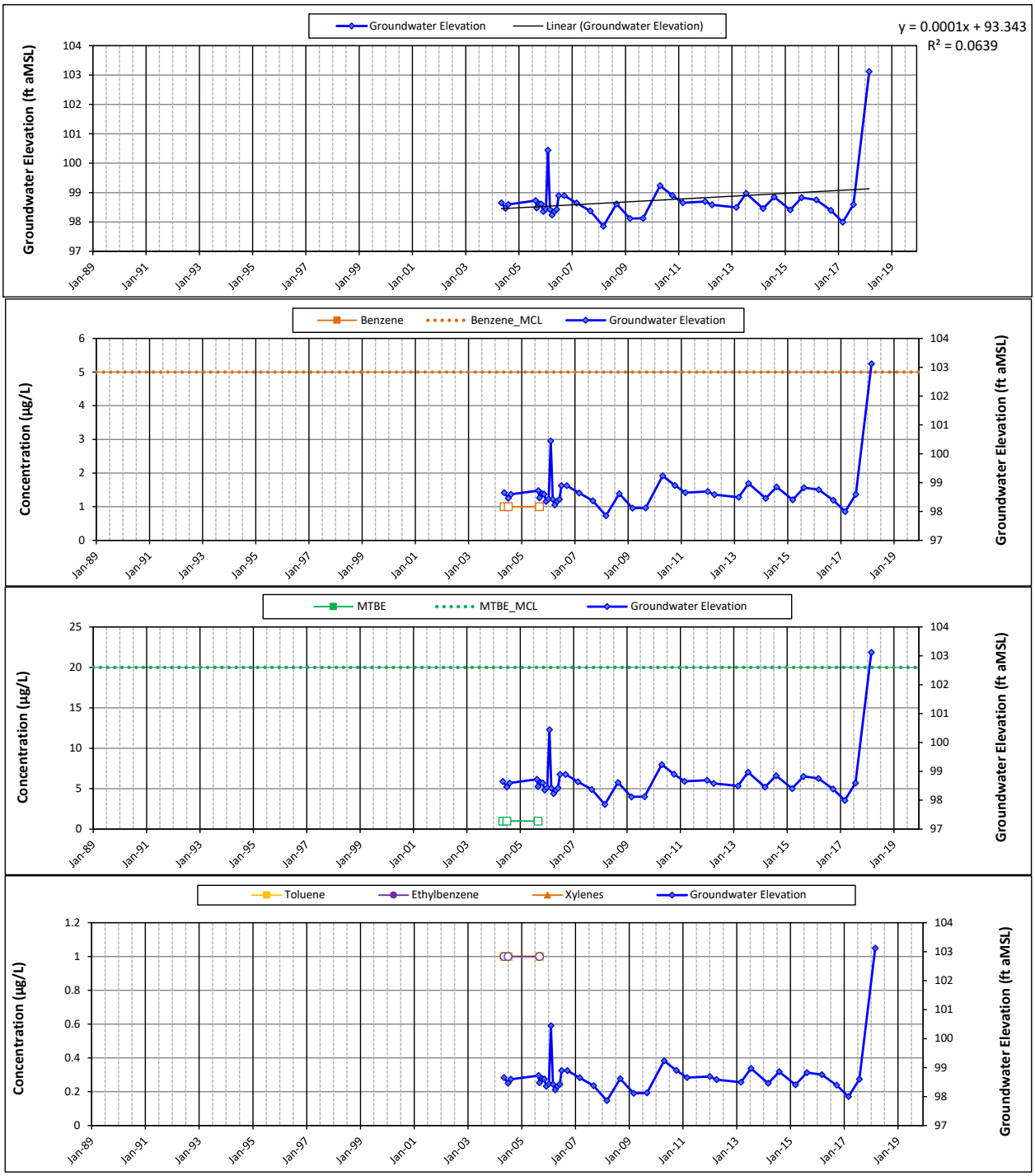
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-34B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

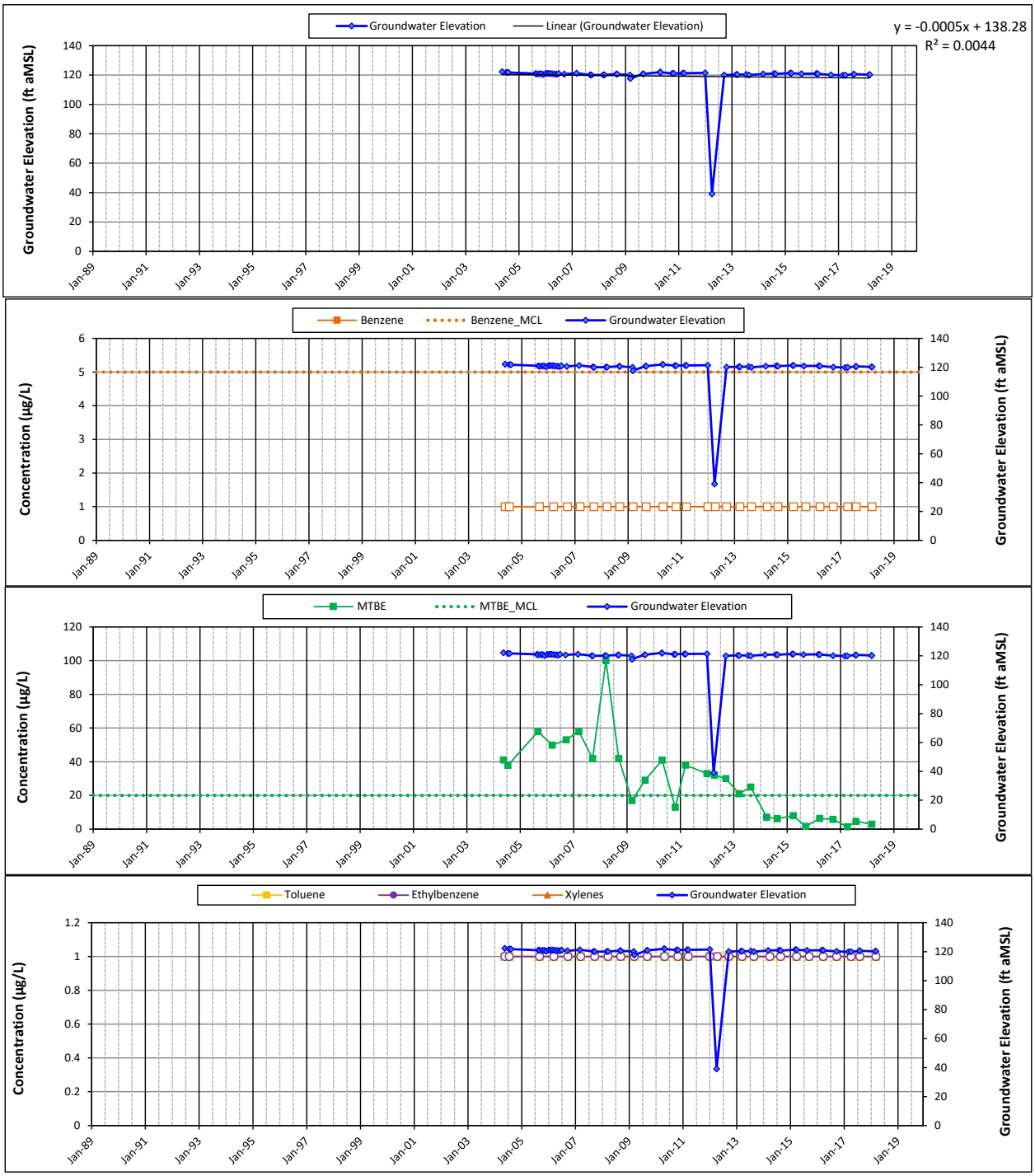
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-44A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

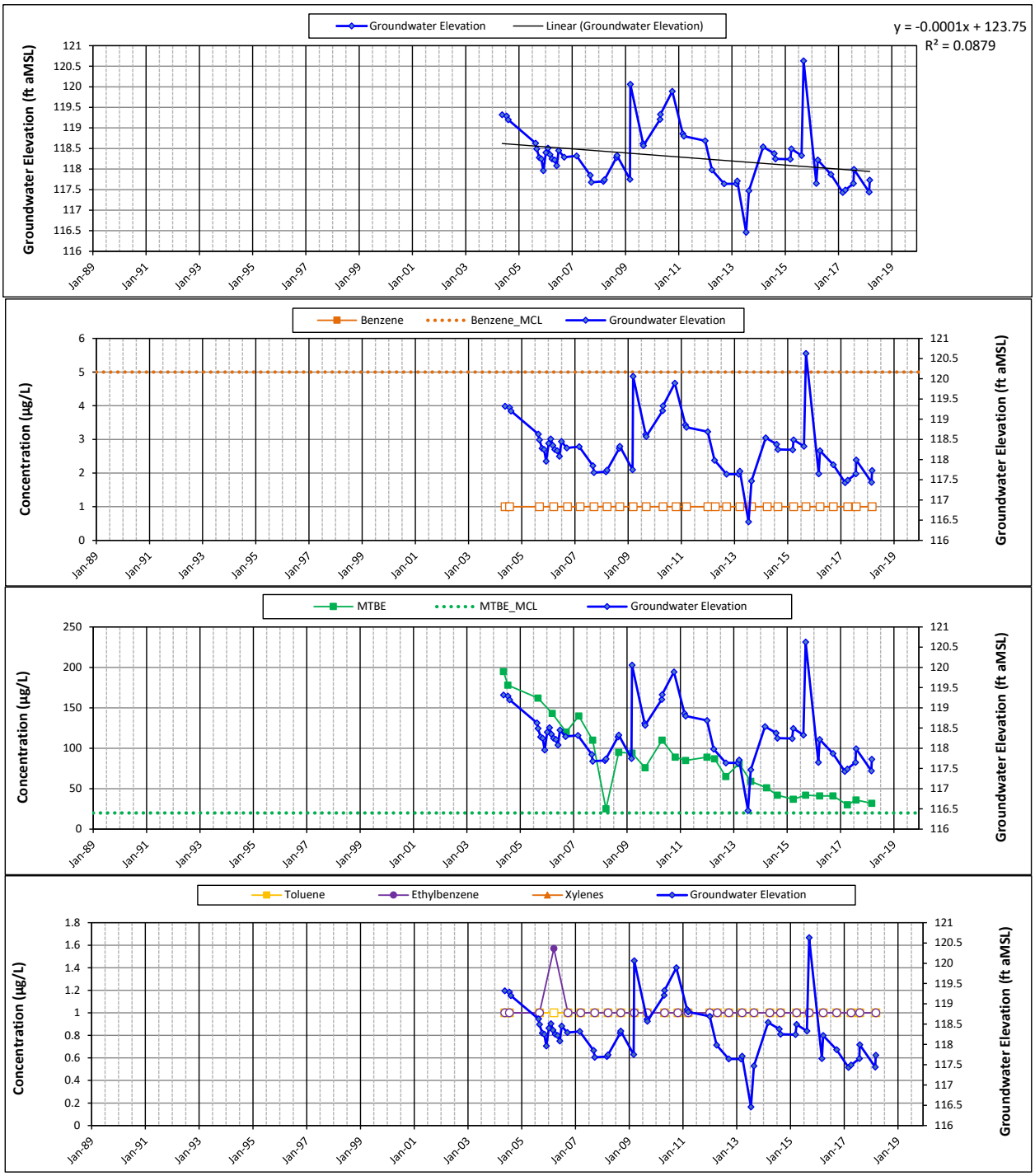
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-44B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

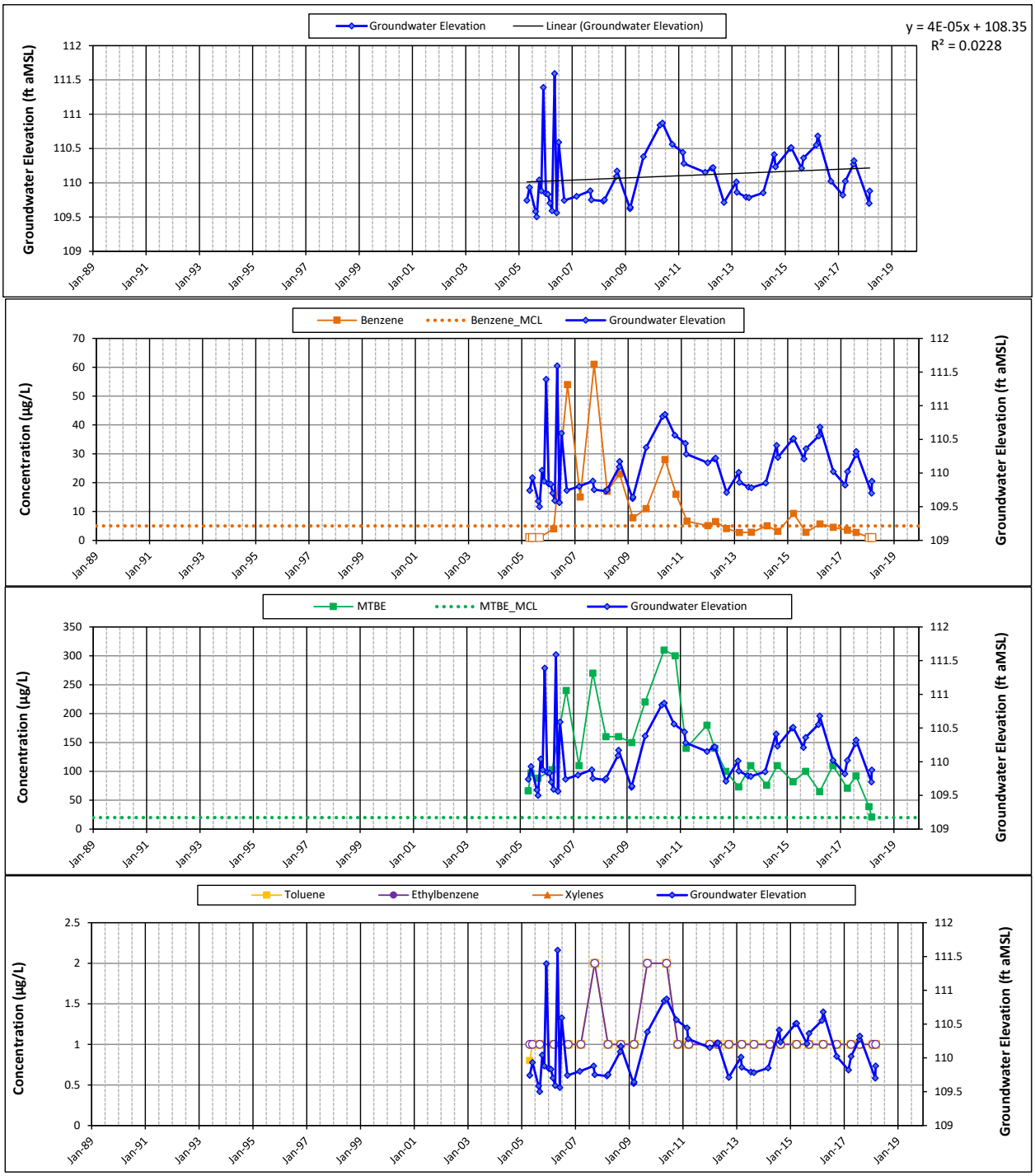
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-53
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

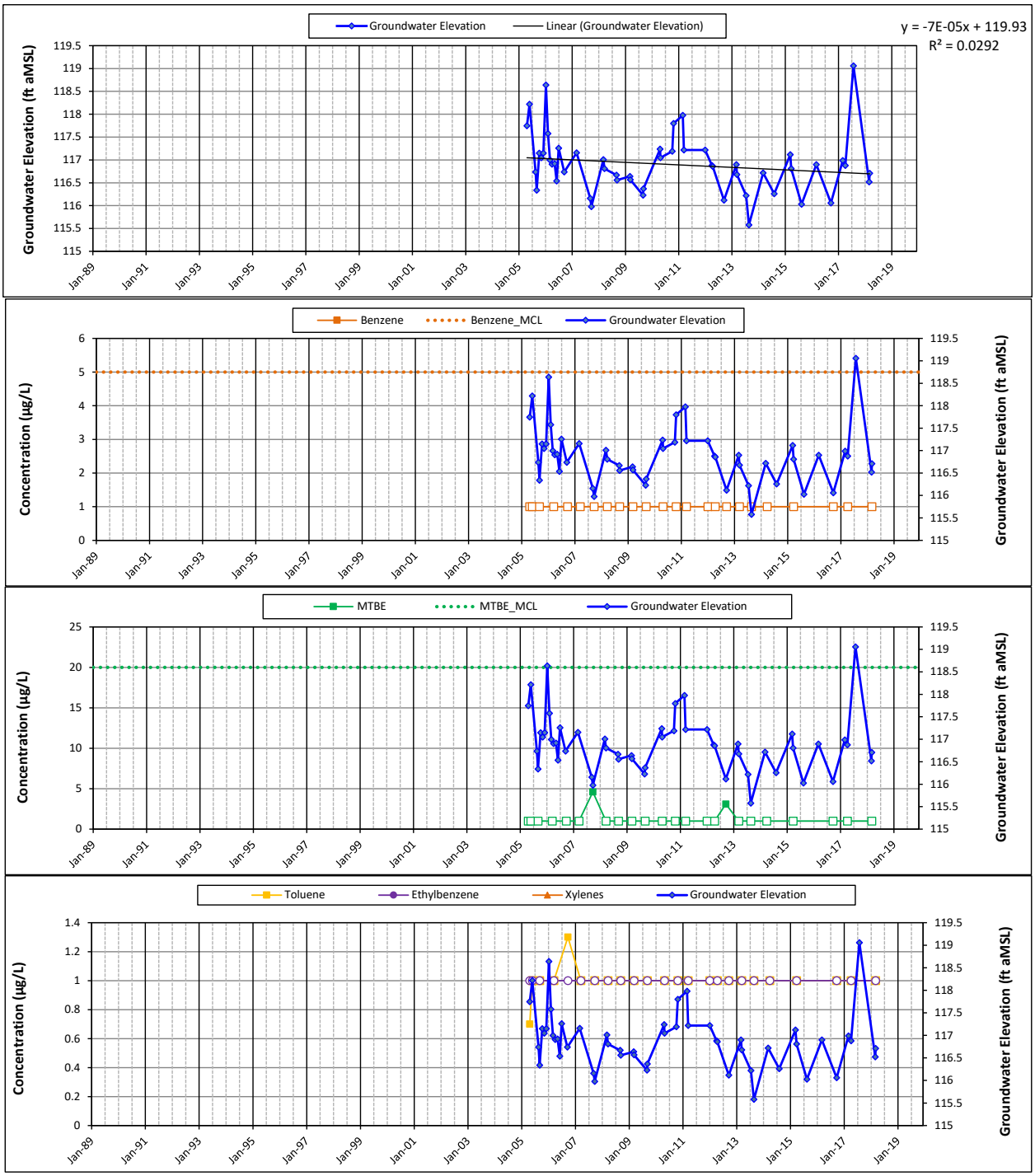
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-54
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

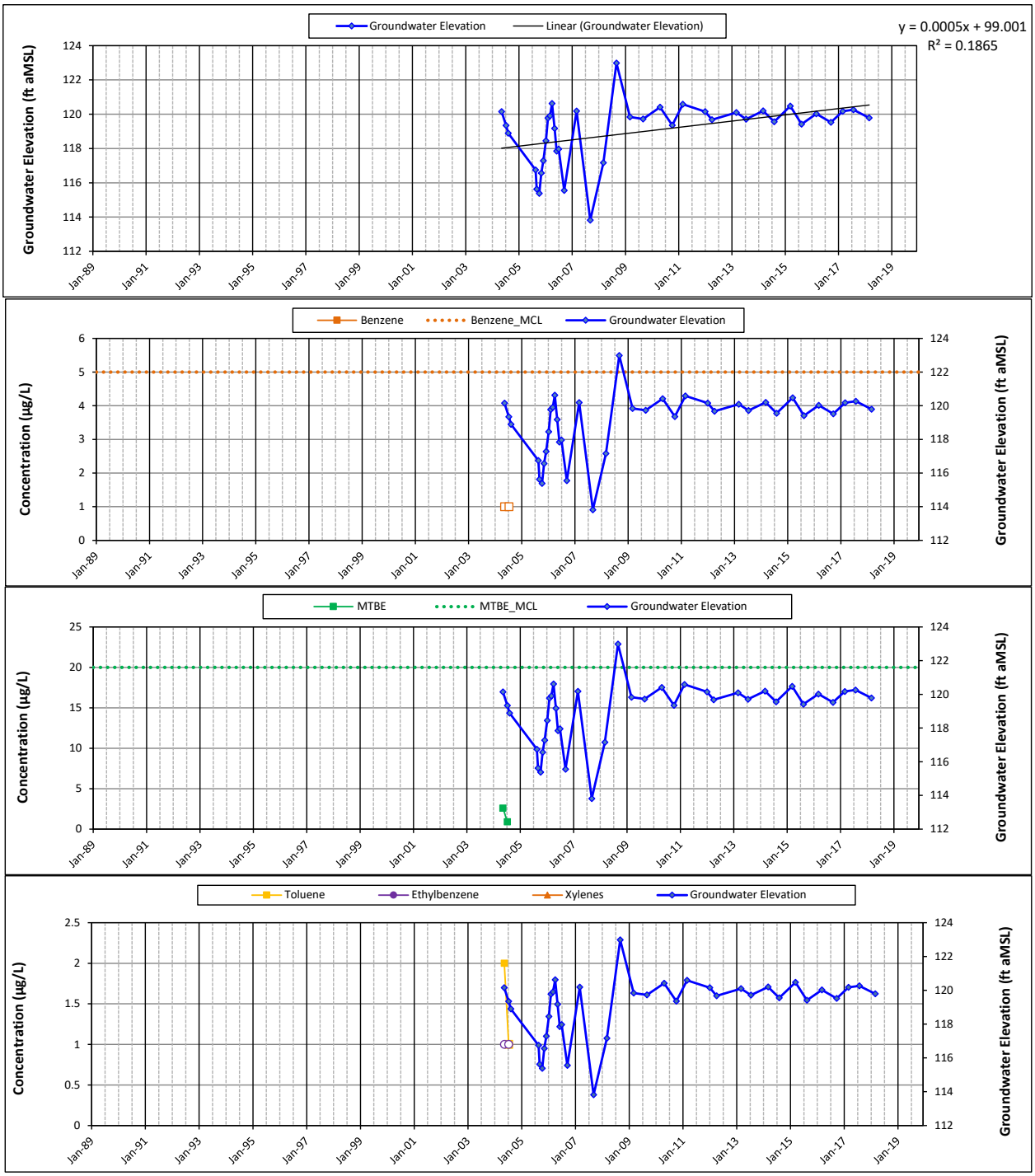
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-32
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

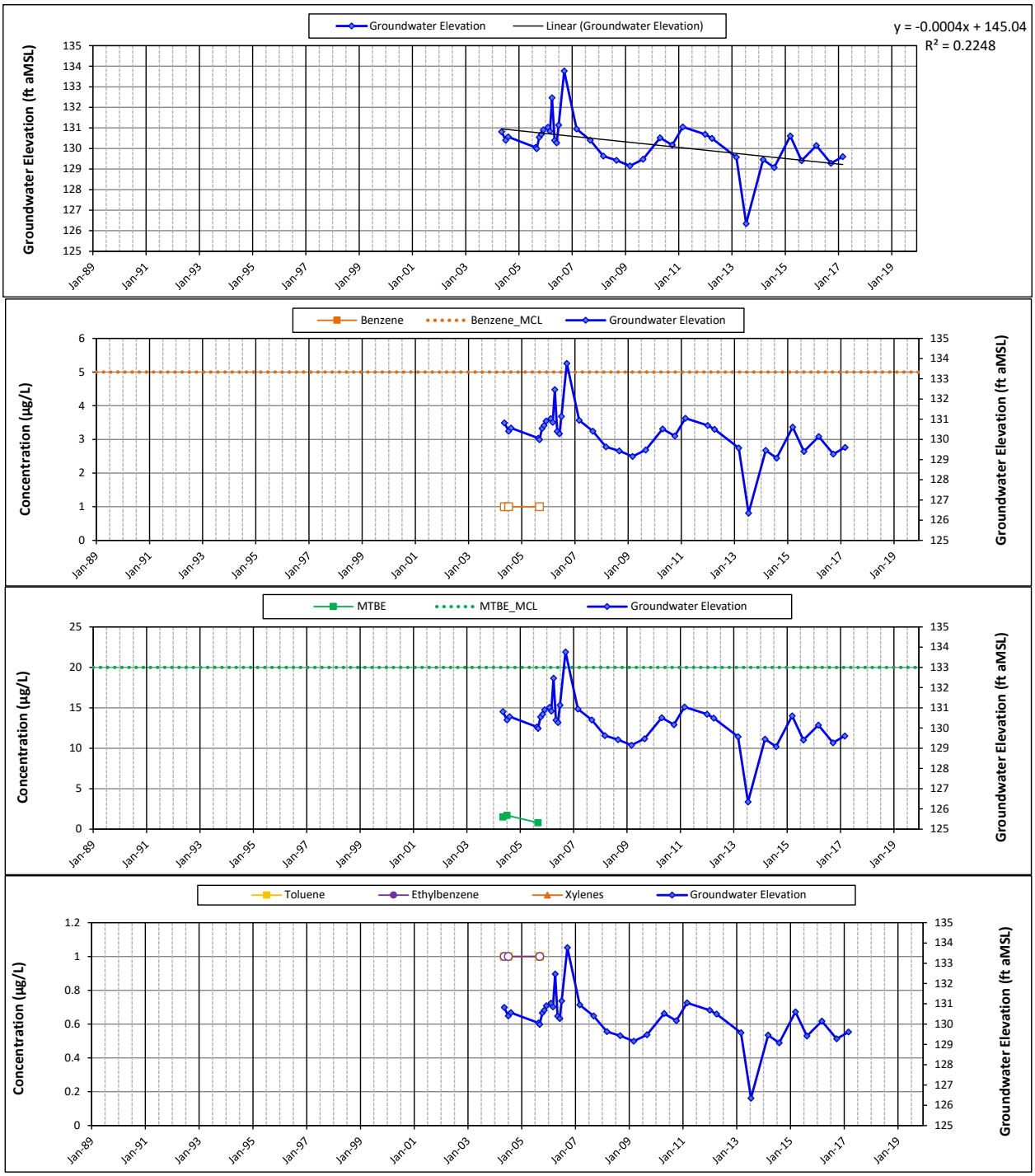
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-31A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

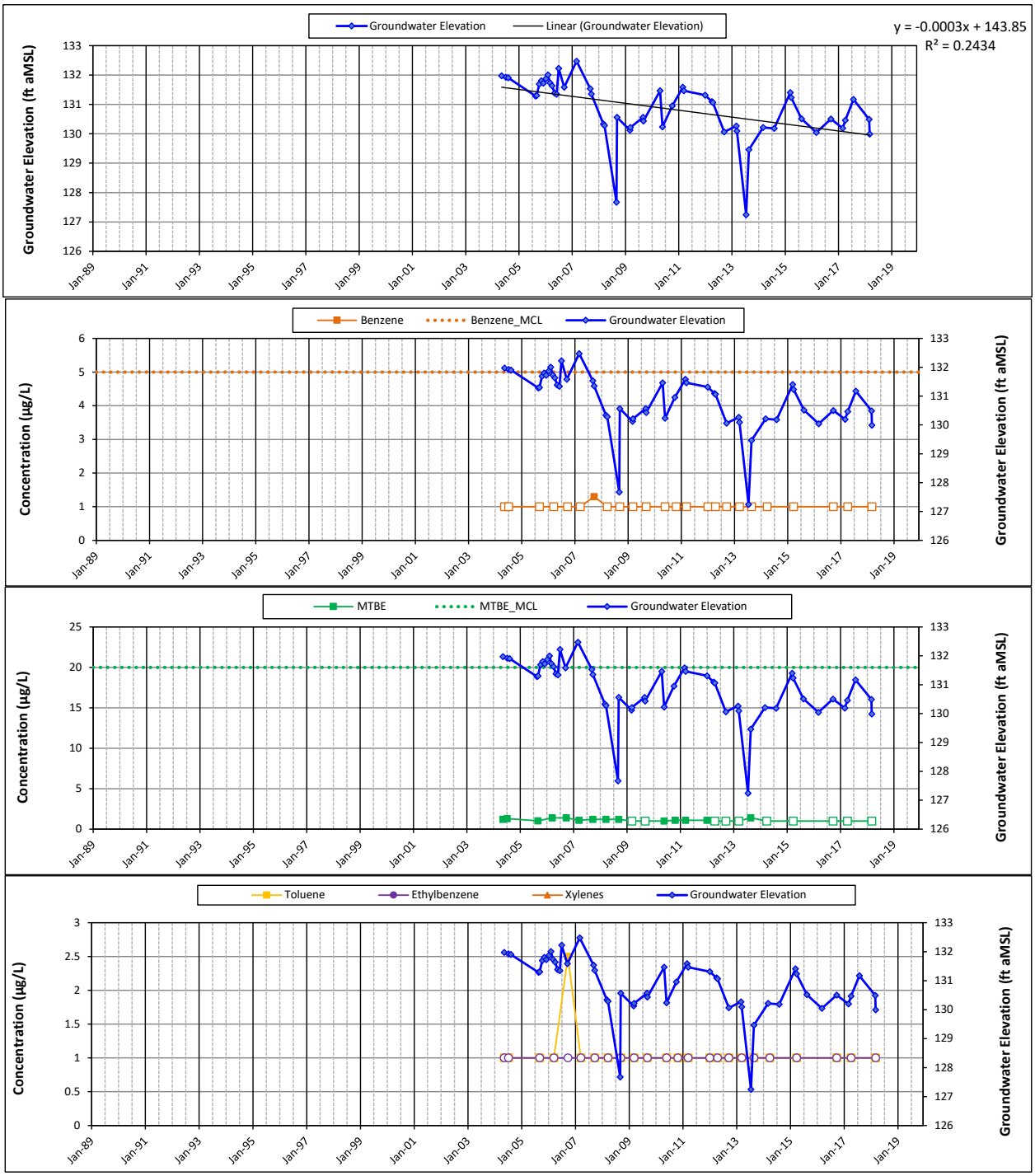
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-31B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

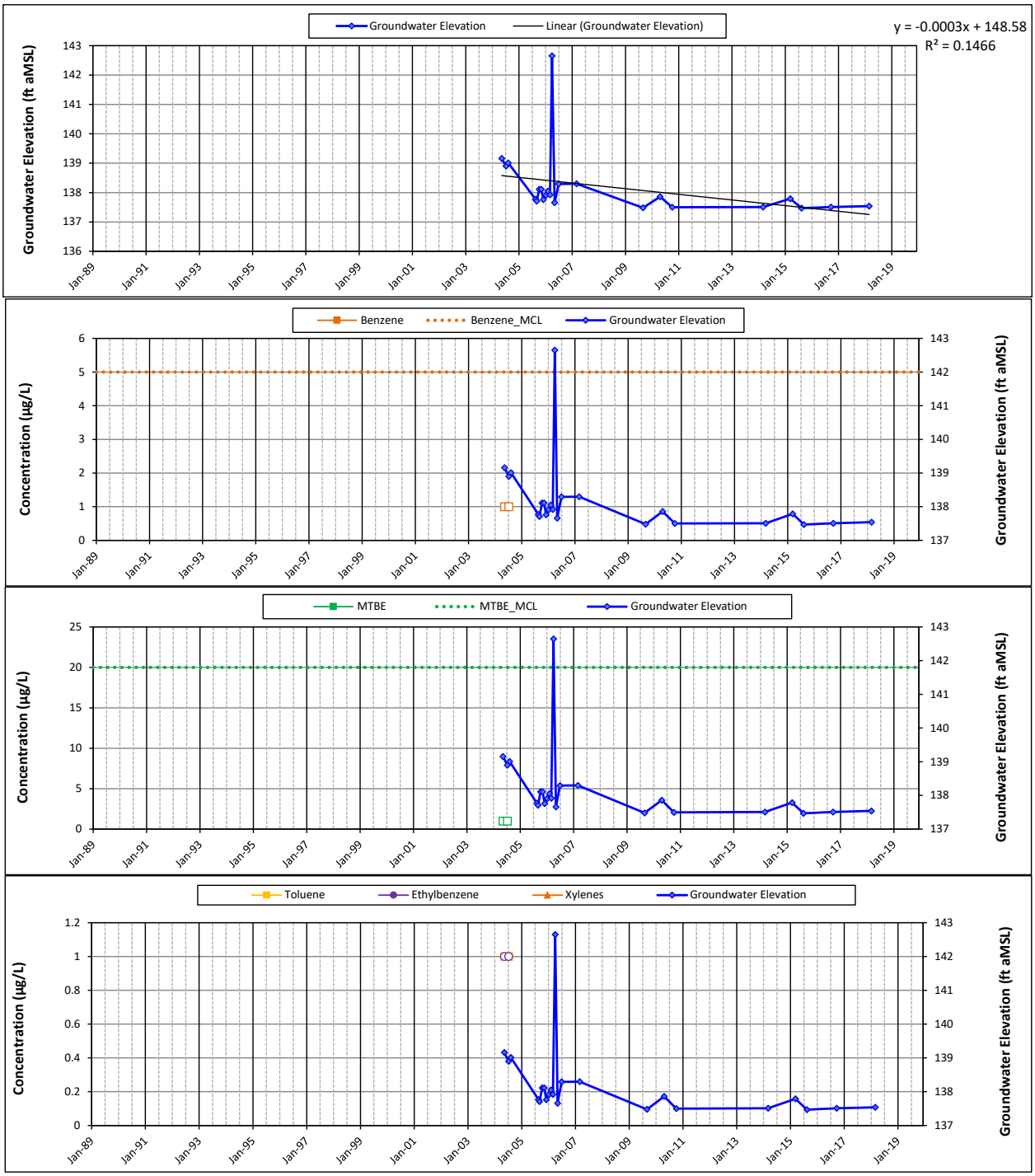
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-37
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

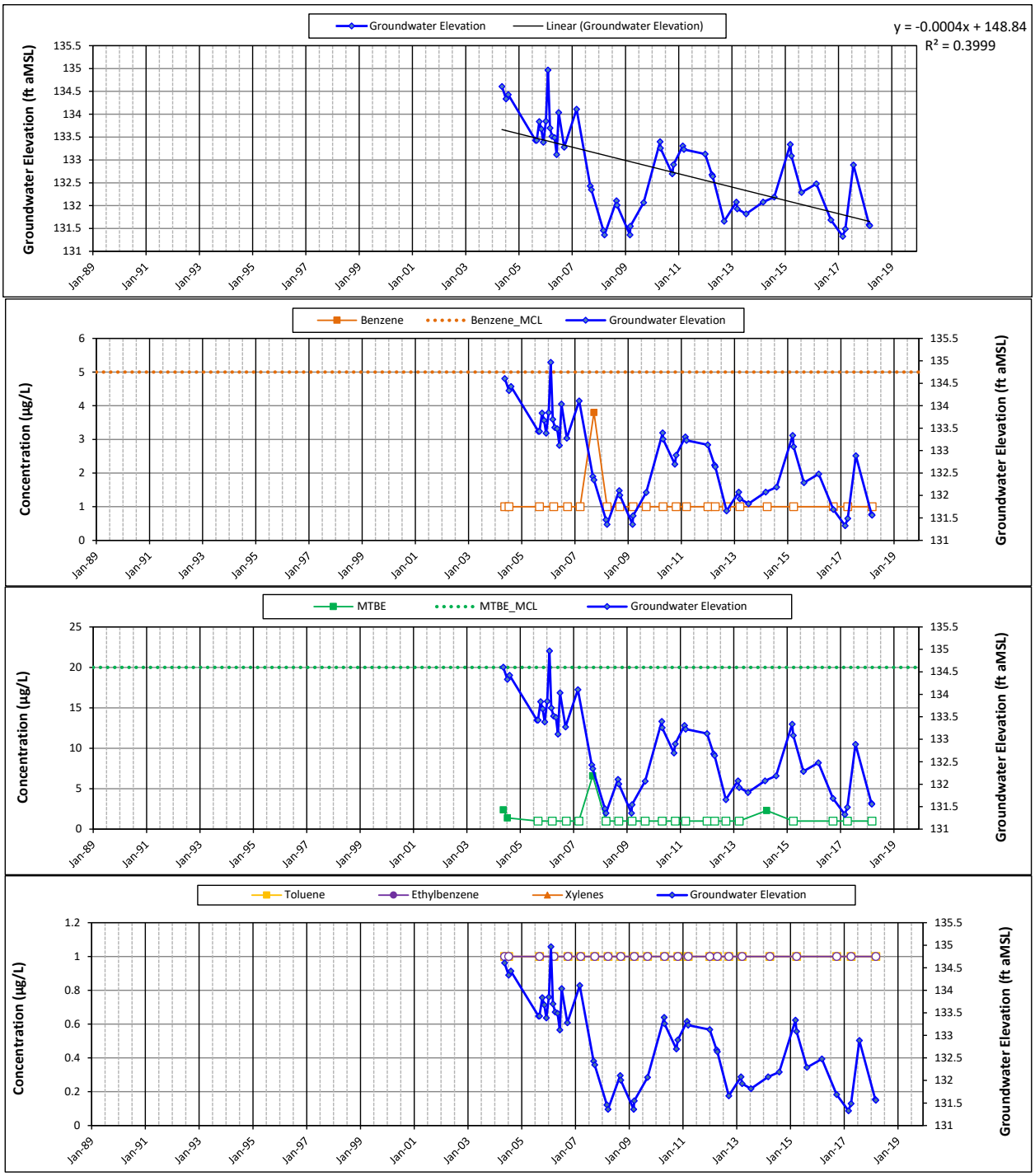
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-42
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

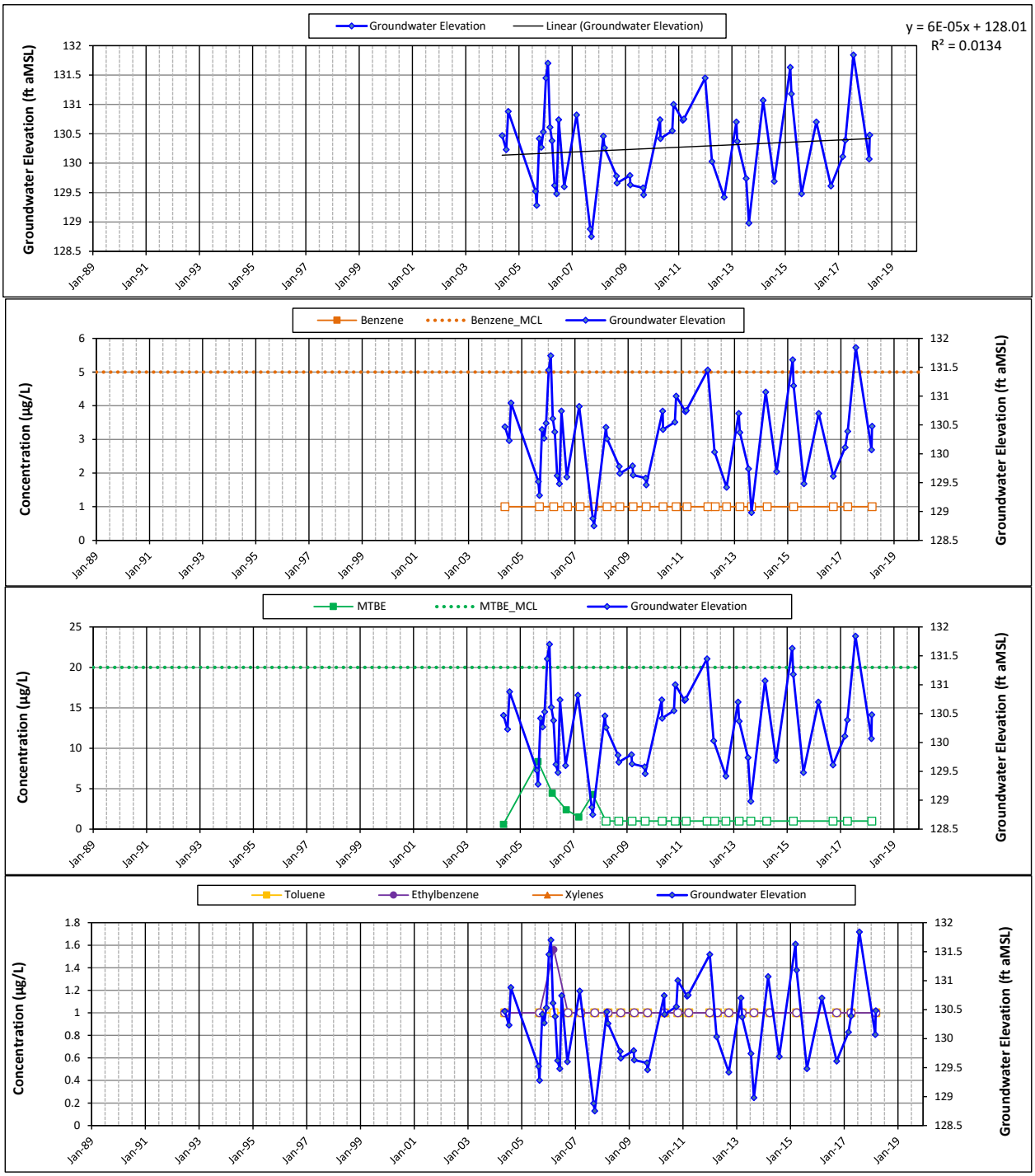
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-43A
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

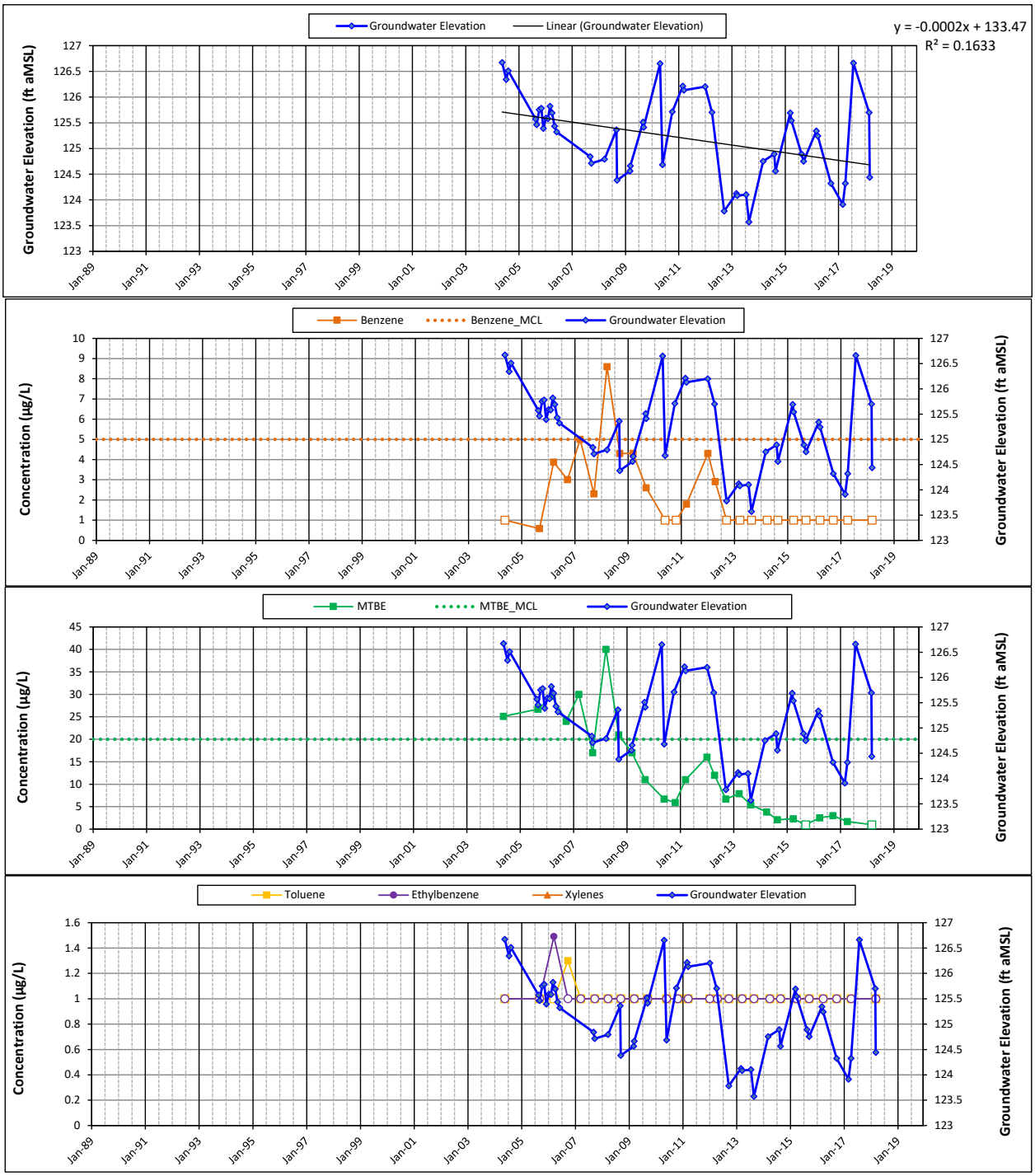
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-43B
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

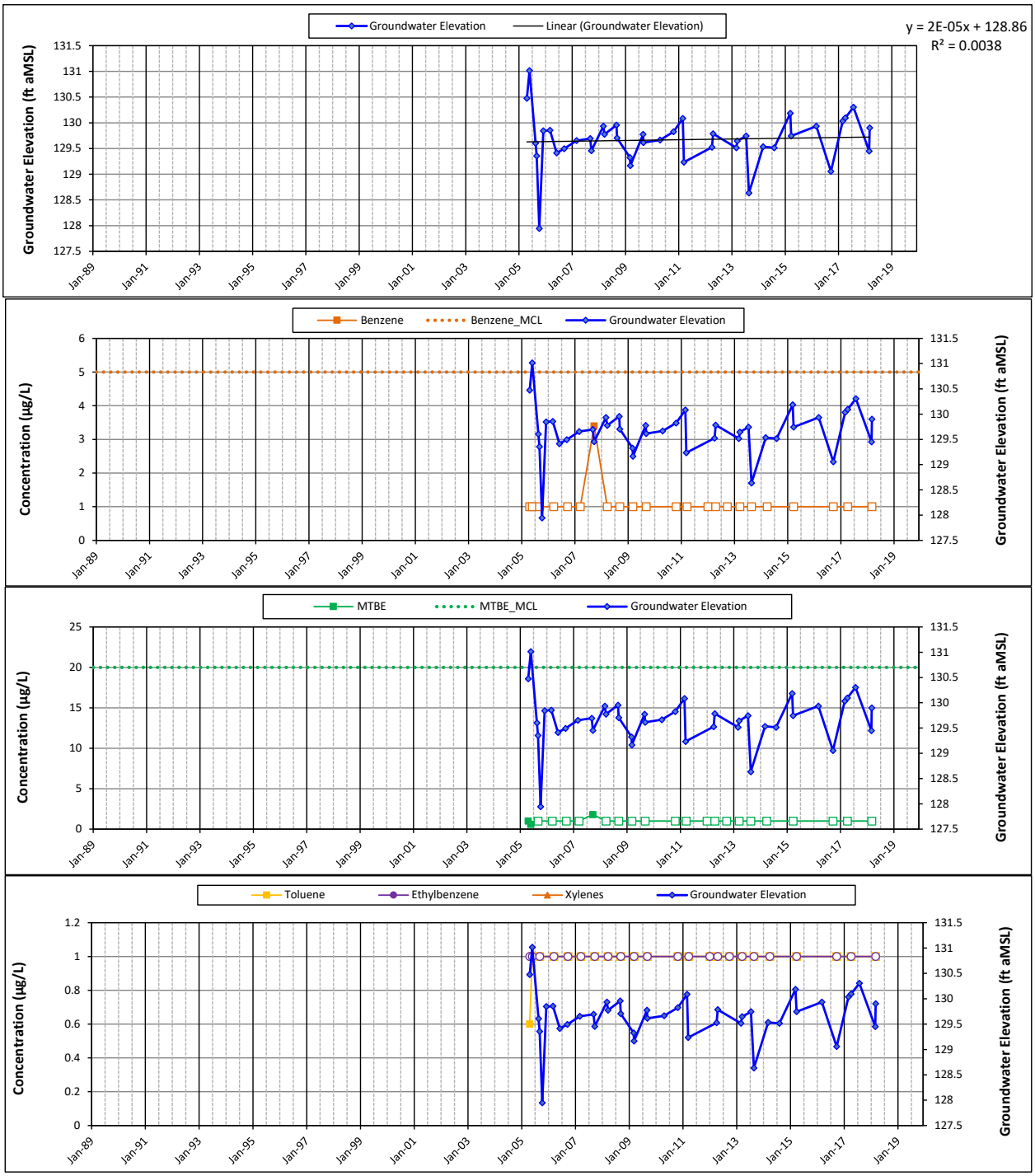
ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

TIME SERIES GRAPHS FOR MW-55
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND



Notes:

ft aMSL Feet above mean sea level

µg/L Micrograms per liter

White data points indicate analyte concentration was not detected above laboratory method reporting limit.

Dashed horizontal line indicates the MCL value for series of the same color.

APPENDIX R

Vapor Intrusion Laboratory Results

VI Event August 2017

eurofins | Air Toxics

8/27/2017
Ms. Lauren Vogel
Arcadis U.S., Inc.
2101 L St. NW, Suite 200

Washington DC 20037

Project Name: Chevron Chillum #122208
Project #: Chevron #122208
Workorder #: 1708340A

Dear Ms. Lauren Vogel

The following report includes the data for the above referenced project for sample(s) received on 8/18/2017 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1708340A

Work Order Summary

CLIENT:	Ms. Lauren Vogel Arcadis U.S., Inc. 2101 L St. NW, Suite 200 Washington, DC 20037	**BILL TO:**	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	202.909.6892	**P.O. #**	B0049337
FAX:		**PROJECT #**	Chevron #122208 Chevron Chillum #122208
DATE RECEIVED:	08/18/2017	**CONTACT:**	Ausha Scott
DATE COMPLETED:	08/27/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	CV-1(10)(081617)	TO-15	4.3 "Hg	15.2 psi
02A	CV-1(15)(081617)	TO-15	5.3 "Hg	14.8 psi
03A	CV-1(24)(081617)	TO-15	14.7 "Hg	14.5 psi
04A	CV-2(10)(081617)	TO-15	5.3 "Hg	14.9 psi
05A	CV-2(15)(081617)	TO-15	5.1 "Hg	15 psi
06A	CV-2(24)(081617)	TO-15	4.3 "Hg	15.4 psi
07A	CV-3(10)(081617)	TO-15	6.3 "Hg	14.9 psi
08A	CV-3(15)(081617)	TO-15	5.7 "Hg	15.5 psi
09A	CV-3(25)(081617)	TO-15	5.7 "Hg	14.6 psi
10A	Dup-01(081617)	TO-15	2.8 "Hg	15.3 psi
11A	EB-01(081617)	TO-15	5.3 "Hg	15 psi
12A	Lab Blank	TO-15	NA	NA
13A	CCV	TO-15	NA	NA
14A	LCS	TO-15	NA	NA
14AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 08/27/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1708340A

Eleven 1 Liter Summa Canister (100% Certified) samples were received on August 18, 2017. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample CV-2(24)(081617) due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: CV-1(10)(081617)

Lab ID#: 1708340A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.7	4.9	8.9	9.3
Acetone	12	22	28	52
Chloroform	1.2	1.3	5.8	6.2
Toluene	1.2	1.2	4.5	4.6
m,p-Xylene	1.2	1.6	5.1	7.1

Client Sample ID: CV-1(15)(081617)

Lab ID#: 1708340A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.9	9.0	9.2	17
Acetone	12	44	29	100
2-Propanol	4.9	37	12	92
Chloroform	1.2	1.6	6.0	8.0

Client Sample ID: CV-1(24)(081617)

Lab ID#: 1708340A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	19	27	46	65
Carbon Disulfide	7.8	23	24	72
Hexane	1.9	4.7	6.8	16
Chloroform	1.9	5.8	9.5	28
Cyclohexane	1.9	3.4	6.7	12
2,2,4-Trimethylpentane	1.9	14	9.1	67
Benzene	1.9	6.3	6.2	20
Heptane	1.9	2.7	8.0	11
Toluene	1.9	18	7.3	68
Tetrachloroethene	1.9	11	13	74
Ethyl Benzene	1.9	1.9	8.4	8.4
m,p-Xylene	1.9	7.3	8.4	32
o-Xylene	1.9	3.1	8.4	13

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: CV-2(10)(081617)

Lab ID#: 1708340A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	12	26	29	62
Carbon Disulfide	4.9	18	15	56
Chloroform	1.2	24	6.0	120
Bromodichloromethane	1.2	1.8	8.2	12
Toluene	1.2	3.1	4.6	12
Tetrachloroethene	1.2	14	8.3	96
Ethyl Benzene	1.2	1.4	5.3	5.9
m,p-Xylene	1.2	3.6	5.3	16
o-Xylene	1.2	1.2	5.3	5.4

Client Sample ID: CV-2(15)(081617)

Lab ID#: 1708340A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.9	6.6	9.2	12
Acetone	12	20	29	48
2-Propanol	4.9	24	12	60
cis-1,2-Dichloroethene	1.2	13	4.8	53
2,2,4-Trimethylpentane	1.2	14	5.7	66
Trichloroethene	1.2	3.5	6.5	19
Tetrachloroethene	1.2	34	8.2	230

Client Sample ID: CV-2(24)(081617)

Lab ID#: 1708340A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	12	22	47	87
2,2,4-Trimethylpentane	12	30	56	140
Trichloroethene	12	62	64	340
Tetrachloroethene	12	2400	81	16000

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: CV-3(10)(081617)

Lab ID#: 1708340A-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.1	5.5	9.6	10
Acetone	13	39	30	94
Carbon Disulfide	5.1	40	16	130
Hexane	1.3	2.4	4.5	8.3
Tetrahydrofuran	1.3	3.0	3.8	8.9
Chloroform	1.3	33	6.2	160
Cyclohexane	1.3	2.0	4.4	7.0
2,2,4-Trimethylpentane	1.3	20	6.0	95
Bromodichloromethane	1.3	1.6	8.5	10
Toluene	1.3	10	4.8	39
Tetrachloroethene	1.3	59	8.6	400
Ethyl Benzene	1.3	5.0	5.5	22
m,p-Xylene	1.3	15	5.5	66
o-Xylene	1.3	4.8	5.5	21
4-Ethyltoluene	1.3	3.1	6.3	15
1,2,4-Trimethylbenzene	1.3	2.7	6.3	13

Client Sample ID: CV-3(15)(081617)

Lab ID#: 1708340A-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	13	84	30	200
Carbon Disulfide	5.1	5.8	16	18
Chloroform	1.3	3.4	6.2	16
Tetrachloroethene	1.3	4.1	8.6	28
m,p-Xylene	1.3	1.8	5.5	7.9

Client Sample ID: CV-3(25)(081617)

Lab ID#: 1708340A-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.9	33	9.3	62
Acetone	12	160	29	390

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: CV-3(25)(081617)

Lab ID#: 1708340A-09A

2-Propanol	4.9	41	12	100
Carbon Disulfide	4.9	6.6	15	20
Hexane	1.2	1.3	4.3	4.5
2-Butanone (Methyl Ethyl Ketone)	4.9	10	14	30
Tetrahydrofuran	1.2	2.3	3.6	6.8
2,2,4-Trimethylpentane	1.2	13	5.7	61
Benzene	1.2	1.6	3.9	5.1
Toluene	1.2	3.9	4.6	15
Tetrachloroethene	1.2	6.1	8.3	41
Ethyl Benzene	1.2	1.8	5.3	7.9
m,p-Xylene	1.2	6.8	5.3	30
o-Xylene	1.2	2.4	5.3	11
4-Ethyltoluene	1.2	2.3	6.0	11
1,2,4-Trimethylbenzene	1.2	2.5	6.0	12

Client Sample ID: Dup-01(081617)

Lab ID#: 1708340A-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	11	92	27	220
Carbon Disulfide	4.5	5.8	14	18
cis-1,2-Dichloroethene	1.1	1.2	4.5	4.9
Chloroform	1.1	3.2	5.5	16
Trichloroethene	1.1	2.7	6.0	15
Tetrachloroethene	1.1	3.8	7.6	25
m,p-Xylene	1.1	1.7	4.9	7.4

Client Sample ID: EB-01(081617)

Lab ID#: 1708340A-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.2	2.2	8.3	15

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Client Sample ID: CV-1(10)(081617)

Lab ID#: 1708340A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082118**	**Date of Collection:**	**8/16/17 9:40:00 AM**
Dil. Factor:	**2.37**	**Date of Analysis:**	**8/21/17 09:46 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	5.9	Not Detected
Freon 114	1.2	Not Detected	8.3	Not Detected
Chloromethane	12	Not Detected	24	Not Detected
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	46	Not Detected
Chloroethane	4.7	Not Detected	12	Not Detected
Freon 11	1.2	Not Detected	6.6	Not Detected
Ethanol	4.7	4.9	8.9	9.3
Freon 113	1.2	Not Detected	9.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Acetone	12	22	28	52
2-Propanol	4.7	Not Detected	12	Not Detected
Carbon Disulfide	4.7	Not Detected	15	Not Detected
3-Chloropropene	4.7	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
Methyl tert-butyl ether	4.7	Not Detected	17	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Hexane	1.2	Not Detected	4.2	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.7	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.5	Not Detected
Chloroform	1.2	1.3	5.8	6.2
1,1,1-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Cyclohexane	1.2	Not Detected	4.1	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.4	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.5	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Heptane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.5	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	7.9	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.4	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.8	Not Detected
Toluene	1.2	1.2	4.5	4.6
trans-1,3-Dichloropropene	1.2	Not Detected	5.4	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
2-Hexanone	4.7	Not Detected	19	Not Detected

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Client Sample ID: CV-1(10)(081617)

Lab ID#: 1708340A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082118**	**Date of Collection:**	**8/16/17 9:40:00 AM**
Dil. Factor:	**2.37**	**Date of Analysis:**	**8/21/17 09:46 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.1	Not Detected
Chlorobenzene	1.2	Not Detected	5.4	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	1.6	5.1	7.1
o-Xylene	1.2	Not Detected	5.1	Not Detected
Styrene	1.2	Not Detected	5.0	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.8	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.1	Not Detected
Propylbenzene	1.2	Not Detected	5.8	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.8	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.1	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
1,2,4-Trichlorobenzene	4.7	Not Detected	35	Not Detected
Hexachlorobutadiene	4.7	Not Detected	50	Not Detected
Naphthalene	2.4	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: CV-1(15)(081617)

Lab ID#: 1708340A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082119**	**Date of Collection:**	**8/16/17 9:50:00 AM**
Dil. Factor:	**2.44**	**Date of Analysis:**	**8/21/17 10:12 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.0	Not Detected
Freon 114	1.2	Not Detected	8.5	Not Detected
Chloromethane	12	Not Detected	25	Not Detected
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	47	Not Detected
Chloroethane	4.9	Not Detected	13	Not Detected
Freon 11	1.2	Not Detected	6.8	Not Detected
Ethanol	4.9	9.0	9.2	17
Freon 113	1.2	Not Detected	9.4	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Acetone	12	44	29	100
2-Propanol	4.9	37	12	92
Carbon Disulfide	4.9	Not Detected	15	Not Detected
3-Chloropropene	4.9	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	42	Not Detected
Methyl tert-butyl ether	4.9	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Hexane	1.2	Not Detected	4.3	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.9	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	1.6	6.0	8.0
1,1,1-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Cyclohexane	1.2	Not Detected	4.2	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.7	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.7	Not Detected
Benzene	1.2	Not Detected	3.9	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.9	Not Detected
Heptane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.6	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.2	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.0	Not Detected
Toluene	1.2	Not Detected	4.6	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Tetrachloroethene	1.2	Not Detected	8.3	Not Detected
2-Hexanone	4.9	Not Detected	20	Not Detected

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Client Sample ID: CV-1(15)(081617)

Lab ID#: 1708340A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082119**	**Date of Collection:**	**8/16/17 9:50:00 AM**
Dil. Factor:	**2.44**	**Date of Analysis:**	**8/21/17 10:12 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.4	Not Detected
Chlorobenzene	1.2	Not Detected	5.6	Not Detected
Ethyl Benzene	1.2	Not Detected	5.3	Not Detected
m,p-Xylene	1.2	Not Detected	5.3	Not Detected
o-Xylene	1.2	Not Detected	5.3	Not Detected
Styrene	1.2	Not Detected	5.2	Not Detected
Bromoform	1.2	Not Detected	13	Not Detected
Cumene	1.2	Not Detected	6.0	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.4	Not Detected
Propylbenzene	1.2	Not Detected	6.0	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.0	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.3	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
1,2,4-Trichlorobenzene	4.9	Not Detected	36	Not Detected
Hexachlorobutadiene	4.9	Not Detected	52	Not Detected
Naphthalene	2.4	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: CV-1(24)(081617)

Lab ID#: 1708340A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082120**	**Date of Collection:**	**8/16/17 10:05:00 AM**
Dil. Factor:	**3.89**	**Date of Analysis:**	**8/21/17 10:38 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.9	Not Detected	9.6	Not Detected
Freon 114	1.9	Not Detected	14	Not Detected
Chloromethane	19	Not Detected	40	Not Detected
Vinyl Chloride	1.9	Not Detected	5.0	Not Detected
1,3-Butadiene	1.9	Not Detected	4.3	Not Detected
Bromomethane	19	Not Detected	76	Not Detected
Chloroethane	7.8	Not Detected	20	Not Detected
Freon 11	1.9	Not Detected	11	Not Detected
Ethanol	7.8	Not Detected	15	Not Detected
Freon 113	1.9	Not Detected	15	Not Detected
1,1-Dichloroethene	1.9	Not Detected	7.7	Not Detected
Acetone	19	27	46	65
2-Propanol	7.8	Not Detected	19	Not Detected
Carbon Disulfide	7.8	23	24	72
3-Chloropropene	7.8	Not Detected	24	Not Detected
Methylene Chloride	19	Not Detected	68	Not Detected
Methyl tert-butyl ether	7.8	Not Detected	28	Not Detected
trans-1,2-Dichloroethene	1.9	Not Detected	7.7	Not Detected
Hexane	1.9	4.7	6.8	16
1,1-Dichloroethane	1.9	Not Detected	7.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	7.8	Not Detected	23	Not Detected
cis-1,2-Dichloroethene	1.9	Not Detected	7.7	Not Detected
Tetrahydrofuran	1.9	Not Detected	5.7	Not Detected
Chloroform	1.9	5.8	9.5	28
1,1,1-Trichloroethane	1.9	Not Detected	11	Not Detected
Cyclohexane	1.9	3.4	6.7	12
Carbon Tetrachloride	1.9	Not Detected	12	Not Detected
2,2,4-Trimethylpentane	1.9	14	9.1	67
Benzene	1.9	6.3	6.2	20
1,2-Dichloroethane	1.9	Not Detected	7.9	Not Detected
Heptane	1.9	2.7	8.0	11
Trichloroethene	1.9	Not Detected	10	Not Detected
1,2-Dichloropropane	1.9	Not Detected	9.0	Not Detected
1,4-Dioxane	7.8	Not Detected	28	Not Detected
Bromodichloromethane	1.9	Not Detected	13	Not Detected
cis-1,3-Dichloropropene	1.9	Not Detected	8.8	Not Detected
4-Methyl-2-pentanone	1.9	Not Detected	8.0	Not Detected
Toluene	1.9	18	7.3	68
trans-1,3-Dichloropropene	1.9	Not Detected	8.8	Not Detected
1,1,2-Trichloroethane	1.9	Not Detected	11	Not Detected
Tetrachloroethene	1.9	11	13	74
2-Hexanone	7.8	Not Detected	32	Not Detected

eurofins | Air Toxics

Client Sample ID: CV-1(24)(081617)

Lab ID#: 1708340A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082120**	**Date of Collection:**	**8/16/17 10:05:00 AM**
Dil. Factor:	**3.89**	**Date of Analysis:**	**8/21/17 10:38 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.9	Not Detected	16	Not Detected
1,2-Dibromoethane (EDB)	1.9	Not Detected	15	Not Detected
Chlorobenzene	1.9	Not Detected	9.0	Not Detected
Ethyl Benzene	1.9	1.9	8.4	8.4
m,p-Xylene	1.9	7.3	8.4	32
o-Xylene	1.9	3.1	8.4	13
Styrene	1.9	Not Detected	8.3	Not Detected
Bromoform	1.9	Not Detected	20	Not Detected
Cumene	1.9	Not Detected	9.6	Not Detected
1,1,2,2-Tetrachloroethane	1.9	Not Detected	13	Not Detected
Propylbenzene	1.9	Not Detected	9.6	Not Detected
4-Ethyltoluene	1.9	Not Detected	9.6	Not Detected
1,3,5-Trimethylbenzene	1.9	Not Detected	9.6	Not Detected
1,2,4-Trimethylbenzene	1.9	Not Detected	9.6	Not Detected
1,3-Dichlorobenzene	1.9	Not Detected	12	Not Detected
1,4-Dichlorobenzene	1.9	Not Detected	12	Not Detected
alpha-Chlorotoluene	1.9	Not Detected	10	Not Detected
1,2-Dichlorobenzene	1.9	Not Detected	12	Not Detected
1,2,4-Trichlorobenzene	7.8	Not Detected	58	Not Detected
Hexachlorobutadiene	7.8	Not Detected	83	Not Detected
Naphthalene	3.9	Not Detected	20	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: CV-2(10)(081617)

Lab ID#: 1708340A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082116**	**Date of Collection:**	**8/16/17 10:45:00 AM**
Dil. Factor:	**2.44**	**Date of Analysis:**	**8/21/17 07:41 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.0	Not Detected
Freon 114	1.2	Not Detected	8.5	Not Detected
Chloromethane	12	Not Detected	25	Not Detected
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	47	Not Detected
Chloroethane	4.9	Not Detected	13	Not Detected
Freon 11	1.2	Not Detected	6.8	Not Detected
Ethanol	4.9	Not Detected	9.2	Not Detected
Freon 113	1.2	Not Detected	9.4	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Acetone	12	26	29	62
2-Propanol	4.9	Not Detected	12	Not Detected
Carbon Disulfide	4.9	18	15	56
3-Chloropropene	4.9	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	42	Not Detected
Methyl tert-butyl ether	4.9	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Hexane	1.2	Not Detected	4.3	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.9	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	24	6.0	120
1,1,1-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Cyclohexane	1.2	Not Detected	4.2	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.7	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.7	Not Detected
Benzene	1.2	Not Detected	3.9	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.9	Not Detected
Heptane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.6	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected
Bromodichloromethane	1.2	1.8	8.2	12
cis-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.0	Not Detected
Toluene	1.2	3.1	4.6	12
trans-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Tetrachloroethene	1.2	14	8.3	96
2-Hexanone	4.9	Not Detected	20	Not Detected

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Client Sample ID: CV-2(10)(081617)

Lab ID#: 1708340A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082116**	**Date of Collection:**	**8/16/17 10:45:00 AM**
Dil. Factor:	**2.44**	**Date of Analysis:**	**8/21/17 07:41 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.4	Not Detected
Chlorobenzene	1.2	Not Detected	5.6	Not Detected
Ethyl Benzene	1.2	1.4	5.3	5.9
m,p-Xylene	1.2	3.6	5.3	16
o-Xylene	1.2	1.2	5.3	5.4
Styrene	1.2	Not Detected	5.2	Not Detected
Bromoform	1.2	Not Detected	13	Not Detected
Cumene	1.2	Not Detected	6.0	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.4	Not Detected
Propylbenzene	1.2	Not Detected	6.0	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.0	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.3	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
1,2,4-Trichlorobenzene	4.9	Not Detected	36	Not Detected
Hexachlorobutadiene	4.9	Not Detected	52	Not Detected
Naphthalene	2.4	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: CV-2(15)(081617)

Lab ID#: 1708340A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082115**	**Date of Collection:**	**8/16/17 10:50:00 AM**
Dil. Factor:	**2.43**	**Date of Analysis:**	**8/21/17 07:15 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.0	Not Detected
Freon 114	1.2	Not Detected	8.5	Not Detected
Chloromethane	12	Not Detected	25	Not Detected
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	47	Not Detected
Chloroethane	4.9	Not Detected	13	Not Detected
Freon 11	1.2	Not Detected	6.8	Not Detected
Ethanol	4.9	6.6	9.2	12
Freon 113	1.2	Not Detected	9.3	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Acetone	12	20	29	48
2-Propanol	4.9	24	12	60
Carbon Disulfide	4.9	Not Detected	15	Not Detected
3-Chloropropene	4.9	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	42	Not Detected
Methyl tert-butyl ether	4.9	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Hexane	1.2	Not Detected	4.3	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.9	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	13	4.8	53
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	Not Detected	5.9	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Cyclohexane	1.2	Not Detected	4.2	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.6	Not Detected
2,2,4-Trimethylpentane	1.2	14	5.7	66
Benzene	1.2	Not Detected	3.9	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.9	Not Detected
Heptane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	3.5	6.5	19
1,2-Dichloropropane	1.2	Not Detected	5.6	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.1	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.0	Not Detected
Toluene	1.2	Not Detected	4.6	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Tetrachloroethene	1.2	34	8.2	230
2-Hexanone	4.9	Not Detected	20	Not Detected

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Client Sample ID: CV-2(15)(081617)

Lab ID#: 1708340A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082115**	**Date of Collection:**	**8/16/17 10:50:00 AM**
Dil. Factor:	**2.43**	**Date of Analysis:**	**8/21/17 07:15 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.3	Not Detected
Chlorobenzene	1.2	Not Detected	5.6	Not Detected
Ethyl Benzene	1.2	Not Detected	5.3	Not Detected
m,p-Xylene	1.2	Not Detected	5.3	Not Detected
o-Xylene	1.2	Not Detected	5.3	Not Detected
Styrene	1.2	Not Detected	5.2	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	6.0	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.3	Not Detected
Propylbenzene	1.2	Not Detected	6.0	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.0	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.3	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
1,2,4-Trichlorobenzene	4.9	Not Detected	36	Not Detected
Hexachlorobutadiene	4.9	Not Detected	52	Not Detected
Naphthalene	2.4	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CV-2(24)(081617)

Lab ID#: 1708340A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082114**	**Date of Collection:**	**8/16/17 10:55:00 AM**
Dil. Factor:	**23.9**	**Date of Analysis:**	**8/21/17 06:48 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	12	Not Detected	59	Not Detected
Freon 114	12	Not Detected	84	Not Detected
Chloromethane	120	Not Detected	250	Not Detected
Vinyl Chloride	12	Not Detected	30	Not Detected
1,3-Butadiene	12	Not Detected	26	Not Detected
Bromomethane	120	Not Detected	460	Not Detected
Chloroethane	48	Not Detected	130	Not Detected
Freon 11	12	Not Detected	67	Not Detected
Ethanol	48	Not Detected	90	Not Detected
Freon 113	12	Not Detected	92	Not Detected
1,1-Dichloroethene	12	Not Detected	47	Not Detected
Acetone	120	Not Detected	280	Not Detected
2-Propanol	48	Not Detected	120	Not Detected
Carbon Disulfide	48	Not Detected	150	Not Detected
3-Chloropropene	48	Not Detected	150	Not Detected
Methylene Chloride	120	Not Detected	420	Not Detected
Methyl tert-butyl ether	48	Not Detected	170	Not Detected
trans-1,2-Dichloroethene	12	Not Detected	47	Not Detected
Hexane	12	Not Detected	42	Not Detected
1,1-Dichloroethane	12	Not Detected	48	Not Detected
2-Butanone (Methyl Ethyl Ketone)	48	Not Detected	140	Not Detected
cis-1,2-Dichloroethene	12	22	47	87
Tetrahydrofuran	12	Not Detected	35	Not Detected
Chloroform	12	Not Detected	58	Not Detected
1,1,1-Trichloroethane	12	Not Detected	65	Not Detected
Cyclohexane	12	Not Detected	41	Not Detected
Carbon Tetrachloride	12	Not Detected	75	Not Detected
2,2,4-Trimethylpentane	12	30	56	140
Benzene	12	Not Detected	38	Not Detected
1,2-Dichloroethane	12	Not Detected	48	Not Detected
Heptane	12	Not Detected	49	Not Detected
Trichloroethene	12	62	64	340
1,2-Dichloropropane	12	Not Detected	55	Not Detected
1,4-Dioxane	48	Not Detected	170	Not Detected
Bromodichloromethane	12	Not Detected	80	Not Detected
cis-1,3-Dichloropropene	12	Not Detected	54	Not Detected
4-Methyl-2-pentanone	12	Not Detected	49	Not Detected
Toluene	12	Not Detected	45	Not Detected
trans-1,3-Dichloropropene	12	Not Detected	54	Not Detected
1,1,2-Trichloroethane	12	Not Detected	65	Not Detected
Tetrachloroethene	12	2400	81	16000
2-Hexanone	48	Not Detected	200	Not Detected

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Client Sample ID: CV-2(24)(081617)

Lab ID#: 1708340A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082114**	**Date of Collection:**	**8/16/17 10:55:00 AM**
Dil. Factor:	**23.9**	**Date of Analysis:**	**8/21/17 06:48 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	12	Not Detected	100	Not Detected
1,2-Dibromoethane (EDB)	12	Not Detected	92	Not Detected
Chlorobenzene	12	Not Detected	55	Not Detected
Ethyl Benzene	12	Not Detected	52	Not Detected
m,p-Xylene	12	Not Detected	52	Not Detected
o-Xylene	12	Not Detected	52	Not Detected
Styrene	12	Not Detected	51	Not Detected
Bromoform	12	Not Detected	120	Not Detected
Cumene	12	Not Detected	59	Not Detected
1,1,2,2-Tetrachloroethane	12	Not Detected	82	Not Detected
Propylbenzene	12	Not Detected	59	Not Detected
4-Ethyltoluene	12	Not Detected	59	Not Detected
1,3,5-Trimethylbenzene	12	Not Detected	59	Not Detected
1,2,4-Trimethylbenzene	12	Not Detected	59	Not Detected
1,3-Dichlorobenzene	12	Not Detected	72	Not Detected
1,4-Dichlorobenzene	12	Not Detected	72	Not Detected
alpha-Chlorotoluene	12	Not Detected	62	Not Detected
1,2-Dichlorobenzene	12	Not Detected	72	Not Detected
1,2,4-Trichlorobenzene	48	Not Detected	350	Not Detected
Hexachlorobutadiene	48	Not Detected	510	Not Detected
Naphthalene	24	Not Detected	120	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CV-3(10)(081617)

Lab ID#: 1708340A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082113**	**Date of Collection:**	**8/16/17 11:40:00 AM**
Dil. Factor:	**2.55**	**Date of Analysis:**	**8/21/17 06:25 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.3	Not Detected
Freon 114	1.3	Not Detected	8.9	Not Detected
Chloromethane	13	Not Detected	26	Not Detected
Vinyl Chloride	1.3	Not Detected	3.2	Not Detected
1,3-Butadiene	1.3	Not Detected	2.8	Not Detected
Bromomethane	13	Not Detected	50	Not Detected
Chloroethane	5.1	Not Detected	13	Not Detected
Freon 11	1.3	Not Detected	7.2	Not Detected
Ethanol	5.1	5.5	9.6	10
Freon 113	1.3	Not Detected	9.8	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Acetone	13	39	30	94
2-Propanol	5.1	Not Detected	12	Not Detected
Carbon Disulfide	5.1	40	16	130
3-Chloropropene	5.1	Not Detected	16	Not Detected
Methylene Chloride	13	Not Detected	44	Not Detected
Methyl tert-butyl ether	5.1	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Hexane	1.3	2.4	4.5	8.3
1,1-Dichloroethane	1.3	Not Detected	5.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.1	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Tetrahydrofuran	1.3	3.0	3.8	8.9
Chloroform	1.3	33	6.2	160
1,1,1-Trichloroethane	1.3	Not Detected	7.0	Not Detected
Cyclohexane	1.3	2.0	4.4	7.0
Carbon Tetrachloride	1.3	Not Detected	8.0	Not Detected
2,2,4-Trimethylpentane	1.3	20	6.0	95
Benzene	1.3	Not Detected	4.1	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.2	Not Detected
Heptane	1.3	Not Detected	5.2	Not Detected
Trichloroethene	1.3	Not Detected	6.8	Not Detected
1,2-Dichloropropane	1.3	Not Detected	5.9	Not Detected
1,4-Dioxane	5.1	Not Detected	18	Not Detected
Bromodichloromethane	1.3	1.6	8.5	10
cis-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
4-Methyl-2-pentanone	1.3	Not Detected	5.2	Not Detected
Toluene	1.3	10	4.8	39
trans-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	7.0	Not Detected
Tetrachloroethene	1.3	59	8.6	400
2-Hexanone	5.1	Not Detected	21	Not Detected

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Client Sample ID: CV-3(10)(081617)

Lab ID#: 1708340A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082113**	**Date of Collection:**	**8/16/17 11:40:00 AM**
Dil. Factor:	**2.55**	**Date of Analysis:**	**8/21/17 06:25 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.3	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.3	Not Detected	9.8	Not Detected
Chlorobenzene	1.3	Not Detected	5.9	Not Detected
Ethyl Benzene	1.3	5.0	5.5	22
m,p-Xylene	1.3	15	5.5	66
o-Xylene	1.3	4.8	5.5	21
Styrene	1.3	Not Detected	5.4	Not Detected
Bromoform	1.3	Not Detected	13	Not Detected
Cumene	1.3	Not Detected	6.3	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	8.8	Not Detected
Propylbenzene	1.3	Not Detected	6.3	Not Detected
4-Ethyltoluene	1.3	3.1	6.3	15
1,3,5-Trimethylbenzene	1.3	Not Detected	6.3	Not Detected
1,2,4-Trimethylbenzene	1.3	2.7	6.3	13
1,3-Dichlorobenzene	1.3	Not Detected	7.7	Not Detected
1,4-Dichlorobenzene	1.3	Not Detected	7.7	Not Detected
alpha-Chlorotoluene	1.3	Not Detected	6.6	Not Detected
1,2-Dichlorobenzene	1.3	Not Detected	7.7	Not Detected
1,2,4-Trichlorobenzene	5.1	Not Detected	38	Not Detected
Hexachlorobutadiene	5.1	Not Detected	54	Not Detected
Naphthalene	2.6	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CV-3(15)(081617)

Lab ID#: 1708340A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082112**	**Date of Collection:**	**8/16/17 11:50:00 AM**
Dil. Factor:	**2.54**	**Date of Analysis:**	**8/21/17 05:59 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.3	Not Detected
Freon 114	1.3	Not Detected	8.9	Not Detected
Chloromethane	13	Not Detected	26	Not Detected
Vinyl Chloride	1.3	Not Detected	3.2	Not Detected
1,3-Butadiene	1.3	Not Detected	2.8	Not Detected
Bromomethane	13	Not Detected	49	Not Detected
Chloroethane	5.1	Not Detected	13	Not Detected
Freon 11	1.3	Not Detected	7.1	Not Detected
Ethanol	5.1	Not Detected	9.6	Not Detected
Freon 113	1.3	Not Detected	9.7	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Acetone	13	84	30	200
2-Propanol	5.1	Not Detected	12	Not Detected
Carbon Disulfide	5.1	5.8	16	18
3-Chloropropene	5.1	Not Detected	16	Not Detected
Methylene Chloride	13	Not Detected	44	Not Detected
Methyl tert-butyl ether	5.1	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Hexane	1.3	Not Detected	4.5	Not Detected
1,1-Dichloroethane	1.3	Not Detected	5.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.1	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Tetrahydrofuran	1.3	Not Detected	3.7	Not Detected
Chloroform	1.3	3.4	6.2	16
1,1,1-Trichloroethane	1.3	Not Detected	6.9	Not Detected
Cyclohexane	1.3	Not Detected	4.4	Not Detected
Carbon Tetrachloride	1.3	Not Detected	8.0	Not Detected
2,2,4-Trimethylpentane	1.3	Not Detected	5.9	Not Detected
Benzene	1.3	Not Detected	4.0	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.1	Not Detected
Heptane	1.3	Not Detected	5.2	Not Detected
Trichloroethene	1.3	Not Detected	6.8	Not Detected
1,2-Dichloropropane	1.3	Not Detected	5.9	Not Detected
1,4-Dioxane	5.1	Not Detected	18	Not Detected
Bromodichloromethane	1.3	Not Detected	8.5	Not Detected
cis-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
4-Methyl-2-pentanone	1.3	Not Detected	5.2	Not Detected
Toluene	1.3	Not Detected	4.8	Not Detected
trans-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	6.9	Not Detected
Tetrachloroethene	1.3	4.1	8.6	28
2-Hexanone	5.1	Not Detected	21	Not Detected

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Client Sample ID: CV-3(15)(081617)

Lab ID#: 1708340A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082112**	**Date of Collection:**	**8/16/17 11:50:00 AM**
Dil. Factor:	**2.54**	**Date of Analysis:**	**8/21/17 05:59 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.3	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.3	Not Detected	9.8	Not Detected
Chlorobenzene	1.3	Not Detected	5.8	Not Detected
Ethyl Benzene	1.3	Not Detected	5.5	Not Detected
m,p-Xylene	1.3	1.8	5.5	7.9
o-Xylene	1.3	Not Detected	5.5	Not Detected
Styrene	1.3	Not Detected	5.4	Not Detected
Bromoform	1.3	Not Detected	13	Not Detected
Cumene	1.3	Not Detected	6.2	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	8.7	Not Detected
Propylbenzene	1.3	Not Detected	6.2	Not Detected
4-Ethyltoluene	1.3	Not Detected	6.2	Not Detected
1,3,5-Trimethylbenzene	1.3	Not Detected	6.2	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.2	Not Detected
1,3-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
1,4-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
alpha-Chlorotoluene	1.3	Not Detected	6.6	Not Detected
1,2-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
1,2,4-Trichlorobenzene	5.1	Not Detected	38	Not Detected
Hexachlorobutadiene	5.1	Not Detected	54	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: CV-3(25)(081617)

Lab ID#: 1708340A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082111**	**Date of Collection:**	**8/16/17 12:15:00 PM**
Dil. Factor:	**2.46**	**Date of Analysis:**	**8/21/17 05:32 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.1	Not Detected
Freon 114	1.2	Not Detected	8.6	Not Detected
Chloromethane	12	Not Detected	25	Not Detected
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	48	Not Detected
Chloroethane	4.9	Not Detected	13	Not Detected
Freon 11	1.2	Not Detected	6.9	Not Detected
Ethanol	4.9	33	9.3	62
Freon 113	1.2	Not Detected	9.4	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Acetone	12	160	29	390
2-Propanol	4.9	41	12	100
Carbon Disulfide	4.9	6.6	15	20
3-Chloropropene	4.9	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	43	Not Detected
Methyl tert-butyl ether	4.9	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Hexane	1.2	1.3	4.3	4.5
1,1-Dichloroethane	1.2	Not Detected	5.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.9	10	14	30
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrahydrofuran	1.2	2.3	3.6	6.8
Chloroform	1.2	Not Detected	6.0	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.7	Not Detected
Cyclohexane	1.2	Not Detected	4.2	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.7	Not Detected
2,2,4-Trimethylpentane	1.2	13	5.7	61
Benzene	1.2	1.6	3.9	5.1
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Heptane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.7	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.2	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.0	Not Detected
Toluene	1.2	3.9	4.6	15
trans-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.7	Not Detected
Tetrachloroethene	1.2	6.1	8.3	41
2-Hexanone	4.9	Not Detected	20	Not Detected

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Client Sample ID: CV-3(25)(081617)

Lab ID#: 1708340A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082111**	**Date of Collection: 8/16/17 12:15:00 PM**	
Dil. Factor:	**2.46**	**Date of Analysis: 8/21/17 05:32 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.4	Not Detected
Chlorobenzene	1.2	Not Detected	5.7	Not Detected
Ethyl Benzene	1.2	1.8	5.3	7.9
m,p-Xylene	1.2	6.8	5.3	30
o-Xylene	1.2	2.4	5.3	11
Styrene	1.2	Not Detected	5.2	Not Detected
Bromoform	1.2	Not Detected	13	Not Detected
Cumene	1.2	Not Detected	6.0	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.4	Not Detected
Propylbenzene	1.2	Not Detected	6.0	Not Detected
4-Ethyltoluene	1.2	2.3	6.0	11
1,3,5-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,2,4-Trimethylbenzene	1.2	2.5	6.0	12
1,3-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.4	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,2,4-Trichlorobenzene	4.9	Not Detected	36	Not Detected
Hexachlorobutadiene	4.9	Not Detected	52	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: Dup-01(081617)

Lab ID#: 1708340A-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082110**	**Date of Collection:**	**8/16/17 12:00:00 PM**
Dil. Factor:	**2.25**	**Date of Analysis:**	**8/21/17 05:06 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.6	Not Detected
Freon 114	1.1	Not Detected	7.9	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	44	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.3	Not Detected
Ethanol	4.5	Not Detected	8.5	Not Detected
Freon 113	1.1	Not Detected	8.6	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Acetone	11	92	27	220
2-Propanol	4.5	Not Detected	11	Not Detected
Carbon Disulfide	4.5	5.8	14	18
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	4.5	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Hexane	1.1	Not Detected	4.0	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.5	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	1.2	4.5	4.9
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	1.1	3.2	5.5	16
1,1,1-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Cyclohexane	1.1	Not Detected	3.9	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.1	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.2	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.6	Not Detected
Heptane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	2.7	6.0	15
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.5	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.6	Not Detected
Toluene	1.1	Not Detected	4.2	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Tetrachloroethene	1.1	3.8	7.6	25
2-Hexanone	4.5	Not Detected	18	Not Detected

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Client Sample ID: Dup-01(081617)

Lab ID#: 1708340A-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082110**	**Date of Collection:**	**8/16/17 12:00:00 PM**
Dil. Factor:	**2.25**	**Date of Analysis:**	**8/21/17 05:06 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.6	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.6	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	1.1	1.7	4.9	7.4
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	Not Detected	4.8	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.5	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.7	Not Detected
Propylbenzene	1.1	Not Detected	5.5	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.5	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.8	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	33	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected
Naphthalene	2.2	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: EB-01(081617)

Lab ID#: 1708340A-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082109**	**Date of Collection:**	**8/16/17 2:00:00 PM**
Dil. Factor:	**2.45**	**Date of Analysis:**	**8/21/17 04:40 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.0	Not Detected
Freon 114	1.2	Not Detected	8.6	Not Detected
Chloromethane	12	Not Detected	25	Not Detected
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	48	Not Detected
Chloroethane	4.9	Not Detected	13	Not Detected
Freon 11	1.2	Not Detected	6.9	Not Detected
Ethanol	4.9	Not Detected	9.2	Not Detected
Freon 113	1.2	Not Detected	9.4	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Acetone	12	Not Detected	29	Not Detected
2-Propanol	4.9	Not Detected	12	Not Detected
Carbon Disulfide	4.9	Not Detected	15	Not Detected
3-Chloropropene	4.9	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	42	Not Detected
Methyl tert-butyl ether	4.9	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Hexane	1.2	Not Detected	4.3	Not Detected
1,1-Dichloroethane	1.2	Not Detected	5.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.9	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	Not Detected	6.0	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.7	Not Detected
Cyclohexane	1.2	Not Detected	4.2	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.7	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.7	Not Detected
Benzene	1.2	Not Detected	3.9	Not Detected
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Heptane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.6	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.7	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.2	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.0	Not Detected
Toluene	1.2	Not Detected	4.6	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.7	Not Detected
Tetrachloroethene	1.2	2.2	8.3	15
2-Hexanone	4.9	Not Detected	20	Not Detected

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Client Sample ID: EB-01(081617)

Lab ID#: 1708340A-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082109**	**Date of Collection:**	**8/16/17 2:00:00 PM**
Dil. Factor:	**2.45**	**Date of Analysis:**	**8/21/17 04:40 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.4	Not Detected
Chlorobenzene	1.2	Not Detected	5.6	Not Detected
Ethyl Benzene	1.2	Not Detected	5.3	Not Detected
m,p-Xylene	1.2	Not Detected	5.3	Not Detected
o-Xylene	1.2	Not Detected	5.3	Not Detected
Styrene	1.2	Not Detected	5.2	Not Detected
Bromoform	1.2	Not Detected	13	Not Detected
Cumene	1.2	Not Detected	6.0	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.4	Not Detected
Propylbenzene	1.2	Not Detected	6.0	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.0	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.3	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,2,4-Trichlorobenzene	4.9	Not Detected	36	Not Detected
Hexachlorobutadiene	4.9	Not Detected	52	Not Detected
Naphthalene	2.4	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1708340A-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082106**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/21/17 01:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1708340A-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082106**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/21/17 01:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Naphthalene	1.0	Not Detected	5.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CCV

Lab ID#: 1708340A-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082103**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/21/17 10:44 AM**	

Compound	%Recovery
Freon 12	99
Freon 114	93
Chloromethane	99
Vinyl Chloride	102
1,3-Butadiene	94
Bromomethane	103
Chloroethane	95
Freon 11	96
Ethanol	97
Freon 113	93
1,1-Dichloroethene	88
Acetone	98
2-Propanol	94
Carbon Disulfide	94
3-Chloropropene	93
Methylene Chloride	98
Methyl tert-butyl ether	89
trans-1,2-Dichloroethene	88
Hexane	89
1,1-Dichloroethane	96
2-Butanone (Methyl Ethyl Ketone)	91
cis-1,2-Dichloroethene	89
Tetrahydrofuran	92
Chloroform	96
1,1,1-Trichloroethane	92
Cyclohexane	88
Carbon Tetrachloride	98
2,2,4-Trimethylpentane	90
Benzene	93
1,2-Dichloroethane	96
Heptane	91
Trichloroethene	90
1,2-Dichloropropane	91
1,4-Dioxane	93
Bromodichloromethane	96
cis-1,3-Dichloropropene	92
4-Methyl-2-pentanone	88
Toluene	90
trans-1,3-Dichloropropene	94
1,1,2-Trichloroethane	94
Tetrachloroethene	94
2-Hexanone	89

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Client Sample ID: CCV

Lab ID#: 1708340A-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082103**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/21/17 10:44 AM**	

Compound	%Recovery
Dibromochloromethane	95
1,2-Dibromoethane (EDB)	96
Chlorobenzene	94
Ethyl Benzene	92
m,p-Xylene	90
o-Xylene	89
Styrene	92
Bromoform	96
Cumene	92
1,1,2,2-Tetrachloroethane	91
Propylbenzene	90
4-Ethyltoluene	89
1,3,5-Trimethylbenzene	92
1,2,4-Trimethylbenzene	90
1,3-Dichlorobenzene	93
1,4-Dichlorobenzene	93
alpha-Chlorotoluene	93
1,2-Dichlorobenzene	92
1,2,4-Trichlorobenzene	89
Hexachlorobutadiene	88
Naphthalene	80

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: LCS

Lab ID#: 1708340A-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082104**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/21/17 11:09 AM**	

Compound	%Recovery	Method Limits
Freon 12	105	70-130
Freon 114	102	70-130
Chloromethane	101	70-130
Vinyl Chloride	121	70-130
1,3-Butadiene	100	70-130
Bromomethane	107	70-130
Chloroethane	100	70-130
Freon 11	102	70-130
Ethanol	101	70-130
Freon 113	95	70-130
1,1-Dichloroethene	89	70-130
Acetone	98	70-130
2-Propanol	101	70-130
Carbon Disulfide	85	70-130
3-Chloropropene	91	70-130
Methylene Chloride	100	70-130
Methyl tert-butyl ether	91	70-130
trans-1,2-Dichloroethene	78	70-130
Hexane	94	70-130
1,1-Dichloroethane	97	70-130
2-Butanone (Methyl Ethyl Ketone)	91	70-130
cis-1,2-Dichloroethene	102	70-130
Tetrahydrofuran	92	70-130
Chloroform	97	70-130
1,1,1-Trichloroethane	96	70-130
Cyclohexane	91	70-130
Carbon Tetrachloride	99	70-130
2,2,4-Trimethylpentane	95	70-130
Benzene	96	70-130
1,2-Dichloroethane	98	70-130
Heptane	95	70-130
Trichloroethene	94	70-130
1,2-Dichloropropane	93	70-130
1,4-Dioxane	93	70-130
Bromodichloromethane	101	70-130
cis-1,3-Dichloropropene	90	70-130
4-Methyl-2-pentanone	90	70-130
Toluene	94	70-130
trans-1,3-Dichloropropene	97	70-130
1,1,2-Trichloroethane	98	70-130
Tetrachloroethene	97	70-130
2-Hexanone	91	70-130

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Client Sample ID: LCS

Lab ID#: 1708340A-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082104**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/21/17 11:09 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	98	70-130
1,2-Dibromoethane (EDB)	99	70-130
Chlorobenzene	95	70-130
Ethyl Benzene	94	70-130
m,p-Xylene	93	70-130
o-Xylene	94	70-130
Styrene	95	70-130
Bromoform	101	70-130
Cumene	96	70-130
1,1,2,2-Tetrachloroethane	93	70-130
Propylbenzene	96	70-130
4-Ethyltoluene	93	70-130
1,3,5-Trimethylbenzene	94	70-130
1,2,4-Trimethylbenzene	94	70-130
1,3-Dichlorobenzene	96	70-130
1,4-Dichlorobenzene	95	70-130
alpha-Chlorotoluene	99	70-130
1,2-Dichlorobenzene	95	70-130
1,2,4-Trichlorobenzene	91	70-130
Hexachlorobutadiene	89	70-130
Naphthalene	60	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: LCSD

Lab ID#: 1708340A-14AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082105**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/21/17 11:33 AM**	

Compound	%Recovery	Method Limits
Freon 12	109	70-130
Freon 114	105	70-130
Chloromethane	109	70-130
Vinyl Chloride	105	70-130
1,3-Butadiene	95	70-130
Bromomethane	111	70-130
Chloroethane	106	70-130
Freon 11	106	70-130
Ethanol	106	70-130
Freon 113	99	70-130
1,1-Dichloroethene	96	70-130
Acetone	101	70-130
2-Propanol	104	70-130
Carbon Disulfide	88	70-130
3-Chloropropene	95	70-130
Methylene Chloride	104	70-130
Methyl tert-butyl ether	94	70-130
trans-1,2-Dichloroethene	82	70-130
Hexane	95	70-130
1,1-Dichloroethane	101	70-130
2-Butanone (Methyl Ethyl Ketone)	95	70-130
cis-1,2-Dichloroethene	104	70-130
Tetrahydrofuran	95	70-130
Chloroform	101	70-130
1,1,1-Trichloroethane	100	70-130
Cyclohexane	95	70-130
Carbon Tetrachloride	104	70-130
2,2,4-Trimethylpentane	98	70-130
Benzene	98	70-130
1,2-Dichloroethane	101	70-130
Heptane	97	70-130
Trichloroethene	98	70-130
1,2-Dichloropropane	96	70-130
1,4-Dioxane	96	70-130
Bromodichloromethane	102	70-130
cis-1,3-Dichloropropene	92	70-130
4-Methyl-2-pentanone	93	70-130
Toluene	96	70-130
trans-1,3-Dichloropropene	99	70-130
1,1,2-Trichloroethane	101	70-130
Tetrachloroethene	100	70-130
2-Hexanone	94	70-130

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Client Sample ID: LCSD

Lab ID#: 1708340A-14AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p082105**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/21/17 11:33 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	102	70-130
1,2-Dibromoethane (EDB)	101	70-130
Chlorobenzene	98	70-130
Ethyl Benzene	97	70-130
m,p-Xylene	95	70-130
o-Xylene	96	70-130
Styrene	98	70-130
Bromoform	104	70-130
Cumene	97	70-130
1,1,2,2-Tetrachloroethane	95	70-130
Propylbenzene	98	70-130
4-Ethyltoluene	100	70-130
1,3,5-Trimethylbenzene	95	70-130
1,2,4-Trimethylbenzene	95	70-130
1,3-Dichlorobenzene	99	70-130
1,4-Dichlorobenzene	98	70-130
alpha-Chlorotoluene	102	70-130
1,2-Dichlorobenzene	99	70-130
1,2,4-Trichlorobenzene	98	70-130
Hexachlorobutadiene	95	70-130
Naphthalene	65	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	98	70-130

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8/31/2017
Ms. Lauren Vogel
Arcadis U.S., Inc.
2101 L St. NW, Suite 200

Washington DC 20037

Project Name: Chevron Chillum #122208
Project #: Chevron #122208
Workorder #: 1708340B

Dear Ms. Lauren Vogel

The following report includes the data for the above referenced project for sample(s) received on 8/18/2017 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

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WORK ORDER #: 1708340B

Work Order Summary

CLIENT:	Ms. Lauren Vogel Arcadis U.S., Inc. 2101 L St. NW, Suite 200 Washington, DC 20037	**BILL TO:**	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	202.909.6892	**P.O. #**	B0049337
FAX:		**PROJECT #**	Chevron #122208 Chevron Chillum #122208
DATE RECEIVED:	08/18/2017	**CONTACT:**	Ausha Scott
DATE COMPLETED:	08/31/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	CV-1(10)(081617)	Modified ASTM D-1946	4.3 "Hg	15.2 psi
02A	CV-1(15)(081617)	Modified ASTM D-1946	5.3 "Hg	14.8 psi
03A	CV-1-(24)(081617)	Modified ASTM D-1946	14.7 "Hg	14.5 psi
04A	CV-2(10)(081617)	Modified ASTM D-1946	5.3 "Hg	14.9 psi
05A	CV-2(15)(081617)	Modified ASTM D-1946	5.1 "Hg	15 psi
06A	CV-2(24)(081617)	Modified ASTM D-1946	4.3 "Hg	15.4 psi
07A	CV-3(10)(081617)	Modified ASTM D-1946	6.3 "Hg	14.9 psi
08A	CV-3(15)(081617)	Modified ASTM D-1946	5.7 "Hg	15.5 psi
09A	CV-3(25)(081617)	Modified ASTM D-1946	5.7 "Hg	14.6 psi
10A	Dup-01(081617)	Modified ASTM D-1946	2.8 "Hg	15.3 psi
11A	EB-01(081617)	Modified ASTM D-1946	5.3 "Hg	15 psi
12A	Lab Blank	Modified ASTM D-1946	NA	NA
12B	Lab Blank	Modified ASTM D-1946	NA	NA
13A	LCS	Modified ASTM D-1946	NA	NA
13AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 08/31/17

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

LABORATORY NARRATIVE
Modified ASTM D-1946
Arcadis U.S., Inc.
Workorder# 1708340B

Eleven 1 Liter Summa Canister (100% Certified) samples were received on August 18, 2017. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: CV-1(10)(081617)

Lab ID#: 1708340B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	20
Carbon Dioxide	0.024	0.097

Client Sample ID: CV-1(15)(081617)

Lab ID#: 1708340B-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	18
Carbon Dioxide	0.024	2.4

Client Sample ID: CV-1-(24)(081617)

Lab ID#: 1708340B-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.39	13
Methane	0.00039	0.00065
Carbon Dioxide	0.039	1.0

Client Sample ID: CV-2(10)(081617)

Lab ID#: 1708340B-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	19
Carbon Dioxide	0.024	0.72

Client Sample ID: CV-2(15)(081617)

Lab ID#: 1708340B-05A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	18
Carbon Dioxide	0.024	0.98

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: CV-2(24)(081617)

Lab ID#: 1708340B-06A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	18
Methane	0.00024	0.00083
Carbon Dioxide	0.024	1.8

Client Sample ID: CV-3(10)(081617)

Lab ID#: 1708340B-07A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	13
Methane	0.00026	0.00071
Carbon Dioxide	0.026	0.055

Client Sample ID: CV-3(15)(081617)

Lab ID#: 1708340B-08A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	14
Carbon Dioxide	0.025	5.0

Client Sample ID: CV-3(25)(081617)

Lab ID#: 1708340B-09A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	20
Methane	0.00025	0.00025
Carbon Dioxide	0.025	0.11

Client Sample ID: Dup-01(081617)

Lab ID#: 1708340B-10A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	14

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: Dup-01(081617)

Lab ID#: 1708340B-10A

Carbon Dioxide	0.023	4.9

Client Sample ID: EB-01(081617)

Lab ID#: 1708340B-11A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	0.55

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Client Sample ID: CV-1(10)(081617)

Lab ID#: 1708340B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082209**	**Date of Collection: 8/16/17 9:40:00 AM**	
Dil. Factor:	**2.37**	**Date of Analysis: 8/22/17 12:16 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	20
Methane	0.00024	Not Detected
Carbon Dioxide	0.024	0.097
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-1(15)(081617)

Lab ID#: 1708340B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082210**	**Date of Collection: 8/16/17 9:50:00 AM**	
Dil. Factor:	**2.44**	**Date of Analysis: 8/22/17 12:42 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	18
Methane	0.00024	Not Detected
Carbon Dioxide	0.024	2.4
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-1-(24)(081617)

Lab ID#: 1708340B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082211**	**Date of Collection: 8/16/17 10:05:00 AM**	
Dil. Factor:	**3.89**	**Date of Analysis: 8/22/17 01:08 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.39	13
Methane	0.00039	0.00065
Carbon Dioxide	0.039	1.0
Helium	0.19	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-2(10)(081617)

Lab ID#: 1708340B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082212**	**Date of Collection: 8/16/17 10:45:00 AM**	
Dil. Factor:	**2.45**	**Date of Analysis: 8/22/17 01:33 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	19
Methane	0.00024	Not Detected
Carbon Dioxide	0.024	0.72
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-2(15)(081617)

Lab ID#: 1708340B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082213**	**Date of Collection: 8/16/17 10:50:00 AM**	
Dil. Factor:	**2.43**	**Date of Analysis: 8/22/17 02:02 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	18
Methane	0.00024	Not Detected
Carbon Dioxide	0.024	0.98
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-2(24)(081617)

Lab ID#: 1708340B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082214**	**Date of Collection: 8/16/17 10:55:00 AM**	
Dil. Factor:	**2.39**	**Date of Analysis: 8/22/17 02:25 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	18
Methane	0.00024	0.00083
Carbon Dioxide	0.024	1.8
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-3(10)(081617)

Lab ID#: 1708340B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082215**	**Date of Collection: 8/16/17 11:40:00 AM**	
Dil. Factor:	**2.55**	**Date of Analysis: 8/22/17 02:48 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	13
Methane	0.00026	0.00071
Carbon Dioxide	0.026	0.055
Helium	0.13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-3(15)(081617)

Lab ID#: 1708340B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082216**	**Date of Collection: 8/16/17 11:50:00 AM**	
Dil. Factor:	**2.54**	**Date of Analysis: 8/22/17 03:12 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	14
Methane	0.00025	Not Detected
Carbon Dioxide	0.025	5.0
Helium	0.13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-3(25)(081617)

Lab ID#: 1708340B-09A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082217**	**Date of Collection: 8/16/17 12:15:00 PM**	
Dil. Factor:	**2.46**	**Date of Analysis: 8/22/17 03:35 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.25	20
Methane	0.00025	0.00025
Carbon Dioxide	0.025	0.11
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: Dup-01(081617)

Lab ID#: 1708340B-10A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082218**	**Date of Collection: 8/16/17 12:00:00 PM**	
Dil. Factor:	**2.26**	**Date of Analysis: 8/22/17 03:58 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	14
Methane	0.00023	Not Detected
Carbon Dioxide	0.023	4.9
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: EB-01(081617)

Lab ID#: 1708340B-11A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082219**	**Date of Collection: 8/16/17 2:00:00 PM**	
Dil. Factor:	**2.45**	**Date of Analysis: 8/22/17 04:21 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	0.55
Methane	0.00024	Not Detected
Carbon Dioxide	0.024	Not Detected
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: Lab Blank

Lab ID#: 1708340B-12A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082204**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/22/17 10:08 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: Lab Blank

Lab ID#: 1708340B-12B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082203c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/22/17 09:44 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Helium	0.050	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1708340B-13A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082202**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/22/17 09:14 AM**	

Compound	%Recovery	Method Limits
Oxygen	103	85-115
Methane	100	85-115
Carbon Dioxide	99	85-115
Helium	100	85-115

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1708340B-13AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10082226**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/22/17 08:02 PM**	

Compound	%Recovery	Method Limits
Oxygen	101	85-115
Methane	101	85-115
Carbon Dioxide	99	85-115
Helium	100	85-115

Container Type: NA - Not Applicable

VI Event February 2018

Exterior Points

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2/9/2018
Ms. Lauren Vogel
Arcadis U.S., Inc.
2101 L St. NW, Suite 200

Washington DC 20037

Project Name: Chevron Chillum
Project #: Chevron #122208
Workorder #: 1802137A

Dear Ms. Lauren Vogel

The following report includes the data for the above referenced project for sample(s) received on 2/7/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

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WORK ORDER #: 1802137A

Work Order Summary

CLIENT:	Ms. Lauren Vogel Arcadis U.S., Inc. 2101 L St. NW, Suite 200 Washington, DC 20037	**BILL TO:**	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	202.909.6892	**P.O. #**	B0049337
FAX:		**PROJECT #**	Chevron #122208 Chevron Chillum
DATE RECEIVED:	02/07/2018	**CONTACT:**	Ausha Scott
DATE COMPLETED:	02/09/2018		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	CV-1(10)-A-180206	TO-15	0.5 "Hg	15 psi
02A	CV-1(15)-A-180206	TO-15	4 "Hg	15 psi
03A	CV-2(10)-A-180206	TO-15	0.5 "Hg	15 psi
04A	CV-2(15)-A-180206	TO-15	3 "Hg	15 psi
05A	CV-2(24)-A-180206	TO-15	2 "Hg	15 psi
06A	CV-3(10)-A-180206	TO-15	3 "Hg	15 psi
07A	CV-3(15)-A-180206	TO-15	2 "Hg	15 psi
08A	CV-3(25)-A-180206	TO-15	3 "Hg	15 psi
09A	Dup-01-A-180206	TO-15	2.5 "Hg	15 psi
10A	EB-01-A-180206	TO-15	6.5 "Hg	15 psi
11A	Lab Blank	TO-15	NA	NA
12A	CCV	TO-15	NA	NA
13A	LCS	TO-15	NA	NA
13AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 02/09/18

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1802137A

Ten 1 Liter Summa Canister (100% Certified) samples were received on February 07, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: CV-1(10)-A-180206

Lab ID#: 1802137A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.0	1.6	5.0	8.0
Tetrachloroethene	1.0	3.5	7.0	24

Client Sample ID: CV-1(15)-A-180206

Lab ID#: 1802137A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.7	5.6	8.8	10
Chloroform	1.2	1.2	5.7	5.8
2,2,4-Trimethylpentane	1.2	5.8	5.4	27
Tetrachloroethene	1.2	7.4	7.9	50

Client Sample ID: CV-2(10)-A-180206

Lab ID#: 1802137A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.0	4.6	5.0	22
Tetrachloroethene	1.0	4.5	7.0	31

Client Sample ID: CV-2(15)-A-180206

Lab ID#: 1802137A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.1	2.0	5.5	9.8
Tetrachloroethene	1.1	29	7.6	200

Client Sample ID: CV-2(24)-A-180206

Lab ID#: 1802137A-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.1	290	7.3	1900

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: CV-3(10)-A-180206

Lab ID#: 1802137A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.1	3.4	5.5	17
Tetrachloroethene	1.1	6.8	7.6	46

Client Sample ID: CV-3(15)-A-180206

Lab ID#: 1802137A-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.1	2.2	5.3	11
Tetrachloroethene	1.1	5.8	7.3	39

Client Sample ID: CV-3(25)-A-180206

Lab ID#: 1802137A-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.1	9.3	7.6	63

Client Sample ID: Dup-01-A-180206

Lab ID#: 1802137A-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Chloroform	1.1	2.1	5.4	10
Tetrachloroethene	1.1	5.8	7.5	40

Client Sample ID: EB-01-A-180206

Lab ID#: 1802137A-10A

No Detections Were Found.

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Client Sample ID: CV-1(10)-A-180206

Lab ID#: 1802137A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020812**	**Date of Collection:**	**2/6/18 10:00:00 AM**
Dil. Factor:	**2.05**	**Date of Analysis:**	**2/8/18 05:28 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	Not Detected	5.1	Not Detected
Freon 114	1.0	Not Detected	7.2	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.3	Not Detected
Bromomethane	10	Not Detected	40	Not Detected
Chloroethane	4.1	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.8	Not Detected
Ethanol	4.1	Not Detected	7.7	Not Detected
Freon 113	1.0	Not Detected	7.8	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Acetone	10	Not Detected	24	Not Detected
2-Propanol	4.1	Not Detected	10	Not Detected
Carbon Disulfide	4.1	Not Detected	13	Not Detected
3-Chloropropene	4.1	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	36	Not Detected
Methyl tert-butyl ether	4.1	Not Detected	15	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Hexane	1.0	Not Detected	3.6	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.1	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	1.0	1.6	5.0	8.0
1,1,1-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Cyclohexane	1.0	Not Detected	3.5	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.4	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.8	Not Detected
Benzene	1.0	Not Detected	3.3	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.1	Not Detected
Heptane	1.0	Not Detected	4.2	Not Detected
Trichloroethene	1.0	Not Detected	5.5	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.7	Not Detected
1,4-Dioxane	4.1	Not Detected	15	Not Detected
Bromodichloromethane	1.0	Not Detected	6.9	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.2	Not Detected
Toluene	1.0	Not Detected	3.9	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Tetrachloroethene	1.0	3.5	7.0	24
2-Hexanone	4.1	Not Detected	17	Not Detected

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Client Sample ID: CV-1(10)-A-180206

Lab ID#: 1802137A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020812**	**Date of Collection:**	**2/6/18 10:00:00 AM**
Dil. Factor:	**2.05**	**Date of Analysis:**	**2/8/18 05:28 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.7	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.9	Not Detected
Chlorobenzene	1.0	Not Detected	4.7	Not Detected
Ethyl Benzene	1.0	Not Detected	4.4	Not Detected
m,p-Xylene	1.0	Not Detected	4.4	Not Detected
o-Xylene	1.0	Not Detected	4.4	Not Detected
Styrene	1.0	Not Detected	4.4	Not Detected
Bromoform	1.0	Not Detected	10	Not Detected
Cumene	1.0	Not Detected	5.0	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	7.0	Not Detected
Propylbenzene	1.0	Not Detected	5.0	Not Detected
4-Ethyltoluene	1.0	Not Detected	5.0	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.3	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
1,2,4-Trichlorobenzene	4.1	Not Detected	30	Not Detected
Hexachlorobutadiene	4.1	Not Detected	44	Not Detected
Naphthalene	2.0	Not Detected	11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: CV-1(15)-A-180206

Lab ID#: 1802137A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020813**	**Date of Collection:**	**2/6/18 10:45:00 AM**
Dil. Factor:	**2.33**	**Date of Analysis:**	**2/8/18 05:56 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	5.8	Not Detected
Freon 114	1.2	Not Detected	8.1	Not Detected
Chloromethane	12	Not Detected	24	Not Detected
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	45	Not Detected
Chloroethane	4.7	Not Detected	12	Not Detected
Freon 11	1.2	Not Detected	6.5	Not Detected
Ethanol	4.7	5.6	8.8	10
Freon 113	1.2	Not Detected	8.9	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Acetone	12	Not Detected	28	Not Detected
2-Propanol	4.7	Not Detected	11	Not Detected
Carbon Disulfide	4.7	Not Detected	14	Not Detected
3-Chloropropene	4.7	Not Detected	14	Not Detected
Methylene Chloride	12	Not Detected	40	Not Detected
Methyl tert-butyl ether	4.7	Not Detected	17	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Hexane	1.2	Not Detected	4.1	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.7	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.4	Not Detected
Chloroform	1.2	1.2	5.7	5.8
1,1,1-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Cyclohexane	1.2	Not Detected	4.0	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.3	Not Detected
2,2,4-Trimethylpentane	1.2	5.8	5.4	27
Benzene	1.2	Not Detected	3.7	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.7	Not Detected
Heptane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.4	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	7.8	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.8	Not Detected
Toluene	1.2	Not Detected	4.4	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Tetrachloroethene	1.2	7.4	7.9	50
2-Hexanone	4.7	Not Detected	19	Not Detected

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Client Sample ID: CV-1(15)-A-180206

Lab ID#: 1802137A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020813**	**Date of Collection:**	**2/6/18 10:45:00 AM**
Dil. Factor:	**2.33**	**Date of Analysis:**	**2/8/18 05:56 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	9.9	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.0	Not Detected
Chlorobenzene	1.2	Not Detected	5.4	Not Detected
Ethyl Benzene	1.2	Not Detected	5.0	Not Detected
m,p-Xylene	1.2	Not Detected	5.0	Not Detected
o-Xylene	1.2	Not Detected	5.0	Not Detected
Styrene	1.2	Not Detected	5.0	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.7	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.0	Not Detected
Propylbenzene	1.2	Not Detected	5.7	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.7	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.7	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.7	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.0	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
1,2,4-Trichlorobenzene	4.7	Not Detected	34	Not Detected
Hexachlorobutadiene	4.7	Not Detected	50	Not Detected
Naphthalene	2.3	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: CV-2(10)-A-180206

Lab ID#: 1802137A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020814**	**Date of Collection:**	**2/6/18 11:45:00 AM**
Dil. Factor:	**2.05**	**Date of Analysis:**	**2/8/18 06:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	Not Detected	5.1	Not Detected
Freon 114	1.0	Not Detected	7.2	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.3	Not Detected
Bromomethane	10	Not Detected	40	Not Detected
Chloroethane	4.1	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.8	Not Detected
Ethanol	4.1	Not Detected	7.7	Not Detected
Freon 113	1.0	Not Detected	7.8	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Acetone	10	Not Detected	24	Not Detected
2-Propanol	4.1	Not Detected	10	Not Detected
Carbon Disulfide	4.1	Not Detected	13	Not Detected
3-Chloropropene	4.1	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	36	Not Detected
Methyl tert-butyl ether	4.1	Not Detected	15	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Hexane	1.0	Not Detected	3.6	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.1	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	1.0	4.6	5.0	22
1,1,1-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Cyclohexane	1.0	Not Detected	3.5	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.4	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.8	Not Detected
Benzene	1.0	Not Detected	3.3	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.1	Not Detected
Heptane	1.0	Not Detected	4.2	Not Detected
Trichloroethene	1.0	Not Detected	5.5	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.7	Not Detected
1,4-Dioxane	4.1	Not Detected	15	Not Detected
Bromodichloromethane	1.0	Not Detected	6.9	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.2	Not Detected
Toluene	1.0	Not Detected	3.9	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Tetrachloroethene	1.0	4.5	7.0	31
2-Hexanone	4.1	Not Detected	17	Not Detected

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Client Sample ID: CV-2(10)-A-180206

Lab ID#: 1802137A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020814**	**Date of Collection: 2/6/18 11:45:00 AM**	
Dil. Factor:	**2.05**	**Date of Analysis: 2/8/18 06:24 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.7	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.9	Not Detected
Chlorobenzene	1.0	Not Detected	4.7	Not Detected
Ethyl Benzene	1.0	Not Detected	4.4	Not Detected
m,p-Xylene	1.0	Not Detected	4.4	Not Detected
o-Xylene	1.0	Not Detected	4.4	Not Detected
Styrene	1.0	Not Detected	4.4	Not Detected
Bromoform	1.0	Not Detected	10	Not Detected
Cumene	1.0	Not Detected	5.0	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	7.0	Not Detected
Propylbenzene	1.0	Not Detected	5.0	Not Detected
4-Ethyltoluene	1.0	Not Detected	5.0	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	5.0	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.3	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
1,2,4-Trichlorobenzene	4.1	Not Detected	30	Not Detected
Hexachlorobutadiene	4.1	Not Detected	44	Not Detected
Naphthalene	2.0	Not Detected	11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: CV-2(15)-A-180206

Lab ID#: 1802137A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020815**	**Date of Collection:**	**2/6/18 12:20:00 PM**
Dil. Factor:	**2.24**	**Date of Analysis:**	**2/8/18 06:53 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.5	Not Detected
Freon 114	1.1	Not Detected	7.8	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.3	Not Detected
Ethanol	4.5	Not Detected	8.4	Not Detected
Freon 113	1.1	Not Detected	8.6	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	Not Detected	27	Not Detected
2-Propanol	4.5	Not Detected	11	Not Detected
Carbon Disulfide	4.5	Not Detected	14	Not Detected
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	4.5	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.5	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	1.1	2.0	5.5	9.8
1,1,1-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.0	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.2	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.5	Not Detected
Heptane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.5	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.6	Not Detected
Toluene	1.1	Not Detected	4.2	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Tetrachloroethene	1.1	29	7.6	200
2-Hexanone	4.5	Not Detected	18	Not Detected

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Client Sample ID: CV-2(15)-A-180206

Lab ID#: 1802137A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020815**	**Date of Collection: 2/6/18 12:20:00 PM**	
Dil. Factor:	**2.24**	**Date of Analysis: 2/8/18 06:53 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.5	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.6	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	1.1	Not Detected	4.9	Not Detected
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	Not Detected	4.8	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.5	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.7	Not Detected
Propylbenzene	1.1	Not Detected	5.5	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.5	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.8	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	33	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected
Naphthalene	2.2	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: CV-2(24)-A-180206

Lab ID#: 1802137A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020819**	**Date of Collection:**	**2/6/18 12:45:00 PM**
Dil. Factor:	**2.16**	**Date of Analysis:**	**2/8/18 09:57 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.3	Not Detected
Freon 114	1.1	Not Detected	7.6	Not Detected
Chloromethane	11	Not Detected	22	Not Detected
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	11	Not Detected	42	Not Detected
Chloroethane	4.3	Not Detected	11	Not Detected
Freon 11	1.1	Not Detected	6.1	Not Detected
Ethanol	4.3	Not Detected	8.1	Not Detected
Freon 113	1.1	Not Detected	8.3	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Acetone	11	Not Detected	26	Not Detected
2-Propanol	4.3	Not Detected	11	Not Detected
Carbon Disulfide	4.3	Not Detected	13	Not Detected
3-Chloropropene	4.3	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	38	Not Detected
Methyl tert-butyl ether	4.3	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Hexane	1.1	Not Detected	3.8	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.3	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	1.1	Not Detected	5.3	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	5.9	Not Detected
Cyclohexane	1.1	Not Detected	3.7	Not Detected
Carbon Tetrachloride	1.1	Not Detected	6.8	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.0	Not Detected
Benzene	1.1	Not Detected	3.4	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.4	Not Detected
Heptane	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.0	Not Detected
1,4-Dioxane	4.3	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.2	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	4.9	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.4	Not Detected
Toluene	1.1	Not Detected	4.1	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	4.9	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	5.9	Not Detected
Tetrachloroethene	1.1	290	7.3	1900
2-Hexanone	4.3	Not Detected	18	Not Detected

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Client Sample ID: CV-2(24)-A-180206

Lab ID#: 1802137A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020819**	**Date of Collection: 2/6/18 12:45:00 PM**	
Dil. Factor:	**2.16**	**Date of Analysis: 2/8/18 09:57 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.2	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.3	Not Detected
Chlorobenzene	1.1	Not Detected	5.0	Not Detected
Ethyl Benzene	1.1	Not Detected	4.7	Not Detected
m,p-Xylene	1.1	Not Detected	4.7	Not Detected
o-Xylene	1.1	Not Detected	4.7	Not Detected
Styrene	1.1	Not Detected	4.6	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.3	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.4	Not Detected
Propylbenzene	1.1	Not Detected	5.3	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.3	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.3	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.3	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.5	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.5	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.6	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.5	Not Detected
1,2,4-Trichlorobenzene	4.3	Not Detected	32	Not Detected
Hexachlorobutadiene	4.3	Not Detected	46	Not Detected
Naphthalene	2.2	Not Detected	11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: CV-3(10)-A-180206

Lab ID#: 1802137A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020820**	**Date of Collection:**	**2/6/18 1:10:00 PM**
Dil. Factor:	**2.24**	**Date of Analysis:**	**2/8/18 10:25 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.5	Not Detected
Freon 114	1.1	Not Detected	7.8	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.3	Not Detected
Ethanol	4.5	Not Detected	8.4	Not Detected
Freon 113	1.1	Not Detected	8.6	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	Not Detected	27	Not Detected
2-Propanol	4.5	Not Detected	11	Not Detected
Carbon Disulfide	4.5	Not Detected	14	Not Detected
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	4.5	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.5	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	1.1	3.4	5.5	17
1,1,1-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.0	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.2	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.5	Not Detected
Heptane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.5	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.6	Not Detected
Toluene	1.1	Not Detected	4.2	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Tetrachloroethene	1.1	6.8	7.6	46
2-Hexanone	4.5	Not Detected	18	Not Detected

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Client Sample ID: CV-3(10)-A-180206

Lab ID#: 1802137A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020820**	**Date of Collection: 2/6/18 1:10:00 PM**	
Dil. Factor:	**2.24**	**Date of Analysis: 2/8/18 10:25 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.5	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.6	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	1.1	Not Detected	4.9	Not Detected
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	Not Detected	4.8	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.5	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.7	Not Detected
Propylbenzene	1.1	Not Detected	5.5	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.5	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.8	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	33	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected
Naphthalene	2.2	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CV-3(15)-A-180206

Lab ID#: 1802137A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020821**	**Date of Collection:**	**2/6/18 2:00:00 PM**
Dil. Factor:	**2.16**	**Date of Analysis:**	**2/8/18 10:53 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.3	Not Detected
Freon 114	1.1	Not Detected	7.6	Not Detected
Chloromethane	11	Not Detected	22	Not Detected
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	11	Not Detected	42	Not Detected
Chloroethane	4.3	Not Detected	11	Not Detected
Freon 11	1.1	Not Detected	6.1	Not Detected
Ethanol	4.3	Not Detected	8.1	Not Detected
Freon 113	1.1	Not Detected	8.3	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Acetone	11	Not Detected	26	Not Detected
2-Propanol	4.3	Not Detected	11	Not Detected
Carbon Disulfide	4.3	Not Detected	13	Not Detected
3-Chloropropene	4.3	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	38	Not Detected
Methyl tert-butyl ether	4.3	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Hexane	1.1	Not Detected	3.8	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.3	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.3	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	1.1	2.2	5.3	11
1,1,1-Trichloroethane	1.1	Not Detected	5.9	Not Detected
Cyclohexane	1.1	Not Detected	3.7	Not Detected
Carbon Tetrachloride	1.1	Not Detected	6.8	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.0	Not Detected
Benzene	1.1	Not Detected	3.4	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.4	Not Detected
Heptane	1.1	Not Detected	4.4	Not Detected
Trichloroethene	1.1	Not Detected	5.8	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.0	Not Detected
1,4-Dioxane	4.3	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.2	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	4.9	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.4	Not Detected
Toluene	1.1	Not Detected	4.1	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	4.9	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	5.9	Not Detected
Tetrachloroethene	1.1	5.8	7.3	39
2-Hexanone	4.3	Not Detected	18	Not Detected

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Client Sample ID: CV-3(15)-A-180206

Lab ID#: 1802137A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020821**	**Date of Collection: 2/6/18 2:00:00 PM**	
Dil. Factor:	**2.16**	**Date of Analysis: 2/8/18 10:53 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.2	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.3	Not Detected
Chlorobenzene	1.1	Not Detected	5.0	Not Detected
Ethyl Benzene	1.1	Not Detected	4.7	Not Detected
m,p-Xylene	1.1	Not Detected	4.7	Not Detected
o-Xylene	1.1	Not Detected	4.7	Not Detected
Styrene	1.1	Not Detected	4.6	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.3	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.4	Not Detected
Propylbenzene	1.1	Not Detected	5.3	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.3	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.3	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.3	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.5	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.5	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.6	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.5	Not Detected
1,2,4-Trichlorobenzene	4.3	Not Detected	32	Not Detected
Hexachlorobutadiene	4.3	Not Detected	46	Not Detected
Naphthalene	2.2	Not Detected	11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: CV-3(25)-A-180206

Lab ID#: 1802137A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020822**	**Date of Collection:**	**2/6/18 1:40:00 PM**
Dil. Factor:	**2.24**	**Date of Analysis:**	**2/8/18 11:22 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.5	Not Detected
Freon 114	1.1	Not Detected	7.8	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.3	Not Detected
Ethanol	4.5	Not Detected	8.4	Not Detected
Freon 113	1.1	Not Detected	8.6	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	Not Detected	27	Not Detected
2-Propanol	4.5	Not Detected	11	Not Detected
Carbon Disulfide	4.5	Not Detected	14	Not Detected
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	4.5	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.5	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.3	Not Detected
Chloroform	1.1	Not Detected	5.5	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.0	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.2	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.5	Not Detected
Heptane	1.1	Not Detected	4.6	Not Detected
Trichloroethene	1.1	Not Detected	6.0	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.5	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.6	Not Detected
Toluene	1.1	Not Detected	4.2	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.1	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.1	Not Detected
Tetrachloroethene	1.1	9.3	7.6	63
2-Hexanone	4.5	Not Detected	18	Not Detected

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Client Sample ID: CV-3(25)-A-180206

Lab ID#: 1802137A-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020822**	**Date of Collection: 2/6/18 1:40:00 PM**	
Dil. Factor:	**2.24**	**Date of Analysis: 2/8/18 11:22 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.5	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.6	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	1.1	Not Detected	4.9	Not Detected
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	Not Detected	4.8	Not Detected
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.5	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.7	Not Detected
Propylbenzene	1.1	Not Detected	5.5	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.5	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.5	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.8	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.7	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	33	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected
Naphthalene	2.2	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	97	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: Dup-01-A-180206

Lab ID#: 1802137A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020823**	**Date of Collection:**	**2/6/18 12:00:00 PM**
Dil. Factor:	**2.20**	**Date of Analysis:**	**2/8/18 11:50 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.4	Not Detected
Freon 114	1.1	Not Detected	7.7	Not Detected
Chloromethane	11	Not Detected	23	Not Detected
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.4	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.2	Not Detected
Ethanol	4.4	Not Detected	8.3	Not Detected
Freon 113	1.1	Not Detected	8.4	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	Not Detected	26	Not Detected
2-Propanol	4.4	Not Detected	11	Not Detected
Carbon Disulfide	4.4	Not Detected	14	Not Detected
3-Chloropropene	4.4	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	38	Not Detected
Methyl tert-butyl ether	4.4	Not Detected	16	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.4	Not Detected	13	Not Detected
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	1.1	2.1	5.4	10
1,1,1-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	6.9	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.1	Not Detected
Benzene	1.1	Not Detected	3.5	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.4	Not Detected
Heptane	1.1	Not Detected	4.5	Not Detected
Trichloroethene	1.1	Not Detected	5.9	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.1	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.4	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.5	Not Detected
Toluene	1.1	Not Detected	4.1	Not Detected
trans-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Tetrachloroethene	1.1	5.8	7.5	40
2-Hexanone	4.4	Not Detected	18	Not Detected

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Client Sample ID: Dup-01-A-180206

Lab ID#: 1802137A-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020823**	**Date of Collection:**	**2/6/18 12:00:00 PM**
Dil. Factor:	**2.20**	**Date of Analysis:**	**2/8/18 11:50 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.4	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.4	Not Detected
Chlorobenzene	1.1	Not Detected	5.1	Not Detected
Ethyl Benzene	1.1	Not Detected	4.8	Not Detected
m,p-Xylene	1.1	Not Detected	4.8	Not Detected
o-Xylene	1.1	Not Detected	4.8	Not Detected
Styrene	1.1	Not Detected	4.7	Not Detected
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.4	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.6	Not Detected
Propylbenzene	1.1	Not Detected	5.4	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.4	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.7	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,2,4-Trichlorobenzene	4.4	Not Detected	33	Not Detected
Hexachlorobutadiene	4.4	Not Detected	47	Not Detected
Naphthalene	2.2	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: EB-01-A-180206

Lab ID#: 1802137A-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020824**	**Date of Collection:**	**2/6/18 4:00:00 PM**
Dil. Factor:	**2.58**	**Date of Analysis:**	**2/9/18 12:18 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.4	Not Detected
Freon 114	1.3	Not Detected	9.0	Not Detected
Chloromethane	13	Not Detected	27	Not Detected
Vinyl Chloride	1.3	Not Detected	3.3	Not Detected
1,3-Butadiene	1.3	Not Detected	2.8	Not Detected
Bromomethane	13	Not Detected	50	Not Detected
Chloroethane	5.2	Not Detected	14	Not Detected
Freon 11	1.3	Not Detected	7.2	Not Detected
Ethanol	5.2	Not Detected	9.7	Not Detected
Freon 113	1.3	Not Detected	9.9	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Acetone	13	Not Detected	31	Not Detected
2-Propanol	5.2	Not Detected	13	Not Detected
Carbon Disulfide	5.2	Not Detected	16	Not Detected
3-Chloropropene	5.2	Not Detected	16	Not Detected
Methylene Chloride	13	Not Detected	45	Not Detected
Methyl tert-butyl ether	5.2	Not Detected	19	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Hexane	1.3	Not Detected	4.5	Not Detected
1,1-Dichloroethane	1.3	Not Detected	5.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.2	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.1	Not Detected
Tetrahydrofuran	1.3	Not Detected	3.8	Not Detected
Chloroform	1.3	Not Detected	6.3	Not Detected
1,1,1-Trichloroethane	1.3	Not Detected	7.0	Not Detected
Cyclohexane	1.3	Not Detected	4.4	Not Detected
Carbon Tetrachloride	1.3	Not Detected	8.1	Not Detected
2,2,4-Trimethylpentane	1.3	Not Detected	6.0	Not Detected
Benzene	1.3	Not Detected	4.1	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.2	Not Detected
Heptane	1.3	Not Detected	5.3	Not Detected
Trichloroethene	1.3	Not Detected	6.9	Not Detected
1,2-Dichloropropane	1.3	Not Detected	6.0	Not Detected
1,4-Dioxane	5.2	Not Detected	18	Not Detected
Bromodichloromethane	1.3	Not Detected	8.6	Not Detected
cis-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
4-Methyl-2-pentanone	1.3	Not Detected	5.3	Not Detected
Toluene	1.3	Not Detected	4.9	Not Detected
trans-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	7.0	Not Detected
Tetrachloroethene	1.3	Not Detected	8.8	Not Detected
2-Hexanone	5.2	Not Detected	21	Not Detected

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Client Sample ID: EB-01-A-180206

Lab ID#: 1802137A-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020824**	**Date of Collection:**	**2/6/18 4:00:00 PM**
Dil. Factor:	**2.58**	**Date of Analysis:**	**2/9/18 12:18 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.3	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.3	Not Detected	9.9	Not Detected
Chlorobenzene	1.3	Not Detected	5.9	Not Detected
Ethyl Benzene	1.3	Not Detected	5.6	Not Detected
m,p-Xylene	1.3	Not Detected	5.6	Not Detected
o-Xylene	1.3	Not Detected	5.6	Not Detected
Styrene	1.3	Not Detected	5.5	Not Detected
Bromoform	1.3	Not Detected	13	Not Detected
Cumene	1.3	Not Detected	6.3	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	8.8	Not Detected
Propylbenzene	1.3	Not Detected	6.3	Not Detected
4-Ethyltoluene	1.3	Not Detected	6.3	Not Detected
1,3,5-Trimethylbenzene	1.3	Not Detected	6.3	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.3	Not Detected
1,3-Dichlorobenzene	1.3	Not Detected	7.8	Not Detected
1,4-Dichlorobenzene	1.3	Not Detected	7.8	Not Detected
alpha-Chlorotoluene	1.3	Not Detected	6.7	Not Detected
1,2-Dichlorobenzene	1.3	Not Detected	7.8	Not Detected
1,2,4-Trichlorobenzene	5.2	Not Detected	38	Not Detected
Hexachlorobutadiene	5.2	Not Detected	55	Not Detected
Naphthalene	2.6	Not Detected	14	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1802137A-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020805**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 10:39 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1802137A-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020805**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 10:39 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Naphthalene	1.0	Not Detected	5.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: CCV

Lab ID#: 1802137A-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 09:02 AM**	

Compound	%Recovery
Freon 12	98
Freon 114	92
Chloromethane	99
Vinyl Chloride	103
1,3-Butadiene	103
Bromomethane	94
Chloroethane	100
Freon 11	94
Ethanol	95
Freon 113	89
1,1-Dichloroethene	94
Acetone	100
2-Propanol	100
Carbon Disulfide	96
3-Chloropropene	92
Methylene Chloride	101
Methyl tert-butyl ether	96
trans-1,2-Dichloroethene	98
Hexane	105
1,1-Dichloroethane	104
2-Butanone (Methyl Ethyl Ketone)	100
cis-1,2-Dichloroethene	97
Tetrahydrofuran	110
Chloroform	101
1,1,1-Trichloroethane	96
Cyclohexane	101
Carbon Tetrachloride	96
2,2,4-Trimethylpentane	104
Benzene	114
1,2-Dichloroethane	117
Heptane	121
Trichloroethene	110
1,2-Dichloropropane	112
1,4-Dioxane	110
Bromodichloromethane	112
cis-1,3-Dichloropropene	114
4-Methyl-2-pentanone	120
Toluene	112
trans-1,3-Dichloropropene	109
1,1,2-Trichloroethane	104
Tetrachloroethene	101
2-Hexanone	111

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Client Sample ID: CCV

Lab ID#: 1802137A-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 09:02 AM**	

Compound	%Recovery
Dibromochloromethane	102
1,2-Dibromoethane (EDB)	105
Chlorobenzene	103
Ethyl Benzene	108
m,p-Xylene	111
o-Xylene	109
Styrene	116
Bromoform	102
Cumene	112
1,1,2,2-Tetrachloroethane	104
Propylbenzene	110
4-Ethyltoluene	106
1,3,5-Trimethylbenzene	117
1,2,4-Trimethylbenzene	112
1,3-Dichlorobenzene	102
1,4-Dichlorobenzene	104
alpha-Chlorotoluene	105
1,2-Dichlorobenzene	103
1,2,4-Trichlorobenzene	101
Hexachlorobutadiene	103
Naphthalene	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	110	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: LCS

Lab ID#: 1802137A-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 09:29 AM**	

Compound	%Recovery	Method Limits
Freon 12	99	70-130
Freon 114	94	70-130
Chloromethane	100	70-130
Vinyl Chloride	101	70-130
1,3-Butadiene	101	70-130
Bromomethane	94	70-130
Chloroethane	100	70-130
Freon 11	94	70-130
Ethanol	103	70-130
Freon 113	88	70-130
1,1-Dichloroethene	90	70-130
Acetone	94	70-130
2-Propanol	104	70-130
Carbon Disulfide	82	70-130
3-Chloropropene	83	70-130
Methylene Chloride	97	70-130
Methyl tert-butyl ether	93	70-130
trans-1,2-Dichloroethene	81	70-130
Hexane	102	70-130
1,1-Dichloroethane	98	70-130
2-Butanone (Methyl Ethyl Ketone)	95	70-130
cis-1,2-Dichloroethene	104	70-130
Tetrahydrofuran	105	70-130
Chloroform	96	70-130
1,1,1-Trichloroethane	95	70-130
Cyclohexane	100	70-130
Carbon Tetrachloride	94	70-130
2,2,4-Trimethylpentane	103	70-130
Benzene	109	70-130
1,2-Dichloroethane	111	70-130
Heptane	116	70-130
Trichloroethene	106	70-130
1,2-Dichloropropane	109	70-130
1,4-Dioxane	109	70-130
Bromodichloromethane	110	70-130
cis-1,3-Dichloropropene	106	70-130
4-Methyl-2-pentanone	119	70-130
Toluene	109	70-130
trans-1,3-Dichloropropene	107	70-130
1,1,2-Trichloroethane	100	70-130
Tetrachloroethene	100	70-130
2-Hexanone	113	70-130

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Client Sample ID: LCS

Lab ID#: 1802137A-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 09:29 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	100	70-130
1,2-Dibromoethane (EDB)	102	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	106	70-130
m,p-Xylene	111	70-130
o-Xylene	112	70-130
Styrene	118	70-130
Bromoform	102	70-130
Cumene	114	70-130
1,1,2,2-Tetrachloroethane	104	70-130
Propylbenzene	113	70-130
4-Ethyltoluene	108	70-130
1,3,5-Trimethylbenzene	118	70-130
1,2,4-Trimethylbenzene	115	70-130
1,3-Dichlorobenzene	104	70-130
1,4-Dichlorobenzene	106	70-130
alpha-Chlorotoluene	113	70-130
1,2-Dichlorobenzene	105	70-130
1,2,4-Trichlorobenzene	106	70-130
Hexachlorobutadiene	106	70-130
Naphthalene	103	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: LCSD

Lab ID#: 1802137A-13AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 09:56 AM**	

Compound	%Recovery	Method Limits
Freon 12	95	70-130
Freon 114	91	70-130
Chloromethane	96	70-130
Vinyl Chloride	98	70-130
1,3-Butadiene	98	70-130
Bromomethane	90	70-130
Chloroethane	95	70-130
Freon 11	91	70-130
Ethanol	96	70-130
Freon 113	84	70-130
1,1-Dichloroethene	87	70-130
Acetone	93	70-130
2-Propanol	101	70-130
Carbon Disulfide	78	70-130
3-Chloropropene	82	70-130
Methylene Chloride	92	70-130
Methyl tert-butyl ether	91	70-130
trans-1,2-Dichloroethene	79	70-130
Hexane	99	70-130
1,1-Dichloroethane	94	70-130
2-Butanone (Methyl Ethyl Ketone)	94	70-130
cis-1,2-Dichloroethene	101	70-130
Tetrahydrofuran	99	70-130
Chloroform	93	70-130
1,1,1-Trichloroethane	92	70-130
Cyclohexane	98	70-130
Carbon Tetrachloride	91	70-130
2,2,4-Trimethylpentane	100	70-130
Benzene	106	70-130
1,2-Dichloroethane	107	70-130
Heptane	114	70-130
Trichloroethene	104	70-130
1,2-Dichloropropane	106	70-130
1,4-Dioxane	104	70-130
Bromodichloromethane	106	70-130
cis-1,3-Dichloropropene	102	70-130
4-Methyl-2-pentanone	114	70-130
Toluene	106	70-130
trans-1,3-Dichloropropene	106	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	98	70-130
2-Hexanone	114	70-130

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Client Sample ID: LCSD

Lab ID#: 1802137A-13AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17020804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 09:56 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	99	70-130
1,2-Dibromoethane (EDB)	102	70-130
Chlorobenzene	101	70-130
Ethyl Benzene	104	70-130
m,p-Xylene	110	70-130
o-Xylene	111	70-130
Styrene	116	70-130
Bromoform	101	70-130
Cumene	111	70-130
1,1,2,2-Tetrachloroethane	102	70-130
Propylbenzene	112	70-130
4-Ethyltoluene	107	70-130
1,3,5-Trimethylbenzene	117	70-130
1,2,4-Trimethylbenzene	113	70-130
1,3-Dichlorobenzene	102	70-130
1,4-Dichlorobenzene	104	70-130
alpha-Chlorotoluene	111	70-130
1,2-Dichlorobenzene	102	70-130
1,2,4-Trichlorobenzene	108	70-130
Hexachlorobutadiene	105	70-130
Naphthalene	102	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	104	70-130

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2/9/2018
Ms. Lauren Vogel
Arcadis U.S., Inc.
2101 L St. NW, Suite 200

Washington DC 20037

Project Name: Chevron Chillum
Project #: Chevron #122208
Workorder #: 1802137B

Dear Ms. Lauren Vogel

The following report includes the data for the above referenced project for sample(s) received on 2/7/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

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WORK ORDER #: 1802137B

Work Order Summary

CLIENT:	Ms. Lauren Vogel Arcadis U.S., Inc. 2101 L St. NW, Suite 200 Washington, DC 20037	**BILL TO:**	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	202.909.6892	**P.O. #**	B0049337
FAX:		**PROJECT #**	Chevron #122208 Chevron Chillum
DATE RECEIVED:	02/07/2018	**CONTACT:**	Ausha Scott
DATE COMPLETED:	02/09/2018		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	CV-1(10)-A-180206	Modified ASTM D-1946	0.5 "Hg	15 psi
02A	CV-1(15)-A-180206	Modified ASTM D-1946	4 "Hg	15 psi
03A	CV-2(10)-A-180206	Modified ASTM D-1946	0.5 "Hg	15 psi
04A	CV-2(15)-A-180206	Modified ASTM D-1946	3 "Hg	15 psi
05A	CV-2(24)-A-180206	Modified ASTM D-1946	2 "Hg	15 psi
06A	CV-3(10)-A-180206	Modified ASTM D-1946	3 "Hg	15 psi
07A	CV-3(15)-A-180206	Modified ASTM D-1946	2 "Hg	15 psi
08A	CV-3(25)-A-180206	Modified ASTM D-1946	3 "Hg	15 psi
09A	Dup-01-A-180206	Modified ASTM D-1946	2.5 "Hg	15 psi
10A	EB-01-A-180206	Modified ASTM D-1946	6.5 "Hg	15 psi
11A	Lab Blank	Modified ASTM D-1946	NA	NA
11B	Lab Blank	Modified ASTM D-1946	NA	NA
12A	LCS	Modified ASTM D-1946	NA	NA
12AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 02/09/18

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified ASTM D-1946
Arcadis U.S., Inc.
Workorder# 1802137B

Ten 1 Liter Summa Canister (100% Certified) samples were received on February 07, 2018. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: CV-1(10)-A-180206

Lab ID#: 1802137B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	19
Carbon Dioxide	0.020	1.3

Client Sample ID: CV-1(15)-A-180206

Lab ID#: 1802137B-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	19
Carbon Dioxide	0.023	1.7

Client Sample ID: CV-2(10)-A-180206

Lab ID#: 1802137B-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	19
Carbon Dioxide	0.020	0.96

Client Sample ID: CV-2(15)-A-180206

Lab ID#: 1802137B-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	20
Carbon Dioxide	0.022	1.4

Client Sample ID: CV-2(24)-A-180206

Lab ID#: 1802137B-05A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	18
Carbon Dioxide	0.022	1.3

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Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: CV-3(10)-A-180206

Lab ID#: 1802137B-06A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	19
Carbon Dioxide	0.022	1.6

Client Sample ID: CV-3(15)-A-180206

Lab ID#: 1802137B-07A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	19
Carbon Dioxide	0.022	2.4

Client Sample ID: CV-3(25)-A-180206

Lab ID#: 1802137B-08A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	19
Carbon Dioxide	0.022	0.70

Client Sample ID: Dup-01-A-180206

Lab ID#: 1802137B-09A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	19
Carbon Dioxide	0.022	2.3

Client Sample ID: EB-01-A-180206

Lab ID#: 1802137B-10A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	0.78

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Client Sample ID: CV-1(10)-A-180206

Lab ID#: 1802137B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020807**	**Date of Collection: 2/6/18 10:00:00 AM**	
Dil. Factor:	**2.05**	**Date of Analysis: 2/8/18 09:36 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	19
Methane	0.00020	Not Detected
Carbon Dioxide	0.020	1.3
Helium	0.10	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-1(15)-A-180206

Lab ID#: 1802137B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020808**	**Date of Collection: 2/6/18 10:45:00 AM**	
Dil. Factor:	**2.33**	**Date of Analysis: 2/8/18 09:58 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.23	19
Methane	0.00023	Not Detected
Carbon Dioxide	0.023	1.7
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-2(10)-A-180206

Lab ID#: 1802137B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020809**	**Date of Collection: 2/6/18 11:45:00 AM**	
Dil. Factor:	**2.05**	**Date of Analysis: 2/8/18 10:21 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	19
Methane	0.00020	Not Detected
Carbon Dioxide	0.020	0.96
Helium	0.10	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-2(15)-A-180206

Lab ID#: 1802137B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020810**	**Date of Collection: 2/6/18 12:20:00 PM**	
Dil. Factor:	**2.24**	**Date of Analysis: 2/8/18 10:48 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	20
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	1.4
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-2(24)-A-180206

Lab ID#: 1802137B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020811**	**Date of Collection: 2/6/18 12:45:00 PM**	
Dil. Factor:	**2.16**	**Date of Analysis: 2/8/18 11:16 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	18
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	1.3
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-3(10)-A-180206

Lab ID#: 1802137B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020812**	**Date of Collection: 2/6/18 1:10:00 PM**	
Dil. Factor:	**2.24**	**Date of Analysis: 2/8/18 11:39 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	19
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	1.6
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-3(15)-A-180206

Lab ID#: 1802137B-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020813**	**Date of Collection: 2/6/18 2:00:00 PM**	
Dil. Factor:	**2.16**	**Date of Analysis: 2/8/18 12:10 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	19
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	2.4
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: CV-3(25)-A-180206

Lab ID#: 1802137B-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020814**	**Date of Collection: 2/6/18 1:40:00 PM**	
Dil. Factor:	**2.24**	**Date of Analysis: 2/8/18 12:32 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	19
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	0.70
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: Dup-01-A-180206

Lab ID#: 1802137B-09A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020815**	**Date of Collection: 2/6/18 12:00:00 PM**	
Dil. Factor:	**2.20**	**Date of Analysis: 2/8/18 12:56 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	19
Methane	0.00022	Not Detected
Carbon Dioxide	0.022	2.3
Helium	0.11	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: EB-01-A-180206

Lab ID#: 1802137B-10A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020816**	**Date of Collection: 2/6/18 4:00:00 PM**	
Dil. Factor:	**2.58**	**Date of Analysis: 2/8/18 01:18 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.26	0.78
Methane	0.00026	Not Detected
Carbon Dioxide	0.026	Not Detected
Helium	0.13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: Lab Blank

Lab ID#: 1802137B-11A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020804**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 08:26 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: Lab Blank

Lab ID#: 1802137B-11B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020803c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 08:04 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Helium	0.050	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 1802137B-12A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 07:40 AM**	

Compound	%Recovery	Method Limits
Oxygen	105	85-115
Methane	109	85-115
Carbon Dioxide	100	85-115
Helium	102	85-115

Container Type: NA - Not Applicable

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Client Sample ID: LCSD

Lab ID#: 1802137B-12AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10020819**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/8/18 02:40 PM**	

Compound	%Recovery	Method Limits
Oxygen	104	85-115
Methane	107	85-115
Carbon Dioxide	99	85-115
Helium	103	85-115

Container Type: NA - Not Applicable

Indoor Sub-Slab

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2/14/2018
Ms. Lauren Vogel
Arcadis U.S., Inc.
2101 L St. NW, Suite 200

Washington DC 20037

Project Name:
Project #:
Workorder #: 1802235A

Dear Ms. Lauren Vogel

The following report includes the data for the above referenced project for sample(s) received on 2/13/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

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WORK ORDER #: 1802235A

Work Order Summary

CLIENT:	Ms. Lauren Vogel Arcadis U.S., Inc. 2101 L St. NW, Suite 200 Washington, DC 20037	**BILL TO:**	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	202.909.6892	**P.O. #**	B0049937.0004.00011
FAX:		**PROJECT #**	
DATE RECEIVED:	02/13/2018	**CONTACT:**	Ausha Scott
DATE COMPLETED:	02/14/2018		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SS-1-A-180210	TO-15	5.3 "Hg	14.7 psi
02A	SS-2-A-180210	TO-15	4.3 "Hg	14.9 psi
03A	BD021018	TO-15	0.1 psi	15 psi
04A	FB021018	TO-15	4.9 "Hg	14.8 psi
05A	Lab Blank	TO-15	NA	NA
06A	CCV	TO-15	NA	NA
07A	LCS	TO-15	NA	NA
07AA	LCSD	TO-15	NA	NA

CERTIFIED BY:  DATE: 02/14/18

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

LABORATORY NARRATIVE
EPA Method TO-15
Arcadis U.S., Inc.
Workorder# 1802235A

Four 1 Liter Summa Canister (100% Certified) samples were received on February 13, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

The Chain of Custody (COC) information for samples SS-1-A-180210 and SS-2-A-180210 did not match the entries on the sample tags with regard to sample identification. Therefore the information on the COC was used to process and report the samples.

Despite the use of flow controllers for sample collection, the final canister vacuum for sample BD021018 was measured at ambient pressure at the laboratory.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SS-1-A-180210

Lab ID#: 1802235A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.9	7.2	9.2	14

Client Sample ID: SS-2-A-180210

Lab ID#: 1802235A-02A

No Detections Were Found.

Client Sample ID: BD021018

Lab ID#: 1802235A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.0	62	7.6	120
Acetone	10	36	24	87
2-Propanol	4.0	16	9.9	40
Hexane	1.0	2.3	3.5	8.1
Toluene	1.0	1.2	3.8	4.4

Client Sample ID: FB021018

Lab ID#: 1802235A-04A

No Detections Were Found.

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Client Sample ID: SS-1-A-180210

Lab ID#: 1802235A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021318**	**Date of Collection:**	**2/10/18 12:45:00 PM**
Dil. Factor:	**2.43**	**Date of Analysis:**	**2/13/18 08:58 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.0	Not Detected
Freon 114	1.2	Not Detected	8.5	Not Detected
Chloromethane	12	Not Detected	25	Not Detected
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	47	Not Detected
Chloroethane	4.9	Not Detected	13	Not Detected
Freon 11	1.2	Not Detected	6.8	Not Detected
Ethanol	4.9	7.2	9.2	14
Freon 113	1.2	Not Detected	9.3	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Acetone	12	Not Detected	29	Not Detected
2-Propanol	4.9	Not Detected	12	Not Detected
Carbon Disulfide	4.9	Not Detected	15	Not Detected
3-Chloropropene	4.9	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	42	Not Detected
Methyl tert-butyl ether	4.9	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Hexane	1.2	Not Detected	4.3	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.9	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	Not Detected	5.9	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Cyclohexane	1.2	Not Detected	4.2	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.6	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.7	Not Detected
Benzene	1.2	Not Detected	3.9	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.9	Not Detected
Heptane	1.2	Not Detected	5.0	Not Detected
Trichloroethene	1.2	Not Detected	6.5	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.6	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.1	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.0	Not Detected
Toluene	1.2	Not Detected	4.6	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
2-Hexanone	4.9	Not Detected	20	Not Detected

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Client Sample ID: SS-1-A-180210

Lab ID#: 1802235A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021318**	**Date of Collection:**	**2/10/18 12:45:00 PM**
Dil. Factor:	**2.43**	**Date of Analysis:**	**2/13/18 08:58 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.3	Not Detected
Chlorobenzene	1.2	Not Detected	5.6	Not Detected
Ethyl Benzene	1.2	Not Detected	5.3	Not Detected
m,p-Xylene	1.2	Not Detected	5.3	Not Detected
o-Xylene	1.2	Not Detected	5.3	Not Detected
Styrene	1.2	Not Detected	5.2	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	6.0	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.3	Not Detected
Propylbenzene	1.2	Not Detected	6.0	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.0	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.0	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.3	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
1,2,4-Trichlorobenzene	4.9	Not Detected	36	Not Detected
Hexachlorobutadiene	4.9	Not Detected	52	Not Detected
Naphthalene	2.4	Not Detected	13	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	82	70-130
4-Bromofluorobenzene	81	70-130

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Client Sample ID: SS-2-A-180210

Lab ID#: 1802235A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021319**	**Date of Collection:**	**2/10/18 12:15:00 PM**
Dil. Factor:	**2.35**	**Date of Analysis:**	**2/13/18 09:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	5.8	Not Detected
Freon 114	1.2	Not Detected	8.2	Not Detected
Chloromethane	12	Not Detected	24	Not Detected
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	46	Not Detected
Chloroethane	4.7	Not Detected	12	Not Detected
Freon 11	1.2	Not Detected	6.6	Not Detected
Ethanol	4.7	Not Detected	8.8	Not Detected
Freon 113	1.2	Not Detected	9.0	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Acetone	12	Not Detected	28	Not Detected
2-Propanol	4.7	Not Detected	12	Not Detected
Carbon Disulfide	4.7	Not Detected	15	Not Detected
3-Chloropropene	4.7	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
Methyl tert-butyl ether	4.7	Not Detected	17	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Hexane	1.2	Not Detected	4.1	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.7	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.5	Not Detected
Chloroform	1.2	Not Detected	5.7	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Cyclohexane	1.2	Not Detected	4.0	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.4	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.5	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Heptane	1.2	Not Detected	4.8	Not Detected
Trichloroethene	1.2	Not Detected	6.3	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.4	Not Detected
1,4-Dioxane	4.7	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	7.9	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.8	Not Detected
Toluene	1.2	Not Detected	4.4	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.4	Not Detected
Tetrachloroethene	1.2	Not Detected	8.0	Not Detected
2-Hexanone	4.7	Not Detected	19	Not Detected

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Client Sample ID: SS-2-A-180210

Lab ID#: 1802235A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021319**	**Date of Collection:**	**2/10/18 12:15:00 PM**
Dil. Factor:	**2.35**	**Date of Analysis:**	**2/13/18 09:24 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.0	Not Detected
Chlorobenzene	1.2	Not Detected	5.4	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
m,p-Xylene	1.2	Not Detected	5.1	Not Detected
o-Xylene	1.2	Not Detected	5.1	Not Detected
Styrene	1.2	Not Detected	5.0	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.8	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.1	Not Detected
Propylbenzene	1.2	Not Detected	5.8	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.8	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.1	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.1	Not Detected
1,2,4-Trichlorobenzene	4.7	Not Detected	35	Not Detected
Hexachlorobutadiene	4.7	Not Detected	50	Not Detected
Naphthalene	2.4	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	81	70-130
4-Bromofluorobenzene	86	70-130

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Client Sample ID: BD021018

Lab ID#: 1802235A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021320**	**Date of Collection:**	**2/10/18 12:11:00 PM**
Dil. Factor:	**2.01**	**Date of Analysis:**	**2/13/18 09:51 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	Not Detected	5.0	Not Detected
Freon 114	1.0	Not Detected	7.0	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.2	Not Detected
Bromomethane	10	Not Detected	39	Not Detected
Chloroethane	4.0	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.6	Not Detected
Ethanol	4.0	62	7.6	120
Freon 113	1.0	Not Detected	7.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Acetone	10	36	24	87
2-Propanol	4.0	16	9.9	40
Carbon Disulfide	4.0	Not Detected	12	Not Detected
3-Chloropropene	4.0	Not Detected	12	Not Detected
Methylene Chloride	10	Not Detected	35	Not Detected
Methyl tert-butyl ether	4.0	Not Detected	14	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Hexane	1.0	2.3	3.5	8.1
1,1-Dichloroethane	1.0	Not Detected	4.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.0	Not Detected	12	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Tetrahydrofuran	1.0	Not Detected	3.0	Not Detected
Chloroform	1.0	Not Detected	4.9	Not Detected
1,1,1-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Cyclohexane	1.0	Not Detected	3.4	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.3	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.7	Not Detected
Benzene	1.0	Not Detected	3.2	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.1	Not Detected
Heptane	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.4	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.6	Not Detected
1,4-Dioxane	4.0	Not Detected	14	Not Detected
Bromodichloromethane	1.0	Not Detected	6.7	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.1	Not Detected
Toluene	1.0	1.2	3.8	4.4
trans-1,3-Dichloropropene	1.0	Not Detected	4.6	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.5	Not Detected
Tetrachloroethene	1.0	Not Detected	6.8	Not Detected
2-Hexanone	4.0	Not Detected	16	Not Detected

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Client Sample ID: BD021018

Lab ID#: 1802235A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021320**	**Date of Collection:**	**2/10/18 12:11:00 PM**
Dil. Factor:	**2.01**	**Date of Analysis:**	**2/13/18 09:51 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.6	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.7	Not Detected
Chlorobenzene	1.0	Not Detected	4.6	Not Detected
Ethyl Benzene	1.0	Not Detected	4.4	Not Detected
m,p-Xylene	1.0	Not Detected	4.4	Not Detected
o-Xylene	1.0	Not Detected	4.4	Not Detected
Styrene	1.0	Not Detected	4.3	Not Detected
Bromoform	1.0	Not Detected	10	Not Detected
Cumene	1.0	Not Detected	4.9	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	6.9	Not Detected
Propylbenzene	1.0	Not Detected	4.9	Not Detected
4-Ethyltoluene	1.0	Not Detected	4.9	Not Detected
1,3,5-Trimethylbenzene	1.0	Not Detected	4.9	Not Detected
1,2,4-Trimethylbenzene	1.0	Not Detected	4.9	Not Detected
1,3-Dichlorobenzene	1.0	Not Detected	6.0	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.0	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.2	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.0	Not Detected
1,2,4-Trichlorobenzene	4.0	Not Detected	30	Not Detected
Hexachlorobutadiene	4.0	Not Detected	43	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	83	70-130
4-Bromofluorobenzene	85	70-130

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Client Sample ID: FB021018

Lab ID#: 1802235A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021321**	**Date of Collection:**	**2/10/18 1:05:00 PM**
Dil. Factor:	**2.40**	**Date of Analysis:**	**2/13/18 10:17 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	5.9	Not Detected
Freon 114	1.2	Not Detected	8.4	Not Detected
Chloromethane	12	Not Detected	25	Not Detected
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	47	Not Detected
Chloroethane	4.8	Not Detected	13	Not Detected
Freon 11	1.2	Not Detected	6.7	Not Detected
Ethanol	4.8	Not Detected	9.0	Not Detected
Freon 113	1.2	Not Detected	9.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Acetone	12	Not Detected	28	Not Detected
2-Propanol	4.8	Not Detected	12	Not Detected
Carbon Disulfide	4.8	Not Detected	15	Not Detected
3-Chloropropene	4.8	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	42	Not Detected
Methyl tert-butyl ether	4.8	Not Detected	17	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Hexane	1.2	Not Detected	4.2	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.8	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.5	Not Detected
Chloroform	1.2	Not Detected	5.8	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Cyclohexane	1.2	Not Detected	4.1	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.6	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.6	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Heptane	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.5	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	8.0	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.4	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.9	Not Detected
Toluene	1.2	Not Detected	4.5	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.4	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Tetrachloroethene	1.2	Not Detected	8.1	Not Detected
2-Hexanone	4.8	Not Detected	20	Not Detected

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Client Sample ID: FB021018

Lab ID#: 1802235A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021321**	**Date of Collection:**	**2/10/18 1:05:00 PM**
Dil. Factor:	**2.40**	**Date of Analysis:**	**2/13/18 10:17 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.2	Not Detected
Chlorobenzene	1.2	Not Detected	5.5	Not Detected
Ethyl Benzene	1.2	Not Detected	5.2	Not Detected
m,p-Xylene	1.2	Not Detected	5.2	Not Detected
o-Xylene	1.2	Not Detected	5.2	Not Detected
Styrene	1.2	Not Detected	5.1	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.9	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.2	Not Detected
Propylbenzene	1.2	Not Detected	5.9	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.9	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.9	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.9	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.2	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.2	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.2	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.2	Not Detected
1,2,4-Trichlorobenzene	4.8	Not Detected	36	Not Detected
Hexachlorobutadiene	4.8	Not Detected	51	Not Detected
Naphthalene	2.4	Not Detected	12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	80	70-130
4-Bromofluorobenzene	86	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1802235A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021306**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 11:58 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1802235A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021306**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 11:58 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Naphthalene	1.0	Not Detected	5.2	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	82	70-130
4-Bromofluorobenzene	85	70-130

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Client Sample ID: CCV

Lab ID#: 1802235A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 09:52 AM**	

Compound	%Recovery
Freon 12	90
Freon 114	102
Chloromethane	122
Vinyl Chloride	111
1,3-Butadiene	114
Bromomethane	98
Chloroethane	98
Freon 11	87
Ethanol	108
Freon 113	95
1,1-Dichloroethene	101
Acetone	106
2-Propanol	114
Carbon Disulfide	95
3-Chloropropene	96
Methylene Chloride	115
Methyl tert-butyl ether	88
trans-1,2-Dichloroethene	107
Hexane	109
1,1-Dichloroethane	100
2-Butanone (Methyl Ethyl Ketone)	83
cis-1,2-Dichloroethene	100
Tetrahydrofuran	127
Chloroform	97
1,1,1-Trichloroethane	92
Cyclohexane	95
Carbon Tetrachloride	101
2,2,4-Trimethylpentane	123
Benzene	107
1,2-Dichloroethane	108
Heptane	106
Trichloroethene	117
1,2-Dichloropropane	119
1,4-Dioxane	110
Bromodichloromethane	114
cis-1,3-Dichloropropene	107
4-Methyl-2-pentanone	128
Toluene	116
trans-1,3-Dichloropropene	100
1,1,2-Trichloroethane	114
Tetrachloroethene	108
2-Hexanone	122

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Client Sample ID: CCV

Lab ID#: 1802235A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 09:52 AM**	

Compound	%Recovery
Dibromochloromethane	114
1,2-Dibromoethane (EDB)	116
Chlorobenzene	117
Ethyl Benzene	102
m,p-Xylene	107
o-Xylene	109
Styrene	110
Bromoform	103
Cumene	114
1,1,2,2-Tetrachloroethane	98
Propylbenzene	102
4-Ethyltoluene	113
1,3,5-Trimethylbenzene	111
1,2,4-Trimethylbenzene	112
1,3-Dichlorobenzene	109
1,4-Dichlorobenzene	110
alpha-Chlorotoluene	104
1,2-Dichlorobenzene	107
1,2,4-Trichlorobenzene	93
Hexachlorobutadiene	87
Naphthalene	133

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	82	70-130
4-Bromofluorobenzene	80	70-130

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Client Sample ID: LCS

Lab ID#: 1802235A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021303**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 10:42 AM**	

Compound	%Recovery	Method Limits
Freon 12	82	70-130
Freon 114	94	70-130
Chloromethane	111	70-130
Vinyl Chloride	104	70-130
1,3-Butadiene	102	70-130
Bromomethane	93	70-130
Chloroethane	92	70-130
Freon 11	82	70-130
Ethanol	104	70-130
Freon 113	86	70-130
1,1-Dichloroethene	92	70-130
Acetone	101	70-130
2-Propanol	103	70-130
Carbon Disulfide	77	70-130
3-Chloropropene	80	70-130
Methylene Chloride	96	70-130
Methyl tert-butyl ether	74	70-130
trans-1,2-Dichloroethene	80	70-130
Hexane	95	70-130
1,1-Dichloroethane	90	70-130
2-Butanone (Methyl Ethyl Ketone)	77	70-130
cis-1,2-Dichloroethene	102	70-130
Tetrahydrofuran	114	70-130
Chloroform	90	70-130
1,1,1-Trichloroethane	82	70-130
Cyclohexane	86	70-130
Carbon Tetrachloride	91	70-130
2,2,4-Trimethylpentane	114	70-130
Benzene	100	70-130
1,2-Dichloroethane	106	70-130
Heptane	92	70-130
Trichloroethene	109	70-130
1,2-Dichloropropane	106	70-130
1,4-Dioxane	91	70-130
Bromodichloromethane	105	70-130
cis-1,3-Dichloropropene	92	70-130
4-Methyl-2-pentanone	112	70-130
Toluene	106	70-130
trans-1,3-Dichloropropene	88	70-130
1,1,2-Trichloroethane	99	70-130
Tetrachloroethene	95	70-130
2-Hexanone	102	70-130

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Client Sample ID: LCS

Lab ID#: 1802235A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021303**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 10:42 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	100	70-130
1,2-Dibromoethane (EDB)	101	70-130
Chlorobenzene	102	70-130
Ethyl Benzene	90	70-130
m,p-Xylene	93	70-130
o-Xylene	98	70-130
Styrene	94	70-130
Bromoform	90	70-130
Cumene	99	70-130
1,1,2,2-Tetrachloroethane	93	70-130
Propylbenzene	97	70-130
4-Ethyltoluene	95	70-130
1,3,5-Trimethylbenzene	104	70-130
1,2,4-Trimethylbenzene	98	70-130
1,3-Dichlorobenzene	95	70-130
1,4-Dichlorobenzene	95	70-130
alpha-Chlorotoluene	92	70-130
1,2-Dichlorobenzene	93	70-130
1,2,4-Trichlorobenzene	79	70-130
Hexachlorobutadiene	76	70-130
Naphthalene	70	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	86	70-130
4-Bromofluorobenzene	82	70-130

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Client Sample ID: LCSD

Lab ID#: 1802235A-07AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 11:08 AM**	

Compound	%Recovery	Method Limits
Freon 12	84	70-130
Freon 114	101	70-130
Chloromethane	109	70-130
Vinyl Chloride	105	70-130
1,3-Butadiene	106	70-130
Bromomethane	99	70-130
Chloroethane	95	70-130
Freon 11	83	70-130
Ethanol	105	70-130
Freon 113	82	70-130
1,1-Dichloroethene	88	70-130
Acetone	97	70-130
2-Propanol	98	70-130
Carbon Disulfide	72	70-130
3-Chloropropene	81	70-130
Methylene Chloride	108	70-130
Methyl tert-butyl ether	81	70-130
trans-1,2-Dichloroethene	85	70-130
Hexane	103	70-130
1,1-Dichloroethane	96	70-130
2-Butanone (Methyl Ethyl Ketone)	80	70-130
cis-1,2-Dichloroethene	106	70-130
Tetrahydrofuran	116	70-130
Chloroform	88	70-130
1,1,1-Trichloroethane	85	70-130
Cyclohexane	88	70-130
Carbon Tetrachloride	91	70-130
2,2,4-Trimethylpentane	113	70-130
Benzene	96	70-130
1,2-Dichloroethane	96	70-130
Heptane	94	70-130
Trichloroethene	106	70-130
1,2-Dichloropropane	108	70-130
1,4-Dioxane	92	70-130
Bromodichloromethane	101	70-130
cis-1,3-Dichloropropene	89	70-130
4-Methyl-2-pentanone	108	70-130
Toluene	104	70-130
trans-1,3-Dichloropropene	87	70-130
1,1,2-Trichloroethane	101	70-130
Tetrachloroethene	94	70-130
2-Hexanone	101	70-130

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Client Sample ID: LCSD

Lab ID#: 1802235A-07AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a021304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 11:08 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	100	70-130
1,2-Dibromoethane (EDB)	103	70-130
Chlorobenzene	101	70-130
Ethyl Benzene	89	70-130
m,p-Xylene	93	70-130
o-Xylene	98	70-130
Styrene	94	70-130
Bromoform	90	70-130
Cumene	99	70-130
1,1,2,2-Tetrachloroethane	92	70-130
Propylbenzene	95	70-130
4-Ethyltoluene	95	70-130
1,3,5-Trimethylbenzene	100	70-130
1,2,4-Trimethylbenzene	97	70-130
1,3-Dichlorobenzene	94	70-130
1,4-Dichlorobenzene	96	70-130
alpha-Chlorotoluene	93	70-130
1,2-Dichlorobenzene	94	70-130
1,2,4-Trichlorobenzene	86	70-130
Hexachlorobutadiene	82	70-130
Naphthalene	74	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	82	70-130
4-Bromofluorobenzene	83	70-130

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2/14/2018
Ms. Lauren Vogel
Arcadis U.S., Inc.
2101 L St. NW, Suite 200

Washington DC 20037

Project Name:
Project #:
Workorder #: 1802235B

Dear Ms. Lauren Vogel

The following report includes the data for the above referenced project for sample(s) received on 2/13/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Ausha Scott at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Ausha Scott

Project Manager

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WORK ORDER #: 1802235B

Work Order Summary

CLIENT:	Ms. Lauren Vogel Arcadis U.S., Inc. 2101 L St. NW, Suite 200 Washington, DC 20037	**BILL TO:**	Accounts Payable Arcadis U.S., Inc. 630 Plaza Drive Suite 600 Highlands Ranch, CO 80129
PHONE:	202.909.6892	**P.O. #**	B0049937.0004.00011
FAX:		**PROJECT #**	
DATE RECEIVED:	02/13/2018	**CONTACT:**	Ausha Scott
DATE COMPLETED:	02/14/2018		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SS-1-A-180210	Modified ASTM D-1946	5.3 "Hg	14.7 psi
02A	SS-2-A-180210	Modified ASTM D-1946	4.3 "Hg	14.9 psi
03A	BD021018	Modified ASTM D-1946	0.1 psi	15 psi
04A	FB021018	Modified ASTM D-1946	4.9 "Hg	14.8 psi
05A	Lab Blank	Modified ASTM D-1946	NA	NA
05B	Lab Blank	Modified ASTM D-1946	NA	NA
06A	LCS	Modified ASTM D-1946	NA	NA
06AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:  DATE: 02/14/18

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified ASTM D-1946
Arcadis U.S., Inc.
Workorder# 1802235B

Four 1 Liter Summa Canister (100% Certified) samples were received on February 13, 2018. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

The Chain of Custody (COC) information for samples SS-1-A-180210 and SS-2-A-180210 did not match the entries on the sample tags with regard to sample identification. Therefore the information on

the COC was used to process and report the samples.

Despite the use of flow controllers for sample collection, the final canister vacuum for sample BD021018 was measured at ambient pressure at the laboratory.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

eurofins | Air Toxics

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: SS-1-A-180210

Lab ID#: 1802235B-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	21
Methane	0.00024	0.00025
Carbon Dioxide	0.024	0.051

Client Sample ID: SS-2-A-180210

Lab ID#: 1802235B-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	21
Methane	0.00024	0.00024
Carbon Dioxide	0.024	0.025

Client Sample ID: BD021018

Lab ID#: 1802235B-03A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	21
Methane	0.00020	0.00024
Carbon Dioxide	0.020	0.039

Client Sample ID: FB021018

Lab ID#: 1802235B-04A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	0.63

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Client Sample ID: SS-1-A-180210

Lab ID#: 1802235B-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021312**	**Date of Collection: 2/10/18 12:45:00 PM**	
Dil. Factor:	**2.43**	**Date of Analysis: 2/13/18 01:54 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.24	21
Methane	0.00024	0.00025
Carbon Dioxide	0.024	0.051
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: SS-2-A-180210

Lab ID#: 1802235B-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021313**	**Date of Collection: 2/10/18 12:15:00 PM**	
Dil. Factor:	**2.35**	**Date of Analysis: 2/13/18 03:30 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	21
Methane	0.00024	0.00024
Carbon Dioxide	0.024	0.025
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: BD021018

Lab ID#: 1802235B-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021314**	**Date of Collection: 2/10/18 12:11:00 PM**	
Dil. Factor:	**2.01**	**Date of Analysis: 2/13/18 03:54 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.20	21
Methane	0.00020	0.00024
Carbon Dioxide	0.020	0.039
Helium	0.10	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

eurofins | Air Toxics

Client Sample ID: FB021018

Lab ID#: 1802235B-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021315**	**Date of Collection: 2/10/18 1:05:00 PM**	
Dil. Factor:	**2.40**	**Date of Analysis: 2/13/18 04:19 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.24	0.63
Methane	0.00024	Not Detected
Carbon Dioxide	0.024	Not Detected
Helium	0.12	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1802235B-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021311**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 12:59 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1802235B-05B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021304c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 09:48 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Helium	0.050	Not Detected

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 1802235B-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 08:50 AM**	

Compound	%Recovery	Method Limits
Oxygen	104	85-115
Methane	104	85-115
Carbon Dioxide	101	85-115
Helium	103	85-115

Container Type: NA - Not Applicable

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 1802235B-06AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10021322**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/13/18 07:31 PM**	

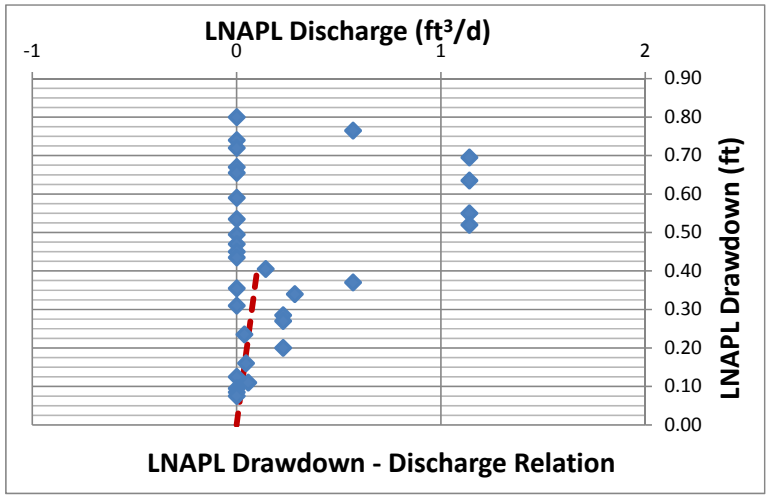
Compound	%Recovery	Method Limits
Oxygen	107	85-115
Methane	105	85-115
Carbon Dioxide	100	85-115
Helium	102	85-115

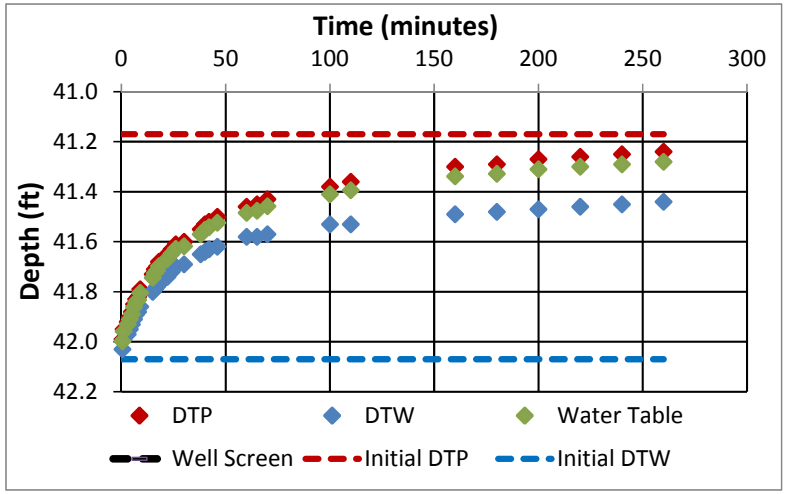
Container Type: NA - Not Applicable

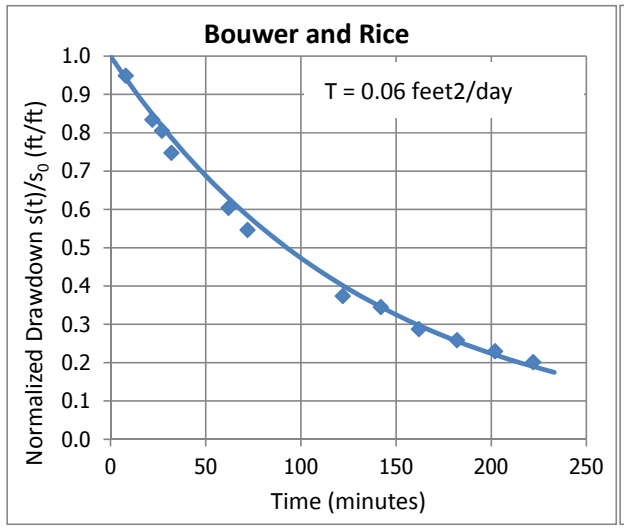
APPENDIX S

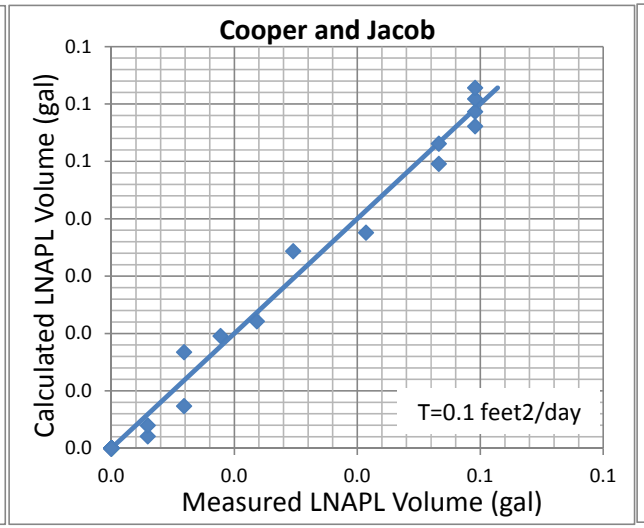
Baildown Test Outputs

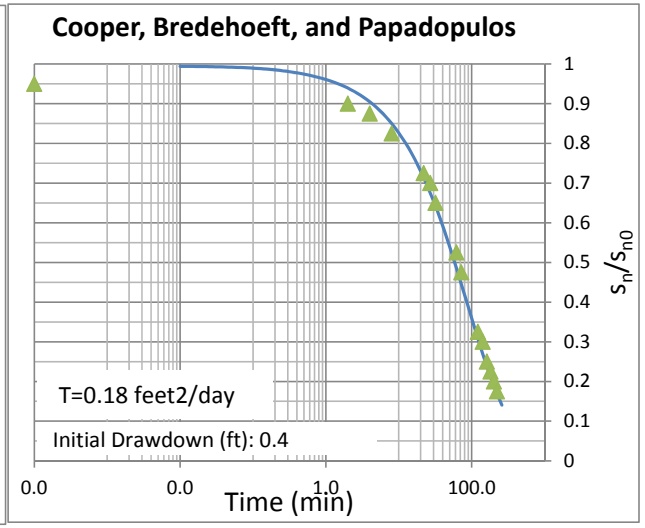
American Petroleum Institute Workbook MP-7 Baildown Test Results 01/26/2018





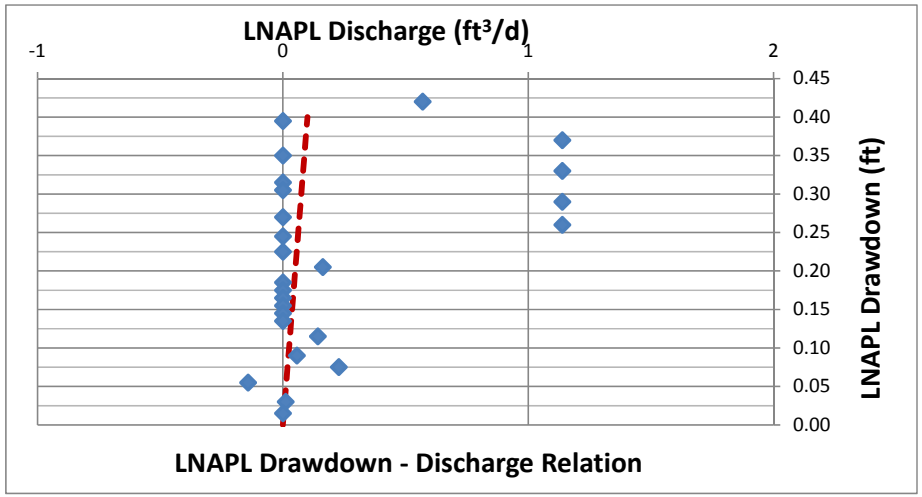


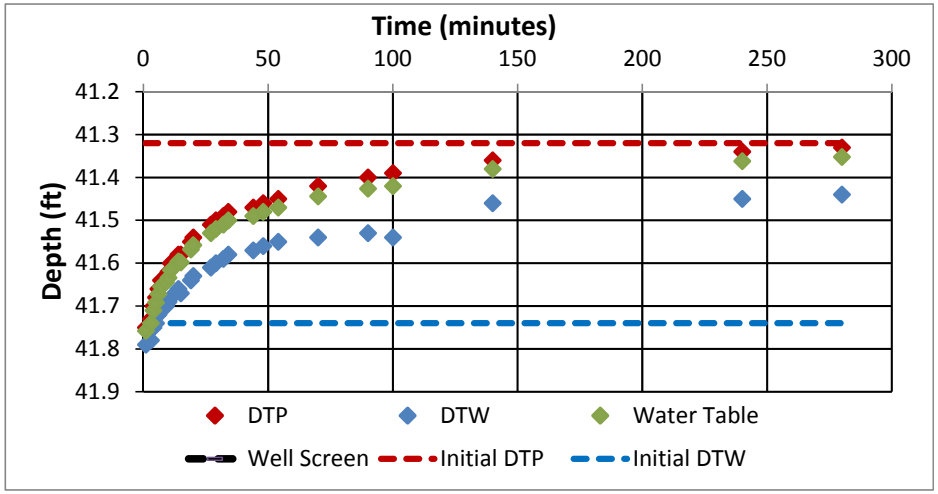


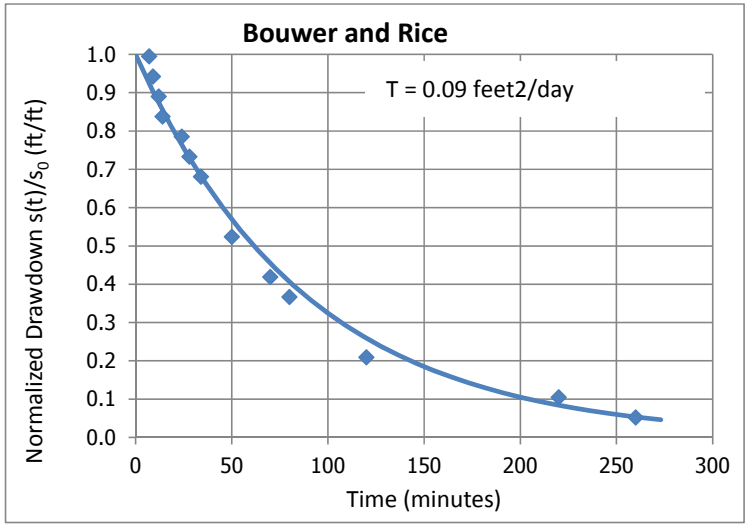


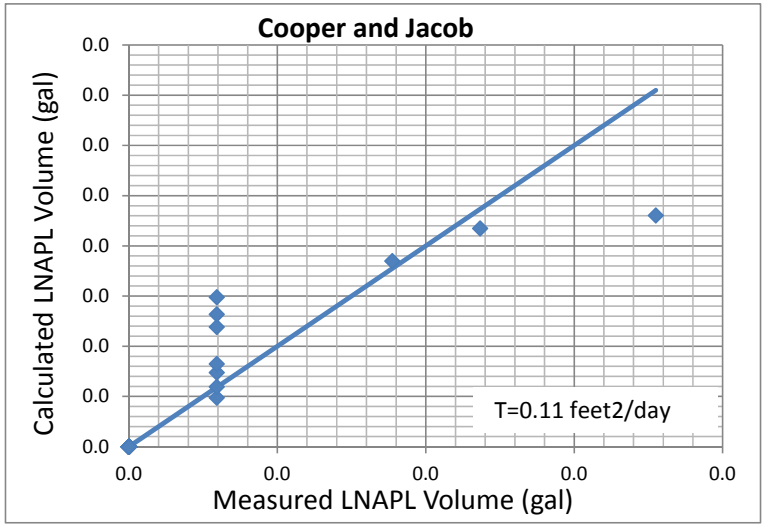
Abbreviations:
d = day
DTP = depth to product
DTW = depth to water
ft = feet
LNAPL = light non-aqueous phase liquid
s = drawdown
T = LNAPL transmissivity

American Petroleum Institute Workbook MP-7 Baildown Test Results 02/06/2018









Abbreviations:
d = day
DTP = depth to product
DTW = depth to water
ft = feet
LNAPL = light non-aqueous phase liquid
s = drawdown
T = LNAPL transmissivity

APPENDIX T

NSZD Results

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-131303-1
Client Project/Site: CHEVRON - CVX# 122208, Chillum, MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Authorized for release by:
2/21/2018 4:18:47 PM
Rebecca Jones, Project Management Assistant I
rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II
(716)504-9838
john.schove@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Job ID: 480-131303-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-131303-1

Comments
No additional comments.

Receipt
The samples were received on 2/15/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

Receipt Exceptions

The following sample was canceled by the client on 2/19/18: MW-16-W-180214 (480-131303-5).

GC/MS VOA
Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: GP-30R-W-180214 (480-131303-1), MW-47-W-180214 (480-131303-2), (480-131303-F-1 MS) and (480-131303-F-1 MSD). Elevated reporting limits (RLs) are provided.

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

GC VOA
Method(s) RSK-175: The following sample was diluted to bring the concentration of target analytes within the calibration range: GP-30R-W-180214 (480-131303-1). Elevated reporting limits (RLs) are provided.

Method(s) 8015D: The following sample was diluted to bring the concentration of target analytes within the calibration range: GP-30R-W-180214 (480-131303-1). Elevated reporting limits (RLs) are provided.

Method(s) RSK-175: The following sample was collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: MW-16-W-180214 (480-131303-5), pH=4.

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

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

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: GP-30R-W-180214 — Lab Sample ID: 480-131303-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3000	F1	100		ug/L	100		8260C	Total/NA
Ethylbenzene	590		100		ug/L	100		8260C	Total/NA
Methyl tert-butyl ether	500		100		ug/L	100		8260C	Total/NA
m-Xylene & p-Xylene	1600		200		ug/L	100		8260C	Total/NA
o-Xylene	1100		100		ug/L	100		8260C	Total/NA
Toluene	4100		100		ug/L	100		8260C	Total/NA
GRO (C6-C10)	22000		5000		ug/L	50		8015D	Total/NA
Carbon dioxide	89000		5000		ug/L	1		RSK-175	Total/NA
Methane	260		88		ug/L	22		RSK-175	Total/NA
Iron, Dissolved	21.3		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.22		0.0030		mg/L	1		6010C	Dissolved
Iron	24.7		0.050		mg/L	1		6010C	Total/NA
Manganese	0.22		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	0.80		0.050		mg/L	1		353.2	Total/NA
Sulfate	23.6		5.0		mg/L	1		9038	Total/NA

Client Sample ID: MW-47-W-180214 — Lab Sample ID: 480-131303-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	99		2.0		ug/L	2		8260C	Total/NA
Methyl tert-butyl ether	12		2.0		ug/L	2		8260C	Total/NA
o-Xylene	72		2.0		ug/L	2		8260C	Total/NA
Toluene	16		2.0		ug/L	2		8260C	Total/NA
GRO (C6-C10)	990		100		ug/L	1		8015D	Total/NA
Carbon dioxide	240000		5000		ug/L	1		RSK-175	Total/NA
Methane	62		4.0		ug/L	1		RSK-175	Total/NA
Iron, Dissolved	1.8		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.16		0.0030		mg/L	1		6010C	Dissolved
Iron	10.3		0.050		mg/L	1		6010C	Total/NA
Manganese	0.17		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	0.12		0.050		mg/L	1		353.2	Total/NA

Client Sample ID: MW-13-W-180214 — Lab Sample ID: 480-131303-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	29000		5000		ug/L	1		RSK-175	Total/NA
Manganese, Dissolved	0.059		0.0030		mg/L	1		6010C	Dissolved
Iron	5.1		0.050		mg/L	1		6010C	Total/NA
Manganese	0.063		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	1.4		0.050		mg/L	1		353.2	Total/NA
Sulfate	50.5		10.0		mg/L	2		9038	Total/NA

Client Sample ID: MW-18-W-180214 — Lab Sample ID: 480-131303-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	210000		5000		ug/L	1		RSK-175	Total/NA
Manganese, Dissolved	0.044		0.0030		mg/L	1		6010C	Dissolved
Iron	3.2		0.050		mg/L	1		6010C	Total/NA
Manganese	0.048		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	4.1		0.050		mg/L	1		353.2	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: MW-18-W-180214 (Continued) — Lab Sample ID: 480-131303-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	46.3		10.0		mg/L	2		9038	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-131303-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: GP-30R-W-180214

Lab Sample ID: 480-131303-1

Date Collected: 02/14/18 11:45

Matrix: Water

Date Received: 02/15/18 09:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	3000	F1	100		ug/L			02/16/18 13:44	100
Ethylbenzene	590		100		ug/L			02/16/18 13:44	100
Methyl tert-butyl ether	500		100		ug/L			02/16/18 13:44	100
m-Xylene & p-Xylene	1600		200		ug/L			02/16/18 13:44	100
o-Xylene	1100		100		ug/L			02/16/18 13:44	100
Toluene	4100		100		ug/L			02/16/18 13:44	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*77 - 120*		*02/16/18 13:44*	*100*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*02/16/18 13:44*	*100*
Dibromofluoromethane (Surr)	*96*		*75 - 123*		*02/16/18 13:44*	*100*
Toluene-d8 (Surr)	*95*		*80 - 120*		*02/16/18 13:44*	*100*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	22000		5000		ug/L			02/16/18 13:28	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/16/18 13:28*	*50*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	89000		5000		ug/L			02/16/18 16:04	1
Methane	260		88		ug/L			02/16/18 10:14	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	21.3		0.050		mg/L		02/19/18 08:00	02/19/18 19:04	1
Manganese, Dissolved	0.22		0.0030		mg/L		02/19/18 08:00	02/19/18 19:04	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	24.7		0.050		mg/L		02/16/18 08:35	02/16/18 15:25	1
Manganese	0.22		0.0030		mg/L		02/16/18 08:35	02/16/18 15:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.80		0.050		mg/L			02/15/18 20:31	1
Sulfate	23.6		5.0		mg/L			02/16/18 10:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: MW-47-W-180214
Date Collected: 02/14/18 14:15
Date Received: 02/15/18 09:30

Lab Sample ID: 480-131303-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**99**		2.0		ug/L			02/16/18 14:08	2
Ethylbenzene	<2.0		2.0		ug/L			02/16/18 14:08	2
Methyl tert-butyl ether	**12**		2.0		ug/L			02/16/18 14:08	2
m-Xylene & p-Xylene	<4.0		4.0		ug/L			02/16/18 14:08	2
o-Xylene	**72**		2.0		ug/L			02/16/18 14:08	2
Toluene	**16**		2.0		ug/L			02/16/18 14:08	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*02/16/18 14:08*	*2*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*		*02/16/18 14:08*	*2*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*02/16/18 14:08*	*2*
Toluene-d8 (Surr)	*95*		*80 - 120*		*02/16/18 14:08*	*2*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**990**		100		ug/L			02/16/18 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/16/18 14:02*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**240000**		5000		ug/L			02/16/18 16:13	1
Methane	**62**		4.0		ug/L			02/16/18 11:38	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**1.8**		0.050		mg/L		02/19/18 08:00	02/19/18 19:08	1
Manganese, Dissolved	**0.16**		0.0030		mg/L		02/19/18 08:00	02/19/18 19:08	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**10.3**		0.050		mg/L		02/16/18 08:35	02/16/18 15:29	1
Manganese	**0.17**		0.0030		mg/L		02/16/18 08:35	02/16/18 15:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.12**		0.050		mg/L			02/15/18 20:34	1
Sulfate	<5.0		5.0		mg/L			02/16/18 10:42	1

Client Sample ID: MW-13-W-180214

Lab Sample ID: 480-131303-3

Date Collected: 02/14/18 13:20

Matrix: Water

Date Received: 02/15/18 09:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/16/18 14:31	1
Ethylbenzene	<1.0		1.0		ug/L			02/16/18 14:31	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/16/18 14:31	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/16/18 14:31	1
o-Xylene	<1.0		1.0		ug/L			02/16/18 14:31	1
Toluene	<1.0		1.0		ug/L			02/16/18 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*02/16/18 14:31*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*02/16/18 14:31*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*02/16/18 14:31*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*02/16/18 14:31*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/16/18 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*80 - 120*		*02/16/18 15:09*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**29000**		5000		ug/L			02/16/18 16:22	1
Methane	<4.0		4.0		ug/L			02/16/18 11:57	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/19/18 08:00	02/19/18 19:11	1
Manganese, Dissolved	**0.059**		0.0030		mg/L		02/19/18 08:00	02/19/18 19:11	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**5.1**		0.050		mg/L		02/16/18 08:35	02/16/18 15:32	1
Manganese	**0.063**		0.0030		mg/L		02/16/18 08:35	02/16/18 15:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.4**		0.050		mg/L			02/15/18 20:35	1
Sulfate	**50.5**		10.0		mg/L			02/16/18 10:44	2

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: MW-18-W-180214
Date Collected: 02/14/18 13:15
Date Received: 02/15/18 09:30

Lab Sample ID: 480-131303-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/16/18 14:55	1
Ethylbenzene	<1.0		1.0		ug/L			02/16/18 14:55	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/16/18 14:55	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/16/18 14:55	1
o-Xylene	<1.0		1.0		ug/L			02/16/18 14:55	1
Toluene	<1.0		1.0		ug/L			02/16/18 14:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*77 - 120*		*02/16/18 14:55*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*02/16/18 14:55*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 123*		*02/16/18 14:55*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*02/16/18 14:55*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/16/18 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*80 - 120*		*02/16/18 15:43*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**210000**		5000		ug/L			02/16/18 16:30	1
Methane	<4.0		4.0		ug/L			02/16/18 12:16	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/19/18 08:00	02/19/18 19:40	1
Manganese, Dissolved	**0.044**		0.0030		mg/L		02/19/18 08:00	02/19/18 19:40	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**3.2**		0.050		mg/L		02/16/18 08:35	02/16/18 15:47	1
Manganese	**0.048**		0.0030		mg/L		02/16/18 08:35	02/16/18 15:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**4.1**		0.050		mg/L			02/15/18 20:36	1
Sulfate	**46.3**		10.0		mg/L			02/16/18 10:46	2

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: TRIP BLANK
Date Collected: 02/14/18 00:00
Date Received: 02/15/18 09:30

Lab Sample ID: 480-131303-6
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/15/18 14:54	1
Ethylbenzene	<1.0		1.0		ug/L			02/15/18 14:54	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/15/18 14:54	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/15/18 14:54	1
o-Xylene	<1.0		1.0		ug/L			02/15/18 14:54	1
Toluene	<1.0		1.0		ug/L			02/15/18 14:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*77 - 120*		*02/15/18 14:54*	*1*
4-Bromofluorobenzene (Surr)	*109*		*73 - 120*		*02/15/18 14:54*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*02/15/18 14:54*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/15/18 14:54*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(77-120)	(73-120)	(75-123)	(80-120)
480-131303-1	GP-30R-W-180214	96	100	96	95
480-131303-1 MS	GP-30R-W-180214	98	105	100	96
480-131303-1 MSD	GP-30R-W-180214	99	101	103	95
480-131303-2	MW-47-W-180214	100	103	98	95
480-131303-3	MW-13-W-180214	97	99	98	93
480-131303-4	MW-18-W-180214	95	100	96	94
480-131303-6	TRIP BLANK	91	109	98	100
LCS 480-399984/5	Lab Control Sample	87	112	100	99
LCS 480-400169/30	Lab Control Sample	94	103	99	95
MB 480-399984/7	Method Blank	87	108	98	100
MB 480-400169/6	Method Blank	96	99	95	95

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT2
Lab Sample ID	Client Sample ID	(80-120)
480-131303-1	GP-30R-W-180214	98
480-131303-2	MW-47-W-180214	98
480-131303-3	MW-13-W-180214	96
480-131303-4	MW-18-W-180214	97
LCS 480-400155/4	Lab Control Sample	101
LCSD 480-400155/5	Lab Control Sample Dup	101
MB 480-400155/3	Method Blank	98

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-399984/7
Matrix: Water
Analysis Batch: 399984

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/15/18 10:49	1
Ethylbenzene	<1.0		1.0		ug/L			02/15/18 10:49	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/15/18 10:49	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/15/18 10:49	1
o-Xylene	<1.0		1.0		ug/L			02/15/18 10:49	1
Toluene	<1.0		1.0		ug/L			02/15/18 10:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*77 - 120*		*02/15/18 10:49*	*1*
4-Bromofluorobenzene (Surr)	*108*		*73 - 120*		*02/15/18 10:49*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*02/15/18 10:49*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/15/18 10:49*	*1*

Lab Sample ID: LCS 480-399984/5
Matrix: Water
Analysis Batch: 399984

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	26.2		ug/L		105	71 - 124
Ethylbenzene	25.0	25.3		ug/L		101	77 - 123
Methyl tert-butyl ether	25.0	24.2		ug/L		97	77 - 120
m-Xylene & p-Xylene	25.0	24.9		ug/L		100	76 - 122
o-Xylene	25.0	25.4		ug/L		101	76 - 122
Toluene	25.0	25.6		ug/L		102	80 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*87*		*77 - 120*
4-Bromofluorobenzene (Surr)	*112*		*73 - 120*
Dibromofluoromethane (Surr)	*100*		*75 - 123*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: MB 480-400169/6
Matrix: Water
Analysis Batch: 400169

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/16/18 12:21	1
Ethylbenzene	<1.0		1.0		ug/L			02/16/18 12:21	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/16/18 12:21	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/16/18 12:21	1
o-Xylene	<1.0		1.0		ug/L			02/16/18 12:21	1
Toluene	<1.0		1.0		ug/L			02/16/18 12:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*77 - 120*		*02/16/18 12:21*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*02/16/18 12:21*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 123*		*02/16/18 12:21*	*1*

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

Lab Sample ID: MB 480-400169/6
Matrix: Water
Analysis Batch: 400169

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		80 - 120		02/16/18 12:21	1

Lab Sample ID: LCS 480-400169/30
Matrix: Water
Analysis Batch: 400169

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	27.4		ug/L		110	71 - 124
Ethylbenzene	25.0	25.5		ug/L		102	77 - 123
Methyl tert-butyl ether	25.0	25.9		ug/L		104	77 - 120
m-Xylene & p-Xylene	25.0	25.3		ug/L		101	76 - 122
o-Xylene	25.0	26.1		ug/L		104	76 - 122
Toluene	25.0	25.8		ug/L		103	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		77 - 120
4-Bromofluorobenzene (Surr)	103		73 - 120
Dibromofluoromethane (Surr)	99		75 - 123
Toluene-d8 (Surr)	95		80 - 120

Lab Sample ID: 480-131303-1 MS
Matrix: Water
Analysis Batch: 400169

Client Sample ID: GP-30R-W-180214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	3000	F1	2500	6100	F1	ug/L		125	71 - 124
Ethylbenzene	590		2500	3220		ug/L		105	77 - 123
Methyl tert-butyl ether	500		2500	3150		ug/L		106	77 - 120
m-Xylene & p-Xylene	1600		2500	4370		ug/L		112	76 - 122
o-Xylene	1100		2500	3850		ug/L		111	76 - 122
Toluene	4100		2500	7110		ug/L		119	80 - 122

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		77 - 120
4-Bromofluorobenzene (Surr)	105		73 - 120
Dibromofluoromethane (Surr)	100		75 - 123
Toluene-d8 (Surr)	96		80 - 120

Lab Sample ID: 480-131303-1 MSD
Matrix: Water
Analysis Batch: 400169

Client Sample ID: GP-30R-W-180214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	3000	F1	2500	5900		ug/L		116	71 - 124	3	13
Ethylbenzene	590		2500	3110		ug/L		101	77 - 123	4	15
Methyl tert-butyl ether	500		2500	3160		ug/L		107	77 - 120	0	37
m-Xylene & p-Xylene	1600		2500	4270		ug/L		108	76 - 122	2	16

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

Lab Sample ID: 480-131303-1 MSD
Matrix: Water
Analysis Batch: 400169

Client Sample ID: GP-30R-W-180214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
o-Xylene	1100		2500	3720		ug/L		105	76 - 122	3	16
Toluene	4100		2500	7050		ug/L		116	80 - 122	1	15

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*
Dibromofluoromethane (Surr)	*103*		*75 - 123*
Toluene-d8 (Surr)	*95*		*80 - 120*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 480-400155/3
Matrix: Water
Analysis Batch: 400155

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/16/18 08:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/16/18 08:46*	*1*

Lab Sample ID: LCS 480-400155/4
Matrix: Water
Analysis Batch: 400155

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C6-C10)			200	192		ug/L		96	66 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*80 - 120*

Lab Sample ID: LCSD 480-400155/5
Matrix: Water
Analysis Batch: 400155

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C6-C10)			200	198		ug/L		99	66 - 120	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*80 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-126495/5
Matrix: Water
Analysis Batch: 126495

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	<5000		5000		ug/L			02/16/18 15:38	1

Lab Sample ID: LCS 200-126495/4
Matrix: Water
Analysis Batch: 126495

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	38300		ug/L		96	70 - 130

Lab Sample ID: MB 480-400135/3
Matrix: Water
Analysis Batch: 400135

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<4.0		4.0		ug/L			02/16/18 07:13	1

Lab Sample ID: LCS 480-400135/4
Matrix: Water
Analysis Batch: 400135

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.43		ug/L		109	85 - 120

Lab Sample ID: LCSD 480-400135/5
Matrix: Water
Analysis Batch: 400135

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	7.77	8.12		ug/L		105	85 - 120	4	50

Lab Sample ID: MB 480-400136/4
Matrix: Water
Analysis Batch: 400136

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<4.0		4.0		ug/L			02/16/18 07:31	1

Lab Sample ID: LCS 480-400136/5
Matrix: Water
Analysis Batch: 400136

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.63		ug/L		111	85 - 120

Lab Sample ID: LCSD 480-400136/6
Matrix: Water
Analysis Batch: 400136

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	7.77	9.25		ug/L		119	85 - 120	7	50

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-400138/1-A
Matrix: Water
Analysis Batch: 400572

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400138

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.050		0.050		mg/L		02/16/18 08:35	02/16/18 14:46	1
Manganese	<0.0030		0.0030		mg/L		02/16/18 08:35	02/16/18 14:46	1

Lab Sample ID: LCS 480-400138/2-A
Matrix: Water
Analysis Batch: 400572

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.16		mg/L		102	80 - 120
Manganese	0.200	0.203		mg/L		101	80 - 120

Method: 6010C - Dissolved Metals

Lab Sample ID: MB 480-400195/1-B
Matrix: Water
Analysis Batch: 400597

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 400363

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/19/18 08:00	02/19/18 18:57	1
Manganese, Dissolved	<0.0030		0.0030		mg/L		02/19/18 08:00	02/19/18 18:57	1

Lab Sample ID: LCS 480-400195/2-B
Matrix: Water
Analysis Batch: 400597

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 400363

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	10.0	10.00		mg/L		100	80 - 120
Manganese, Dissolved	0.200	0.204		mg/L		102	80 - 120

Lab Sample ID: 480-131303-3 MS
Matrix: Water
Analysis Batch: 400597

Client Sample ID: MW-13-W-180214
Prep Type: Dissolved
Prep Batch: 400363

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	<0.050		10.0	8.34		mg/L		83	75 - 125
Manganese, Dissolved	0.059		0.200	0.226		mg/L		84	75 - 125

Lab Sample ID: 480-131303-3 MSD
Matrix: Water
Analysis Batch: 400597

Client Sample ID: MW-13-W-180214
Prep Type: Dissolved
Prep Batch: 400363

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	<0.050		10.0	8.90		mg/L		89	75 - 125	6	20
Manganese, Dissolved	0.059		0.200	0.242		mg/L		92	75 - 125	7	20

Method: 9038 - Sulfate, Turbidimetric

Lab Sample ID: MB 480-400208/38
Matrix: Water
Analysis Batch: 400208

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			02/16/18 10:36	1

Lab Sample ID: LCS 480-400208/37
Matrix: Water
Analysis Batch: 400208

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			30.0	30.60		mg/L		102	90 - 110		

GC/MS VOA

Analysis Batch: 399984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-6	TRIP BLANK	Total/NA	Water	8260C	
MB 480-399984/7	Method Blank	Total/NA	Water	8260C	
LCS 480-399984/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 400169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	8260C	
480-131303-2	MW-47-W-180214	Total/NA	Water	8260C	
480-131303-3	MW-13-W-180214	Total/NA	Water	8260C	
480-131303-4	MW-18-W-180214	Total/NA	Water	8260C	
MB 480-400169/6	Method Blank	Total/NA	Water	8260C	
LCS 480-400169/30	Lab Control Sample	Total/NA	Water	8260C	
480-131303-1 MS	GP-30R-W-180214	Total/NA	Water	8260C	
480-131303-1 MSD	GP-30R-W-180214	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 126495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	RSK-175	
480-131303-2	MW-47-W-180214	Total/NA	Water	RSK-175	
480-131303-3	MW-13-W-180214	Total/NA	Water	RSK-175	
480-131303-4	MW-18-W-180214	Total/NA	Water	RSK-175	
MB 200-126495/5	Method Blank	Total/NA	Water	RSK-175	
LCS 200-126495/4	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 400135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	RSK-175	
MB 480-400135/3	Method Blank	Total/NA	Water	RSK-175	
LCS 480-400135/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-400135/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 400136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-2	MW-47-W-180214	Total/NA	Water	RSK-175	
480-131303-3	MW-13-W-180214	Total/NA	Water	RSK-175	
480-131303-4	MW-18-W-180214	Total/NA	Water	RSK-175	
MB 480-400136/4	Method Blank	Total/NA	Water	RSK-175	
LCS 480-400136/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-400136/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 400155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	8015D	
480-131303-2	MW-47-W-180214	Total/NA	Water	8015D	
480-131303-3	MW-13-W-180214	Total/NA	Water	8015D	
480-131303-4	MW-18-W-180214	Total/NA	Water	8015D	
MB 480-400155/3	Method Blank	Total/NA	Water	8015D	
LCS 480-400155/4	Lab Control Sample	Total/NA	Water	8015D	

GC VOA (Continued)

Analysis Batch: 400155 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 480-400155/5	Lab Control Sample Dup	Total/NA	Water	8015D	

Metals

Prep Batch: 400138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	3005A	
480-131303-2	MW-47-W-180214	Total/NA	Water	3005A	
480-131303-3	MW-13-W-180214	Total/NA	Water	3005A	
480-131303-4	MW-18-W-180214	Total/NA	Water	3005A	
MB 480-400138/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-400138/2-A	Lab Control Sample	Total/NA	Water	3005A	

Filtration Batch: 400195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Dissolved	Water	FILTRATION	
480-131303-2	MW-47-W-180214	Dissolved	Water	FILTRATION	
480-131303-3	MW-13-W-180214	Dissolved	Water	FILTRATION	
480-131303-4	MW-18-W-180214	Dissolved	Water	FILTRATION	
MB 480-400195/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 480-400195/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
480-131303-3 MS	MW-13-W-180214	Dissolved	Water	FILTRATION	
480-131303-3 MSD	MW-13-W-180214	Dissolved	Water	FILTRATION	

Prep Batch: 400363

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Dissolved	Water	3005A	400195
480-131303-2	MW-47-W-180214	Dissolved	Water	3005A	400195
480-131303-3	MW-13-W-180214	Dissolved	Water	3005A	400195
480-131303-4	MW-18-W-180214	Dissolved	Water	3005A	400195
MB 480-400195/1-B	Method Blank	Dissolved	Water	3005A	400195
LCS 480-400195/2-B	Lab Control Sample	Dissolved	Water	3005A	400195
480-131303-3 MS	MW-13-W-180214	Dissolved	Water	3005A	400195
480-131303-3 MSD	MW-13-W-180214	Dissolved	Water	3005A	400195

Analysis Batch: 400572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	6010C	400138
480-131303-2	MW-47-W-180214	Total/NA	Water	6010C	400138
480-131303-3	MW-13-W-180214	Total/NA	Water	6010C	400138
480-131303-4	MW-18-W-180214	Total/NA	Water	6010C	400138
MB 480-400138/1-A	Method Blank	Total/NA	Water	6010C	400138
LCS 480-400138/2-A	Lab Control Sample	Total/NA	Water	6010C	400138

Analysis Batch: 400597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Dissolved	Water	6010C	400363
480-131303-2	MW-47-W-180214	Dissolved	Water	6010C	400363
480-131303-3	MW-13-W-180214	Dissolved	Water	6010C	400363
480-131303-4	MW-18-W-180214	Dissolved	Water	6010C	400363

Metals (Continued)

Analysis Batch: 400597 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-400195/1-B	Method Blank	Dissolved	Water	6010C	400363
LCS 480-400195/2-B	Lab Control Sample	Dissolved	Water	6010C	400363
480-131303-3 MS	MW-13-W-180214	Dissolved	Water	6010C	400363
480-131303-3 MSD	MW-13-W-180214	Dissolved	Water	6010C	400363

General Chemistry

Analysis Batch: 400124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	353.2	
480-131303-2	MW-47-W-180214	Total/NA	Water	353.2	
480-131303-3	MW-13-W-180214	Total/NA	Water	353.2	
480-131303-4	MW-18-W-180214	Total/NA	Water	353.2	

Analysis Batch: 400208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	9038	
480-131303-2	MW-47-W-180214	Total/NA	Water	9038	
480-131303-3	MW-13-W-180214	Total/NA	Water	9038	
480-131303-4	MW-18-W-180214	Total/NA	Water	9038	
MB 480-400208/38	Method Blank	Total/NA	Water	9038	
LCS 480-400208/37	Lab Control Sample	Total/NA	Water	9038	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: GP-30R-W-180214

Lab Sample ID: 480-131303-1

Date Collected: 02/14/18 11:45

Matrix: Water

Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	400169	02/16/18 13:44	KMN	TAL BUF
Total/NA	Analysis	8015D		50	400155	02/16/18 13:28	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126495	02/16/18 16:04	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400135	02/16/18 10:14	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400195	02/16/18 09:56	EMB	TAL BUF
Dissolved	Prep	3005A			400363	02/19/18 08:00	JAK	TAL BUF
Dissolved	Analysis	6010C		1	400597	02/19/18 19:04	LMH	TAL BUF
Total/NA	Prep	3005A			400138	02/16/18 08:35	EMB	TAL BUF
Total/NA	Analysis	6010C		1	400572	02/16/18 15:25	LMH	TAL BUF
Total/NA	Analysis	353.2		1	400124	02/15/18 20:31	DCB	TAL BUF
Total/NA	Analysis	9038		1	400208	02/16/18 10:39	ALZ	TAL BUF

Client Sample ID: MW-47-W-180214

Lab Sample ID: 480-131303-2

Date Collected: 02/14/18 14:15

Matrix: Water

Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	400169	02/16/18 14:08	KMN	TAL BUF
Total/NA	Analysis	8015D		1	400155	02/16/18 14:02	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126495	02/16/18 16:13	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400136	02/16/18 11:38	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400195	02/16/18 09:56	EMB	TAL BUF
Dissolved	Prep	3005A			400363	02/19/18 08:00	JAK	TAL BUF
Dissolved	Analysis	6010C		1	400597	02/19/18 19:08	LMH	TAL BUF
Total/NA	Prep	3005A			400138	02/16/18 08:35	EMB	TAL BUF
Total/NA	Analysis	6010C		1	400572	02/16/18 15:29	LMH	TAL BUF
Total/NA	Analysis	353.2		1	400124	02/15/18 20:34	DCB	TAL BUF
Total/NA	Analysis	9038		1	400208	02/16/18 10:42	ALZ	TAL BUF

Client Sample ID: MW-13-W-180214

Lab Sample ID: 480-131303-3

Date Collected: 02/14/18 13:20

Matrix: Water

Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400169	02/16/18 14:31	KMN	TAL BUF
Total/NA	Analysis	8015D		1	400155	02/16/18 15:09	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126495	02/16/18 16:22	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400136	02/16/18 11:57	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400195	02/16/18 09:57	EMB	TAL BUF
Dissolved	Prep	3005A			400363	02/19/18 08:00	JAK	TAL BUF
Dissolved	Analysis	6010C		1	400597	02/19/18 19:11	LMH	TAL BUF
Total/NA	Prep	3005A			400138	02/16/18 08:35	EMB	TAL BUF

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: MW-13-W-180214

Lab Sample ID: 480-131303-3

Date Collected: 02/14/18 13:20
Matrix: Water
Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	400572	02/16/18 15:32	LMH	TAL BUF
Total/NA	Analysis	353.2		1	400124	02/15/18 20:35	DCB	TAL BUF
Total/NA	Analysis	9038		2	400208	02/16/18 10:44	ALZ	TAL BUF

Client Sample ID: MW-18-W-180214

Lab Sample ID: 480-131303-4

Date Collected: 02/14/18 13:15
Matrix: Water
Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400169	02/16/18 14:55	KMN	TAL BUF
Total/NA	Analysis	8015D		1	400155	02/16/18 15:43	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126495	02/16/18 16:30	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400136	02/16/18 12:16	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400195	02/16/18 09:57	EMB	TAL BUF
Dissolved	Prep	3005A			400363	02/19/18 08:00	JAK	TAL BUF
Dissolved	Analysis	6010C		1	400597	02/19/18 19:40	LMH	TAL BUF
Total/NA	Prep	3005A			400138	02/16/18 08:35	EMB	TAL BUF
Total/NA	Analysis	6010C		1	400572	02/16/18 15:47	LMH	TAL BUF
Total/NA	Analysis	353.2		1	400124	02/15/18 20:36	DCB	TAL BUF
Total/NA	Analysis	9038		2	400208	02/16/18 10:46	ALZ	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-131303-6

Date Collected: 02/14/18 00:00
Matrix: Water
Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	399984	02/15/18 14:54	MXS	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600
TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc. TestAmerica Job ID: 480-131303-1
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	294	03-31-18 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Iron
6010C	3005A	Water	Iron, Dissolved
6010C	3005A	Water	Manganese
6010C	3005A	Water	Manganese, Dissolved
8015D		Water	GRO (C6-C10)
8260C		Water	Benzene
8260C		Water	Ethylbenzene
8260C		Water	Methyl tert-butyl ether
8260C		Water	m-Xylene & p-Xylene
8260C		Water	o-Xylene
8260C		Water	Toluene
9038		Water	Sulfate
RSK-175		Water	Methane

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Florida	NELAP	4	E87467	06-30-18
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Jersey	NELAP	2	VT972	06-30-18
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-18
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8015D	Gasoline Range Organics (GRO) (GC)	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Dissolved Metals	SW846	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
353.2	Nitrate	EPA	TAL BUF
9038	Sulfate, Turbidimetric	SW846	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-131303-1	GP-30R-W-180214	Water	02/14/18 11:45	02/15/18 09:30
480-131303-2	MW-47-W-180214	Water	02/14/18 14:15	02/15/18 09:30
480-131303-3	MW-13-W-180214	Water	02/14/18 13:20	02/15/18 09:30
480-131303-4	MW-18-W-180214	Water	02/14/18 13:15	02/15/18 09:30
480-131303-6	TRIP BLANK	Water	02/14/18 00:00	02/15/18 09:30

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

480-131303 COC

Client Information	Sampler: A. King	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-109063-8
Client Contact: Kristen Audette	Phone: 410-350-9147	E-Mail: john.schove@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S., Inc.		Analysis Requested		Job #:
Address: 2101 L Street NW Suite 200	Due Date Requested:			
City: Washington	TAT Requested (days): Standard			
State, Zip: DC, 20037				
Phone: 202-909-6892(Tel)	PO #: B0049337.0004.00001			
Email: kristen.audette@arcadis.com	WO #: NWENV-122208-0-0802			
Project Name: CHEVRON - CVX# 122208, Chillum, MD	Project #: 48016281			
Site: Chillum	SSOW#:			

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2 - Dissolved Gases - CO2	6010C - Metals - Total Fe & Mn	RSK_175 - Dissolved Gases - Methane	8015D_GRO - GRO	8260C - BTEX + MTBE	353.2, 353.2_Nitrite, 9038, Nitrate_Calc	6010C - Metals - Dissolved Fe & Mn	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	A	A	A	N	N		
GP-30R-W-180214	2/14/18	1145	G	Water			3	1	3	3	3	2	1		
MW-47-W-180214		1415		Water											
MW-13-W-180214		1320		Water											
MW-18-W-180214		1315		Water											
MW-16-W-180214		1220		Water											
Trip Blank		—		Water							2				
Temp Blank				Water											
				Water											
				Water											
				Water											
				Water											

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		2/14/18 1525	Arcadis			2/14/18
2		2/14/18			2/15/18 0930	TA
3						

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.2 #1 ICE

Ver: 08/04/2016

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record


480-131303 Chain of Custody

TestAmerica
LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schove, John R	Carrier Tracking No(s): 0427.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: john.schove@testamericainc.com	State of Origin: Maryland
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Maryland	Page 1 of 1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 2/27/2018		Job #: 480-131303-1
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: CHEVRON - CVX# 122208, Chillum, MD	Project #: 48016281		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

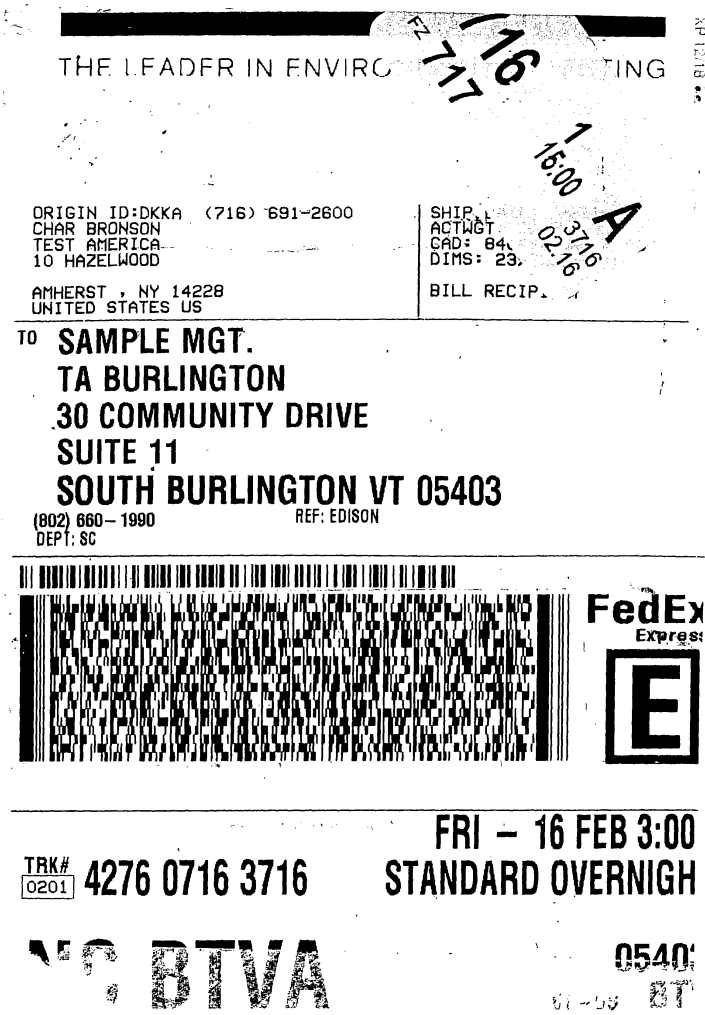
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2/ Dissolved Gases - CO2	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
GP-30R-W-180214 (480-131303-1)	2/14/18	11:45 Eastern		Water			X	3	
MW-47-W-180214 (480-131303-2)	2/14/18	14:15 Eastern		Water			X	3	
MW-13-W-180214 (480-131303-3)	2/14/18	13:20 Eastern		Water			X	3	
MW-18-W-180214 (480-131303-4)	2/14/18	13:15 Eastern		Water			X	3	
MW-16-W-180214 (480-131303-5)	2/14/18	12:20 Eastern		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:	Method of Shipment:	
Relinquished by:	Date/Time: 2/15/18 1700	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 2/16/18 1030	Company TAB	
Custody Seals Intact: Δ Yes Δ No N/A	Custody Seal No.: N/A		Cooler Temperature(s) °C and Other Remarks: 3.0			

Ver: 09/20/2016



THE LEADER IN ENVIRO TING

ORIGIN ID:DKKA (716) 691-2600
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD

AMHERST , NY 14228
UNITED STATES US

SHIP
ACTWGT
CAD: 84
DIMS: 23

BILL RECIP

TO SAMPLE MGT.
TA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403

(802) 660-1990 REF: EDISON
DEPT: SC

FedEx
Express

FRI - 16 FEB 3:00
STANDARD OVERNIGH

TRK# 0201 4276 0716 3716

BTVA

0540

BT

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 480-131303-1

Login Number: 131303
List Number: 1
Creator: Wallace, Cameron

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	ARCADIS
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 480-131303-1

Login Number: 131303
List Number: 2
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington
List Creation: 02/16/18 11:22 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.0ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-131377-1
Client Project/Site: CHEVRON - CVX# 122208, Chillum, MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Authorized for release by:
2/23/2018 12:53:38 PM
Rebecca Jones, Project Management Assistant I
rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II
(716)504-9838
john.schove@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-131377-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-131377-1

Comments
No additional comments.

Receipt
The samples were received on 2/16/2018 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.9º C and 3.2º C.

GC/MS VOA
Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-6-W-180215 (480-131377-4), MW-59-W-180215 (480-131377-7) and MW-25B-W-180215 (480-131377-8). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: GP-35A-W-180215 (480-131377-1). Elevated reporting limits (RLs) are provided.

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

GC VOA
Method(s) RSK-175: The following sample was diluted to bring the concentration of target analytes within the calibration range: GP-35A-W-180215 (480-131377-1). Elevated reporting limits (RLs) are provided.

Method(s) RSK-175: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-20-W-180215 (480-131377-2), MW-45-W-180215 (480-131377-3), MW-6-W-180215 (480-131377-4) and MW-53-W-180215 (480-131377-6). Elevated reporting limits (RLs) are provided.

Method(s) 8015D: The following samples were diluted to bring the concentration of target analytes within the calibration range: GP-35A-W-180215 (480-131377-1) and MW-6-W-180215 (480-131377-4). Elevated reporting limits (RLs) are provided.

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

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

General Chemistry
Method(s) 353.2: The following samples were filtered prior to analysis. MW-20-W-180215 (480-131377-2), MW-45-W-180215 (480-131377-3), MW-6-W-180215 (480-131377-4), MW-53-W-180215 (480-131377-6), MW-59-W-180215 (480-131377-7), MW-25B-W-180215 (480-131377-8) and MW-62B-W-180215 (480-131377-9)

Method(s) 353.2: The following samples were filtered prior to analysis.GP-35A-W-180215 (480-131377-1), MW-20-W-180215 (480-131377-2), MW-45-W-180215 (480-131377-3), MW-6-W-180215 (480-131377-4), MW-59-W-180215 (480-131377-7) and MW-25B-W-180215 (480-131377-8)

Method(s) 353.2: Reanalysis of the following sample was performed outside of the analytical holding time due to confirm NO2>NO3: GP-35A-W-180215 (480-131377-1).

Method(s) 353.2: The inter-parameter relationship between Nitrate/Nitrite and Nitrite does not meet acceptance criteria. This has been confirmed by reanalysis: GP-35A-W-180215 (480-131377-1).

Method(s) Nitrate by calc: The inter-parameter relationship between Nitrate/Nitrite and Nitrite does not meet acceptance criteria. This has been confirmed by reanalysis: GP-35A-W-180215 (480-131377-1).

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: GP-35A-W-180215 — Lab Sample ID: 480-131377-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	110		20		ug/L	20		8260C	Total/NA
Ethylbenzene	250		20		ug/L	20		8260C	Total/NA
m-Xylene & p-Xylene	1200		40		ug/L	20		8260C	Total/NA
o-Xylene	440		20		ug/L	20		8260C	Total/NA
Toluene	980		20		ug/L	20		8260C	Total/NA
GRO (C6-C10)	31000		5000		ug/L	50		8015D	Total/NA
Carbon dioxide	77000		5000		ug/L	1		RSK-175	Total/NA
Methane	460		88		ug/L	22		RSK-175	Total/NA
Iron, Dissolved	10.8		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.17		0.0030		mg/L	1		6010C	Dissolved
Iron	40.7		0.050		mg/L	1		6010C	Total/NA
Manganese	0.18		0.0030		mg/L	1		6010C	Total/NA

Client Sample ID: MW-20-W-180215 — Lab Sample ID: 480-131377-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
GRO (C6-C10)	250		100		ug/L	1		8015D	Total/NA
Carbon dioxide	200000		5000		ug/L	1		RSK-175	Total/NA
Methane	460		88		ug/L	22		RSK-175	Total/NA
Iron, Dissolved	0.20		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.37		0.0030		mg/L	1		6010C	Dissolved
Iron	7.1		0.050		mg/L	1		6010C	Total/NA
Manganese	0.39		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	6.1		0.050		mg/L	1		353.2	Total/NA

Client Sample ID: MW-45-W-180215 — Lab Sample ID: 480-131377-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.6		1.0		ug/L	1		8260C	Total/NA
Methyl tert-butyl ether	1.1		1.0		ug/L	1		8260C	Total/NA
o-Xylene	2.5		1.0		ug/L	1		8260C	Total/NA
GRO (C6-C10)	150		100		ug/L	1		8015D	Total/NA
Carbon dioxide	140000		5000		ug/L	1		RSK-175	Total/NA
Methane	250		88		ug/L	22		RSK-175	Total/NA
Manganese, Dissolved	0.054		0.0030		mg/L	1		6010C	Dissolved
Iron	7.3		0.050		mg/L	1		6010C	Total/NA
Manganese	0.066		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	4.5		0.050		mg/L	1		353.2	Total/NA

Client Sample ID: MW-6-W-180215 — Lab Sample ID: 480-131377-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	47		4.0		ug/L	4		8260C	Total/NA
m-Xylene & p-Xylene	51		8.0		ug/L	4		8260C	Total/NA
o-Xylene	160		4.0		ug/L	4		8260C	Total/NA
Toluene	15		4.0		ug/L	4		8260C	Total/NA
GRO (C6-C10)	1900		1000		ug/L	10		8015D	Total/NA
Carbon dioxide	66000		5000		ug/L	1		RSK-175	Total/NA
Methane	650		88		ug/L	22		RSK-175	Total/NA
Iron, Dissolved	3.8		0.050		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-6-W-180215 (Continued) — Lab Sample ID: 480-131377-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese, Dissolved	0.46		0.0030		mg/L	1		6010C	Dissolved
Iron	34.5		0.050		mg/L	1		6010C	Total/NA
Manganese	0.45		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	6.3		0.050		mg/L	1		353.2	Total/NA
Sulfate	23.6		5.0		mg/L	1		9038	Total/NA

Client Sample ID: MW-33B-W-180215 — Lab Sample ID: 480-131377-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.6		1.0		ug/L	1		8260C	Total/NA
Methyl tert-butyl ether	11		1.0		ug/L	1		8260C	Total/NA
Carbon dioxide	170000		5000		ug/L	1		RSK-175	Total/NA
Methane	4.4		4.0		ug/L	1		RSK-175	Total/NA
Manganese, Dissolved	0.14		0.0030		mg/L	1		6010C	Dissolved
Iron	1.4		0.050		mg/L	1		6010C	Total/NA
Manganese	0.15		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	1.8		0.050		mg/L	1		353.2	Total/NA
Sulfate	56.4		10.0		mg/L	2		9038	Total/NA

Client Sample ID: MW-53-W-180215 — Lab Sample ID: 480-131377-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	39		1.0		ug/L	1		8260C	Total/NA
Carbon dioxide	120000		5000		ug/L	1		RSK-175	Total/NA
Methane	650		88		ug/L	22		RSK-175	Total/NA
Manganese, Dissolved	0.28		0.0030		mg/L	1		6010C	Dissolved
Iron	26.6		0.050		mg/L	1		6010C	Total/NA
Manganese	0.37		0.0030		mg/L	1		6010C	Total/NA
Sulfate	28.4		5.0		mg/L	1		9038	Total/NA

Client Sample ID: MW-59-W-180215 — Lab Sample ID: 480-131377-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	87		4.0		ug/L	4		8260C	Total/NA
Methyl tert-butyl ether	170		4.0		ug/L	4		8260C	Total/NA
GRO (C6-C10)	340		100		ug/L	1		8015D	Total/NA
Carbon dioxide	160000		5000		ug/L	1		RSK-175	Total/NA
Methane	85		4.0		ug/L	1		RSK-175	Total/NA
Iron, Dissolved	0.14		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.12		0.0030		mg/L	1		6010C	Dissolved
Iron	4.3		0.050		mg/L	1		6010C	Total/NA
Manganese	0.14		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	1.4		0.050		mg/L	1		353.2	Total/NA
Sulfate	34.1		5.0		mg/L	1		9038	Total/NA

Client Sample ID: MW-25B-W-180215 — Lab Sample ID: 480-131377-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	170		4.0		ug/L	4		8260C	Total/NA
Methyl tert-butyl ether	140		4.0		ug/L	4		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-25B-W-180215 (Continued) — Lab Sample ID: 480-131377-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
o-Xylene	4.6		4.0		ug/L	4		8260C	Total/NA
GRO (C6-C10)	520		100		ug/L	1		8015D	Total/NA
Carbon dioxide	87000		5000		ug/L	1		RSK-175	Total/NA
Manganese, Dissolved	0.15		0.0030		mg/L	1		6010C	Dissolved
Iron	1.4		0.050		mg/L	1		6010C	Total/NA
Manganese	0.16		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	1.8		0.050		mg/L	1		353.2	Total/NA
Sulfate	56.3		10.0		mg/L	2		9038	Total/NA

Client Sample ID: MW-62B-W-180215 — Lab Sample ID: 480-131377-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	6.0		1.0		ug/L	1		8260C	Total/NA
Methyl tert-butyl ether	26		1.0		ug/L	1		8260C	Total/NA
GRO (C6-C10)	170		100		ug/L	1		8015D	Total/NA
Carbon dioxide	72000		5000		ug/L	1		RSK-175	Total/NA
Methane	19		4.0		ug/L	1		RSK-175	Total/NA
Iron, Dissolved	2.4		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.34		0.0030		mg/L	1		6010C	Dissolved
Iron	54.2		0.050		mg/L	1		6010C	Total/NA
Manganese	0.39		0.0030		mg/L	1		6010C	Total/NA
Sulfate	41.4		10.0		mg/L	2		9038	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-131377-10

No Detections.

This Detection Summary does not include radiochemical test results.

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: GP-35A-W-180215
Date Collected: 02/15/18 10:10
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	110		20		ug/L			02/19/18 15:07	20
Ethylbenzene	250		20		ug/L			02/19/18 15:07	20
Methyl tert-butyl ether	<20		20		ug/L			02/19/18 15:07	20
m-Xylene & p-Xylene	1200		40		ug/L			02/19/18 15:07	20
o-Xylene	440		20		ug/L			02/19/18 15:07	20
Toluene	980		20		ug/L			02/19/18 15:07	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*77 - 120*		*02/19/18 15:07*	*20*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*02/19/18 15:07*	*20*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*02/19/18 15:07*	*20*
Toluene-d8 (Surr)	*101*		*80 - 120*		*02/19/18 15:07*	*20*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	31000		5000		ug/L			02/17/18 14:27	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/17/18 14:27*	*50*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	77000		5000		ug/L			02/19/18 17:51	1
Methane	460		88		ug/L			02/19/18 08:44	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	10.8		0.050		mg/L		02/20/18 11:22	02/21/18 17:39	1
Manganese, Dissolved	0.17		0.0030		mg/L		02/20/18 11:22	02/21/18 17:39	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	40.7		0.050		mg/L		02/19/18 08:00	02/21/18 03:24	1
Manganese	0.18		0.0030		mg/L		02/19/18 08:00	02/21/18 03:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.050		0.050		mg/L			02/16/18 17:26	1
Sulfate	<5.0		5.0		mg/L			02/17/18 10:52	1

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-20-W-180215
Date Collected: 02/15/18 09:40
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/20/18 00:43	1
Ethylbenzene	<1.0		1.0		ug/L			02/20/18 00:43	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/20/18 00:43	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/20/18 00:43	1
o-Xylene	<1.0		1.0		ug/L			02/20/18 00:43	1
Toluene	<1.0		1.0		ug/L			02/20/18 00:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*		*02/20/18 00:43*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*02/20/18 00:43*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*02/20/18 00:43*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*02/20/18 00:43*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**250**		100		ug/L			02/20/18 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*02/20/18 15:10*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**200000**		5000		ug/L			02/19/18 18:00	1
Methane	**460**		88		ug/L			02/19/18 10:15	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.20**		0.050		mg/L		02/20/18 11:22	02/21/18 17:43	1
Manganese, Dissolved	**0.37**		0.0030		mg/L		02/20/18 11:22	02/21/18 17:43	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**7.1**		0.050		mg/L		02/19/18 08:00	02/21/18 03:27	1
Manganese	**0.39**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**6.1**		0.050		mg/L			02/16/18 17:27	1
Sulfate	<5.0		5.0		mg/L			02/17/18 10:37	1

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-45-W-180215
Date Collected: 02/15/18 09:00
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3.6**		1.0		ug/L			02/18/18 12:16	1
Ethylbenzene	<1.0		1.0		ug/L			02/18/18 12:16	1
Methyl tert-butyl ether	**1.1**		1.0		ug/L			02/18/18 12:16	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/18/18 12:16	1
o-Xylene	**2.5**		1.0		ug/L			02/18/18 12:16	1
Toluene	<1.0		1.0		ug/L			02/18/18 12:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*02/18/18 12:16*	*1*
4-Bromofluorobenzene (Surr)	*106*		*73 - 120*		*02/18/18 12:16*	*1*
Dibromofluoromethane (Surr)	*109*		*75 - 123*		*02/18/18 12:16*	*1*
Toluene-d8 (Surr)	*107*		*80 - 120*		*02/18/18 12:16*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**150**		100		ug/L			02/20/18 15:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*80 - 120*		*02/20/18 15:44*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**140000**		5000		ug/L			02/19/18 18:09	1
Methane	**250**		88		ug/L			02/19/18 10:34	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/20/18 11:22	02/21/18 17:46	1
Manganese, Dissolved	**0.054**		0.0030		mg/L		02/20/18 11:22	02/21/18 17:46	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**7.3**		0.050		mg/L		02/19/18 08:00	02/21/18 03:31	1
Manganese	**0.066**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**4.5**		0.050		mg/L			02/16/18 17:33	1
Sulfate	<5.0		5.0		mg/L			02/17/18 10:52	1

Client Sample ID: MW-6-W-180215
Date Collected: 02/15/18 10:40
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<4.0		4.0		ug/L			02/20/18 01:06	4
Ethylbenzene	**47**		4.0		ug/L			02/20/18 01:06	4
Methyl tert-butyl ether	<4.0		4.0		ug/L			02/20/18 01:06	4
m-Xylene & p-Xylene	**51**		8.0		ug/L			02/20/18 01:06	4
o-Xylene	**160**		4.0		ug/L			02/20/18 01:06	4
Toluene	**15**		4.0		ug/L			02/20/18 01:06	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*02/20/18 01:06*	*4*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*02/20/18 01:06*	*4*
Dibromofluoromethane (Surr)	*99*		*75 - 123*		*02/20/18 01:06*	*4*
Toluene-d8 (Surr)	*101*		*80 - 120*		*02/20/18 01:06*	*4*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**1900**		1000		ug/L			02/17/18 16:10	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*80 - 120*		*02/17/18 16:10*	*10*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**66000**		5000		ug/L			02/19/18 18:17	1
Methane	**650**		88		ug/L			02/19/18 10:53	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**3.8**		0.050		mg/L		02/20/18 11:22	02/21/18 18:01	1
Manganese, Dissolved	**0.46**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:01	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**34.5**		0.050		mg/L		02/19/18 08:00	02/21/18 03:35	1
Manganese	**0.45**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**6.3**		0.050		mg/L			02/16/18 17:34	1
Sulfate	**23.6**		5.0		mg/L			02/17/18 10:39	1

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-33B-W-180215
Date Collected: 02/15/18 11:50
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**1.6**		1.0		ug/L			02/20/18 01:30	1
Ethylbenzene	<1.0		1.0		ug/L			02/20/18 01:30	1
Methyl tert-butyl ether	**11**		1.0		ug/L			02/20/18 01:30	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/20/18 01:30	1
o-Xylene	<1.0		1.0		ug/L			02/20/18 01:30	1
Toluene	<1.0		1.0		ug/L			02/20/18 01:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*77 - 120*		*02/20/18 01:30*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*02/20/18 01:30*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*02/20/18 01:30*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*02/20/18 01:30*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/17/18 11:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/17/18 11:37*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**170000**		5000		ug/L			02/19/18 18:26	1
Methane	**4.4**		4.0		ug/L			02/19/18 09:54	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/20/18 11:22	02/21/18 18:05	1
Manganese, Dissolved	**0.14**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:05	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**1.4**		0.050		mg/L		02/19/18 08:00	02/21/18 03:38	1
Manganese	**0.15**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.8**		0.050		mg/L			02/16/18 17:35	1
Sulfate	**56.4**		10.0		mg/L			02/17/18 10:57	2

Client Sample ID: MW-53-W-180215
Lab Sample ID: 480-131377-6
Date Collected: 02/15/18 11:20
Matrix: Water
Date Received: 02/16/18 10:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/20/18 01:53	1
Ethylbenzene	<1.0		1.0		ug/L			02/20/18 01:53	1
Methyl tert-butyl ether	**39**		1.0		ug/L			02/20/18 01:53	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/20/18 01:53	1
o-Xylene	<1.0		1.0		ug/L			02/20/18 01:53	1
Toluene	<1.0		1.0		ug/L			02/20/18 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*77 - 120*		*02/20/18 01:53*	*1*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*02/20/18 01:53*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*02/20/18 01:53*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*02/20/18 01:53*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/17/18 12:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/17/18 12:11*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**120000**		5000		ug/L			02/19/18 18:35	1
Methane	**650**		88		ug/L			02/19/18 11:12	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/20/18 11:22	02/21/18 18:23	1
Manganese, Dissolved	**0.28**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:23	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**26.6**		0.050		mg/L		02/19/18 08:00	02/21/18 03:42	1
Manganese	**0.37**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.050		0.050		mg/L			02/16/18 16:15	1
Sulfate	**28.4**		5.0		mg/L			02/17/18 10:39	1

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-59-W-180215
Date Collected: 02/15/18 12:25
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-7
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**87**		4.0		ug/L			02/20/18 02:16	4
Ethylbenzene	<4.0		4.0		ug/L			02/20/18 02:16	4
Methyl tert-butyl ether	**170**		4.0		ug/L			02/20/18 02:16	4
m-Xylene & p-Xylene	<8.0		8.0		ug/L			02/20/18 02:16	4
o-Xylene	<4.0		4.0		ug/L			02/20/18 02:16	4
Toluene	<4.0		4.0		ug/L			02/20/18 02:16	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*77 - 120*		*02/20/18 02:16*	*4*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*02/20/18 02:16*	*4*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*02/20/18 02:16*	*4*
Toluene-d8 (Surr)	*101*		*80 - 120*		*02/20/18 02:16*	*4*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**340**		100		ug/L			02/17/18 12:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*80 - 120*		*02/17/18 12:45*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**160000**		5000		ug/L			02/19/18 18:43	1
Methane	**85**		4.0		ug/L			02/19/18 10:29	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.14**		0.050		mg/L		02/20/18 11:22	02/21/18 18:26	1
Manganese, Dissolved	**0.12**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:26	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**4.3**		0.050		mg/L		02/19/18 08:00	02/21/18 03:46	1
Manganese	**0.14**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.4**		0.050		mg/L			02/16/18 17:36	1
Sulfate	**34.1**		5.0		mg/L			02/17/18 10:39	1

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-25B-W-180215
Date Collected: 02/15/18 13:30
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-8
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**170**		4.0		ug/L			02/20/18 02:39	4
Ethylbenzene	<4.0		4.0		ug/L			02/20/18 02:39	4
Methyl tert-butyl ether	**140**		4.0		ug/L			02/20/18 02:39	4
m-Xylene & p-Xylene	<8.0		8.0		ug/L			02/20/18 02:39	4
o-Xylene	**4.6**		4.0		ug/L			02/20/18 02:39	4
Toluene	<4.0		4.0		ug/L			02/20/18 02:39	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*77 - 120*		*02/20/18 02:39*	*4*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*02/20/18 02:39*	*4*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*02/20/18 02:39*	*4*
Toluene-d8 (Surr)	*99*		*80 - 120*		*02/20/18 02:39*	*4*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**520**		100		ug/L			02/17/18 13:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*80 - 120*		*02/17/18 13:54*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**87000**		5000		ug/L			02/19/18 18:52	1
Methane	<4.0		4.0		ug/L			02/19/18 10:47	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/20/18 11:22	02/21/18 18:30	1
Manganese, Dissolved	**0.15**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:30	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**1.4**		0.050		mg/L		02/19/18 08:00	02/21/18 03:49	1
Manganese	**0.16**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.8**		0.050		mg/L			02/16/18 17:38	1
Sulfate	**56.3**		10.0		mg/L			02/17/18 11:01	2

Client Sample ID: MW-62B-W-180215
Date Collected: 02/15/18 12:55
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-9
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**6.0**		1.0		ug/L			02/20/18 03:03	1
Ethylbenzene	<1.0		1.0		ug/L			02/20/18 03:03	1
Methyl tert-butyl ether	**26**		1.0		ug/L			02/20/18 03:03	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/20/18 03:03	1
o-Xylene	<1.0		1.0		ug/L			02/20/18 03:03	1
Toluene	<1.0		1.0		ug/L			02/20/18 03:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*02/20/18 03:03*	*1*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*02/20/18 03:03*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*02/20/18 03:03*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*02/20/18 03:03*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**170**		100		ug/L			02/20/18 16:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/20/18 16:18*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**72000**		5000		ug/L			02/19/18 19:01	1
Methane	**19**		4.0		ug/L			02/19/18 11:04	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**2.4**		0.050		mg/L		02/20/18 11:22	02/21/18 18:45	1
Manganese, Dissolved	**0.34**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:45	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**54.2**		0.050		mg/L		02/19/18 08:00	02/21/18 04:08	1
Manganese	**0.39**		0.0030		mg/L		02/19/18 08:00	02/21/18 04:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.050		0.050		mg/L			02/16/18 16:23	1
Sulfate	**41.4**		10.0		mg/L			02/17/18 11:01	2

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: TRIP BLANK
Date Collected: 02/15/18 00:00
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-10
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/19/18 13:01	1
Ethylbenzene	<1.0		1.0		ug/L			02/19/18 13:01	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/19/18 13:01	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/19/18 13:01	1
o-Xylene	<1.0		1.0		ug/L			02/19/18 13:01	1
Toluene	<1.0		1.0		ug/L			02/19/18 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*02/19/18 13:01*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*02/19/18 13:01*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*02/19/18 13:01*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*02/19/18 13:01*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(77-120)	(73-120)	(75-123)	(80-120)
480-131377-1	GP-35A-W-180215	93	101	98	101
480-131377-2	MW-20-W-180215	106	98	103	105
480-131377-3	MW-45-W-180215	100	106	109	107
480-131377-4	MW-6-W-180215	99	96	99	101
480-131377-5	MW-33B-W-180215	94	99	103	102
480-131377-6	MW-53-W-180215	91	96	101	101
480-131377-7	MW-59-W-180215	95	94	104	101
480-131377-8	MW-25B-W-180215	95	97	103	99
480-131377-9	MW-62B-W-180215	100	92	103	102
480-131377-10	TRIP BLANK	97	100	100	98
LCS 480-400329/5	Lab Control Sample	95	105	101	103
LCS 480-400389/5	Lab Control Sample	93	102	104	102
LCS 480-400398/4	Lab Control Sample	98	102	100	98
LCS 480-400512/8	Lab Control Sample	92	100	104	102
MB 480-400329/7	Method Blank	93	104	97	102
MB 480-400389/7	Method Blank	99	96	104	100
MB 480-400398/7	Method Blank	96	102	96	99
MB 480-400512/28	Method Blank	101	101	104	105

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT2
Lab Sample ID	Client Sample ID	(80-120)
480-131377-1	GP-35A-W-180215	98
480-131377-2	MW-20-W-180215	95
480-131377-3	MW-45-W-180215	96
480-131377-4	MW-6-W-180215	100
480-131377-5	MW-33B-W-180215	98
480-131377-6	MW-53-W-180215	98
480-131377-7	MW-59-W-180215	99
480-131377-8	MW-25B-W-180215	100
480-131377-9	MW-62B-W-180215	98
LCS 480-400299/4	Lab Control Sample	101
LCS 480-400677/3	Lab Control Sample	98
LCSD 480-400299/5	Lab Control Sample Dup	99
LCSD 480-400677/4	Lab Control Sample Dup	97
MB 480-400299/3	Method Blank	97
MB 480-400677/2	Method Blank	95

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-400329/7
Matrix: Water
Analysis Batch: 400329

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/18/18 10:43	1
Ethylbenzene	<1.0		1.0		ug/L			02/18/18 10:43	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/18/18 10:43	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/18/18 10:43	1
o-Xylene	<1.0		1.0		ug/L			02/18/18 10:43	1
Toluene	<1.0		1.0		ug/L			02/18/18 10:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*77 - 120*		*02/18/18 10:43*	*1*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*		*02/18/18 10:43*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 123*		*02/18/18 10:43*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*02/18/18 10:43*	*1*

Lab Sample ID: LCS 480-400329/5
Matrix: Water
Analysis Batch: 400329

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	24.4		ug/L		97	71 - 124
Ethylbenzene	25.0	23.9		ug/L		96	77 - 123
Methyl tert-butyl ether	25.0	22.2		ug/L		89	77 - 120
m-Xylene & p-Xylene	25.0	23.5		ug/L		94	76 - 122
o-Xylene	25.0	24.3		ug/L		97	76 - 122
Toluene	25.0	23.3		ug/L		93	80 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*77 - 120*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*
Dibromofluoromethane (Surr)	*101*		*75 - 123*
Toluene-d8 (Surr)	*103*		*80 - 120*

Lab Sample ID: MB 480-400389/7
Matrix: Water
Analysis Batch: 400389

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/19/18 10:56	1
Ethylbenzene	<1.0		1.0		ug/L			02/19/18 10:56	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/19/18 10:56	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/19/18 10:56	1
o-Xylene	<1.0		1.0		ug/L			02/19/18 10:56	1
Toluene	<1.0		1.0		ug/L			02/19/18 10:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*02/19/18 10:56*	*1*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*02/19/18 10:56*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*02/19/18 10:56*	*1*

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

Lab Sample ID: MB 480-400389/7
Matrix: Water
Analysis Batch: 400389

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/19/18 10:56*	*1*

Lab Sample ID: LCS 480-400389/5
Matrix: Water
Analysis Batch: 400389

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	24.0		ug/L		96	71 - 124
Ethylbenzene	25.0	22.8		ug/L		91	77 - 123
Methyl tert-butyl ether	25.0	22.8		ug/L		91	77 - 120
m-Xylene & p-Xylene	25.0	22.5		ug/L		90	76 - 122
o-Xylene	25.0	24.1		ug/L		96	76 - 122
Toluene	25.0	23.4		ug/L		94	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*93*		*77 - 120*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*
Dibromofluoromethane (Surr)	*104*		*75 - 123*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: MB 480-400398/7
Matrix: Water
Analysis Batch: 400398

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/19/18 12:19	1
Ethylbenzene	<1.0		1.0		ug/L			02/19/18 12:19	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/19/18 12:19	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/19/18 12:19	1
o-Xylene	<1.0		1.0		ug/L			02/19/18 12:19	1
Toluene	<1.0		1.0		ug/L			02/19/18 12:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*96*		*77 - 120*		*02/19/18 12:19*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*02/19/18 12:19*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 123*		*02/19/18 12:19*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*02/19/18 12:19*	*1*

Lab Sample ID: LCS 480-400398/4
Matrix: Water
Analysis Batch: 400398

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	27.3		ug/L		109	71 - 124
Ethylbenzene	25.0	26.4		ug/L		106	77 - 123
Methyl tert-butyl ether	25.0	24.9		ug/L		99	77 - 120
m-Xylene & p-Xylene	25.0	26.0		ug/L		104	76 - 122

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

Lab Sample ID: LCS 480-400398/4
Matrix: Water
Analysis Batch: 400398

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	25.0	26.0		ug/L		104	76 - 122
Toluene	25.0	25.5		ug/L		102	80 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*
Dibromofluoromethane (Surr)	*100*		*75 - 123*
Toluene-d8 (Surr)	*98*		*80 - 120*

Lab Sample ID: MB 480-400512/28
Matrix: Water
Analysis Batch: 400512

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/20/18 00:20	1
Ethylbenzene	<1.0		1.0		ug/L			02/20/18 00:20	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/20/18 00:20	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/20/18 00:20	1
o-Xylene	<1.0		1.0		ug/L			02/20/18 00:20	1
Toluene	<1.0		1.0		ug/L			02/20/18 00:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*02/20/18 00:20*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*02/20/18 00:20*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*02/20/18 00:20*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*02/20/18 00:20*	*1*

Lab Sample ID: LCS 480-400512/8
Matrix: Water
Analysis Batch: 400512

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	25.7		ug/L		103	71 - 124
Ethylbenzene	25.0	24.3		ug/L		97	77 - 123
Methyl tert-butyl ether	25.0	22.2		ug/L		89	77 - 120
m-Xylene & p-Xylene	25.0	24.2		ug/L		97	76 - 122
o-Xylene	25.0	24.6		ug/L		98	76 - 122
Toluene	25.0	25.3		ug/L		101	80 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*77 - 120*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*
Dibromofluoromethane (Surr)	*104*		*75 - 123*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 480-400299/3
Matrix: Water
Analysis Batch: 400299

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/17/18 09:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*80 - 120*		*02/17/18 09:55*	*1*

Lab Sample ID: LCS 480-400299/4
Matrix: Water
Analysis Batch: 400299

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C6-C10)			200	173		ug/L		86	66 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*80 - 120*

Lab Sample ID: LCSD 480-400299/5
Matrix: Water
Analysis Batch: 400299

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C6-C10)			200	153		ug/L		76	66 - 120	12	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*80 - 120*

Lab Sample ID: MB 480-400677/2
Matrix: Water
Analysis Batch: 400677

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/20/18 13:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*02/20/18 13:29*	*1*

Lab Sample ID: LCS 480-400677/3
Matrix: Water
Analysis Batch: 400677

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C6-C10)			200	191		ug/L		96	66 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*98*		*80 - 120*

Method: 8015D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: LCSD 480-400677/4
Matrix: Water
Analysis Batch: 400677

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C6-C10)			200	187		ug/L		93	66 - 120	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*97*		*80 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-126540/3
Matrix: Water
Analysis Batch: 126540

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	<5000		5000		ug/L			02/19/18 14:26	1

Lab Sample ID: LCS 200-126540/2
Matrix: Water
Analysis Batch: 126540

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon dioxide			40000	33400		ug/L		84	70 - 130		

Lab Sample ID: MB 480-400359/3
Matrix: Water
Analysis Batch: 400359

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<4.0		4.0		ug/L			02/19/18 07:24	1

Lab Sample ID: LCS 480-400359/4
Matrix: Water
Analysis Batch: 400359

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			7.77	7.62		ug/L		98	85 - 120		

Lab Sample ID: LCSD 480-400359/5
Matrix: Water
Analysis Batch: 400359

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane			7.77	7.95		ug/L		102	85 - 120	4	50

Lab Sample ID: MB 480-400360/5
Matrix: Water
Analysis Batch: 400360

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<4.0		4.0		ug/L			02/19/18 07:54	1

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

Lab Sample ID: LCS 480-400360/6
Matrix: Water
Analysis Batch: 400360

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.01		ug/L		103	85 - 120

Lab Sample ID: LCSD 480-400360/7
Matrix: Water
Analysis Batch: 400360

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	7.77	8.19		ug/L		105	85 - 120	2	50

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-400361/1-A
Matrix: Water
Analysis Batch: 400890

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400361

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.050		0.050		mg/L		02/19/18 08:00	02/21/18 01:56	1
Manganese	<0.0030		0.0030		mg/L		02/19/18 08:00	02/21/18 01:56	1

Lab Sample ID: LCS 480-400361/2-A
Matrix: Water
Analysis Batch: 400890

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400361

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	9.67		mg/L		97	80 - 120
Manganese	0.200	0.208		mg/L		104	80 - 120

Lab Sample ID: LCSD 480-400361/3-A
Matrix: Water
Analysis Batch: 400890

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 400361

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	10.0	9.64		mg/L		96	80 - 120	0	20
Manganese	0.200	0.206		mg/L		103	80 - 120	1	20

Method: 6010C - Dissolved Metals

Lab Sample ID: MB 480-400423/1-B
Matrix: Water
Analysis Batch: 401043

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 400632

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/20/18 11:22	02/21/18 17:32	1
Manganese, Dissolved	<0.0030		0.0030		mg/L		02/20/18 11:22	02/21/18 17:32	1

Method: 6010C - Dissolved Metals (Continued)

Lab Sample ID: LCS 480-400423/2-B
Matrix: Water
Analysis Batch: 401043

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 400632

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	10.0	9.75		mg/L		97	80 - 120
Manganese, Dissolved	0.200	0.199		mg/L		99	80 - 120

Lab Sample ID: 480-131377-5 MS
Matrix: Water
Analysis Batch: 401043

Client Sample ID: MW-33B-W-180215
Prep Type: Dissolved
Prep Batch: 400632

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	<0.050		10.0	10.10		mg/L		101	75 - 125
Manganese, Dissolved	0.14		0.200	0.341		mg/L		98	75 - 125

Lab Sample ID: 480-131377-5 MSD
Matrix: Water
Analysis Batch: 401043

Client Sample ID: MW-33B-W-180215
Prep Type: Dissolved
Prep Batch: 400632

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	<0.050		10.0	10.05		mg/L		100	75 - 125	1	20
Manganese, Dissolved	0.14		0.200	0.335		mg/L		95	75 - 125	2	20

Method: 9038 - Sulfate, Turbidimetric

Lab Sample ID: MB 480-400312/12
Matrix: Water
Analysis Batch: 400312

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			02/17/18 10:37	1

Lab Sample ID: MB 480-400312/35
Matrix: Water
Analysis Batch: 400312

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			02/17/18 10:47	1

Lab Sample ID: MB 480-400312/71
Matrix: Water
Analysis Batch: 400312

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			02/17/18 11:00	1

Lab Sample ID: LCS 480-400312/11
Matrix: Water
Analysis Batch: 400312

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	30.38		mg/L		101	90 - 110

Method: 9038 - Sulfate, Turbidimetric (Continued)

Lab Sample ID: LCS 480-400312/34
Matrix: Water
Analysis Batch: 400312

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	30.57		mg/L		102	90 - 110

Lab Sample ID: LCS 480-400312/70
Matrix: Water
Analysis Batch: 400312

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	29.89		mg/L		100	90 - 110

Lab Sample ID: 480-131377-2 MS
Matrix: Water
Analysis Batch: 400312

Client Sample ID: MW-20-W-180215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	<5.0		20.0	24.81		mg/L		115	60 - 128

Lab Sample ID: 480-131377-2 MSD
Matrix: Water
Analysis Batch: 400312

Client Sample ID: MW-20-W-180215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	<5.0		20.0	24.01		mg/L		111	60 - 128	3	20

Lab Sample ID: 480-131377-5 MS
Matrix: Water
Analysis Batch: 400312

Client Sample ID: MW-33B-W-180215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	56.4		20.0	77.20		mg/L		104	60 - 128

Lab Sample ID: 480-131377-5 MSD
Matrix: Water
Analysis Batch: 400312

Client Sample ID: MW-33B-W-180215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	56.4		20.0	76.87		mg/L		102	60 - 128	0	20

GC/MS VOA

Analysis Batch: 400329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-3	MW-45-W-180215	Total/NA	Water	8260C	
MB 480-400329/7	Method Blank	Total/NA	Water	8260C	
LCS 480-400329/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 400389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	8260C	
MB 480-400389/7	Method Blank	Total/NA	Water	8260C	
LCS 480-400389/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 400398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-10	TRIP BLANK	Total/NA	Water	8260C	
MB 480-400398/7	Method Blank	Total/NA	Water	8260C	
LCS 480-400398/4	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 400512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-2	MW-20-W-180215	Total/NA	Water	8260C	
480-131377-4	MW-6-W-180215	Total/NA	Water	8260C	
480-131377-5	MW-33B-W-180215	Total/NA	Water	8260C	
480-131377-6	MW-53-W-180215	Total/NA	Water	8260C	
480-131377-7	MW-59-W-180215	Total/NA	Water	8260C	
480-131377-8	MW-25B-W-180215	Total/NA	Water	8260C	
480-131377-9	MW-62B-W-180215	Total/NA	Water	8260C	
MB 480-400512/28	Method Blank	Total/NA	Water	8260C	
LCS 480-400512/8	Lab Control Sample	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 126540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	RSK-175	
480-131377-2	MW-20-W-180215	Total/NA	Water	RSK-175	
480-131377-3	MW-45-W-180215	Total/NA	Water	RSK-175	
480-131377-4	MW-6-W-180215	Total/NA	Water	RSK-175	
480-131377-5	MW-33B-W-180215	Total/NA	Water	RSK-175	
480-131377-6	MW-53-W-180215	Total/NA	Water	RSK-175	
480-131377-7	MW-59-W-180215	Total/NA	Water	RSK-175	
480-131377-8	MW-25B-W-180215	Total/NA	Water	RSK-175	
480-131377-9	MW-62B-W-180215	Total/NA	Water	RSK-175	
MB 200-126540/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-126540/2	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 400299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	8015D	
480-131377-4	MW-6-W-180215	Total/NA	Water	8015D	
480-131377-5	MW-33B-W-180215	Total/NA	Water	8015D	
480-131377-6	MW-53-W-180215	Total/NA	Water	8015D	

GC VOA (Continued)

Analysis Batch: 400299 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-7	MW-59-W-180215	Total/NA	Water	8015D	
480-131377-8	MW-25B-W-180215	Total/NA	Water	8015D	
MB 480-400299/3	Method Blank	Total/NA	Water	8015D	
LCS 480-400299/4	Lab Control Sample	Total/NA	Water	8015D	
LCSD 480-400299/5	Lab Control Sample Dup	Total/NA	Water	8015D	

Analysis Batch: 400359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	RSK-175	
480-131377-5	MW-33B-W-180215	Total/NA	Water	RSK-175	
480-131377-7	MW-59-W-180215	Total/NA	Water	RSK-175	
480-131377-8	MW-25B-W-180215	Total/NA	Water	RSK-175	
480-131377-9	MW-62B-W-180215	Total/NA	Water	RSK-175	
MB 480-400359/3	Method Blank	Total/NA	Water	RSK-175	
LCS 480-400359/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-400359/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 400360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-2	MW-20-W-180215	Total/NA	Water	RSK-175	
480-131377-3	MW-45-W-180215	Total/NA	Water	RSK-175	
480-131377-4	MW-6-W-180215	Total/NA	Water	RSK-175	
480-131377-6	MW-53-W-180215	Total/NA	Water	RSK-175	
MB 480-400360/5	Method Blank	Total/NA	Water	RSK-175	
LCS 480-400360/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-400360/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 400677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-2	MW-20-W-180215	Total/NA	Water	8015D	
480-131377-3	MW-45-W-180215	Total/NA	Water	8015D	
480-131377-9	MW-62B-W-180215	Total/NA	Water	8015D	
MB 480-400677/2	Method Blank	Total/NA	Water	8015D	
LCS 480-400677/3	Lab Control Sample	Total/NA	Water	8015D	
LCSD 480-400677/4	Lab Control Sample Dup	Total/NA	Water	8015D	

Metals

Prep Batch: 400361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	3005A	
480-131377-2	MW-20-W-180215	Total/NA	Water	3005A	
480-131377-3	MW-45-W-180215	Total/NA	Water	3005A	
480-131377-4	MW-6-W-180215	Total/NA	Water	3005A	
480-131377-5	MW-33B-W-180215	Total/NA	Water	3005A	
480-131377-6	MW-53-W-180215	Total/NA	Water	3005A	
480-131377-7	MW-59-W-180215	Total/NA	Water	3005A	
480-131377-8	MW-25B-W-180215	Total/NA	Water	3005A	
480-131377-9	MW-62B-W-180215	Total/NA	Water	3005A	
MB 480-400361/1-A	Method Blank	Total/NA	Water	3005A	

Metals (Continued)

Prep Batch: 400361 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-400361/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 480-400361/3-A	Lab Control Sample Dup	Total/NA	Water	3005A	

Filtration Batch: 400423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Dissolved	Water	FILTRATION	
480-131377-2	MW-20-W-180215	Dissolved	Water	FILTRATION	
480-131377-3	MW-45-W-180215	Dissolved	Water	FILTRATION	
480-131377-4	MW-6-W-180215	Dissolved	Water	FILTRATION	
480-131377-5	MW-33B-W-180215	Dissolved	Water	FILTRATION	
480-131377-6	MW-53-W-180215	Dissolved	Water	FILTRATION	
480-131377-7	MW-59-W-180215	Dissolved	Water	FILTRATION	
480-131377-8	MW-25B-W-180215	Dissolved	Water	FILTRATION	
480-131377-9	MW-62B-W-180215	Dissolved	Water	FILTRATION	
MB 480-400423/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 480-400423/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
480-131377-5 MS	MW-33B-W-180215	Dissolved	Water	FILTRATION	
480-131377-5 MSD	MW-33B-W-180215	Dissolved	Water	FILTRATION	

Prep Batch: 400632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Dissolved	Water	3005A	400423
480-131377-2	MW-20-W-180215	Dissolved	Water	3005A	400423
480-131377-3	MW-45-W-180215	Dissolved	Water	3005A	400423
480-131377-4	MW-6-W-180215	Dissolved	Water	3005A	400423
480-131377-5	MW-33B-W-180215	Dissolved	Water	3005A	400423
480-131377-6	MW-53-W-180215	Dissolved	Water	3005A	400423
480-131377-7	MW-59-W-180215	Dissolved	Water	3005A	400423
480-131377-8	MW-25B-W-180215	Dissolved	Water	3005A	400423
480-131377-9	MW-62B-W-180215	Dissolved	Water	3005A	400423
MB 480-400423/1-B	Method Blank	Dissolved	Water	3005A	400423
LCS 480-400423/2-B	Lab Control Sample	Dissolved	Water	3005A	400423
480-131377-5 MS	MW-33B-W-180215	Dissolved	Water	3005A	400423
480-131377-5 MSD	MW-33B-W-180215	Dissolved	Water	3005A	400423

Analysis Batch: 400890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	6010C	400361
480-131377-2	MW-20-W-180215	Total/NA	Water	6010C	400361
480-131377-3	MW-45-W-180215	Total/NA	Water	6010C	400361
480-131377-4	MW-6-W-180215	Total/NA	Water	6010C	400361
480-131377-5	MW-33B-W-180215	Total/NA	Water	6010C	400361
480-131377-6	MW-53-W-180215	Total/NA	Water	6010C	400361
480-131377-7	MW-59-W-180215	Total/NA	Water	6010C	400361
480-131377-8	MW-25B-W-180215	Total/NA	Water	6010C	400361
480-131377-9	MW-62B-W-180215	Total/NA	Water	6010C	400361
MB 480-400361/1-A	Method Blank	Total/NA	Water	6010C	400361
LCS 480-400361/2-A	Lab Control Sample	Total/NA	Water	6010C	400361
LCSD 480-400361/3-A	Lab Control Sample Dup	Total/NA	Water	6010C	400361

Metals (Continued)

Analysis Batch: 401043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Dissolved	Water	6010C	400632
480-131377-2	MW-20-W-180215	Dissolved	Water	6010C	400632
480-131377-3	MW-45-W-180215	Dissolved	Water	6010C	400632
480-131377-4	MW-6-W-180215	Dissolved	Water	6010C	400632
480-131377-5	MW-33B-W-180215	Dissolved	Water	6010C	400632
480-131377-6	MW-53-W-180215	Dissolved	Water	6010C	400632
480-131377-7	MW-59-W-180215	Dissolved	Water	6010C	400632
480-131377-8	MW-25B-W-180215	Dissolved	Water	6010C	400632
480-131377-9	MW-62B-W-180215	Dissolved	Water	6010C	400632
MB 480-400423/1-B	Method Blank	Dissolved	Water	6010C	400632
LCS 480-400423/2-B	Lab Control Sample	Dissolved	Water	6010C	400632
480-131377-5 MS	MW-33B-W-180215	Dissolved	Water	6010C	400632
480-131377-5 MSD	MW-33B-W-180215	Dissolved	Water	6010C	400632

General Chemistry

Analysis Batch: 400279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	353.2	
480-131377-2	MW-20-W-180215	Total/NA	Water	353.2	
480-131377-3	MW-45-W-180215	Total/NA	Water	353.2	
480-131377-4	MW-6-W-180215	Total/NA	Water	353.2	
480-131377-5	MW-33B-W-180215	Total/NA	Water	353.2	
480-131377-6	MW-53-W-180215	Total/NA	Water	353.2	
480-131377-7	MW-59-W-180215	Total/NA	Water	353.2	
480-131377-8	MW-25B-W-180215	Total/NA	Water	353.2	
480-131377-9	MW-62B-W-180215	Total/NA	Water	353.2	

Analysis Batch: 400312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	9038	
480-131377-2	MW-20-W-180215	Total/NA	Water	9038	
480-131377-3	MW-45-W-180215	Total/NA	Water	9038	
480-131377-4	MW-6-W-180215	Total/NA	Water	9038	
480-131377-5	MW-33B-W-180215	Total/NA	Water	9038	
480-131377-6	MW-53-W-180215	Total/NA	Water	9038	
480-131377-7	MW-59-W-180215	Total/NA	Water	9038	
480-131377-8	MW-25B-W-180215	Total/NA	Water	9038	
480-131377-9	MW-62B-W-180215	Total/NA	Water	9038	
MB 480-400312/12	Method Blank	Total/NA	Water	9038	
MB 480-400312/35	Method Blank	Total/NA	Water	9038	
MB 480-400312/71	Method Blank	Total/NA	Water	9038	
LCS 480-400312/11	Lab Control Sample	Total/NA	Water	9038	
LCS 480-400312/34	Lab Control Sample	Total/NA	Water	9038	
LCS 480-400312/70	Lab Control Sample	Total/NA	Water	9038	
480-131377-2 MS	MW-20-W-180215	Total/NA	Water	9038	
480-131377-2 MSD	MW-20-W-180215	Total/NA	Water	9038	
480-131377-5 MS	MW-33B-W-180215	Total/NA	Water	9038	
480-131377-5 MSD	MW-33B-W-180215	Total/NA	Water	9038	

Client Sample ID: GP-35A-W-180215

Lab Sample ID: 480-131377-1

Date Collected: 02/15/18 10:10

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		20	400389	02/19/18 15:07	KMN	TAL BUF
Total/NA	Analysis	8015D		50	400299	02/17/18 14:27	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 17:51	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400359	02/19/18 08:44	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 17:39	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:24	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:26	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:52	ALZ	TAL BUF

Client Sample ID: MW-20-W-180215

Lab Sample ID: 480-131377-2

Date Collected: 02/15/18 09:40

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400512	02/20/18 00:43	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400677	02/20/18 15:10	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:00	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400360	02/19/18 10:15	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 17:43	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:27	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:27	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:37	ALZ	TAL BUF

Client Sample ID: MW-45-W-180215

Lab Sample ID: 480-131377-3

Date Collected: 02/15/18 09:00

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400329	02/18/18 12:16	MXS	TAL BUF
Total/NA	Analysis	8015D		1	400677	02/20/18 15:44	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:09	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400360	02/19/18 10:34	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 17:46	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-45-W-180215

Lab Sample ID: 480-131377-3

Date Collected: 02/15/18 09:00
Matrix: Water
Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	400890	02/21/18 03:31	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:33	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:52	ALZ	TAL BUF

Client Sample ID: MW-6-W-180215

Lab Sample ID: 480-131377-4

Date Collected: 02/15/18 10:40
Matrix: Water
Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		4	400512	02/20/18 01:06	RJF	TAL BUF
Total/NA	Analysis	8015D		10	400299	02/17/18 16:10	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:17	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400360	02/19/18 10:53	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:01	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:35	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:34	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:39	ALZ	TAL BUF

Client Sample ID: MW-33B-W-180215

Lab Sample ID: 480-131377-5

Date Collected: 02/15/18 11:50
Matrix: Water
Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400512	02/20/18 01:30	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400299	02/17/18 11:37	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:26	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400359	02/19/18 09:54	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:05	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:38	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:35	DCB	TAL BUF
Total/NA	Analysis	9038		2	400312	02/17/18 10:57	ALZ	TAL BUF

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-53-W-180215

Lab Sample ID: 480-131377-6

Date Collected: 02/15/18 11:20

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400512	02/20/18 01:53	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400299	02/17/18 12:11	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:35	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400360	02/19/18 11:12	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:23	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:42	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 16:15	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:39	ALZ	TAL BUF

Client Sample ID: MW-59-W-180215

Lab Sample ID: 480-131377-7

Date Collected: 02/15/18 12:25

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		4	400512	02/20/18 02:16	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400299	02/17/18 12:45	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:43	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400359	02/19/18 10:29	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:26	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:46	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:36	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:39	ALZ	TAL BUF

Client Sample ID: MW-25B-W-180215

Lab Sample ID: 480-131377-8

Date Collected: 02/15/18 13:30

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		4	400512	02/20/18 02:39	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400299	02/17/18 13:54	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:52	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400359	02/19/18 10:47	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:30	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-25B-W-180215

Lab Sample ID: 480-131377-8

Date Collected: 02/15/18 13:30

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	400890	02/21/18 03:49	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:38	DCB	TAL BUF
Total/NA	Analysis	9038		2	400312	02/17/18 11:01	ALZ	TAL BUF

Client Sample ID: MW-62B-W-180215

Lab Sample ID: 480-131377-9

Date Collected: 02/15/18 12:55

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400512	02/20/18 03:03	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400677	02/20/18 16:18	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 19:01	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400359	02/19/18 11:04	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:45	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 04:08	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 16:23	DCB	TAL BUF
Total/NA	Analysis	9038		2	400312	02/17/18 11:01	ALZ	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-131377-10

Date Collected: 02/15/18 00:00

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400398	02/19/18 13:01	KMN	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	294	03-31-18 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Iron
6010C	3005A	Water	Iron, Dissolved
6010C	3005A	Water	Manganese
6010C	3005A	Water	Manganese, Dissolved
8015D		Water	GRO (C6-C10)
8260C		Water	Benzene
8260C		Water	Ethylbenzene
8260C		Water	Methyl tert-butyl ether
8260C		Water	m-Xylene & p-Xylene
8260C		Water	o-Xylene
8260C		Water	Toluene
9038		Water	Sulfate
RSK-175		Water	Methane

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Florida	NELAP	4	E87467	06-30-18
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Jersey	NELAP	2	VT972	06-30-18
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-18
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8015D	Gasoline Range Organics (GRO) (GC)	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Dissolved Metals	SW846	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
353.2	Nitrate	EPA	TAL BUF
9038	Sulfate, Turbidimetric	SW846	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-131377-1	GP-35A-W-180215	Water	02/15/18 10:10	02/16/18 10:00
480-131377-2	MW-20-W-180215	Water	02/15/18 09:40	02/16/18 10:00
480-131377-3	MW-45-W-180215	Water	02/15/18 09:00	02/16/18 10:00
480-131377-4	MW-6-W-180215	Water	02/15/18 10:40	02/16/18 10:00
480-131377-5	MW-33B-W-180215	Water	02/15/18 11:50	02/16/18 10:00
480-131377-6	MW-53-W-180215	Water	02/15/18 11:20	02/16/18 10:00
480-131377-7	MW-59-W-180215	Water	02/15/18 12:25	02/16/18 10:00
480-131377-8	MW-25B-W-180215	Water	02/15/18 13:30	02/16/18 10:00
480-131377-9	MW-62B-W-180215	Water	02/15/18 12:55	02/16/18 10:00
480-131377-10	TRIP BLANK	Water	02/15/18 00:00	02/16/18 10:00

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica

480-131377 COC

Client Information	Sampler: A. King	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-109083-25389.2
Client Contact: Kristen Audette	Phone: 410-350-9147	E-Mail: john.schove@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S., Inc.				Job #:
Address: 2101 L Street NW Suite 200	Due Date Requested:			
City: Washington	TAT Requested (days): Standard			
State, Zip: DC, 20037				
Phone: 202-909-6892(Tel)	PO #: B0049337.0004.00001			
Email: kristen.audette@arcadis.com	WO #: NWENV-122208-0-0802			
Project Name: CHEVRON - CVX# 122208, Chillum, MD	Project #: 48016281			
Site: Chillum	SSOW#:			

180325

BALTIMORE

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2 - Dissolved Gases - CO2	6010C - Metals - Total Fe & Mn	RSK_175 - Dissolved Gases - Methane	8015D_GRO - GRO	8260C - BTEX + MTBE	353.2, 353.2_Nitrite, 9038, Nitrate_Calc	6010C - Metals - Dissolved Fe & Mn	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	A	A	A	N	N		
GP-35A-W-180215	2/15/18	1010	G	Water			3	1	3	3	3	2	1		
MW-20-W-180215		0940		Water											
MW-45-W-180215		0900		Water											
MW-6-W-180215		1040		Water											
MW-33B-W-180215		1150		Water											
MW-53-W-180215		1120		Water											
MW-59-W-180215		1225		Water											
MW-25B-W-180215		1330		Water											
MW-62B-W-180215		1255		Water											
Trip Blank		—		Water							2				
Temp Blank															

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		2/15/18, 1455	Arcadis		2/15/18 1455	TA
2		2/15/18 16:17	TA		2/16/18 1000	TAB
3						

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: #1 2.9, 3.2

Ver: 08/04/2016

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record



TestAmerica
LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schove, John R	439.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: john.schove@testamericainc.com	of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Maryland	480-131377-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 2/28/2018		
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: CHEVRON - CVX# 122208, Chillum, MD	Project #: 48016281		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2/ Dissolved Gases - CO2	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
GP-35A-W-180215 (480-131377-1)	2/15/18	10:10 Eastern		Water			X	3	
MW-20-W-180215 (480-131377-2)	2/15/18	09:40 Eastern		Water			X	3	
MW-45-W-180215 (480-131377-3)	2/15/18	09:00 Eastern		Water			X	3	
MW-6-W-180215 (480-131377-4)	2/15/18	10:40 Eastern		Water			X	3	
MW-33B-W-180215 (480-131377-5)	2/15/18	11:50 Eastern		Water			X	3	
MW-53-W-180215 (480-131377-6)	2/15/18	11:20 Eastern		Water			X	3	
MW-59-W-180215 (480-131377-7)	2/15/18	12:25 Eastern		Water			X	3	
MW-25B-W-180215 (480-131377-8)	2/15/18	13:30 Eastern		Water			X	3	
MW-62B-W-180215 (480-131377-9)	2/15/18	12:55 Eastern		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:	Method of Shipment:	
Relinquished by:	Date/Time: 2/16/18 1715	Company: TAB	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 2/17/18 0910	Company: TAB	
Custody Seals Intact: ∆ Yes ∆ No N/A	Custody Seal No.: N/A		Cooler Temperature(s) °C and Other Remarks: 1.2			

Ver: 09/20/2016


TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
ORIGIN ID:DKKA (716) 691-2600
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD
AMHERST , NY 14228
UNITED STATES US
SHIP DATE: 16FEB18
ACTWGT: 25.80 LB
CAD: 846654/CAFE3108
DIMS: 22x14x11 IN
BILL RECIPIENT
TO SAMPLE MGT.
TA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: BURLINGTON
DEPT: SC
FedEx Express
TRK# 0201 4276 0716 3771
SATURDAY 12:00P
PRIORITY OVERNIGHT
XO BTVA
05403
VT-US BTV

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 480-131377-1

Login Number: 131377

List Source: TestAmerica Buffalo

List Number: 1

Creator: Harper, Marcus D

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	arcadis
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 480-131377-1

Login Number: 131377
List Number: 2
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington
List Creation: 02/19/18 10:06 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	N/A	Thermal preservation not required.
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-136997-1
TestAmerica Sample Delivery Group: CVX Fac 122208
Client Project/Site: Chillum MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Authorized for release by:
5/10/2017 2:55:12 PM

Debra Vergin, Project Manager II
(850)363-5129
debra.vergin@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Job ID: 400-136997-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-136997-1

Comments
No additional comments.

Receipt
The samples were received on 4/25/2017 8:47 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.0º C.

Receipt Exceptions
Sample MW-45 was inadvertently collected in preserved containers for dissolved metals and anions. Sample was recollected and reported in job 400-137236-1.

HPLC/IC
Method(s) 9056: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-6-W-170424 (400-136997-6). Elevated reporting limits (RLs) are provided.

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

GC VOA
Method(s) RSK-175: The following samples were collected in properly preserved vials for analysis of Methane. However, the pH was outside the required criteria when verified by the laboratory: GP-35A-W-170424 (400-136997-2) and MW-20-W-170424 (400-136997-3).

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

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424 — Lab Sample ID: 400-136997-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	110000		5000		ug/L	1		RSK-175	Total/NA
Methane	26		2.0		ug/L	1		RSK-175	Total/NA
Sulfate	1.1		1.0		mg/L	1		9056	Total/NA
Iron	25		0.10		mg/L	1		6010C	Total/NA
Manganese	0.11		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	17		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.11		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: GP-35A-W-170424 — Lab Sample ID: 400-136997-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	120000		5000		ug/L	1		RSK-175	Total/NA
Methane	510		4.0		ug/L	2		RSK-175	Total/NA
Sulfate	2.2		1.0		mg/L	1		9056	Total/NA
Iron	46		0.10		mg/L	1		6010C	Total/NA
Manganese	0.21		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	33		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.20		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-20-W-170424 — Lab Sample ID: 400-136997-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	210000		5000		ug/L	1		RSK-175	Total/NA
Methane	930		8.0		ug/L	4		RSK-175	Total/NA
Nitrate as N	6.0		0.10		mg/L	1		9056	Total/NA
Sulfate	2.4		1.0		mg/L	1		9056	Total/NA
Iron	7.4		0.10		mg/L	1		6010C	Total/NA
Manganese	0.42		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	0.13		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.41		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-45-W-170424 — Lab Sample ID: 400-136997-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	190000		5000		ug/L	1		RSK-175	Total/NA
Methane	250		2.0		ug/L	1		RSK-175	Total/NA
Iron	0.46		0.10		mg/L	1		6010C	Total/NA
Manganese	0.053		0.010		mg/L	1		6010C	Total/NA

Client Sample ID: MW-47-W-170424 — Lab Sample ID: 400-136997-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	69000		5000		ug/L	1		RSK-175	Total/NA
Methane	64		2.0		ug/L	1		RSK-175	Total/NA
Nitrate as N	0.12		0.10		mg/L	1		9056	Total/NA
Iron	7.7		0.10		mg/L	1		6010C	Total/NA
Manganese	0.17		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	2.7		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.16		0.010		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: MW-6-W-170424 — Lab Sample ID: 400-136997-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	220000		5000		ug/L	1		RSK-175	Total/NA
Methane	550		4.0		ug/L	2		RSK-175	Total/NA
Nitrate as N	19		0.50		mg/L	5		9056	Total/NA
Sulfate	24		1.0		mg/L	1		9056	Total/NA
Iron	23		0.10		mg/L	1		6010C	Total/NA
Manganese	0.47		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	7.9		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.46		0.010		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-136997-1	GP-30A-W-170424	Water	04/24/17 09:55	04/25/17 08:47
400-136997-2	GP-35A-W-170424	Water	04/24/17 11:30	04/25/17 08:47
400-136997-3	MW-20-W-170424	Water	04/24/17 10:35	04/25/17 08:47
400-136997-4	MW-45-W-170424	Water	04/24/17 12:55	04/25/17 08:47
400-136997-5	MW-47-W-170424	Water	04/24/17 13:45	04/25/17 08:47
400-136997-6	MW-6-W-170424	Water	04/24/17 12:10	04/25/17 08:47

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424
Date Collected: 04/24/17 09:55
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-1
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**110000**		5000		ug/L			05/02/17 01:10	1
Methane	**26**		2.0		ug/L			05/01/17 17:04	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/25/17 17:33	1
Sulfate	**1.1**		1.0		mg/L			04/25/17 17:33	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**25**		0.10		mg/L		05/04/17 10:52	05/07/17 17:42	1
Manganese	**0.11**		0.010		mg/L		05/04/17 10:52	05/07/17 17:42	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**17**		0.10		mg/L		04/27/17 13:22	05/04/17 16:30	1
Manganese, Dissolved	**0.11**		0.010		mg/L		04/27/17 13:22	05/04/17 16:30	1

Client Sample ID: GP-35A-W-170424

Date Collected: 04/24/17 11:30
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-2

Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**120000**		5000		ug/L			05/02/17 01:19	1
Methane	**510**		4.0		ug/L			05/02/17 15:08	2

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/25/17 17:56	1
Sulfate	**2.2**		1.0		mg/L			04/25/17 17:56	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**46**		0.10		mg/L		05/04/17 10:52	05/07/17 17:45	1
Manganese	**0.21**		0.010		mg/L		05/04/17 10:52	05/07/17 17:45	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**33**		0.10		mg/L		04/27/17 13:22	05/04/17 16:45	1
Manganese, Dissolved	**0.20**		0.010		mg/L		04/27/17 13:22	05/04/17 16:45	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: MW-20-W-170424
Date Collected: 04/24/17 10:35
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-3
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	210000		5000		ug/L			05/02/17 01:27	1
Methane	930		8.0		ug/L			05/02/17 15:17	4

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	6.0		0.10		mg/L			04/25/17 18:41	1
Sulfate	2.4		1.0		mg/L			04/25/17 18:41	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	7.4		0.10		mg/L		05/04/17 10:52	05/07/17 17:49	1
Manganese	0.42		0.010		mg/L		05/04/17 10:52	05/07/17 17:49	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.13		0.10		mg/L		04/27/17 13:22	05/04/17 16:49	1
Manganese, Dissolved	0.41		0.010		mg/L		04/27/17 13:22	05/04/17 16:49	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: MW-45-W-170424
Date Collected: 04/24/17 12:55
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-4
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	190000		5000		ug/L			05/02/17 01:36	1
Methane	250		2.0		ug/L			05/01/17 17:30	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.46		0.10		mg/L		05/04/17 10:52	05/07/17 17:52	1
Manganese	0.053		0.010		mg/L		05/04/17 10:52	05/07/17 17:52	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: MW-47-W-170424
Date Collected: 04/24/17 13:45
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-5
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**69000**		5000		ug/L			05/02/17 01:45	1
Methane	**64**		2.0		ug/L			05/01/17 17:39	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.12**		0.10		mg/L			04/25/17 19:27	1
Sulfate	<1.0		1.0		mg/L			04/25/17 19:27	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**7.7**		0.10		mg/L		05/04/17 10:52	05/07/17 17:55	1
Manganese	**0.17**		0.010		mg/L		05/04/17 10:52	05/07/17 17:55	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**2.7**		0.10		mg/L		04/27/17 13:22	05/04/17 16:55	1
Manganese, Dissolved	**0.16**		0.010		mg/L		04/27/17 13:22	05/04/17 16:55	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: MW-6-W-170424
Date Collected: 04/24/17 12:10
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-6
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	220000		5000		ug/L			05/02/17 01:54	1
Methane	550		4.0		ug/L			05/02/17 15:26	2

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	19		0.50		mg/L			04/26/17 10:19	5
Sulfate	24		1.0		mg/L			04/25/17 20:35	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	23		0.10		mg/L		05/04/17 10:52	05/07/17 17:59	1
Manganese	0.47		0.010		mg/L		05/04/17 10:52	05/07/17 17:59	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	7.9		0.10		mg/L		04/27/17 13:22	05/04/17 17:08	1
Manganese, Dissolved	0.46		0.010		mg/L		04/27/17 13:22	05/04/17 17:08	1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-116257/4
Matrix: Water
Analysis Batch: 116257

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<2.0		2.0		ug/L			05/01/17 15:53	1

Lab Sample ID: LCS 200-116257/20
Matrix: Water
Analysis Batch: 116257

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	72.8	62.0		ug/L		85	70 - 130

Lab Sample ID: MB 200-116258/3
Matrix: Water
Analysis Batch: 116258

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<2.0		2.0		ug/L			05/01/17 22:04	1

Lab Sample ID: LCS 200-116258/2
Matrix: Water
Analysis Batch: 116258

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	72.8	60.6		ug/L		83	70 - 130

Lab Sample ID: MB 200-116277/3
Matrix: Water
Analysis Batch: 116277

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	<5000		5000		ug/L			05/01/17 23:41	1

Lab Sample ID: LCS 200-116277/2
Matrix: Water
Analysis Batch: 116277

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	42000		ug/L		105	70 - 130

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 400-351161/4
Matrix: Water
Analysis Batch: 351161

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/25/17 11:28	1

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 400-351161/5
Matrix: Water
Analysis Batch: 351161

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.32		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-351161/6
Matrix: Water
Analysis Batch: 351161

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.26	2.32		mg/L		103	90 - 110	0	15

Lab Sample ID: MB 400-351164/4
Matrix: Water
Analysis Batch: 351164

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			04/25/17 11:28	1

Lab Sample ID: LCS 400-351164/5
Matrix: Water
Analysis Batch: 351164

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.2		mg/L		102	90 - 110

Lab Sample ID: LCSD 400-351164/6
Matrix: Water
Analysis Batch: 351164

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	10.2		mg/L		102	90 - 110	0	15

Lab Sample ID: MB 400-351341/38
Matrix: Water
Analysis Batch: 351341

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/25/17 22:52	1

Lab Sample ID: LCS 400-351341/39
Matrix: Water
Analysis Batch: 351341

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.33		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-351341/40
Matrix: Water
Analysis Batch: 351341

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.26	2.33		mg/L		103	90 - 110	0	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 400-352321/1-A
Matrix: Water
Analysis Batch: 352958

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 352321

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.10		0.10		mg/L		05/04/17 10:52	05/09/17 12:28	1
Manganese	<0.010		0.010		mg/L		05/04/17 10:52	05/09/17 12:28	1

Lab Sample ID: LCS 400-352321/2-A
Matrix: Water
Analysis Batch: 352958

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 352321

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.2		mg/L		102	80 - 120
Manganese	1.00	1.02		mg/L		102	80 - 120

Lab Sample ID: MB 400-351557/1-B
Matrix: Water
Analysis Batch: 352456

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 351568

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		04/27/17 13:22	05/04/17 16:14	1
Manganese, Dissolved	<0.010		0.010		mg/L		04/27/17 13:22	05/04/17 16:14	1

Lab Sample ID: LCS 400-351557/2-B
Matrix: Water
Analysis Batch: 352456

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 351568

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	10.0	10.3		mg/L		103	80 - 120
Manganese, Dissolved	1.00	1.02		mg/L		102	80 - 120

Lab Sample ID: 400-136997-1 MS
Matrix: Water
Analysis Batch: 352456

Client Sample ID: GP-30A-W-170424
Prep Type: Dissolved
Prep Batch: 351568

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	17		10.0	27.3		mg/L		102	75 - 125
Manganese, Dissolved	0.11		1.00	1.13		mg/L		102	75 - 125

Lab Sample ID: 400-136997-1 MSD
Matrix: Water
Analysis Batch: 352456

Client Sample ID: GP-30A-W-170424
Prep Type: Dissolved
Prep Batch: 351568

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	17		10.0	27.3		mg/L		102	75 - 125	0	20
Manganese, Dissolved	0.11		1.00	1.12		mg/L		102	75 - 125	0	20

GC VOA

Analysis Batch: 116257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	RSK-175	
400-136997-4	MW-45-W-170424	Total/NA	Water	RSK-175	
400-136997-5	MW-47-W-170424	Total/NA	Water	RSK-175	
MB 200-116257/4	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116257/20	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 116258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-2	GP-35A-W-170424	Total/NA	Water	RSK-175	
400-136997-3	MW-20-W-170424	Total/NA	Water	RSK-175	
400-136997-6	MW-6-W-170424	Total/NA	Water	RSK-175	
MB 200-116258/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116258/2	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 116277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	RSK-175	
400-136997-2	GP-35A-W-170424	Total/NA	Water	RSK-175	
400-136997-3	MW-20-W-170424	Total/NA	Water	RSK-175	
400-136997-4	MW-45-W-170424	Total/NA	Water	RSK-175	
400-136997-5	MW-47-W-170424	Total/NA	Water	RSK-175	
400-136997-6	MW-6-W-170424	Total/NA	Water	RSK-175	
MB 200-116277/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116277/2	Lab Control Sample	Total/NA	Water	RSK-175	

HPLC/IC

Analysis Batch: 351161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	9056	
400-136997-2	GP-35A-W-170424	Total/NA	Water	9056	
400-136997-3	MW-20-W-170424	Total/NA	Water	9056	
400-136997-5	MW-47-W-170424	Total/NA	Water	9056	
MB 400-351161/4	Method Blank	Total/NA	Water	9056	
LCS 400-351161/5	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351161/6	Lab Control Sample Dup	Total/NA	Water	9056	

Analysis Batch: 351164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	9056	
400-136997-2	GP-35A-W-170424	Total/NA	Water	9056	
400-136997-3	MW-20-W-170424	Total/NA	Water	9056	
400-136997-5	MW-47-W-170424	Total/NA	Water	9056	
400-136997-6	MW-6-W-170424	Total/NA	Water	9056	
MB 400-351164/4	Method Blank	Total/NA	Water	9056	
LCS 400-351164/5	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351164/6	Lab Control Sample Dup	Total/NA	Water	9056	

HPLC/IC (Continued)

Analysis Batch: 351341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-6	MW-6-W-170424	Total/NA	Water	9056	
MB 400-351341/38	Method Blank	Total/NA	Water	9056	
LCS 400-351341/39	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351341/40	Lab Control Sample Dup	Total/NA	Water	9056	

Metals

Filtration Batch: 351557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Dissolved	Water	FILTRATION	
400-136997-2	GP-35A-W-170424	Dissolved	Water	FILTRATION	
400-136997-3	MW-20-W-170424	Dissolved	Water	FILTRATION	
400-136997-5	MW-47-W-170424	Dissolved	Water	FILTRATION	
400-136997-6	MW-6-W-170424	Dissolved	Water	FILTRATION	
MB 400-351557/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 400-351557/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
400-136997-1 MS	GP-30A-W-170424	Dissolved	Water	FILTRATION	
400-136997-1 MSD	GP-30A-W-170424	Dissolved	Water	FILTRATION	

Prep Batch: 351568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Dissolved	Water	3005A	351557
400-136997-2	GP-35A-W-170424	Dissolved	Water	3005A	351557
400-136997-3	MW-20-W-170424	Dissolved	Water	3005A	351557
400-136997-5	MW-47-W-170424	Dissolved	Water	3005A	351557
400-136997-6	MW-6-W-170424	Dissolved	Water	3005A	351557
MB 400-351557/1-B	Method Blank	Dissolved	Water	3005A	351557
LCS 400-351557/2-B	Lab Control Sample	Dissolved	Water	3005A	351557
400-136997-1 MS	GP-30A-W-170424	Dissolved	Water	3005A	351557
400-136997-1 MSD	GP-30A-W-170424	Dissolved	Water	3005A	351557

Prep Batch: 352321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	3010A	
400-136997-2	GP-35A-W-170424	Total/NA	Water	3010A	
400-136997-3	MW-20-W-170424	Total/NA	Water	3010A	
400-136997-4	MW-45-W-170424	Total/NA	Water	3010A	
400-136997-5	MW-47-W-170424	Total/NA	Water	3010A	
400-136997-6	MW-6-W-170424	Total/NA	Water	3010A	
MB 400-352321/1-A	Method Blank	Total/NA	Water	3010A	
LCS 400-352321/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 352456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Dissolved	Water	6010C	351568
400-136997-2	GP-35A-W-170424	Dissolved	Water	6010C	351568
400-136997-3	MW-20-W-170424	Dissolved	Water	6010C	351568
400-136997-5	MW-47-W-170424	Dissolved	Water	6010C	351568
400-136997-6	MW-6-W-170424	Dissolved	Water	6010C	351568
MB 400-351557/1-B	Method Blank	Dissolved	Water	6010C	351568

Metals (Continued)

Analysis Batch: 352456 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-351557/2-B	Lab Control Sample	Dissolved	Water	6010C	351568
400-136997-1 MS	GP-30A-W-170424	Dissolved	Water	6010C	351568
400-136997-1 MSD	GP-30A-W-170424	Dissolved	Water	6010C	351568

Analysis Batch: 352735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	6010C	352321
400-136997-2	GP-35A-W-170424	Total/NA	Water	6010C	352321
400-136997-3	MW-20-W-170424	Total/NA	Water	6010C	352321
400-136997-4	MW-45-W-170424	Total/NA	Water	6010C	352321
400-136997-5	MW-47-W-170424	Total/NA	Water	6010C	352321
400-136997-6	MW-6-W-170424	Total/NA	Water	6010C	352321

Analysis Batch: 352958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 400-352321/1-A	Method Blank	Total/NA	Water	6010C	352321
LCS 400-352321/2-A	Lab Control Sample	Total/NA	Water	6010C	352321

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424

Lab Sample ID: 400-136997-1

Date Collected: 04/24/17 09:55

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 17:04	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:10	MLT	TAL BUR
Total/NA	Analysis	9056		1			351161	04/25/17 17:33	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351164	04/25/17 17:33	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:30	GESP	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:42	SEH	TAL PEN

Client Sample ID: GP-35A-W-170424

Lab Sample ID: 400-136997-2

Date Collected: 04/24/17 11:30

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:19	MLT	TAL BUR
Total/NA	Analysis	RSK-175		2	18 mL	18 mL	116258	05/02/17 15:08	MLT	TAL BUR
Total/NA	Analysis	9056		1			351161	04/25/17 17:56	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351164	04/25/17 17:56	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:45	GESP	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:45	SEH	TAL PEN

Client Sample ID: MW-20-W-170424

Lab Sample ID: 400-136997-3

Date Collected: 04/24/17 10:35

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:27	MLT	TAL BUR
Total/NA	Analysis	RSK-175		4	18 mL	18 mL	116258	05/02/17 15:17	MLT	TAL BUR
Total/NA	Analysis	9056		1			351161	04/25/17 18:41	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351164	04/25/17 18:41	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:49	GESP	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:49	SEH	TAL PEN

Client Sample ID: MW-45-W-170424

Lab Sample ID: 400-136997-4

Date Collected: 04/24/17 12:55

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 17:30	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:36	MLT	TAL BUR
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:52	SEH	TAL PEN

Client Sample ID: MW-47-W-170424

Lab Sample ID: 400-136997-5

Date Collected: 04/24/17 13:45

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 17:39	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:45	MLT	TAL BUR
Total/NA	Analysis	9056		1			351161	04/25/17 19:27	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351164	04/25/17 19:27	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:55	GESP	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:55	SEH	TAL PEN

Client Sample ID: MW-6-W-170424

Lab Sample ID: 400-136997-6

Date Collected: 04/24/17 12:10

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:54	MLT	TAL BUR
Total/NA	Analysis	RSK-175		2	18 mL	18 mL	116258	05/02/17 15:26	MLT	TAL BUR
Total/NA	Analysis	9056		1			351164	04/25/17 20:35	TAJ	TAL PEN
Total/NA	Analysis	9056		5			351341	04/26/17 10:19	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 17:08	GESP	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:59	SEH	TAL PEN

Client Sample ID: Method Blank

Lab Sample ID: MB 200-116257/4

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 15:53	MLT	TAL BUR

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: Method Blank — Lab Sample ID: MB 200-116258/3

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:04	MLT	TAL BUR

Client Sample ID: Method Blank — Lab Sample ID: MB 200-116277/3

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/01/17 23:41	MLT	TAL BUR

Client Sample ID: Method Blank — Lab Sample ID: MB 400-351161/4

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351161	04/25/17 11:28	TAJ	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-351164/4

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351164	04/25/17 11:28	TAJ	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-351341/38

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351341	04/25/17 22:52	TAJ	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-351557/1-B

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:14	GESP	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: Method Blank — Lab Sample ID: MB 400-352321/1-A

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352958	05/09/17 12:28	SEH	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116257/20

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 15:45	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116258/2

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 21:56	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116277/2

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/01/17 23:33	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351161/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351161	04/25/17 11:50	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351164/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351164	04/25/17 11:50	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351341/39

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351341	04/25/17 23:15	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351557/2-B

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:27	GESP	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-352321/2-A

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352958	05/09/17 12:31	SEH	TAL PEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 400-351161/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351161	04/25/17 12:13	TAJ	TAL PEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 400-351164/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351164	04/25/17 12:13	TAJ	TAL PEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 400-351341/40

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351341	04/25/17 23:38	TAJ	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424
Date Collected: 04/24/17 09:55
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-1 MS
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:39	GESP	TAL PEN

Client Sample ID: GP-30A-W-170424
Date Collected: 04/24/17 09:55
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-1 MSD
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:42	GESP	TAL PEN

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
9056	Anions, Ion Chromatography	SW846	TAL PEN
6010C	Metals (ICP)	SW846	TAL PEN

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Laboratory: TestAmerica Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	233	09-30-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Iron, Dissolved
6010C	3005A	Water	Manganese, Dissolved
6010C	3010A	Water	Iron
6010C	3010A	Water	Manganese
9056		Water	Nitrate as N
9056		Water	Sulfate

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-18
Florida	NELAP	4	E87467	06-30-17 *
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17 *
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

180325

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

BALTIMORE

Client Information	Sampler: A. King / J. Bukowsky	Lab PM: Vergin, Debra	Carrier Tracking No(s):	COC No: 400-64734-26624.1
Client Contact: John Marrs	Phone: 410-350-9147	E-Mail: debra.vergin@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S. Inc		Analysis Requested		Job #:
Address: Arcadis 295 Woodcliff Drive #2. 3rd Floor, Suite 301	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Fairport	TAT Requested (days): Standard			
State, Zip: NY, 14450				
Phone: 202-909-6892(Tel)	PO #: B0049337.0004			Other:
Email: john.marrs@arcadis.com	WO #:			
Project Name: Chillum, MD, CVX Fac 122208	Project #: 40003308			
Site: Chillum	SSOW#:			

400-136997 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175 - Methane	RSK_175_CO2 - Carbon Dioxide	9056_ORGFM_28D, 9056_ORGFM_48Hr	6010C - Dissolved Iron & Manganese (Lab Filter)	6010C - Total Iron & Manganese	[illegible]	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N	N	D			
GP-30A	4/24/17	0955	G	W			2	1	1	1	1			
GP-35A		1130												
MW-20		1035												
MW-45		1255												
MW-47		1345												
MW-6		1210												
Temp Blank														

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/24/17, 1445			4-24-2017/1445	Test America
2		4-24-2017/1520			4/25/17 0617	
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.0c

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

400-136997 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Vergin, Debra	COC No: 400-145673.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: debra.vergin@testamericainc.com	State of Origin: Maryland	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Maryland	Job #: 400-136997-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 5/5/2017		
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: Chillum MD	Project #: 40003308		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)		RSK_175/ Methane	RSK_175_CO2/ Carbon Dioxide											Total Number of containers	Special Instructions/Note:
			Preservation Code:																	
GP-30A-W-170424 (400-136997-1)	4/24/17	09:55 Eastern		Water			X	X											3	
GP-35A-W-170424 (400-136997-2)	4/24/17	11:30 Eastern		Water			X	X											3	
MW-20-W-170424 (400-136997-3)	4/24/17	10:35 Eastern		Water			X	X											3	
MW-45-W-170424 (400-136997-4)	4/24/17	12:55 Eastern		Water			X	X											3	
MW-47-W-170424 (400-136997-5)	4/24/17	13:45 Eastern		Water			X	X											3	
MW-6-W-170424 (400-136997-6)	4/24/17	12:10 Eastern		Water			X	X											3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 4/25/17 1630	Company TA Pen	Received by:	Date/Time: 4/26/17 1030	Company TA Burl.
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes ☐ No	Custody Seal No.: 358953	Cooler Temperature(s) °C and Other Remarks: 1.4°C

5/10/2017



TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

rt # 159469-434 RIT 09/15 •

ORIGIN ID:PNSA (850) 474-1001
RICHARD FARMER
TEST AMERICA PENSACOLA
3355 MCLEMORE DR

PENSACOLA, FL 32514
UNITED STATES US

SHIP DATE: 25APR17
ACTWGT: 17.75 LB
CAD: 0335906/CAFE3011

BILL RECIPIENT

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: S400-65076

FedEx Express

TRK# 0201 7013 8369 5187

WED - 26 APR 3:00P
STANDARD OVERNIGHT

XH BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-136997-1
SDG Number: CVX Fac 122208

Login Number: 136997
List Number: 1
Creator: Johnson, Jeremy N

List Source: TestAmerica Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.0°C IR2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-136997-1
SDG Number: CVX Fac 122208

Login Number: 136997
List Number: 2
Creator: Johnson, Eleanor E

List Source: TestAmerica Burlington
List Creation: 04/26/17 01:43 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	358953
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.7ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-137067-1
TestAmerica Sample Delivery Group: CVX Fac 122208
Client Project/Site: Chillum MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Debra A Vergin

Authorized for release by:
5/9/2017 9:16:17 AM

Debra Vergin, Project Manager II
(850)363-5129
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Links

Review your project results through TotalAccess

Have a Question? Ask The Expert

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Job ID: 400-137067-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-137067-1

Comments
No additional comments.

Receipt
The samples were received on 4/26/2017 9:03 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.0º C.

Receipt Exceptions
Sample MW-18 was inadvertently collected in preserved containers for dissolved metals and anions. Sample was recollected and reported in job 400-137236-1.

HPLC/IC
Method(s) 9056: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-33B-W-170425 (400-137067-1) and MW-25B-W-170425 (400-137067-4). Elevated reporting limits (RLs) are provided.

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

GC VOA
Method(s) RSK-175: The following sample was collected in properly preserved vials for analysis of Methane. However, the pH was outside the required criteria when verified by the laboratory: MW-25B-W-170425 (400-137067-4).

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

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-33B-W-170425 — Lab Sample ID: 400-137067-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	260000		5000		ug/L	1		RSK-175	Total/NA
Methane	6.4		2.0		ug/L	1		RSK-175	Total/NA
Nitrate as N	2.3		0.10		mg/L	1		9056	Total/NA
Sulfate	68		5.0		mg/L	5		9056	Total/NA
Iron	0.11		0.10		mg/L	1		6010C	Total/NA
Manganese	0.20		0.010		mg/L	1		6010C	Total/NA
Manganese, Dissolved	0.19		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-53-W-170425 — Lab Sample ID: 400-137067-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	160000		5000		ug/L	1		RSK-175	Total/NA
Methane	530		4.0		ug/L	2		RSK-175	Total/NA
Sulfate	31		1.0		mg/L	1		9056	Total/NA
Iron	7.5		0.10		mg/L	1		6010C	Total/NA
Manganese	0.25		0.010		mg/L	1		6010C	Total/NA
Manganese, Dissolved	0.24		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-59-W-170425 — Lab Sample ID: 400-137067-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	250000		5000		ug/L	1		RSK-175	Total/NA
Methane	68		2.0		ug/L	1		RSK-175	Total/NA
Nitrate as N	1.4		0.10		mg/L	1		9056	Total/NA
Sulfate	32		1.0		mg/L	1		9056	Total/NA
Iron	0.97		0.10		mg/L	1		6010C	Total/NA
Manganese	0.12		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	0.18		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.12		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-25B-W-170425 — Lab Sample ID: 400-137067-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	190000		5000		ug/L	1		RSK-175	Total/NA
Nitrate as N	2.2		0.10		mg/L	1		9056	Total/NA
Sulfate	61		5.0		mg/L	5		9056	Total/NA
Iron	8.4		0.10		mg/L	1		6010C	Total/NA
Manganese	0.16		0.010		mg/L	1		6010C	Total/NA
Manganese, Dissolved	0.15		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-62B-W-170425 — Lab Sample ID: 400-137067-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	120000		5000		ug/L	1		RSK-175	Total/NA
Methane	12		2.0		ug/L	1		RSK-175	Total/NA
Sulfate	32		1.0		mg/L	1		9056	Total/NA
Iron	23		0.10		mg/L	1		6010C	Total/NA
Manganese	0.37		0.010		mg/L	1		6010C	Total/NA
Manganese, Dissolved	0.34		0.010		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-18-W-170425

Lab Sample ID: 400-137067-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	61000		5000		ug/L	1		RSK-175	Total/NA
Iron	29		0.10		mg/L	1		6010C	Total/NA
Manganese	0.15		0.010		mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-137067-1	MW-33B-W-170425	Water	04/25/17 09:30	04/26/17 09:03
400-137067-2	MW-53-W-170425	Water	04/25/17 08:55	04/26/17 09:03
400-137067-3	MW-59-W-170425	Water	04/25/17 10:25	04/26/17 09:03
400-137067-4	MW-25B-W-170425	Water	04/25/17 12:25	04/26/17 09:03
400-137067-5	MW-62B-W-170425	Water	04/25/17 11:20	04/26/17 09:03
400-137067-6	MW-18-W-170425	Water	04/25/17 13:20	04/26/17 09:03

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-33B-W-170425
Date Collected: 04/25/17 09:30
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-1
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	260000		5000		ug/L			05/02/17 17:06	1
Methane	6.4		2.0		ug/L			05/01/17 22:13	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	2.3		0.10		mg/L			04/26/17 18:24	1
Sulfate	68		5.0		mg/L			04/27/17 18:25	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.11		0.10		mg/L		05/05/17 08:12	05/06/17 13:57	1
Manganese	0.20		0.010		mg/L		05/05/17 08:12	05/06/17 13:57	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 21:13	1
Manganese, Dissolved	0.19		0.010		mg/L		05/04/17 10:13	05/05/17 21:13	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-53-W-170425
Date Collected: 04/25/17 08:55
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-2
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**160000**		5000		ug/L			05/02/17 17:15	1
Methane	**530**		4.0		ug/L			05/02/17 14:59	2

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/26/17 18:47	1
Sulfate	**31**		1.0		mg/L			04/26/17 18:47	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**7.5**		0.10		mg/L		05/05/17 08:12	05/06/17 14:22	1
Manganese	**0.25**		0.010		mg/L		05/05/17 08:12	05/06/17 14:22	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 21:29	1
Manganese, Dissolved	**0.24**		0.010		mg/L		05/04/17 10:13	05/05/17 21:29	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-59-W-170425
Date Collected: 04/25/17 10:25
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-3
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	250000		5000		ug/L			05/02/17 17:24	1
Methane	68		2.0		ug/L			05/01/17 22:31	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	1.4		0.10		mg/L			04/26/17 19:55	1
Sulfate	32		1.0		mg/L			04/26/17 19:55	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.97		0.10		mg/L		05/05/17 08:12	05/06/17 14:26	1
Manganese	0.12		0.010		mg/L		05/05/17 08:12	05/06/17 14:26	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.18		0.10		mg/L		05/04/17 10:13	05/05/17 21:32	1
Manganese, Dissolved	0.12		0.010		mg/L		05/04/17 10:13	05/05/17 21:32	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-25B-W-170425
Date Collected: 04/25/17 12:25
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-4
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**190000**		5000		ug/L			05/02/17 17:33	1
Methane	<2.0		2.0		ug/L			05/01/17 22:40	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**2.2**		0.10		mg/L			04/26/17 20:18	1
Sulfate	**61**		5.0		mg/L			04/27/17 19:33	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**8.4**		0.10		mg/L		05/05/17 08:12	05/06/17 14:29	1
Manganese	**0.16**		0.010		mg/L		05/05/17 08:12	05/06/17 14:29	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 21:35	1
Manganese, Dissolved	**0.15**		0.010		mg/L		05/04/17 10:13	05/05/17 21:35	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-62B-W-170425
Date Collected: 04/25/17 11:20
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-5
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**120000**		5000		ug/L			05/02/17 17:42	1
Methane	**12**		2.0		ug/L			05/01/17 22:48	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/26/17 20:41	1
Sulfate	**32**		1.0		mg/L			04/26/17 20:41	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**23**		0.10		mg/L		05/05/17 08:12	05/06/17 14:32	1
Manganese	**0.37**		0.010		mg/L		05/05/17 08:12	05/06/17 14:32	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 21:39	1
Manganese, Dissolved	**0.34**		0.010		mg/L		05/04/17 10:13	05/05/17 21:39	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-18-W-170425
Date Collected: 04/25/17 13:20
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-6
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**61000**		5000		ug/L			05/02/17 17:51	1
Methane	<2.0		2.0		ug/L			05/01/17 22:57	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**29**		0.10		mg/L		05/05/17 08:12	05/06/17 14:36	1
Manganese	**0.15**		0.010		mg/L		05/05/17 08:12	05/06/17 14:36	1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-116258/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116258

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<2.0		2.0		ug/L			05/01/17 22:04	1

Lab Sample ID: LCS 200-116258/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116258

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	72.8	60.6		ug/L		83	70 - 130

Lab Sample ID: MB 200-116320/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116320

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	<5000		5000		ug/L			05/02/17 16:31	1

Lab Sample ID: LCS 200-116320/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116320

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	41300		ug/L		103	70 - 130

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 400-351446/14 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351446

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/26/17 15:40	1

Lab Sample ID: LCS 400-351446/15 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351446

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.33		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-351446/16 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351446

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.26	2.33		mg/L		103	90 - 110	0	15

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 400-351500/14 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351500

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			04/26/17 15:40	1

Lab Sample ID: LCS 400-351500/15 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351500

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.2		mg/L		102	90 - 110

Lab Sample ID: LCSD 400-351500/16 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351500

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	10.2		mg/L		102	90 - 110	1	15

Lab Sample ID: MB 400-351604/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351604

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			04/27/17 14:11	1

Lab Sample ID: LCS 400-351604/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351604

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-351604/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351604

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	10.1		mg/L		101	90 - 110	2	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 400-352455/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 352661 — **Prep Batch: 352455**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.10		0.10		mg/L		05/05/17 08:12	05/06/17 13:51	1
Manganese	<0.010		0.010		mg/L		05/05/17 08:12	05/06/17 13:51	1

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

Lab Sample ID: LCS 400-352455/2-A
Matrix: Water
Analysis Batch: 352661

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 352455

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.3		mg/L		103	80 - 120
Manganese	1.00	1.03		mg/L		103	80 - 120

Lab Sample ID: 400-137067-1 MS
Matrix: Water
Analysis Batch: 352661

Client Sample ID: MW-33B-W-170425
Prep Type: Total/NA
Prep Batch: 352455

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	0.11		10.0	10.4		mg/L		103	75 - 125
Manganese	0.20		1.00	1.22		mg/L		102	75 - 125

Lab Sample ID: 400-137067-1 MSD
Matrix: Water
Analysis Batch: 352661

Client Sample ID: MW-33B-W-170425
Prep Type: Total/NA
Prep Batch: 352455

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	0.11		10.0	10.3		mg/L		102	75 - 125	1	20
Manganese	0.20		1.00	1.21		mg/L		101	75 - 125	0	20

Lab Sample ID: MB 400-352027/1-B
Matrix: Water
Analysis Batch: 352605

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 352299

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 20:57	1
Manganese, Dissolved	<0.010		0.010		mg/L		05/04/17 10:13	05/05/17 20:57	1

Lab Sample ID: LCS 400-352027/2-B
Matrix: Water
Analysis Batch: 352605

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 352299

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	10.0	9.56		mg/L		96	80 - 120
Manganese, Dissolved	1.00	0.937		mg/L		94	80 - 120

Lab Sample ID: 400-137067-1 MS
Matrix: Water
Analysis Batch: 352605

Client Sample ID: MW-33B-W-170425
Prep Type: Dissolved
Prep Batch: 352299

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	<0.10		10.0	9.56		mg/L		96	75 - 125
Manganese, Dissolved	0.19		1.00	1.12		mg/L		93	75 - 125

Lab Sample ID: 400-137067-1 MSD
Matrix: Water
Analysis Batch: 352605

Client Sample ID: MW-33B-W-170425
Prep Type: Dissolved
Prep Batch: 352299

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	<0.10		10.0	9.51		mg/L		95	75 - 125	1	20

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

Lab Sample ID: 400-137067-1 MSD
Matrix: Water
Analysis Batch: 352605

Client Sample ID: MW-33B-W-170425
Prep Type: Dissolved
Prep Batch: 352299

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Manganese, Dissolved	0.19		1.00	1.11		mg/L		93	75 - 125	1	20

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Analysis Batch: 116258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	RSK-175	
400-137067-2	MW-53-W-170425	Total/NA	Water	RSK-175	
400-137067-3	MW-59-W-170425	Total/NA	Water	RSK-175	
400-137067-4	MW-25B-W-170425	Total/NA	Water	RSK-175	
400-137067-5	MW-62B-W-170425	Total/NA	Water	RSK-175	
400-137067-6	MW-18-W-170425	Total/NA	Water	RSK-175	
MB 200-116258/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116258/2	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 116320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	RSK-175	
400-137067-2	MW-53-W-170425	Total/NA	Water	RSK-175	
400-137067-3	MW-59-W-170425	Total/NA	Water	RSK-175	
400-137067-4	MW-25B-W-170425	Total/NA	Water	RSK-175	
400-137067-5	MW-62B-W-170425	Total/NA	Water	RSK-175	
400-137067-6	MW-18-W-170425	Total/NA	Water	RSK-175	
MB 200-116320/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116320/2	Lab Control Sample	Total/NA	Water	RSK-175	

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Analysis Batch: 351446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	9056	
400-137067-2	MW-53-W-170425	Total/NA	Water	9056	
400-137067-3	MW-59-W-170425	Total/NA	Water	9056	
400-137067-4	MW-25B-W-170425	Total/NA	Water	9056	
400-137067-5	MW-62B-W-170425	Total/NA	Water	9056	
MB 400-351446/14	Method Blank	Total/NA	Water	9056	
LCS 400-351446/15	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351446/16	Lab Control Sample Dup	Total/NA	Water	9056	

Analysis Batch: 351500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-2	MW-53-W-170425	Total/NA	Water	9056	
400-137067-3	MW-59-W-170425	Total/NA	Water	9056	
400-137067-5	MW-62B-W-170425	Total/NA	Water	9056	
MB 400-351500/14	Method Blank	Total/NA	Water	9056	
LCS 400-351500/15	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351500/16	Lab Control Sample Dup	Total/NA	Water	9056	

Analysis Batch: 351604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	9056	
400-137067-4	MW-25B-W-170425	Total/NA	Water	9056	
MB 400-351604/4	Method Blank	Total/NA	Water	9056	
LCS 400-351604/5	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351604/6	Lab Control Sample Dup	Total/NA	Water	9056	

Metals

Filtration Batch: 352027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Dissolved	Water	FILTRATION	
400-137067-2	MW-53-W-170425	Dissolved	Water	FILTRATION	
400-137067-3	MW-59-W-170425	Dissolved	Water	FILTRATION	
400-137067-4	MW-25B-W-170425	Dissolved	Water	FILTRATION	
400-137067-5	MW-62B-W-170425	Dissolved	Water	FILTRATION	
MB 400-352027/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
400-137067-1 MS	MW-33B-W-170425	Dissolved	Water	FILTRATION	
400-137067-1 MSD	MW-33B-W-170425	Dissolved	Water	FILTRATION	

Prep Batch: 352299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Dissolved	Water	3005A	352027
400-137067-2	MW-53-W-170425	Dissolved	Water	3005A	352027
400-137067-3	MW-59-W-170425	Dissolved	Water	3005A	352027
400-137067-4	MW-25B-W-170425	Dissolved	Water	3005A	352027
400-137067-5	MW-62B-W-170425	Dissolved	Water	3005A	352027
MB 400-352027/1-B	Method Blank	Dissolved	Water	3005A	352027
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	3005A	352027
400-137067-1 MS	MW-33B-W-170425	Dissolved	Water	3005A	352027
400-137067-1 MSD	MW-33B-W-170425	Dissolved	Water	3005A	352027

Prep Batch: 352455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	3010A	
400-137067-2	MW-53-W-170425	Total/NA	Water	3010A	
400-137067-3	MW-59-W-170425	Total/NA	Water	3010A	
400-137067-4	MW-25B-W-170425	Total/NA	Water	3010A	
400-137067-5	MW-62B-W-170425	Total/NA	Water	3010A	
400-137067-6	MW-18-W-170425	Total/NA	Water	3010A	
MB 400-352455/1-A	Method Blank	Total/NA	Water	3010A	
LCS 400-352455/2-A	Lab Control Sample	Total/NA	Water	3010A	
400-137067-1 MS	MW-33B-W-170425	Total/NA	Water	3010A	
400-137067-1 MSD	MW-33B-W-170425	Total/NA	Water	3010A	

Analysis Batch: 352605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Dissolved	Water	6010C	352299
400-137067-2	MW-53-W-170425	Dissolved	Water	6010C	352299
400-137067-3	MW-59-W-170425	Dissolved	Water	6010C	352299
400-137067-4	MW-25B-W-170425	Dissolved	Water	6010C	352299
400-137067-5	MW-62B-W-170425	Dissolved	Water	6010C	352299
MB 400-352027/1-B	Method Blank	Dissolved	Water	6010C	352299
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	6010C	352299
400-137067-1 MS	MW-33B-W-170425	Dissolved	Water	6010C	352299
400-137067-1 MSD	MW-33B-W-170425	Dissolved	Water	6010C	352299

Analysis Batch: 352661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	6010C	352455
400-137067-2	MW-53-W-170425	Total/NA	Water	6010C	352455

Metals (Continued)

Analysis Batch: 352661 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-3	MW-59-W-170425	Total/NA	Water	6010C	352455
400-137067-4	MW-25B-W-170425	Total/NA	Water	6010C	352455
400-137067-5	MW-62B-W-170425	Total/NA	Water	6010C	352455
400-137067-6	MW-18-W-170425	Total/NA	Water	6010C	352455
MB 400-352455/1-A	Method Blank	Total/NA	Water	6010C	352455
LCS 400-352455/2-A	Lab Control Sample	Total/NA	Water	6010C	352455
400-137067-1 MS	MW-33B-W-170425	Total/NA	Water	6010C	352455
400-137067-1 MSD	MW-33B-W-170425	Total/NA	Water	6010C	352455

Client Sample ID: MW-33B-W-170425

Lab Sample ID: 400-137067-1

Date Collected: 04/25/17 09:30

Matrix: Water

Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:13	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:06	MLT	TAL BUR
Total/NA	Analysis	9056		1			351446	04/26/17 18:24	TAJ	TAL PEN
Total/NA	Analysis	9056		5			351604	04/27/17 18:25	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:13	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 13:57	SEH	TAL PEN

Client Sample ID: MW-53-W-170425

Lab Sample ID: 400-137067-2

Date Collected: 04/25/17 08:55

Matrix: Water

Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		2	18 mL	18 mL	116258	05/02/17 14:59	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:15	MLT	TAL BUR
Total/NA	Analysis	9056		1			351446	04/26/17 18:47	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351500	04/26/17 18:47	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:29	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:22	SEH	TAL PEN

Client Sample ID: MW-59-W-170425

Lab Sample ID: 400-137067-3

Date Collected: 04/25/17 10:25

Matrix: Water

Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:31	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:24	MLT	TAL BUR
Total/NA	Analysis	9056		1			351446	04/26/17 19:55	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351500	04/26/17 19:55	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:32	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:26	SEH	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-25B-W-170425

Lab Sample ID: 400-137067-4

Date Collected: 04/25/17 12:25
Matrix: Water
Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:40	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:33	MLT	TAL BUR
Total/NA	Analysis	9056		1			351446	04/26/17 20:18	TAJ	TAL PEN
Total/NA	Analysis	9056		5			351604	04/27/17 19:33	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:35	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:29	SEH	TAL PEN

Client Sample ID: MW-62B-W-170425

Lab Sample ID: 400-137067-5

Date Collected: 04/25/17 11:20
Matrix: Water
Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:48	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:42	MLT	TAL BUR
Total/NA	Analysis	9056		1			351446	04/26/17 20:41	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351500	04/26/17 20:41	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:39	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:32	SEH	TAL PEN

Client Sample ID: MW-18-W-170425

Lab Sample ID: 400-137067-6

Date Collected: 04/25/17 13:20
Matrix: Water
Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:57	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:51	MLT	TAL BUR
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:36	SEH	TAL PEN

Client Sample ID: Method Blank

Lab Sample ID: MB 200-116258/3

Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:04	MLT	TAL BUR

Client Sample ID: Method Blank — **Lab Sample ID: MB 200-116320/3**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 16:31	MLT	TAL BUR

Client Sample ID: Method Blank — **Lab Sample ID: MB 400-351446/14**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351446	04/26/17 15:40	TAJ	TAL PEN

Client Sample ID: Method Blank — **Lab Sample ID: MB 400-351500/14**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351500	04/26/17 15:40	TAJ	TAL PEN

Client Sample ID: Method Blank — **Lab Sample ID: MB 400-351604/4**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351604	04/27/17 14:11	TAJ	TAL PEN

Client Sample ID: Method Blank — **Lab Sample ID: MB 400-352027/1-B**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 20:57	SEH	TAL PEN

Client Sample ID: Method Blank — **Lab Sample ID: MB 400-352455/1-A**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 13:51	SEH	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116258/2

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 21:56	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116320/2

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 16:22	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351446/15

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351446	04/26/17 16:03	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351500/15

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351500	04/26/17 16:03	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351604/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351604	04/27/17 14:34	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-352027/2-B

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:10	SEH	TAL PEN

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 400-352455/2-A

Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 13:54	SEH	TAL PEN

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 400-351446/16

Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351446	04/26/17 16:26	TAJ	TAL PEN

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 400-351500/16

Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351500	04/26/17 16:26	TAJ	TAL PEN

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 400-351604/6

Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351604	04/27/17 14:57	TAJ	TAL PEN

Client Sample ID: MW-33B-W-170425
Lab Sample ID: 400-137067-1 MS

Date Collected: 04/25/17 09:30
Matrix: Water
Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:23	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:00	SEH	TAL PEN

Client Sample ID: MW-33B-W-170425
Lab Sample ID: 400-137067-1 MSD

Date Collected: 04/25/17 09:30
Matrix: Water
Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:26	SEH	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:03	SEH	TAL PEN

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
9056	Anions, Ion Chromatography	SW846	TAL PEN
6010C	Metals (ICP)	SW846	TAL PEN

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Laboratory: TestAmerica Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	233	09-30-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Iron, Dissolved
6010C	3005A	Water	Manganese, Dissolved
6010C	3010A	Water	Iron
6010C	3010A	Water	Manganese
9056		Water	Nitrate as N
9056		Water	Sulfate

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-18
Florida	NELAP	4	E87467	06-30-17 *
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17 *
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

180325

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information
Client Contact: John Marrs
Company: ARCADIS U.S. Inc
Address: Arcadis 295 Woodcliff Drive #2. 3rd Floor, Suite 301
City: Fairport
State, Zip: NY, 14450
Phone: 202-909-6892(Tel)
Email: john.marrs@arcadis.com
Project Name: Chillum, MD, CVX Fac 122208
Site: Chillum

Sampler: A. King / J. Bakowsky
Phone: 410-350-9147
Lab PM: Vergin, Debra
E-Mail: debra.vergin@testamericainc.com
Carrier Tracking No(s): BALTIMORE
COC No: 400-64734-26624.2
Page: Page 1 of 1
Job #:

Due Date Requested:
TAT Requested (days): standard
PO #: B0049337.0004
WO #:
Project #: 40003308
SSOW#:

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

400-137067 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175 - Methane	RSK_175_CO2 - Carbon Dioxide	9056_ORGFM_28D, 9056_ORGFM_48Hr	6010C - Dissolved Iron & Manganese (Lab Filtered)	6010C - Total Iron & Manganese	[illegible] Carbon Dioxide	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N	N	D	N		
MW-33B	4/25/17	0930	G	W			2	1	1	1	1			
MW-53		0855												
MW-59		1025												
MW-25B		1225												
MW-62B		1120												
MW-18		1320												
Temp Blank														

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by: Date: Time: Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	4/25/17, 1511		Received by:	4-25-2017/1511	TestAmerica
Relinquished by:	4-25-2017/1526	TestAmerica	Received by:	4/26/17/902	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 0.0 C IR2

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

400-137067 Chain of Custody

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Vergin, Debra		COC No: 400-145802.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: debra.vergin@testamericainc.com	State of Origin: Maryland	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Maryland		Job #: 400-137067-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 5/8/2017			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email:	WO #:			
Project Name: Chillum MD	Project #: 40003308			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ Methane	RSK_175_CO2/ Carbon Dioxide	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-33B-W-170425 (400-137067-1)	4/25/17	09:30 Eastern		Water			X	X	3	
MW-53-W-170425 (400-137067-2)	4/25/17	08:55 Eastern		Water			X	X	3	
MW-59-W-170425 (400-137067-3)	4/25/17	10:25 Eastern		Water			X	X	3	
MW-25B-W-170425 (400-137067-4)	4/25/17	12:25 Eastern		Water			X	X	3	
MW-62B-W-170425 (400-137067-5)	4/25/17	11:20 Eastern		Water			X	X	3	
MW-18-W-170425 (400-137067-6)	4/25/17	13:20 Eastern		Water			X	X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

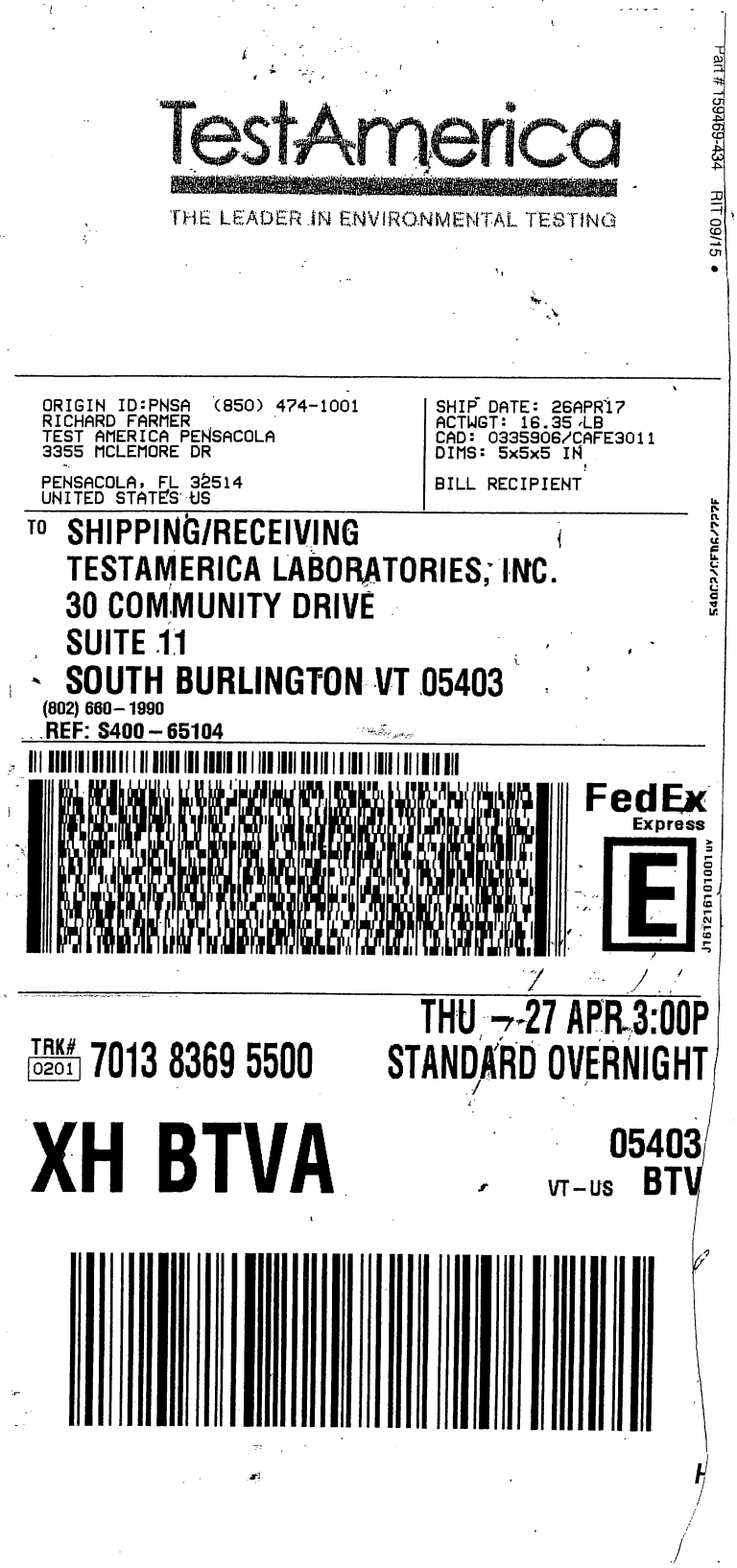
Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 4/26/2017 15:45	Company TA	Received by:	Date/Time: 4/27/17 @ 1030	Company TA BURL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

5/9/2017



TestAmerica
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Part # 159469-434 REV 09/15

ORIGIN ID:PNSA (850) 474-1001
RICHARD FARMER
TEST AMERICA PENSACOLA
3355 MCLEMORE DR

PENSACOLA, FL 32514
UNITED STATES US

SHIP DATE: 26APR17
ACTWGT: 16.35 LB
CAD: 0335906/CAFE3011
DIMS: 5x5x5 IN

BILL RECIPIENT

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: S400-65104

FedEx Express

THU - 27 APR 3:00P
STANDARD OVERNIGHT

TRK# 0201 7013 8369 5500

XH BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-137067-1
SDG Number: CVX Fac 122208

Login Number: 137067
List Number: 1
Creator: Johnson, Jeremy N

List Source: TestAmerica Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.0°C IR2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-137067-1
SDG Number: CVX Fac 122208

Login Number: 137067
List Number: 2
Creator: Cota, Fred P

List Source: TestAmerica Burlington
List Creation: 04/27/17 01:58 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	358976
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.5C°
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-137121-1
TestAmerica Sample Delivery Group: CVX Fac 122208
Client Project/Site: Chillum MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Authorized for release by:
5/10/2017 3:30:34 PM

Debra Vergin, Project Manager II
(850)363-5129
debra.vergin@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 400-137121-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-137121-1

Comments
No additional comments.

Receipt
The sample was received on 4/27/2017 9:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.0º C.

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

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

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137121-1
SDG: CVX Fac 122208

Client Sample ID: MW-13-W-170426

Lab Sample ID: 400-137121-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	28000		5000		ug/L	1		RSK-175	Total/NA
Nitrate as N	1.5		0.10		mg/L	1		9056	Total/NA
Sulfate	29		1.0		mg/L	1		9056	Total/NA
Iron	140		0.10		mg/L	1		6010C	Total/NA
Manganese	0.12		0.010		mg/L	1		6010C	Total/NA
Manganese, Dissolved	0.076		0.010		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137121-1
SDG: CVX Fac 122208

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-137121-1	MW-13-W-170426	Water	04/26/17 14:10	04/27/17 09:15

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137121-1
SDG: CVX Fac 122208

Client Sample ID: MW-13-W-170426
Date Collected: 04/26/17 14:10
Date Received: 04/27/17 09:15

Lab Sample ID: 400-137121-1
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**28000**		5000		ug/L			05/05/17 15:35	1
Methane	<2.0		2.0		ug/L			05/01/17 17:57	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.5**		0.10		mg/L			04/27/17 16:51	1
Sulfate	**29**		1.0		mg/L			04/27/17 16:51	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**140**		0.10		mg/L		05/05/17 08:45	05/06/17 13:18	1
Manganese	**0.12**		0.010		mg/L		05/05/17 08:45	05/06/17 13:18	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 21:58	1
Manganese, Dissolved	**0.076**		0.010		mg/L		05/04/17 10:13	05/05/17 21:58	1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-116257/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116257

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<2.0		2.0		ug/L			05/01/17 15:53	1

Lab Sample ID: LCS 200-116257/20 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116257

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	72.8	62.0		ug/L		85	70 - 130

Lab Sample ID: MB 200-116412/24 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116412

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	<5000		5000		ug/L			05/05/17 15:27	1

Lab Sample ID: MB 200-116412/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116412

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	<5000		5000		ug/L			05/05/17 12:21	1

Lab Sample ID: LCS 200-116412/23 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116412

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	37500		ug/L		94	70 - 130

Lab Sample ID: LCSD 200-116412/35 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116412

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon dioxide	40000	43500		ug/L					

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 400-351601/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351601

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/27/17 14:11	1

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 400-351601/5
Matrix: Water
Analysis Batch: 351601

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.41		mg/L		106	90 - 110

Lab Sample ID: LCSD 400-351601/6
Matrix: Water
Analysis Batch: 351601

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.26	2.40		mg/L		106	90 - 110	0	15

Lab Sample ID: MB 400-351604/4
Matrix: Water
Analysis Batch: 351604

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			04/27/17 14:11	1

Lab Sample ID: LCS 400-351604/5
Matrix: Water
Analysis Batch: 351604

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-351604/6
Matrix: Water
Analysis Batch: 351604

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	10.1		mg/L		101	90 - 110	2	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 400-352462/1-A
Matrix: Water
Analysis Batch: 352661

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 352462

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.10		0.10		mg/L		05/05/17 08:45	05/06/17 12:17	1
Manganese	<0.010		0.010		mg/L		05/05/17 08:45	05/06/17 12:17	1

Lab Sample ID: LCS 400-352462/2-A
Matrix: Water
Analysis Batch: 352661

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 352462

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.2		mg/L		102	80 - 120
Manganese	1.00	1.01		mg/L		101	80 - 120

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

Lab Sample ID: MB 400-352027/1-B
Matrix: Water
Analysis Batch: 352605

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 352299

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 20:57	1
Manganese, Dissolved	<0.010		0.010		mg/L		05/04/17 10:13	05/05/17 20:57	1

Lab Sample ID: LCS 400-352027/2-B
Matrix: Water
Analysis Batch: 352605

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 352299

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	10.0	9.56		mg/L		96	80 - 120
Manganese, Dissolved	1.00	0.937		mg/L		94	80 - 120

GC VOA

Analysis Batch: 116257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137121-1	MW-13-W-170426	Total/NA	Water	RSK-175	
MB 200-116257/4	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116257/20	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 116412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137121-1	MW-13-W-170426	Total/NA	Water	RSK-175	
MB 200-116412/24	Method Blank	Total/NA	Water	RSK-175	
MB 200-116412/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116412/23	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 200-116412/35	Lab Control Sample Dup	Total/NA	Water	RSK-175	

HPLC/IC

Analysis Batch: 351601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137121-1	MW-13-W-170426	Total/NA	Water	9056	
MB 400-351601/4	Method Blank	Total/NA	Water	9056	
LCS 400-351601/5	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351601/6	Lab Control Sample Dup	Total/NA	Water	9056	

Analysis Batch: 351604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137121-1	MW-13-W-170426	Total/NA	Water	9056	
MB 400-351604/4	Method Blank	Total/NA	Water	9056	
LCS 400-351604/5	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351604/6	Lab Control Sample Dup	Total/NA	Water	9056	

Metals

Filtration Batch: 352027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137121-1	MW-13-W-170426	Dissolved	Water	FILTRATION	
MB 400-352027/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	

Prep Batch: 352299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137121-1	MW-13-W-170426	Dissolved	Water	3005A	352027
MB 400-352027/1-B	Method Blank	Dissolved	Water	3005A	352027
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	3005A	352027

Prep Batch: 352462

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137121-1	MW-13-W-170426	Total/NA	Water	3010A	
MB 400-352462/1-A	Method Blank	Total/NA	Water	3010A	
LCS 400-352462/2-A	Lab Control Sample	Total/NA	Water	3010A	

Metals (Continued)

Analysis Batch: 352605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137121-1	MW-13-W-170426	Dissolved	Water	6010C	352299
MB 400-352027/1-B	Method Blank	Dissolved	Water	6010C	352299
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	6010C	352299

Analysis Batch: 352661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137121-1	MW-13-W-170426	Total/NA	Water	6010C	352462
MB 400-352462/1-A	Method Blank	Total/NA	Water	6010C	352462
LCS 400-352462/2-A	Lab Control Sample	Total/NA	Water	6010C	352462

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137121-1
SDG: CVX Fac 122208

Client Sample ID: MW-13-W-170426

Lab Sample ID: 400-137121-1

Date Collected: 04/26/17 14:10

Matrix: Water

Date Received: 04/27/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 17:57	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116412	05/05/17 15:35	MLT	TAL BUR
Total/NA	Analysis	9056		1			351601	04/27/17 16:51	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351604	04/27/17 16:51	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:58	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352462	05/05/17 08:45	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 13:18	SEH	TAL PEN

Client Sample ID: Method Blank

Lab Sample ID: MB 200-116257/4

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 15:53	MLT	TAL BUR

Client Sample ID: Method Blank

Lab Sample ID: MB 200-116412/24

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116412	05/05/17 15:27	MLT	TAL BUR

Client Sample ID: Method Blank

Lab Sample ID: MB 200-116412/3

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116412	05/05/17 12:21	MLT	TAL BUR

Client Sample ID: Method Blank

Lab Sample ID: MB 400-351601/4

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351601	04/27/17 14:11	TAJ	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-351604/4

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351604	04/27/17 14:11	TAJ	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-352027/1-B

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 20:57	SEH	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-352462/1-A

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352462	05/05/17 08:45	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 12:17	SEH	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116257/20

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 15:45	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116412/23

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116412	05/05/17 15:18	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351601/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351601	04/27/17 14:34	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351604/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351604	04/27/17 14:34	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-352027/2-B

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:10	SEH	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-352462/2-A

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352462	05/05/17 08:45	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 12:20	SEH	TAL PEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 200-116412/35

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116412	05/06/17 11:47	MLT	TAL BUR

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 400-351601/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351601	04/27/17 14:57	TAJ	TAL PEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 400-351604/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351604	04/27/17 14:57	TAJ	TAL PEN

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137121-1
SDG: CVX Fac 122208

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
9056	Anions, Ion Chromatography	SW846	TAL PEN
6010C	Metals (ICP)	SW846	TAL PEN

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137121-1
SDG: CVX Fac 122208

Laboratory: TestAmerica Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	233	09-30-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Iron, Dissolved
6010C	3005A	Water	Manganese, Dissolved
6010C	3010A	Water	Iron
6010C	3010A	Water	Manganese
9056		Water	Nitrate as N
9056		Water	Sulfate

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-18
Florida	NELAP	4	E87467	06-30-17 *
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17 *
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

180325

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: A. King / J. Bukovsky	Lab PM: Vergin, Debra	Carrier Tracking No(s): BALTIMORE	COC No: 400-64734-26624.2
Client Contact: John Marrs	Phone: 410-350-9147	E-Mail: debra.vergin@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S. Inc				Job #:
Address: Arcadis 295 Woodcliff Drive #2. 3rd Floor, Suite 301	Due Date Requested:			
City: Fairport	TAT Requested (days): Standard			
State, Zip: NY, 14450				
Phone: 202-909-6892(Tel)	PO #: B0049337.0004			
Email: john.marrs@arcadis.com	WO #:			
Project Name: Chillum, MD, CVX Fac 122208	Project #: 40003308			
Site: Chillum	SSOW#:			

Analysis Requested

400-137121 COC

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_176 - Methane	RSK_175_CO2 - Carbon Dioxide	9056_ORGFM_28D; 9056_ORGFM_48Hr	6010C - Dissolved Iron & Manganese (lab filtered)	6010C - Total Iron & Manganese	~~[illegible] - Carbon Dioxide~~	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N	N	D			
MW-13	4/26/17	1410	G	W			2	1	1	1	1			
Temp Blank														

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/26/17, 1528			4-26-2017/1528	TestAmerica
2		4-26-2017/1550	TestAmerica		4/27/17 0915	TA-TBN
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.0°C IR7

5/10/2017

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

400-137121 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Vergin, Debra	COC No: 400-145948.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: debra.vergin@testamericainc.com	State of Origin: Maryland	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Maryland	Job #: 400-137121-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 5/9/2017		
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: Chillum MD	Project #: 40003308		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)		RSK_175/ Methane	RSK_175_CO2/ Carbon Dioxide											Total Number of containers	Special Instructions/Note:
			Preservation Code:																	
MW-13-W-170426 (400-137121-1)	4/26/17	14:10 Eastern		Water			X	X											3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 4/27/17 1630	Company TA-PEN	Received by:	Date/Time: 4/28/17 1005	Company TA Burl	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

5/10/2017


TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
#1594694494 RIT 09/15
ORIGIN ID:PNSA (850) 474-1001
RICHARD FARMER
TEST AMERICA PENSACOLA
3355 MCLEMORE DR
PENSACOLA, FL 32514
UNITED STATES US
SHIP DATE: 27APR17
ACTWGT: 10.35 LB
CAD: 0335906/CAFE3011
BILL RECIPIENT
TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: S400-65125
FedEx
Express
RT 716
15:00
5901
04 28
FZ
FRI - 28 APR 3:00P
STANDARD OVERNIGHT
TRK# 0201 7013 8369 5901
XH BTVA
05403
VT-US BTV

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-137121-1
SDG Number: CVX Fac 122208

Login Number: 137121
List Number: 1
Creator: Perez, Trina M

List Source: TestAmerica Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.0°C IR-7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-137121-1
SDG Number: CVX Fac 122208

Login Number: 137121
List Number: 2
Creator: Nye, Elizabeth A

List Source: TestAmerica Burlington
List Creation: 04/28/17 11:00 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	359039
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.1° C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-137236-1
TestAmerica Sample Delivery Group: CVX Fac 122208
Client Project/Site: Chillum, MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Authorized for release by:
5/8/2017 4:58:44 PM

Debra Vergin, Project Manager II
(850)363-5129
debra.vergin@testamericainc.com

LINKS

Review your project results through TotalAccess

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 400-137236-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-137236-1

Comments
No additional comments.

Receipt
The samples were received on 4/29/2017 8:54 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0º C.

HPLC/IC
Method 9056: Reanalysis of the following samples were performed outside of the analytical holding time to confirm results due to failure of the continuing calibration verification (CCV) for Nitrate as N in the initial analysis: MW-18-W-170428 (400-137236-1) and MW-45-W-170428 (400-137236-2). The leading CCV was within limits however the capping CCV failed at 10.3%D with 10% as the limit. Original results are reported.

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

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137236-1
SDG: CVX Fac 122208

Client Sample ID: MW-18-W-170428 — Lab Sample ID: 400-137236-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	1.1		0.10		mg/L	1		9056	Total/NA
Sulfate	61		5.0		mg/L	5		9056	Total/NA
Manganese, Dissolved	0.053		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-45-W-170428 — Lab Sample ID: 400-137236-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	3.7		0.10		mg/L	1		9056	Total/NA
Iron, Dissolved	1.1		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.13		0.010		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137236-1
SDG: CVX Fac 122208

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-137236-1	MW-18-W-170428	Water	04/28/17 08:45	04/29/17 08:54
400-137236-2	MW-45-W-170428	Water	04/28/17 09:30	04/29/17 08:54

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137236-1
SDG: CVX Fac 122208

Client Sample ID: MW-18-W-170428
Date Collected: 04/28/17 08:45
Date Received: 04/29/17 08:54

Lab Sample ID: 400-137236-1
Matrix: Water

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.1**		0.10		mg/L			04/29/17 16:18	1
Sulfate	**61**		5.0		mg/L			04/30/17 11:45	5

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 22:41	1
Manganese, Dissolved	**0.053**		0.010		mg/L		05/04/17 10:13	05/05/17 22:41	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137236-1
SDG: CVX Fac 122208

Client Sample ID: MW-45-W-170428
Date Collected: 04/28/17 09:30
Date Received: 04/29/17 08:54

Lab Sample ID: 400-137236-2
Matrix: Water

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	3.7		0.10		mg/L			04/29/17 17:27	1
Sulfate	<1.0		1.0		mg/L			04/30/17 12:54	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	1.1		0.10		mg/L		05/04/17 10:13	05/05/17 22:45	1
Manganese, Dissolved	0.13		0.010		mg/L		05/04/17 10:13	05/05/17 22:45	1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 400-351875/4
Matrix: Water
Analysis Batch: 351875

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/29/17 15:10	1

Lab Sample ID: LCS 400-351875/5
Matrix: Water
Analysis Batch: 351875

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.37		mg/L		105	90 - 110

Lab Sample ID: LCSD 400-351875/6
Matrix: Water
Analysis Batch: 351875

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.26	2.37		mg/L		105	90 - 110	0	15

Lab Sample ID: 400-137236-1 MS
Matrix: Water
Analysis Batch: 351875

Client Sample ID: MW-18-W-170428
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.1		2.26	3.37		mg/L		101	80 - 120

Lab Sample ID: 400-137236-1 MSD
Matrix: Water
Analysis Batch: 351875

Client Sample ID: MW-18-W-170428
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	1.1		2.26	3.27		mg/L		97	80 - 120	3	20

Lab Sample ID: MB 400-351885/4
Matrix: Water
Analysis Batch: 351885

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			04/30/17 09:28	1

Lab Sample ID: LCS 400-351885/5
Matrix: Water
Analysis Batch: 351885

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.0		mg/L		100	90 - 110

Lab Sample ID: LCSD 400-351885/6
Matrix: Water
Analysis Batch: 351885

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	10.0		mg/L		100	90 - 110	0	15

Lab Sample ID: 400-137236-1 MS
Matrix: Water
Analysis Batch: 351885

Client Sample ID: MW-18-W-170428
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate	61		50.0	112		mg/L		103	80 - 120		

Lab Sample ID: 400-137236-1 MSD
Matrix: Water
Analysis Batch: 351885

Client Sample ID: MW-18-W-170428
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	61		50.0	112		mg/L		103	80 - 120	0	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 400-352027/1-B
Matrix: Water
Analysis Batch: 352605

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 352299

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 20:57	1
Manganese, Dissolved	<0.010		0.010		mg/L		05/04/17 10:13	05/05/17 20:57	1

Lab Sample ID: LCS 400-352027/2-B
Matrix: Water
Analysis Batch: 352605

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 352299

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	10.0	9.56		mg/L		96	80 - 120
Manganese, Dissolved	1.00	0.937		mg/L		94	80 - 120

HPLC/IC

Analysis Batch: 351875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137236-1	MW-18-W-170428	Total/NA	Water	9056	
400-137236-2	MW-45-W-170428	Total/NA	Water	9056	
MB 400-351875/4	Method Blank	Total/NA	Water	9056	
LCS 400-351875/5	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351875/6	Lab Control Sample Dup	Total/NA	Water	9056	
400-137236-1 MS	MW-18-W-170428	Total/NA	Water	9056	
400-137236-1 MSD	MW-18-W-170428	Total/NA	Water	9056	

Analysis Batch: 351885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137236-1	MW-18-W-170428	Total/NA	Water	9056	
400-137236-2	MW-45-W-170428	Total/NA	Water	9056	
MB 400-351885/4	Method Blank	Total/NA	Water	9056	
LCS 400-351885/5	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351885/6	Lab Control Sample Dup	Total/NA	Water	9056	
400-137236-1 MS	MW-18-W-170428	Total/NA	Water	9056	
400-137236-1 MSD	MW-18-W-170428	Total/NA	Water	9056	

Metals

Filtration Batch: 352027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137236-1	MW-18-W-170428	Dissolved	Water	FILTRATION	
400-137236-2	MW-45-W-170428	Dissolved	Water	FILTRATION	
MB 400-352027/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	

Prep Batch: 352299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137236-1	MW-18-W-170428	Dissolved	Water	3005A	352027
400-137236-2	MW-45-W-170428	Dissolved	Water	3005A	352027
MB 400-352027/1-B	Method Blank	Dissolved	Water	3005A	352027
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	3005A	352027

Analysis Batch: 352605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137236-1	MW-18-W-170428	Dissolved	Water	6010C	352299
400-137236-2	MW-45-W-170428	Dissolved	Water	6010C	352299
MB 400-352027/1-B	Method Blank	Dissolved	Water	6010C	352299
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	6010C	352299

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137236-1
SDG: CVX Fac 122208

Client Sample ID: MW-18-W-170428

Lab Sample ID: 400-137236-1

Date Collected: 04/28/17 08:45

Matrix: Water

Date Received: 04/29/17 08:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351875	04/29/17 16:18	KH1	TAL PEN
Total/NA	Analysis	9056		5			351885	04/30/17 11:45	KH1	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 17:29	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 22:41	SEH	TAL PEN

Client Sample ID: MW-45-W-170428

Lab Sample ID: 400-137236-2

Date Collected: 04/28/17 09:30

Matrix: Water

Date Received: 04/29/17 08:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351875	04/29/17 17:27	KH1	TAL PEN
Total/NA	Analysis	9056		1			351885	04/30/17 12:54	KH1	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 17:29	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 22:45	SEH	TAL PEN

Client Sample ID: Method Blank

Lab Sample ID: MB 400-351875/4

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351875	04/29/17 15:10	KH1	TAL PEN

Client Sample ID: Method Blank

Lab Sample ID: MB 400-351885/4

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351885	04/30/17 09:28	KH1	TAL PEN

Client Sample ID: Method Blank

Lab Sample ID: MB 400-352027/1-B

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 20:57	SEH	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137236-1
SDG: CVX Fac 122208

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351875/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351875	04/29/17 15:33	KH1	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351885/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351885	04/30/17 09:51	KH1	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-352027/2-B

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:10	SEH	TAL PEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 400-351875/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351875	04/29/17 15:56	KH1	TAL PEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 400-351885/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351885	04/30/17 10:14	KH1	TAL PEN

Client Sample ID: MW-18-W-170428 — Lab Sample ID: 400-137236-1 MS

Date Collected: 04/28/17 08:45
Date Received: 04/29/17 08:54
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351875	04/29/17 16:41	KH1	TAL PEN
Total/NA	Analysis	9056		5			351885	04/30/17 12:08	KH1	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137236-1
SDG: CVX Fac 122208

Client Sample ID: MW-18-W-170428
Date Collected: 04/28/17 08:45
Date Received: 04/29/17 08:54

Lab Sample ID: 400-137236-1 MSD
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351875	04/29/17 17:04	KH1	TAL PEN
Total/NA	Analysis	9056		5			351885	04/30/17 12:31	KH1	TAL PEN

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137236-1
SDG: CVX Fac 122208

Method	Method Description	Protocol	Laboratory
9056	Anions, Ion Chromatography	SW846	TAL PEN
6010C	Metals (ICP)	SW846	TAL PEN

Protocol References:

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

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137236-1
SDG: CVX Fac 122208

Laboratory: TestAmerica Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	233	09-30-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Iron, Dissolved
6010C	3005A	Water	Manganese, Dissolved
9056		Water	Nitrate as N
9056		Water	Sulfate

180325

SERIAL NUMBER:

400-137236 COC

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CHEVRON

BALTIMORE

TestAmerica
3355 McLemore Drive
Pensacola, FL 32514

Phone: 850-474-1001
Fax: 850-478-2671
Website: www.testamericainc.com

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

QUOTE NO.	BOTTLE ORDER NO.	ORDER - LOG-IN NO.

CONSULTANT	CONSULTANT ADDRESS	CONSULTANT PM	REQUESTED ANALYSIS	PAGE	OF
Arcadis	7550 Teague Rd Hanover, MD 21076 Ste 210	L. Vogel		1	1

CHEVRON FACILITY ID / ADDRESS (CITY & STATE)	CONSULTANT PROJ # OR PO #	CHEVRON PM
122208 / Chilkum, MD	B004I9337	M. Thompson

SAMPLED BY	WBS NO. (BILLING CODE)	SERVICE ORDER NO.
JB/LO	NWRTB	~~B004I9337~~ B004I9337

CLIENT PHONE	CLIENT E-MAIL OR FAX
443-359-9512	Anthony.Rascamella@arcadis.com

TAT REQUESTED: RUSH NEEDS LAB PREAPPROVAL ☐ NORMAL - 14 CALENDAR DAYS ☒
☐ 1 DAY ☐ 2 DAYS ☐ 5 DAYS ☐ 10 DAYS ☐ OTHER:

SAMPLE DISPOSAL: ☐ RETURN TO CLIENT ☒ DISPOSAL BY LAB
PACKAGE (DELIVERABLE): ☐ TX TRRP ☐ NJ ☒ OTHER: EDD Lotus simplified

9056 Sulfate, Nitrate

POSSIBLE HAZARD IDENTIFICATION
- Δ NON-HAZARD
- Δ FLAMMABLE
- Δ RADIOACTIVE
- Δ POISON B
- Δ UNKNOWN
- Δ OTHER:

NO. OF COOLERS PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	PRESERVATIVE: No Preservative	HCL - Hydrochloric Acid	HNO_3 - Nitric Acid	H_2SO_4 - Sulfuric Acid or H_3PO_4	NAOH - Sodium Hydroxide	CH_3OH - Methanol	$NAHSO_4$ - Sodium Bisulfite	$NA_2S_2O_3$ - Sodium Thiosulfate	Other:	MATRIX: Drinking Water	Aqueous GW, SW, WW	Solid, Semisolid, Sediment	Air	NonAqueous (Oil, Solvent, etc.)	NUMBER OF CONTAINERS SUBMITTED	SPECIAL INSTRUCTIONS
4/28/17	0845	MW-18	X										X				2	
4/28/17	0930	MW-45	X										X				2	
		~~Trip Blank~~		X									X			X		
		Temp Blank											X					

LAB USE ONLY - SAMPLE NUMBER

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS				4/28/17	1520		4-28-2017	1605
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
EMPTY CONTAINERS				4-28-2017	1520			

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY:	DATE	TIME	CUSTODY INTACT?	CUSTODY SEAL NO.	COOLER TEMPERATURE(S) °C & OTHER REMARKS:
	4/29/17	0854	Δ YES Δ NO		4.0°C IR2

TAL-0023 (0608)

5/8/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-137236-1
SDG Number: CVX Fac 122208

Login Number: 137236
List Number: 1
Creator: Perez, Trina M

List Source: TestAmerica Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.0°C IR-2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-137786-1
TestAmerica Sample Delivery Group: CVX Fac 122208
Client Project/Site: Chillum, MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Debra A Vergin

Authorized for release by:
5/23/2017 10:52:12 AM

Debra Vergin, Project Manager II
(850)363-5129
debra.vergin@testamericainc.com

Links

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 400-137786-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-137786-1

Comments
No additional comments.

Receipt
The samples were received on 5/11/2017 8:59 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 13.0º C.

Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: MW-26A-W-170511 (400-137786-1), MW-26B-W-170511 (400-137786-2), MW-58-W-170511 (400-137786-3), MW-59-W-170511 (400-137786-4) and MW-60-W-170511 (400-137786-5).

The client was contacted regarding this issue, and the laboratory was instructed to proceed with analysis.

General Chemistry
Method(s) SM 3500 FE D: The following sample was diluted to bring the concentration of target analytes within the calibration range for Ferrous Iron: MW-26A-W-170511 (400-137786-1) and MW-60-W-170511 (400-137786-5). Elevated reporting limits (RLs) are provided.

Method(s) SM 4500 NO2 B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 400-353420 were outside control limits. Sample matrix interference and is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) SM 4500 NO3 F: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 400-353391 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) SM 4500 SO4 E: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-26B-W-170511 (400-137786-2), MW-58-W-170511 (400-137786-3) and MW-59-W-170511 (400-137786-4). Elevated reporting limits (RLs) are provided.

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: MW-26A-W-170511 — Lab Sample ID: 400-137786-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity as CaCO3	220		1.0		mg/L	1		SM 2320B	Total/NA
Ferrous Iron	14	HF	1.0		mg/L	10		SM3500_FE_D	Total/NA

Client Sample ID: MW-26B-W-170511 — Lab Sample ID: 400-137786-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	1.8		0.050		mg/L	1		Nitrate by calc	Total/NA
Alkalinity as CaCO3	4.9		1.0		mg/L	1		SM 2320B	Total/NA
Nitrate Nitrite as N	1.8		0.050		mg/L	1		SM 4500 NO3 F	Total/NA
Sulfate	38		25		mg/L	5		SM 4500 SO4 E	Total/NA

Client Sample ID: MW-58-W-170511 — Lab Sample ID: 400-137786-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	1.9		0.050		mg/L	1		Nitrate by calc	Total/NA
Alkalinity as CaCO3	1.8		1.0		mg/L	1		SM 2320B	Total/NA
Nitrate Nitrite as N	1.9		0.050		mg/L	1		SM 4500 NO3 F	Total/NA
Sulfate	36		25		mg/L	5		SM 4500 SO4 E	Total/NA

Client Sample ID: MW-59-W-170511 — Lab Sample ID: 400-137786-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	1.5		0.050		mg/L	1		Nitrate by calc	Total/NA
Alkalinity as CaCO3	4.0		1.0		mg/L	1		SM 2320B	Total/NA
Nitrate Nitrite as N	1.5		0.050		mg/L	1		SM 4500 NO3 F	Total/NA
Sulfate	36		10		mg/L	2		SM 4500 SO4 E	Total/NA
Ferrous Iron	0.10	HF	0.10		mg/L	1		SM3500_FE_D	Total/NA

Client Sample ID: MW-60-W-170511 — Lab Sample ID: 400-137786-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity as CaCO3	110		1.0		mg/L	1		SM 2320B	Total/NA
Sulfate	22		5.0		mg/L	1		SM 4500 SO4 E	Total/NA
Ferrous Iron	16	HF	1.0		mg/L	10		SM3500_FE_D	Total/NA

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-137786-1	MW-26A-W-170511	Water	05/10/17 11:20	05/11/17 08:59
400-137786-2	MW-26B-W-170511	Water	05/10/17 11:50	05/11/17 08:59
400-137786-3	MW-58-W-170511	Water	05/10/17 12:30	05/11/17 08:59
400-137786-4	MW-59-W-170511	Water	05/10/17 13:00	05/11/17 08:59
400-137786-5	MW-60-W-170511	Water	05/10/17 13:30	05/11/17 08:59

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: MW-26A-W-170511
Date Collected: 05/10/17 11:20
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.050		0.050		mg/L			05/12/17 15:33	1
Alkalinity as CaCO3	**220**		1.0		mg/L			05/12/17 13:43	1
Nitrite as N	<0.10	F1	0.10		mg/L			05/12/17 09:11	1
Nitrate Nitrite as N	<0.050	F1	0.050		mg/L			05/12/17 14:22	1
Sulfate	<5.0		5.0		mg/L			05/16/17 15:45	1
Ferrous Iron	**14**	**HF**	1.0		mg/L			05/17/17 18:12	10

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: MW-26B-W-170511
Date Collected: 05/10/17 11:50
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-2
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.8**		0.050		mg/L			05/12/17 15:33	1
Alkalinity as CaCO3	**4.9**		1.0		mg/L			05/12/17 13:48	1
Nitrite as N	<0.10		0.10		mg/L			05/12/17 09:13	1
Nitrate Nitrite as N	**1.8**		0.050		mg/L			05/12/17 14:25	1
Sulfate	**38**		25		mg/L			05/16/17 16:23	5
Ferrous Iron	<0.10	HF	0.10		mg/L			05/17/17 17:49	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: MW-58-W-170511
Date Collected: 05/10/17 12:30
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-3
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.9**		0.050		mg/L			05/12/17 15:33	1
Alkalinity as CaCO3	**1.8**		1.0		mg/L			05/12/17 13:52	1
Nitrite as N	<0.10		0.10		mg/L			05/12/17 09:13	1
Nitrate Nitrite as N	**1.9**		0.050		mg/L			05/12/17 14:37	1
Sulfate	**36**		25		mg/L			05/16/17 16:23	5
Ferrous Iron	<0.10	HF	0.10		mg/L			05/17/17 17:49	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: MW-59-W-170511
Date Collected: 05/10/17 13:00
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-4
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.5**		0.050		mg/L			05/12/17 15:33	1
Alkalinity as CaCO3	**4.0**		1.0		mg/L			05/12/17 13:57	1
Nitrite as N	<0.10		0.10		mg/L			05/12/17 09:13	1
Nitrate Nitrite as N	**1.5**		0.050		mg/L			05/12/17 14:38	1
Sulfate	**36**		10		mg/L			05/17/17 09:35	2
Ferrous Iron	**0.10**	**HF**	0.10		mg/L			05/17/17 17:49	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: MW-60-W-170511
Date Collected: 05/10/17 13:30
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-5
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.050		0.050		mg/L			05/12/17 15:33	1
Alkalinity as CaCO3	**110**		1.0		mg/L			05/12/17 14:02	1
Nitrite as N	<0.10		0.10		mg/L			05/12/17 09:13	1
Nitrate Nitrite as N	<0.050	F1	0.050		mg/L			05/12/17 14:34	1
Sulfate	**22**		5.0		mg/L			05/17/17 09:00	1
Ferrous Iron	**16**	**HF**	1.0		mg/L			05/17/17 18:12	10

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: Nitrate by calc - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 400-353397/48
Matrix: Water
Analysis Batch: 353397

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	N/A		0.050		mg/L			05/12/17 15:33	1

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 400-353384/4
Matrix: Water
Analysis Batch: 353384

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity as CaCO3	<1.0		1.0		mg/L			05/12/17 11:41	1

Lab Sample ID: LCS 400-353384/5
Matrix: Water
Analysis Batch: 353384

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity as CaCO3	100	106		mg/L		106	80 - 120

Method: SM 4500 NO2 B - Nitrogen, Nitrite

Lab Sample ID: MB 400-353420/6
Matrix: Water
Analysis Batch: 353420

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	<0.10		0.10		mg/L			05/12/17 09:11	1

Lab Sample ID: LCS 400-353420/7
Matrix: Water
Analysis Batch: 353420

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	0.300	0.290		mg/L		97	90 - 110

Lab Sample ID: MRL 400-353420/3
Matrix: Water
Analysis Batch: 353420

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	0.100	0.103		mg/L		103	50 - 150

Lab Sample ID: 400-137786-1 MS
Matrix: Water
Analysis Batch: 353420

Client Sample ID: MW-26A-W-170511
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite as N	<0.10	F1	0.200	0.119	F1	mg/L		59	80 - 118

Method: SM 4500 NO2 B - Nitrogen, Nitrite (Continued)

Lab Sample ID: 400-137786-1 MSD — **Client Sample ID: MW-26A-W-170511**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353420

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrite as N	<0.10	F1	0.200	0.121	F1	mg/L		61	80 - 118	2	9

Method: SM 4500 NO3 F - Nitrogen, Nitrate

Lab Sample ID: MB 400-353391/48 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353391

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	<0.050		0.050		mg/L			05/12/17 14:21	1

Lab Sample ID: LCS 400-353391/49 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353391

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.500	0.537		mg/L		107	90 - 110

Lab Sample ID: MRL 400-353391/13 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353391

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.0500	<0.050		mg/L		98	50 - 150

Lab Sample ID: 400-137786-1 MS — **Client Sample ID: MW-26A-W-170511**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353391

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	<0.050	F1	1.00	0.923		mg/L		90	90 - 110

Lab Sample ID: 400-137786-1 MSD — **Client Sample ID: MW-26A-W-170511**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353391

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	<0.050	F1	1.00	0.893	F1	mg/L		87	90 - 110	3	4

Lab Sample ID: 400-137786-5 MS — **Client Sample ID: MW-60-W-170511**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 353391

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	<0.050	F1	1.00	0.610	F1	mg/L		61	90 - 110

Method: SM 4500 NO3 F - Nitrogen, Nitrate (Continued)

Lab Sample ID: 400-137786-5 MSD
Matrix: Water
Analysis Batch: 353391

Client Sample ID: MW-60-W-170511
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	<0.050	F1	1.00	0.610	F1	mg/L		61	90 - 110	0	4

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 400-353749/6
Matrix: Water
Analysis Batch: 353749

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			05/16/17 14:12	1

Lab Sample ID: LCS 400-353749/7
Matrix: Water
Analysis Batch: 353749

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	15.0	14.3		mg/L		95	90 - 110

Lab Sample ID: MRL 400-353749/3
Matrix: Water
Analysis Batch: 353749

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	<5.0		mg/L		85	50 - 150

Lab Sample ID: MB 400-353841/6
Matrix: Water
Analysis Batch: 353841

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			05/17/17 08:24	1

Lab Sample ID: LCS 400-353841/7
Matrix: Water
Analysis Batch: 353841

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	15.0	14.4		mg/L		96	90 - 110

Lab Sample ID: MRL 400-353841/3
Matrix: Water
Analysis Batch: 353841

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	<5.0		mg/L		86	50 - 150

Method: SM3500_FE_D - Ferrous Iron

Lab Sample ID: MB 400-353942/7
Matrix: Water
Analysis Batch: 353942

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ferrous Iron	<0.10		0.10		mg/L			05/17/17 17:42	1

Lab Sample ID: LCS 400-353942/8
Matrix: Water
Analysis Batch: 353942

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	0.500	0.508		mg/L		102	90 - 110

Lab Sample ID: MRL 400-353942/3
Matrix: Water
Analysis Batch: 353942

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	0.100	<0.10		mg/L		95	50 - 150

Lab Sample ID: 400-137786-1 MS
Matrix: Water
Analysis Batch: 353942

Client Sample ID: MW-26A-W-170511
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ferrous Iron	14	HF	5.00	18.2		mg/L		94	55 - 134

Lab Sample ID: 400-137786-1 MSD
Matrix: Water
Analysis Batch: 353942

Client Sample ID: MW-26A-W-170511
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ferrous Iron	14	HF	5.00	18.6		mg/L		101	55 - 134	2	26

Lab Sample ID: 400-137786-5 DU
Matrix: Water
Analysis Batch: 353942

Client Sample ID: MW-60-W-170511
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ferrous Iron	16	HF	15.9		mg/L		2	20

General Chemistry

Analysis Batch: 353384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137786-1	MW-26A-W-170511	Total/NA	Water	SM 2320B	
400-137786-2	MW-26B-W-170511	Total/NA	Water	SM 2320B	
400-137786-3	MW-58-W-170511	Total/NA	Water	SM 2320B	
400-137786-4	MW-59-W-170511	Total/NA	Water	SM 2320B	
400-137786-5	MW-60-W-170511	Total/NA	Water	SM 2320B	
MB 400-353384/4	Method Blank	Total/NA	Water	SM 2320B	
LCS 400-353384/5	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 353391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137786-1	MW-26A-W-170511	Total/NA	Water	SM 4500 NO3 F	
400-137786-2	MW-26B-W-170511	Total/NA	Water	SM 4500 NO3 F	
400-137786-3	MW-58-W-170511	Total/NA	Water	SM 4500 NO3 F	
400-137786-4	MW-59-W-170511	Total/NA	Water	SM 4500 NO3 F	
400-137786-5	MW-60-W-170511	Total/NA	Water	SM 4500 NO3 F	
MB 400-353391/48	Method Blank	Total/NA	Water	SM 4500 NO3 F	
LCS 400-353391/49	Lab Control Sample	Total/NA	Water	SM 4500 NO3 F	
MRL 400-353391/13	Lab Control Sample	Total/NA	Water	SM 4500 NO3 F	
400-137786-1 MS	MW-26A-W-170511	Total/NA	Water	SM 4500 NO3 F	
400-137786-1 MSD	MW-26A-W-170511	Total/NA	Water	SM 4500 NO3 F	
400-137786-5 MS	MW-60-W-170511	Total/NA	Water	SM 4500 NO3 F	
400-137786-5 MSD	MW-60-W-170511	Total/NA	Water	SM 4500 NO3 F	

Analysis Batch: 353397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137786-1	MW-26A-W-170511	Total/NA	Water	Nitrate by calc	
400-137786-2	MW-26B-W-170511	Total/NA	Water	Nitrate by calc	
400-137786-3	MW-58-W-170511	Total/NA	Water	Nitrate by calc	
400-137786-4	MW-59-W-170511	Total/NA	Water	Nitrate by calc	
400-137786-5	MW-60-W-170511	Total/NA	Water	Nitrate by calc	
MB 400-353397/48	Method Blank	Total/NA	Water	Nitrate by calc	
LCS 400-353397/49	Lab Control Sample	Total/NA	Water	Nitrate by calc	
400-137786-1 MS	MW-26A-W-170511	Total/NA	Water	Nitrate by calc	
400-137786-1 MSD	MW-26A-W-170511	Total/NA	Water	Nitrate by calc	
400-137786-5 MS	MW-60-W-170511	Total/NA	Water	Nitrate by calc	
400-137786-5 MSD	MW-60-W-170511	Total/NA	Water	Nitrate by calc	

Analysis Batch: 353420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137786-1	MW-26A-W-170511	Total/NA	Water	SM 4500 NO2 B	
400-137786-2	MW-26B-W-170511	Total/NA	Water	SM 4500 NO2 B	
400-137786-3	MW-58-W-170511	Total/NA	Water	SM 4500 NO2 B	
400-137786-4	MW-59-W-170511	Total/NA	Water	SM 4500 NO2 B	
400-137786-5	MW-60-W-170511	Total/NA	Water	SM 4500 NO2 B	
MB 400-353420/6	Method Blank	Total/NA	Water	SM 4500 NO2 B	
LCS 400-353420/7	Lab Control Sample	Total/NA	Water	SM 4500 NO2 B	
MRL 400-353420/3	Lab Control Sample	Total/NA	Water	SM 4500 NO2 B	
400-137786-1 MS	MW-26A-W-170511	Total/NA	Water	SM 4500 NO2 B	
400-137786-1 MSD	MW-26A-W-170511	Total/NA	Water	SM 4500 NO2 B	

General Chemistry (Continued)

Analysis Batch: 353749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137786-1	MW-26A-W-170511	Total/NA	Water	SM 4500 SO4 E	
400-137786-2	MW-26B-W-170511	Total/NA	Water	SM 4500 SO4 E	
400-137786-3	MW-58-W-170511	Total/NA	Water	SM 4500 SO4 E	
MB 400-353749/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-353749/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-353749/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 353841

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137786-4	MW-59-W-170511	Total/NA	Water	SM 4500 SO4 E	
400-137786-5	MW-60-W-170511	Total/NA	Water	SM 4500 SO4 E	
MB 400-353841/6	Method Blank	Total/NA	Water	SM 4500 SO4 E	
LCS 400-353841/7	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MRL 400-353841/3	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	

Analysis Batch: 353942

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137786-1	MW-26A-W-170511	Total/NA	Water	SM3500_FE_D	
400-137786-2	MW-26B-W-170511	Total/NA	Water	SM3500_FE_D	
400-137786-3	MW-58-W-170511	Total/NA	Water	SM3500_FE_D	
400-137786-4	MW-59-W-170511	Total/NA	Water	SM3500_FE_D	
400-137786-5	MW-60-W-170511	Total/NA	Water	SM3500_FE_D	
MB 400-353942/7	Method Blank	Total/NA	Water	SM3500_FE_D	
LCS 400-353942/8	Lab Control Sample	Total/NA	Water	SM3500_FE_D	
MRL 400-353942/3	Lab Control Sample	Total/NA	Water	SM3500_FE_D	
400-137786-1 MS	MW-26A-W-170511	Total/NA	Water	SM3500_FE_D	
400-137786-1 MSD	MW-26A-W-170511	Total/NA	Water	SM3500_FE_D	
400-137786-5 DU	MW-60-W-170511	Total/NA	Water	SM3500_FE_D	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: MW-26A-W-170511
Date Collected: 05/10/17 11:20
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN
Total/NA	Analysis	SM 2320B		1			353384	05/12/17 13:43	BAB	TAL PEN
Total/NA	Analysis	SM 4500 NO2 B		1			353420	05/12/17 09:11	JLB	TAL PEN
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:22	KJR	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	10 mL	10 mL	353749	05/16/17 15:45	BJB	TAL PEN
Total/NA	Analysis	SM3500_FE_D		10	10 mL	10 mL	353942	05/17/17 18:12	JAT	TAL PEN

Client Sample ID: MW-26B-W-170511
Date Collected: 05/10/17 11:50
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN
Total/NA	Analysis	SM 2320B		1			353384	05/12/17 13:48	BAB	TAL PEN
Total/NA	Analysis	SM 4500 NO2 B		1			353420	05/12/17 09:13	JLB	TAL PEN
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:25	KJR	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		5	10 mL	10 mL	353749	05/16/17 16:23	BJB	TAL PEN
Total/NA	Analysis	SM3500_FE_D		1	10 mL	10 mL	353942	05/17/17 17:49	JAT	TAL PEN

Client Sample ID: MW-58-W-170511
Date Collected: 05/10/17 12:30
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN
Total/NA	Analysis	SM 2320B		1			353384	05/12/17 13:52	BAB	TAL PEN
Total/NA	Analysis	SM 4500 NO2 B		1			353420	05/12/17 09:13	JLB	TAL PEN
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:37	KJR	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		5	10 mL	10 mL	353749	05/16/17 16:23	BJB	TAL PEN
Total/NA	Analysis	SM3500_FE_D		1	10 mL	10 mL	353942	05/17/17 17:49	JAT	TAL PEN

Client Sample ID: MW-59-W-170511
Date Collected: 05/10/17 13:00
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN
Total/NA	Analysis	SM 2320B		1			353384	05/12/17 13:57	BAB	TAL PEN
Total/NA	Analysis	SM 4500 NO2 B		1			353420	05/12/17 09:13	JLB	TAL PEN
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:38	KJR	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: MW-59-W-170511
Date Collected: 05/10/17 13:00
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		2	10 mL	10 mL	353841	05/17/17 09:35	BJB	TAL PEN
Total/NA	Analysis	SM3500_FE_D		1	10 mL	10 mL	353942	05/17/17 17:49	JAT	TAL PEN

Client Sample ID: MW-60-W-170511
Date Collected: 05/10/17 13:30
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN
Total/NA	Analysis	SM 2320B		1			353384	05/12/17 14:02	BAB	TAL PEN
Total/NA	Analysis	SM 4500 NO2 B		1			353420	05/12/17 09:13	JLB	TAL PEN
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:34	KJR	TAL PEN
Total/NA	Analysis	SM 4500 SO4 E		1	10 mL	10 mL	353841	05/17/17 09:00	BJB	TAL PEN
Total/NA	Analysis	SM3500_FE_D		10	10 mL	10 mL	353942	05/17/17 18:12	JAT	TAL PEN

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 400-353384/4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2320B		1			353384	05/12/17 11:41	BAB	TAL PEN

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 400-353391/48
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:21	KJR	TAL PEN

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 400-353397/48
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: Method Blank — Lab Sample ID: MB 400-353420/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 NO2 B		1			353420	05/12/17 09:11	JLB	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-353749/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		1	10 mL	10 mL	353749	05/16/17 14:12	BJB	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-353841/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		1	10 mL	10 mL	353841	05/17/17 08:24	BJB	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-353942/7

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM3500_FE_D		1	10 mL	10 mL	353942	05/17/17 17:42	JAT	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-353384/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2320B		1			353384	05/12/17 11:50	BAB	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-353391/49

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:21	KJR	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-353397/49

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-353420/7

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 NO2 B		1			353420	05/12/17 09:11	JLB	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-353749/7

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		1	10 mL	10 mL	353749	05/16/17 14:12	BJB	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-353841/7

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		1	10 mL	10 mL	353841	05/17/17 08:24	BJB	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-353942/8

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM3500_FE_D		1	10 mL	10 mL	353942	05/17/17 17:42	JAT	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: MRL 400-353391/13

Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 13:50	KJR	TAL PEN

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MRL 400-353420/3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 NO2 B		1			353420	05/12/17 09:10	JLB	TAL PEN

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MRL 400-353749/3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		1	10 mL	10 mL	353749	05/16/17 14:12	BJB	TAL PEN

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MRL 400-353841/3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		1	10 mL	10 mL	353841	05/17/17 08:24	BJB	TAL PEN

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MRL 400-353942/3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM3500_FE_D		1	10 mL	10 mL	353942	05/17/17 17:42	JAT	TAL PEN

Client Sample ID: MW-26A-W-170511
Date Collected: 05/10/17 11:20
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-1 MS
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN
Total/NA	Analysis	SM 4500 NO2 B		1			353420	05/12/17 09:11	JLB	TAL PEN
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:23	KJR	TAL PEN
Total/NA	Analysis	SM3500_FE_D		10	10 mL	10 mL	353942	05/17/17 18:12	JAT	TAL PEN

Client Sample ID: MW-26A-W-170511
Date Collected: 05/10/17 11:20
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-1 MSD
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN
Total/NA	Analysis	SM 4500 NO2 B		1			353420	05/12/17 09:11	JLB	TAL PEN
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:24	KJR	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Client Sample ID: MW-26A-W-170511
Date Collected: 05/10/17 11:20
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-1 MSD
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM3500_FE_D		10	10 mL	10 mL	353942	05/17/17 18:12	JAT	TAL PEN

Client Sample ID: MW-60-W-170511
Date Collected: 05/10/17 13:30
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-5 MS
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:35	KJR	TAL PEN

Client Sample ID: MW-60-W-170511
Date Collected: 05/10/17 13:30
Date Received: 05/11/17 08:59

Lab Sample ID: 400-137786-5 MSD
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Nitrate by calc		1	10 mL	10 mL	353397	05/12/17 15:33	KJR	TAL PEN
Total/NA	Analysis	SM 4500 NO3 F		1	10 mL	10 mL	353391	05/12/17 14:36	KJR	TAL PEN

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Method	Method Description	Protocol	Laboratory
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL PEN
SM 2320B	Alkalinity	SM	TAL PEN
SM 4500 NO2 B	Nitrogen, Nitrite	SM	TAL PEN
SM 4500 NO3 F	Nitrogen, Nitrate	SM	TAL PEN
SM 4500 SO4 E	Sulfate, Total	SM	TAL PEN
SM3500_FE_D	Ferrous Iron	SM20	TAL PEN

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",
SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-137786-1
SDG: CVX Fac 122208

Laboratory: TestAmerica Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	233	09-30-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
Nitrate by calc		Water	Nitrate as N
SM 2320B		Water	Alkalinity as CaCO3
SM 4500 NO3 F		Water	Nitrate Nitrite as N
SM 4500 SO4 E		Water	Sulfate
SM3500_FE_D		Water	Ferrous Iron

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

BALTIMORE

Client Information	Sampler: A. King / J. Gerdes	Lab PM: Vergin, Debra	Carrier Tracking No(s):	COC No: 400-63885-25284.1
Client Contact: Lauren Vogel	Phone: 410-350-9147	E-Mail: debra.vergin@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S., Inc.				Job #:

180325

Analysis Requested

Address: 2101 L Street NW Suite 200	Due Date Requested:
City: Washington	TAT Requested (days): standard
State, Zip: DC, 20037	
Phone: 202-909-6892(Tel)	PO #: B0049337.0004
Email: lauren.vogel@arcadis-us.com	WO #:
Project Name: Chillum, MD, CVX Fac 122208	Project #: 40003308
Site: Chillum	SSOW#:

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Nitrate_Calc, SM4500_NO3_F	SM4500_NO2_B, SM4500_SO4_E	2320B - Alkalinity as CaCO3	3500_FE_D - Ferrous Iron	Total Number of containers	Special Instructions/Note:
			Preservation Code:				S	N	N	S		
MW-26A	5/10/17	1120	G	W			1	1	1	1		
MW-26B		1150										
MW-58		1230										
MW-59		1300										
MW-60		1330										
Temp Blank												

400-137786 COC

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		5/10/17, 1455			5/10/17 1641	TA
2		5/11/17 1047	TA		5/11/17 0859	TA Pen
3						

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 13.0°C IR2

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-137786-1
SDG Number: CVX Fac 122208

Login Number: 137786
List Number: 1
Creator: Perez, Trina M

List Source: TestAmerica Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	Water present in cooler; indicates evidence of melted ice.
Cooler Temperature is acceptable.	False	Refer to Job Narrative for details.
Cooler Temperature is recorded.	True	13.0°C IR-2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

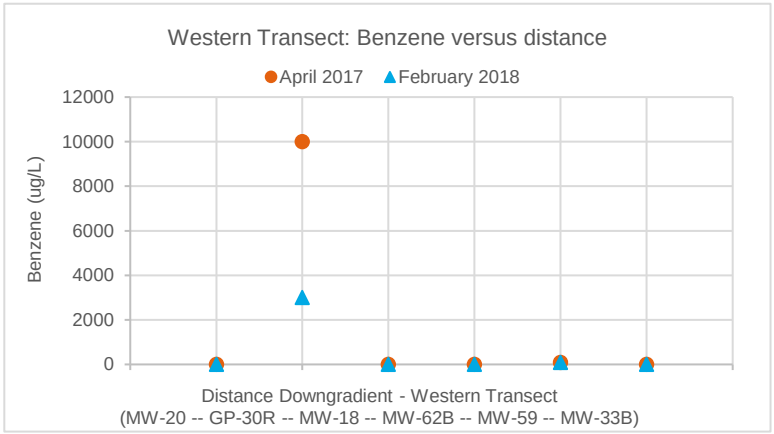
APPENDIX U

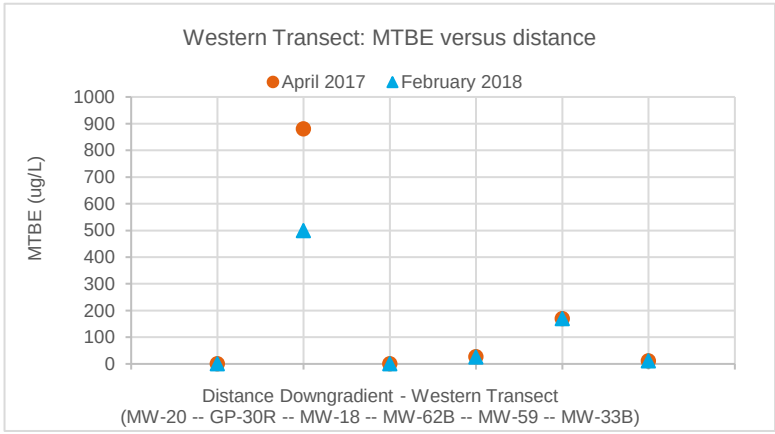
MNA Results

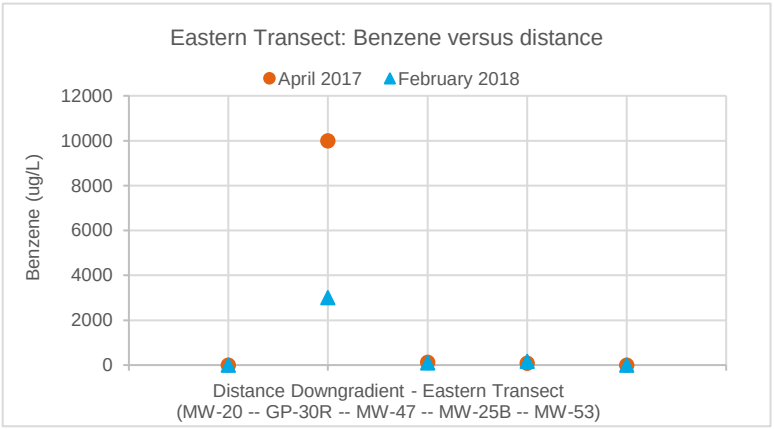
Tier 1 Natural Attenuation Analysis Plots

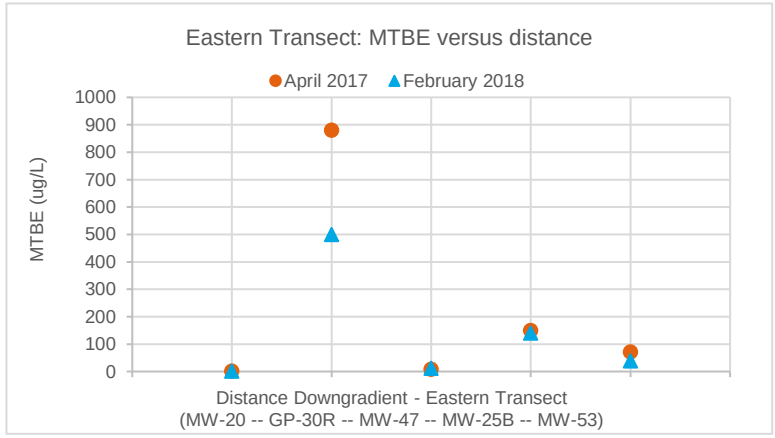
Tier 1 Natural Attenuation Analysis - Longitudinal Well Transect Plots

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

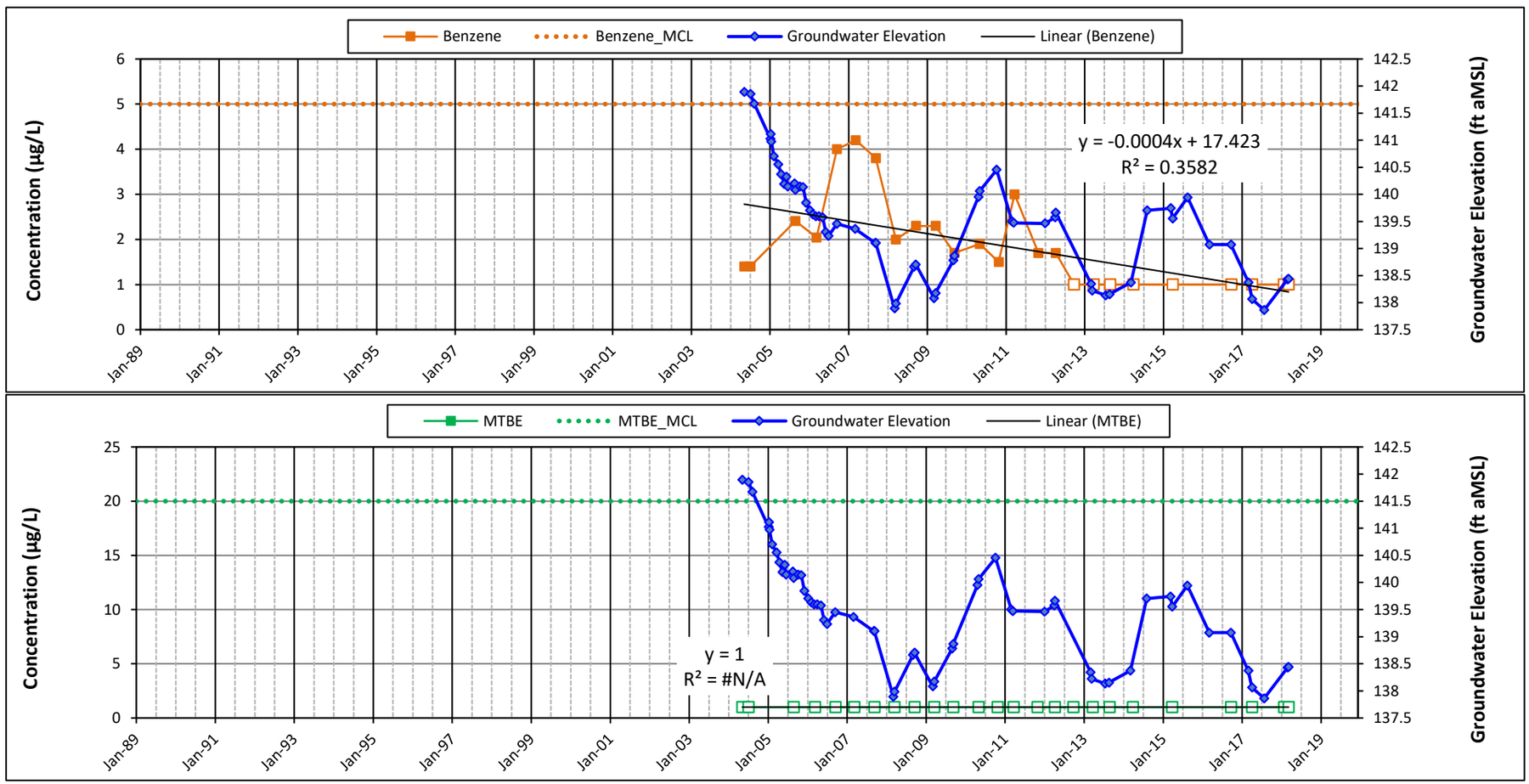




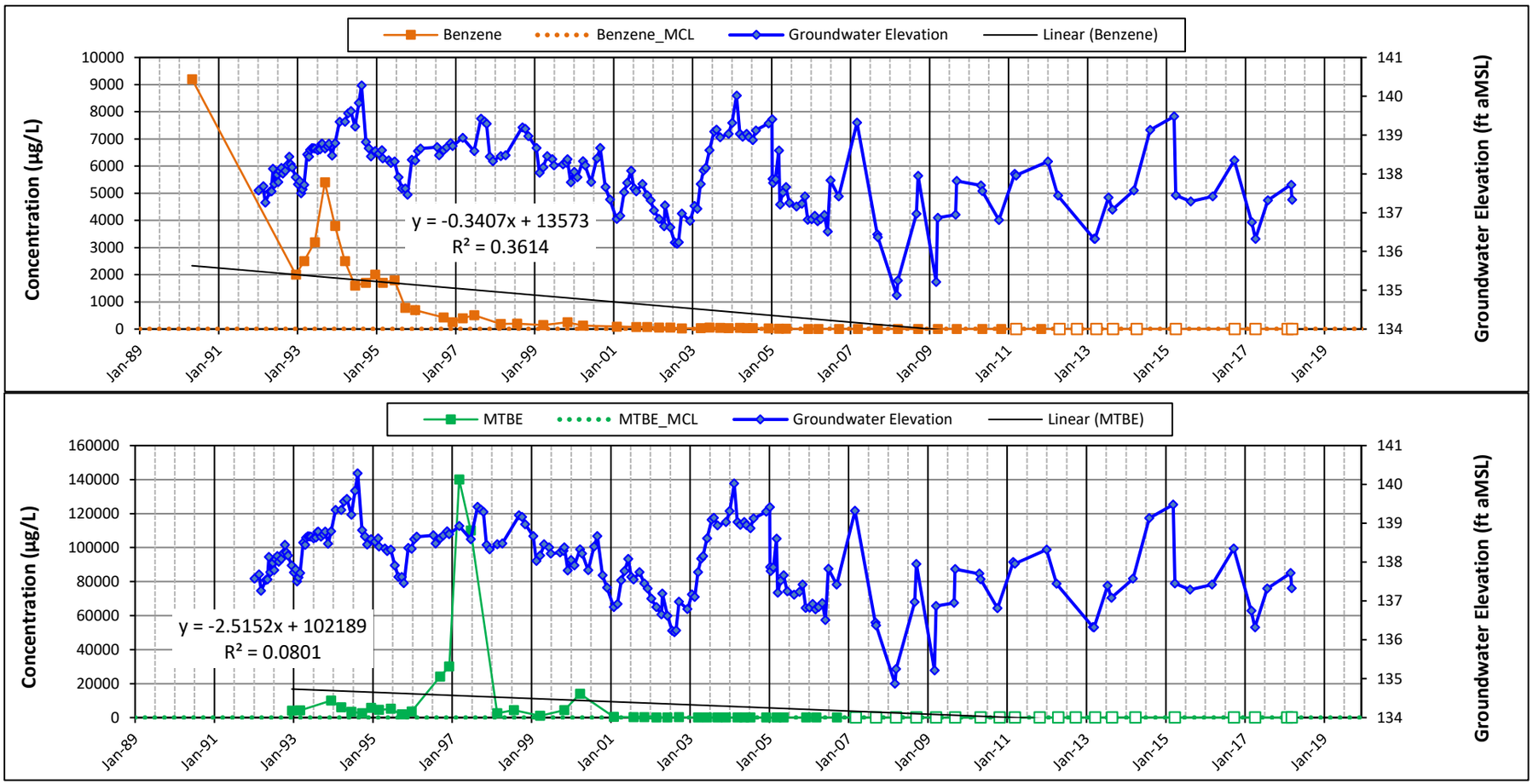




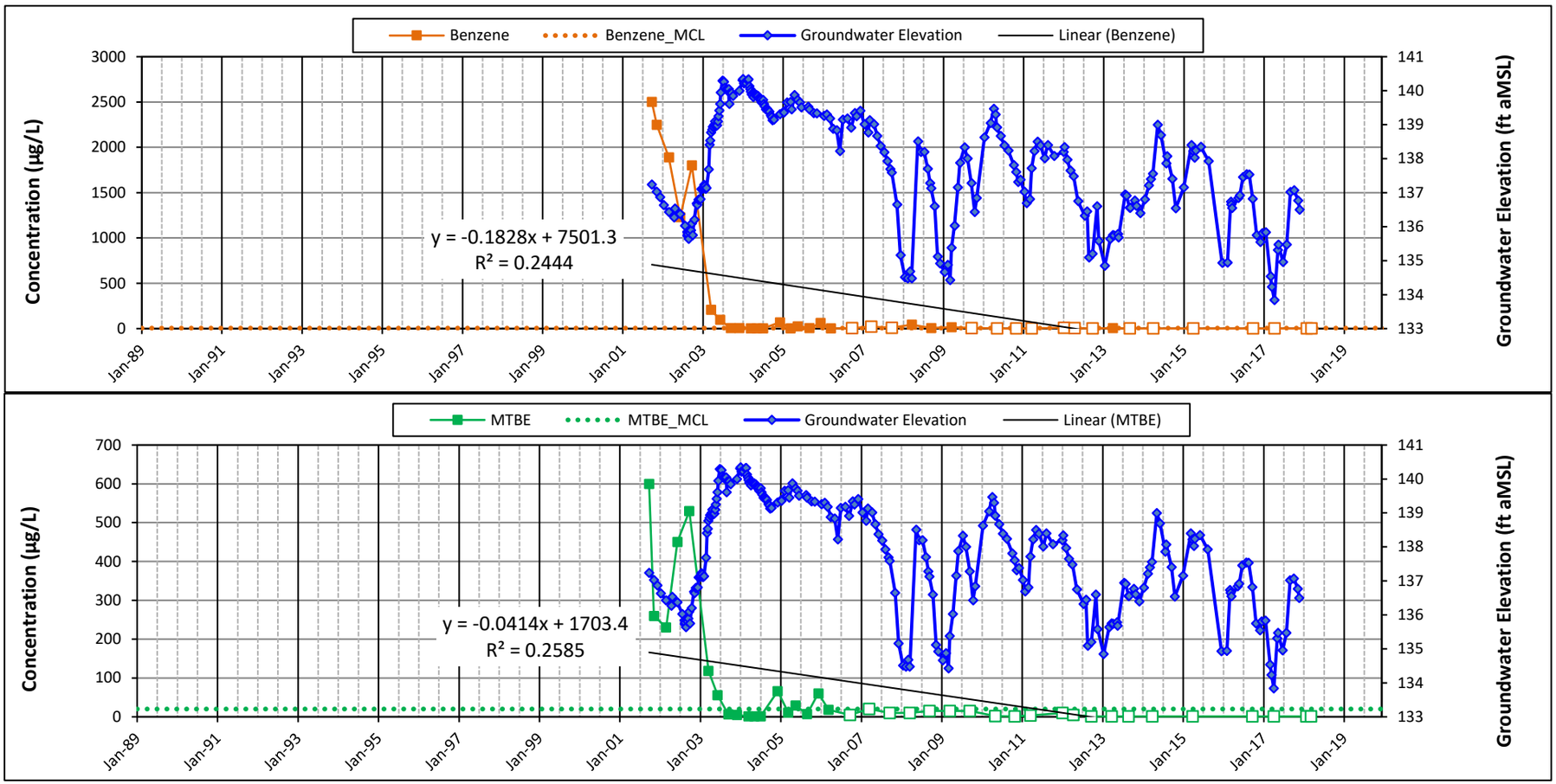
MW-20 (Background Well)



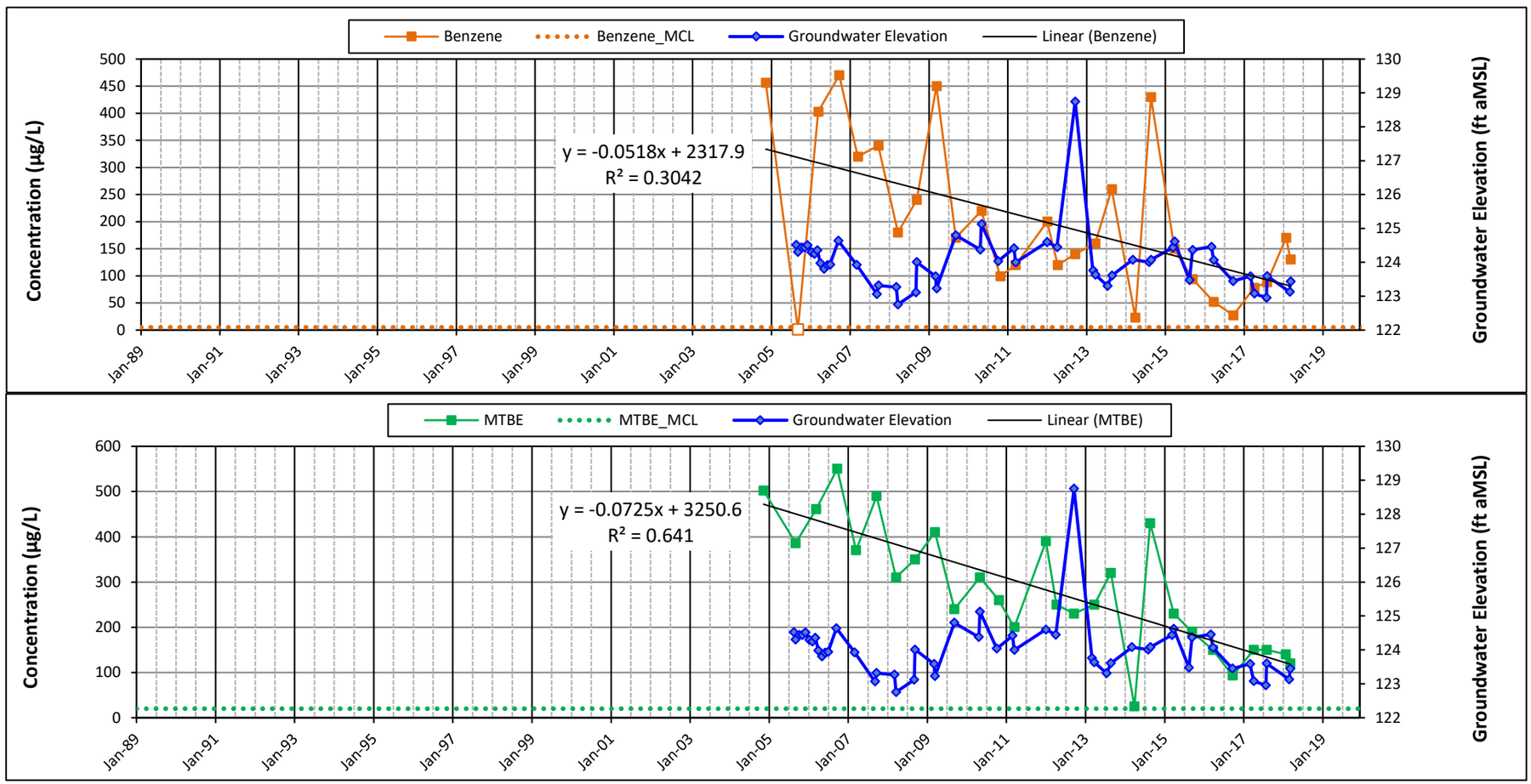
MW-6


Benzene
Benzene_MCL
Groundwater Elevation
Linear (Benzene)
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
y = -0.3407x + 13573
R² = 0.3614
MTBE
MTBE_MCL
Groundwater Elevation
Linear (MTBE)
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
y = -2.5152x + 102189
R² = 0.0801
Jan-89
Jan-91
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17
Jan-19

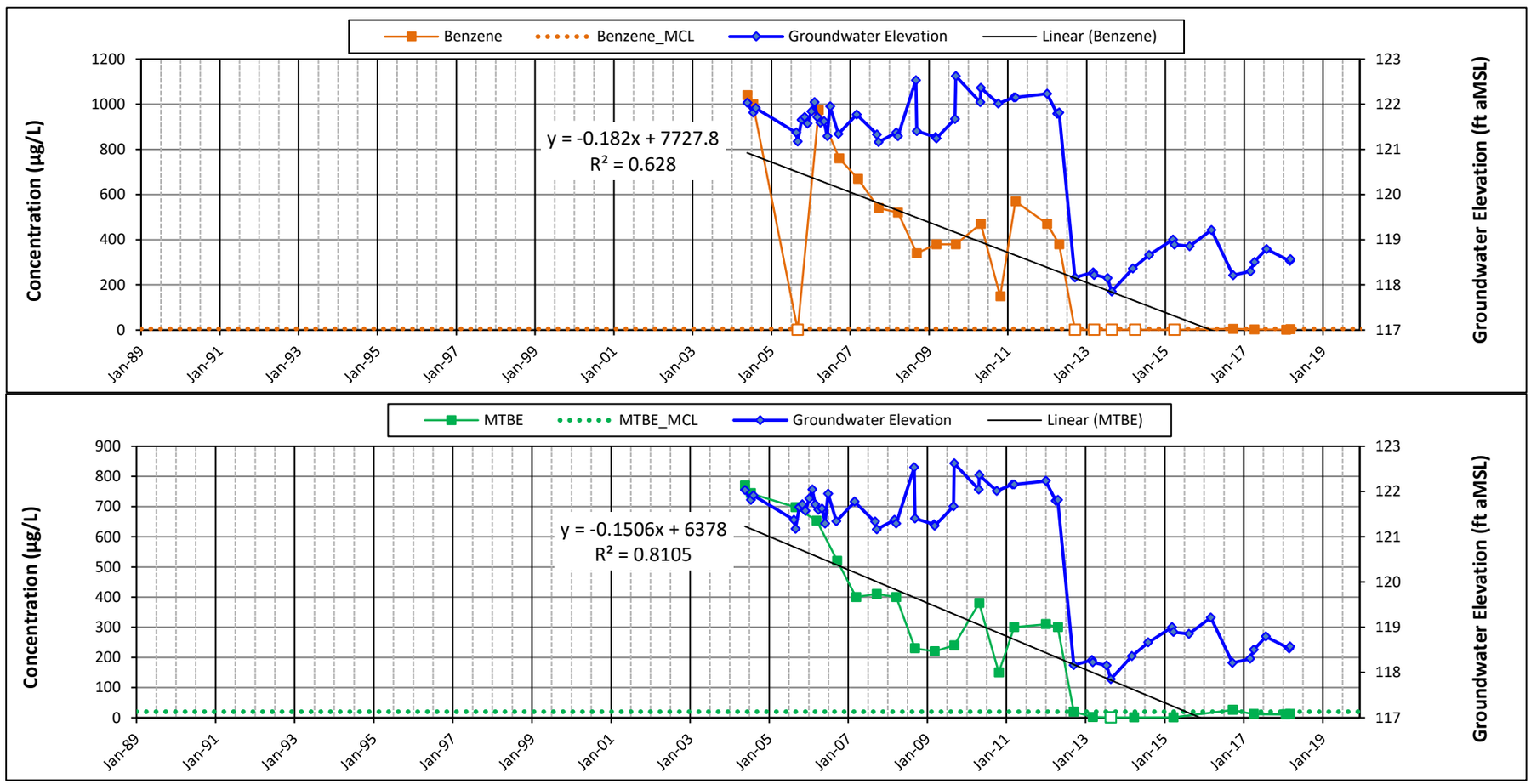
MW-18


Benzene
Benzene_MCL
Groundwater Elevation
Linear (Benzene)
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
y = -0.1828x + 7501.3
R² = 0.2444
MTBE
MTBE_MCL
Groundwater Elevation
Linear (MTBE)
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
y = -0.0414x + 1703.4
R² = 0.2585

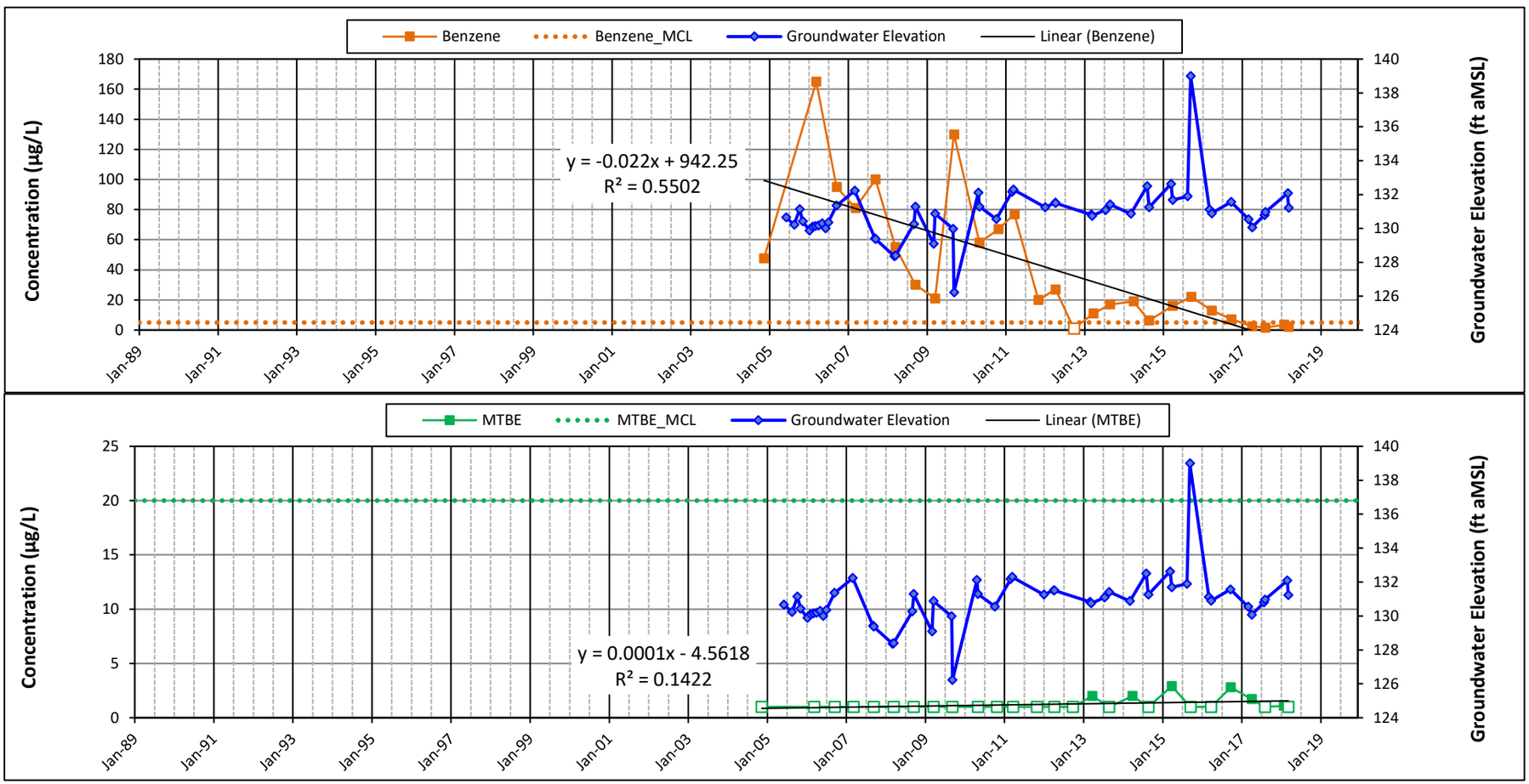
MW-25B


Benzene
Benzene_MCL
Groundwater Elevation
Linear (Benzene)
y = -0.0518x + 2317.9
R² = 0.3042
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
MTBE
MTBE_MCL
Groundwater Elevation
Linear (MTBE)
y = -0.0725x + 3250.6
R² = 0.641
Concentration (µg/L)
Groundwater Elevation (ft aMSL)

MW-33B

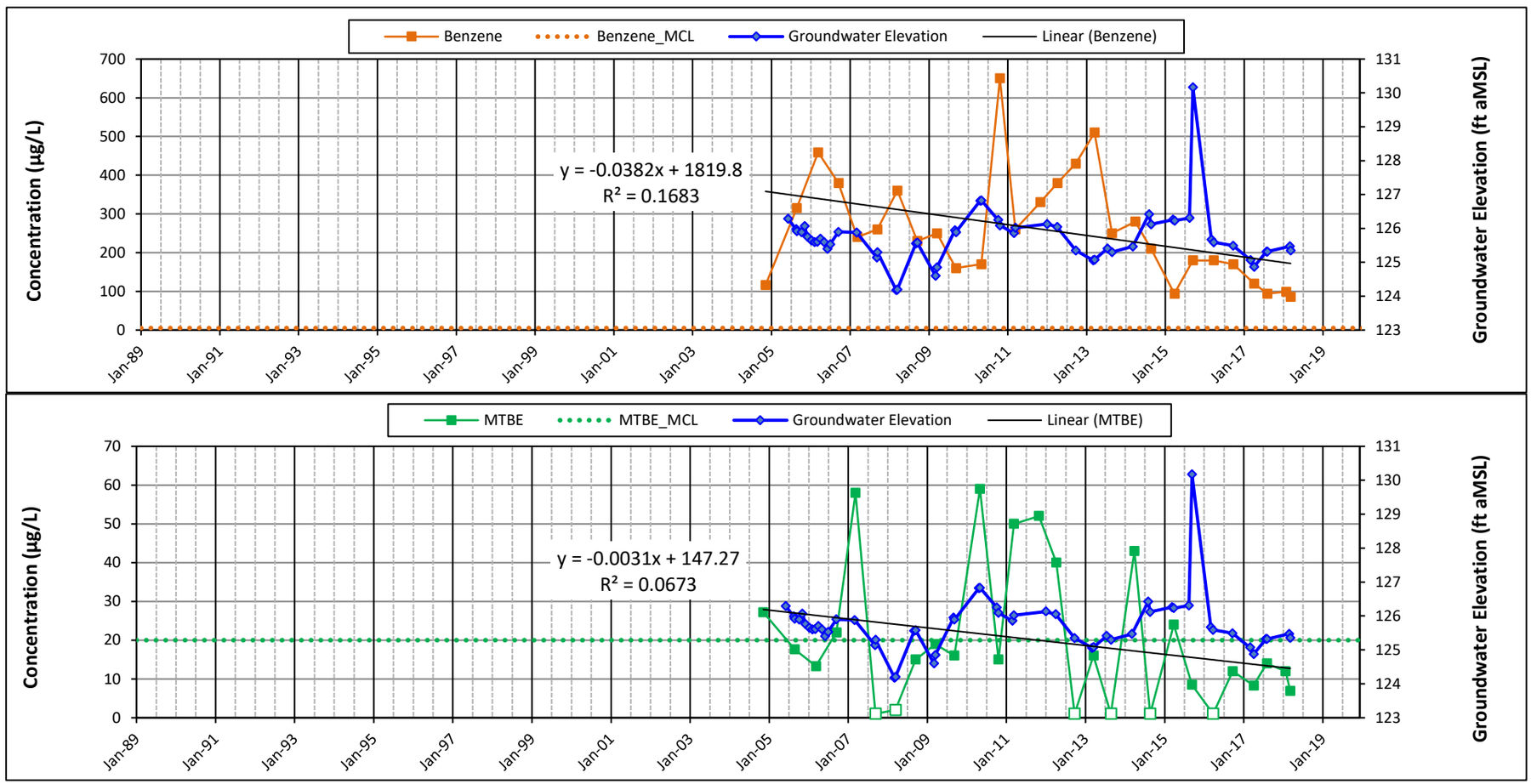

Benzene
Benzene_MCL
Groundwater Elevation
Linear (Benzene)
y = -0.182x + 7727.8
R² = 0.628
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
MTBE
MTBE_MCL
Groundwater Elevation
Linear (MTBE)
y = -0.1506x + 6378
R² = 0.8105
Concentration (µg/L)
Groundwater Elevation (ft aMSL)

MW-45

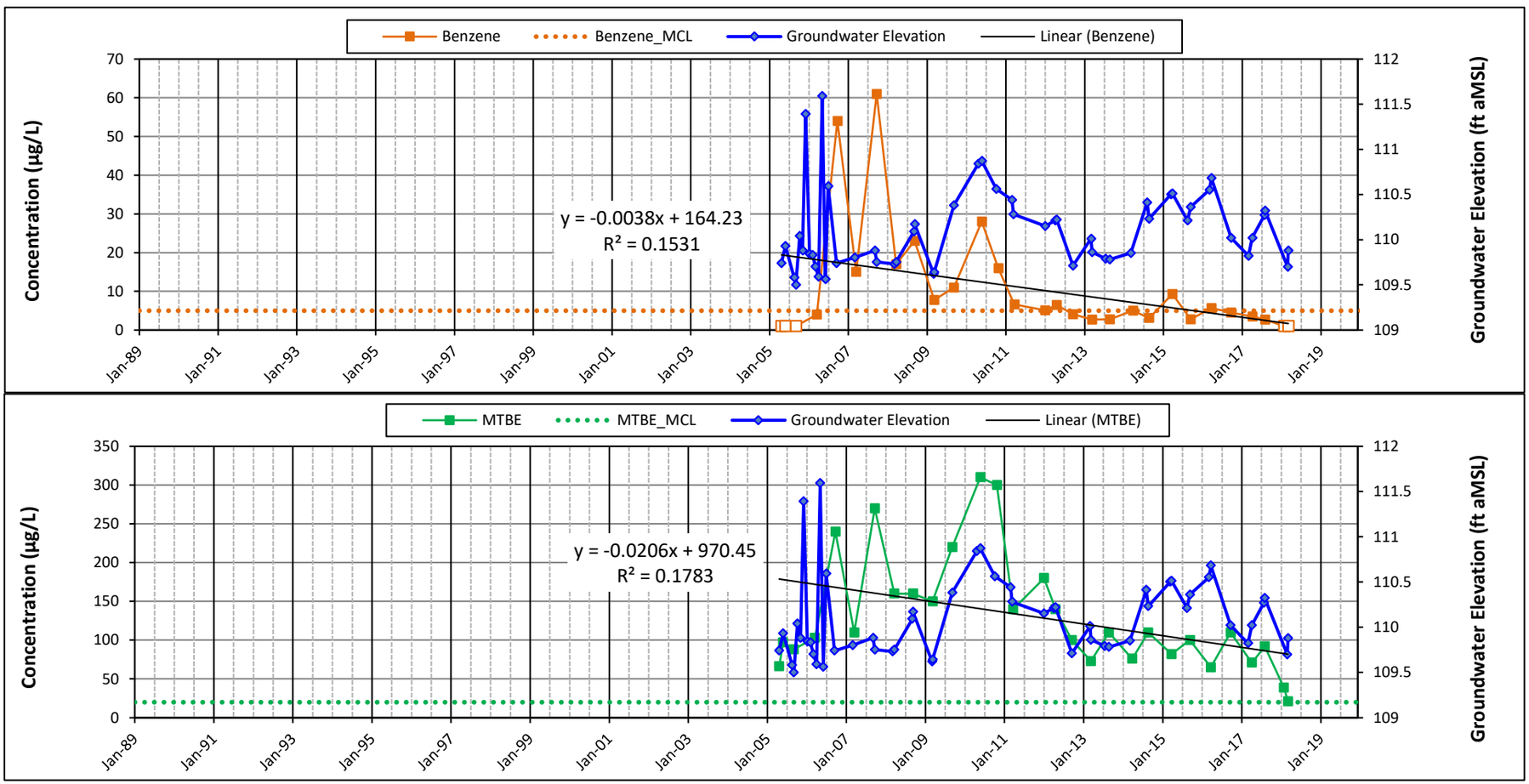

Benzene
Benzene_MCL
Groundwater Elevation
Linear (Benzene)
y = -0.022x + 942.25
R² = 0.5502
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
MTBE
MTBE_MCL
Groundwater Elevation
Linear (MTBE)
y = 0.0001x - 4.5618
R² = 0.1422
Concentration (µg/L)
Groundwater Elevation (ft aMSL)

Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

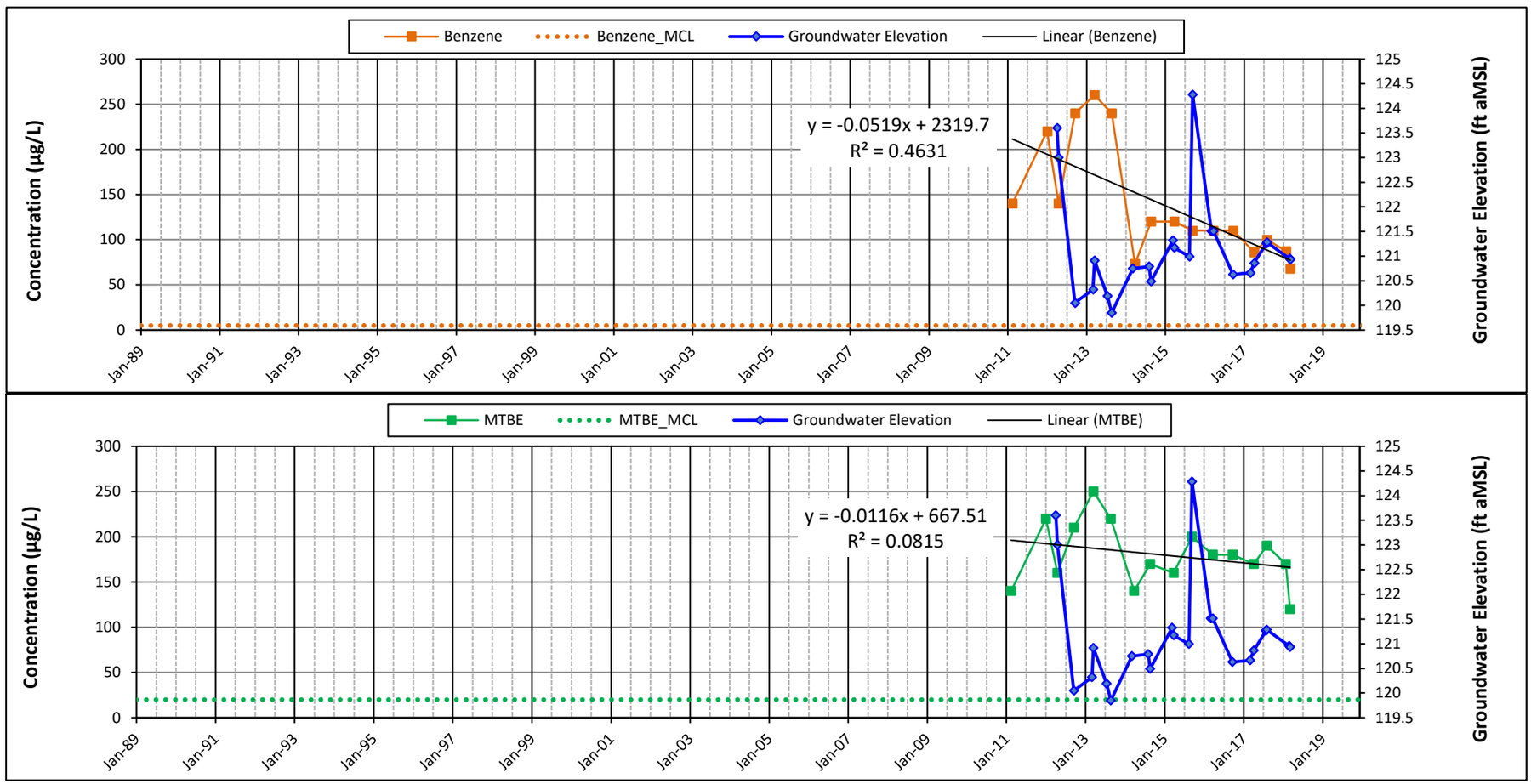
MW-47



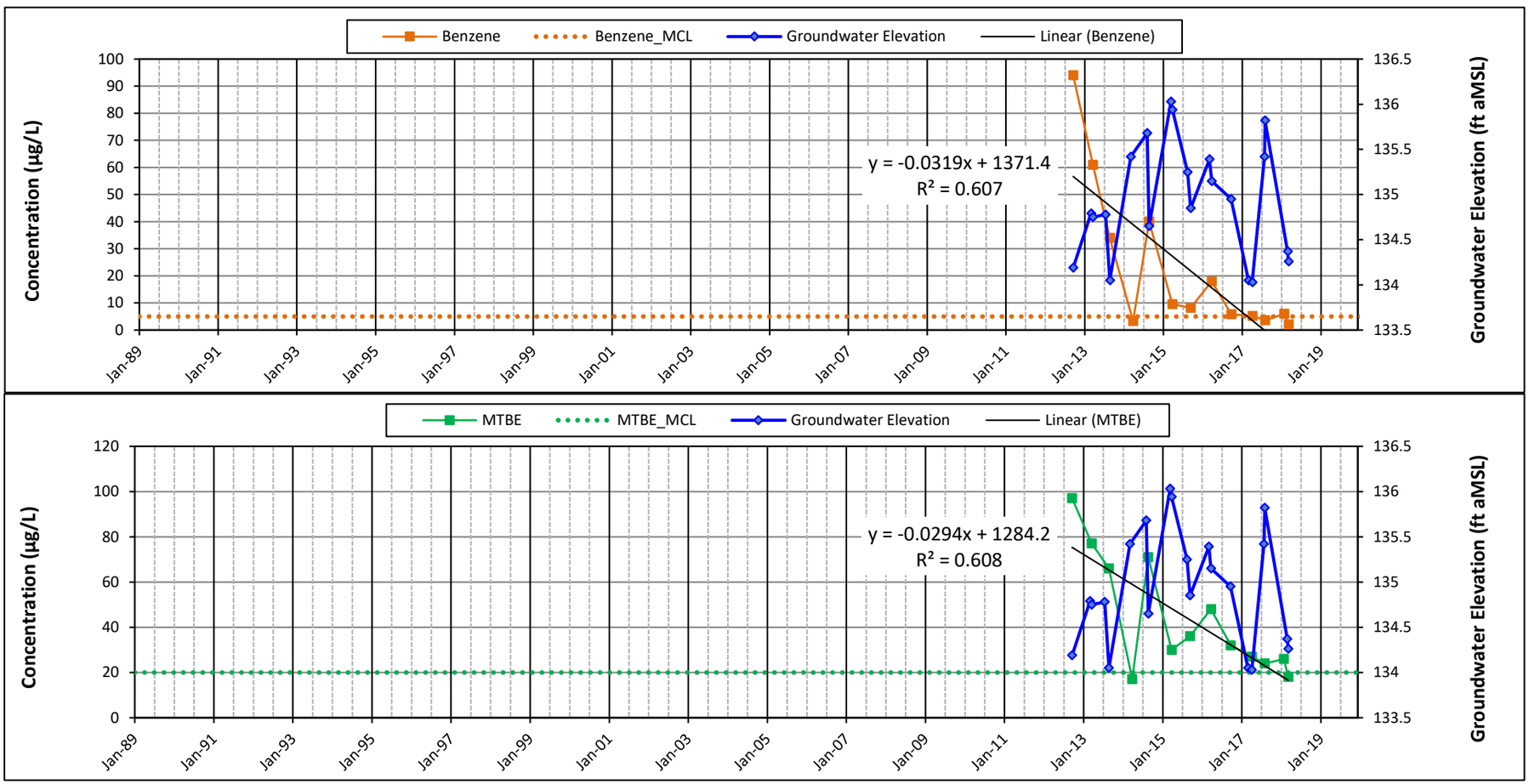
MW-53


Benzene
Benzene_MCL
Groundwater Elevation
Linear (Benzene)
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
y = -0.0038x + 164.23
R² = 0.1531
MTBE
MTBE_MCL
Groundwater Elevation
Linear (MTBE)
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
y = -0.0206x + 970.45
R² = 0.1783
Jan-89
Jan-91
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17
Jan-19

MW-59


Benzene
Benzene_MCL
Groundwater Elevation
Linear (Benzene)
y = -0.0519x + 2319.7
R² = 0.4631
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
MTBE
MTBE_MCL
Groundwater Elevation
Linear (MTBE)
y = -0.0116x + 667.51
R² = 0.0815
Concentration (µg/L)
Groundwater Elevation (ft aMSL)

MW-62B


Benzene
Benzene_MCL
Groundwater Elevation
Linear (Benzene)
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
y = -0.0319x + 1371.4
R² = 0.607
MTBE
MTBE_MCL
Groundwater Elevation
Linear (MTBE)
Concentration (µg/L)
Groundwater Elevation (ft aMSL)
y = -0.0294x + 1284.2
R² = 0.608
Jan-89
Jan-91
Jan-93
Jan-95
Jan-97
Jan-99
Jan-01
Jan-03
Jan-05
Jan-07
Jan-09
Jan-11
Jan-13
Jan-15
Jan-17
Jan-19

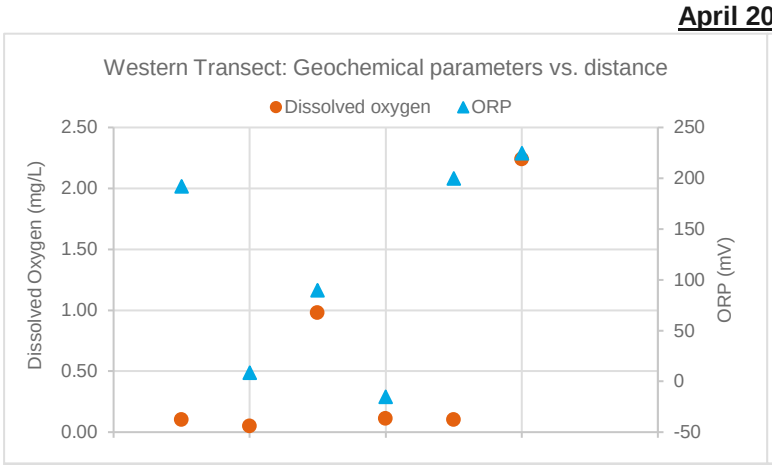
Tier 2 Geochemical Parameter Data Analysis Plots

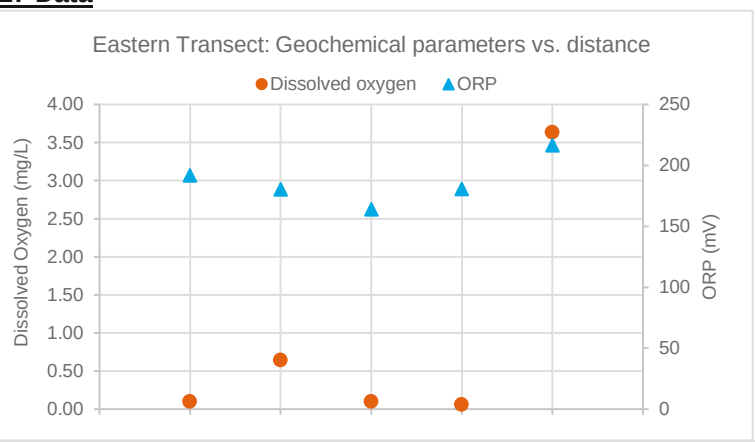
Tier 2 Geochemical Parameter Data Analysis - Longitudinal Well Transect Plots

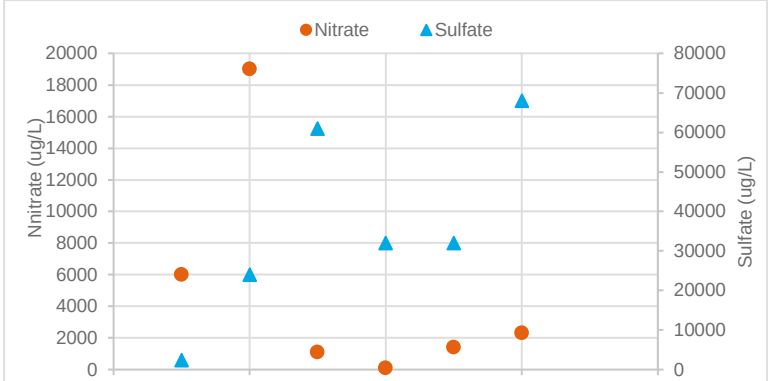
ARCADIS Design & Consultancy for natural and built assets

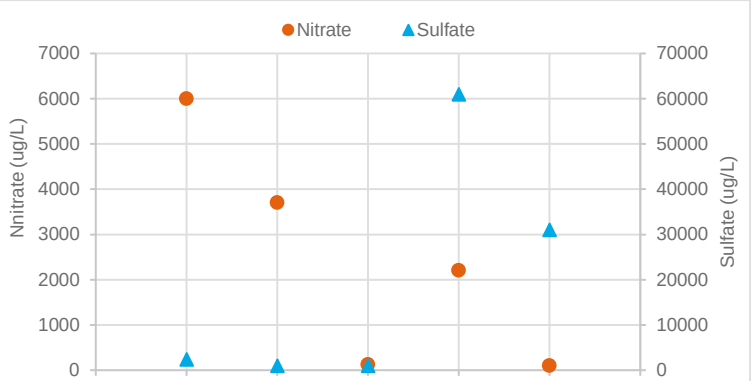
Corrective Measures 5-Year Assessment Report
Former Chevron Facility #122208
5801 Riggs Road, Chillum, MD

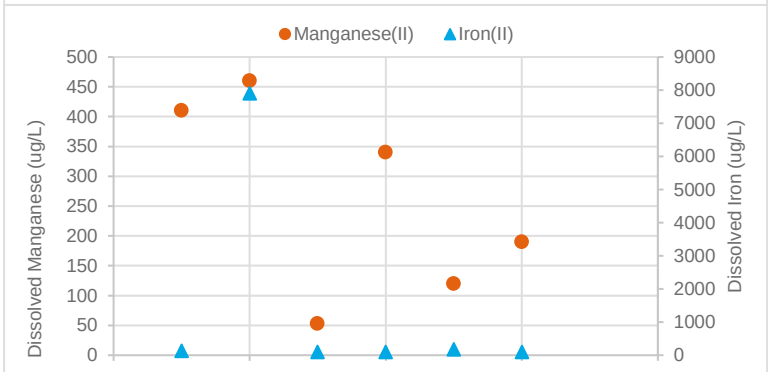
April 2017 Data

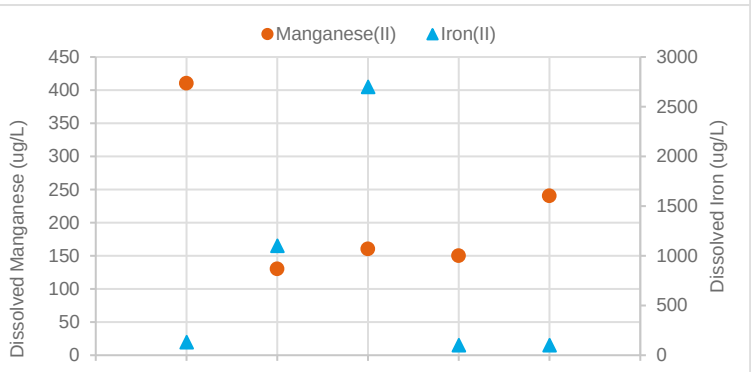


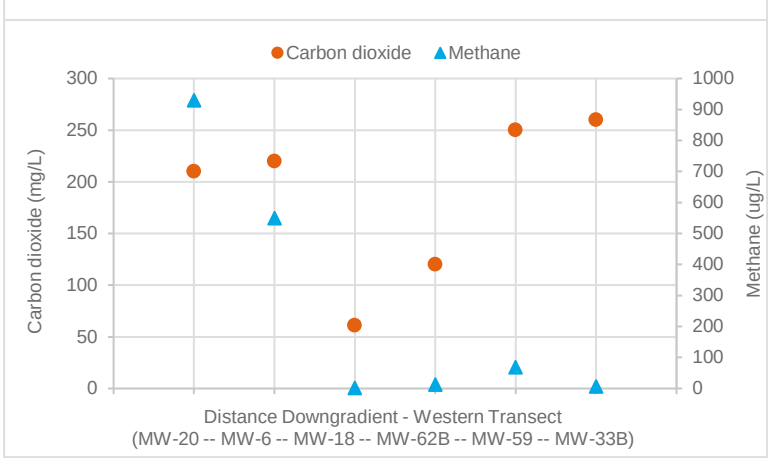


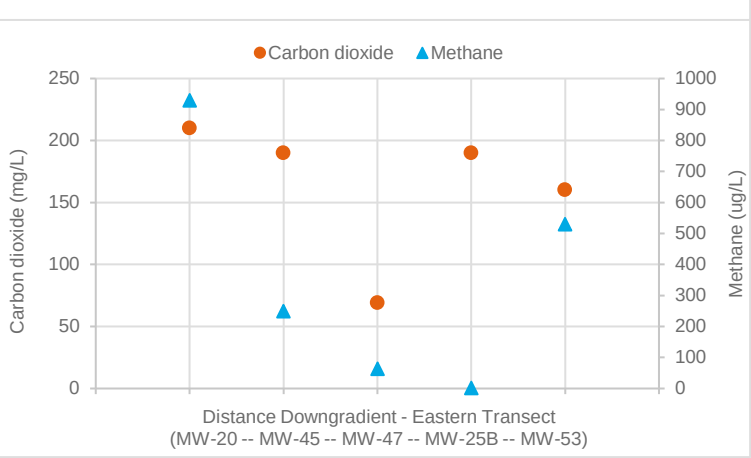




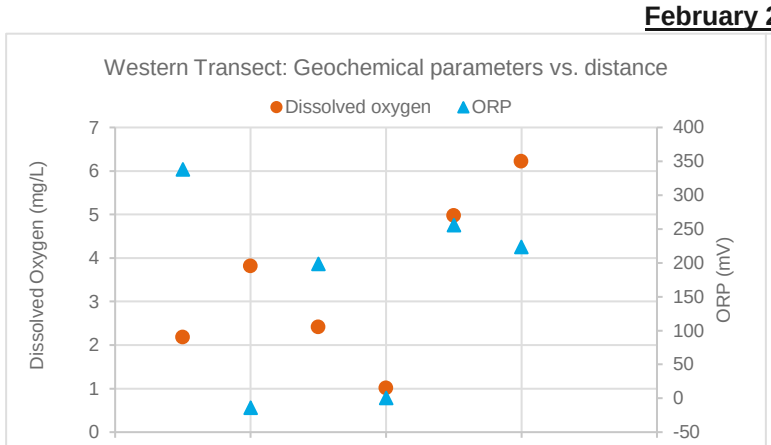


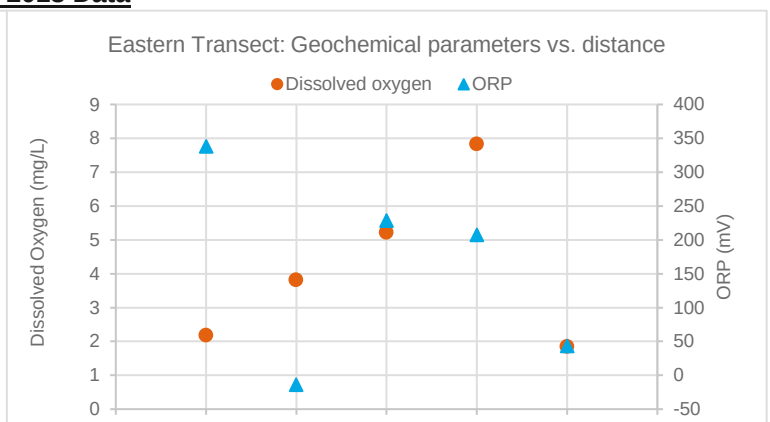


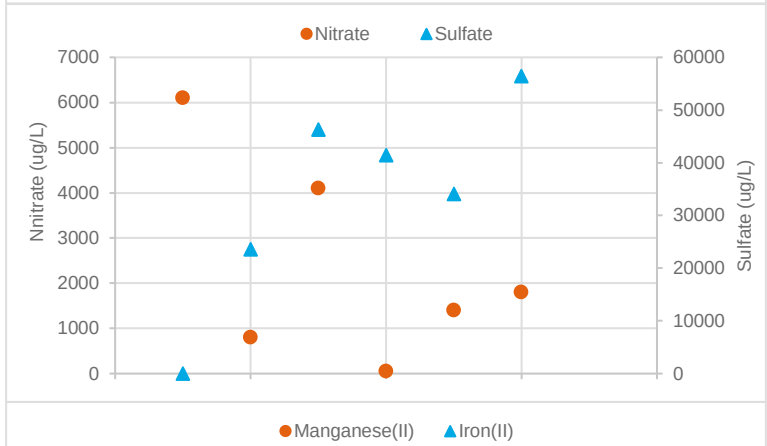


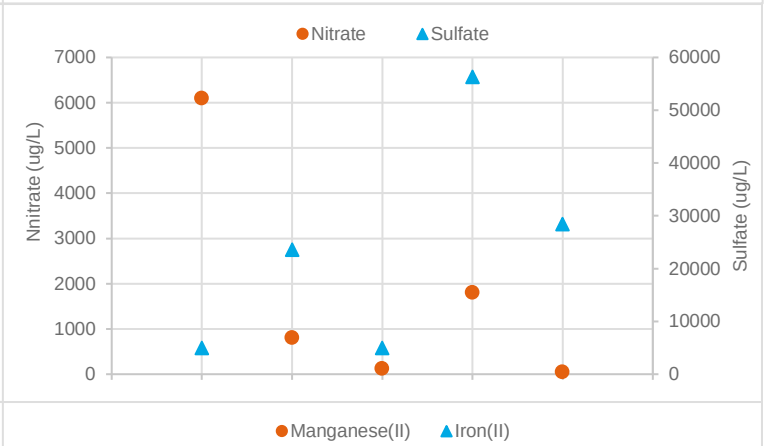


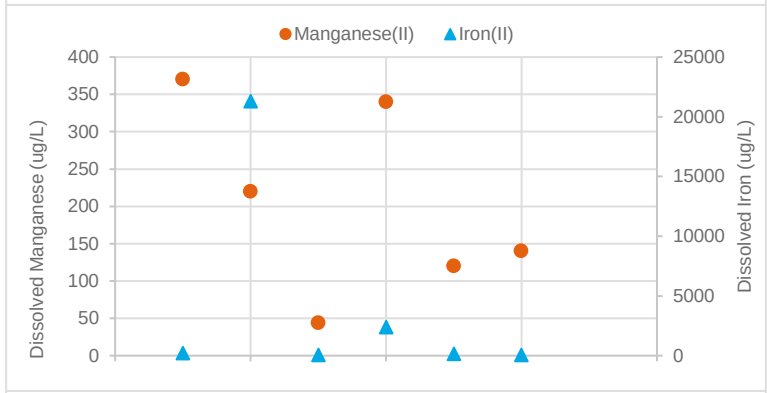
February 2018 Data

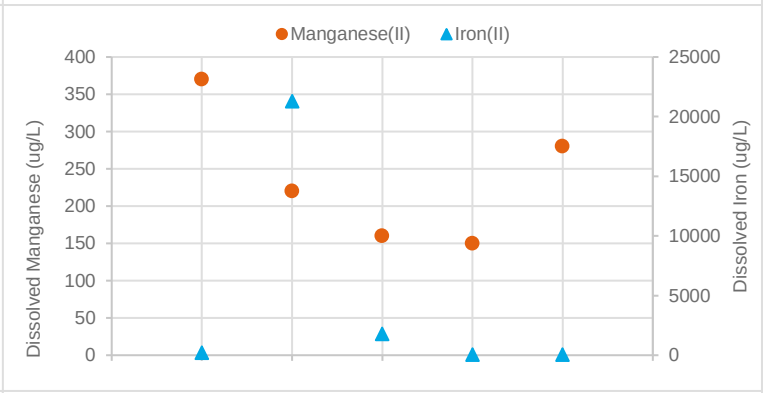


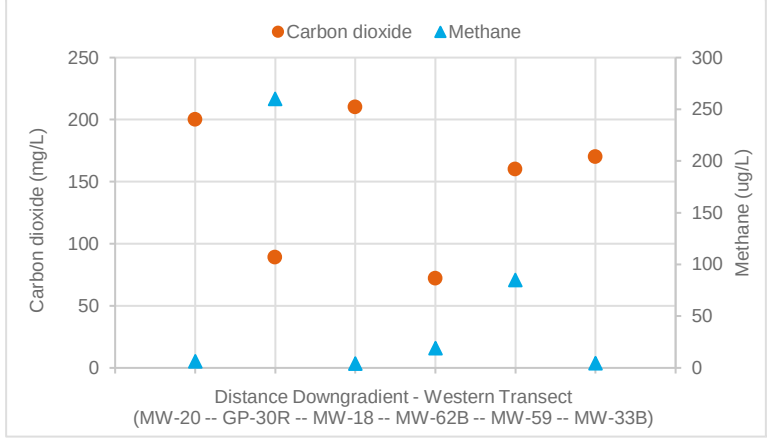


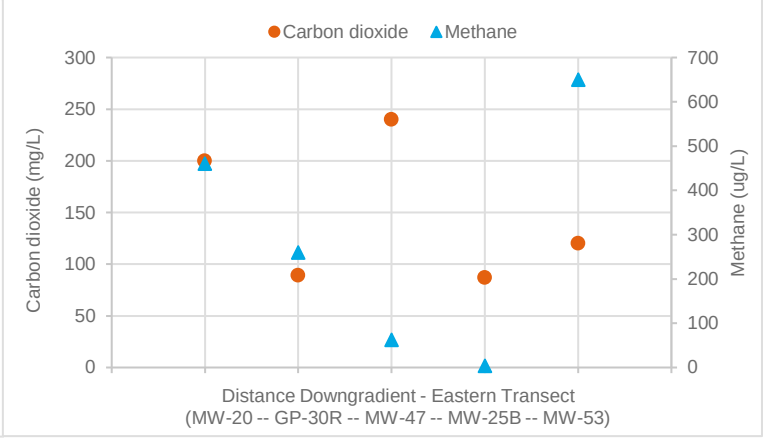












Laboratory Analytical Reports – April 2017

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-136996-1
TestAmerica Sample Delivery Group: CVX Fac 122208
Client Project/Site: Chillum, MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Debra A Vergin

Authorized for release by:
5/9/2017 9:12:41 AM

Debra Vergin, Project Manager II
(850)363-5129
debra.vergin@testamericainc.com

Links

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 400-136996-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-136996-1

Comments
No additional comments.

Receipt
The samples were received on 4/25/2017 11:56 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1° C.

Receipt Exceptions

A trip blank was not submitted for analysis with these samples; however, it was listed on the Chain of Custody (COC).

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

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

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424 — Lab Sample ID: 400-136996-1

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	10000		100		ug/L	100		8260B	Total/NA
Toluene	21000		100		ug/L	100		8260B	Total/NA
Ethylbenzene	1300		100		ug/L	100		8260B	Total/NA
Xylenes, Total	7900		1000		ug/L	100		8260B	Total/NA
Methyl tert-butyl ether	880		100		ug/L	100		8260B	Total/NA
t-Amyl alcohol	7400		1000		ug/L	100		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	98000		20000		ug/L	200		8015B	Total/NA

Client Sample ID: GP-35A-W-170424 — Lab Sample ID: 400-136996-2

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	590		20		ug/L	20		8260B	Total/NA
Toluene	3300		20		ug/L	20		8260B	Total/NA
Ethylbenzene	980		20		ug/L	20		8260B	Total/NA
Xylenes, Total	5600		200		ug/L	20		8260B	Total/NA
t-Amyl alcohol	970		200		ug/L	20		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	36000		5000		ug/L	50		8015B	Total/NA

Client Sample ID: MW-20-W-170424 — Lab Sample ID: 400-136996-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	310		100		ug/L	1		8015B	Total/NA

Client Sample ID: MW-45-W-170424 — Lab Sample ID: 400-136996-4

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2.4		1.0		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	1.7		1.0		ug/L	1		8260B	Total/NA
t-Amyl alcohol	91		10		ug/L	1		8260B	Total/NA
tert-Butyl alcohol	21		10		ug/L	1		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	190		100		ug/L	1		8015B	Total/NA

Client Sample ID: MW-47-W-170424 — Lab Sample ID: 400-136996-5

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	120		1.0		ug/L	1		8260B	Total/NA
Toluene	20		1.0		ug/L	1		8260B	Total/NA
Ethylbenzene	1.8		1.0		ug/L	1		8260B	Total/NA
Xylenes, Total	84		10		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	8.3		1.0		ug/L	1		8260B	Total/NA
t-Amyl alcohol	220		10		ug/L	1		8260B	Total/NA
tert-Butyl alcohol	29		10		ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-47-W-170424 (Continued) — Lab Sample ID: 400-136996-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	1300		500		ug/L	5		8015B	Total/NA

Client Sample ID: MW-6-W-170424 — Lab Sample ID: 400-136996-6

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	10		1.0		ug/L	1		8260B	Total/NA
Ethylbenzene	26		1.0		ug/L	1		8260B	Total/NA
Xylenes, Total	72		10		ug/L	1		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	1700		500		ug/L	5		8015B	Total/NA

Client Sample ID: MW-17-W-170424 — Lab Sample ID: 400-136996-7

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3000		50		ug/L	50		8260B	Total/NA
Toluene	6100		50		ug/L	50		8260B	Total/NA
Ethylbenzene	600		50		ug/L	50		8260B	Total/NA
Xylenes, Total	4700		500		ug/L	50		8260B	Total/NA
Methyl tert-butyl ether	2400		50		ug/L	50		8260B	Total/NA
t-Amyl alcohol	3100		500		ug/L	50		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	37000		5000		ug/L	50		8015B	Total/NA

Client Sample ID: MW-22R-W-170424 — Lab Sample ID: 400-136996-8

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2100		20		ug/L	20		8260B	Total/NA
Toluene	4400		20		ug/L	20		8260B	Total/NA
Ethylbenzene	470		20		ug/L	20		8260B	Total/NA
Xylenes, Total	4000		200		ug/L	20		8260B	Total/NA
Methyl tert-butyl ether	1200		20		ug/L	20		8260B	Total/NA
t-Amyl alcohol	2200		200		ug/L	20		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	26000		5000		ug/L	50		8015B	Total/NA

Client Sample ID: RW-5-W-170424 — Lab Sample ID: 400-136996-9

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	47		1.0		ug/L	1		8260B	Total/NA
Toluene	98		1.0		ug/L	1		8260B	Total/NA
Ethylbenzene	28		1.0		ug/L	1		8260B	Total/NA
Xylenes, Total	190		10		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	17		1.0		ug/L	1		8260B	Total/NA
t-Amyl alcohol	74		10		ug/L	1		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	3600		200		ug/L	2		8015B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: GP-27R-W-170424 — Lab Sample ID: 400-136996-10

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	10		1.0		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	23		1.0		ug/L	1		8260B	Total/NA
t-Amyl alcohol	38		10		ug/L	1		8260B	Total/NA

Client Sample ID: GP-39R-W-170424 — Lab Sample ID: 400-136996-11

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4.0		1.0		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	27		1.0		ug/L	1		8260B	Total/NA
t-Amyl alcohol	49		10		ug/L	1		8260B	Total/NA

Client Sample ID: MW-7-W-170424 — Lab Sample ID: 400-136996-12

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	420		2.0		ug/L	2		8260B	Total/NA
Toluene	290		2.0		ug/L	2		8260B	Total/NA
Ethylbenzene	42		2.0		ug/L	2		8260B	Total/NA
Xylenes, Total	370		20		ug/L	2		8260B	Total/NA
Methyl tert-butyl ether	52		2.0		ug/L	2		8260B	Total/NA
t-Amyl alcohol	330		20		ug/L	2		8260B	Total/NA
tert-Butyl alcohol	35		20		ug/L	2		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	3300		500		ug/L	5		8015B	Total/NA

Client Sample ID: PTW-B-W-170424 — Lab Sample ID: 400-136996-13

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	16		1.0		ug/L	1		8260B	Total/NA
Toluene	24		1.0		ug/L	1		8260B	Total/NA
Ethylbenzene	3.2		1.0		ug/L	1		8260B	Total/NA
Xylenes, Total	19		10		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	15		1.0		ug/L	1		8260B	Total/NA
t-Amyl alcohol	24		10		ug/L	1		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	170		100		ug/L	1		8015B	Total/NA

Client Sample ID: RW-1-W-170424 — Lab Sample ID: 400-136996-14

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	290		2.0		ug/L	2		8260B	Total/NA
Toluene	230		2.0		ug/L	2		8260B	Total/NA
Ethylbenzene	51		2.0		ug/L	2		8260B	Total/NA
Xylenes, Total	210		20		ug/L	2		8260B	Total/NA
Methyl tert-butyl ether	81		2.0		ug/L	2		8260B	Total/NA
t-Amyl alcohol	380		20		ug/L	2		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	2100		500		ug/L	5		8015B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: RW-2-W-170424 — Lab Sample ID: 400-136996-15

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	180		2.0		ug/L	2		8260B	Total/NA
Toluene	220		2.0		ug/L	2		8260B	Total/NA
Ethylbenzene	25		2.0		ug/L	2		8260B	Total/NA
Xylenes, Total	210		20		ug/L	2		8260B	Total/NA
Methyl tert-butyl ether	100		2.0		ug/L	2		8260B	Total/NA
t-Amyl alcohol	250		20		ug/L	2		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	2000		500		ug/L	5		8015B	Total/NA

Client Sample ID: RW-3-W-170424 — Lab Sample ID: 400-136996-16

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	15		5.0		ug/L	5		8260B	Total/NA
Toluene	350		5.0		ug/L	5		8260B	Total/NA
Ethylbenzene	170		5.0		ug/L	5		8260B	Total/NA
Xylenes, Total	2000		50		ug/L	5		8260B	Total/NA
t-Amyl alcohol	130		50		ug/L	5		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	8800		2000		ug/L	20		8015B	Total/NA

Client Sample ID: RW-4-W-170424 — Lab Sample ID: 400-136996-17

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1500		10		ug/L	10		8260B	Total/NA
Toluene	1700		10		ug/L	10		8260B	Total/NA
Ethylbenzene	140		10		ug/L	10		8260B	Total/NA
Xylenes, Total	1200		100		ug/L	10		8260B	Total/NA
Methyl tert-butyl ether	510		10		ug/L	10		8260B	Total/NA
t-Amyl alcohol	2100		100		ug/L	10		8260B	Total/NA
tert-Butyl alcohol	170		100		ug/L	10		8260B	Total/NA

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	12000		1000		ug/L	10		8015B	Total/NA

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-136996-1	GP-30A-W-170424	Water	04/24/17 09:55	04/25/17 11:56
400-136996-2	GP-35A-W-170424	Water	04/24/17 11:30	04/25/17 11:56
400-136996-3	MW-20-W-170424	Water	04/24/17 10:35	04/25/17 11:56
400-136996-4	MW-45-W-170424	Water	04/24/17 12:55	04/25/17 11:56
400-136996-5	MW-47-W-170424	Water	04/24/17 13:45	04/25/17 11:56
400-136996-6	MW-6-W-170424	Water	04/24/17 12:10	04/25/17 11:56
400-136996-7	MW-17-W-170424	Water	04/24/17 09:30	04/25/17 11:56
400-136996-8	MW-22R-W-170424	Water	04/24/17 09:35	04/25/17 11:56
400-136996-9	RW-5-W-170424	Water	04/24/17 09:25	04/25/17 11:56
400-136996-10	GP-27R-W-170424	Water	04/24/17 09:45	04/25/17 11:56
400-136996-11	GP-39R-W-170424	Water	04/24/17 09:50	04/25/17 11:56
400-136996-12	MW-7-W-170424	Water	04/24/17 09:10	04/25/17 11:56
400-136996-13	PTW-B-W-170424	Water	04/24/17 09:40	04/25/17 11:56
400-136996-14	RW-1-W-170424	Water	04/24/17 09:00	04/25/17 11:56
400-136996-15	RW-2-W-170424	Water	04/24/17 09:05	04/25/17 11:56
400-136996-16	RW-3-W-170424	Water	04/24/17 09:15	04/25/17 11:56
400-136996-17	RW-4-W-170424	Water	04/24/17 09:20	04/25/17 11:56

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424

Date Collected: 04/24/17 09:55
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-1

Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**10000**		100		ug/L			05/05/17 05:08	100
Toluene	**21000**		100		ug/L			05/05/17 05:08	100
Ethylbenzene	**1300**		100		ug/L			05/05/17 05:08	100
Xylenes, Total	**7900**		1000		ug/L			05/05/17 05:08	100
Methyl tert-butyl ether	**880**		100		ug/L			05/05/17 05:08	100
Ethanol	<10000		10000		ug/L			05/05/17 05:08	100
Ethyl tert-butyl alcohol	<2000		2000		ug/L			05/05/17 05:08	100
Ethyl tert-butyl ether	<500		500		ug/L			05/05/17 05:08	100
t-Amyl alcohol	**7400**		1000		ug/L			05/05/17 05:08	100
Tert-amyl methyl ether	<500		500		ug/L			05/05/17 05:08	100
tert-Butyl alcohol	<1000		1000		ug/L			05/05/17 05:08	100
tert-Butyl Formate	<1000		1000		ug/L			05/05/17 05:08	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*78 - 118*		*05/05/17 05:08*	*100*
Dibromofluoromethane	*97*		*81 - 121*		*05/05/17 05:08*	*100*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/05/17 05:08*	*100*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**98000**		20000		ug/L			04/25/17 20:26	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*107*		*78 - 119*		*04/25/17 20:26*	*200*

Client Sample ID: GP-35A-W-170424

Date Collected: 04/24/17 11:30
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-2

Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**590**		20		ug/L			05/05/17 03:47	20
Toluene	**3300**		20		ug/L			05/05/17 03:47	20
Ethylbenzene	**980**		20		ug/L			05/05/17 03:47	20
Xylenes, Total	**5600**		200		ug/L			05/05/17 03:47	20
Methyl tert-butyl ether	<20		20		ug/L			05/05/17 03:47	20
Ethanol	<2000		2000		ug/L			05/05/17 03:47	20
Ethyl tert-butyl alcohol	<400		400		ug/L			05/05/17 03:47	20
Ethyl tert-butyl ether	<100		100		ug/L			05/05/17 03:47	20
t-Amyl alcohol	**970**		200		ug/L			05/05/17 03:47	20
Tert-amyl methyl ether	<100		100		ug/L			05/05/17 03:47	20
tert-Butyl alcohol	<200		200		ug/L			05/05/17 03:47	20
tert-Butyl Formate	<200		200		ug/L			05/05/17 03:47	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*05/05/17 03:47*	*20*
Dibromofluoromethane	*96*		*81 - 121*		*05/05/17 03:47*	*20*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/05/17 03:47*	*20*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**36000**		5000		ug/L			04/25/17 21:02	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*111*		*78 - 119*		*04/25/17 21:02*	*50*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: MW-20-W-170424
Date Collected: 04/24/17 10:35
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-3
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			05/05/17 01:32	1
Toluene	<1.0		1.0		ug/L			05/05/17 01:32	1
Ethylbenzene	<1.0		1.0		ug/L			05/05/17 01:32	1
Xylenes, Total	<10		10		ug/L			05/05/17 01:32	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			05/05/17 01:32	1
Ethanol	<100		100		ug/L			05/05/17 01:32	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/05/17 01:32	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/05/17 01:32	1
t-Amyl alcohol	<10		10		ug/L			05/05/17 01:32	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/05/17 01:32	1
tert-Butyl alcohol	<10		10		ug/L			05/05/17 01:32	1
tert-Butyl Formate	<10		10		ug/L			05/05/17 01:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*94*		*78 - 118*		*05/05/17 01:32*	*1*
Dibromofluoromethane	*96*		*81 - 121*		*05/05/17 01:32*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/05/17 01:32*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**310**		100		ug/L			04/25/17 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*116*		*78 - 119*		*04/25/17 19:50*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: MW-45-W-170424

Date Collected: 04/24/17 12:55
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-4

Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**2.4**		1.0		ug/L			05/05/17 01:59	1
Toluene	<1.0		1.0		ug/L			05/05/17 01:59	1
Ethylbenzene	<1.0		1.0		ug/L			05/05/17 01:59	1
Xylenes, Total	<10		10		ug/L			05/05/17 01:59	1
Methyl tert-butyl ether	**1.7**		1.0		ug/L			05/05/17 01:59	1
Ethanol	<100		100		ug/L			05/05/17 01:59	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/05/17 01:59	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/05/17 01:59	1
t-Amyl alcohol	**91**		10		ug/L			05/05/17 01:59	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/05/17 01:59	1
tert-Butyl alcohol	**21**		10		ug/L			05/05/17 01:59	1
tert-Butyl Formate	<10		10		ug/L			05/05/17 01:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*05/05/17 01:59*	*1*
Dibromofluoromethane	*97*		*81 - 121*		*05/05/17 01:59*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/05/17 01:59*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**190**		100		ug/L			04/25/17 18:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*115*		*78 - 119*		*04/25/17 18:02*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: MW-47-W-170424
Date Collected: 04/24/17 13:45
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-5
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**120**		1.0		ug/L			05/05/17 02:26	1
Toluene	**20**		1.0		ug/L			05/05/17 02:26	1
Ethylbenzene	**1.8**		1.0		ug/L			05/05/17 02:26	1
Xylenes, Total	**84**		10		ug/L			05/05/17 02:26	1
Methyl tert-butyl ether	**8.3**		1.0		ug/L			05/05/17 02:26	1
Ethanol	<100		100		ug/L			05/05/17 02:26	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/05/17 02:26	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/05/17 02:26	1
t-Amyl alcohol	**220**		10		ug/L			05/05/17 02:26	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/05/17 02:26	1
tert-Butyl alcohol	**29**		10		ug/L			05/05/17 02:26	1
tert-Butyl Formate	<10		10		ug/L			05/05/17 02:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*78 - 118*		*05/05/17 02:26*	*1*
Dibromofluoromethane	*96*		*81 - 121*		*05/05/17 02:26*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/05/17 02:26*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**1300**		500		ug/L			04/25/17 21:37	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*113*		*78 - 119*		*04/25/17 21:37*	*5*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: MW-6-W-170424
Date Collected: 04/24/17 12:10
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-6
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			05/05/17 02:53	1
Toluene	**10**		1.0		ug/L			05/05/17 02:53	1
Ethylbenzene	**26**		1.0		ug/L			05/05/17 02:53	1
Xylenes, Total	**72**		10		ug/L			05/05/17 02:53	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			05/05/17 02:53	1
Ethanol	<100		100		ug/L			05/05/17 02:53	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/05/17 02:53	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/05/17 02:53	1
t-Amyl alcohol	<10		10		ug/L			05/05/17 02:53	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/05/17 02:53	1
tert-Butyl alcohol	<10		10		ug/L			05/05/17 02:53	1
tert-Butyl Formate	<10		10		ug/L			05/05/17 02:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*05/05/17 02:53*	*1*
Dibromofluoromethane	*98*		*81 - 121*		*05/05/17 02:53*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/05/17 02:53*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**1700**		500		ug/L			04/25/17 22:13	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*98*		*78 - 119*		*04/25/17 22:13*	*5*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: MW-17-W-170424
Date Collected: 04/24/17 09:30
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-7
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3000**		50		ug/L			05/05/17 04:41	50
Toluene	**6100**		50		ug/L			05/05/17 04:41	50
Ethylbenzene	**600**		50		ug/L			05/05/17 04:41	50
Xylenes, Total	**4700**		500		ug/L			05/05/17 04:41	50
Methyl tert-butyl ether	**2400**		50		ug/L			05/05/17 04:41	50
Ethanol	<5000		5000		ug/L			05/05/17 04:41	50
Ethyl tert-butyl alcohol	<1000		1000		ug/L			05/05/17 04:41	50
Ethyl tert-butyl ether	<250		250		ug/L			05/05/17 04:41	50
t-Amyl alcohol	**3100**		500		ug/L			05/05/17 04:41	50
Tert-amyl methyl ether	<250		250		ug/L			05/05/17 04:41	50
tert-Butyl alcohol	<500		500		ug/L			05/05/17 04:41	50
tert-Butyl Formate	<500		500		ug/L			05/05/17 04:41	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*94*		*78 - 118*		*05/05/17 04:41*	*50*
Dibromofluoromethane	*97*		*81 - 121*		*05/05/17 04:41*	*50*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/05/17 04:41*	*50*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**37000**		5000		ug/L			04/26/17 11:55	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*110*		*78 - 119*		*04/26/17 11:55*	*50*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: MW-22R-W-170424
Date Collected: 04/24/17 09:35
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-8
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**2100**		20		ug/L			05/05/17 04:14	20
Toluene	**4400**		20		ug/L			05/05/17 04:14	20
Ethylbenzene	**470**		20		ug/L			05/05/17 04:14	20
Xylenes, Total	**4000**		200		ug/L			05/05/17 04:14	20
Methyl tert-butyl ether	**1200**		20		ug/L			05/05/17 04:14	20
Ethanol	<2000		2000		ug/L			05/05/17 04:14	20
Ethyl tert-butyl alcohol	<400		400		ug/L			05/05/17 04:14	20
Ethyl tert-butyl ether	<100		100		ug/L			05/05/17 04:14	20
t-Amyl alcohol	**2200**		200		ug/L			05/05/17 04:14	20
Tert-amyl methyl ether	<100		100		ug/L			05/05/17 04:14	20
tert-Butyl alcohol	<200		200		ug/L			05/05/17 04:14	20
tert-Butyl Formate	<200		200		ug/L			05/05/17 04:14	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*78 - 118*		*05/05/17 04:14*	*20*
Dibromofluoromethane	*97*		*81 - 121*		*05/05/17 04:14*	*20*
Toluene-d8 (Surr)	*96*		*80 - 120*		*05/05/17 04:14*	*20*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**26000**		5000		ug/L			04/26/17 12:30	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*109*		*78 - 119*		*04/26/17 12:30*	*50*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: RW-5-W-170424
Date Collected: 04/24/17 09:25
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-9
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**47**		1.0		ug/L			05/05/17 03:20	1
Toluene	**98**		1.0		ug/L			05/05/17 03:20	1
Ethylbenzene	**28**		1.0		ug/L			05/05/17 03:20	1
Xylenes, Total	**190**		10		ug/L			05/05/17 03:20	1
Methyl tert-butyl ether	**17**		1.0		ug/L			05/05/17 03:20	1
Ethanol	<100		100		ug/L			05/05/17 03:20	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/05/17 03:20	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/05/17 03:20	1
t-Amyl alcohol	**74**		10		ug/L			05/05/17 03:20	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/05/17 03:20	1
tert-Butyl alcohol	<10		10		ug/L			05/05/17 03:20	1
tert-Butyl Formate	<10		10		ug/L			05/05/17 03:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*78 - 118*		*05/05/17 03:20*	*1*
Dibromofluoromethane	*98*		*81 - 121*		*05/05/17 03:20*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*05/05/17 03:20*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**3600**		200		ug/L			04/26/17 00:34	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*117*		*78 - 119*		*04/26/17 00:34*	*2*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: GP-27R-W-170424
Date Collected: 04/24/17 09:45
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-10
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**10**		1.0		ug/L			05/06/17 20:54	1
Toluene	<1.0		1.0		ug/L			05/06/17 20:54	1
Ethylbenzene	<1.0		1.0		ug/L			05/06/17 20:54	1
Xylenes, Total	<10		10		ug/L			05/06/17 20:54	1
Methyl tert-butyl ether	**23**		1.0		ug/L			05/06/17 20:54	1
Ethanol	<100		100		ug/L			05/06/17 20:54	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/06/17 20:54	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/06/17 20:54	1
t-Amyl alcohol	**38**		10		ug/L			05/06/17 20:54	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/06/17 20:54	1
tert-Butyl alcohol	<10		10		ug/L			05/06/17 20:54	1
tert-Butyl Formate	<10		10		ug/L			05/06/17 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*05/06/17 20:54*	*1*
Dibromofluoromethane	*100*		*81 - 121*		*05/06/17 20:54*	*1*
Toluene-d8 (Surr)	*106*		*80 - 120*		*05/06/17 20:54*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/26/17 01:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*103*		*78 - 119*		*04/26/17 01:09*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: GP-39R-W-170424
Date Collected: 04/24/17 09:50
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-11
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**4.0**		1.0		ug/L			05/06/17 21:21	1
Toluene	<1.0		1.0		ug/L			05/06/17 21:21	1
Ethylbenzene	<1.0		1.0		ug/L			05/06/17 21:21	1
Xylenes, Total	<10		10		ug/L			05/06/17 21:21	1
Methyl tert-butyl ether	**27**		1.0		ug/L			05/06/17 21:21	1
Ethanol	<100		100		ug/L			05/06/17 21:21	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/06/17 21:21	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/06/17 21:21	1
t-Amyl alcohol	**49**		10		ug/L			05/06/17 21:21	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/06/17 21:21	1
tert-Butyl alcohol	<10		10		ug/L			05/06/17 21:21	1
tert-Butyl Formate	<10		10		ug/L			05/06/17 21:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*98*		*78 - 118*		*05/06/17 21:21*	*1*
Dibromofluoromethane	*96*		*81 - 121*		*05/06/17 21:21*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/06/17 21:21*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/26/17 01:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*105*		*78 - 119*		*04/26/17 01:44*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: MW-7-W-170424
Date Collected: 04/24/17 09:10
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-12
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**420**		2.0		ug/L			05/07/17 21:05	2
Toluene	**290**		2.0		ug/L			05/07/17 21:05	2
Ethylbenzene	**42**		2.0		ug/L			05/07/17 21:05	2
Xylenes, Total	**370**		20		ug/L			05/07/17 21:05	2
Methyl tert-butyl ether	**52**		2.0		ug/L			05/07/17 21:05	2
Ethanol	<200		200		ug/L			05/07/17 21:05	2
Ethyl tert-butyl alcohol	<40		40		ug/L			05/07/17 21:05	2
Ethyl tert-butyl ether	<10		10		ug/L			05/07/17 21:05	2
t-Amyl alcohol	**330**		20		ug/L			05/07/17 21:05	2
Tert-amyl methyl ether	<10		10		ug/L			05/07/17 21:05	2
tert-Butyl alcohol	**35**		20		ug/L			05/07/17 21:05	2
tert-Butyl Formate	<20		20		ug/L			05/07/17 21:05	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*78 - 118*		*05/07/17 21:05*	*2*
Dibromofluoromethane	*97*		*81 - 121*		*05/07/17 21:05*	*2*
Toluene-d8 (Surr)	*95*		*80 - 120*		*05/07/17 21:05*	*2*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**3300**		500		ug/L			04/26/17 02:19	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*107*		*78 - 119*		*04/26/17 02:19*	*5*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: PTW-B-W-170424
Date Collected: 04/24/17 09:40
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-13
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**16**		1.0		ug/L			05/07/17 20:43	1
Toluene	**24**		1.0		ug/L			05/07/17 20:43	1
Ethylbenzene	**3.2**		1.0		ug/L			05/07/17 20:43	1
Xylenes, Total	**19**		10		ug/L			05/07/17 20:43	1
Methyl tert-butyl ether	**15**		1.0		ug/L			05/07/17 20:43	1
Ethanol	<100		100		ug/L			05/07/17 20:43	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/07/17 20:43	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/07/17 20:43	1
t-Amyl alcohol	**24**		10		ug/L			05/07/17 20:43	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/07/17 20:43	1
tert-Butyl alcohol	<10		10		ug/L			05/07/17 20:43	1
tert-Butyl Formate	<10		10		ug/L			05/07/17 20:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*99*		*78 - 118*		*05/07/17 20:43*	*1*
Dibromofluoromethane	*97*		*81 - 121*		*05/07/17 20:43*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*05/07/17 20:43*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**170**		100		ug/L			04/26/17 02:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*82*		*78 - 119*		*04/26/17 02:54*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: RW-1-W-170424
Date Collected: 04/24/17 09:00
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-14
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**290**		2.0		ug/L			05/06/17 21:50	2
Toluene	**230**		2.0		ug/L			05/06/17 21:50	2
Ethylbenzene	**51**		2.0		ug/L			05/06/17 21:50	2
Xylenes, Total	**210**		20		ug/L			05/06/17 21:50	2
Methyl tert-butyl ether	**81**		2.0		ug/L			05/06/17 21:50	2
Ethanol	<200		200		ug/L			05/06/17 21:50	2
Ethyl tert-butyl alcohol	<40		40		ug/L			05/06/17 21:50	2
Ethyl tert-butyl ether	<10		10		ug/L			05/06/17 21:50	2
t-Amyl alcohol	**380**		20		ug/L			05/06/17 21:50	2
Tert-amyl methyl ether	<10		10		ug/L			05/06/17 21:50	2
tert-Butyl alcohol	<20		20		ug/L			05/06/17 21:50	2
tert-Butyl Formate	<20		20		ug/L			05/06/17 21:50	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*05/06/17 21:50*	*2*
Dibromofluoromethane	*98*		*81 - 121*		*05/06/17 21:50*	*2*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/06/17 21:50*	*2*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**2100**		500		ug/L			04/26/17 03:29	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*108*		*78 - 119*		*04/26/17 03:29*	*5*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: RW-2-W-170424
Date Collected: 04/24/17 09:05
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-15
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**180**		2.0		ug/L			05/06/17 22:12	2
Toluene	**220**		2.0		ug/L			05/06/17 22:12	2
Ethylbenzene	**25**		2.0		ug/L			05/06/17 22:12	2
Xylenes, Total	**210**		20		ug/L			05/06/17 22:12	2
Methyl tert-butyl ether	**100**		2.0		ug/L			05/06/17 22:12	2
Ethanol	<200		200		ug/L			05/06/17 22:12	2
Ethyl tert-butyl alcohol	<40		40		ug/L			05/06/17 22:12	2
Ethyl tert-butyl ether	<10		10		ug/L			05/06/17 22:12	2
t-Amyl alcohol	**250**		20		ug/L			05/06/17 22:12	2
Tert-amyl methyl ether	<10		10		ug/L			05/06/17 22:12	2
tert-Butyl alcohol	<20		20		ug/L			05/06/17 22:12	2
tert-Butyl Formate	<20		20		ug/L			05/06/17 22:12	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*78 - 118*		*05/06/17 22:12*	*2*
Dibromofluoromethane	*97*		*81 - 121*		*05/06/17 22:12*	*2*
Toluene-d8 (Surr)	*105*		*80 - 120*		*05/06/17 22:12*	*2*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**2000**		500		ug/L			04/26/17 04:04	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*106*		*78 - 119*		*04/26/17 04:04*	*5*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: RW-3-W-170424

Date Collected: 04/24/17 09:15
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-16

Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**15**		5.0		ug/L			05/06/17 23:17	5
Toluene	**350**		5.0		ug/L			05/06/17 23:17	5
Ethylbenzene	**170**		5.0		ug/L			05/06/17 23:17	5
Xylenes, Total	**2000**		50		ug/L			05/06/17 23:17	5
Methyl tert-butyl ether	<5.0		5.0		ug/L			05/06/17 23:17	5
Ethanol	<500		500		ug/L			05/06/17 23:17	5
Ethyl tert-butyl alcohol	<100		100		ug/L			05/06/17 23:17	5
Ethyl tert-butyl ether	<25		25		ug/L			05/06/17 23:17	5
t-Amyl alcohol	**130**		50		ug/L			05/06/17 23:17	5
Tert-amyl methyl ether	<25		25		ug/L			05/06/17 23:17	5
tert-Butyl alcohol	<50		50		ug/L			05/06/17 23:17	5
tert-Butyl Formate	<50		50		ug/L			05/06/17 23:17	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*78 - 118*		*05/06/17 23:17*	*5*
Dibromofluoromethane	*100*		*81 - 121*		*05/06/17 23:17*	*5*
Toluene-d8 (Surr)	*103*		*80 - 120*		*05/06/17 23:17*	*5*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**8800**		2000		ug/L			04/26/17 04:39	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*111*		*78 - 119*		*04/26/17 04:39*	*20*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: RW-4-W-170424
Date Collected: 04/24/17 09:20
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-17
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**1500**		10		ug/L			05/07/17 21:27	10
Toluene	**1700**		10		ug/L			05/07/17 21:27	10
Ethylbenzene	**140**		10		ug/L			05/07/17 21:27	10
Xylenes, Total	**1200**		100		ug/L			05/07/17 21:27	10
Methyl tert-butyl ether	**510**		10		ug/L			05/07/17 21:27	10
Ethanol	<1000		1000		ug/L			05/07/17 21:27	10
Ethyl tert-butyl alcohol	<200		200		ug/L			05/07/17 21:27	10
Ethyl tert-butyl ether	<50		50		ug/L			05/07/17 21:27	10
t-Amyl alcohol	**2100**		100		ug/L			05/07/17 21:27	10
Tert-amyl methyl ether	<50		50		ug/L			05/07/17 21:27	10
tert-Butyl alcohol	**170**		100		ug/L			05/07/17 21:27	10
tert-Butyl Formate	<100		100		ug/L			05/07/17 21:27	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*90*		*78 - 118*		*05/07/17 21:27*	*10*
Dibromofluoromethane	*96*		*81 - 121*		*05/07/17 21:27*	*10*
Toluene-d8 (Surr)	*102*		*80 - 120*		*05/07/17 21:27*	*10*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**12000**		1000		ug/L			04/26/17 13:06	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*111*		*78 - 119*		*04/26/17 13:06*	*10*

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(78-118)	(81-121)	(80-120)
400-136996-1	GP-30A-W-170424	95	97	96
400-136996-2	GP-35A-W-170424	96	96	97
400-136996-3	MW-20-W-170424	94	96	98
400-136996-4	MW-45-W-170424	96	97	98
400-136996-5	MW-47-W-170424	97	96	98
400-136996-6	MW-6-W-170424	96	98	98
400-136996-7	MW-17-W-170424	94	97	97
400-136996-8	MW-22R-W-170424	95	97	96
400-136996-9	RW-5-W-170424	95	98	98
400-136996-10	GP-27R-W-170424	96	100	106
400-136996-11	GP-39R-W-170424	98	96	102
400-136996-12	MW-7-W-170424	93	97	95
400-136996-13	PTW-B-W-170424	99	97	104
400-136996-14	RW-1-W-170424	96	98	102
400-136996-15	RW-2-W-170424	93	97	105
400-136996-16	RW-3-W-170424	93	100	103
400-136996-17	RW-4-W-170424	90	96	102
LCS 400-352427/1002	Lab Control Sample	98	100	98
LCS 400-352617/1002	Lab Control Sample	88	96	97
LCS 400-352662/1002	Lab Control Sample	87	100	100
MB 400-352427/4	Method Blank	96	97	97
MB 400-352617/4	Method Blank	96	97	101
MB 400-352662/4	Method Blank	95	99	103

Surrogate Legend

BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT2
Lab Sample ID	Client Sample ID	(78-119)
400-136996-1	GP-30A-W-170424	107
400-136996-2	GP-35A-W-170424	111
400-136996-3	MW-20-W-170424	116
400-136996-4	MW-45-W-170424	115
400-136996-4 MS	MW-45-W-170424	108
400-136996-4 MSD	MW-45-W-170424	111
400-136996-5	MW-47-W-170424	113
400-136996-6	MW-6-W-170424	98
400-136996-7	MW-17-W-170424	110
400-136996-8	MW-22R-W-170424	109
400-136996-9	RW-5-W-170424	117
400-136996-10	GP-27R-W-170424	103
400-136996-11	GP-39R-W-170424	105
400-136996-12	MW-7-W-170424	107

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	TFT2 (78-119)							
400-136996-13	PTW-B-W-170424	82							
400-136996-14	RW-1-W-170424	108							
400-136996-15	RW-2-W-170424	106							
400-136996-16	RW-3-W-170424	111							
400-136996-17	RW-4-W-170424	111							
LCS 400-351286/1001	Lab Control Sample	110							
MB 400-351286/2	Method Blank	104							

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (fid)

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

Lab Sample ID: MB 400-352427/4
Matrix: Water
Analysis Batch: 352427

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			05/04/17 19:39	1
Toluene	<1.0		1.0		ug/L			05/04/17 19:39	1
Ethylbenzene	<1.0		1.0		ug/L			05/04/17 19:39	1
Xylenes, Total	<10		10		ug/L			05/04/17 19:39	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			05/04/17 19:39	1
Ethanol	<100		100		ug/L			05/04/17 19:39	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/04/17 19:39	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/04/17 19:39	1
t-Amyl alcohol	<10		10		ug/L			05/04/17 19:39	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/04/17 19:39	1
tert-Butyl alcohol	<10		10		ug/L			05/04/17 19:39	1
tert-Butyl Formate	<10		10		ug/L			05/04/17 19:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*05/04/17 19:39*	*1*
Dibromofluoromethane	*97*		*81 - 121*		*05/04/17 19:39*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*05/04/17 19:39*	*1*

Lab Sample ID: LCS 400-352427/1002
Matrix: Water
Analysis Batch: 352427

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	50.3		ug/L		101	70 - 130
Toluene	50.0	50.2		ug/L		100	70 - 130
Ethylbenzene	50.0	50.9		ug/L		102	70 - 130
Xylenes, Total	100	101		ug/L		101	70 - 130
Methyl tert-butyl ether	50.0	51.2		ug/L		102	66 - 130
Ethanol	2000	1900		ug/L		95	20 - 160
Ethyl tert-butyl alcohol	250	246		ug/L		98	38 - 144
Ethyl tert-butyl ether	50.0	51.4		ug/L		103	55 - 133
t-Amyl alcohol	500	503		ug/L		101	38 - 139
Tert-amyl methyl ether	50.0	52.3		ug/L		105	52 - 132
tert-Butyl alcohol	500	450		ug/L		90	46 - 143
tert-Butyl Formate	250	197		ug/L		79	10 - 160

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*98*		*78 - 118*
Dibromofluoromethane	*100*		*81 - 121*
Toluene-d8 (Surr)	*98*		*80 - 120*

Lab Sample ID: MB 400-352617/4
Matrix: Water
Analysis Batch: 352617

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			05/06/17 14:45	1

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

Lab Sample ID: MB 400-352617/4
Matrix: Water
Analysis Batch: 352617

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	<1.0		1.0		ug/L			05/06/17 14:45	1
Ethylbenzene	<1.0		1.0		ug/L			05/06/17 14:45	1
Xylenes, Total	<10		10		ug/L			05/06/17 14:45	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			05/06/17 14:45	1
Ethanol	<100		100		ug/L			05/06/17 14:45	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/06/17 14:45	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/06/17 14:45	1
t-Amyl alcohol	<10		10		ug/L			05/06/17 14:45	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/06/17 14:45	1
tert-Butyl alcohol	<10		10		ug/L			05/06/17 14:45	1
tert-Butyl Formate	<10		10		ug/L			05/06/17 14:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*05/06/17 14:45*	*1*
Dibromofluoromethane	*97*		*81 - 121*		*05/06/17 14:45*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*05/06/17 14:45*	*1*

Lab Sample ID: LCS 400-352617/1002
Matrix: Water
Analysis Batch: 352617

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	43.9		ug/L		88	70 - 130
Toluene	50.0	40.8		ug/L		82	70 - 130
Ethylbenzene	50.0	41.5		ug/L		83	70 - 130
Xylenes, Total	100	82.4		ug/L		82	70 - 130
Methyl tert-butyl ether	50.0	43.6		ug/L		87	66 - 130
Ethanol	2000	2000		ug/L		100	20 - 160
Ethyl tert-butyl alcohol	250	224		ug/L		90	38 - 144
Ethyl tert-butyl ether	50.0	44.6		ug/L		89	55 - 133
t-Amyl alcohol	500	495		ug/L		99	38 - 139
Tert-amyl methyl ether	50.0	42.4		ug/L		85	52 - 132
tert-Butyl alcohol	500	473		ug/L		95	46 - 143
tert-Butyl Formate	250	229		ug/L		92	10 - 160

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*88*		*78 - 118*
Dibromofluoromethane	*96*		*81 - 121*
Toluene-d8 (Surr)	*97*		*80 - 120*

Lab Sample ID: MB 400-352662/4
Matrix: Water
Analysis Batch: 352662

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			05/07/17 11:51	1
Toluene	<1.0		1.0		ug/L			05/07/17 11:51	1
Ethylbenzene	<1.0		1.0		ug/L			05/07/17 11:51	1

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

Lab Sample ID: MB 400-352662/4
Matrix: Water
Analysis Batch: 352662

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	<10		10		ug/L			05/07/17 11:51	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			05/07/17 11:51	1
Ethanol	<100		100		ug/L			05/07/17 11:51	1
Ethyl tert-butyl alcohol	<20		20		ug/L			05/07/17 11:51	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			05/07/17 11:51	1
t-Amyl alcohol	<10		10		ug/L			05/07/17 11:51	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			05/07/17 11:51	1
tert-Butyl alcohol	<10		10		ug/L			05/07/17 11:51	1
tert-Butyl Formate	<10		10		ug/L			05/07/17 11:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*78 - 118*		*05/07/17 11:51*	*1*
Dibromofluoromethane	*99*		*81 - 121*		*05/07/17 11:51*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*05/07/17 11:51*	*1*

Lab Sample ID: LCS 400-352662/1002
Matrix: Water
Analysis Batch: 352662

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	47.0		ug/L		94	70 - 130
Toluene	50.0	47.1		ug/L		94	70 - 130
Ethylbenzene	50.0	46.2		ug/L		92	70 - 130
Xylenes, Total	100	91.7		ug/L		92	70 - 130
Methyl tert-butyl ether	50.0	46.4		ug/L		93	66 - 130
Ethanol	2000	1830		ug/L		91	20 - 160
Ethyl tert-butyl alcohol	250	247		ug/L		99	38 - 144
Ethyl tert-butyl ether	50.0	45.6		ug/L		91	55 - 133
t-Amyl alcohol	500	455		ug/L		91	38 - 139
Tert-amyl methyl ether	50.0	42.8		ug/L		86	52 - 132
tert-Butyl alcohol	500	468		ug/L		94	46 - 143
tert-Butyl Formate	250	188		ug/L		75	10 - 160

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*87*		*78 - 118*
Dibromofluoromethane	*100*		*81 - 121*
Toluene-d8 (Surr)	*100*		*80 - 120*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 400-351286/2
Matrix: Water
Analysis Batch: 351286

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/25/17 17:08	1

Method: 8015B - Gasoline Range Organics - (GC) (Continued)

Lab Sample ID: MB 400-351286/2
Matrix: Water
Analysis Batch: 351286

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
a,a,a-Trifluorotoluene (fid)	104		78 - 119		04/25/17 17:08	1

Lab Sample ID: LCS 400-351286/1001
Matrix: Water
Analysis Batch: 351286

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) C6--C10			1000	1030		ug/L		103	85 - 115		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	110		78 - 119

Lab Sample ID: 400-136996-4 MS
Matrix: Water
Analysis Batch: 351286

Client Sample ID: MW-45-W-170424
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) C6--C10	190		1000	1380		ug/L		118	35 - 150		

Surrogate	MS %Recovery	MS Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	108		78 - 119

Lab Sample ID: 400-136996-4 MSD
Matrix: Water
Analysis Batch: 351286

Client Sample ID: MW-45-W-170424
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) C6--C10	190		1000	1380		ug/L		119	35 - 150	0	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
a,a,a-Trifluorotoluene (fid)	111		78 - 119

GC/MS VOA

Analysis Batch: 352427

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136996-1	GP-30A-W-170424	Total/NA	Water	8260B	
400-136996-2	GP-35A-W-170424	Total/NA	Water	8260B	
400-136996-3	MW-20-W-170424	Total/NA	Water	8260B	
400-136996-4	MW-45-W-170424	Total/NA	Water	8260B	
400-136996-5	MW-47-W-170424	Total/NA	Water	8260B	
400-136996-6	MW-6-W-170424	Total/NA	Water	8260B	
400-136996-7	MW-17-W-170424	Total/NA	Water	8260B	
400-136996-8	MW-22R-W-170424	Total/NA	Water	8260B	
400-136996-9	RW-5-W-170424	Total/NA	Water	8260B	
MB 400-352427/4	Method Blank	Total/NA	Water	8260B	
LCS 400-352427/1002	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 352617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136996-10	GP-27R-W-170424	Total/NA	Water	8260B	
400-136996-11	GP-39R-W-170424	Total/NA	Water	8260B	
400-136996-14	RW-1-W-170424	Total/NA	Water	8260B	
400-136996-15	RW-2-W-170424	Total/NA	Water	8260B	
400-136996-16	RW-3-W-170424	Total/NA	Water	8260B	
MB 400-352617/4	Method Blank	Total/NA	Water	8260B	
LCS 400-352617/1002	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 352662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136996-12	MW-7-W-170424	Total/NA	Water	8260B	
400-136996-13	PTW-B-W-170424	Total/NA	Water	8260B	
400-136996-17	RW-4-W-170424	Total/NA	Water	8260B	
MB 400-352662/4	Method Blank	Total/NA	Water	8260B	
LCS 400-352662/1002	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 351286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136996-1	GP-30A-W-170424	Total/NA	Water	8015B	
400-136996-2	GP-35A-W-170424	Total/NA	Water	8015B	
400-136996-3	MW-20-W-170424	Total/NA	Water	8015B	
400-136996-4	MW-45-W-170424	Total/NA	Water	8015B	
400-136996-5	MW-47-W-170424	Total/NA	Water	8015B	
400-136996-6	MW-6-W-170424	Total/NA	Water	8015B	
400-136996-7	MW-17-W-170424	Total/NA	Water	8015B	
400-136996-8	MW-22R-W-170424	Total/NA	Water	8015B	
400-136996-9	RW-5-W-170424	Total/NA	Water	8015B	
400-136996-10	GP-27R-W-170424	Total/NA	Water	8015B	
400-136996-11	GP-39R-W-170424	Total/NA	Water	8015B	
400-136996-12	MW-7-W-170424	Total/NA	Water	8015B	
400-136996-13	PTW-B-W-170424	Total/NA	Water	8015B	
400-136996-14	RW-1-W-170424	Total/NA	Water	8015B	
400-136996-15	RW-2-W-170424	Total/NA	Water	8015B	
400-136996-16	RW-3-W-170424	Total/NA	Water	8015B	

GC VOA (Continued)

Analysis Batch: 351286 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136996-17	RW-4-W-170424	Total/NA	Water	8015B	
MB 400-351286/2	Method Blank	Total/NA	Water	8015B	
LCS 400-351286/1001	Lab Control Sample	Total/NA	Water	8015B	
400-136996-4 MS	MW-45-W-170424	Total/NA	Water	8015B	
400-136996-4 MSD	MW-45-W-170424	Total/NA	Water	8015B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424
Date Collected: 04/24/17 09:55
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	5 mL	5 mL	352427	05/05/17 05:08	CS	TAL PEN
Total/NA	Analysis	8015B		200	5 mL	5 mL	351286	04/25/17 20:26	GRK	TAL PEN

Client Sample ID: GP-35A-W-170424
Date Collected: 04/24/17 11:30
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	5 mL	5 mL	352427	05/05/17 03:47	CS	TAL PEN
Total/NA	Analysis	8015B		50	5 mL	5 mL	351286	04/25/17 21:02	GRK	TAL PEN

Client Sample ID: MW-20-W-170424
Date Collected: 04/24/17 10:35
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352427	05/05/17 01:32	CS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351286	04/25/17 19:50	GRK	TAL PEN

Client Sample ID: MW-45-W-170424
Date Collected: 04/24/17 12:55
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352427	05/05/17 01:59	CS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351286	04/25/17 18:02	GRK	TAL PEN

Client Sample ID: MW-47-W-170424
Date Collected: 04/24/17 13:45
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352427	05/05/17 02:26	CS	TAL PEN
Total/NA	Analysis	8015B		5	5 mL	5 mL	351286	04/25/17 21:37	GRK	TAL PEN

Client Sample ID: MW-6-W-170424
Date Collected: 04/24/17 12:10
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352427	05/05/17 02:53	CS	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: MW-6-W-170424
Date Collected: 04/24/17 12:10
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		5	5 mL	5 mL	351286	04/25/17 22:13	GRK	TAL PEN

Client Sample ID: MW-17-W-170424
Date Collected: 04/24/17 09:30
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		50	5 mL	5 mL	352427	05/05/17 04:41	CS	TAL PEN
Total/NA	Analysis	8015B		50	5 mL	5 mL	351286	04/26/17 11:55	GRK	TAL PEN

Client Sample ID: MW-22R-W-170424
Date Collected: 04/24/17 09:35
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		20	5 mL	5 mL	352427	05/05/17 04:14	CS	TAL PEN
Total/NA	Analysis	8015B		50	5 mL	5 mL	351286	04/26/17 12:30	GRK	TAL PEN

Client Sample ID: RW-5-W-170424
Date Collected: 04/24/17 09:25
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352427	05/05/17 03:20	CS	TAL PEN
Total/NA	Analysis	8015B		2	5 mL	5 mL	351286	04/26/17 00:34	GRK	TAL PEN

Client Sample ID: GP-27R-W-170424
Date Collected: 04/24/17 09:45
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352617	05/06/17 20:54	CAR	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351286	04/26/17 01:09	GRK	TAL PEN

Client Sample ID: GP-39R-W-170424
Date Collected: 04/24/17 09:50
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352617	05/06/17 21:21	CAR	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351286	04/26/17 01:44	GRK	TAL PEN

Client Sample ID: MW-7-W-170424
Lab Sample ID: 400-136996-12
Date Collected: 04/24/17 09:10
Matrix: Water
Date Received: 04/25/17 11:56

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	5 mL	5 mL	352662	05/07/17 21:05	CAR	TAL PEN
Total/NA	Analysis	8015B		5	5 mL	5 mL	351286	04/26/17 02:19	GRK	TAL PEN

Client Sample ID: PTW-B-W-170424
Lab Sample ID: 400-136996-13
Date Collected: 04/24/17 09:40
Matrix: Water
Date Received: 04/25/17 11:56

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352662	05/07/17 20:43	CAR	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351286	04/26/17 02:54	GRK	TAL PEN

Client Sample ID: RW-1-W-170424
Lab Sample ID: 400-136996-14
Date Collected: 04/24/17 09:00
Matrix: Water
Date Received: 04/25/17 11:56

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	5 mL	5 mL	352617	05/06/17 21:50	CAR	TAL PEN
Total/NA	Analysis	8015B		5	5 mL	5 mL	351286	04/26/17 03:29	GRK	TAL PEN

Client Sample ID: RW-2-W-170424
Lab Sample ID: 400-136996-15
Date Collected: 04/24/17 09:05
Matrix: Water
Date Received: 04/25/17 11:56

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	5 mL	5 mL	352617	05/06/17 22:12	CAR	TAL PEN
Total/NA	Analysis	8015B		5	5 mL	5 mL	351286	04/26/17 04:04	GRK	TAL PEN

Client Sample ID: RW-3-W-170424
Lab Sample ID: 400-136996-16
Date Collected: 04/24/17 09:15
Matrix: Water
Date Received: 04/25/17 11:56

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	5 mL	5 mL	352617	05/06/17 23:17	CAR	TAL PEN
Total/NA	Analysis	8015B		20	5 mL	5 mL	351286	04/26/17 04:39	GRK	TAL PEN

Client Sample ID: RW-4-W-170424
Lab Sample ID: 400-136996-17
Date Collected: 04/24/17 09:20
Matrix: Water
Date Received: 04/25/17 11:56

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	5 mL	5 mL	352662	05/07/17 21:27	CAR	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: RW-4-W-170424
Date Collected: 04/24/17 09:20
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		10	5 mL	5 mL	351286	04/26/17 13:06	GRK	TAL PEN

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 400-351286/2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	5 mL	5 mL	351286	04/25/17 17:08	GRK	TAL PEN

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 400-352427/4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352427	05/04/17 19:39	CS	TAL PEN

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 400-352617/4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352617	05/06/17 14:45	CAR	TAL PEN

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 400-352662/4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352662	05/07/17 11:51	CAR	TAL PEN

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCS 400-351286/1001
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	5 mL	5 mL	351286	04/25/17 16:16	GRK	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCS 400-352427/1002
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352427	05/04/17 18:24	CS	TAL PEN

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCS 400-352617/1002
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352617	05/06/17 13:30	CAR	TAL PEN

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCS 400-352662/1002
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	352662	05/07/17 10:56	CAR	TAL PEN

Client Sample ID: MW-45-W-170424
Date Collected: 04/24/17 12:55
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-4 MS
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	5 mL	5 mL	351286	04/25/17 18:38	GRK	TAL PEN

Client Sample ID: MW-45-W-170424
Date Collected: 04/24/17 12:55
Date Received: 04/25/17 11:56

Lab Sample ID: 400-136996-4 MSD
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	5 mL	5 mL	351286	04/25/17 19:14	GRK	TAL PEN

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PEN
8015B	Gasoline Range Organics - (GC)	SW846	TAL PEN

Protocol References:

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

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum, MD

TestAmerica Job ID: 400-136996-1
SDG: CVX Fac 122208

Laboratory: TestAmerica Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	233	09-30-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8015B		Water	Gasoline Range Organics (GRO) C6--C10
8260B		Water	Benzene
8260B		Water	Ethanol
8260B		Water	Ethyl tert-butyl alcohol
8260B		Water	Ethyl tert-butyl ether
8260B		Water	Ethylbenzene
8260B		Water	Methyl tert-butyl ether
8260B		Water	t-Amyl alcohol
8260B		Water	Tert-amyl methyl ether
8260B		Water	tert-Butyl alcohol
8260B		Water	tert-Butyl Formate
8260B		Water	Toluene
8260B		Water	Xylenes, Total

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

180325

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: A. King / J. Bukavsky	Lab PM: Vergin, Debra	Carrier Tracking No(s): BALTIMORE	COC No: 400-64866-26642.1
Client Contact: Lauren Vogel	Phone: 410-350-9147	E-Mail: debra.vergin@testamericainc.com		Page: Page 1 of 2
Company: ARCADIS U.S., Inc.		Analysis Requested		Job #:
Address: 7550 Teague Road Suite 210	Due Date Requested:			Preservation Codes:
City: Hanover	TAT Requested (days): standard			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: MD, 21076				
Phone: 202-909-6892(Tel)	PO #: SO 0015191829			Other:
Email: lauren.vogel@arcadis.com	WO #: NWENV-0122208-0-0802			
Project Name: Arcadis CVX Fac 122208, Chillum, MD	Project #: 40003308			
Site: Chillum	SSOW#:			

400-136996 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - BTEXM+7 Oxygenates by 8260	8015B_GRO - GRO C6-C10 by 8015B	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	A		
GP-30A	4/24/17	0955	G	W			2	2		
GP-35A		1130								
MW-20		1035								
MW-45		1255								
MW-47		1345								
MW-6		1210								
MW-17		0930								
MW-22R		0935								
RW-5		0925								
GP-27R		0945								
GP-39R		0950								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/24/17, 1445			4-24-2017/1445	Test America
2		4-24-2017/1520			4/25/17 847	
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.1 NR2

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5/9/2017

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

180325

BALTIMORE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: A. King / J. Bukaske	Lab PM: Vergin, Debra	Carrier Tracking No(s):	COC No: 400-64866-26642.2
Client Contact: Lauren Vogel	Phone: 410-350-9147	E-Mail: debra.vergin@testamericainc.com		Page: Page 2 of 2
Company: ARCADIS U.S., Inc.				Job #:
Address: 7550 Teague Road Suite 210	Due Date Requested:			
City: Hanover	TAT Requested (days): Standard			
State, Zip: MD, 21076				
Phone: 202-909-6892(Tel)	PO #: SO 0015191829			
Email: lauren.vogel@arcadis.com	WO #: NWENV-0122208-0-0802			
Project Name: Arcadis CVX Fac 122208, Chillum, MD	Project #: 40003308			
Site: Chillum	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - BTEXM+7 Oxygenates by 8260	8015B_GRO - GRO C6-C10 by 8015B	Total Number of containers	Special Instructions/Note:
		Preservation Code:					A	A		
MW-7	4/24/17	0910	G	W			2	2		
PTW-B		0940								
RW-1		0900								
RW-2		0905								
RW-3		0915								
RW-4		0920								
Trip Blank		—								
Temp Blank										

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/24/17, 1445			4-24-2017/1445	TestAmerica
2		4-24-2017/1520				
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

5/9/2017

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-136996-1
SDG Number: CVX Fac 122208

Login Number: 136996
List Number: 1
Creator: Johnson, Jeremy N

List Source: TestAmerica Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.1°C IR2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-136997-1
TestAmerica Sample Delivery Group: CVX Fac 122208
Client Project/Site: Chillum MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Authorized for release by:
5/10/2017 2:55:12 PM

Debra Vergin, Project Manager II
(850)363-5129
debra.vergin@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Job ID: 400-136997-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-136997-1

Comments
No additional comments.

Receipt
The samples were received on 4/25/2017 8:47 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.0º C.

Receipt Exceptions
Sample MW-45 was inadvertently collected in preserved containers for dissolved metals and anions. Sample was recollected and reported in job 400-137236-1.

HPLC/IC
Method(s) 9056: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-6-W-170424 (400-136997-6). Elevated reporting limits (RLs) are provided.

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

GC VOA
Method(s) RSK-175: The following samples were collected in properly preserved vials for analysis of Methane. However, the pH was outside the required criteria when verified by the laboratory: GP-35A-W-170424 (400-136997-2) and MW-20-W-170424 (400-136997-3).

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

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424 — Lab Sample ID: 400-136997-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	110000		5000		ug/L	1		RSK-175	Total/NA
Methane	26		2.0		ug/L	1		RSK-175	Total/NA
Sulfate	1.1		1.0		mg/L	1		9056	Total/NA
Iron	25		0.10		mg/L	1		6010C	Total/NA
Manganese	0.11		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	17		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.11		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: GP-35A-W-170424 — Lab Sample ID: 400-136997-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	120000		5000		ug/L	1		RSK-175	Total/NA
Methane	510		4.0		ug/L	2		RSK-175	Total/NA
Sulfate	2.2		1.0		mg/L	1		9056	Total/NA
Iron	46		0.10		mg/L	1		6010C	Total/NA
Manganese	0.21		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	33		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.20		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-20-W-170424 — Lab Sample ID: 400-136997-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	210000		5000		ug/L	1		RSK-175	Total/NA
Methane	930		8.0		ug/L	4		RSK-175	Total/NA
Nitrate as N	6.0		0.10		mg/L	1		9056	Total/NA
Sulfate	2.4		1.0		mg/L	1		9056	Total/NA
Iron	7.4		0.10		mg/L	1		6010C	Total/NA
Manganese	0.42		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	0.13		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.41		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-45-W-170424 — Lab Sample ID: 400-136997-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	190000		5000		ug/L	1		RSK-175	Total/NA
Methane	250		2.0		ug/L	1		RSK-175	Total/NA
Iron	0.46		0.10		mg/L	1		6010C	Total/NA
Manganese	0.053		0.010		mg/L	1		6010C	Total/NA

Client Sample ID: MW-47-W-170424 — Lab Sample ID: 400-136997-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	69000		5000		ug/L	1		RSK-175	Total/NA
Methane	64		2.0		ug/L	1		RSK-175	Total/NA
Nitrate as N	0.12		0.10		mg/L	1		9056	Total/NA
Iron	7.7		0.10		mg/L	1		6010C	Total/NA
Manganese	0.17		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	2.7		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.16		0.010		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: MW-6-W-170424 — Lab Sample ID: 400-136997-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	220000		5000		ug/L	1		RSK-175	Total/NA
Methane	550		4.0		ug/L	2		RSK-175	Total/NA
Nitrate as N	19		0.50		mg/L	5		9056	Total/NA
Sulfate	24		1.0		mg/L	1		9056	Total/NA
Iron	23		0.10		mg/L	1		6010C	Total/NA
Manganese	0.47		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	7.9		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.46		0.010		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-136997-1	GP-30A-W-170424	Water	04/24/17 09:55	04/25/17 08:47
400-136997-2	GP-35A-W-170424	Water	04/24/17 11:30	04/25/17 08:47
400-136997-3	MW-20-W-170424	Water	04/24/17 10:35	04/25/17 08:47
400-136997-4	MW-45-W-170424	Water	04/24/17 12:55	04/25/17 08:47
400-136997-5	MW-47-W-170424	Water	04/24/17 13:45	04/25/17 08:47
400-136997-6	MW-6-W-170424	Water	04/24/17 12:10	04/25/17 08:47

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424
Date Collected: 04/24/17 09:55
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-1
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**110000**		5000		ug/L			05/02/17 01:10	1
Methane	**26**		2.0		ug/L			05/01/17 17:04	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/25/17 17:33	1
Sulfate	**1.1**		1.0		mg/L			04/25/17 17:33	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**25**		0.10		mg/L		05/04/17 10:52	05/07/17 17:42	1
Manganese	**0.11**		0.010		mg/L		05/04/17 10:52	05/07/17 17:42	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**17**		0.10		mg/L		04/27/17 13:22	05/04/17 16:30	1
Manganese, Dissolved	**0.11**		0.010		mg/L		04/27/17 13:22	05/04/17 16:30	1

Client Sample ID: GP-35A-W-170424

Date Collected: 04/24/17 11:30
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-2

Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**120000**		5000		ug/L			05/02/17 01:19	1
Methane	**510**		4.0		ug/L			05/02/17 15:08	2

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/25/17 17:56	1
Sulfate	**2.2**		1.0		mg/L			04/25/17 17:56	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**46**		0.10		mg/L		05/04/17 10:52	05/07/17 17:45	1
Manganese	**0.21**		0.010		mg/L		05/04/17 10:52	05/07/17 17:45	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**33**		0.10		mg/L		04/27/17 13:22	05/04/17 16:45	1
Manganese, Dissolved	**0.20**		0.010		mg/L		04/27/17 13:22	05/04/17 16:45	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: MW-20-W-170424
Date Collected: 04/24/17 10:35
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-3
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	210000		5000		ug/L			05/02/17 01:27	1
Methane	930		8.0		ug/L			05/02/17 15:17	4

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	6.0		0.10		mg/L			04/25/17 18:41	1
Sulfate	2.4		1.0		mg/L			04/25/17 18:41	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	7.4		0.10		mg/L		05/04/17 10:52	05/07/17 17:49	1
Manganese	0.42		0.010		mg/L		05/04/17 10:52	05/07/17 17:49	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.13		0.10		mg/L		04/27/17 13:22	05/04/17 16:49	1
Manganese, Dissolved	0.41		0.010		mg/L		04/27/17 13:22	05/04/17 16:49	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: MW-45-W-170424
Date Collected: 04/24/17 12:55
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-4
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	190000		5000		ug/L			05/02/17 01:36	1
Methane	250		2.0		ug/L			05/01/17 17:30	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.46		0.10		mg/L		05/04/17 10:52	05/07/17 17:52	1
Manganese	0.053		0.010		mg/L		05/04/17 10:52	05/07/17 17:52	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: MW-47-W-170424
Date Collected: 04/24/17 13:45
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-5
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**69000**		5000		ug/L			05/02/17 01:45	1
Methane	**64**		2.0		ug/L			05/01/17 17:39	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.12**		0.10		mg/L			04/25/17 19:27	1
Sulfate	<1.0		1.0		mg/L			04/25/17 19:27	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**7.7**		0.10		mg/L		05/04/17 10:52	05/07/17 17:55	1
Manganese	**0.17**		0.010		mg/L		05/04/17 10:52	05/07/17 17:55	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**2.7**		0.10		mg/L		04/27/17 13:22	05/04/17 16:55	1
Manganese, Dissolved	**0.16**		0.010		mg/L		04/27/17 13:22	05/04/17 16:55	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: MW-6-W-170424
Date Collected: 04/24/17 12:10
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-6
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	220000		5000		ug/L			05/02/17 01:54	1
Methane	550		4.0		ug/L			05/02/17 15:26	2

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	19		0.50		mg/L			04/26/17 10:19	5
Sulfate	24		1.0		mg/L			04/25/17 20:35	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	23		0.10		mg/L		05/04/17 10:52	05/07/17 17:59	1
Manganese	0.47		0.010		mg/L		05/04/17 10:52	05/07/17 17:59	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	7.9		0.10		mg/L		04/27/17 13:22	05/04/17 17:08	1
Manganese, Dissolved	0.46		0.010		mg/L		04/27/17 13:22	05/04/17 17:08	1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-116257/4
Matrix: Water
Analysis Batch: 116257

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<2.0		2.0		ug/L			05/01/17 15:53	1

Lab Sample ID: LCS 200-116257/20
Matrix: Water
Analysis Batch: 116257

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	72.8	62.0		ug/L		85	70 - 130

Lab Sample ID: MB 200-116258/3
Matrix: Water
Analysis Batch: 116258

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<2.0		2.0		ug/L			05/01/17 22:04	1

Lab Sample ID: LCS 200-116258/2
Matrix: Water
Analysis Batch: 116258

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	72.8	60.6		ug/L		83	70 - 130

Lab Sample ID: MB 200-116277/3
Matrix: Water
Analysis Batch: 116277

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	<5000		5000		ug/L			05/01/17 23:41	1

Lab Sample ID: LCS 200-116277/2
Matrix: Water
Analysis Batch: 116277

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	42000		ug/L		105	70 - 130

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 400-351161/4
Matrix: Water
Analysis Batch: 351161

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/25/17 11:28	1

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 400-351161/5
Matrix: Water
Analysis Batch: 351161

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.32		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-351161/6
Matrix: Water
Analysis Batch: 351161

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.26	2.32		mg/L		103	90 - 110	0	15

Lab Sample ID: MB 400-351164/4
Matrix: Water
Analysis Batch: 351164

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			04/25/17 11:28	1

Lab Sample ID: LCS 400-351164/5
Matrix: Water
Analysis Batch: 351164

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.2		mg/L		102	90 - 110

Lab Sample ID: LCSD 400-351164/6
Matrix: Water
Analysis Batch: 351164

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	10.2		mg/L		102	90 - 110	0	15

Lab Sample ID: MB 400-351341/38
Matrix: Water
Analysis Batch: 351341

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/25/17 22:52	1

Lab Sample ID: LCS 400-351341/39
Matrix: Water
Analysis Batch: 351341

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.33		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-351341/40
Matrix: Water
Analysis Batch: 351341

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.26	2.33		mg/L		103	90 - 110	0	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 400-352321/1-A
Matrix: Water
Analysis Batch: 352958

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 352321

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.10		0.10		mg/L		05/04/17 10:52	05/09/17 12:28	1
Manganese	<0.010		0.010		mg/L		05/04/17 10:52	05/09/17 12:28	1

Lab Sample ID: LCS 400-352321/2-A
Matrix: Water
Analysis Batch: 352958

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 352321

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.2		mg/L		102	80 - 120
Manganese	1.00	1.02		mg/L		102	80 - 120

Lab Sample ID: MB 400-351557/1-B
Matrix: Water
Analysis Batch: 352456

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 351568

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		04/27/17 13:22	05/04/17 16:14	1
Manganese, Dissolved	<0.010		0.010		mg/L		04/27/17 13:22	05/04/17 16:14	1

Lab Sample ID: LCS 400-351557/2-B
Matrix: Water
Analysis Batch: 352456

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 351568

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	10.0	10.3		mg/L		103	80 - 120
Manganese, Dissolved	1.00	1.02		mg/L		102	80 - 120

Lab Sample ID: 400-136997-1 MS
Matrix: Water
Analysis Batch: 352456

Client Sample ID: GP-30A-W-170424
Prep Type: Dissolved
Prep Batch: 351568

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	17		10.0	27.3		mg/L		102	75 - 125
Manganese, Dissolved	0.11		1.00	1.13		mg/L		102	75 - 125

Lab Sample ID: 400-136997-1 MSD
Matrix: Water
Analysis Batch: 352456

Client Sample ID: GP-30A-W-170424
Prep Type: Dissolved
Prep Batch: 351568

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	17		10.0	27.3		mg/L		102	75 - 125	0	20
Manganese, Dissolved	0.11		1.00	1.12		mg/L		102	75 - 125	0	20

GC VOA

Analysis Batch: 116257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	RSK-175	
400-136997-4	MW-45-W-170424	Total/NA	Water	RSK-175	
400-136997-5	MW-47-W-170424	Total/NA	Water	RSK-175	
MB 200-116257/4	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116257/20	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 116258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-2	GP-35A-W-170424	Total/NA	Water	RSK-175	
400-136997-3	MW-20-W-170424	Total/NA	Water	RSK-175	
400-136997-6	MW-6-W-170424	Total/NA	Water	RSK-175	
MB 200-116258/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116258/2	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 116277

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	RSK-175	
400-136997-2	GP-35A-W-170424	Total/NA	Water	RSK-175	
400-136997-3	MW-20-W-170424	Total/NA	Water	RSK-175	
400-136997-4	MW-45-W-170424	Total/NA	Water	RSK-175	
400-136997-5	MW-47-W-170424	Total/NA	Water	RSK-175	
400-136997-6	MW-6-W-170424	Total/NA	Water	RSK-175	
MB 200-116277/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116277/2	Lab Control Sample	Total/NA	Water	RSK-175	

HPLC/IC

Analysis Batch: 351161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	9056	
400-136997-2	GP-35A-W-170424	Total/NA	Water	9056	
400-136997-3	MW-20-W-170424	Total/NA	Water	9056	
400-136997-5	MW-47-W-170424	Total/NA	Water	9056	
MB 400-351161/4	Method Blank	Total/NA	Water	9056	
LCS 400-351161/5	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351161/6	Lab Control Sample Dup	Total/NA	Water	9056	

Analysis Batch: 351164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	9056	
400-136997-2	GP-35A-W-170424	Total/NA	Water	9056	
400-136997-3	MW-20-W-170424	Total/NA	Water	9056	
400-136997-5	MW-47-W-170424	Total/NA	Water	9056	
400-136997-6	MW-6-W-170424	Total/NA	Water	9056	
MB 400-351164/4	Method Blank	Total/NA	Water	9056	
LCS 400-351164/5	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351164/6	Lab Control Sample Dup	Total/NA	Water	9056	

HPLC/IC (Continued)

Analysis Batch: 351341

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-6	MW-6-W-170424	Total/NA	Water	9056	
MB 400-351341/38	Method Blank	Total/NA	Water	9056	
LCS 400-351341/39	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351341/40	Lab Control Sample Dup	Total/NA	Water	9056	

Metals

Filtration Batch: 351557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Dissolved	Water	FILTRATION	
400-136997-2	GP-35A-W-170424	Dissolved	Water	FILTRATION	
400-136997-3	MW-20-W-170424	Dissolved	Water	FILTRATION	
400-136997-5	MW-47-W-170424	Dissolved	Water	FILTRATION	
400-136997-6	MW-6-W-170424	Dissolved	Water	FILTRATION	
MB 400-351557/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 400-351557/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
400-136997-1 MS	GP-30A-W-170424	Dissolved	Water	FILTRATION	
400-136997-1 MSD	GP-30A-W-170424	Dissolved	Water	FILTRATION	

Prep Batch: 351568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Dissolved	Water	3005A	351557
400-136997-2	GP-35A-W-170424	Dissolved	Water	3005A	351557
400-136997-3	MW-20-W-170424	Dissolved	Water	3005A	351557
400-136997-5	MW-47-W-170424	Dissolved	Water	3005A	351557
400-136997-6	MW-6-W-170424	Dissolved	Water	3005A	351557
MB 400-351557/1-B	Method Blank	Dissolved	Water	3005A	351557
LCS 400-351557/2-B	Lab Control Sample	Dissolved	Water	3005A	351557
400-136997-1 MS	GP-30A-W-170424	Dissolved	Water	3005A	351557
400-136997-1 MSD	GP-30A-W-170424	Dissolved	Water	3005A	351557

Prep Batch: 352321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	3010A	
400-136997-2	GP-35A-W-170424	Total/NA	Water	3010A	
400-136997-3	MW-20-W-170424	Total/NA	Water	3010A	
400-136997-4	MW-45-W-170424	Total/NA	Water	3010A	
400-136997-5	MW-47-W-170424	Total/NA	Water	3010A	
400-136997-6	MW-6-W-170424	Total/NA	Water	3010A	
MB 400-352321/1-A	Method Blank	Total/NA	Water	3010A	
LCS 400-352321/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 352456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Dissolved	Water	6010C	351568
400-136997-2	GP-35A-W-170424	Dissolved	Water	6010C	351568
400-136997-3	MW-20-W-170424	Dissolved	Water	6010C	351568
400-136997-5	MW-47-W-170424	Dissolved	Water	6010C	351568
400-136997-6	MW-6-W-170424	Dissolved	Water	6010C	351568
MB 400-351557/1-B	Method Blank	Dissolved	Water	6010C	351568

Metals (Continued)

Analysis Batch: 352456 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-351557/2-B	Lab Control Sample	Dissolved	Water	6010C	351568
400-136997-1 MS	GP-30A-W-170424	Dissolved	Water	6010C	351568
400-136997-1 MSD	GP-30A-W-170424	Dissolved	Water	6010C	351568

Analysis Batch: 352735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136997-1	GP-30A-W-170424	Total/NA	Water	6010C	352321
400-136997-2	GP-35A-W-170424	Total/NA	Water	6010C	352321
400-136997-3	MW-20-W-170424	Total/NA	Water	6010C	352321
400-136997-4	MW-45-W-170424	Total/NA	Water	6010C	352321
400-136997-5	MW-47-W-170424	Total/NA	Water	6010C	352321
400-136997-6	MW-6-W-170424	Total/NA	Water	6010C	352321

Analysis Batch: 352958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 400-352321/1-A	Method Blank	Total/NA	Water	6010C	352321
LCS 400-352321/2-A	Lab Control Sample	Total/NA	Water	6010C	352321

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424

Lab Sample ID: 400-136997-1

Date Collected: 04/24/17 09:55

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 17:04	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:10	MLT	TAL BUR
Total/NA	Analysis	9056		1			351161	04/25/17 17:33	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351164	04/25/17 17:33	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:30	GESP	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:42	SEH	TAL PEN

Client Sample ID: GP-35A-W-170424

Lab Sample ID: 400-136997-2

Date Collected: 04/24/17 11:30

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:19	MLT	TAL BUR
Total/NA	Analysis	RSK-175		2	18 mL	18 mL	116258	05/02/17 15:08	MLT	TAL BUR
Total/NA	Analysis	9056		1			351161	04/25/17 17:56	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351164	04/25/17 17:56	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:45	GESP	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:45	SEH	TAL PEN

Client Sample ID: MW-20-W-170424

Lab Sample ID: 400-136997-3

Date Collected: 04/24/17 10:35

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:27	MLT	TAL BUR
Total/NA	Analysis	RSK-175		4	18 mL	18 mL	116258	05/02/17 15:17	MLT	TAL BUR
Total/NA	Analysis	9056		1			351161	04/25/17 18:41	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351164	04/25/17 18:41	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:49	GESP	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:49	SEH	TAL PEN

Client Sample ID: MW-45-W-170424

Lab Sample ID: 400-136997-4

Date Collected: 04/24/17 12:55

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 17:30	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:36	MLT	TAL BUR
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:52	SEH	TAL PEN

Client Sample ID: MW-47-W-170424

Lab Sample ID: 400-136997-5

Date Collected: 04/24/17 13:45

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 17:39	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:45	MLT	TAL BUR
Total/NA	Analysis	9056		1			351161	04/25/17 19:27	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351164	04/25/17 19:27	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:55	GESP	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:55	SEH	TAL PEN

Client Sample ID: MW-6-W-170424

Lab Sample ID: 400-136997-6

Date Collected: 04/24/17 12:10

Matrix: Water

Date Received: 04/25/17 08:47

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/02/17 01:54	MLT	TAL BUR
Total/NA	Analysis	RSK-175		2	18 mL	18 mL	116258	05/02/17 15:26	MLT	TAL BUR
Total/NA	Analysis	9056		1			351164	04/25/17 20:35	TAJ	TAL PEN
Total/NA	Analysis	9056		5			351341	04/26/17 10:19	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 17:08	GESP	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352735	05/07/17 17:59	SEH	TAL PEN

Client Sample ID: Method Blank

Lab Sample ID: MB 200-116257/4

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 15:53	MLT	TAL BUR

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: Method Blank — Lab Sample ID: MB 200-116258/3

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:04	MLT	TAL BUR

Client Sample ID: Method Blank — Lab Sample ID: MB 200-116277/3

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/01/17 23:41	MLT	TAL BUR

Client Sample ID: Method Blank — Lab Sample ID: MB 400-351161/4

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351161	04/25/17 11:28	TAJ	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-351164/4

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351164	04/25/17 11:28	TAJ	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-351341/38

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351341	04/25/17 22:52	TAJ	TAL PEN

Client Sample ID: Method Blank — Lab Sample ID: MB 400-351557/1-B

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:14	GESP	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: Method Blank — Lab Sample ID: MB 400-352321/1-A

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352958	05/09/17 12:28	SEH	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116257/20

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116257	05/01/17 15:45	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116258/2

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 21:56	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116277/2

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116277	05/01/17 23:33	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351161/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351161	04/25/17 11:50	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351164/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351164	04/25/17 11:50	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351341/39

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351341	04/25/17 23:15	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351557/2-B

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:27	GESP	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-352321/2-A

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352321	05/04/17 10:52	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352958	05/09/17 12:31	SEH	TAL PEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 400-351161/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351161	04/25/17 12:13	TAJ	TAL PEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 400-351164/6

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351164	04/25/17 12:13	TAJ	TAL PEN

Client Sample ID: Lab Control Sample Dup — Lab Sample ID: LCSD 400-351341/40

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351341	04/25/17 23:38	TAJ	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Client Sample ID: GP-30A-W-170424
Date Collected: 04/24/17 09:55
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-1 MS
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:39	GESP	TAL PEN

Client Sample ID: GP-30A-W-170424
Date Collected: 04/24/17 09:55
Date Received: 04/25/17 08:47

Lab Sample ID: 400-136997-1 MSD
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	351557	04/27/17 12:50	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	351568	04/27/17 13:22	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352456	05/04/17 16:42	GESP	TAL PEN

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
9056	Anions, Ion Chromatography	SW846	TAL PEN
6010C	Metals (ICP)	SW846	TAL PEN

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-136997-1
SDG: CVX Fac 122208

Laboratory: TestAmerica Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	233	09-30-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Iron, Dissolved
6010C	3005A	Water	Manganese, Dissolved
6010C	3010A	Water	Iron
6010C	3010A	Water	Manganese
9056		Water	Nitrate as N
9056		Water	Sulfate

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-18
Florida	NELAP	4	E87467	06-30-17 *
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17 *
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

180325

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

BALTIMORE

Client Information	Sampler: A. King / J. Bukowsky	Lab PM: Vergin, Debra	Carrier Tracking No(s):	COC No: 400-64734-26624.1
Client Contact: John Marrs	Phone: 410-350-9147	E-Mail: debra.vergin@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S. Inc		Analysis Requested		Job #:
Address: Arcadis 295 Woodcliff Drive #2. 3rd Floor, Suite 301	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Fairport	TAT Requested (days): Standard			
State, Zip: NY, 14450				
Phone: 202-909-6892(Tel)	PO #: B0049337.0004			Other:
Email: john.marrs@arcadis.com	WO #:			
Project Name: Chillum, MD, CVX Fac 122208	Project #: 40003308			
Site: Chillum	SSOW#:			

400-136997 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175 - Methane	RSK_175_CO2 - Carbon Dioxide	9056_ORGFM_28D, 9056_ORGFM_48Hr	6010C - Dissolved Iron & Manganese (Lab Filter)	6010C - Total Iron & Manganese	[illegible]	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N	N	D			
GP-30A	4/24/17	0955	G	W			2	1	1	1	1			
GP-35A		1130												
MW-20		1035												
MW-45		1255												
MW-47		1345												
MW-6		1210												
Temp Blank														

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/24/17, 1445			4-24-2017/1445	Test America
2		4-24-2017/1520			4/25/17 0617	
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 0.0c

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

400-136997 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Vergin, Debra	COC No: 400-145673.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: debra.vergin@testamericainc.com	State of Origin: Maryland	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Maryland	Job #: 400-136997-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 5/5/2017		
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: Chillum MD	Project #: 40003308		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)		RSK_175/ Methane	RSK_175_CO2/ Carbon Dioxide											Total Number of containers	Special Instructions/Note:
			Preservation Code:																	
GP-30A-W-170424 (400-136997-1)	4/24/17	09:55 Eastern		Water			X	X											3	
GP-35A-W-170424 (400-136997-2)	4/24/17	11:30 Eastern		Water			X	X											3	
MW-20-W-170424 (400-136997-3)	4/24/17	10:35 Eastern		Water			X	X											3	
MW-45-W-170424 (400-136997-4)	4/24/17	12:55 Eastern		Water			X	X											3	
MW-47-W-170424 (400-136997-5)	4/24/17	13:45 Eastern		Water			X	X											3	
MW-6-W-170424 (400-136997-6)	4/24/17	12:10 Eastern		Water			X	X											3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 4/25/17 1630	Company TA Pen	Received by:	Date/Time: 4/26/17 1030	Company TA Burl.
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☒ Yes ☐ No	Custody Seal No.: 358953	Cooler Temperature(s) °C and Other Remarks: 1.4°C

5/10/2017



TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

rt # 159469-434 RIT 09/15 •

ORIGIN ID:PNSA (850) 474-1001
RICHARD FARMER
TEST AMERICA PENSACOLA
3355 MCLEMORE DR

PENSACOLA, FL 32514
UNITED STATES US

SHIP DATE: 25APR17
ACTWGT: 17.75 LB
CAD: 0335906/CAFE3011

BILL RECIPIENT

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: S400-65076

FedEx Express

TRK# 0201 7013 8369 5187

WED - 26 APR 3:00P
STANDARD OVERNIGHT

XH BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-136997-1
SDG Number: CVX Fac 122208

Login Number: 136997
List Number: 1
Creator: Johnson, Jeremy N

List Source: TestAmerica Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.0°C IR2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-136997-1
SDG Number: CVX Fac 122208

Login Number: 136997
List Number: 2
Creator: Johnson, Eleanor E

List Source: TestAmerica Burlington
List Creation: 04/26/17 01:43 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	358953
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.7ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-137059-1
TestAmerica Sample Delivery Group: CVX Fac 122208
Client Project/Site: Chillum MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Mark Swafford

Authorized for release by:
5/5/2017 2:18:42 PM
Mark Swafford, Project Manager I
(850)471-6207
mark.swafford@testamericainc.com

Designee for

Debra Vergin, Project Manager II
(850)363-5129
debra.vergin@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-33B-W-170425 — Lab Sample ID: 400-137059-1

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.1		1.0		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	12		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: MW-53-W-170425 — Lab Sample ID: 400-137059-2

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.5		1.0		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	71		1.0		ug/L	1		8260B	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**MDL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Gasoline Range Organics (GRO) C6--C10	100		100		ug/L	1		8015B	Total/NA

Client Sample ID: MW-59-W-170425 — Lab Sample ID: 400-137059-3

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	86		1.0		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	170		1.0		ug/L	1		8260B	Total/NA
t-Amyl alcohol	65		10		ug/L	1		8260B	Total/NA
tert-Butyl alcohol	14		10		ug/L	1		8260B	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**MDL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Gasoline Range Organics (GRO) C6--C10	460		100		ug/L	1		8015B	Total/NA

Client Sample ID: MW-25B-W-170425 — Lab Sample ID: 400-137059-4

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	78		1.0		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	150		1.0		ug/L	1		8260B	Total/NA
t-Amyl alcohol	100		10		ug/L	1		8260B	Total/NA
tert-Butyl alcohol	15		10		ug/L	1		8260B	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**MDL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Gasoline Range Organics (GRO) C6--C10	360		100		ug/L	1		8015B	Total/NA

Client Sample ID: MW-62B-W-170425 — Lab Sample ID: 400-137059-5

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	5.2		1.0		ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	27		1.0		ug/L	1		8260B	Total/NA
t-Amyl alcohol	15		10		ug/L	1		8260B	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**MDL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Gasoline Range Organics (GRO) C6--C10	620		100		ug/L	1		8015B	Total/NA

Client Sample ID: MW-18-W-170425 — Lab Sample ID: 400-137059-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) C6--C10	260		100		ug/L	1		8015B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-19-W-170425 — Lab Sample ID: 400-137059-7

No Detections.

Client Sample ID: MW-25A-W-170425 — Lab Sample ID: 400-137059-8

No Detections.

Client Sample ID: MW-62A-W-170425 — Lab Sample ID: 400-137059-9

No Detections.

Client Sample ID: MW-28B-W-170425 — Lab Sample ID: 400-137059-10

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	3.3		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: MW-29A-W-170425 — Lab Sample ID: 400-137059-11

No Detections.

Client Sample ID: MW-29B-W-170425 — Lab Sample ID: 400-137059-12

Analyte	Result	Qualifier	MQL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	65		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: MW-33A-W-170425 — Lab Sample ID: 400-137059-13

No Detections.

Client Sample ID: MW-33C-W-170425 — Lab Sample ID: 400-137059-14

No Detections.

Client Sample ID: TRIPBLANK-W-170425 — Lab Sample ID: 400-137059-15

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-137059-1	MW-33B-W-170425	Water	04/25/17 09:30	04/26/17 09:03
400-137059-2	MW-53-W-170425	Water	04/25/17 08:55	04/26/17 09:03
400-137059-3	MW-59-W-170425	Water	04/25/17 10:25	04/26/17 09:03
400-137059-4	MW-25B-W-170425	Water	04/25/17 12:25	04/26/17 09:03
400-137059-5	MW-62B-W-170425	Water	04/25/17 11:20	04/26/17 09:03
400-137059-6	MW-18-W-170425	Water	04/25/17 13:20	04/26/17 09:03
400-137059-7	MW-19-W-170425	Water	04/25/17 13:10	04/26/17 09:03
400-137059-8	MW-25A-W-170425	Water	04/25/17 12:05	04/26/17 09:03
400-137059-9	MW-62A-W-170425	Water	04/25/17 11:15	04/26/17 09:03
400-137059-10	MW-28B-W-170425	Water	04/25/17 10:00	04/26/17 09:03
400-137059-11	MW-29A-W-170425	Water	04/25/17 09:00	04/26/17 09:03
400-137059-12	MW-29B-W-170425	Water	04/25/17 08:45	04/26/17 09:03
400-137059-13	MW-33A-W-170425	Water	04/25/17 09:45	04/26/17 09:03
400-137059-14	MW-33C-W-170425	Water	04/25/17 09:35	04/26/17 09:03
400-137059-15	TRIPBLANK-W-170425	Water	04/25/17 00:00	04/26/17 09:03

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-33B-W-170425

Date Collected: 04/25/17 09:30
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-1

Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3.1**		1.0		ug/L			04/29/17 16:20	1
Toluene	<1.0		1.0		ug/L			04/29/17 16:20	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 16:20	1
Xylenes, Total	<10		10		ug/L			04/29/17 16:20	1
Methyl tert-butyl ether	**12**		1.0		ug/L			04/29/17 16:20	1
Ethanol	<100		100		ug/L			04/29/17 16:20	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 16:20	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 16:20	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 16:20	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 16:20	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 16:20	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*78 - 118*		*04/29/17 16:20*	*1*
Dibromofluoromethane	*98*		*81 - 121*		*04/29/17 16:20*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*04/29/17 16:20*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/27/17 17:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*101*		*78 - 119*		*04/27/17 17:41*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-53-W-170425
Date Collected: 04/25/17 08:55
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-2
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3.5**		1.0		ug/L			04/29/17 18:24	1
Toluene	<1.0		1.0		ug/L			04/29/17 18:24	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 18:24	1
Xylenes, Total	<10		10		ug/L			04/29/17 18:24	1
Methyl tert-butyl ether	**71**		1.0		ug/L			04/29/17 18:24	1
Ethanol	<100		100		ug/L			04/29/17 18:24	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 18:24	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 18:24	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 18:24	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 18:24	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 18:24	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 18:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*04/29/17 18:24*	*1*
Dibromofluoromethane	*93*		*81 - 121*		*04/29/17 18:24*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*04/29/17 18:24*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**100**		100		ug/L			04/27/17 18:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*101*		*78 - 119*		*04/27/17 18:36*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-59-W-170425
Date Collected: 04/25/17 10:25
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-3
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**86**		1.0		ug/L			04/29/17 18:49	1
Toluene	<1.0		1.0		ug/L			04/29/17 18:49	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 18:49	1
Xylenes, Total	<10		10		ug/L			04/29/17 18:49	1
Methyl tert-butyl ether	**170**		1.0		ug/L			04/29/17 18:49	1
Ethanol	<100		100		ug/L			04/29/17 18:49	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 18:49	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 18:49	1
t-Amyl alcohol	**65**		10		ug/L			04/29/17 18:49	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 18:49	1
tert-Butyl alcohol	**14**		10		ug/L			04/29/17 18:49	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 18:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*04/29/17 18:49*	*1*
Dibromofluoromethane	*94*		*81 - 121*		*04/29/17 18:49*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*04/29/17 18:49*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**460**		100		ug/L			04/27/17 19:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*100*		*78 - 119*		*04/27/17 19:03*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-25B-W-170425
Date Collected: 04/25/17 12:25
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-4
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**78**		1.0		ug/L			04/29/17 19:13	1
Toluene	<1.0		1.0		ug/L			04/29/17 19:13	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 19:13	1
Xylenes, Total	<10		10		ug/L			04/29/17 19:13	1
Methyl tert-butyl ether	**150**		1.0		ug/L			04/29/17 19:13	1
Ethanol	<100		100		ug/L			04/29/17 19:13	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 19:13	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 19:13	1
t-Amyl alcohol	**100**		10		ug/L			04/29/17 19:13	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 19:13	1
tert-Butyl alcohol	**15**		10		ug/L			04/29/17 19:13	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 19:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*98*		*78 - 118*		*04/29/17 19:13*	*1*
Dibromofluoromethane	*96*		*81 - 121*		*04/29/17 19:13*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*04/29/17 19:13*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**360**		100		ug/L			04/27/17 19:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*95*		*78 - 119*		*04/27/17 19:31*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-62B-W-170425
Date Collected: 04/25/17 11:20
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-5
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**5.2**		1.0		ug/L			04/29/17 19:38	1
Toluene	<1.0		1.0		ug/L			04/29/17 19:38	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 19:38	1
Xylenes, Total	<10		10		ug/L			04/29/17 19:38	1
Methyl tert-butyl ether	**27**		1.0		ug/L			04/29/17 19:38	1
Ethanol	<100		100		ug/L			04/29/17 19:38	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 19:38	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 19:38	1
t-Amyl alcohol	**15**		10		ug/L			04/29/17 19:38	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 19:38	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 19:38	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 19:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*98*		*78 - 118*		*04/29/17 19:38*	*1*
Dibromofluoromethane	*95*		*81 - 121*		*04/29/17 19:38*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*04/29/17 19:38*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**620**		100		ug/L			04/27/17 19:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*101*		*78 - 119*		*04/27/17 19:58*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-18-W-170425
Date Collected: 04/25/17 13:20
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-6
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 20:03	1
Toluene	<1.0		1.0		ug/L			04/29/17 20:03	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 20:03	1
Xylenes, Total	<10		10		ug/L			04/29/17 20:03	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			04/29/17 20:03	1
Ethanol	<100		100		ug/L			04/29/17 20:03	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 20:03	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 20:03	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 20:03	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 20:03	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 20:03	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 20:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*78 - 118*		*04/29/17 20:03*	*1*
Dibromofluoromethane	*92*		*81 - 121*		*04/29/17 20:03*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*04/29/17 20:03*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	**260**		100		ug/L			04/27/17 20:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*97*		*78 - 119*		*04/27/17 20:25*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-19-W-170425
Date Collected: 04/25/17 13:10
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-7
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 20:28	1
Toluene	<1.0		1.0		ug/L			04/29/17 20:28	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 20:28	1
Xylenes, Total	<10		10		ug/L			04/29/17 20:28	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			04/29/17 20:28	1
Ethanol	<100		100		ug/L			04/29/17 20:28	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 20:28	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 20:28	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 20:28	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 20:28	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 20:28	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 20:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*04/29/17 20:28*	*1*
Dibromofluoromethane	*96*		*81 - 121*		*04/29/17 20:28*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*04/29/17 20:28*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/27/17 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*100*		*78 - 119*		*04/27/17 20:53*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-25A-W-170425
Date Collected: 04/25/17 12:05
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-8
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 20:53	1
Toluene	<1.0		1.0		ug/L			04/29/17 20:53	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 20:53	1
Xylenes, Total	<10		10		ug/L			04/29/17 20:53	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			04/29/17 20:53	1
Ethanol	<100		100		ug/L			04/29/17 20:53	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 20:53	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 20:53	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 20:53	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 20:53	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 20:53	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*99*		*78 - 118*		*04/29/17 20:53*	*1*
Dibromofluoromethane	*97*		*81 - 121*		*04/29/17 20:53*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*04/29/17 20:53*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/27/17 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*103*		*78 - 119*		*04/27/17 21:20*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-62A-W-170425
Date Collected: 04/25/17 11:15
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-9
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 21:18	1
Toluene	<1.0		1.0		ug/L			04/29/17 21:18	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 21:18	1
Xylenes, Total	<10		10		ug/L			04/29/17 21:18	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			04/29/17 21:18	1
Ethanol	<100		100		ug/L			04/29/17 21:18	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 21:18	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 21:18	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 21:18	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 21:18	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 21:18	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 21:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*78 - 118*		*04/29/17 21:18*	*1*
Dibromofluoromethane	*97*		*81 - 121*		*04/29/17 21:18*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*04/29/17 21:18*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/27/17 21:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*102*		*78 - 119*		*04/27/17 21:48*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-28B-W-170425
Date Collected: 04/25/17 10:00
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-10
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 21:42	1
Toluene	<1.0		1.0		ug/L			04/29/17 21:42	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 21:42	1
Xylenes, Total	<10		10		ug/L			04/29/17 21:42	1
Methyl tert-butyl ether	**3.3**		1.0		ug/L			04/29/17 21:42	1
Ethanol	<100		100		ug/L			04/29/17 21:42	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 21:42	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 21:42	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 21:42	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 21:42	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 21:42	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 21:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*78 - 118*		*04/29/17 21:42*	*1*
Dibromofluoromethane	*93*		*81 - 121*		*04/29/17 21:42*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*04/29/17 21:42*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/27/17 22:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*99*		*78 - 119*		*04/27/17 22:15*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-29A-W-170425
Date Collected: 04/25/17 09:00
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-11
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 22:07	1
Toluene	<1.0		1.0		ug/L			04/29/17 22:07	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 22:07	1
Xylenes, Total	<10		10		ug/L			04/29/17 22:07	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			04/29/17 22:07	1
Ethanol	<100		100		ug/L			04/29/17 22:07	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 22:07	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 22:07	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 22:07	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 22:07	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 22:07	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 22:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*78 - 118*		*04/29/17 22:07*	*1*
Dibromofluoromethane	*97*		*81 - 121*		*04/29/17 22:07*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*04/29/17 22:07*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/27/17 22:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*101*		*78 - 119*		*04/27/17 22:42*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-29B-W-170425
Date Collected: 04/25/17 08:45
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-12
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 22:32	1
Toluene	<1.0		1.0		ug/L			04/29/17 22:32	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 22:32	1
Xylenes, Total	<10		10		ug/L			04/29/17 22:32	1
Methyl tert-butyl ether	**65**		1.0		ug/L			04/29/17 22:32	1
Ethanol	<100		100		ug/L			04/29/17 22:32	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 22:32	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 22:32	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 22:32	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 22:32	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 22:32	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 22:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*98*		*78 - 118*		*04/29/17 22:32*	*1*
Dibromofluoromethane	*100*		*81 - 121*		*04/29/17 22:32*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*04/29/17 22:32*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/27/17 23:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*96*		*78 - 119*		*04/27/17 23:37*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-33A-W-170425
Date Collected: 04/25/17 09:45
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-13
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 22:57	1
Toluene	<1.0		1.0		ug/L			04/29/17 22:57	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 22:57	1
Xylenes, Total	<10		10		ug/L			04/29/17 22:57	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			04/29/17 22:57	1
Ethanol	<100		100		ug/L			04/29/17 22:57	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 22:57	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 22:57	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 22:57	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 22:57	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 22:57	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 22:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*78 - 118*		*04/29/17 22:57*	*1*
Dibromofluoromethane	*95*		*81 - 121*		*04/29/17 22:57*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*04/29/17 22:57*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/28/17 00:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*101*		*78 - 119*		*04/28/17 00:04*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-33C-W-170425
Date Collected: 04/25/17 09:35
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-14
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 23:22	1
Toluene	<1.0		1.0		ug/L			04/29/17 23:22	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 23:22	1
Xylenes, Total	<10		10		ug/L			04/29/17 23:22	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			04/29/17 23:22	1
Ethanol	<100		100		ug/L			04/29/17 23:22	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 23:22	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 23:22	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 23:22	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 23:22	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 23:22	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 23:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*78 - 118*		*04/29/17 23:22*	*1*
Dibromofluoromethane	*96*		*81 - 121*		*04/29/17 23:22*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*04/29/17 23:22*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/28/17 18:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*101*		*78 - 119*		*04/28/17 18:10*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: TRIPBLANK-W-170425
Date Collected: 04/25/17 00:00
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-15
Matrix: Water

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

Analyte	Result	Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 17:59	1
Toluene	<1.0		1.0		ug/L			04/29/17 17:59	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 17:59	1
Xylenes, Total	<10		10		ug/L			04/29/17 17:59	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			04/29/17 17:59	1
Ethanol	<100		100		ug/L			04/29/17 17:59	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 17:59	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 17:59	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 17:59	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 17:59	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 17:59	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*78 - 118*		*04/29/17 17:59*	*1*
Dibromofluoromethane	*93*		*81 - 121*		*04/29/17 17:59*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*04/29/17 17:59*	*1*

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(78-118)	(81-121)	(80-120)
400-137059-1	MW-33B-W-170425	97	98	96
400-137059-1 MS	MW-33B-W-170425	98	98	95
400-137059-1 MSD	MW-33B-W-170425	97	95	93
400-137059-2	MW-53-W-170425	96	93	94
400-137059-3	MW-59-W-170425	96	94	96
400-137059-4	MW-25B-W-170425	98	96	95
400-137059-5	MW-62B-W-170425	98	95	97
400-137059-6	MW-18-W-170425	95	92	95
400-137059-7	MW-19-W-170425	96	96	93
400-137059-8	MW-25A-W-170425	99	97	97
400-137059-9	MW-62A-W-170425	95	97	93
400-137059-10	MW-28B-W-170425	95	93	95
400-137059-11	MW-29A-W-170425	97	97	95
400-137059-12	MW-29B-W-170425	98	100	95
400-137059-13	MW-33A-W-170425	95	95	94
400-137059-14	MW-33C-W-170425	95	96	94
400-137059-15	TRIPBLANK-W-170425	97	93	94
LCS 400-351852/1002	Lab Control Sample	96	96	94
MB 400-351852/30	Method Blank	96	94	95

Surrogate Legend

BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Method: 8015B - Gasoline Range Organics - (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT2
Lab Sample ID	Client Sample ID	(78-119)
400-137059-1	MW-33B-W-170425	101
400-137059-2	MW-53-W-170425	101
400-137059-3	MW-59-W-170425	100
400-137059-4	MW-25B-W-170425	95
400-137059-5	MW-62B-W-170425	101
400-137059-6	MW-18-W-170425	97
400-137059-7	MW-19-W-170425	100
400-137059-8	MW-25A-W-170425	103
400-137059-9	MW-62A-W-170425	102
400-137059-10	MW-28B-W-170425	99
400-137059-11	MW-29A-W-170425	101
400-137059-12	MW-29B-W-170425	96
400-137059-13	MW-33A-W-170425	101
400-137059-14	MW-33C-W-170425	101
LCS 400-351548/1002	Lab Control Sample	100
LCS 400-351703/1003	Lab Control Sample	108
MB 400-351548/3	Method Blank	103
MB 400-351703/4	Method Blank	105

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Surrogate Legend

TFT = a,a,a-Trifluorotoluene (fid)

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

Lab Sample ID: MB 400-351852/30
Matrix: Water
Analysis Batch: 351852

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

Analyte	MB Result	MB Qualifier	MQL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			04/29/17 15:55	1
Toluene	<1.0		1.0		ug/L			04/29/17 15:55	1
Ethylbenzene	<1.0		1.0		ug/L			04/29/17 15:55	1
Xylenes, Total	<10		10		ug/L			04/29/17 15:55	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			04/29/17 15:55	1
Ethanol	<100		100		ug/L			04/29/17 15:55	1
Ethyl tert-butyl alcohol	<20		20		ug/L			04/29/17 15:55	1
Ethyl tert-butyl ether	<5.0		5.0		ug/L			04/29/17 15:55	1
t-Amyl alcohol	<10		10		ug/L			04/29/17 15:55	1
Tert-amyl methyl ether	<5.0		5.0		ug/L			04/29/17 15:55	1
tert-Butyl alcohol	<10		10		ug/L			04/29/17 15:55	1
tert-Butyl Formate	<10		10		ug/L			04/29/17 15:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*78 - 118*		*04/29/17 15:55*	*1*
Dibromofluoromethane	*94*		*81 - 121*		*04/29/17 15:55*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*04/29/17 15:55*	*1*

Lab Sample ID: LCS 400-351852/1002
Matrix: Water
Analysis Batch: 351852

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	47.5		ug/L		95	70 - 130
Toluene	50.0	45.2		ug/L		90	70 - 130
Ethylbenzene	50.0	45.0		ug/L		90	70 - 130
Xylenes, Total	100	90.1		ug/L		90	70 - 130
Methyl tert-butyl ether	50.0	48.6		ug/L		97	66 - 130
Ethanol	2000	2150		ug/L		108	20 - 160
Ethyl tert-butyl alcohol	250	245		ug/L		98	38 - 144
Ethyl tert-butyl ether	50.0	45.5		ug/L		91	55 - 133
t-Amyl alcohol	500	505		ug/L		101	38 - 139
Tert-amyl methyl ether	50.0	46.0		ug/L		92	52 - 132
tert-Butyl alcohol	500	492		ug/L		98	46 - 143
tert-Butyl Formate	250	243		ug/L		97	10 - 160

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*96*		*78 - 118*
Dibromofluoromethane	*96*		*81 - 121*
Toluene-d8 (Surr)	*94*		*80 - 120*

Lab Sample ID: 400-137059-1 MS
Matrix: Water
Analysis Batch: 351852

Client Sample ID: MW-33B-W-170425
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	3.1		50.0	50.7		ug/L		95	56 - 142

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

Lab Sample ID: 400-137059-1 MS
Matrix: Water
Analysis Batch: 351852

Client Sample ID: MW-33B-W-170425
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	<1.0		50.0	43.8		ug/L		88	65 - 130
Ethylbenzene	<1.0		50.0	42.4		ug/L		85	58 - 131
Xylenes, Total	<10		100	84.6		ug/L		85	59 - 130
Methyl tert-butyl ether	12		50.0	59.6		ug/L		96	59 - 137
Ethanol	<100		2000	2120		ug/L		106	10 - 160
Ethyl tert-butyl alcohol	<20		250	228		ug/L		91	27 - 147
Ethyl tert-butyl ether	<5.0		50.0	45.0		ug/L		90	49 - 137
t-Amyl alcohol	<10		500	461		ug/L		92	28 - 139
Tert-amyl methyl ether	<5.0		50.0	45.0		ug/L		90	43 - 140
tert-Butyl alcohol	<10		500	494		ug/L		99	31 - 168
tert-Butyl Formate	<10		250	154		ug/L		62	10 - 160

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene	*98*		*78 - 118*
Dibromofluoromethane	*98*		*81 - 121*
Toluene-d8 (Surr)	*95*		*80 - 120*

Lab Sample ID: 400-137059-1 MSD
Matrix: Water
Analysis Batch: 351852

Client Sample ID: MW-33B-W-170425
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	3.1		50.0	50.2		ug/L		94	56 - 142	1	30
Toluene	<1.0		50.0	42.3		ug/L		85	65 - 130	3	30
Ethylbenzene	<1.0		50.0	40.4		ug/L		81	58 - 131	5	30
Xylenes, Total	<10		100	80.1		ug/L		80	59 - 130	5	30
Methyl tert-butyl ether	12		50.0	59.0		ug/L		95	59 - 137	1	30
Ethanol	<100		2000	1990		ug/L		99	10 - 160	6	40
Ethyl tert-butyl alcohol	<20		250	213		ug/L		85	27 - 147	7	48
Ethyl tert-butyl ether	<5.0		50.0	44.6		ug/L		89	49 - 137	1	30
t-Amyl alcohol	<10		500	448		ug/L		90	28 - 139	3	33
Tert-amyl methyl ether	<5.0		50.0	44.7		ug/L		89	43 - 140	1	30
tert-Butyl alcohol	<10		500	500		ug/L		100	31 - 168	1	42
tert-Butyl Formate	<10		250	125		ug/L		50	10 - 160	21	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene	*97*		*78 - 118*
Dibromofluoromethane	*95*		*81 - 121*
Toluene-d8 (Surr)	*93*		*80 - 120*

Method: 8015B - Gasoline Range Organics - (GC)

Lab Sample ID: MB 400-351548/3
Matrix: Water
Analysis Batch: 351548

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/27/17 13:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*103*		*78 - 119*		*04/27/17 13:35*	*1*

Lab Sample ID: LCS 400-351548/1002
Matrix: Water
Analysis Batch: 351548

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) C6--C10	1000	933		ug/L		93	85 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (fid)	*100*		*78 - 119*

Lab Sample ID: MB 400-351703/4
Matrix: Water
Analysis Batch: 351703

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) C6--C10	<100		100		ug/L			04/28/17 14:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene (fid)	*105*		*78 - 119*		*04/28/17 14:38*	*1*

Lab Sample ID: LCS 400-351703/1003
Matrix: Water
Analysis Batch: 351703

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) C6--C10	1000	1010		ug/L		101	85 - 115

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene (fid)	*108*		*78 - 119*

GC/MS VOA

Analysis Batch: 351852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137059-1	MW-33B-W-170425	Total/NA	Water	8260B	
400-137059-2	MW-53-W-170425	Total/NA	Water	8260B	
400-137059-3	MW-59-W-170425	Total/NA	Water	8260B	
400-137059-4	MW-25B-W-170425	Total/NA	Water	8260B	
400-137059-5	MW-62B-W-170425	Total/NA	Water	8260B	
400-137059-6	MW-18-W-170425	Total/NA	Water	8260B	
400-137059-7	MW-19-W-170425	Total/NA	Water	8260B	
400-137059-8	MW-25A-W-170425	Total/NA	Water	8260B	
400-137059-9	MW-62A-W-170425	Total/NA	Water	8260B	
400-137059-10	MW-28B-W-170425	Total/NA	Water	8260B	
400-137059-11	MW-29A-W-170425	Total/NA	Water	8260B	
400-137059-12	MW-29B-W-170425	Total/NA	Water	8260B	
400-137059-13	MW-33A-W-170425	Total/NA	Water	8260B	
400-137059-14	MW-33C-W-170425	Total/NA	Water	8260B	
400-137059-15	TRIPBLANK-W-170425	Total/NA	Water	8260B	
MB 400-351852/30	Method Blank	Total/NA	Water	8260B	
LCS 400-351852/1002	Lab Control Sample	Total/NA	Water	8260B	
400-137059-1 MS	MW-33B-W-170425	Total/NA	Water	8260B	
400-137059-1 MSD	MW-33B-W-170425	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 351548

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137059-1	MW-33B-W-170425	Total/NA	Water	8015B	
400-137059-2	MW-53-W-170425	Total/NA	Water	8015B	
400-137059-3	MW-59-W-170425	Total/NA	Water	8015B	
400-137059-4	MW-25B-W-170425	Total/NA	Water	8015B	
400-137059-5	MW-62B-W-170425	Total/NA	Water	8015B	
400-137059-6	MW-18-W-170425	Total/NA	Water	8015B	
400-137059-7	MW-19-W-170425	Total/NA	Water	8015B	
400-137059-8	MW-25A-W-170425	Total/NA	Water	8015B	
400-137059-9	MW-62A-W-170425	Total/NA	Water	8015B	
400-137059-10	MW-28B-W-170425	Total/NA	Water	8015B	
400-137059-11	MW-29A-W-170425	Total/NA	Water	8015B	
400-137059-12	MW-29B-W-170425	Total/NA	Water	8015B	
400-137059-13	MW-33A-W-170425	Total/NA	Water	8015B	
MB 400-351548/3	Method Blank	Total/NA	Water	8015B	
LCS 400-351548/1002	Lab Control Sample	Total/NA	Water	8015B	

Analysis Batch: 351703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137059-14	MW-33C-W-170425	Total/NA	Water	8015B	
MB 400-351703/4	Method Blank	Total/NA	Water	8015B	
LCS 400-351703/1003	Lab Control Sample	Total/NA	Water	8015B	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-33B-W-170425
Date Collected: 04/25/17 09:30
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 16:20	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 17:41	GRK	TAL PEN

Client Sample ID: MW-53-W-170425
Date Collected: 04/25/17 08:55
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 18:24	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 18:36	GRK	TAL PEN

Client Sample ID: MW-59-W-170425
Date Collected: 04/25/17 10:25
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 18:49	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 19:03	GRK	TAL PEN

Client Sample ID: MW-25B-W-170425
Date Collected: 04/25/17 12:25
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 19:13	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 19:31	GRK	TAL PEN

Client Sample ID: MW-62B-W-170425
Date Collected: 04/25/17 11:20
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 19:38	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 19:58	GRK	TAL PEN

Client Sample ID: MW-18-W-170425
Date Collected: 04/25/17 13:20
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 20:03	RS	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-18-W-170425
Date Collected: 04/25/17 13:20
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 20:25	GRK	TAL PEN

Client Sample ID: MW-19-W-170425
Date Collected: 04/25/17 13:10
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 20:28	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 20:53	GRK	TAL PEN

Client Sample ID: MW-25A-W-170425
Date Collected: 04/25/17 12:05
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 20:53	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 21:20	GRK	TAL PEN

Client Sample ID: MW-62A-W-170425
Date Collected: 04/25/17 11:15
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 21:18	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 21:48	GRK	TAL PEN

Client Sample ID: MW-28B-W-170425
Date Collected: 04/25/17 10:00
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 21:42	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 22:15	GRK	TAL PEN

Client Sample ID: MW-29A-W-170425
Date Collected: 04/25/17 09:00
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 22:07	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 22:42	GRK	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: MW-29B-W-170425
Date Collected: 04/25/17 08:45
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 22:32	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 23:37	GRK	TAL PEN

Client Sample ID: MW-33A-W-170425
Date Collected: 04/25/17 09:45
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 22:57	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/28/17 00:04	GRK	TAL PEN

Client Sample ID: MW-33C-W-170425
Date Collected: 04/25/17 09:35
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 23:22	RS	TAL PEN
Total/NA	Analysis	8015B		1	5 mL	5 mL	351703	04/28/17 18:10	GRK	TAL PEN

Client Sample ID: TRIPBLANK-W-170425
Date Collected: 04/25/17 00:00
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137059-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 17:59	RS	TAL PEN

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 400-351548/3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 13:35	GRK	TAL PEN

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 400-351703/4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	5 mL	5 mL	351703	04/28/17 14:38	GRK	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Client Sample ID: Method Blank — Lab Sample ID: MB 400-351852/30

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 15:55	RS	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351548/1002

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	5 mL	5 mL	351548	04/27/17 12:22	GRK	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351703/1003

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1	5 mL	5 mL	351703	04/28/17 10:56	GRK	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351852/1002

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 14:48	RS	TAL PEN

Client Sample ID: MW-33B-W-170425 — Lab Sample ID: 400-137059-1 MS

Date Collected: 04/25/17 09:30
Date Received: 04/26/17 09:03
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 16:44	RS	TAL PEN

Client Sample ID: MW-33B-W-170425 — Lab Sample ID: 400-137059-1 MSD

Date Collected: 04/25/17 09:30
Date Received: 04/26/17 09:03
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	351852	04/29/17 17:09	RS	TAL PEN

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PEN
8015B	Gasoline Range Organics - (GC)	SW846	TAL PEN

Protocol References:

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

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137059-1
SDG: CVX Fac 122208

Laboratory: TestAmerica Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	233	09-30-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8015B		Water	Gasoline Range Organics (GRO) C6--C10
8260B		Water	Benzene
8260B		Water	Ethanol
8260B		Water	Ethyl tert-butyl alcohol
8260B		Water	Ethyl tert-butyl ether
8260B		Water	Ethylbenzene
8260B		Water	Methyl tert-butyl ether
8260B		Water	t-Amyl alcohol
8260B		Water	Tert-amyl methyl ether
8260B		Water	tert-Butyl alcohol
8260B		Water	tert-Butyl Formate
8260B		Water	Toluene
8260B		Water	Xylenes, Total

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

180325

BALTIM

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: A. King / J. Bukavsky	Lab PM: Vergin, Debra	Carrier Tracking No(s):	COC No: 400-64866-26642.3
Client Contact: Lauren Vogel	Phone: 410-350-9147	E-Mail: debra.vergin@testamericainc.com		Page: Page 1 of 2
Company: ARCADIS U.S., Inc.				Job #:

Address: 7550 Teague Road Suite 210	Due Date Requested:	Analysis Requested
City: Hanover	TAT Requested (days): Standard	
State, Zip: MD, 21076		
Phone: 202-909-6892(Tel)	PO #: SO 0015191829	
Email: lauren.vogel@arcadis.com	WO #: NWENV-0122208-0-0802	
Project Name: Arcadis CVX Fac 122208, Chillum, MD	Project #: 40003308	
Site: Chillum	SSOW#:	

400-137059 COC

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - BTEXM+7 Oxygenates by 8260	8015B_GRO - GRO C6-C10 by 8015B	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	A		
MW-33B	4/25/17	0930	G	W			2	2		
MW-53		0855								
MW-59		1025								
MW-25B		1225								
MW-62B		1120								
MW-18		1320								
MW-19		1310								
MW-25A		1205								
MW-62A		1115								
MW-28B		1000								
MW-29A		0900								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/25/17, 1511			4-25-2017/1540	Test America
2		4-25-2017/1520	Test America		4/25/17 403	
3		Date/Time:	Company		Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.0?

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

180325

BALTIMORE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: A. King / J. Bukasky	Lab PM: Vergin, Debra	Carrier Tracking No(s):	COC No: 400-64866-26642.4
Client Contact: Lauren Vogel	Phone: 410-350-9147	E-Mail: debra.vergin@testamericainc.com		Page: Page 2 of 2
Company: ARCADIS U.S., Inc.				Job #:
Address: 7550 Teague Road Suite 210	Due Date Requested:			
City: Hanover	TAT Requested (days): standard			
State, Zip: MD, 21076				
Phone: 202-909-6892(Tel)	PO #: SO 0015191829			
Email: lauren.vogel@arcadis.com	WO #: NWENV-0122208-0-0802			
Project Name: Arcadis CVX Fac 122208, Chillum, MD	Project #: 40003308			
Site: Chillum	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B - BTEXM+7 Oxygenates by 8260	8015B_GRO - GRO C6-C10 by 8015B	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	A		
MW-29B	4/25/17	0845	G	W			2	2		
MW-33A		0945								
MW-33C		0935								
Trip Blank		—					2			
Temp Blank										

Page 35 of 36

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/25/17, 1511			4-25-2017 / 1511	TestAmerica
2		4-25-2017 / 1521	TestAmerica		4/26/17 9:0	
3		Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 0.0

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-137059-1
SDG Number: CVX Fac 122208

Login Number: 137059
List Number: 1
Creator: Johnson, Jeremy N

List Source: TestAmerica Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.0°C IR2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

TestAmerica Job ID: 400-137067-1
TestAmerica Sample Delivery Group: CVX Fac 122208
Client Project/Site: Chillum MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Debra A Vergin

Authorized for release by:
5/9/2017 9:16:17 AM

Debra Vergin, Project Manager II
(850)363-5129
debra.vergin@testamericainc.com

Links

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Job ID: 400-137067-1

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative
400-137067-1

Comments
No additional comments.

Receipt
The samples were received on 4/26/2017 9:03 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.0º C.

Receipt Exceptions
Sample MW-18 was inadvertently collected in preserved containers for dissolved metals and anions. Sample was recollected and reported in job 400-137236-1.

HPLC/IC
Method(s) 9056: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-33B-W-170425 (400-137067-1) and MW-25B-W-170425 (400-137067-4). Elevated reporting limits (RLs) are provided.

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

GC VOA
Method(s) RSK-175: The following sample was collected in properly preserved vials for analysis of Methane. However, the pH was outside the required criteria when verified by the laboratory: MW-25B-W-170425 (400-137067-4).

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

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-33B-W-170425 — Lab Sample ID: 400-137067-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	260000		5000		ug/L	1		RSK-175	Total/NA
Methane	6.4		2.0		ug/L	1		RSK-175	Total/NA
Nitrate as N	2.3		0.10		mg/L	1		9056	Total/NA
Sulfate	68		5.0		mg/L	5		9056	Total/NA
Iron	0.11		0.10		mg/L	1		6010C	Total/NA
Manganese	0.20		0.010		mg/L	1		6010C	Total/NA
Manganese, Dissolved	0.19		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-53-W-170425 — Lab Sample ID: 400-137067-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	160000		5000		ug/L	1		RSK-175	Total/NA
Methane	530		4.0		ug/L	2		RSK-175	Total/NA
Sulfate	31		1.0		mg/L	1		9056	Total/NA
Iron	7.5		0.10		mg/L	1		6010C	Total/NA
Manganese	0.25		0.010		mg/L	1		6010C	Total/NA
Manganese, Dissolved	0.24		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-59-W-170425 — Lab Sample ID: 400-137067-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	250000		5000		ug/L	1		RSK-175	Total/NA
Methane	68		2.0		ug/L	1		RSK-175	Total/NA
Nitrate as N	1.4		0.10		mg/L	1		9056	Total/NA
Sulfate	32		1.0		mg/L	1		9056	Total/NA
Iron	0.97		0.10		mg/L	1		6010C	Total/NA
Manganese	0.12		0.010		mg/L	1		6010C	Total/NA
Iron, Dissolved	0.18		0.10		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.12		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-25B-W-170425 — Lab Sample ID: 400-137067-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	190000		5000		ug/L	1		RSK-175	Total/NA
Nitrate as N	2.2		0.10		mg/L	1		9056	Total/NA
Sulfate	61		5.0		mg/L	5		9056	Total/NA
Iron	8.4		0.10		mg/L	1		6010C	Total/NA
Manganese	0.16		0.010		mg/L	1		6010C	Total/NA
Manganese, Dissolved	0.15		0.010		mg/L	1		6010C	Dissolved

Client Sample ID: MW-62B-W-170425 — Lab Sample ID: 400-137067-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	120000		5000		ug/L	1		RSK-175	Total/NA
Methane	12		2.0		ug/L	1		RSK-175	Total/NA
Sulfate	32		1.0		mg/L	1		9056	Total/NA
Iron	23		0.10		mg/L	1		6010C	Total/NA
Manganese	0.37		0.010		mg/L	1		6010C	Total/NA
Manganese, Dissolved	0.34		0.010		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-18-W-170425

Lab Sample ID: 400-137067-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	61000		5000		ug/L	1		RSK-175	Total/NA
Iron	29		0.10		mg/L	1		6010C	Total/NA
Manganese	0.15		0.010		mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-137067-1	MW-33B-W-170425	Water	04/25/17 09:30	04/26/17 09:03
400-137067-2	MW-53-W-170425	Water	04/25/17 08:55	04/26/17 09:03
400-137067-3	MW-59-W-170425	Water	04/25/17 10:25	04/26/17 09:03
400-137067-4	MW-25B-W-170425	Water	04/25/17 12:25	04/26/17 09:03
400-137067-5	MW-62B-W-170425	Water	04/25/17 11:20	04/26/17 09:03
400-137067-6	MW-18-W-170425	Water	04/25/17 13:20	04/26/17 09:03

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-33B-W-170425
Date Collected: 04/25/17 09:30
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-1
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	260000		5000		ug/L			05/02/17 17:06	1
Methane	6.4		2.0		ug/L			05/01/17 22:13	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	2.3		0.10		mg/L			04/26/17 18:24	1
Sulfate	68		5.0		mg/L			04/27/17 18:25	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.11		0.10		mg/L		05/05/17 08:12	05/06/17 13:57	1
Manganese	0.20		0.010		mg/L		05/05/17 08:12	05/06/17 13:57	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 21:13	1
Manganese, Dissolved	0.19		0.010		mg/L		05/04/17 10:13	05/05/17 21:13	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-53-W-170425
Date Collected: 04/25/17 08:55
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-2
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**160000**		5000		ug/L			05/02/17 17:15	1
Methane	**530**		4.0		ug/L			05/02/17 14:59	2

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/26/17 18:47	1
Sulfate	**31**		1.0		mg/L			04/26/17 18:47	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**7.5**		0.10		mg/L		05/05/17 08:12	05/06/17 14:22	1
Manganese	**0.25**		0.010		mg/L		05/05/17 08:12	05/06/17 14:22	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 21:29	1
Manganese, Dissolved	**0.24**		0.010		mg/L		05/04/17 10:13	05/05/17 21:29	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-59-W-170425
Date Collected: 04/25/17 10:25
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-3
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	250000		5000		ug/L			05/02/17 17:24	1
Methane	68		2.0		ug/L			05/01/17 22:31	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	1.4		0.10		mg/L			04/26/17 19:55	1
Sulfate	32		1.0		mg/L			04/26/17 19:55	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.97		0.10		mg/L		05/05/17 08:12	05/06/17 14:26	1
Manganese	0.12		0.010		mg/L		05/05/17 08:12	05/06/17 14:26	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.18		0.10		mg/L		05/04/17 10:13	05/05/17 21:32	1
Manganese, Dissolved	0.12		0.010		mg/L		05/04/17 10:13	05/05/17 21:32	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-25B-W-170425
Date Collected: 04/25/17 12:25
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-4
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**190000**		5000		ug/L			05/02/17 17:33	1
Methane	<2.0		2.0		ug/L			05/01/17 22:40	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**2.2**		0.10		mg/L			04/26/17 20:18	1
Sulfate	**61**		5.0		mg/L			04/27/17 19:33	5

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**8.4**		0.10		mg/L		05/05/17 08:12	05/06/17 14:29	1
Manganese	**0.16**		0.010		mg/L		05/05/17 08:12	05/06/17 14:29	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 21:35	1
Manganese, Dissolved	**0.15**		0.010		mg/L		05/04/17 10:13	05/05/17 21:35	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-62B-W-170425
Date Collected: 04/25/17 11:20
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-5
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**120000**		5000		ug/L			05/02/17 17:42	1
Methane	**12**		2.0		ug/L			05/01/17 22:48	1

Method: 9056 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/26/17 20:41	1
Sulfate	**32**		1.0		mg/L			04/26/17 20:41	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**23**		0.10		mg/L		05/05/17 08:12	05/06/17 14:32	1
Manganese	**0.37**		0.010		mg/L		05/05/17 08:12	05/06/17 14:32	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 21:39	1
Manganese, Dissolved	**0.34**		0.010		mg/L		05/04/17 10:13	05/05/17 21:39	1

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-18-W-170425
Date Collected: 04/25/17 13:20
Date Received: 04/26/17 09:03

Lab Sample ID: 400-137067-6
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**61000**		5000		ug/L			05/02/17 17:51	1
Methane	<2.0		2.0		ug/L			05/01/17 22:57	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**29**		0.10		mg/L		05/05/17 08:12	05/06/17 14:36	1
Manganese	**0.15**		0.010		mg/L		05/05/17 08:12	05/06/17 14:36	1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-116258/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116258

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<2.0		2.0		ug/L			05/01/17 22:04	1

Lab Sample ID: LCS 200-116258/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116258

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	72.8	60.6		ug/L		83	70 - 130

Lab Sample ID: MB 200-116320/3 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116320

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	<5000		5000		ug/L			05/02/17 16:31	1

Lab Sample ID: LCS 200-116320/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 116320

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	41300		ug/L		103	70 - 130

Method: 9056 - Anions, Ion Chromatography

Lab Sample ID: MB 400-351446/14 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351446

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.10		0.10		mg/L			04/26/17 15:40	1

Lab Sample ID: LCS 400-351446/15 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351446

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.33		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-351446/16 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351446

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.26	2.33		mg/L		103	90 - 110	0	15

Method: 9056 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 400-351500/14 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351500

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			04/26/17 15:40	1

Lab Sample ID: LCS 400-351500/15 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351500

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.2		mg/L		102	90 - 110

Lab Sample ID: LCSD 400-351500/16 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351500

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	10.2		mg/L		102	90 - 110	1	15

Lab Sample ID: MB 400-351604/4 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351604

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			04/27/17 14:11	1

Lab Sample ID: LCS 400-351604/5 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351604

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-351604/6 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 351604

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	10.1		mg/L		101	90 - 110	2	15

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 400-352455/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 352661 — **Prep Batch: 352455**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.10		0.10		mg/L		05/05/17 08:12	05/06/17 13:51	1
Manganese	<0.010		0.010		mg/L		05/05/17 08:12	05/06/17 13:51	1

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

Lab Sample ID: LCS 400-352455/2-A
Matrix: Water
Analysis Batch: 352661

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 352455

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.3		mg/L		103	80 - 120
Manganese	1.00	1.03		mg/L		103	80 - 120

Lab Sample ID: 400-137067-1 MS
Matrix: Water
Analysis Batch: 352661

Client Sample ID: MW-33B-W-170425
Prep Type: Total/NA
Prep Batch: 352455

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	0.11		10.0	10.4		mg/L		103	75 - 125
Manganese	0.20		1.00	1.22		mg/L		102	75 - 125

Lab Sample ID: 400-137067-1 MSD
Matrix: Water
Analysis Batch: 352661

Client Sample ID: MW-33B-W-170425
Prep Type: Total/NA
Prep Batch: 352455

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	0.11		10.0	10.3		mg/L		102	75 - 125	1	20
Manganese	0.20		1.00	1.21		mg/L		101	75 - 125	0	20

Lab Sample ID: MB 400-352027/1-B
Matrix: Water
Analysis Batch: 352605

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 352299

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.10		0.10		mg/L		05/04/17 10:13	05/05/17 20:57	1
Manganese, Dissolved	<0.010		0.010		mg/L		05/04/17 10:13	05/05/17 20:57	1

Lab Sample ID: LCS 400-352027/2-B
Matrix: Water
Analysis Batch: 352605

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 352299

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	10.0	9.56		mg/L		96	80 - 120
Manganese, Dissolved	1.00	0.937		mg/L		94	80 - 120

Lab Sample ID: 400-137067-1 MS
Matrix: Water
Analysis Batch: 352605

Client Sample ID: MW-33B-W-170425
Prep Type: Dissolved
Prep Batch: 352299

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	<0.10		10.0	9.56		mg/L		96	75 - 125
Manganese, Dissolved	0.19		1.00	1.12		mg/L		93	75 - 125

Lab Sample ID: 400-137067-1 MSD
Matrix: Water
Analysis Batch: 352605

Client Sample ID: MW-33B-W-170425
Prep Type: Dissolved
Prep Batch: 352299

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	<0.10		10.0	9.51		mg/L		95	75 - 125	1	20

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

Lab Sample ID: 400-137067-1 MSD
Matrix: Water
Analysis Batch: 352605

Client Sample ID: MW-33B-W-170425
Prep Type: Dissolved
Prep Batch: 352299

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Manganese, Dissolved	0.19		1.00	1.11		mg/L		93	75 - 125	1	20

GC VOA

Analysis Batch: 116258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	RSK-175	
400-137067-2	MW-53-W-170425	Total/NA	Water	RSK-175	
400-137067-3	MW-59-W-170425	Total/NA	Water	RSK-175	
400-137067-4	MW-25B-W-170425	Total/NA	Water	RSK-175	
400-137067-5	MW-62B-W-170425	Total/NA	Water	RSK-175	
400-137067-6	MW-18-W-170425	Total/NA	Water	RSK-175	
MB 200-116258/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116258/2	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 116320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	RSK-175	
400-137067-2	MW-53-W-170425	Total/NA	Water	RSK-175	
400-137067-3	MW-59-W-170425	Total/NA	Water	RSK-175	
400-137067-4	MW-25B-W-170425	Total/NA	Water	RSK-175	
400-137067-5	MW-62B-W-170425	Total/NA	Water	RSK-175	
400-137067-6	MW-18-W-170425	Total/NA	Water	RSK-175	
MB 200-116320/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-116320/2	Lab Control Sample	Total/NA	Water	RSK-175	

HPLC/IC

Analysis Batch: 351446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	9056	
400-137067-2	MW-53-W-170425	Total/NA	Water	9056	
400-137067-3	MW-59-W-170425	Total/NA	Water	9056	
400-137067-4	MW-25B-W-170425	Total/NA	Water	9056	
400-137067-5	MW-62B-W-170425	Total/NA	Water	9056	
MB 400-351446/14	Method Blank	Total/NA	Water	9056	
LCS 400-351446/15	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351446/16	Lab Control Sample Dup	Total/NA	Water	9056	

Analysis Batch: 351500

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-2	MW-53-W-170425	Total/NA	Water	9056	
400-137067-3	MW-59-W-170425	Total/NA	Water	9056	
400-137067-5	MW-62B-W-170425	Total/NA	Water	9056	
MB 400-351500/14	Method Blank	Total/NA	Water	9056	
LCS 400-351500/15	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351500/16	Lab Control Sample Dup	Total/NA	Water	9056	

Analysis Batch: 351604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	9056	
400-137067-4	MW-25B-W-170425	Total/NA	Water	9056	
MB 400-351604/4	Method Blank	Total/NA	Water	9056	
LCS 400-351604/5	Lab Control Sample	Total/NA	Water	9056	
LCSD 400-351604/6	Lab Control Sample Dup	Total/NA	Water	9056	

Metals

Filtration Batch: 352027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Dissolved	Water	FILTRATION	
400-137067-2	MW-53-W-170425	Dissolved	Water	FILTRATION	
400-137067-3	MW-59-W-170425	Dissolved	Water	FILTRATION	
400-137067-4	MW-25B-W-170425	Dissolved	Water	FILTRATION	
400-137067-5	MW-62B-W-170425	Dissolved	Water	FILTRATION	
MB 400-352027/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
400-137067-1 MS	MW-33B-W-170425	Dissolved	Water	FILTRATION	
400-137067-1 MSD	MW-33B-W-170425	Dissolved	Water	FILTRATION	

Prep Batch: 352299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Dissolved	Water	3005A	352027
400-137067-2	MW-53-W-170425	Dissolved	Water	3005A	352027
400-137067-3	MW-59-W-170425	Dissolved	Water	3005A	352027
400-137067-4	MW-25B-W-170425	Dissolved	Water	3005A	352027
400-137067-5	MW-62B-W-170425	Dissolved	Water	3005A	352027
MB 400-352027/1-B	Method Blank	Dissolved	Water	3005A	352027
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	3005A	352027
400-137067-1 MS	MW-33B-W-170425	Dissolved	Water	3005A	352027
400-137067-1 MSD	MW-33B-W-170425	Dissolved	Water	3005A	352027

Prep Batch: 352455

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	3010A	
400-137067-2	MW-53-W-170425	Total/NA	Water	3010A	
400-137067-3	MW-59-W-170425	Total/NA	Water	3010A	
400-137067-4	MW-25B-W-170425	Total/NA	Water	3010A	
400-137067-5	MW-62B-W-170425	Total/NA	Water	3010A	
400-137067-6	MW-18-W-170425	Total/NA	Water	3010A	
MB 400-352455/1-A	Method Blank	Total/NA	Water	3010A	
LCS 400-352455/2-A	Lab Control Sample	Total/NA	Water	3010A	
400-137067-1 MS	MW-33B-W-170425	Total/NA	Water	3010A	
400-137067-1 MSD	MW-33B-W-170425	Total/NA	Water	3010A	

Analysis Batch: 352605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Dissolved	Water	6010C	352299
400-137067-2	MW-53-W-170425	Dissolved	Water	6010C	352299
400-137067-3	MW-59-W-170425	Dissolved	Water	6010C	352299
400-137067-4	MW-25B-W-170425	Dissolved	Water	6010C	352299
400-137067-5	MW-62B-W-170425	Dissolved	Water	6010C	352299
MB 400-352027/1-B	Method Blank	Dissolved	Water	6010C	352299
LCS 400-352027/2-B	Lab Control Sample	Dissolved	Water	6010C	352299
400-137067-1 MS	MW-33B-W-170425	Dissolved	Water	6010C	352299
400-137067-1 MSD	MW-33B-W-170425	Dissolved	Water	6010C	352299

Analysis Batch: 352661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-1	MW-33B-W-170425	Total/NA	Water	6010C	352455
400-137067-2	MW-53-W-170425	Total/NA	Water	6010C	352455

Metals (Continued)

Analysis Batch: 352661 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-137067-3	MW-59-W-170425	Total/NA	Water	6010C	352455
400-137067-4	MW-25B-W-170425	Total/NA	Water	6010C	352455
400-137067-5	MW-62B-W-170425	Total/NA	Water	6010C	352455
400-137067-6	MW-18-W-170425	Total/NA	Water	6010C	352455
MB 400-352455/1-A	Method Blank	Total/NA	Water	6010C	352455
LCS 400-352455/2-A	Lab Control Sample	Total/NA	Water	6010C	352455
400-137067-1 MS	MW-33B-W-170425	Total/NA	Water	6010C	352455
400-137067-1 MSD	MW-33B-W-170425	Total/NA	Water	6010C	352455

Client Sample ID: MW-33B-W-170425

Lab Sample ID: 400-137067-1

Date Collected: 04/25/17 09:30

Matrix: Water

Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:13	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:06	MLT	TAL BUR
Total/NA	Analysis	9056		1			351446	04/26/17 18:24	TAJ	TAL PEN
Total/NA	Analysis	9056		5			351604	04/27/17 18:25	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:13	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 13:57	SEH	TAL PEN

Client Sample ID: MW-53-W-170425

Lab Sample ID: 400-137067-2

Date Collected: 04/25/17 08:55

Matrix: Water

Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		2	18 mL	18 mL	116258	05/02/17 14:59	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:15	MLT	TAL BUR
Total/NA	Analysis	9056		1			351446	04/26/17 18:47	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351500	04/26/17 18:47	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:29	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:22	SEH	TAL PEN

Client Sample ID: MW-59-W-170425

Lab Sample ID: 400-137067-3

Date Collected: 04/25/17 10:25

Matrix: Water

Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:31	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:24	MLT	TAL BUR
Total/NA	Analysis	9056		1			351446	04/26/17 19:55	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351500	04/26/17 19:55	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:32	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:26	SEH	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Client Sample ID: MW-25B-W-170425

Lab Sample ID: 400-137067-4

Date Collected: 04/25/17 12:25
Matrix: Water
Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:40	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:33	MLT	TAL BUR
Total/NA	Analysis	9056		1			351446	04/26/17 20:18	TAJ	TAL PEN
Total/NA	Analysis	9056		5			351604	04/27/17 19:33	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:35	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:29	SEH	TAL PEN

Client Sample ID: MW-62B-W-170425

Lab Sample ID: 400-137067-5

Date Collected: 04/25/17 11:20
Matrix: Water
Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:48	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:42	MLT	TAL BUR
Total/NA	Analysis	9056		1			351446	04/26/17 20:41	TAJ	TAL PEN
Total/NA	Analysis	9056		1			351500	04/26/17 20:41	TAJ	TAL PEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:39	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:32	SEH	TAL PEN

Client Sample ID: MW-18-W-170425

Lab Sample ID: 400-137067-6

Date Collected: 04/25/17 13:20
Matrix: Water
Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:57	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 17:51	MLT	TAL BUR
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:36	SEH	TAL PEN

Client Sample ID: Method Blank

Lab Sample ID: MB 200-116258/3

Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 22:04	MLT	TAL BUR

Client Sample ID: Method Blank — **Lab Sample ID: MB 200-116320/3**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 16:31	MLT	TAL BUR

Client Sample ID: Method Blank — **Lab Sample ID: MB 400-351446/14**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351446	04/26/17 15:40	TAJ	TAL PEN

Client Sample ID: Method Blank — **Lab Sample ID: MB 400-351500/14**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351500	04/26/17 15:40	TAJ	TAL PEN

Client Sample ID: Method Blank — **Lab Sample ID: MB 400-351604/4**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351604	04/27/17 14:11	TAJ	TAL PEN

Client Sample ID: Method Blank — **Lab Sample ID: MB 400-352027/1-B**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 20:57	SEH	TAL PEN

Client Sample ID: Method Blank — **Lab Sample ID: MB 400-352455/1-A**
Date Collected: N/A — **Matrix: Water**
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 13:51	SEH	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116258/2

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116258	05/01/17 21:56	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 200-116320/2

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	18 mL	18 mL	116320	05/02/17 16:22	MLT	TAL BUR

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351446/15

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351446	04/26/17 16:03	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351500/15

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351500	04/26/17 16:03	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-351604/5

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351604	04/27/17 14:34	TAJ	TAL PEN

Client Sample ID: Lab Control Sample — Lab Sample ID: LCS 400-352027/2-B

Date Collected: N/A
Date Received: N/A
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:10	SEH	TAL PEN

Client Sample ID: Lab Control Sample
Lab Sample ID: LCS 400-352455/2-A

Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 13:54	SEH	TAL PEN

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 400-351446/16

Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1	10 mL	1.0 mL	351446	04/26/17 16:26	TAJ	TAL PEN

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 400-351500/16

Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351500	04/26/17 16:26	TAJ	TAL PEN

Client Sample ID: Lab Control Sample Dup
Lab Sample ID: LCSD 400-351604/6

Date Collected: N/A
Matrix: Water
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9056		1			351604	04/27/17 14:57	TAJ	TAL PEN

Client Sample ID: MW-33B-W-170425
Lab Sample ID: 400-137067-1 MS

Date Collected: 04/25/17 09:30
Matrix: Water
Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:23	SEH	TAL PEN
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:00	SEH	TAL PEN

Client Sample ID: MW-33B-W-170425
Lab Sample ID: 400-137067-1 MSD

Date Collected: 04/25/17 09:30
Matrix: Water
Date Received: 04/26/17 09:03

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	352027	05/02/17 13:46	KWN	TAL PEN
Dissolved	Prep	3005A			50 mL	50 mL	352299	05/04/17 10:13	KWN	TAL PEN
Dissolved	Analysis	6010C		1			352605	05/05/17 21:26	SEH	TAL PEN

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			50 mL	50 mL	352455	05/05/17 08:12	KWN	TAL PEN
Total/NA	Analysis	6010C		1			352661	05/06/17 14:03	SEH	TAL PEN

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
9056	Anions, Ion Chromatography	SW846	TAL PEN
6010C	Metals (ICP)	SW846	TAL PEN

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990
TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Chillum MD

TestAmerica Job ID: 400-137067-1
SDG: CVX Fac 122208

Laboratory: TestAmerica Pensacola

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	233	09-30-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Iron, Dissolved
6010C	3005A	Water	Manganese, Dissolved
6010C	3010A	Water	Iron
6010C	3010A	Water	Manganese
9056		Water	Nitrate as N
9056		Water	Sulfate

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-17
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-02-18
Florida	NELAP	4	E87467	06-30-17 *
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-17
New Hampshire	NELAP	1	2006	12-18-17
New Jersey	NELAP	2	VT972	06-30-17 *
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-17
US Fish & Wildlife	Federal		LE-058448-0	10-31-17
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-17
Virginia	NELAP	3	460209	12-14-17

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

180325

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information
Client Contact: John Marrs
Company: ARCADIS U.S. Inc
Address: Arcadis 295 Woodcliff Drive #2. 3rd Floor, Suite 301
City: Fairport
State, Zip: NY, 14450
Phone: 202-909-6892(Tel)
Email: john.marrs@arcadis.com
Project Name: Chillum, MD, CVX Fac 122208
Site: Chillum

Sampler: A. King / J. Bakowsky
Phone: 410-350-9147
Lab PM: Vergin, Debra
E-Mail: debra.vergin@testamericainc.com
Carrier Tracking No(s): BALTIMORE
COC No: 400-64734-26624.2
Page: Page 1 of 1
Job #:

Due Date Requested:
TAT Requested (days): standard
PO #: B0049337.0004
WO #:
Project #: 40003308
SSOW#:

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

400-137067 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175 - Methane	RSK_175_CO2 - Carbon Dioxide	9056_ORGFM_28D, 9056_ORGFM_48Hr	6010C - Dissolved Iron & Manganese (Lab Filtered)	6010C - Total Iron & Manganese	[illegible] Carbon Dioxide	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N	N	D	N		
MW-33B	4/25/17	0930	G	W			2	1	1	1	1			
MW-53		0855												
MW-59		1025												
MW-25B		1225												
MW-62B		1120												
MW-18		1320												
Temp Blank														

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by: Date: Time: Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	4/25/17, 1511		Received by:	4-25-2017/1511	TestAmerica
Relinquished by:	4-25-2017/1526	TestAmerica	Received by:	4/26/17/902	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: 0.0 C IR2

TestAmerica Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

400-137067 Chain of Custody

TestAmerica
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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Vergin, Debra		COC No: 400-145802.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: debra.vergin@testamericainc.com	State of Origin: Maryland	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Maryland		Job #: 400-137067-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 5/8/2017			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403				
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:			
Email:	WO #:			
Project Name: Chillum MD	Project #: 40003308			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ Methane	RSK_175_CO2/ Carbon Dioxide	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-33B-W-170425 (400-137067-1)	4/25/17	09:30 Eastern		Water			X	X	3	
MW-53-W-170425 (400-137067-2)	4/25/17	08:55 Eastern		Water			X	X	3	
MW-59-W-170425 (400-137067-3)	4/25/17	10:25 Eastern		Water			X	X	3	
MW-25B-W-170425 (400-137067-4)	4/25/17	12:25 Eastern		Water			X	X	3	
MW-62B-W-170425 (400-137067-5)	4/25/17	11:20 Eastern		Water			X	X	3	
MW-18-W-170425 (400-137067-6)	4/25/17	13:20 Eastern		Water			X	X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

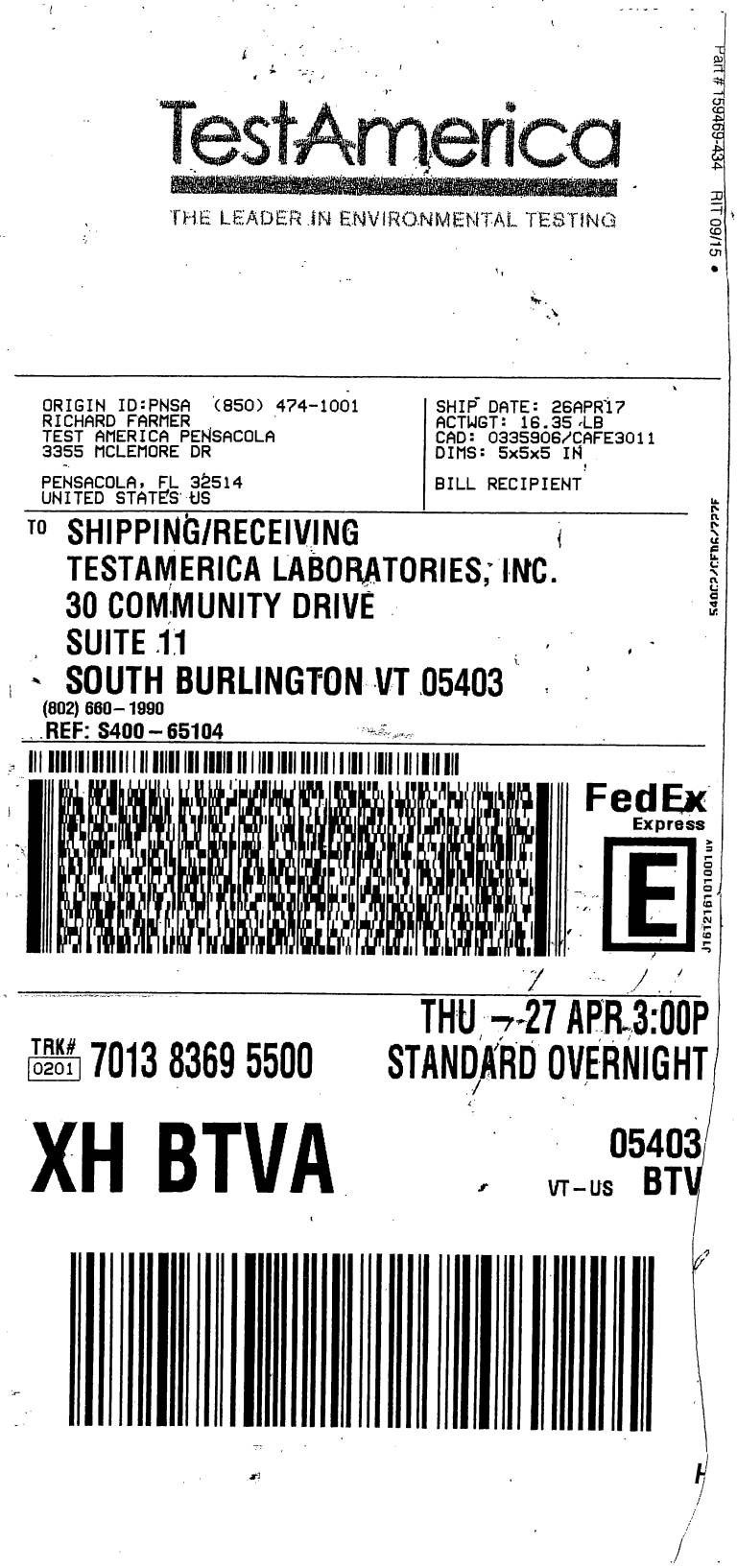
Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 4/26/2017 15:45	Company TA	Received by:	Date/Time: 4/27/17 @ 1030	Company TA BURL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

5/9/2017



TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Part # 159469-434 REV 09/15

ORIGIN ID:PNSA (850) 474-1001
RICHARD FARMER
TEST AMERICA PENSACOLA
3355 MCLEMORE DR

PENSACOLA, FL 32514
UNITED STATES US

SHIP DATE: 26APR17
ACTWGT: 16.35 LB
CAD: 0335906/CAFE3011
DIMS: 5x5x5 IN

BILL RECIPIENT

TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: S400-65104

FedEx Express

THU - 27 APR 3:00P
STANDARD OVERNIGHT

TRK# 0201 7013 8369 5500

XH BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-137067-1
SDG Number: CVX Fac 122208

Login Number: 137067
List Number: 1
Creator: Johnson, Jeremy N

List Source: TestAmerica Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.0°C IR2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 400-137067-1
SDG Number: CVX Fac 122208

Login Number: 137067
List Number: 2
Creator: Cota, Fred P

List Source: TestAmerica Burlington
List Creation: 04/27/17 01:58 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	358976
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.5C°
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Laboratory Analytical Reports – February 2018

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-131303-1
Client Project/Site: CHEVRON - CVX# 122208, Chillum, MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Authorized for release by:
2/21/2018 4:18:47 PM
Rebecca Jones, Project Management Assistant I
rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II
(716)504-9838
john.schove@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Job ID: 480-131303-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-131303-1

Comments
No additional comments.

Receipt
The samples were received on 2/15/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

Receipt Exceptions

The following sample was canceled by the client on 2/19/18: MW-16-W-180214 (480-131303-5).

GC/MS VOA
Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: GP-30R-W-180214 (480-131303-1), MW-47-W-180214 (480-131303-2), (480-131303-F-1 MS) and (480-131303-F-1 MSD). Elevated reporting limits (RLs) are provided.

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

GC VOA
Method(s) RSK-175: The following sample was diluted to bring the concentration of target analytes within the calibration range: GP-30R-W-180214 (480-131303-1). Elevated reporting limits (RLs) are provided.

Method(s) 8015D: The following sample was diluted to bring the concentration of target analytes within the calibration range: GP-30R-W-180214 (480-131303-1). Elevated reporting limits (RLs) are provided.

Method(s) RSK-175: The following sample was collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: MW-16-W-180214 (480-131303-5), pH=4.

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

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

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: GP-30R-W-180214 — Lab Sample ID: 480-131303-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3000	F1	100		ug/L	100		8260C	Total/NA
Ethylbenzene	590		100		ug/L	100		8260C	Total/NA
Methyl tert-butyl ether	500		100		ug/L	100		8260C	Total/NA
m-Xylene & p-Xylene	1600		200		ug/L	100		8260C	Total/NA
o-Xylene	1100		100		ug/L	100		8260C	Total/NA
Toluene	4100		100		ug/L	100		8260C	Total/NA
GRO (C6-C10)	22000		5000		ug/L	50		8015D	Total/NA
Carbon dioxide	89000		5000		ug/L	1		RSK-175	Total/NA
Methane	260		88		ug/L	22		RSK-175	Total/NA
Iron, Dissolved	21.3		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.22		0.0030		mg/L	1		6010C	Dissolved
Iron	24.7		0.050		mg/L	1		6010C	Total/NA
Manganese	0.22		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	0.80		0.050		mg/L	1		353.2	Total/NA
Sulfate	23.6		5.0		mg/L	1		9038	Total/NA

Client Sample ID: MW-47-W-180214 — Lab Sample ID: 480-131303-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	99		2.0		ug/L	2		8260C	Total/NA
Methyl tert-butyl ether	12		2.0		ug/L	2		8260C	Total/NA
o-Xylene	72		2.0		ug/L	2		8260C	Total/NA
Toluene	16		2.0		ug/L	2		8260C	Total/NA
GRO (C6-C10)	990		100		ug/L	1		8015D	Total/NA
Carbon dioxide	240000		5000		ug/L	1		RSK-175	Total/NA
Methane	62		4.0		ug/L	1		RSK-175	Total/NA
Iron, Dissolved	1.8		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.16		0.0030		mg/L	1		6010C	Dissolved
Iron	10.3		0.050		mg/L	1		6010C	Total/NA
Manganese	0.17		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	0.12		0.050		mg/L	1		353.2	Total/NA

Client Sample ID: MW-13-W-180214 — Lab Sample ID: 480-131303-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	29000		5000		ug/L	1		RSK-175	Total/NA
Manganese, Dissolved	0.059		0.0030		mg/L	1		6010C	Dissolved
Iron	5.1		0.050		mg/L	1		6010C	Total/NA
Manganese	0.063		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	1.4		0.050		mg/L	1		353.2	Total/NA
Sulfate	50.5		10.0		mg/L	2		9038	Total/NA

Client Sample ID: MW-18-W-180214 — Lab Sample ID: 480-131303-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon dioxide	210000		5000		ug/L	1		RSK-175	Total/NA
Manganese, Dissolved	0.044		0.0030		mg/L	1		6010C	Dissolved
Iron	3.2		0.050		mg/L	1		6010C	Total/NA
Manganese	0.048		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	4.1		0.050		mg/L	1		353.2	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: MW-18-W-180214 (Continued) — Lab Sample ID: 480-131303-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	46.3		10.0		mg/L	2		9038	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-131303-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: GP-30R-W-180214

Lab Sample ID: 480-131303-1

Date Collected: 02/14/18 11:45

Matrix: Water

Date Received: 02/15/18 09:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	3000	F1	100		ug/L			02/16/18 13:44	100
Ethylbenzene	590		100		ug/L			02/16/18 13:44	100
Methyl tert-butyl ether	500		100		ug/L			02/16/18 13:44	100
m-Xylene & p-Xylene	1600		200		ug/L			02/16/18 13:44	100
o-Xylene	1100		100		ug/L			02/16/18 13:44	100
Toluene	4100		100		ug/L			02/16/18 13:44	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*77 - 120*		*02/16/18 13:44*	*100*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*02/16/18 13:44*	*100*
Dibromofluoromethane (Surr)	*96*		*75 - 123*		*02/16/18 13:44*	*100*
Toluene-d8 (Surr)	*95*		*80 - 120*		*02/16/18 13:44*	*100*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	22000		5000		ug/L			02/16/18 13:28	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/16/18 13:28*	*50*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	89000		5000		ug/L			02/16/18 16:04	1
Methane	260		88		ug/L			02/16/18 10:14	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	21.3		0.050		mg/L		02/19/18 08:00	02/19/18 19:04	1
Manganese, Dissolved	0.22		0.0030		mg/L		02/19/18 08:00	02/19/18 19:04	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	24.7		0.050		mg/L		02/16/18 08:35	02/16/18 15:25	1
Manganese	0.22		0.0030		mg/L		02/16/18 08:35	02/16/18 15:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.80		0.050		mg/L			02/15/18 20:31	1
Sulfate	23.6		5.0		mg/L			02/16/18 10:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: MW-47-W-180214
Date Collected: 02/14/18 14:15
Date Received: 02/15/18 09:30

Lab Sample ID: 480-131303-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**99**		2.0		ug/L			02/16/18 14:08	2
Ethylbenzene	<2.0		2.0		ug/L			02/16/18 14:08	2
Methyl tert-butyl ether	**12**		2.0		ug/L			02/16/18 14:08	2
m-Xylene & p-Xylene	<4.0		4.0		ug/L			02/16/18 14:08	2
o-Xylene	**72**		2.0		ug/L			02/16/18 14:08	2
Toluene	**16**		2.0		ug/L			02/16/18 14:08	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*02/16/18 14:08*	*2*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*		*02/16/18 14:08*	*2*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*02/16/18 14:08*	*2*
Toluene-d8 (Surr)	*95*		*80 - 120*		*02/16/18 14:08*	*2*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**990**		100		ug/L			02/16/18 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/16/18 14:02*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**240000**		5000		ug/L			02/16/18 16:13	1
Methane	**62**		4.0		ug/L			02/16/18 11:38	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**1.8**		0.050		mg/L		02/19/18 08:00	02/19/18 19:08	1
Manganese, Dissolved	**0.16**		0.0030		mg/L		02/19/18 08:00	02/19/18 19:08	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**10.3**		0.050		mg/L		02/16/18 08:35	02/16/18 15:29	1
Manganese	**0.17**		0.0030		mg/L		02/16/18 08:35	02/16/18 15:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**0.12**		0.050		mg/L			02/15/18 20:34	1
Sulfate	<5.0		5.0		mg/L			02/16/18 10:42	1

Client Sample ID: MW-13-W-180214

Lab Sample ID: 480-131303-3

Date Collected: 02/14/18 13:20

Matrix: Water

Date Received: 02/15/18 09:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/16/18 14:31	1
Ethylbenzene	<1.0		1.0		ug/L			02/16/18 14:31	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/16/18 14:31	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/16/18 14:31	1
o-Xylene	<1.0		1.0		ug/L			02/16/18 14:31	1
Toluene	<1.0		1.0		ug/L			02/16/18 14:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*02/16/18 14:31*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*02/16/18 14:31*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*02/16/18 14:31*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*02/16/18 14:31*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/16/18 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*80 - 120*		*02/16/18 15:09*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**29000**		5000		ug/L			02/16/18 16:22	1
Methane	<4.0		4.0		ug/L			02/16/18 11:57	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/19/18 08:00	02/19/18 19:11	1
Manganese, Dissolved	**0.059**		0.0030		mg/L		02/19/18 08:00	02/19/18 19:11	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**5.1**		0.050		mg/L		02/16/18 08:35	02/16/18 15:32	1
Manganese	**0.063**		0.0030		mg/L		02/16/18 08:35	02/16/18 15:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.4**		0.050		mg/L			02/15/18 20:35	1
Sulfate	**50.5**		10.0		mg/L			02/16/18 10:44	2

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: MW-18-W-180214
Date Collected: 02/14/18 13:15
Date Received: 02/15/18 09:30

Lab Sample ID: 480-131303-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/16/18 14:55	1
Ethylbenzene	<1.0		1.0		ug/L			02/16/18 14:55	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/16/18 14:55	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/16/18 14:55	1
o-Xylene	<1.0		1.0		ug/L			02/16/18 14:55	1
Toluene	<1.0		1.0		ug/L			02/16/18 14:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*77 - 120*		*02/16/18 14:55*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*02/16/18 14:55*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 123*		*02/16/18 14:55*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*02/16/18 14:55*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/16/18 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*80 - 120*		*02/16/18 15:43*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**210000**		5000		ug/L			02/16/18 16:30	1
Methane	<4.0		4.0		ug/L			02/16/18 12:16	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/19/18 08:00	02/19/18 19:40	1
Manganese, Dissolved	**0.044**		0.0030		mg/L		02/19/18 08:00	02/19/18 19:40	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**3.2**		0.050		mg/L		02/16/18 08:35	02/16/18 15:47	1
Manganese	**0.048**		0.0030		mg/L		02/16/18 08:35	02/16/18 15:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**4.1**		0.050		mg/L			02/15/18 20:36	1
Sulfate	**46.3**		10.0		mg/L			02/16/18 10:46	2

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: TRIP BLANK
Date Collected: 02/14/18 00:00
Date Received: 02/15/18 09:30

Lab Sample ID: 480-131303-6
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/15/18 14:54	1
Ethylbenzene	<1.0		1.0		ug/L			02/15/18 14:54	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/15/18 14:54	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/15/18 14:54	1
o-Xylene	<1.0		1.0		ug/L			02/15/18 14:54	1
Toluene	<1.0		1.0		ug/L			02/15/18 14:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*77 - 120*		*02/15/18 14:54*	*1*
4-Bromofluorobenzene (Surr)	*109*		*73 - 120*		*02/15/18 14:54*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*02/15/18 14:54*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/15/18 14:54*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(77-120)	(73-120)	(75-123)	(80-120)
480-131303-1	GP-30R-W-180214	96	100	96	95
480-131303-1 MS	GP-30R-W-180214	98	105	100	96
480-131303-1 MSD	GP-30R-W-180214	99	101	103	95
480-131303-2	MW-47-W-180214	100	103	98	95
480-131303-3	MW-13-W-180214	97	99	98	93
480-131303-4	MW-18-W-180214	95	100	96	94
480-131303-6	TRIP BLANK	91	109	98	100
LCS 480-399984/5	Lab Control Sample	87	112	100	99
LCS 480-400169/30	Lab Control Sample	94	103	99	95
MB 480-399984/7	Method Blank	87	108	98	100
MB 480-400169/6	Method Blank	96	99	95	95

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT2
Lab Sample ID	Client Sample ID	(80-120)
480-131303-1	GP-30R-W-180214	98
480-131303-2	MW-47-W-180214	98
480-131303-3	MW-13-W-180214	96
480-131303-4	MW-18-W-180214	97
LCS 480-400155/4	Lab Control Sample	101
LCSD 480-400155/5	Lab Control Sample Dup	101
MB 480-400155/3	Method Blank	98

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-399984/7
Matrix: Water
Analysis Batch: 399984

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/15/18 10:49	1
Ethylbenzene	<1.0		1.0		ug/L			02/15/18 10:49	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/15/18 10:49	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/15/18 10:49	1
o-Xylene	<1.0		1.0		ug/L			02/15/18 10:49	1
Toluene	<1.0		1.0		ug/L			02/15/18 10:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*77 - 120*		*02/15/18 10:49*	*1*
4-Bromofluorobenzene (Surr)	*108*		*73 - 120*		*02/15/18 10:49*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*02/15/18 10:49*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/15/18 10:49*	*1*

Lab Sample ID: LCS 480-399984/5
Matrix: Water
Analysis Batch: 399984

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	26.2		ug/L		105	71 - 124
Ethylbenzene	25.0	25.3		ug/L		101	77 - 123
Methyl tert-butyl ether	25.0	24.2		ug/L		97	77 - 120
m-Xylene & p-Xylene	25.0	24.9		ug/L		100	76 - 122
o-Xylene	25.0	25.4		ug/L		101	76 - 122
Toluene	25.0	25.6		ug/L		102	80 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*87*		*77 - 120*
4-Bromofluorobenzene (Surr)	*112*		*73 - 120*
Dibromofluoromethane (Surr)	*100*		*75 - 123*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: MB 480-400169/6
Matrix: Water
Analysis Batch: 400169

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/16/18 12:21	1
Ethylbenzene	<1.0		1.0		ug/L			02/16/18 12:21	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/16/18 12:21	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/16/18 12:21	1
o-Xylene	<1.0		1.0		ug/L			02/16/18 12:21	1
Toluene	<1.0		1.0		ug/L			02/16/18 12:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*77 - 120*		*02/16/18 12:21*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*02/16/18 12:21*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 123*		*02/16/18 12:21*	*1*

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

Lab Sample ID: MB 480-400169/6
Matrix: Water
Analysis Batch: 400169

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		80 - 120		02/16/18 12:21	1

Lab Sample ID: LCS 480-400169/30
Matrix: Water
Analysis Batch: 400169

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	27.4		ug/L		110	71 - 124
Ethylbenzene	25.0	25.5		ug/L		102	77 - 123
Methyl tert-butyl ether	25.0	25.9		ug/L		104	77 - 120
m-Xylene & p-Xylene	25.0	25.3		ug/L		101	76 - 122
o-Xylene	25.0	26.1		ug/L		104	76 - 122
Toluene	25.0	25.8		ug/L		103	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	94		77 - 120
4-Bromofluorobenzene (Surr)	103		73 - 120
Dibromofluoromethane (Surr)	99		75 - 123
Toluene-d8 (Surr)	95		80 - 120

Lab Sample ID: 480-131303-1 MS
Matrix: Water
Analysis Batch: 400169

Client Sample ID: GP-30R-W-180214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	3000	F1	2500	6100	F1	ug/L		125	71 - 124
Ethylbenzene	590		2500	3220		ug/L		105	77 - 123
Methyl tert-butyl ether	500		2500	3150		ug/L		106	77 - 120
m-Xylene & p-Xylene	1600		2500	4370		ug/L		112	76 - 122
o-Xylene	1100		2500	3850		ug/L		111	76 - 122
Toluene	4100		2500	7110		ug/L		119	80 - 122

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		77 - 120
4-Bromofluorobenzene (Surr)	105		73 - 120
Dibromofluoromethane (Surr)	100		75 - 123
Toluene-d8 (Surr)	96		80 - 120

Lab Sample ID: 480-131303-1 MSD
Matrix: Water
Analysis Batch: 400169

Client Sample ID: GP-30R-W-180214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	3000	F1	2500	5900		ug/L		116	71 - 124	3	13
Ethylbenzene	590		2500	3110		ug/L		101	77 - 123	4	15
Methyl tert-butyl ether	500		2500	3160		ug/L		107	77 - 120	0	37
m-Xylene & p-Xylene	1600		2500	4270		ug/L		108	76 - 122	2	16

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

Lab Sample ID: 480-131303-1 MSD
Matrix: Water
Analysis Batch: 400169

Client Sample ID: GP-30R-W-180214
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
o-Xylene	1100		2500	3720		ug/L		105	76 - 122	3	16
Toluene	4100		2500	7050		ug/L		116	80 - 122	1	15

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*
Dibromofluoromethane (Surr)	*103*		*75 - 123*
Toluene-d8 (Surr)	*95*		*80 - 120*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 480-400155/3
Matrix: Water
Analysis Batch: 400155

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/16/18 08:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/16/18 08:46*	*1*

Lab Sample ID: LCS 480-400155/4
Matrix: Water
Analysis Batch: 400155

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C6-C10)			200	192		ug/L		96	66 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*80 - 120*

Lab Sample ID: LCSD 480-400155/5
Matrix: Water
Analysis Batch: 400155

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C6-C10)			200	198		ug/L		99	66 - 120	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*80 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-126495/5
Matrix: Water
Analysis Batch: 126495

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	<5000		5000		ug/L			02/16/18 15:38	1

Lab Sample ID: LCS 200-126495/4
Matrix: Water
Analysis Batch: 126495

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon dioxide	40000	38300		ug/L		96	70 - 130

Lab Sample ID: MB 480-400135/3
Matrix: Water
Analysis Batch: 400135

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<4.0		4.0		ug/L			02/16/18 07:13	1

Lab Sample ID: LCS 480-400135/4
Matrix: Water
Analysis Batch: 400135

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.43		ug/L		109	85 - 120

Lab Sample ID: LCSD 480-400135/5
Matrix: Water
Analysis Batch: 400135

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	7.77	8.12		ug/L		105	85 - 120	4	50

Lab Sample ID: MB 480-400136/4
Matrix: Water
Analysis Batch: 400136

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<4.0		4.0		ug/L			02/16/18 07:31	1

Lab Sample ID: LCS 480-400136/5
Matrix: Water
Analysis Batch: 400136

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.63		ug/L		111	85 - 120

Lab Sample ID: LCSD 480-400136/6
Matrix: Water
Analysis Batch: 400136

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	7.77	9.25		ug/L		119	85 - 120	7	50

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-400138/1-A
Matrix: Water
Analysis Batch: 400572

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400138

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.050		0.050		mg/L		02/16/18 08:35	02/16/18 14:46	1
Manganese	<0.0030		0.0030		mg/L		02/16/18 08:35	02/16/18 14:46	1

Lab Sample ID: LCS 480-400138/2-A
Matrix: Water
Analysis Batch: 400572

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400138

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.16		mg/L		102	80 - 120
Manganese	0.200	0.203		mg/L		101	80 - 120

Method: 6010C - Dissolved Metals

Lab Sample ID: MB 480-400195/1-B
Matrix: Water
Analysis Batch: 400597

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 400363

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/19/18 08:00	02/19/18 18:57	1
Manganese, Dissolved	<0.0030		0.0030		mg/L		02/19/18 08:00	02/19/18 18:57	1

Lab Sample ID: LCS 480-400195/2-B
Matrix: Water
Analysis Batch: 400597

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 400363

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	10.0	10.00		mg/L		100	80 - 120
Manganese, Dissolved	0.200	0.204		mg/L		102	80 - 120

Lab Sample ID: 480-131303-3 MS
Matrix: Water
Analysis Batch: 400597

Client Sample ID: MW-13-W-180214
Prep Type: Dissolved
Prep Batch: 400363

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	<0.050		10.0	8.34		mg/L		83	75 - 125
Manganese, Dissolved	0.059		0.200	0.226		mg/L		84	75 - 125

Lab Sample ID: 480-131303-3 MSD
Matrix: Water
Analysis Batch: 400597

Client Sample ID: MW-13-W-180214
Prep Type: Dissolved
Prep Batch: 400363

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	<0.050		10.0	8.90		mg/L		89	75 - 125	6	20
Manganese, Dissolved	0.059		0.200	0.242		mg/L		92	75 - 125	7	20

Method: 9038 - Sulfate, Turbidimetric

Lab Sample ID: MB 480-400208/38
Matrix: Water
Analysis Batch: 400208

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			02/16/18 10:36	1

Lab Sample ID: LCS 480-400208/37
Matrix: Water
Analysis Batch: 400208

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Sulfate			30.0	30.60		mg/L		102	90 - 110		

GC/MS VOA

Analysis Batch: 399984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-6	TRIP BLANK	Total/NA	Water	8260C	
MB 480-399984/7	Method Blank	Total/NA	Water	8260C	
LCS 480-399984/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 400169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	8260C	
480-131303-2	MW-47-W-180214	Total/NA	Water	8260C	
480-131303-3	MW-13-W-180214	Total/NA	Water	8260C	
480-131303-4	MW-18-W-180214	Total/NA	Water	8260C	
MB 480-400169/6	Method Blank	Total/NA	Water	8260C	
LCS 480-400169/30	Lab Control Sample	Total/NA	Water	8260C	
480-131303-1 MS	GP-30R-W-180214	Total/NA	Water	8260C	
480-131303-1 MSD	GP-30R-W-180214	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 126495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	RSK-175	
480-131303-2	MW-47-W-180214	Total/NA	Water	RSK-175	
480-131303-3	MW-13-W-180214	Total/NA	Water	RSK-175	
480-131303-4	MW-18-W-180214	Total/NA	Water	RSK-175	
MB 200-126495/5	Method Blank	Total/NA	Water	RSK-175	
LCS 200-126495/4	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 400135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	RSK-175	
MB 480-400135/3	Method Blank	Total/NA	Water	RSK-175	
LCS 480-400135/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-400135/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 400136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-2	MW-47-W-180214	Total/NA	Water	RSK-175	
480-131303-3	MW-13-W-180214	Total/NA	Water	RSK-175	
480-131303-4	MW-18-W-180214	Total/NA	Water	RSK-175	
MB 480-400136/4	Method Blank	Total/NA	Water	RSK-175	
LCS 480-400136/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-400136/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 400155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	8015D	
480-131303-2	MW-47-W-180214	Total/NA	Water	8015D	
480-131303-3	MW-13-W-180214	Total/NA	Water	8015D	
480-131303-4	MW-18-W-180214	Total/NA	Water	8015D	
MB 480-400155/3	Method Blank	Total/NA	Water	8015D	
LCS 480-400155/4	Lab Control Sample	Total/NA	Water	8015D	

GC VOA (Continued)

Analysis Batch: 400155 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 480-400155/5	Lab Control Sample Dup	Total/NA	Water	8015D	

Metals

Prep Batch: 400138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	3005A	
480-131303-2	MW-47-W-180214	Total/NA	Water	3005A	
480-131303-3	MW-13-W-180214	Total/NA	Water	3005A	
480-131303-4	MW-18-W-180214	Total/NA	Water	3005A	
MB 480-400138/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-400138/2-A	Lab Control Sample	Total/NA	Water	3005A	

Filtration Batch: 400195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Dissolved	Water	FILTRATION	
480-131303-2	MW-47-W-180214	Dissolved	Water	FILTRATION	
480-131303-3	MW-13-W-180214	Dissolved	Water	FILTRATION	
480-131303-4	MW-18-W-180214	Dissolved	Water	FILTRATION	
MB 480-400195/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 480-400195/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
480-131303-3 MS	MW-13-W-180214	Dissolved	Water	FILTRATION	
480-131303-3 MSD	MW-13-W-180214	Dissolved	Water	FILTRATION	

Prep Batch: 400363

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Dissolved	Water	3005A	400195
480-131303-2	MW-47-W-180214	Dissolved	Water	3005A	400195
480-131303-3	MW-13-W-180214	Dissolved	Water	3005A	400195
480-131303-4	MW-18-W-180214	Dissolved	Water	3005A	400195
MB 480-400195/1-B	Method Blank	Dissolved	Water	3005A	400195
LCS 480-400195/2-B	Lab Control Sample	Dissolved	Water	3005A	400195
480-131303-3 MS	MW-13-W-180214	Dissolved	Water	3005A	400195
480-131303-3 MSD	MW-13-W-180214	Dissolved	Water	3005A	400195

Analysis Batch: 400572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	6010C	400138
480-131303-2	MW-47-W-180214	Total/NA	Water	6010C	400138
480-131303-3	MW-13-W-180214	Total/NA	Water	6010C	400138
480-131303-4	MW-18-W-180214	Total/NA	Water	6010C	400138
MB 480-400138/1-A	Method Blank	Total/NA	Water	6010C	400138
LCS 480-400138/2-A	Lab Control Sample	Total/NA	Water	6010C	400138

Analysis Batch: 400597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Dissolved	Water	6010C	400363
480-131303-2	MW-47-W-180214	Dissolved	Water	6010C	400363
480-131303-3	MW-13-W-180214	Dissolved	Water	6010C	400363
480-131303-4	MW-18-W-180214	Dissolved	Water	6010C	400363

Metals (Continued)

Analysis Batch: 400597 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-400195/1-B	Method Blank	Dissolved	Water	6010C	400363
LCS 480-400195/2-B	Lab Control Sample	Dissolved	Water	6010C	400363
480-131303-3 MS	MW-13-W-180214	Dissolved	Water	6010C	400363
480-131303-3 MSD	MW-13-W-180214	Dissolved	Water	6010C	400363

General Chemistry

Analysis Batch: 400124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	353.2	
480-131303-2	MW-47-W-180214	Total/NA	Water	353.2	
480-131303-3	MW-13-W-180214	Total/NA	Water	353.2	
480-131303-4	MW-18-W-180214	Total/NA	Water	353.2	

Analysis Batch: 400208

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131303-1	GP-30R-W-180214	Total/NA	Water	9038	
480-131303-2	MW-47-W-180214	Total/NA	Water	9038	
480-131303-3	MW-13-W-180214	Total/NA	Water	9038	
480-131303-4	MW-18-W-180214	Total/NA	Water	9038	
MB 480-400208/38	Method Blank	Total/NA	Water	9038	
LCS 480-400208/37	Lab Control Sample	Total/NA	Water	9038	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: GP-30R-W-180214

Lab Sample ID: 480-131303-1

Date Collected: 02/14/18 11:45

Matrix: Water

Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	400169	02/16/18 13:44	KMN	TAL BUF
Total/NA	Analysis	8015D		50	400155	02/16/18 13:28	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126495	02/16/18 16:04	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400135	02/16/18 10:14	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400195	02/16/18 09:56	EMB	TAL BUF
Dissolved	Prep	3005A			400363	02/19/18 08:00	JAK	TAL BUF
Dissolved	Analysis	6010C		1	400597	02/19/18 19:04	LMH	TAL BUF
Total/NA	Prep	3005A			400138	02/16/18 08:35	EMB	TAL BUF
Total/NA	Analysis	6010C		1	400572	02/16/18 15:25	LMH	TAL BUF
Total/NA	Analysis	353.2		1	400124	02/15/18 20:31	DCB	TAL BUF
Total/NA	Analysis	9038		1	400208	02/16/18 10:39	ALZ	TAL BUF

Client Sample ID: MW-47-W-180214

Lab Sample ID: 480-131303-2

Date Collected: 02/14/18 14:15

Matrix: Water

Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	400169	02/16/18 14:08	KMN	TAL BUF
Total/NA	Analysis	8015D		1	400155	02/16/18 14:02	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126495	02/16/18 16:13	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400136	02/16/18 11:38	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400195	02/16/18 09:56	EMB	TAL BUF
Dissolved	Prep	3005A			400363	02/19/18 08:00	JAK	TAL BUF
Dissolved	Analysis	6010C		1	400597	02/19/18 19:08	LMH	TAL BUF
Total/NA	Prep	3005A			400138	02/16/18 08:35	EMB	TAL BUF
Total/NA	Analysis	6010C		1	400572	02/16/18 15:29	LMH	TAL BUF
Total/NA	Analysis	353.2		1	400124	02/15/18 20:34	DCB	TAL BUF
Total/NA	Analysis	9038		1	400208	02/16/18 10:42	ALZ	TAL BUF

Client Sample ID: MW-13-W-180214

Lab Sample ID: 480-131303-3

Date Collected: 02/14/18 13:20

Matrix: Water

Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400169	02/16/18 14:31	KMN	TAL BUF
Total/NA	Analysis	8015D		1	400155	02/16/18 15:09	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126495	02/16/18 16:22	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400136	02/16/18 11:57	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400195	02/16/18 09:57	EMB	TAL BUF
Dissolved	Prep	3005A			400363	02/19/18 08:00	JAK	TAL BUF
Dissolved	Analysis	6010C		1	400597	02/19/18 19:11	LMH	TAL BUF
Total/NA	Prep	3005A			400138	02/16/18 08:35	EMB	TAL BUF

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Client Sample ID: MW-13-W-180214

Lab Sample ID: 480-131303-3

Date Collected: 02/14/18 13:20
Matrix: Water
Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	400572	02/16/18 15:32	LMH	TAL BUF
Total/NA	Analysis	353.2		1	400124	02/15/18 20:35	DCB	TAL BUF
Total/NA	Analysis	9038		2	400208	02/16/18 10:44	ALZ	TAL BUF

Client Sample ID: MW-18-W-180214

Lab Sample ID: 480-131303-4

Date Collected: 02/14/18 13:15
Matrix: Water
Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400169	02/16/18 14:55	KMN	TAL BUF
Total/NA	Analysis	8015D		1	400155	02/16/18 15:43	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126495	02/16/18 16:30	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400136	02/16/18 12:16	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400195	02/16/18 09:57	EMB	TAL BUF
Dissolved	Prep	3005A			400363	02/19/18 08:00	JAK	TAL BUF
Dissolved	Analysis	6010C		1	400597	02/19/18 19:40	LMH	TAL BUF
Total/NA	Prep	3005A			400138	02/16/18 08:35	EMB	TAL BUF
Total/NA	Analysis	6010C		1	400572	02/16/18 15:47	LMH	TAL BUF
Total/NA	Analysis	353.2		1	400124	02/15/18 20:36	DCB	TAL BUF
Total/NA	Analysis	9038		2	400208	02/16/18 10:46	ALZ	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-131303-6

Date Collected: 02/14/18 00:00
Matrix: Water
Date Received: 02/15/18 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	399984	02/15/18 14:54	MXS	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600
TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc. TestAmerica Job ID: 480-131303-1
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	294	03-31-18 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Iron
6010C	3005A	Water	Iron, Dissolved
6010C	3005A	Water	Manganese
6010C	3005A	Water	Manganese, Dissolved
8015D		Water	GRO (C6-C10)
8260C		Water	Benzene
8260C		Water	Ethylbenzene
8260C		Water	Methyl tert-butyl ether
8260C		Water	m-Xylene & p-Xylene
8260C		Water	o-Xylene
8260C		Water	Toluene
9038		Water	Sulfate
RSK-175		Water	Methane

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Florida	NELAP	4	E87467	06-30-18
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Jersey	NELAP	2	VT972	06-30-18
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-18
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8015D	Gasoline Range Organics (GRO) (GC)	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Dissolved Metals	SW846	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
353.2	Nitrate	EPA	TAL BUF
9038	Sulfate, Turbidimetric	SW846	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131303-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-131303-1	GP-30R-W-180214	Water	02/14/18 11:45	02/15/18 09:30
480-131303-2	MW-47-W-180214	Water	02/14/18 14:15	02/15/18 09:30
480-131303-3	MW-13-W-180214	Water	02/14/18 13:20	02/15/18 09:30
480-131303-4	MW-18-W-180214	Water	02/14/18 13:15	02/15/18 09:30
480-131303-6	TRIP BLANK	Water	02/14/18 00:00	02/15/18 09:30

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

480-131303 COC

Client Information	Sampler: A. King	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-109063-8
Client Contact: Kristen Audette	Phone: 410-350-9147	E-Mail: john.schove@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S., Inc.		Analysis Requested		Job #:
Address: 2101 L Street NW Suite 200	Due Date Requested:			
City: Washington	TAT Requested (days): Standard			
State, Zip: DC, 20037				
Phone: 202-909-6892(Tel)	PO #: B0049337.0004.00001			
Email: kristen.audette@arcadis.com	WO #: NWENV-122208-0-0802			
Project Name: CHEVRON - CVX# 122208, Chillum, MD	Project #: 48016281			
Site: Chillum	SSOW#:			

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2 - Dissolved Gases - CO2	6010C - Metals - Total Fe & Mn	RSK_175 - Dissolved Gases - Methane	8015D_GRO - GRO	8260C - BTEX + MTBE	353.2, 353.2_Nitrite, 9038, Nitrate_Calc	6010C - Metals - Dissolved Fe & Mn	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	A	A	A	N	N		
GP-30R-W-180214	2/14/18	1145	G	Water			3	1	3	3	3	2	1		
MW-47-W-180214		1415		Water											
MW-13-W-180214		1320		Water											
MW-18-W-180214		1315		Water											
MW-16-W-180214		1220		Water											
Trip Blank		—		Water							2				
Temp Blank				Water											
				Water											
				Water											
				Water											
				Water											

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		2/14/18 1525	Arcadis			2/14/18
2		2/14/18			2/15/18 0930	TA
3						

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.2 #1 ICE

Ver: 08/04/2016

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record


480-131303 Chain of Custody

TestAmerica
LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schove, John R	Carrier Tracking No(s): 0427.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: john.schove@testamericainc.com	State of Origin: Maryland
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Maryland	Page 1 of 1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 2/27/2018		Job #: 480-131303-1
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: CHEVRON - CVX# 122208, Chillum, MD	Project #: 48016281		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

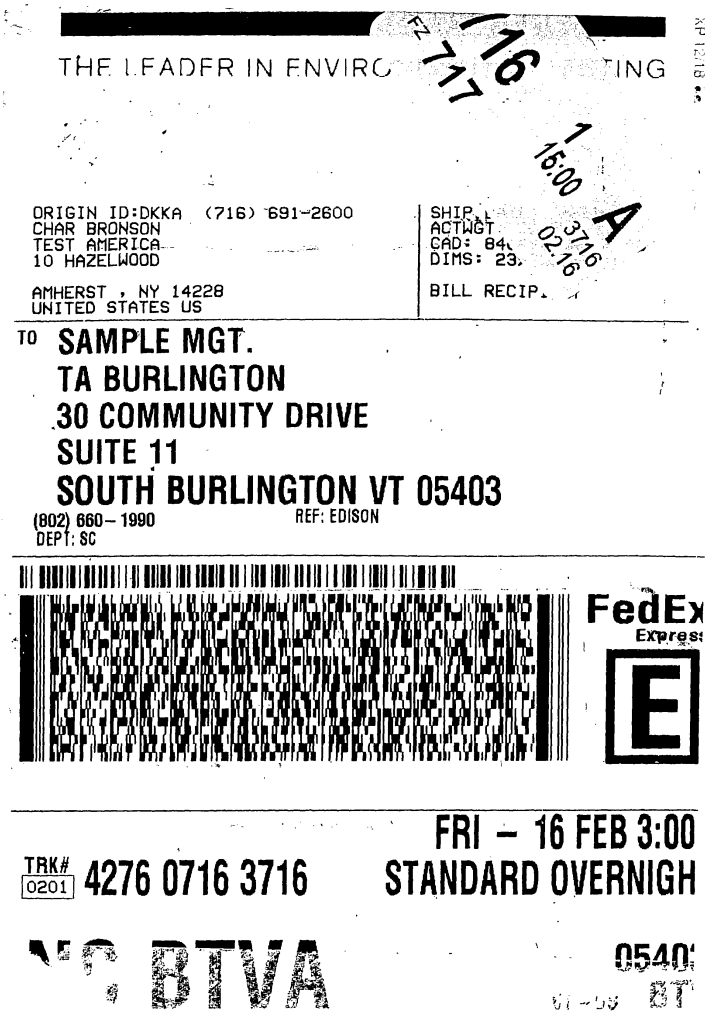
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2/ Dissolved Gases - CO2	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
GP-30R-W-180214 (480-131303-1)	2/14/18	11:45 Eastern		Water			X	3	
MW-47-W-180214 (480-131303-2)	2/14/18	14:15 Eastern		Water			X	3	
MW-13-W-180214 (480-131303-3)	2/14/18	13:20 Eastern		Water			X	3	
MW-18-W-180214 (480-131303-4)	2/14/18	13:15 Eastern		Water			X	3	
MW-16-W-180214 (480-131303-5)	2/14/18	12:20 Eastern		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:	Method of Shipment:	
Relinquished by:	Date/Time: 2/15/18 1700	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 2/16/18 1030	Company TAB	
Custody Seals Intact: Δ Yes Δ No N/A	Custody Seal No.: N/A		Cooler Temperature(s) °C and Other Remarks: 3.0			

Ver: 09/20/2016



THE LEADER IN ENVIRO TING

ORIGIN ID:DKKA (716) 691-2600
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD

AMHERST , NY 14228
UNITED STATES US

SHIP
ACTWGT
CAD: 84
DIMS: 23

BILL RECIP

TO SAMPLE MGT.
TA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403

(802) 660-1990 REF: EDISON
DEPT: SC

FedEx
Express

FRI - 16 FEB 3:00
STANDARD OVERNIGH

TRK# 0201 4276 0716 3716

BTVA

0540

BT

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 480-131303-1

Login Number: 131303
List Number: 1
Creator: Wallace, Cameron

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	ARCADIS
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 480-131303-1

Login Number: 131303
List Number: 2
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington
List Creation: 02/16/18 11:22 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.0ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-131377-1
Client Project/Site: CHEVRON - CVX# 122208, Chillum, MD

For:
ARCADIS U.S., Inc.
2101 L Street NW
Suite 200
Washington, Washington, DC 20037

Attn: Lauren Vogel

Authorized for release by:
2/23/2018 12:53:38 PM
Rebecca Jones, Project Management Assistant I
rebecca.jones@testamericainc.com

Designee for

John Schove, Project Manager II
(716)504-9838
john.schove@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-131377-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-131377-1

Comments
No additional comments.

Receipt
The samples were received on 2/16/2018 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.9º C and 3.2º C.

GC/MS VOA
Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-6-W-180215 (480-131377-4), MW-59-W-180215 (480-131377-7) and MW-25B-W-180215 (480-131377-8). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: GP-35A-W-180215 (480-131377-1). Elevated reporting limits (RLs) are provided.

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

GC VOA
Method(s) RSK-175: The following sample was diluted to bring the concentration of target analytes within the calibration range: GP-35A-W-180215 (480-131377-1). Elevated reporting limits (RLs) are provided.

Method(s) RSK-175: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-20-W-180215 (480-131377-2), MW-45-W-180215 (480-131377-3), MW-6-W-180215 (480-131377-4) and MW-53-W-180215 (480-131377-6). Elevated reporting limits (RLs) are provided.

Method(s) 8015D: The following samples were diluted to bring the concentration of target analytes within the calibration range: GP-35A-W-180215 (480-131377-1) and MW-6-W-180215 (480-131377-4). Elevated reporting limits (RLs) are provided.

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

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

General Chemistry
Method(s) 353.2: The following samples were filtered prior to analysis. MW-20-W-180215 (480-131377-2), MW-45-W-180215 (480-131377-3), MW-6-W-180215 (480-131377-4), MW-53-W-180215 (480-131377-6), MW-59-W-180215 (480-131377-7), MW-25B-W-180215 (480-131377-8) and MW-62B-W-180215 (480-131377-9)

Method(s) 353.2: The following samples were filtered prior to analysis.GP-35A-W-180215 (480-131377-1), MW-20-W-180215 (480-131377-2), MW-45-W-180215 (480-131377-3), MW-6-W-180215 (480-131377-4), MW-59-W-180215 (480-131377-7) and MW-25B-W-180215 (480-131377-8)

Method(s) 353.2: Reanalysis of the following sample was performed outside of the analytical holding time due to confirm NO2>NO3: GP-35A-W-180215 (480-131377-1).

Method(s) 353.2: The inter-parameter relationship between Nitrate/Nitrite and Nitrite does not meet acceptance criteria. This has been confirmed by reanalysis: GP-35A-W-180215 (480-131377-1).

Method(s) Nitrate by calc: The inter-parameter relationship between Nitrate/Nitrite and Nitrite does not meet acceptance criteria. This has been confirmed by reanalysis: GP-35A-W-180215 (480-131377-1).

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

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: GP-35A-W-180215 — Lab Sample ID: 480-131377-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	110		20		ug/L	20		8260C	Total/NA
Ethylbenzene	250		20		ug/L	20		8260C	Total/NA
m-Xylene & p-Xylene	1200		40		ug/L	20		8260C	Total/NA
o-Xylene	440		20		ug/L	20		8260C	Total/NA
Toluene	980		20		ug/L	20		8260C	Total/NA
GRO (C6-C10)	31000		5000		ug/L	50		8015D	Total/NA
Carbon dioxide	77000		5000		ug/L	1		RSK-175	Total/NA
Methane	460		88		ug/L	22		RSK-175	Total/NA
Iron, Dissolved	10.8		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.17		0.0030		mg/L	1		6010C	Dissolved
Iron	40.7		0.050		mg/L	1		6010C	Total/NA
Manganese	0.18		0.0030		mg/L	1		6010C	Total/NA

Client Sample ID: MW-20-W-180215 — Lab Sample ID: 480-131377-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
GRO (C6-C10)	250		100		ug/L	1		8015D	Total/NA
Carbon dioxide	200000		5000		ug/L	1		RSK-175	Total/NA
Methane	460		88		ug/L	22		RSK-175	Total/NA
Iron, Dissolved	0.20		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.37		0.0030		mg/L	1		6010C	Dissolved
Iron	7.1		0.050		mg/L	1		6010C	Total/NA
Manganese	0.39		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	6.1		0.050		mg/L	1		353.2	Total/NA

Client Sample ID: MW-45-W-180215 — Lab Sample ID: 480-131377-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	3.6		1.0		ug/L	1		8260C	Total/NA
Methyl tert-butyl ether	1.1		1.0		ug/L	1		8260C	Total/NA
o-Xylene	2.5		1.0		ug/L	1		8260C	Total/NA
GRO (C6-C10)	150		100		ug/L	1		8015D	Total/NA
Carbon dioxide	140000		5000		ug/L	1		RSK-175	Total/NA
Methane	250		88		ug/L	22		RSK-175	Total/NA
Manganese, Dissolved	0.054		0.0030		mg/L	1		6010C	Dissolved
Iron	7.3		0.050		mg/L	1		6010C	Total/NA
Manganese	0.066		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	4.5		0.050		mg/L	1		353.2	Total/NA

Client Sample ID: MW-6-W-180215 — Lab Sample ID: 480-131377-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	47		4.0		ug/L	4		8260C	Total/NA
m-Xylene & p-Xylene	51		8.0		ug/L	4		8260C	Total/NA
o-Xylene	160		4.0		ug/L	4		8260C	Total/NA
Toluene	15		4.0		ug/L	4		8260C	Total/NA
GRO (C6-C10)	1900		1000		ug/L	10		8015D	Total/NA
Carbon dioxide	66000		5000		ug/L	1		RSK-175	Total/NA
Methane	650		88		ug/L	22		RSK-175	Total/NA
Iron, Dissolved	3.8		0.050		mg/L	1		6010C	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-6-W-180215 (Continued) — Lab Sample ID: 480-131377-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Manganese, Dissolved	0.46		0.0030		mg/L	1		6010C	Dissolved
Iron	34.5		0.050		mg/L	1		6010C	Total/NA
Manganese	0.45		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	6.3		0.050		mg/L	1		353.2	Total/NA
Sulfate	23.6		5.0		mg/L	1		9038	Total/NA

Client Sample ID: MW-33B-W-180215 — Lab Sample ID: 480-131377-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.6		1.0		ug/L	1		8260C	Total/NA
Methyl tert-butyl ether	11		1.0		ug/L	1		8260C	Total/NA
Carbon dioxide	170000		5000		ug/L	1		RSK-175	Total/NA
Methane	4.4		4.0		ug/L	1		RSK-175	Total/NA
Manganese, Dissolved	0.14		0.0030		mg/L	1		6010C	Dissolved
Iron	1.4		0.050		mg/L	1		6010C	Total/NA
Manganese	0.15		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	1.8		0.050		mg/L	1		353.2	Total/NA
Sulfate	56.4		10.0		mg/L	2		9038	Total/NA

Client Sample ID: MW-53-W-180215 — Lab Sample ID: 480-131377-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	39		1.0		ug/L	1		8260C	Total/NA
Carbon dioxide	120000		5000		ug/L	1		RSK-175	Total/NA
Methane	650		88		ug/L	22		RSK-175	Total/NA
Manganese, Dissolved	0.28		0.0030		mg/L	1		6010C	Dissolved
Iron	26.6		0.050		mg/L	1		6010C	Total/NA
Manganese	0.37		0.0030		mg/L	1		6010C	Total/NA
Sulfate	28.4		5.0		mg/L	1		9038	Total/NA

Client Sample ID: MW-59-W-180215 — Lab Sample ID: 480-131377-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	87		4.0		ug/L	4		8260C	Total/NA
Methyl tert-butyl ether	170		4.0		ug/L	4		8260C	Total/NA
GRO (C6-C10)	340		100		ug/L	1		8015D	Total/NA
Carbon dioxide	160000		5000		ug/L	1		RSK-175	Total/NA
Methane	85		4.0		ug/L	1		RSK-175	Total/NA
Iron, Dissolved	0.14		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.12		0.0030		mg/L	1		6010C	Dissolved
Iron	4.3		0.050		mg/L	1		6010C	Total/NA
Manganese	0.14		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	1.4		0.050		mg/L	1		353.2	Total/NA
Sulfate	34.1		5.0		mg/L	1		9038	Total/NA

Client Sample ID: MW-25B-W-180215 — Lab Sample ID: 480-131377-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	170		4.0		ug/L	4		8260C	Total/NA
Methyl tert-butyl ether	140		4.0		ug/L	4		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-25B-W-180215 (Continued) — Lab Sample ID: 480-131377-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
o-Xylene	4.6		4.0		ug/L	4		8260C	Total/NA
GRO (C6-C10)	520		100		ug/L	1		8015D	Total/NA
Carbon dioxide	87000		5000		ug/L	1		RSK-175	Total/NA
Manganese, Dissolved	0.15		0.0030		mg/L	1		6010C	Dissolved
Iron	1.4		0.050		mg/L	1		6010C	Total/NA
Manganese	0.16		0.0030		mg/L	1		6010C	Total/NA
Nitrate as N	1.8		0.050		mg/L	1		353.2	Total/NA
Sulfate	56.3		10.0		mg/L	2		9038	Total/NA

Client Sample ID: MW-62B-W-180215 — Lab Sample ID: 480-131377-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	6.0		1.0		ug/L	1		8260C	Total/NA
Methyl tert-butyl ether	26		1.0		ug/L	1		8260C	Total/NA
GRO (C6-C10)	170		100		ug/L	1		8015D	Total/NA
Carbon dioxide	72000		5000		ug/L	1		RSK-175	Total/NA
Methane	19		4.0		ug/L	1		RSK-175	Total/NA
Iron, Dissolved	2.4		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.34		0.0030		mg/L	1		6010C	Dissolved
Iron	54.2		0.050		mg/L	1		6010C	Total/NA
Manganese	0.39		0.0030		mg/L	1		6010C	Total/NA
Sulfate	41.4		10.0		mg/L	2		9038	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-131377-10

No Detections.

This Detection Summary does not include radiochemical test results.

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: GP-35A-W-180215
Date Collected: 02/15/18 10:10
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	110		20		ug/L			02/19/18 15:07	20
Ethylbenzene	250		20		ug/L			02/19/18 15:07	20
Methyl tert-butyl ether	<20		20		ug/L			02/19/18 15:07	20
m-Xylene & p-Xylene	1200		40		ug/L			02/19/18 15:07	20
o-Xylene	440		20		ug/L			02/19/18 15:07	20
Toluene	980		20		ug/L			02/19/18 15:07	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*77 - 120*		*02/19/18 15:07*	*20*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*02/19/18 15:07*	*20*
Dibromofluoromethane (Surr)	*98*		*75 - 123*		*02/19/18 15:07*	*20*
Toluene-d8 (Surr)	*101*		*80 - 120*		*02/19/18 15:07*	*20*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	31000		5000		ug/L			02/17/18 14:27	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/17/18 14:27*	*50*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	77000		5000		ug/L			02/19/18 17:51	1
Methane	460		88		ug/L			02/19/18 08:44	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	10.8		0.050		mg/L		02/20/18 11:22	02/21/18 17:39	1
Manganese, Dissolved	0.17		0.0030		mg/L		02/20/18 11:22	02/21/18 17:39	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	40.7		0.050		mg/L		02/19/18 08:00	02/21/18 03:24	1
Manganese	0.18		0.0030		mg/L		02/19/18 08:00	02/21/18 03:24	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.050		0.050		mg/L			02/16/18 17:26	1
Sulfate	<5.0		5.0		mg/L			02/17/18 10:52	1

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-20-W-180215
Date Collected: 02/15/18 09:40
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/20/18 00:43	1
Ethylbenzene	<1.0		1.0		ug/L			02/20/18 00:43	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/20/18 00:43	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/20/18 00:43	1
o-Xylene	<1.0		1.0		ug/L			02/20/18 00:43	1
Toluene	<1.0		1.0		ug/L			02/20/18 00:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*		*02/20/18 00:43*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*02/20/18 00:43*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*02/20/18 00:43*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*02/20/18 00:43*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**250**		100		ug/L			02/20/18 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*02/20/18 15:10*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**200000**		5000		ug/L			02/19/18 18:00	1
Methane	**460**		88		ug/L			02/19/18 10:15	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.20**		0.050		mg/L		02/20/18 11:22	02/21/18 17:43	1
Manganese, Dissolved	**0.37**		0.0030		mg/L		02/20/18 11:22	02/21/18 17:43	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**7.1**		0.050		mg/L		02/19/18 08:00	02/21/18 03:27	1
Manganese	**0.39**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:27	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**6.1**		0.050		mg/L			02/16/18 17:27	1
Sulfate	<5.0		5.0		mg/L			02/17/18 10:37	1

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-45-W-180215
Date Collected: 02/15/18 09:00
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**3.6**		1.0		ug/L			02/18/18 12:16	1
Ethylbenzene	<1.0		1.0		ug/L			02/18/18 12:16	1
Methyl tert-butyl ether	**1.1**		1.0		ug/L			02/18/18 12:16	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/18/18 12:16	1
o-Xylene	**2.5**		1.0		ug/L			02/18/18 12:16	1
Toluene	<1.0		1.0		ug/L			02/18/18 12:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*02/18/18 12:16*	*1*
4-Bromofluorobenzene (Surr)	*106*		*73 - 120*		*02/18/18 12:16*	*1*
Dibromofluoromethane (Surr)	*109*		*75 - 123*		*02/18/18 12:16*	*1*
Toluene-d8 (Surr)	*107*		*80 - 120*		*02/18/18 12:16*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**150**		100		ug/L			02/20/18 15:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*80 - 120*		*02/20/18 15:44*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**140000**		5000		ug/L			02/19/18 18:09	1
Methane	**250**		88		ug/L			02/19/18 10:34	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/20/18 11:22	02/21/18 17:46	1
Manganese, Dissolved	**0.054**		0.0030		mg/L		02/20/18 11:22	02/21/18 17:46	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**7.3**		0.050		mg/L		02/19/18 08:00	02/21/18 03:31	1
Manganese	**0.066**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**4.5**		0.050		mg/L			02/16/18 17:33	1
Sulfate	<5.0		5.0		mg/L			02/17/18 10:52	1

Client Sample ID: MW-6-W-180215
Date Collected: 02/15/18 10:40
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<4.0		4.0		ug/L			02/20/18 01:06	4
Ethylbenzene	**47**		4.0		ug/L			02/20/18 01:06	4
Methyl tert-butyl ether	<4.0		4.0		ug/L			02/20/18 01:06	4
m-Xylene & p-Xylene	**51**		8.0		ug/L			02/20/18 01:06	4
o-Xylene	**160**		4.0		ug/L			02/20/18 01:06	4
Toluene	**15**		4.0		ug/L			02/20/18 01:06	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*02/20/18 01:06*	*4*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*02/20/18 01:06*	*4*
Dibromofluoromethane (Surr)	*99*		*75 - 123*		*02/20/18 01:06*	*4*
Toluene-d8 (Surr)	*101*		*80 - 120*		*02/20/18 01:06*	*4*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**1900**		1000		ug/L			02/17/18 16:10	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*80 - 120*		*02/17/18 16:10*	*10*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**66000**		5000		ug/L			02/19/18 18:17	1
Methane	**650**		88		ug/L			02/19/18 10:53	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**3.8**		0.050		mg/L		02/20/18 11:22	02/21/18 18:01	1
Manganese, Dissolved	**0.46**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:01	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**34.5**		0.050		mg/L		02/19/18 08:00	02/21/18 03:35	1
Manganese	**0.45**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**6.3**		0.050		mg/L			02/16/18 17:34	1
Sulfate	**23.6**		5.0		mg/L			02/17/18 10:39	1

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-33B-W-180215
Date Collected: 02/15/18 11:50
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**1.6**		1.0		ug/L			02/20/18 01:30	1
Ethylbenzene	<1.0		1.0		ug/L			02/20/18 01:30	1
Methyl tert-butyl ether	**11**		1.0		ug/L			02/20/18 01:30	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/20/18 01:30	1
o-Xylene	<1.0		1.0		ug/L			02/20/18 01:30	1
Toluene	<1.0		1.0		ug/L			02/20/18 01:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*77 - 120*		*02/20/18 01:30*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*02/20/18 01:30*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*02/20/18 01:30*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*02/20/18 01:30*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/17/18 11:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/17/18 11:37*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**170000**		5000		ug/L			02/19/18 18:26	1
Methane	**4.4**		4.0		ug/L			02/19/18 09:54	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/20/18 11:22	02/21/18 18:05	1
Manganese, Dissolved	**0.14**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:05	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**1.4**		0.050		mg/L		02/19/18 08:00	02/21/18 03:38	1
Manganese	**0.15**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.8**		0.050		mg/L			02/16/18 17:35	1
Sulfate	**56.4**		10.0		mg/L			02/17/18 10:57	2

Client Sample ID: MW-53-W-180215
Lab Sample ID: 480-131377-6
Date Collected: 02/15/18 11:20
Matrix: Water
Date Received: 02/16/18 10:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/20/18 01:53	1
Ethylbenzene	<1.0		1.0		ug/L			02/20/18 01:53	1
Methyl tert-butyl ether	**39**		1.0		ug/L			02/20/18 01:53	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/20/18 01:53	1
o-Xylene	<1.0		1.0		ug/L			02/20/18 01:53	1
Toluene	<1.0		1.0		ug/L			02/20/18 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*77 - 120*		*02/20/18 01:53*	*1*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*02/20/18 01:53*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*02/20/18 01:53*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*02/20/18 01:53*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/17/18 12:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/17/18 12:11*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**120000**		5000		ug/L			02/19/18 18:35	1
Methane	**650**		88		ug/L			02/19/18 11:12	22

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/20/18 11:22	02/21/18 18:23	1
Manganese, Dissolved	**0.28**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:23	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**26.6**		0.050		mg/L		02/19/18 08:00	02/21/18 03:42	1
Manganese	**0.37**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.050		0.050		mg/L			02/16/18 16:15	1
Sulfate	**28.4**		5.0		mg/L			02/17/18 10:39	1

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-59-W-180215
Date Collected: 02/15/18 12:25
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-7
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**87**		4.0		ug/L			02/20/18 02:16	4
Ethylbenzene	<4.0		4.0		ug/L			02/20/18 02:16	4
Methyl tert-butyl ether	**170**		4.0		ug/L			02/20/18 02:16	4
m-Xylene & p-Xylene	<8.0		8.0		ug/L			02/20/18 02:16	4
o-Xylene	<4.0		4.0		ug/L			02/20/18 02:16	4
Toluene	<4.0		4.0		ug/L			02/20/18 02:16	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*77 - 120*		*02/20/18 02:16*	*4*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*02/20/18 02:16*	*4*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*02/20/18 02:16*	*4*
Toluene-d8 (Surr)	*101*		*80 - 120*		*02/20/18 02:16*	*4*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**340**		100		ug/L			02/17/18 12:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*99*		*80 - 120*		*02/17/18 12:45*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**160000**		5000		ug/L			02/19/18 18:43	1
Methane	**85**		4.0		ug/L			02/19/18 10:29	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**0.14**		0.050		mg/L		02/20/18 11:22	02/21/18 18:26	1
Manganese, Dissolved	**0.12**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:26	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**4.3**		0.050		mg/L		02/19/18 08:00	02/21/18 03:46	1
Manganese	**0.14**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.4**		0.050		mg/L			02/16/18 17:36	1
Sulfate	**34.1**		5.0		mg/L			02/17/18 10:39	1

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-25B-W-180215
Date Collected: 02/15/18 13:30
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-8
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**170**		4.0		ug/L			02/20/18 02:39	4
Ethylbenzene	<4.0		4.0		ug/L			02/20/18 02:39	4
Methyl tert-butyl ether	**140**		4.0		ug/L			02/20/18 02:39	4
m-Xylene & p-Xylene	<8.0		8.0		ug/L			02/20/18 02:39	4
o-Xylene	**4.6**		4.0		ug/L			02/20/18 02:39	4
Toluene	<4.0		4.0		ug/L			02/20/18 02:39	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*77 - 120*		*02/20/18 02:39*	*4*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*02/20/18 02:39*	*4*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*02/20/18 02:39*	*4*
Toluene-d8 (Surr)	*99*		*80 - 120*		*02/20/18 02:39*	*4*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**520**		100		ug/L			02/17/18 13:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*100*		*80 - 120*		*02/17/18 13:54*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**87000**		5000		ug/L			02/19/18 18:52	1
Methane	<4.0		4.0		ug/L			02/19/18 10:47	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/20/18 11:22	02/21/18 18:30	1
Manganese, Dissolved	**0.15**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:30	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**1.4**		0.050		mg/L		02/19/18 08:00	02/21/18 03:49	1
Manganese	**0.16**		0.0030		mg/L		02/19/18 08:00	02/21/18 03:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	**1.8**		0.050		mg/L			02/16/18 17:38	1
Sulfate	**56.3**		10.0		mg/L			02/17/18 11:01	2

Client Sample ID: MW-62B-W-180215
Date Collected: 02/15/18 12:55
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-9
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**6.0**		1.0		ug/L			02/20/18 03:03	1
Ethylbenzene	<1.0		1.0		ug/L			02/20/18 03:03	1
Methyl tert-butyl ether	**26**		1.0		ug/L			02/20/18 03:03	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/20/18 03:03	1
o-Xylene	<1.0		1.0		ug/L			02/20/18 03:03	1
Toluene	<1.0		1.0		ug/L			02/20/18 03:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*02/20/18 03:03*	*1*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*02/20/18 03:03*	*1*
Dibromofluoromethane (Surr)	*103*		*75 - 123*		*02/20/18 03:03*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*02/20/18 03:03*	*1*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	**170**		100		ug/L			02/20/18 16:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*98*		*80 - 120*		*02/20/18 16:18*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	**72000**		5000		ug/L			02/19/18 19:01	1
Methane	**19**		4.0		ug/L			02/19/18 11:04	1

Method: 6010C - Dissolved Metals - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	**2.4**		0.050		mg/L		02/20/18 11:22	02/21/18 18:45	1
Manganese, Dissolved	**0.34**		0.0030		mg/L		02/20/18 11:22	02/21/18 18:45	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**54.2**		0.050		mg/L		02/19/18 08:00	02/21/18 04:08	1
Manganese	**0.39**		0.0030		mg/L		02/19/18 08:00	02/21/18 04:08	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.050		0.050		mg/L			02/16/18 16:23	1
Sulfate	**41.4**		10.0		mg/L			02/17/18 11:01	2

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: TRIP BLANK
Date Collected: 02/15/18 00:00
Date Received: 02/16/18 10:00

Lab Sample ID: 480-131377-10
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/19/18 13:01	1
Ethylbenzene	<1.0		1.0		ug/L			02/19/18 13:01	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/19/18 13:01	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/19/18 13:01	1
o-Xylene	<1.0		1.0		ug/L			02/19/18 13:01	1
Toluene	<1.0		1.0		ug/L			02/19/18 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*02/19/18 13:01*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*02/19/18 13:01*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*02/19/18 13:01*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*02/19/18 13:01*	*1*

Surrogate Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(77-120)	(73-120)	(75-123)	(80-120)
480-131377-1	GP-35A-W-180215	93	101	98	101
480-131377-2	MW-20-W-180215	106	98	103	105
480-131377-3	MW-45-W-180215	100	106	109	107
480-131377-4	MW-6-W-180215	99	96	99	101
480-131377-5	MW-33B-W-180215	94	99	103	102
480-131377-6	MW-53-W-180215	91	96	101	101
480-131377-7	MW-59-W-180215	95	94	104	101
480-131377-8	MW-25B-W-180215	95	97	103	99
480-131377-9	MW-62B-W-180215	100	92	103	102
480-131377-10	TRIP BLANK	97	100	100	98
LCS 480-400329/5	Lab Control Sample	95	105	101	103
LCS 480-400389/5	Lab Control Sample	93	102	104	102
LCS 480-400398/4	Lab Control Sample	98	102	100	98
LCS 480-400512/8	Lab Control Sample	92	100	104	102
MB 480-400329/7	Method Blank	93	104	97	102
MB 480-400389/7	Method Blank	99	96	104	100
MB 480-400398/7	Method Blank	96	102	96	99
MB 480-400512/28	Method Blank	101	101	104	105

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT2
Lab Sample ID	Client Sample ID	(80-120)
480-131377-1	GP-35A-W-180215	98
480-131377-2	MW-20-W-180215	95
480-131377-3	MW-45-W-180215	96
480-131377-4	MW-6-W-180215	100
480-131377-5	MW-33B-W-180215	98
480-131377-6	MW-53-W-180215	98
480-131377-7	MW-59-W-180215	99
480-131377-8	MW-25B-W-180215	100
480-131377-9	MW-62B-W-180215	98
LCS 480-400299/4	Lab Control Sample	101
LCS 480-400677/3	Lab Control Sample	98
LCSD 480-400299/5	Lab Control Sample Dup	99
LCSD 480-400677/4	Lab Control Sample Dup	97
MB 480-400299/3	Method Blank	97
MB 480-400677/2	Method Blank	95

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-400329/7
Matrix: Water
Analysis Batch: 400329

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/18/18 10:43	1
Ethylbenzene	<1.0		1.0		ug/L			02/18/18 10:43	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/18/18 10:43	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/18/18 10:43	1
o-Xylene	<1.0		1.0		ug/L			02/18/18 10:43	1
Toluene	<1.0		1.0		ug/L			02/18/18 10:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*77 - 120*		*02/18/18 10:43*	*1*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*		*02/18/18 10:43*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 123*		*02/18/18 10:43*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*02/18/18 10:43*	*1*

Lab Sample ID: LCS 480-400329/5
Matrix: Water
Analysis Batch: 400329

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	24.4		ug/L		97	71 - 124
Ethylbenzene	25.0	23.9		ug/L		96	77 - 123
Methyl tert-butyl ether	25.0	22.2		ug/L		89	77 - 120
m-Xylene & p-Xylene	25.0	23.5		ug/L		94	76 - 122
o-Xylene	25.0	24.3		ug/L		97	76 - 122
Toluene	25.0	23.3		ug/L		93	80 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*77 - 120*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*
Dibromofluoromethane (Surr)	*101*		*75 - 123*
Toluene-d8 (Surr)	*103*		*80 - 120*

Lab Sample ID: MB 480-400389/7
Matrix: Water
Analysis Batch: 400389

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/19/18 10:56	1
Ethylbenzene	<1.0		1.0		ug/L			02/19/18 10:56	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/19/18 10:56	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/19/18 10:56	1
o-Xylene	<1.0		1.0		ug/L			02/19/18 10:56	1
Toluene	<1.0		1.0		ug/L			02/19/18 10:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*		*02/19/18 10:56*	*1*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*02/19/18 10:56*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*02/19/18 10:56*	*1*

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

Lab Sample ID: MB 480-400389/7
Matrix: Water
Analysis Batch: 400389

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	*100*		*80 - 120*		*02/19/18 10:56*	*1*

Lab Sample ID: LCS 480-400389/5
Matrix: Water
Analysis Batch: 400389

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	24.0		ug/L		96	71 - 124
Ethylbenzene	25.0	22.8		ug/L		91	77 - 123
Methyl tert-butyl ether	25.0	22.8		ug/L		91	77 - 120
m-Xylene & p-Xylene	25.0	22.5		ug/L		90	76 - 122
o-Xylene	25.0	24.1		ug/L		96	76 - 122
Toluene	25.0	23.4		ug/L		94	80 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*93*		*77 - 120*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*
Dibromofluoromethane (Surr)	*104*		*75 - 123*
Toluene-d8 (Surr)	*102*		*80 - 120*

Lab Sample ID: MB 480-400398/7
Matrix: Water
Analysis Batch: 400398

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/19/18 12:19	1
Ethylbenzene	<1.0		1.0		ug/L			02/19/18 12:19	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/19/18 12:19	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/19/18 12:19	1
o-Xylene	<1.0		1.0		ug/L			02/19/18 12:19	1
Toluene	<1.0		1.0		ug/L			02/19/18 12:19	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*96*		*77 - 120*		*02/19/18 12:19*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*02/19/18 12:19*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 123*		*02/19/18 12:19*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*02/19/18 12:19*	*1*

Lab Sample ID: LCS 480-400398/4
Matrix: Water
Analysis Batch: 400398

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	27.3		ug/L		109	71 - 124
Ethylbenzene	25.0	26.4		ug/L		106	77 - 123
Methyl tert-butyl ether	25.0	24.9		ug/L		99	77 - 120
m-Xylene & p-Xylene	25.0	26.0		ug/L		104	76 - 122

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

Lab Sample ID: LCS 480-400398/4
Matrix: Water
Analysis Batch: 400398

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	25.0	26.0		ug/L		104	76 - 122
Toluene	25.0	25.5		ug/L		102	80 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*
Dibromofluoromethane (Surr)	*100*		*75 - 123*
Toluene-d8 (Surr)	*98*		*80 - 120*

Lab Sample ID: MB 480-400512/28
Matrix: Water
Analysis Batch: 400512

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<1.0		1.0		ug/L			02/20/18 00:20	1
Ethylbenzene	<1.0		1.0		ug/L			02/20/18 00:20	1
Methyl tert-butyl ether	<1.0		1.0		ug/L			02/20/18 00:20	1
m-Xylene & p-Xylene	<2.0		2.0		ug/L			02/20/18 00:20	1
o-Xylene	<1.0		1.0		ug/L			02/20/18 00:20	1
Toluene	<1.0		1.0		ug/L			02/20/18 00:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*02/20/18 00:20*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*02/20/18 00:20*	*1*
Dibromofluoromethane (Surr)	*104*		*75 - 123*		*02/20/18 00:20*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*02/20/18 00:20*	*1*

Lab Sample ID: LCS 480-400512/8
Matrix: Water
Analysis Batch: 400512

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	25.0	25.7		ug/L		103	71 - 124
Ethylbenzene	25.0	24.3		ug/L		97	77 - 123
Methyl tert-butyl ether	25.0	22.2		ug/L		89	77 - 120
m-Xylene & p-Xylene	25.0	24.2		ug/L		97	76 - 122
o-Xylene	25.0	24.6		ug/L		98	76 - 122
Toluene	25.0	25.3		ug/L		101	80 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*77 - 120*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*
Dibromofluoromethane (Surr)	*104*		*75 - 123*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8015D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 480-400299/3
Matrix: Water
Analysis Batch: 400299

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/17/18 09:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*80 - 120*		*02/17/18 09:55*	*1*

Lab Sample ID: LCS 480-400299/4
Matrix: Water
Analysis Batch: 400299

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C6-C10)			200	173		ug/L		86	66 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*101*		*80 - 120*

Lab Sample ID: LCSD 480-400299/5
Matrix: Water
Analysis Batch: 400299

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C6-C10)			200	153		ug/L		76	66 - 120	12	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*80 - 120*

Lab Sample ID: MB 480-400677/2
Matrix: Water
Analysis Batch: 400677

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<100		100		ug/L			02/20/18 13:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*95*		*80 - 120*		*02/20/18 13:29*	*1*

Lab Sample ID: LCS 480-400677/3
Matrix: Water
Analysis Batch: 400677

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C6-C10)			200	191		ug/L		96	66 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*98*		*80 - 120*

Method: 8015D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: LCSD 480-400677/4
Matrix: Water
Analysis Batch: 400677

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C6-C10)			200	187		ug/L		93	66 - 120	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*97*		*80 - 120*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 200-126540/3
Matrix: Water
Analysis Batch: 126540

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon dioxide	<5000		5000		ug/L			02/19/18 14:26	1

Lab Sample ID: LCS 200-126540/2
Matrix: Water
Analysis Batch: 126540

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Carbon dioxide			40000	33400		ug/L		84	70 - 130		

Lab Sample ID: MB 480-400359/3
Matrix: Water
Analysis Batch: 400359

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<4.0		4.0		ug/L			02/19/18 07:24	1

Lab Sample ID: LCS 480-400359/4
Matrix: Water
Analysis Batch: 400359

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			7.77	7.62		ug/L		98	85 - 120		

Lab Sample ID: LCSD 480-400359/5
Matrix: Water
Analysis Batch: 400359

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane			7.77	7.95		ug/L		102	85 - 120	4	50

Lab Sample ID: MB 480-400360/5
Matrix: Water
Analysis Batch: 400360

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<4.0		4.0		ug/L			02/19/18 07:54	1

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

Lab Sample ID: LCS 480-400360/6
Matrix: Water
Analysis Batch: 400360

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.01		ug/L		103	85 - 120

Lab Sample ID: LCSD 480-400360/7
Matrix: Water
Analysis Batch: 400360

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	7.77	8.19		ug/L		105	85 - 120	2	50

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-400361/1-A
Matrix: Water
Analysis Batch: 400890

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 400361

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.050		0.050		mg/L		02/19/18 08:00	02/21/18 01:56	1
Manganese	<0.0030		0.0030		mg/L		02/19/18 08:00	02/21/18 01:56	1

Lab Sample ID: LCS 480-400361/2-A
Matrix: Water
Analysis Batch: 400890

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 400361

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	9.67		mg/L		97	80 - 120
Manganese	0.200	0.208		mg/L		104	80 - 120

Lab Sample ID: LCSD 480-400361/3-A
Matrix: Water
Analysis Batch: 400890

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 400361

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	10.0	9.64		mg/L		96	80 - 120	0	20
Manganese	0.200	0.206		mg/L		103	80 - 120	1	20

Method: 6010C - Dissolved Metals

Lab Sample ID: MB 480-400423/1-B
Matrix: Water
Analysis Batch: 401043

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 400632

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	<0.050		0.050		mg/L		02/20/18 11:22	02/21/18 17:32	1
Manganese, Dissolved	<0.0030		0.0030		mg/L		02/20/18 11:22	02/21/18 17:32	1

Method: 6010C - Dissolved Metals (Continued)

Lab Sample ID: LCS 480-400423/2-B
Matrix: Water
Analysis Batch: 401043

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 400632

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	10.0	9.75		mg/L		97	80 - 120
Manganese, Dissolved	0.200	0.199		mg/L		99	80 - 120

Lab Sample ID: 480-131377-5 MS
Matrix: Water
Analysis Batch: 401043

Client Sample ID: MW-33B-W-180215
Prep Type: Dissolved
Prep Batch: 400632

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	<0.050		10.0	10.10		mg/L		101	75 - 125
Manganese, Dissolved	0.14		0.200	0.341		mg/L		98	75 - 125

Lab Sample ID: 480-131377-5 MSD
Matrix: Water
Analysis Batch: 401043

Client Sample ID: MW-33B-W-180215
Prep Type: Dissolved
Prep Batch: 400632

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron, Dissolved	<0.050		10.0	10.05		mg/L		100	75 - 125	1	20
Manganese, Dissolved	0.14		0.200	0.335		mg/L		95	75 - 125	2	20

Method: 9038 - Sulfate, Turbidimetric

Lab Sample ID: MB 480-400312/12
Matrix: Water
Analysis Batch: 400312

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			02/17/18 10:37	1

Lab Sample ID: MB 480-400312/35
Matrix: Water
Analysis Batch: 400312

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			02/17/18 10:47	1

Lab Sample ID: MB 480-400312/71
Matrix: Water
Analysis Batch: 400312

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<5.0		5.0		mg/L			02/17/18 11:00	1

Lab Sample ID: LCS 480-400312/11
Matrix: Water
Analysis Batch: 400312

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	30.38		mg/L		101	90 - 110

Method: 9038 - Sulfate, Turbidimetric (Continued)

Lab Sample ID: LCS 480-400312/34
Matrix: Water
Analysis Batch: 400312

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	30.57		mg/L		102	90 - 110

Lab Sample ID: LCS 480-400312/70
Matrix: Water
Analysis Batch: 400312

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	29.89		mg/L		100	90 - 110

Lab Sample ID: 480-131377-2 MS
Matrix: Water
Analysis Batch: 400312

Client Sample ID: MW-20-W-180215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	<5.0		20.0	24.81		mg/L		115	60 - 128

Lab Sample ID: 480-131377-2 MSD
Matrix: Water
Analysis Batch: 400312

Client Sample ID: MW-20-W-180215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	<5.0		20.0	24.01		mg/L		111	60 - 128	3	20

Lab Sample ID: 480-131377-5 MS
Matrix: Water
Analysis Batch: 400312

Client Sample ID: MW-33B-W-180215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	56.4		20.0	77.20		mg/L		104	60 - 128

Lab Sample ID: 480-131377-5 MSD
Matrix: Water
Analysis Batch: 400312

Client Sample ID: MW-33B-W-180215
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	56.4		20.0	76.87		mg/L		102	60 - 128	0	20

GC/MS VOA

Analysis Batch: 400329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-3	MW-45-W-180215	Total/NA	Water	8260C	
MB 480-400329/7	Method Blank	Total/NA	Water	8260C	
LCS 480-400329/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 400389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	8260C	
MB 480-400389/7	Method Blank	Total/NA	Water	8260C	
LCS 480-400389/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 400398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-10	TRIP BLANK	Total/NA	Water	8260C	
MB 480-400398/7	Method Blank	Total/NA	Water	8260C	
LCS 480-400398/4	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 400512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-2	MW-20-W-180215	Total/NA	Water	8260C	
480-131377-4	MW-6-W-180215	Total/NA	Water	8260C	
480-131377-5	MW-33B-W-180215	Total/NA	Water	8260C	
480-131377-6	MW-53-W-180215	Total/NA	Water	8260C	
480-131377-7	MW-59-W-180215	Total/NA	Water	8260C	
480-131377-8	MW-25B-W-180215	Total/NA	Water	8260C	
480-131377-9	MW-62B-W-180215	Total/NA	Water	8260C	
MB 480-400512/28	Method Blank	Total/NA	Water	8260C	
LCS 480-400512/8	Lab Control Sample	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 126540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	RSK-175	
480-131377-2	MW-20-W-180215	Total/NA	Water	RSK-175	
480-131377-3	MW-45-W-180215	Total/NA	Water	RSK-175	
480-131377-4	MW-6-W-180215	Total/NA	Water	RSK-175	
480-131377-5	MW-33B-W-180215	Total/NA	Water	RSK-175	
480-131377-6	MW-53-W-180215	Total/NA	Water	RSK-175	
480-131377-7	MW-59-W-180215	Total/NA	Water	RSK-175	
480-131377-8	MW-25B-W-180215	Total/NA	Water	RSK-175	
480-131377-9	MW-62B-W-180215	Total/NA	Water	RSK-175	
MB 200-126540/3	Method Blank	Total/NA	Water	RSK-175	
LCS 200-126540/2	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 400299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	8015D	
480-131377-4	MW-6-W-180215	Total/NA	Water	8015D	
480-131377-5	MW-33B-W-180215	Total/NA	Water	8015D	
480-131377-6	MW-53-W-180215	Total/NA	Water	8015D	

GC VOA (Continued)

Analysis Batch: 400299 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-7	MW-59-W-180215	Total/NA	Water	8015D	
480-131377-8	MW-25B-W-180215	Total/NA	Water	8015D	
MB 480-400299/3	Method Blank	Total/NA	Water	8015D	
LCS 480-400299/4	Lab Control Sample	Total/NA	Water	8015D	
LCSD 480-400299/5	Lab Control Sample Dup	Total/NA	Water	8015D	

Analysis Batch: 400359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	RSK-175	
480-131377-5	MW-33B-W-180215	Total/NA	Water	RSK-175	
480-131377-7	MW-59-W-180215	Total/NA	Water	RSK-175	
480-131377-8	MW-25B-W-180215	Total/NA	Water	RSK-175	
480-131377-9	MW-62B-W-180215	Total/NA	Water	RSK-175	
MB 480-400359/3	Method Blank	Total/NA	Water	RSK-175	
LCS 480-400359/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-400359/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 400360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-2	MW-20-W-180215	Total/NA	Water	RSK-175	
480-131377-3	MW-45-W-180215	Total/NA	Water	RSK-175	
480-131377-4	MW-6-W-180215	Total/NA	Water	RSK-175	
480-131377-6	MW-53-W-180215	Total/NA	Water	RSK-175	
MB 480-400360/5	Method Blank	Total/NA	Water	RSK-175	
LCS 480-400360/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-400360/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Analysis Batch: 400677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-2	MW-20-W-180215	Total/NA	Water	8015D	
480-131377-3	MW-45-W-180215	Total/NA	Water	8015D	
480-131377-9	MW-62B-W-180215	Total/NA	Water	8015D	
MB 480-400677/2	Method Blank	Total/NA	Water	8015D	
LCS 480-400677/3	Lab Control Sample	Total/NA	Water	8015D	
LCSD 480-400677/4	Lab Control Sample Dup	Total/NA	Water	8015D	

Metals

Prep Batch: 400361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	3005A	
480-131377-2	MW-20-W-180215	Total/NA	Water	3005A	
480-131377-3	MW-45-W-180215	Total/NA	Water	3005A	
480-131377-4	MW-6-W-180215	Total/NA	Water	3005A	
480-131377-5	MW-33B-W-180215	Total/NA	Water	3005A	
480-131377-6	MW-53-W-180215	Total/NA	Water	3005A	
480-131377-7	MW-59-W-180215	Total/NA	Water	3005A	
480-131377-8	MW-25B-W-180215	Total/NA	Water	3005A	
480-131377-9	MW-62B-W-180215	Total/NA	Water	3005A	
MB 480-400361/1-A	Method Blank	Total/NA	Water	3005A	

Metals (Continued)

Prep Batch: 400361 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-400361/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 480-400361/3-A	Lab Control Sample Dup	Total/NA	Water	3005A	

Filtration Batch: 400423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Dissolved	Water	FILTRATION	
480-131377-2	MW-20-W-180215	Dissolved	Water	FILTRATION	
480-131377-3	MW-45-W-180215	Dissolved	Water	FILTRATION	
480-131377-4	MW-6-W-180215	Dissolved	Water	FILTRATION	
480-131377-5	MW-33B-W-180215	Dissolved	Water	FILTRATION	
480-131377-6	MW-53-W-180215	Dissolved	Water	FILTRATION	
480-131377-7	MW-59-W-180215	Dissolved	Water	FILTRATION	
480-131377-8	MW-25B-W-180215	Dissolved	Water	FILTRATION	
480-131377-9	MW-62B-W-180215	Dissolved	Water	FILTRATION	
MB 480-400423/1-B	Method Blank	Dissolved	Water	FILTRATION	
LCS 480-400423/2-B	Lab Control Sample	Dissolved	Water	FILTRATION	
480-131377-5 MS	MW-33B-W-180215	Dissolved	Water	FILTRATION	
480-131377-5 MSD	MW-33B-W-180215	Dissolved	Water	FILTRATION	

Prep Batch: 400632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Dissolved	Water	3005A	400423
480-131377-2	MW-20-W-180215	Dissolved	Water	3005A	400423
480-131377-3	MW-45-W-180215	Dissolved	Water	3005A	400423
480-131377-4	MW-6-W-180215	Dissolved	Water	3005A	400423
480-131377-5	MW-33B-W-180215	Dissolved	Water	3005A	400423
480-131377-6	MW-53-W-180215	Dissolved	Water	3005A	400423
480-131377-7	MW-59-W-180215	Dissolved	Water	3005A	400423
480-131377-8	MW-25B-W-180215	Dissolved	Water	3005A	400423
480-131377-9	MW-62B-W-180215	Dissolved	Water	3005A	400423
MB 480-400423/1-B	Method Blank	Dissolved	Water	3005A	400423
LCS 480-400423/2-B	Lab Control Sample	Dissolved	Water	3005A	400423
480-131377-5 MS	MW-33B-W-180215	Dissolved	Water	3005A	400423
480-131377-5 MSD	MW-33B-W-180215	Dissolved	Water	3005A	400423

Analysis Batch: 400890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	6010C	400361
480-131377-2	MW-20-W-180215	Total/NA	Water	6010C	400361
480-131377-3	MW-45-W-180215	Total/NA	Water	6010C	400361
480-131377-4	MW-6-W-180215	Total/NA	Water	6010C	400361
480-131377-5	MW-33B-W-180215	Total/NA	Water	6010C	400361
480-131377-6	MW-53-W-180215	Total/NA	Water	6010C	400361
480-131377-7	MW-59-W-180215	Total/NA	Water	6010C	400361
480-131377-8	MW-25B-W-180215	Total/NA	Water	6010C	400361
480-131377-9	MW-62B-W-180215	Total/NA	Water	6010C	400361
MB 480-400361/1-A	Method Blank	Total/NA	Water	6010C	400361
LCS 480-400361/2-A	Lab Control Sample	Total/NA	Water	6010C	400361
LCSD 480-400361/3-A	Lab Control Sample Dup	Total/NA	Water	6010C	400361

Metals (Continued)

Analysis Batch: 401043

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Dissolved	Water	6010C	400632
480-131377-2	MW-20-W-180215	Dissolved	Water	6010C	400632
480-131377-3	MW-45-W-180215	Dissolved	Water	6010C	400632
480-131377-4	MW-6-W-180215	Dissolved	Water	6010C	400632
480-131377-5	MW-33B-W-180215	Dissolved	Water	6010C	400632
480-131377-6	MW-53-W-180215	Dissolved	Water	6010C	400632
480-131377-7	MW-59-W-180215	Dissolved	Water	6010C	400632
480-131377-8	MW-25B-W-180215	Dissolved	Water	6010C	400632
480-131377-9	MW-62B-W-180215	Dissolved	Water	6010C	400632
MB 480-400423/1-B	Method Blank	Dissolved	Water	6010C	400632
LCS 480-400423/2-B	Lab Control Sample	Dissolved	Water	6010C	400632
480-131377-5 MS	MW-33B-W-180215	Dissolved	Water	6010C	400632
480-131377-5 MSD	MW-33B-W-180215	Dissolved	Water	6010C	400632

General Chemistry

Analysis Batch: 400279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	353.2	
480-131377-2	MW-20-W-180215	Total/NA	Water	353.2	
480-131377-3	MW-45-W-180215	Total/NA	Water	353.2	
480-131377-4	MW-6-W-180215	Total/NA	Water	353.2	
480-131377-5	MW-33B-W-180215	Total/NA	Water	353.2	
480-131377-6	MW-53-W-180215	Total/NA	Water	353.2	
480-131377-7	MW-59-W-180215	Total/NA	Water	353.2	
480-131377-8	MW-25B-W-180215	Total/NA	Water	353.2	
480-131377-9	MW-62B-W-180215	Total/NA	Water	353.2	

Analysis Batch: 400312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-131377-1	GP-35A-W-180215	Total/NA	Water	9038	
480-131377-2	MW-20-W-180215	Total/NA	Water	9038	
480-131377-3	MW-45-W-180215	Total/NA	Water	9038	
480-131377-4	MW-6-W-180215	Total/NA	Water	9038	
480-131377-5	MW-33B-W-180215	Total/NA	Water	9038	
480-131377-6	MW-53-W-180215	Total/NA	Water	9038	
480-131377-7	MW-59-W-180215	Total/NA	Water	9038	
480-131377-8	MW-25B-W-180215	Total/NA	Water	9038	
480-131377-9	MW-62B-W-180215	Total/NA	Water	9038	
MB 480-400312/12	Method Blank	Total/NA	Water	9038	
MB 480-400312/35	Method Blank	Total/NA	Water	9038	
MB 480-400312/71	Method Blank	Total/NA	Water	9038	
LCS 480-400312/11	Lab Control Sample	Total/NA	Water	9038	
LCS 480-400312/34	Lab Control Sample	Total/NA	Water	9038	
LCS 480-400312/70	Lab Control Sample	Total/NA	Water	9038	
480-131377-2 MS	MW-20-W-180215	Total/NA	Water	9038	
480-131377-2 MSD	MW-20-W-180215	Total/NA	Water	9038	
480-131377-5 MS	MW-33B-W-180215	Total/NA	Water	9038	
480-131377-5 MSD	MW-33B-W-180215	Total/NA	Water	9038	

Client Sample ID: GP-35A-W-180215

Lab Sample ID: 480-131377-1

Date Collected: 02/15/18 10:10

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		20	400389	02/19/18 15:07	KMN	TAL BUF
Total/NA	Analysis	8015D		50	400299	02/17/18 14:27	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 17:51	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400359	02/19/18 08:44	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 17:39	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:24	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:26	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:52	ALZ	TAL BUF

Client Sample ID: MW-20-W-180215

Lab Sample ID: 480-131377-2

Date Collected: 02/15/18 09:40

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400512	02/20/18 00:43	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400677	02/20/18 15:10	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:00	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400360	02/19/18 10:15	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 17:43	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:27	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:27	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:37	ALZ	TAL BUF

Client Sample ID: MW-45-W-180215

Lab Sample ID: 480-131377-3

Date Collected: 02/15/18 09:00

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400329	02/18/18 12:16	MXS	TAL BUF
Total/NA	Analysis	8015D		1	400677	02/20/18 15:44	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:09	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400360	02/19/18 10:34	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 17:46	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-45-W-180215

Lab Sample ID: 480-131377-3

Date Collected: 02/15/18 09:00
Matrix: Water
Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	400890	02/21/18 03:31	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:33	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:52	ALZ	TAL BUF

Client Sample ID: MW-6-W-180215

Lab Sample ID: 480-131377-4

Date Collected: 02/15/18 10:40
Matrix: Water
Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		4	400512	02/20/18 01:06	RJF	TAL BUF
Total/NA	Analysis	8015D		10	400299	02/17/18 16:10	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:17	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400360	02/19/18 10:53	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:01	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:35	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:34	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:39	ALZ	TAL BUF

Client Sample ID: MW-33B-W-180215

Lab Sample ID: 480-131377-5

Date Collected: 02/15/18 11:50
Matrix: Water
Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400512	02/20/18 01:30	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400299	02/17/18 11:37	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:26	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400359	02/19/18 09:54	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:05	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:38	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:35	DCB	TAL BUF
Total/NA	Analysis	9038		2	400312	02/17/18 10:57	ALZ	TAL BUF

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-53-W-180215

Lab Sample ID: 480-131377-6

Date Collected: 02/15/18 11:20

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400512	02/20/18 01:53	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400299	02/17/18 12:11	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:35	MLT	TAL BUR
Total/NA	Analysis	RSK-175		22	400360	02/19/18 11:12	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:23	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:42	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 16:15	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:39	ALZ	TAL BUF

Client Sample ID: MW-59-W-180215

Lab Sample ID: 480-131377-7

Date Collected: 02/15/18 12:25

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		4	400512	02/20/18 02:16	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400299	02/17/18 12:45	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:43	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400359	02/19/18 10:29	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:26	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 03:46	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:36	DCB	TAL BUF
Total/NA	Analysis	9038		1	400312	02/17/18 10:39	ALZ	TAL BUF

Client Sample ID: MW-25B-W-180215

Lab Sample ID: 480-131377-8

Date Collected: 02/15/18 13:30

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		4	400512	02/20/18 02:39	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400299	02/17/18 13:54	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 18:52	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400359	02/19/18 10:47	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:30	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Client Sample ID: MW-25B-W-180215

Lab Sample ID: 480-131377-8

Date Collected: 02/15/18 13:30

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	400890	02/21/18 03:49	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 17:38	DCB	TAL BUF
Total/NA	Analysis	9038		2	400312	02/17/18 11:01	ALZ	TAL BUF

Client Sample ID: MW-62B-W-180215

Lab Sample ID: 480-131377-9

Date Collected: 02/15/18 12:55

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400512	02/20/18 03:03	RJF	TAL BUF
Total/NA	Analysis	8015D		1	400677	02/20/18 16:18	JLS	TAL BUF
Total/NA	Analysis	RSK-175		1	126540	02/19/18 19:01	MLT	TAL BUR
Total/NA	Analysis	RSK-175		1	400359	02/19/18 11:04	TRG	TAL BUF
Dissolved	Filtration	FILTRATION			400423	02/19/18 10:01	SMF	TAL BUF
Dissolved	Prep	3005A			400632	02/20/18 11:22	JAK	TAL BUF
Dissolved	Analysis	6010C		1	401043	02/21/18 18:45	AMH	TAL BUF
Total/NA	Prep	3005A			400361	02/19/18 08:00	JAK	TAL BUF
Total/NA	Analysis	6010C		1	400890	02/21/18 04:08	AMH	TAL BUF
Total/NA	Analysis	353.2		1	400279	02/16/18 16:23	DCB	TAL BUF
Total/NA	Analysis	9038		2	400312	02/17/18 11:01	ALZ	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-131377-10

Date Collected: 02/15/18 00:00

Matrix: Water

Date Received: 02/16/18 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	400398	02/19/18 13:01	KMN	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Maryland	State Program	3	294	03-31-18 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
6010C	3005A	Water	Iron
6010C	3005A	Water	Iron, Dissolved
6010C	3005A	Water	Manganese
6010C	3005A	Water	Manganese, Dissolved
8015D		Water	GRO (C6-C10)
8260C		Water	Benzene
8260C		Water	Ethylbenzene
8260C		Water	Methyl tert-butyl ether
8260C		Water	m-Xylene & p-Xylene
8260C		Water	o-Xylene
8260C		Water	Toluene
9038		Water	Sulfate
RSK-175		Water	Methane

Laboratory: TestAmerica Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-19
Florida	NELAP	4	E87467	06-30-18
L-A-B	DoD ELAP		L2336	02-25-20
Maine	State Program	1	VT00008	04-17-19
Minnesota	NELAP	5	050-999-436	12-31-18
New Jersey	NELAP	2	VT972	06-30-18
New York	NELAP	2	10391	04-01-18
Pennsylvania	NELAP	3	68-00489	04-30-18
Rhode Island	State Program	1	LAO00298	12-30-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-18
USDA	Federal		P330-11-00093	12-05-19
Vermont	State Program	1	VT-4000	12-31-18
Virginia	NELAP	3	460209	12-14-18

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8015D	Gasoline Range Organics (GRO) (GC)	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL BUR
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Dissolved Metals	SW846	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
353.2	Nitrate	EPA	TAL BUF
9038	Sulfate, Turbidimetric	SW846	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: CHEVRON - CVX# 122208, Chillum, MD

TestAmerica Job ID: 480-131377-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-131377-1	GP-35A-W-180215	Water	02/15/18 10:10	02/16/18 10:00
480-131377-2	MW-20-W-180215	Water	02/15/18 09:40	02/16/18 10:00
480-131377-3	MW-45-W-180215	Water	02/15/18 09:00	02/16/18 10:00
480-131377-4	MW-6-W-180215	Water	02/15/18 10:40	02/16/18 10:00
480-131377-5	MW-33B-W-180215	Water	02/15/18 11:50	02/16/18 10:00
480-131377-6	MW-53-W-180215	Water	02/15/18 11:20	02/16/18 10:00
480-131377-7	MW-59-W-180215	Water	02/15/18 12:25	02/16/18 10:00
480-131377-8	MW-25B-W-180215	Water	02/15/18 13:30	02/16/18 10:00
480-131377-9	MW-62B-W-180215	Water	02/15/18 12:55	02/16/18 10:00
480-131377-10	TRIP BLANK	Water	02/15/18 00:00	02/16/18 10:00

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica

480-131377 COC

Client Information	Sampler: A. King	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-109083-25389.2
Client Contact: Kristen Audette	Phone: 410-350-9147	E-Mail: john.schove@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S., Inc.				Job #:
Address: 2101 L Street NW Suite 200	Due Date Requested:			
City: Washington	TAT Requested (days): Standard			
State, Zip: DC, 20037				
Phone: 202-909-6892(Tel)	PO #: B0049337.0004.00001			
Email: kristen.audette@arcadis.com	WO #: NWENV-122208-0-0802			
Project Name: CHEVRON - CVX# 122208, Chillum, MD	Project #: 48016281			
Site: Chillum	SSOW#:			

180325

BALTIMORE

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2 - Dissolved Gases - CO2	6010C - Metals - Total Fe & Mn	RSK_175 - Dissolved Gases - Methane	8015D_GRO - GRO	8260C - BTEX + MTBE	353.2, 353.2_Nitrite, 9038, Nitrate_Calc	6010C - Metals - Dissolved Fe & Mn	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	A	A	A	N	N		
GP-35A-W-180215	2/15/18	1010	G	Water			3	1	3	3	3	2	1		
MW-20-W-180215		0940		Water											
MW-45-W-180215		0900		Water											
MW-6-W-180215		1040		Water											
MW-33B-W-180215		1150		Water											
MW-53-W-180215		1120		Water											
MW-59-W-180215		1225		Water											
MW-25B-W-180215		1330		Water											
MW-62B-W-180215		1255		Water											
Trip Blank		—		Water							2				
Temp Blank															

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) EDD Locus Simplified

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		2/15/18, 1455	Arcadis		2/15/18 1455	TA
2		2/15/18 16:17	TA		2/16/18 1000	TAB
3						

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: #1 2.9, 3.2

Ver: 08/04/2016

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record



TestAmerica
LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schove, John R	439.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: john.schove@testamericainc.com	of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Maryland	480-131377-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 2/28/2018		
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: CHEVRON - CVX# 122208, Chillum, MD	Project #: 48016281		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175_CO2/ Dissolved Gases - CO2	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
GP-35A-W-180215 (480-131377-1)	2/15/18	10:10 Eastern		Water			X	3	
MW-20-W-180215 (480-131377-2)	2/15/18	09:40 Eastern		Water			X	3	
MW-45-W-180215 (480-131377-3)	2/15/18	09:00 Eastern		Water			X	3	
MW-6-W-180215 (480-131377-4)	2/15/18	10:40 Eastern		Water			X	3	
MW-33B-W-180215 (480-131377-5)	2/15/18	11:50 Eastern		Water			X	3	
MW-53-W-180215 (480-131377-6)	2/15/18	11:20 Eastern		Water			X	3	
MW-59-W-180215 (480-131377-7)	2/15/18	12:25 Eastern		Water			X	3	
MW-25B-W-180215 (480-131377-8)	2/15/18	13:30 Eastern		Water			X	3	
MW-62B-W-180215 (480-131377-9)	2/15/18	12:55 Eastern		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:	Method of Shipment:	
Relinquished by:	Date/Time: 2/16/18 1715	Company: TAB	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 2/17/18 0910	Company: TAB	
Custody Seals Intact: ∆ Yes ∆ No N/A	Custody Seal No.: N/A		Cooler Temperature(s) °C and Other Remarks: 1.2			

Ver: 09/20/2016


TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
ORIGIN ID:DKKA (716) 691-2600
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD
AMHERST , NY 14228
UNITED STATES US
SHIP DATE: 16FEB18
ACTWGT: 25.80 LB
CAD: 846654/CAFE3108
DIMS: 22x14x11 IN
BILL RECIPIENT
TO SAMPLE MGT.
TA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: BURLINGTON
DEPT: SC
FedEx Express
TRK# 0201 4276 0716 3771
SATURDAY 12:00P
PRIORITY OVERNIGHT
XO BTVA
05403
VT-US BTV

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 480-131377-1

Login Number: 131377

List Source: TestAmerica Buffalo

List Number: 1

Creator: Harper, Marcus D

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	arcadis
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 480-131377-1

Login Number: 131377
List Number: 2
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington
List Creation: 02/19/18 10:06 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	N/A	Thermal preservation not required.
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX V

Attainment Evaluation Statistical Outputs

Remediation Phase Monitoring Wells

STATISTICAL EVALUATION: REMEDIATION PHASE WELLS
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND

Well ID	Area
GP-27R (GP-27A)	A
GP-30R (GP-30A)	A
GP-35A	A
GP-39R (GP-39A)	A
MP-7	A
MW-12	A
MW-15	A
MW-16	A
MW-17	A
MW-22R (MW-22)	A
MW-7	A
PTW-B	A
RW-1	A
RW-2	A
RW-3	A
RW-4	A
RW-5	A
GP-7A(35-40)	B
ISGR-1 Deep	B
ISGR-1 Shallow	B
ISGR-2 Deep	B
ISGR-2 Shallow	B
MW-24B	B
MW-61A	B
MW-26B	C
MW-58	C

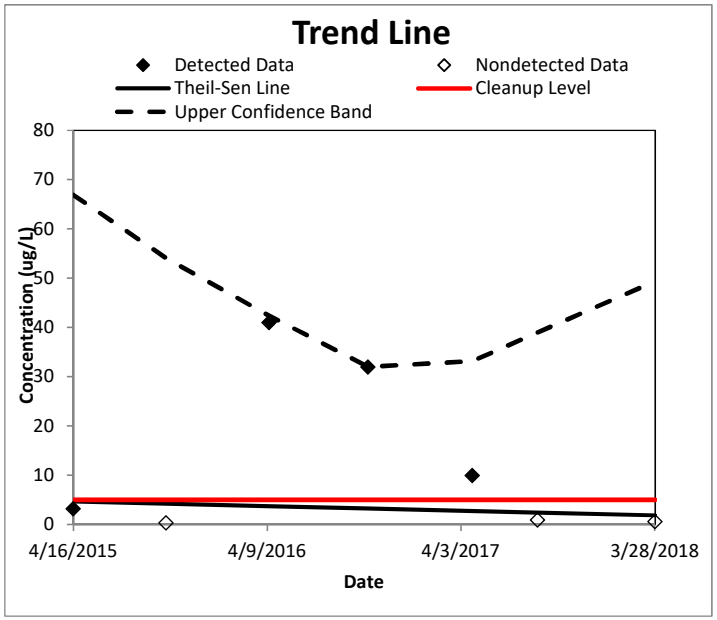
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-27R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	7
Number of detected results	4
Number of non-detected results	3
Detection frequency	57%
Number at or below cleanup level	4
Are any potential outliers present?	No
Mean of concentration	12.7
Standard deviation of concentration	15.5



95% Upper Confidence Limit (UCL)	41.3
Method for calculating UCL	KM Chebyshev UCL
Value of 95% Upper Confidence Band value at final sampling event	49.4
Trend calculation method	Theil-Sen/Mann-Kendall
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	Yes

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Data, including imputed values

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Imputed value*
42110	3.2		3.2
42282	1	U	0.33
42473	41		41
42656	32		32
42849	10		10
42970	1	U	0.95
43188	1	U	0.6

* Note that the imputed value column also includes the actual value for detected samples. This is for convenience in copying and pasting the data.

Random Seed Used	1

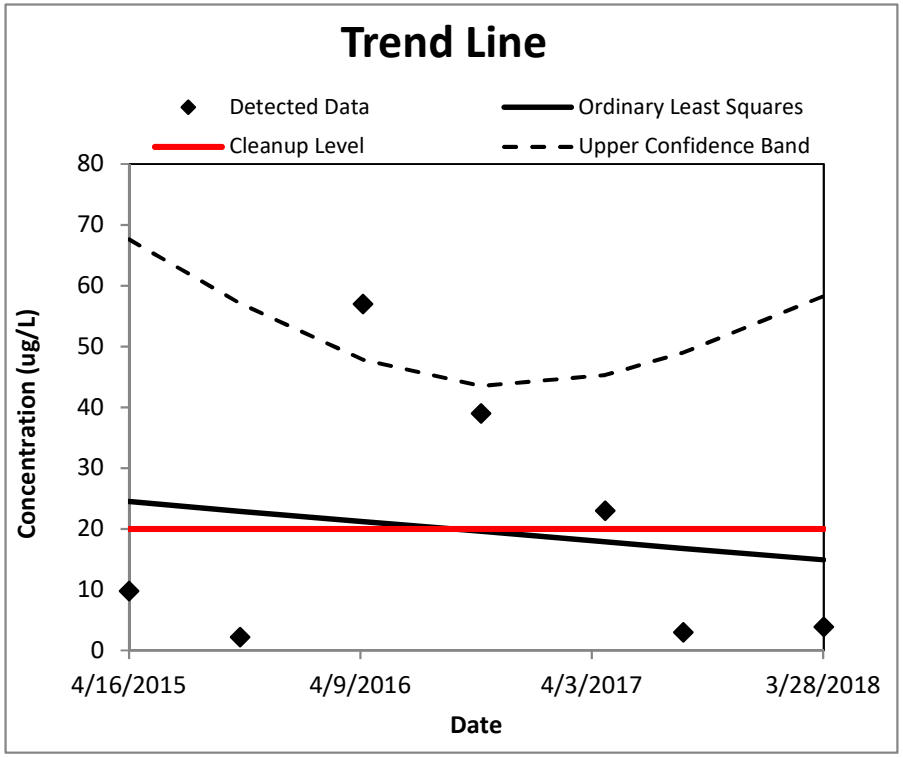
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-27R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	7
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	19.7
Standard deviation of concentration	21.2
t-value for UCL calculation	1.943



95% Upper Confidence Limit (UCL)	35.3
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	58.3
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

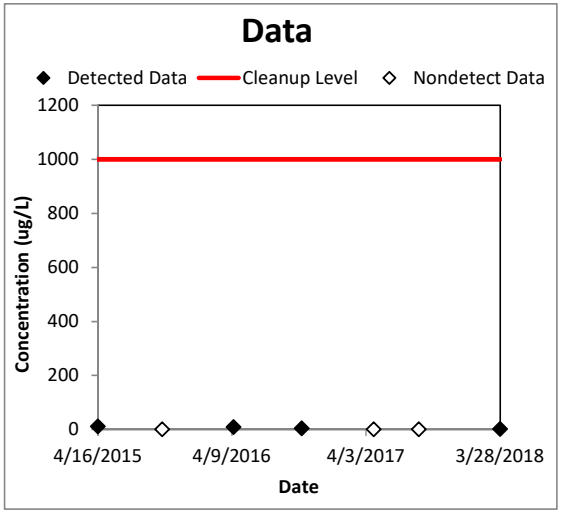
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-27R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	7
Number of detected results:	4
Number of nondetect results:	3
Detection frequency:	0.571428571

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2015	11		Yes
10/5/2015	1	U	No
4/13/2016	9.2		Yes
10/13/2016	4.4		Yes
4/24/2017	1	U	No
8/23/2017	1	U	No
3/29/2018	1.4		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

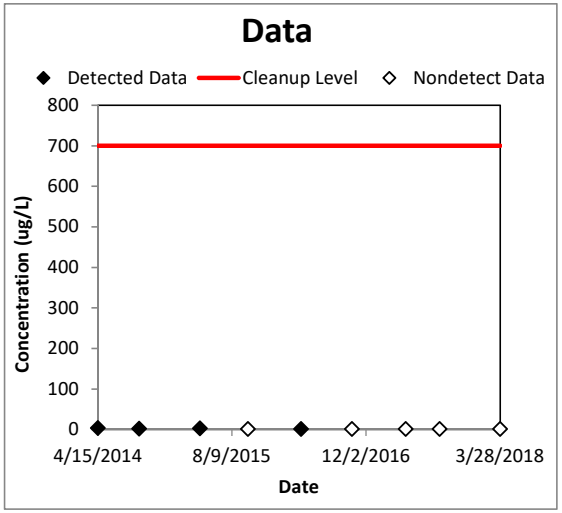
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-27R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	9
Number of detected results:	4
Number of nondetect results:	5
Detection frequency:	0.444444444

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/15/2014	3.6		Yes
9/10/2014	1.9		Yes
4/16/2015	3.1		Yes
10/5/2015	1	U	No
4/13/2016	1.2		Yes
10/13/2016	1	U	No
4/24/2017	1	U	No
8/23/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

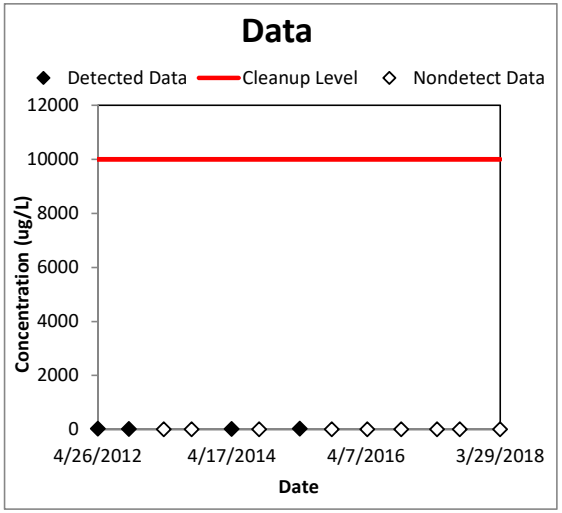
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	GP-27R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	13
Number of detected results:	4
Number of nondetect results:	9
Detection frequency:	0.307692308

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/26/2012	30		Yes
10/10/2012	24		Yes
4/15/2013	5	U	No
9/12/2013	10	U	No
4/15/2014	20		Yes
9/10/2014	10	U	No
4/16/2015	31		Yes
10/5/2015	5	U	No
4/13/2016	5	U	No
10/13/2016	5	U	No
4/24/2017	10	U	No
8/23/2017	3	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

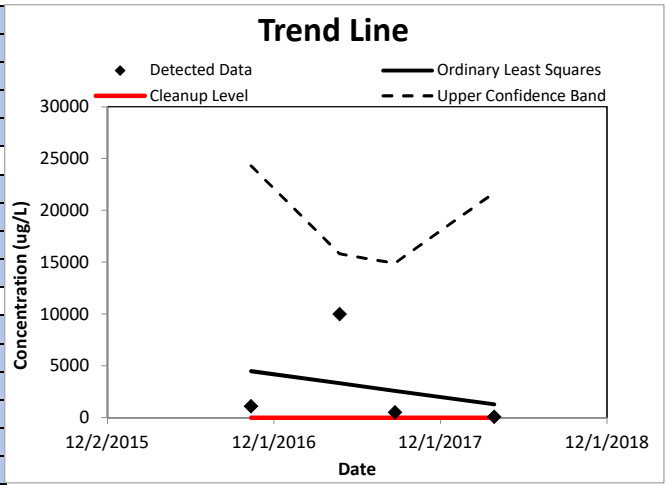
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-30R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	Yes
Mean of concentration	2930
Standard deviation of concentration	4730



95% Upper Confidence Limit (UCL)	13240	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	21700	
Trend calculation method	Ordinary Least Squares	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

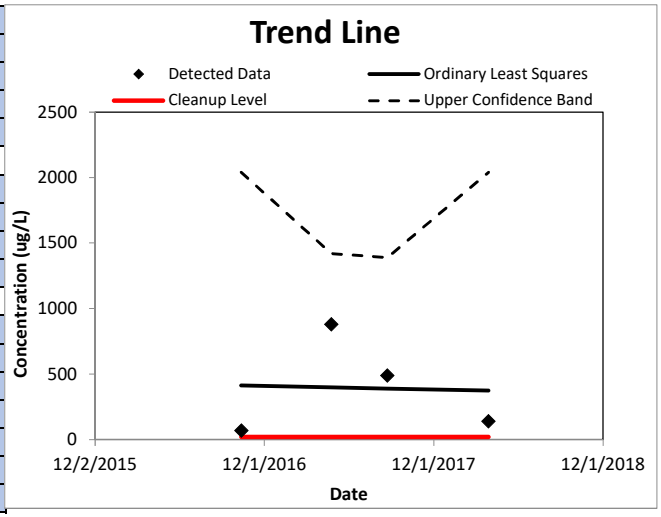
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-30R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	395
Standard deviation of concentration	372
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	833
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	2040
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

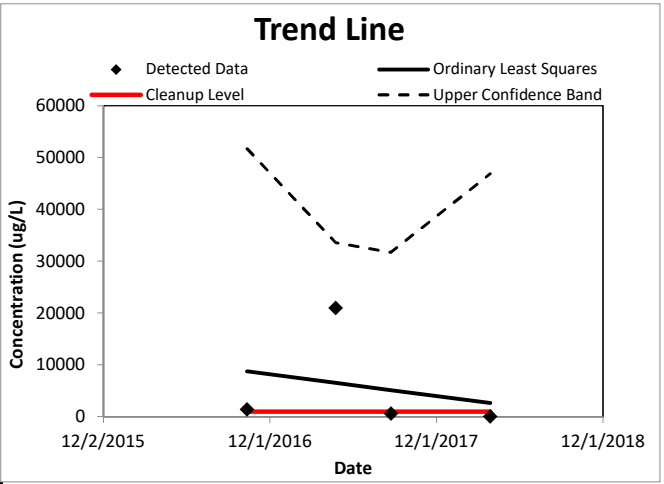
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-30R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	2
Are any potential outliers present?	Yes
Mean of concentration	5770
Standard deviation of concentration	10200



95% Upper Confidence Limit (UCL)	28000	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	46900	
Trend calculation method	Ordinary Least Squares	
Cleanup level	1000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

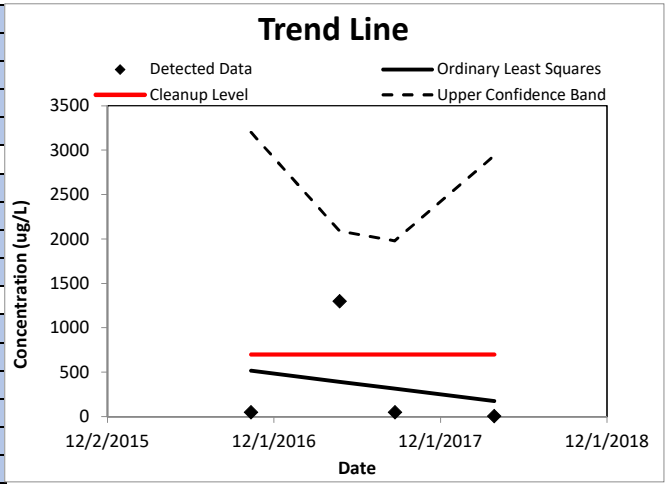
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-30R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	3
Are any potential outliers present?	Yes
Mean of concentration	352
Standard deviation of concentration	633



95% Upper Confidence Limit (UCL)	1732	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	2940	
Trend calculation method	Ordinary Least Squares	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

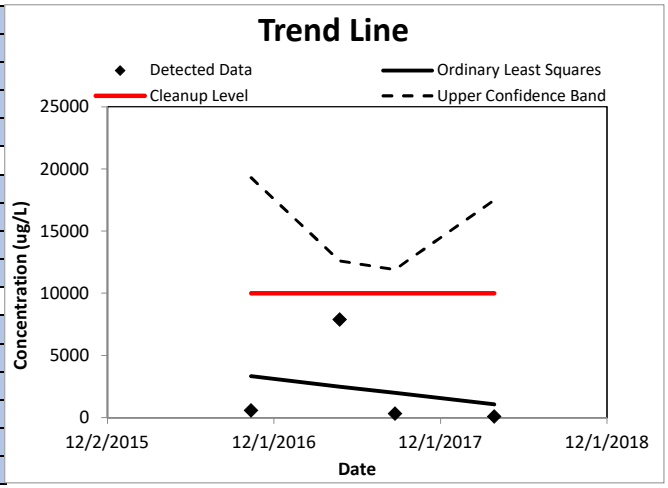
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	GP-30R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	Yes
Mean of concentration	2230
Standard deviation of concentration	3790



95% Upper Confidence Limit (UCL)	10490	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	17500	
Trend calculation method	Ordinary Least Squares	
Cleanup level	10000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

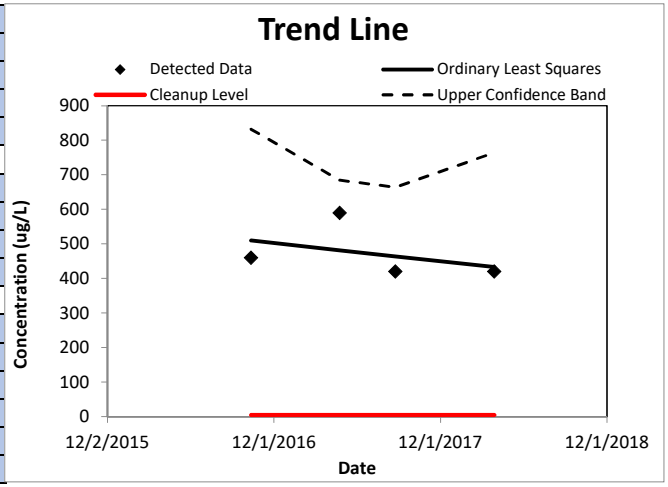
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-35A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	473
Standard deviation of concentration	80.6



95% Upper Confidence Limit (UCL)	649	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	764	
Trend calculation method	Ordinary Least Squares	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

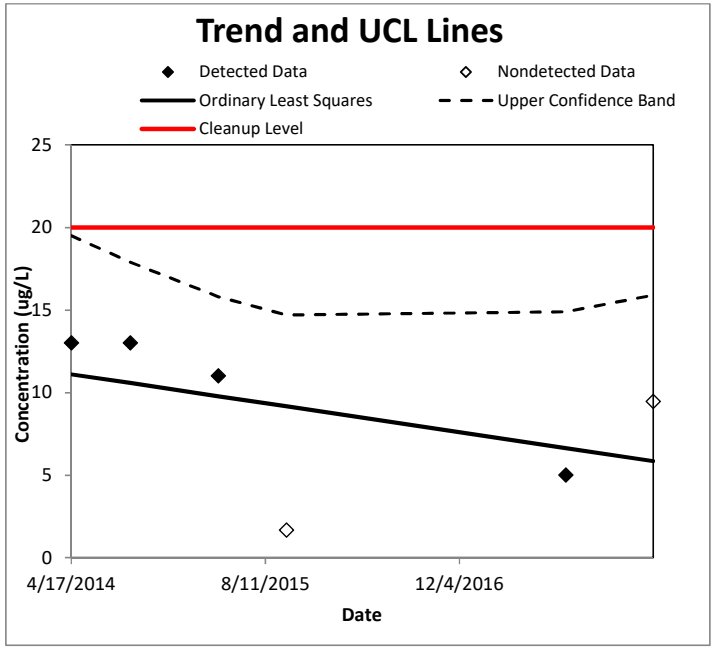
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-35A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	6
Number of detected results	4
Number of non-detected results	2
Detection frequency	67%
Number at or below cleanup level	6
Are any potential outliers present?	No
Mean of concentration	8.67
Standard deviation of concentration	3.73



95% Upper Confidence Limit (UCL)	16.3
Method for calculating UCL	KM Chebyshev UCL
Value of 95% Upper Confidence Band value at final sampling event	15.9
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

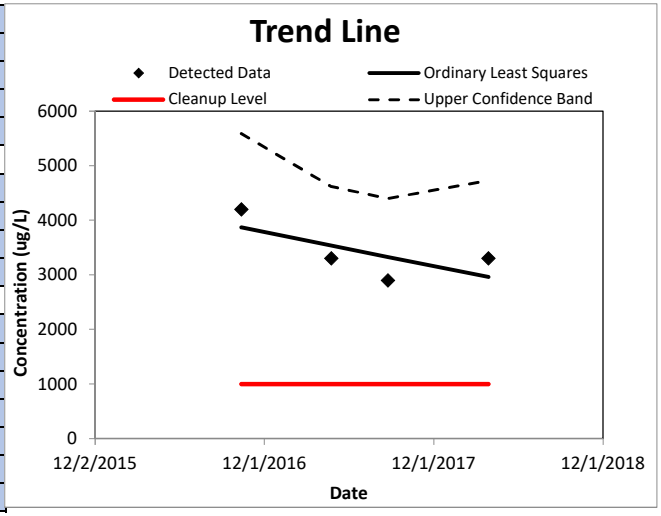
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-35A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	3430
Standard deviation of concentration	550
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	4080
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	4730
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

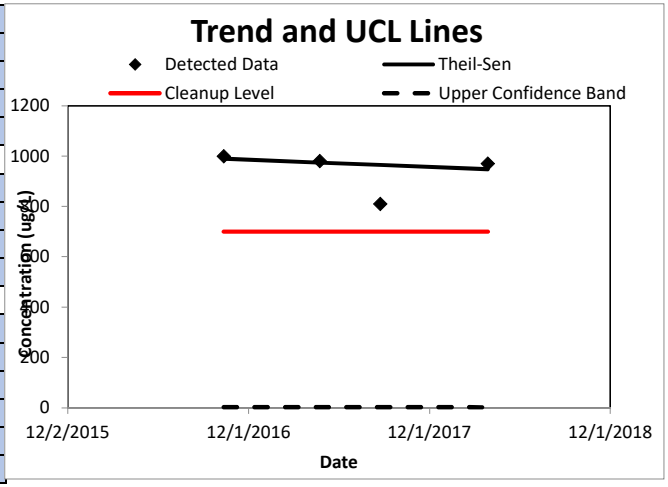
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-35A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	940
Standard deviation of concentration	87.6



95% Upper Confidence Limit (UCL)	1131	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	2.12	
Trend calculation method	Theil-Sen/Mann-Kendall	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

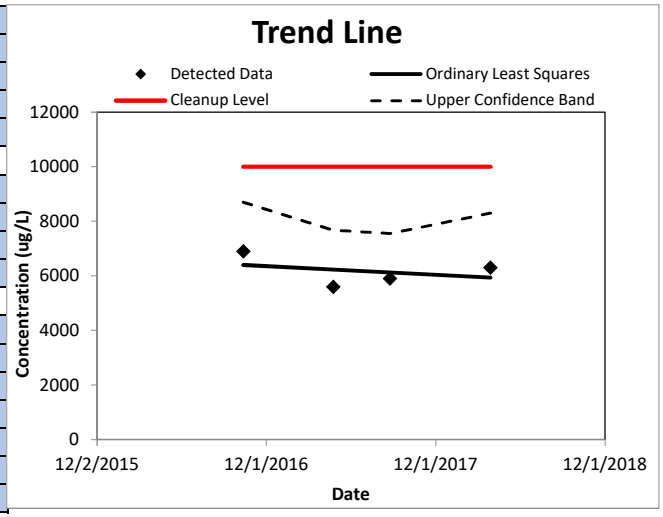
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	GP-35A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	6180
Standard deviation of concentration	562
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	6840
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	8300
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

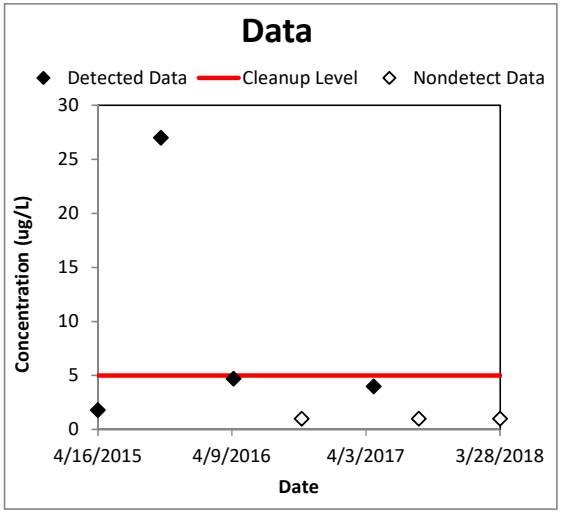
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-39R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	7
Number of detected results:	4
Number of nondetect results:	3
Detection frequency:	0.571428571

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2015	1.8		Yes
10/2/2015	27		Yes
4/13/2016	4.7		Yes
10/13/2016	1	U	No
4/24/2017	4		Yes
8/23/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

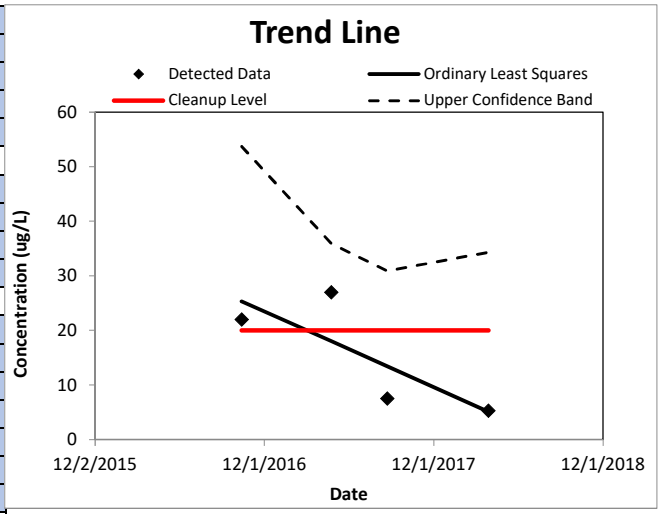
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-39R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	2
Are any potential outliers present?	No
Mean of concentration	15.5
Standard deviation of concentration	10.7
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	28.1
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	34.3
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

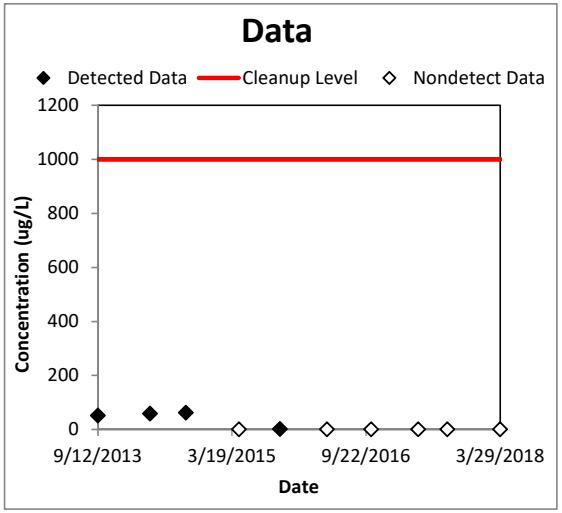
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-39R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	10
Number of detected results:	4
Number of nondetect results:	6
Detection frequency:	0.4

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/12/2013	52		Yes
4/15/2014	59		Yes
9/10/2014	62		Yes
4/16/2015	1	U	No
10/2/2015	1.4		Yes
4/13/2016	1	U	No
10/13/2016	1	U	No
4/24/2017	1	U	No
8/23/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

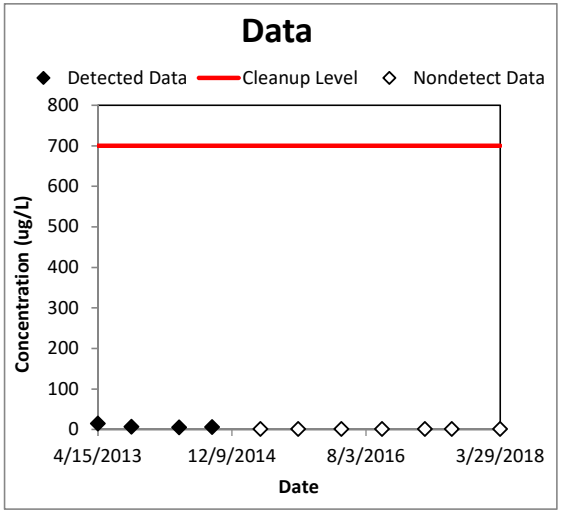
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-39R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	11
Number of detected results:	4
Number of nondetect results:	7
Detection frequency:	0.363636364

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/15/2013	15		Yes
9/12/2013	6.6		Yes
4/15/2014	4.9		Yes
9/10/2014	5.9		Yes
4/16/2015	1	U	No
10/2/2015	1	U	No
4/13/2016	1	U	No
10/13/2016	1	U	No
4/24/2017	1	U	No
8/23/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

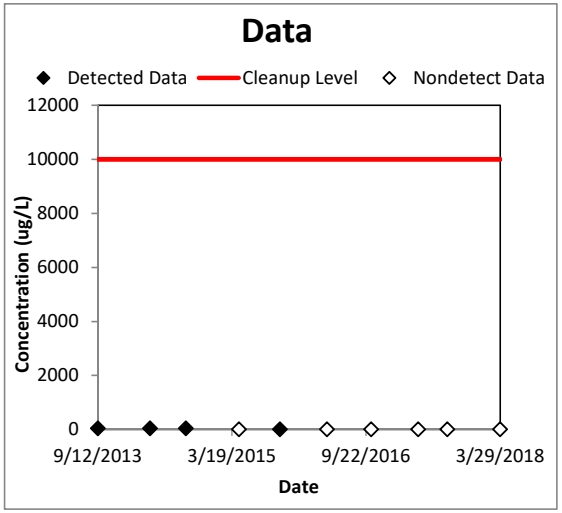
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	GP-39R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	10
Number of detected results:	4
Number of nondetect results:	6
Detection frequency:	0.4

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/12/2013	45		Yes
4/15/2014	37		Yes
9/10/2014	48		Yes
4/16/2015	5	U	No
10/2/2015	5.7		Yes
4/13/2016	5	U	No
10/13/2016	5	U	No
4/24/2017	10	U	No
8/23/2017	3	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

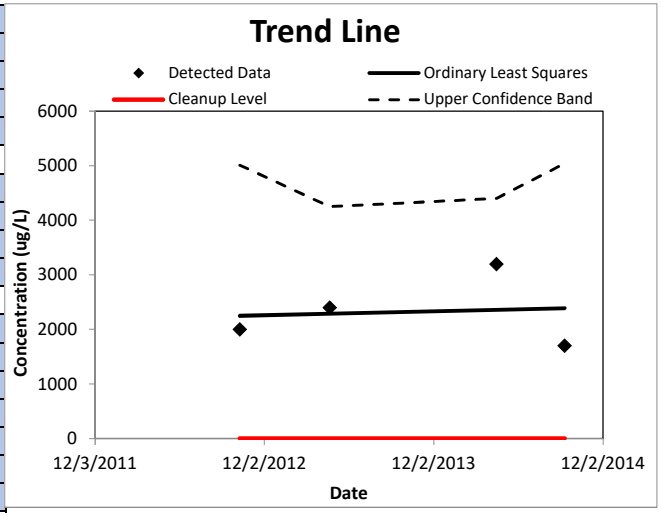
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MP-7
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	2330
Standard deviation of concentration	650
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	3090
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	5040
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

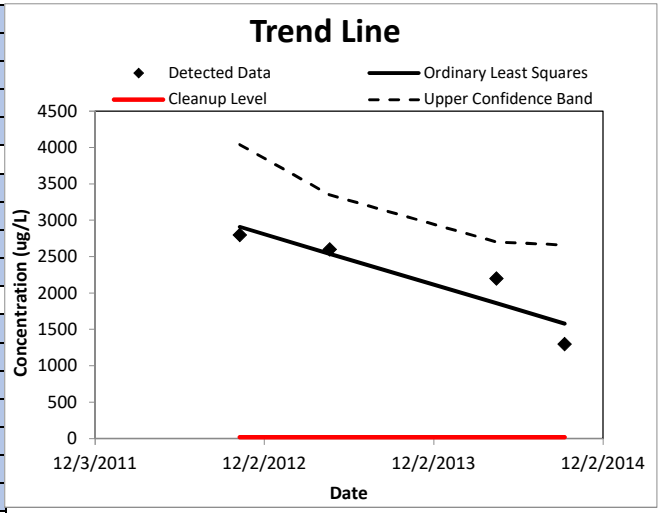
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MP-7
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	2230
Standard deviation of concentration	665
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	3010
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	2660
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

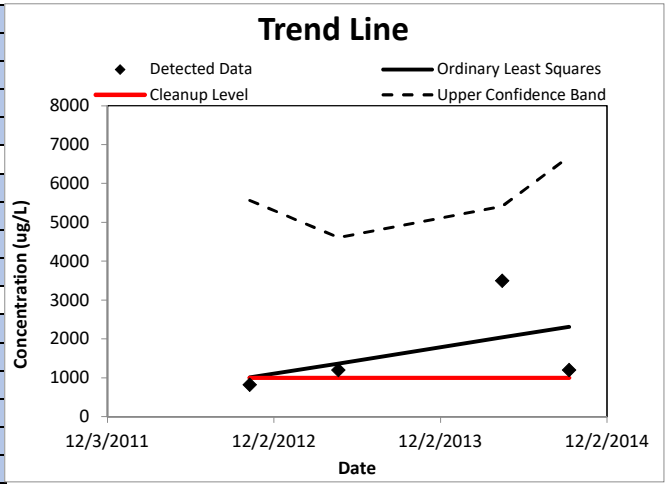
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MP-7
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	1
Are any potential outliers present?	No
Mean of concentration	1680
Standard deviation of concentration	1230



95% Upper Confidence Limit (UCL)	4360	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	6690	
Trend calculation method	Ordinary Least Squares	
Cleanup level	1000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

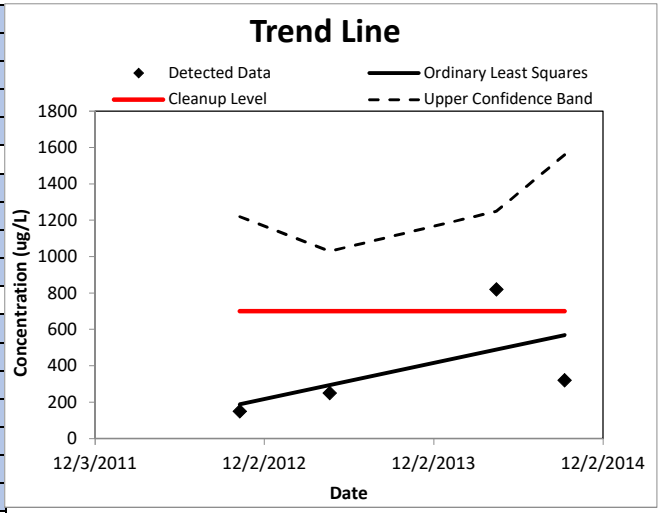
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MP-7
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	3
Are any potential outliers present?	No
Mean of concentration	385
Standard deviation of concentration	298
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	736
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	1560
Trend calculation method	Ordinary Least Squares
Cleanup level	700
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

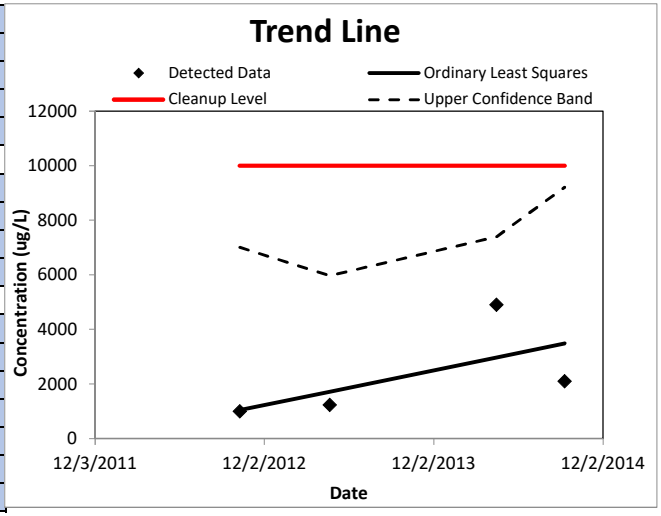
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MP-7
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	2310
Standard deviation of concentration	1790
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	4420
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	9210
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

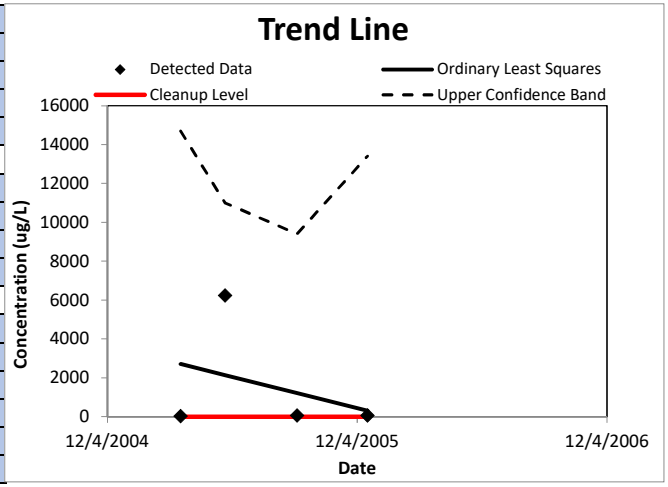
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-12
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	Yes
Mean of concentration	1600
Standard deviation of concentration	3100



95% Upper Confidence Limit (UCL)	8360	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	13400	
Trend calculation method	Ordinary Least Squares	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

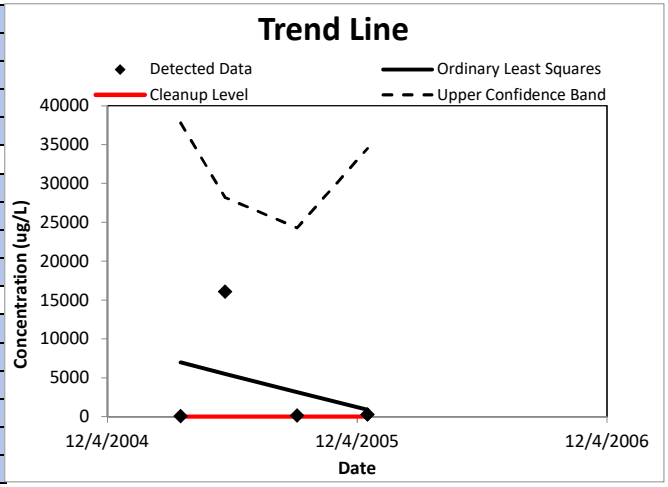
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-12
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	Yes
Mean of concentration	4150
Standard deviation of concentration	7970



95% Upper Confidence Limit (UCL)	21520	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	34500	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

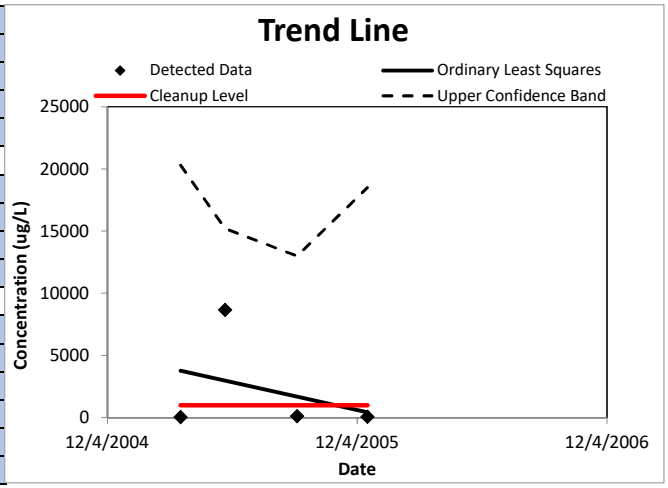
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-12
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	3
Are any potential outliers present?	Yes
Mean of concentration	2220
Standard deviation of concentration	4290



95% Upper Confidence Limit (UCL)	11570	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	18500	
Trend calculation method	Ordinary Least Squares	
Cleanup level	1000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

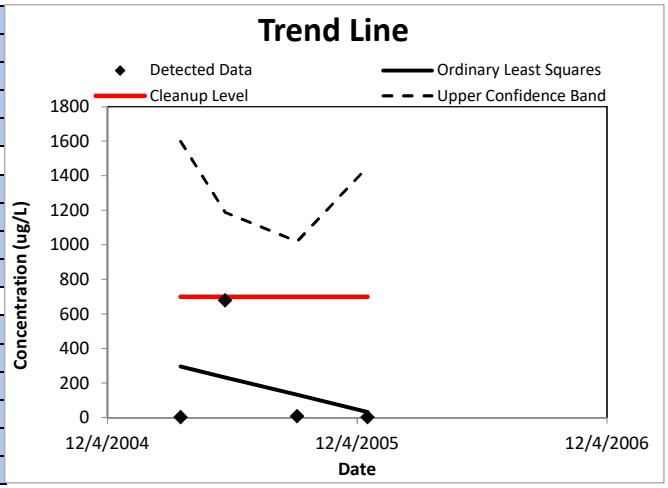
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-12
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	Yes
Mean of concentration	174
Standard deviation of concentration	337



95% Upper Confidence Limit (UCL)	908	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1450	
Trend calculation method	Ordinary Least Squares	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

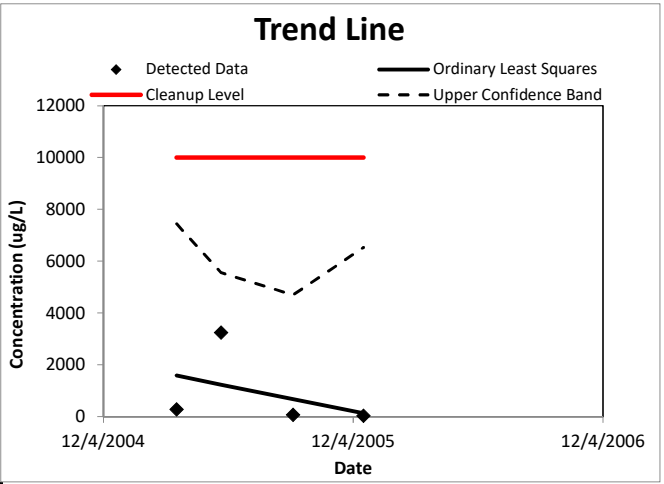
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-12
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	Yes
Mean of concentration	912
Standard deviation of concentration	1560



95% Upper Confidence Limit (UCL)	4312	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	6530	
Trend calculation method	Ordinary Least Squares	
Cleanup level	10000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

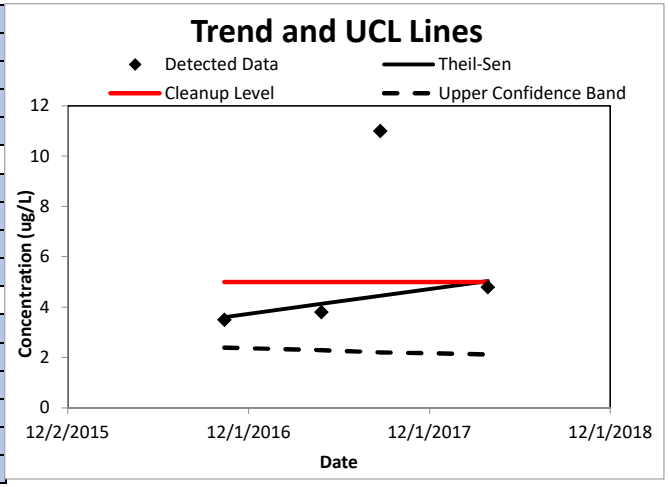
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-15
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	3
Are any potential outliers present?	No
Mean of concentration	5.78
Standard deviation of concentration	3.53



95% Upper Confidence Limit (UCL)	13.5	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	2.12	
Trend calculation method	Theil-Sen/Mann-Kendall	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

Groundwater Statistics Tool

Data input worksheet

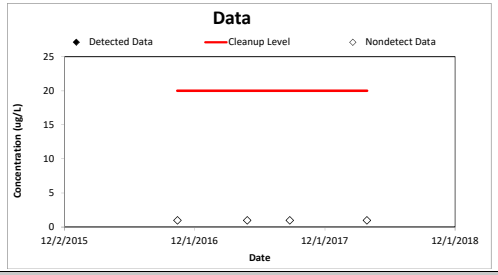
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-15
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/13/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data since 2006 is non-detect.

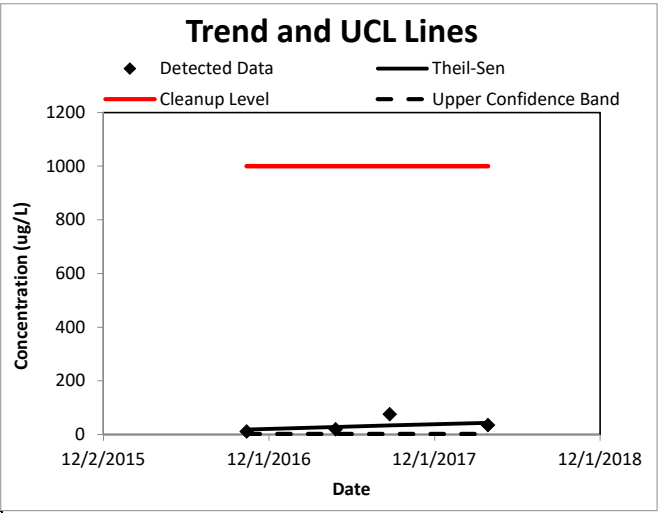
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-15
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	36
Standard deviation of concentration	28.5
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	69.5
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	2.12
Trend calculation method	Theil-Sen/Mann-Kendall
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

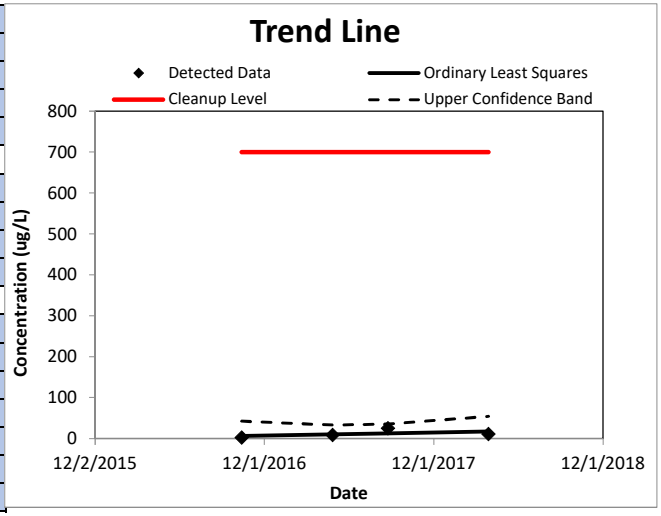
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-15
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	11.9
Standard deviation of concentration	9.42
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	23
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	54.3
Trend calculation method	Ordinary Least Squares
Cleanup level	700
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

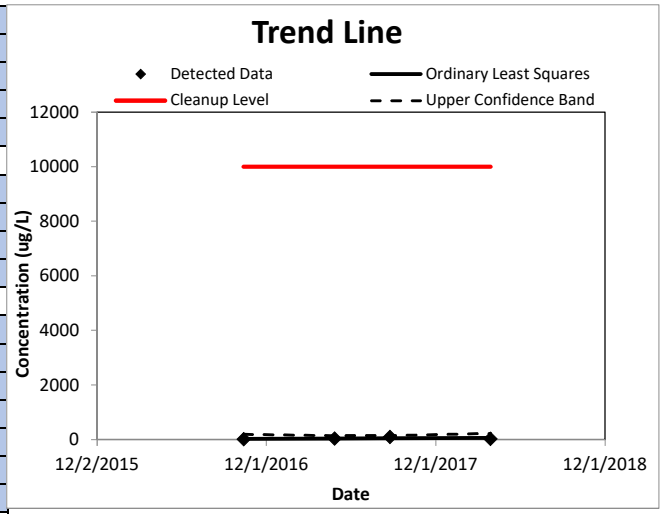
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-15
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	43
Standard deviation of concentration	39.1
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	89
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	225
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

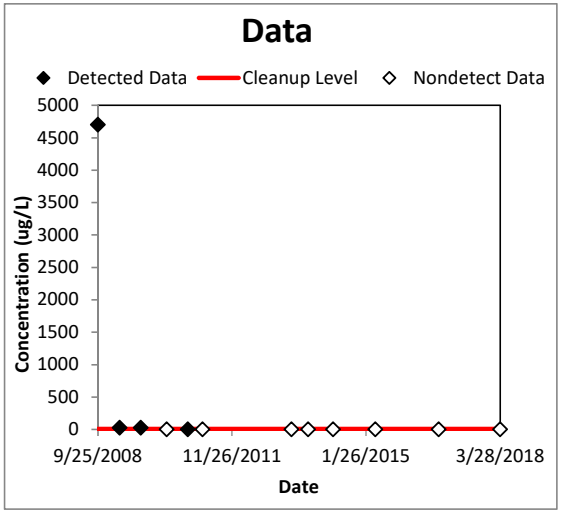
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-16
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	12
Number of detected results:	4
Number of nondetect results:	8
Detection frequency:	0.333333333

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/25/2008	4700		Yes
3/30/2009	27		Yes
9/28/2009	27		Yes
5/10/2010	1	U	No
11/10/2010	5.1		Yes
3/17/2011	1.7	U	No
4/22/2013	1	U	No
9/12/2013	1	U	No
4/16/2014	1	U	No
4/16/2015	1	U	No
10/13/2016	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

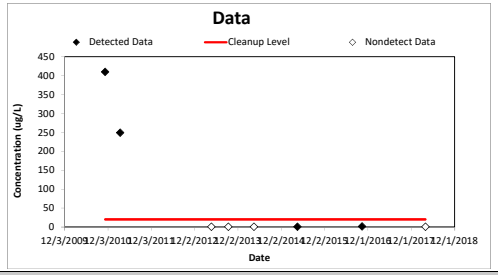
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	9-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-16
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	4
Number of nondetect results:	4
Detection frequency:	0.5

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	410		Yes
3/17/2011	250		Yes
4/22/2013	1	U	No
9/12/2013	1	U	No
4/16/2014	1	U	No
4/16/2015	1.3		Yes
10/13/2016	1.5		Yes
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

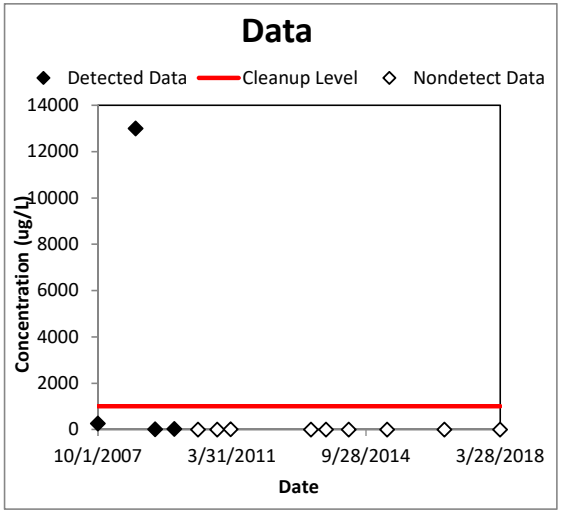
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-16
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	13
Number of detected results:	4
Number of nondetect results:	9
Detection frequency:	0.307692308

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/1/2007	250		Yes
9/25/2008	13000		Yes
3/30/2009	6.4		Yes
9/28/2009	20		Yes
5/10/2010	1	U	No
11/10/2010	1	U	No
3/17/2011	3.5	U	No
4/22/2013	1	U	No
9/12/2013	1	U	No
4/16/2014	1	U	No
4/16/2015	1	U	No
10/13/2016	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

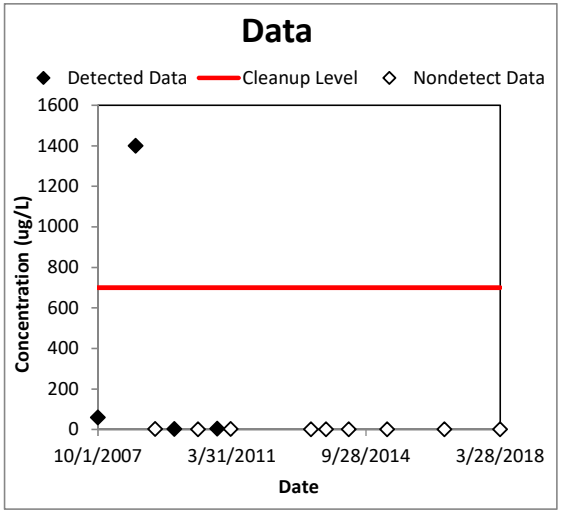
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-16
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	13
Number of detected results:	4
Number of nondetect results:	9
Detection frequency:	0.307692308

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/1/2007	59		Yes
9/25/2008	1400		Yes
3/30/2009	2	U	No
9/28/2009	2.9		Yes
5/10/2010	1	U	No
11/10/2010	3.6		Yes
3/17/2011	2.5	U	No
4/22/2013	1	U	No
9/12/2013	1	U	No
4/16/2014	1	U	No
4/16/2015	1	U	No
10/13/2016	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

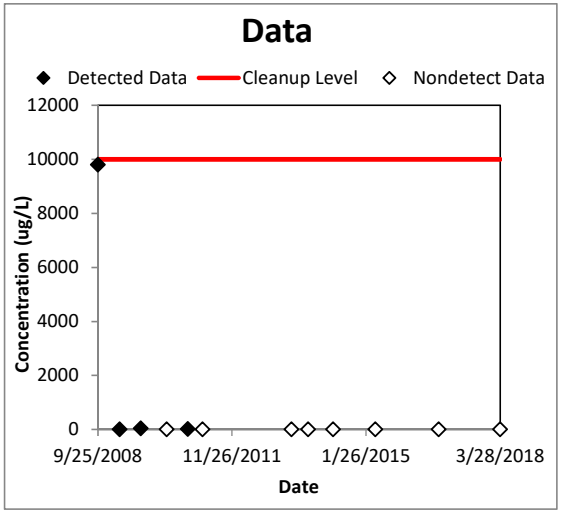
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-16
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	12
Number of detected results:	4
Number of nondetect results:	8
Detection frequency:	0.333333333

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/25/2008	9800		Yes
3/30/2009	4.3		Yes
9/28/2009	38		Yes
5/10/2010	5	U	No
11/10/2010	15		Yes
3/17/2011	8	U	No
4/22/2013	5	U	No
9/12/2013	10	U	No
4/16/2014	5	U	No
4/16/2015	5	U	No
10/13/2016	5	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

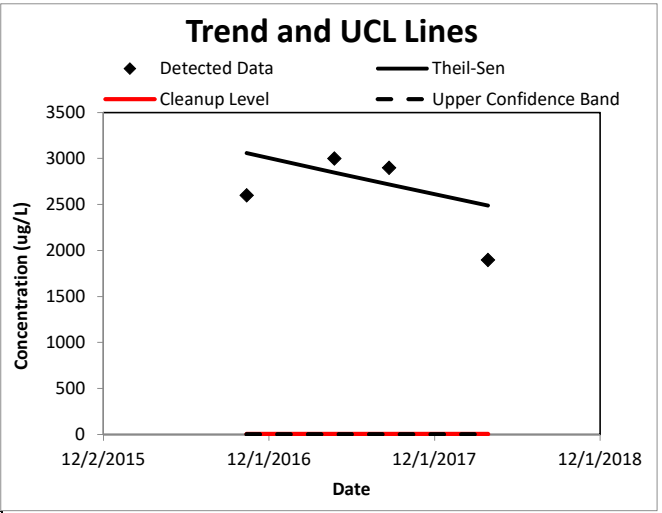
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-17
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	2600
Standard deviation of concentration	497
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	3180
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	2.12
Trend calculation method	Theil-Sen/Mann-Kendall
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

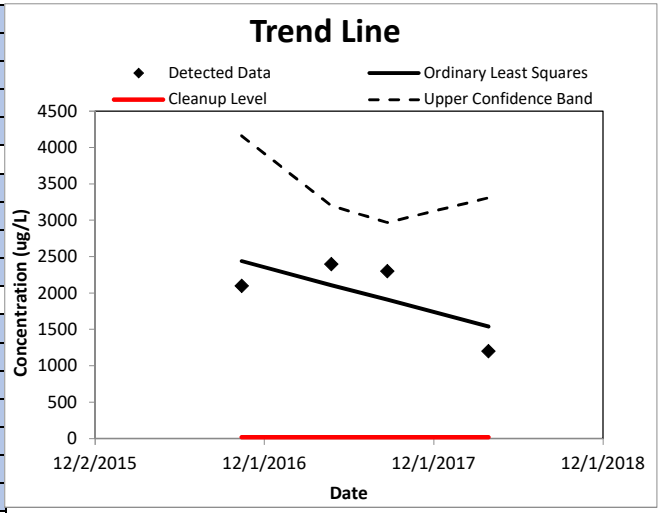
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-17
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	2000
Standard deviation of concentration	548
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	2640
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	3310
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

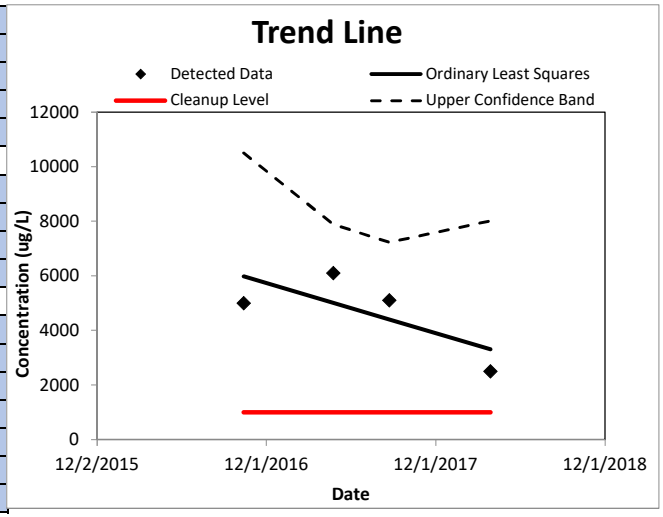
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-17
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	4680
Standard deviation of concentration	1530
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	6480
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	8010
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

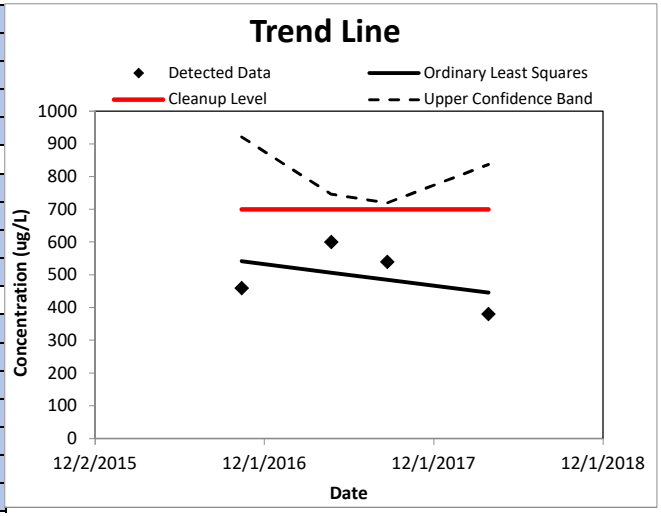
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-17
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	495
Standard deviation of concentration	95.7
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	608
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	837
Trend calculation method	Ordinary Least Squares
Cleanup level	700
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

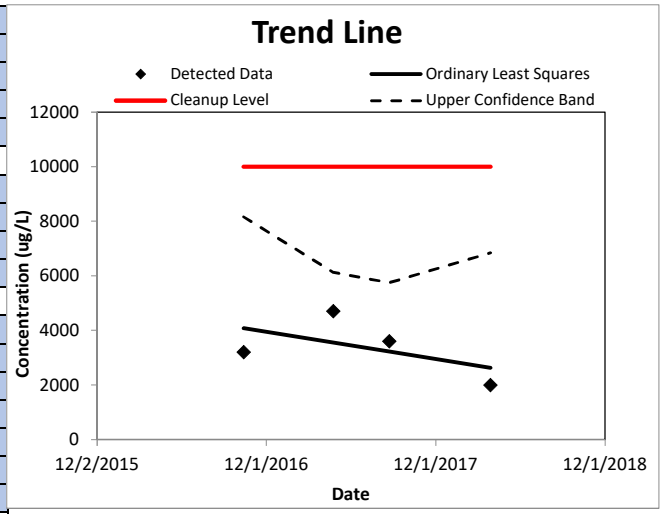
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-17
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	3380
Standard deviation of concentration	1110
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	4690
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	6840
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

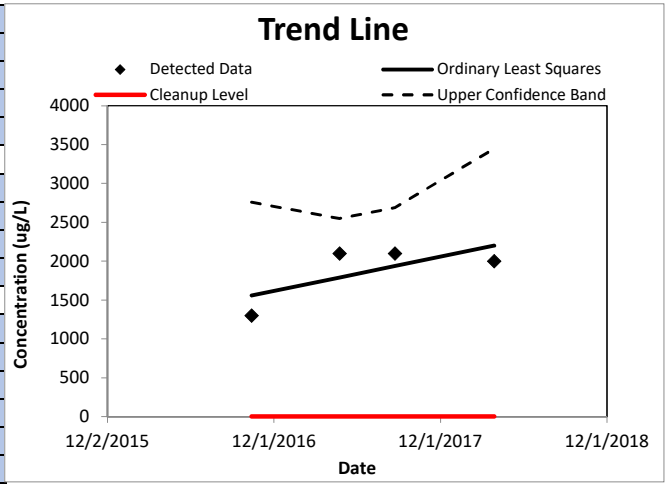
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-22R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	1880
Standard deviation of concentration	386



95% Upper Confidence Limit (UCL)	2720	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	3450	
Trend calculation method	Ordinary Least Squares	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

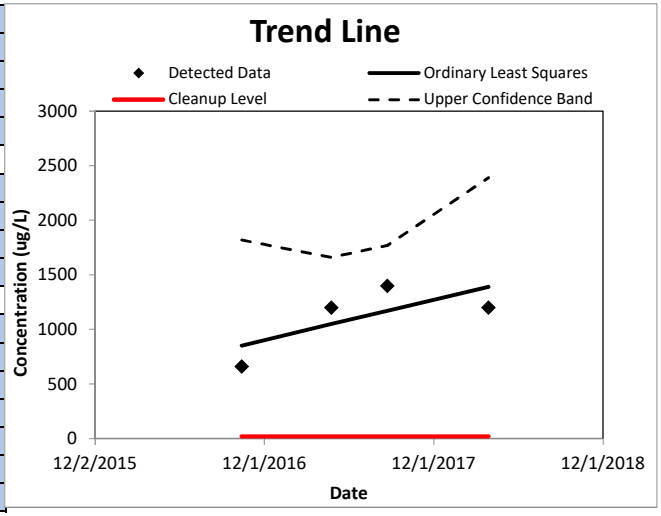
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-22R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	1120
Standard deviation of concentration	318
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	1490
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	2390
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

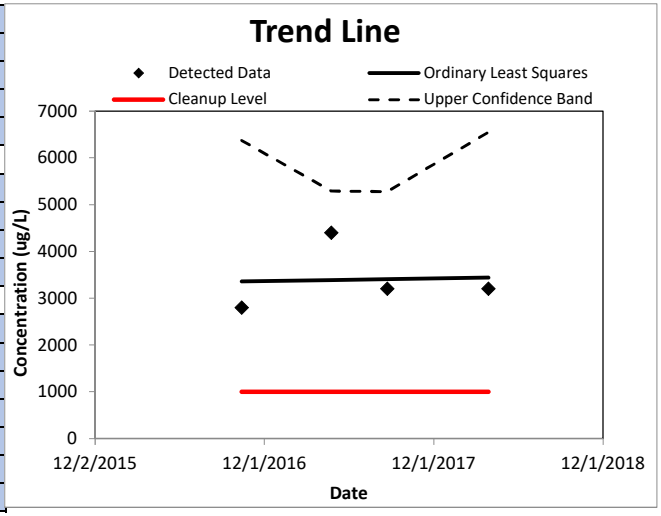
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-22R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	3400
Standard deviation of concentration	693
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	4220
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	6550
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

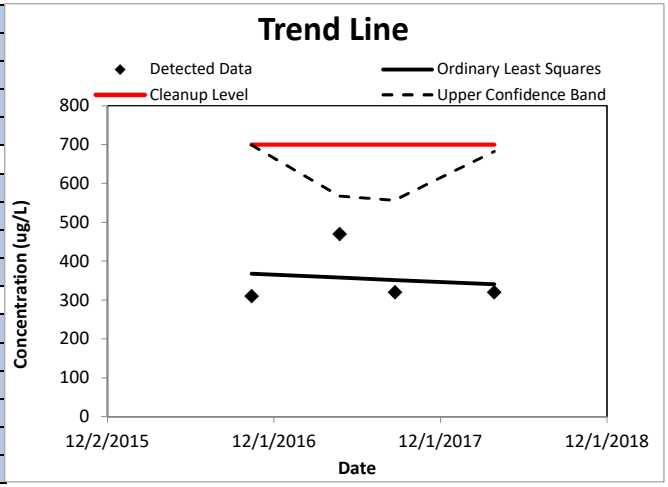
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-22R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	Yes
Mean of concentration	355
Standard deviation of concentration	76.8



95% Upper Confidence Limit (UCL)	522	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	683	
Trend calculation method	Ordinary Least Squares	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

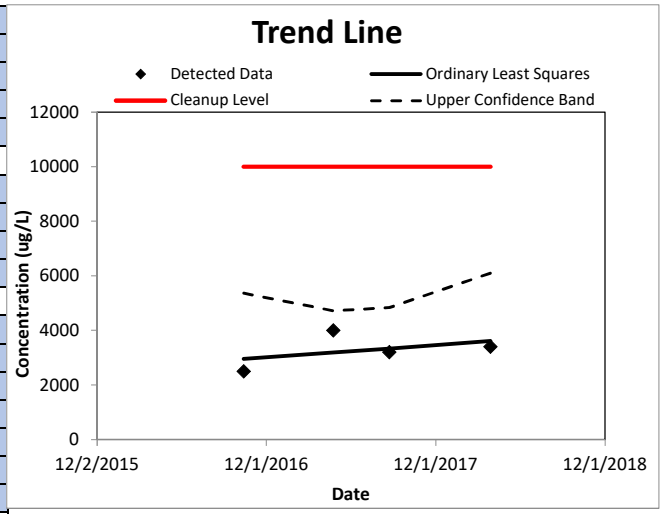
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-22R
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	3280
Standard deviation of concentration	618
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	4010
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	6100
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

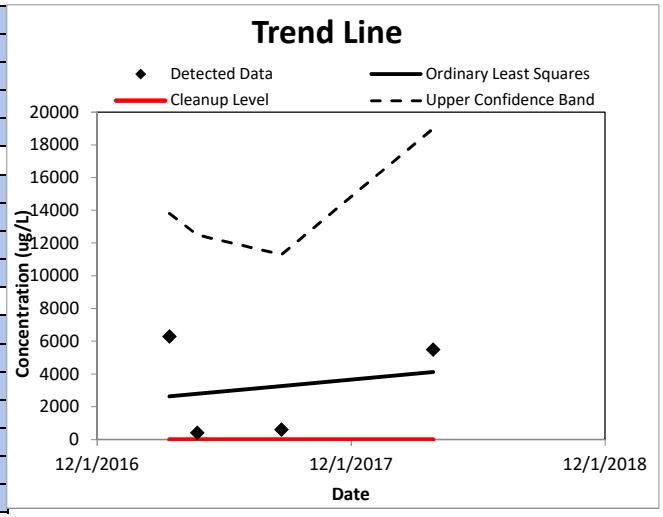
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-7
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	3210
Standard deviation of concentration	3130
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	6890
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	19000
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

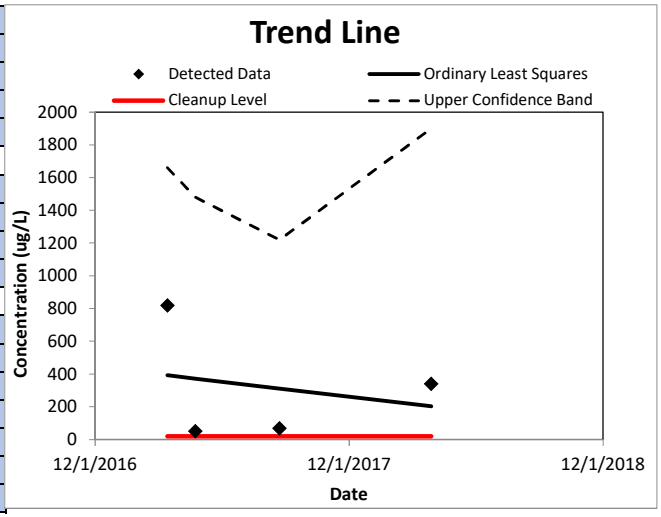
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-7
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	320
Standard deviation of concentration	358
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	741
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	1900
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

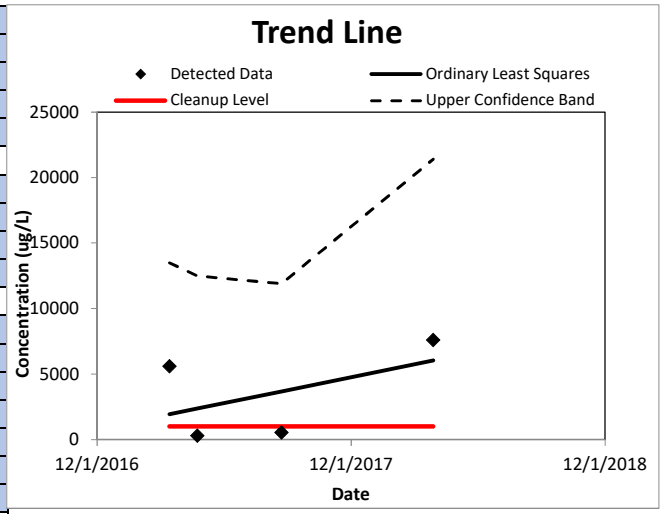
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-7
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	2
Are any potential outliers present?	No
Mean of concentration	3510
Standard deviation of concentration	3660
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	7820
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	21400
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

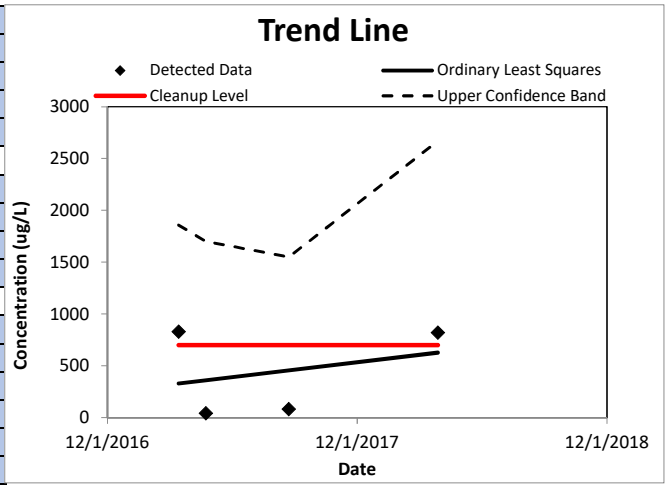
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-7
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	2
Are any potential outliers present?	No
Mean of concentration	444
Standard deviation of concentration	440



95% Upper Confidence Limit (UCL)	1403	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	2670	
Trend calculation method	Ordinary Least Squares	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

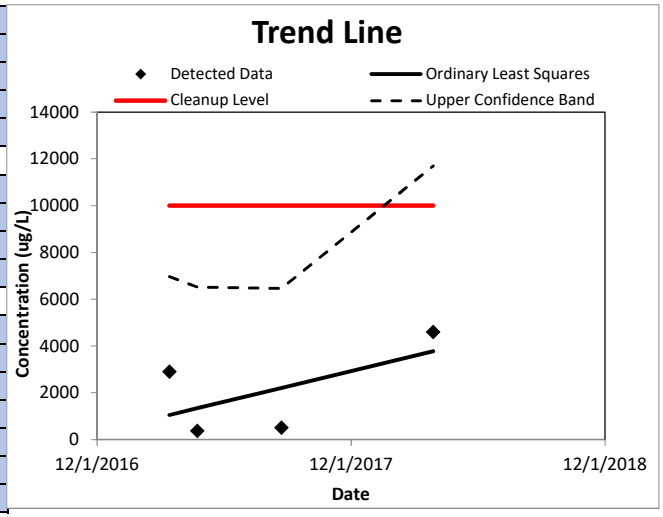
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-7
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	2100
Standard deviation of concentration	2030
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	4490
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	11700
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

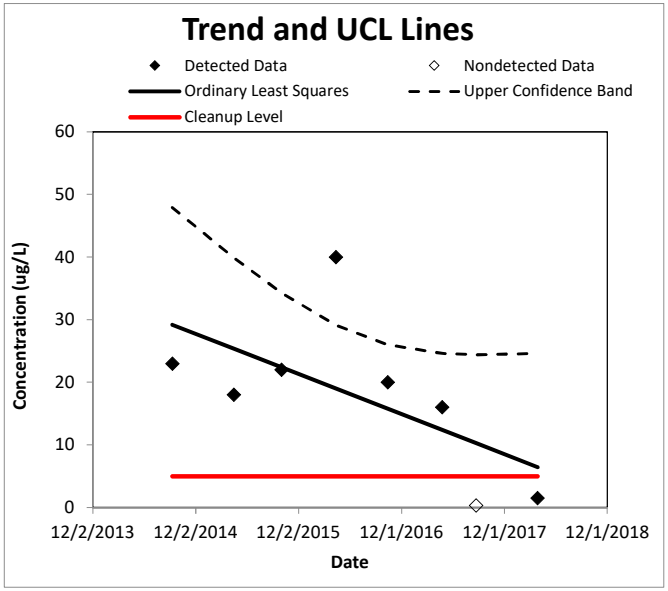
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/9/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	PTW-B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	2
Are any potential outliers present?	No
Mean of concentration	17.7
Standard deviation of concentration	11.7



95% Upper Confidence Limit (UCL)	36.9	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	24.6	
Trend calculation method	Ordinary Least Squares	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

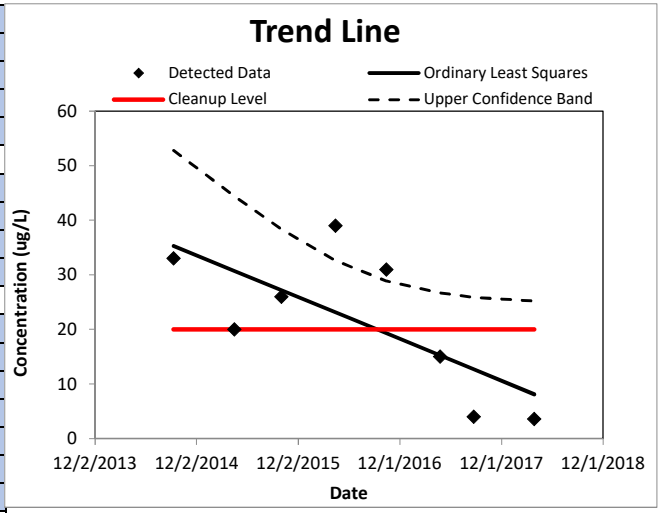
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/9/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	PTW-B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	3
Are any potential outliers present?	No
Mean of concentration	21.5
Standard deviation of concentration	13.2
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	30.3
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	25.2
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

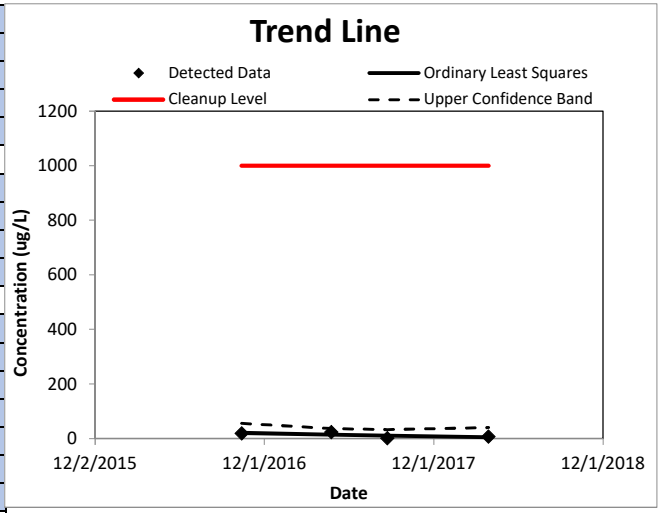
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	PTW-B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	12.8
Standard deviation of concentration	10.5
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	25.2
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	40.8
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

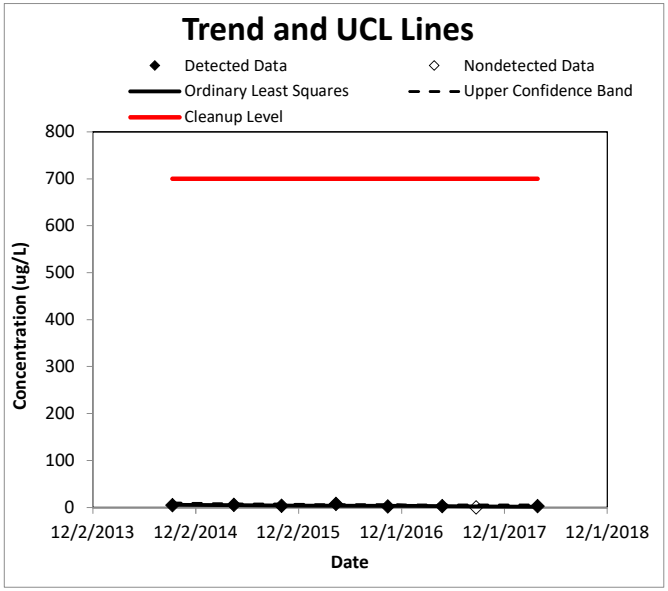
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/9/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	PTW-B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	3.94
Standard deviation of concentration	2.03



95% Upper Confidence Limit (UCL)	7.29	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	5.48	
Trend calculation method	Ordinary Least Squares	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

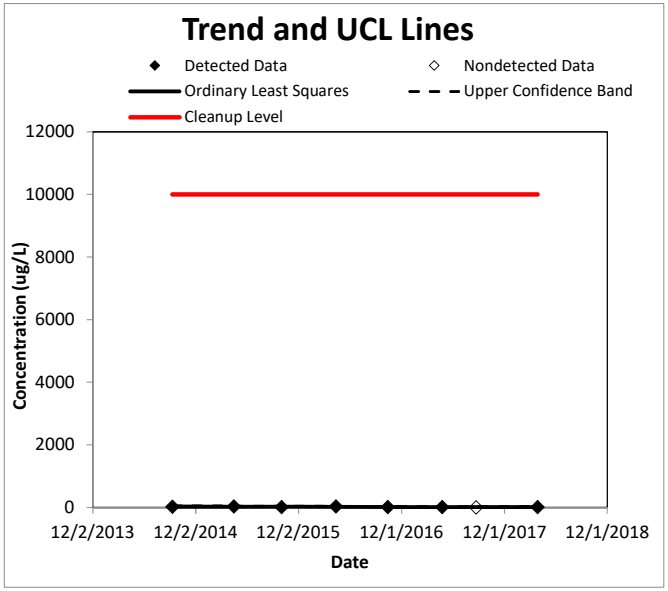
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/9/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	PTW-B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	20.9
Standard deviation of concentration	11.3



95% Upper Confidence Limit (UCL)	39.4	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	28.8	
Trend calculation method	Ordinary Least Squares	
Cleanup level	10000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

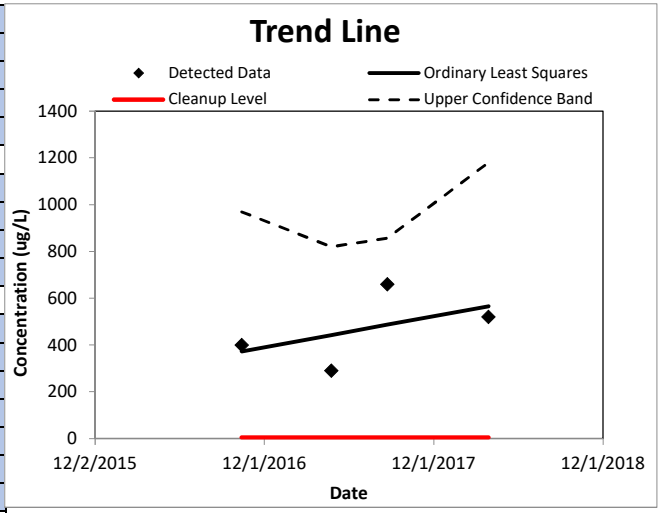
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	RW-1
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	468
Standard deviation of concentration	159
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	655
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	1180
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

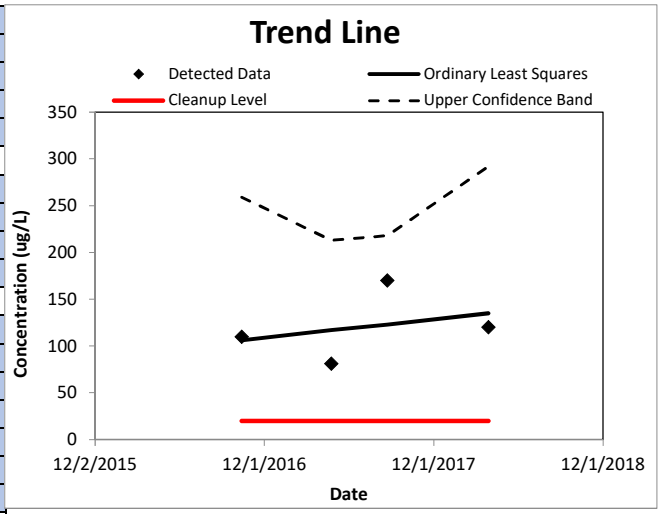
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	RW-1
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	120
Standard deviation of concentration	37.1
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	164
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	292
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

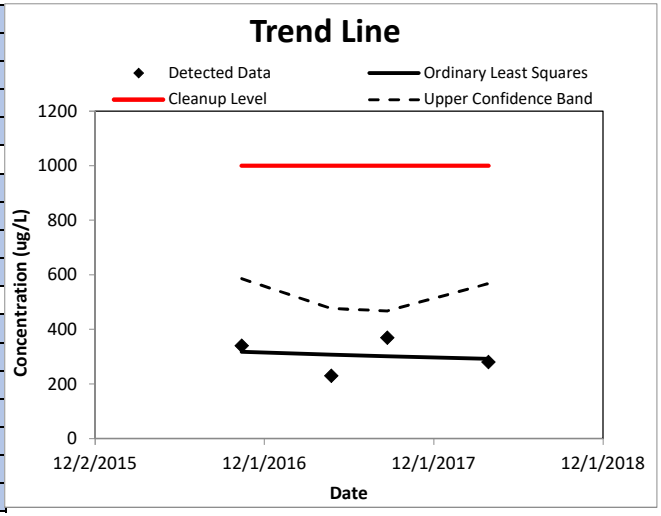
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	RW-1
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	305
Standard deviation of concentration	62.4
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	378
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	568
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

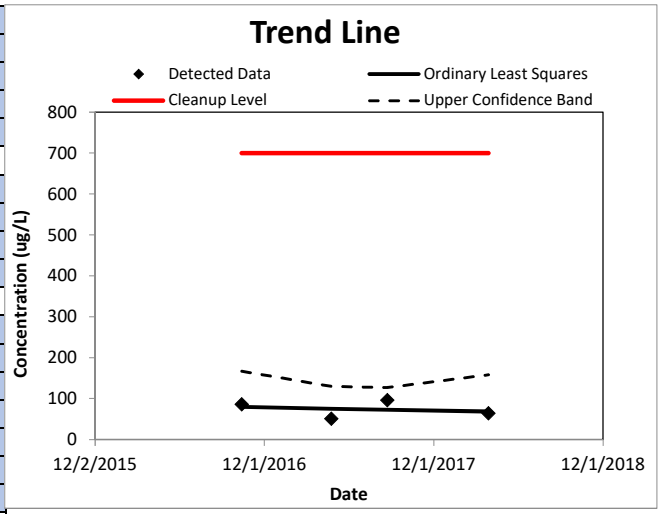
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	RW-1
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	74.3
Standard deviation of concentration	20.5
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	98.4
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	158
Trend calculation method	Ordinary Least Squares
Cleanup level	700
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

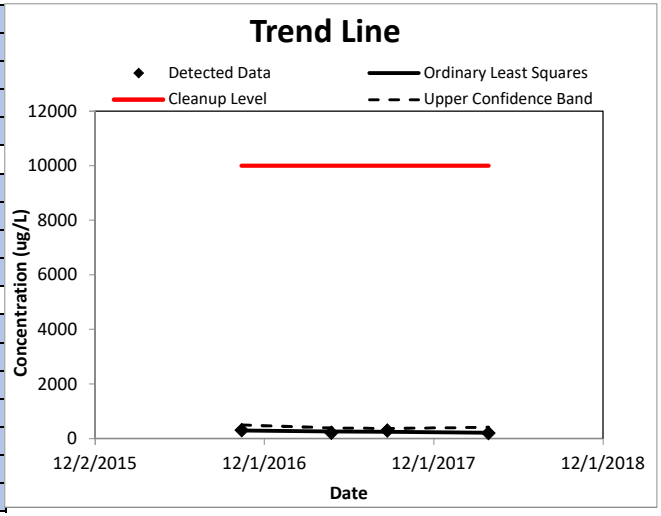
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	RW-1
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	255
Standard deviation of concentration	58
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	323
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	417
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

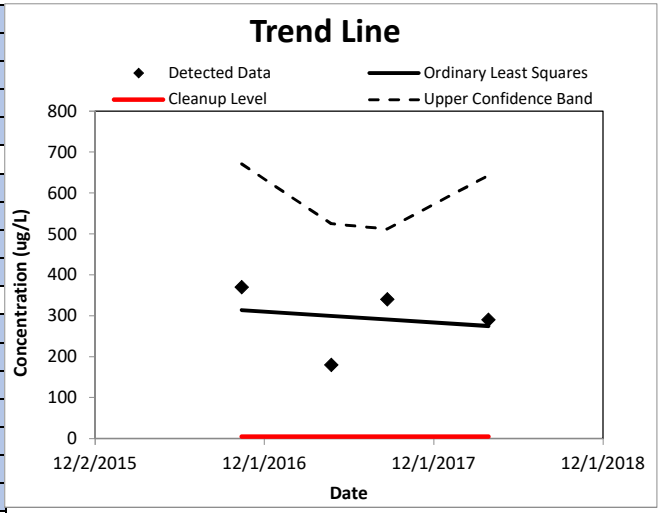
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	RW-2
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	295
Standard deviation of concentration	83.5
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	393
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	643
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

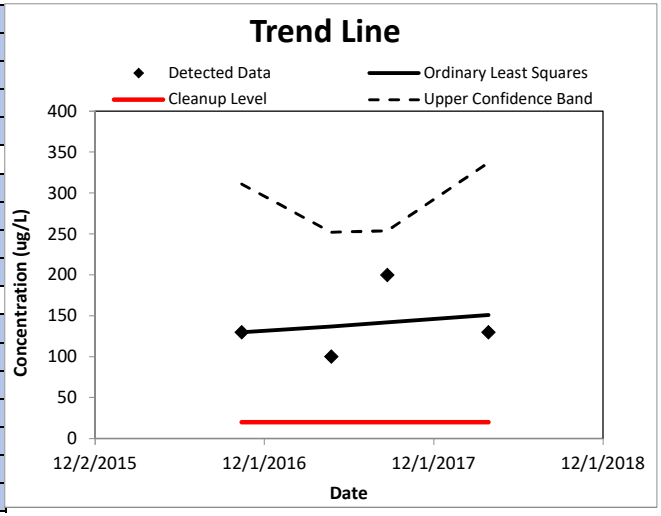
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	RW-2
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	140
Standard deviation of concentration	42.4
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	190
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	337
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

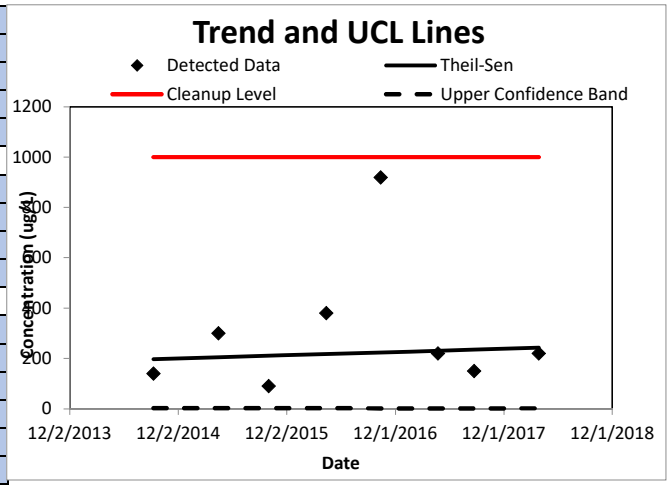
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/9/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	RW-2
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	Yes
Mean of concentration	303
Standard deviation of concentration	266



95% Upper Confidence Limit (UCL)	713	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1.91	
Trend calculation method	Theil-Sen/Mann-Kendall	
Cleanup level	1000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

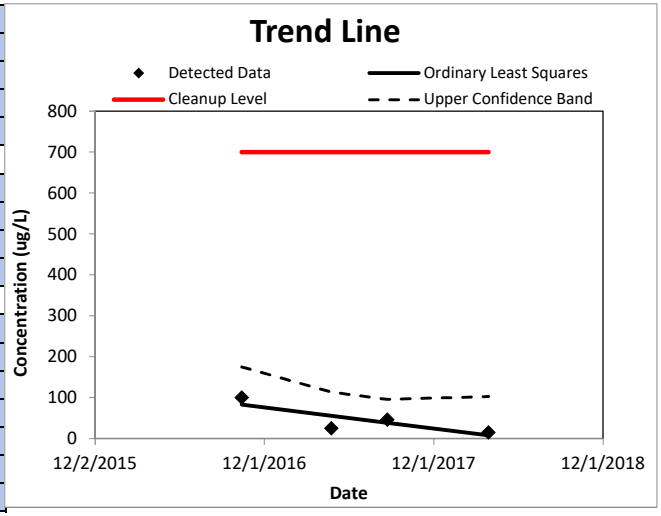
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	RW-2
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	46.5
Standard deviation of concentration	37.9
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	91.1
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	103
Trend calculation method	Ordinary Least Squares
Cleanup level	700
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

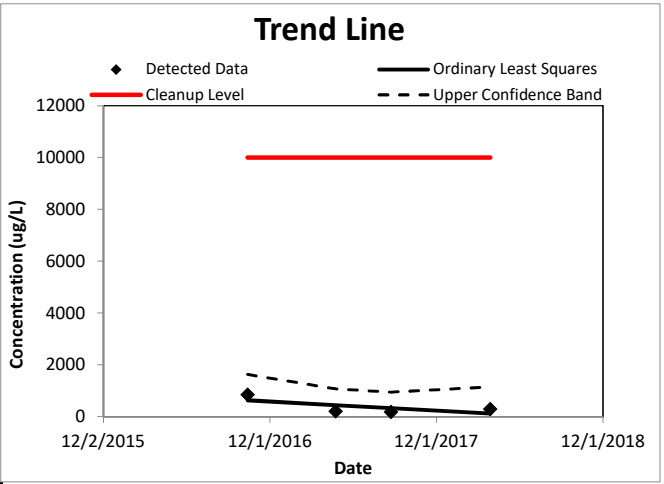
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	RW-2
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	388
Standard deviation of concentration	312



95% Upper Confidence Limit (UCL)	1068	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1150	
Trend calculation method	Ordinary Least Squares	
Cleanup level	10000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

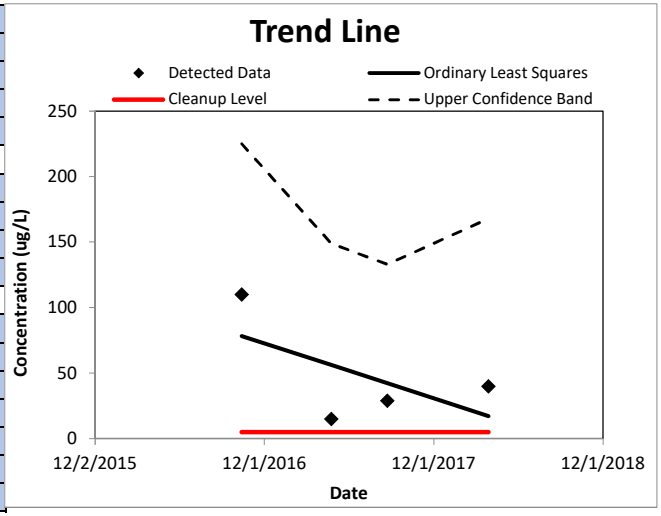
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	RW-3
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	48.5
Standard deviation of concentration	42.3
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	98.3
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	168
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

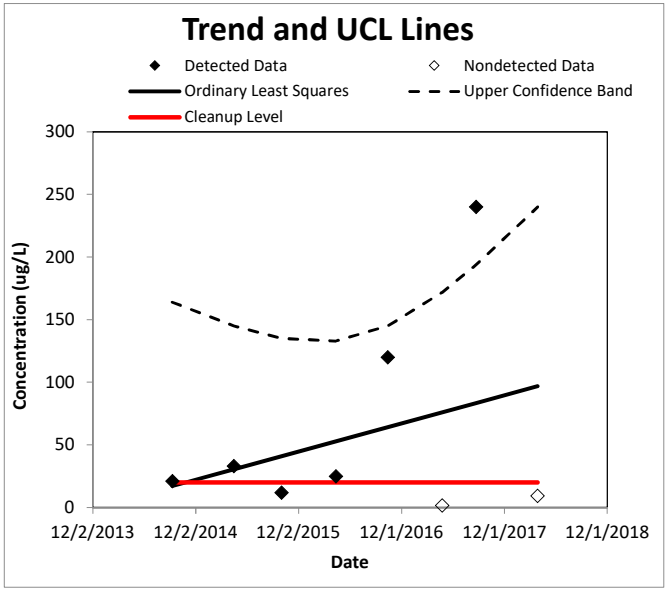
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/9/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	RW-3
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	3
Are any potential outliers present?	No
Mean of concentration	57.6
Standard deviation of concentration	77.3



95% Upper Confidence Limit (UCL)	186	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	240	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

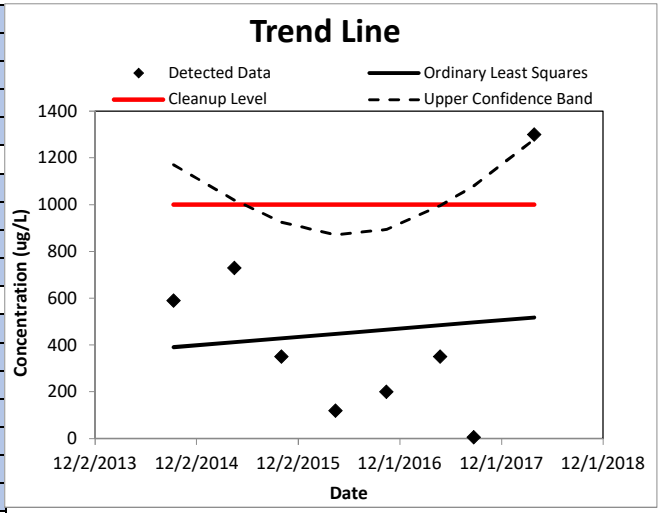
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/9/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	RW-3
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	7
Are any potential outliers present?	No
Mean of concentration	456
Standard deviation of concentration	416
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	735
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	1280
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

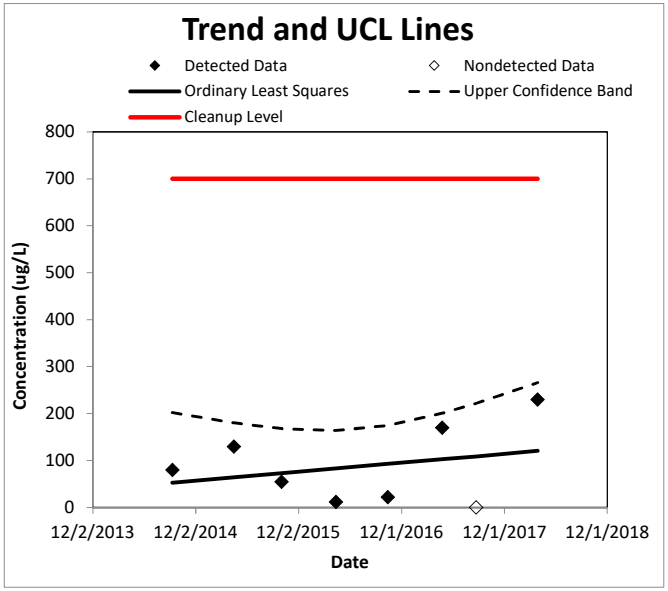
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/9/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	RW-3
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	87.5
Standard deviation of concentration	77.1



95% Upper Confidence Limit (UCL)	214	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	266	
Trend calculation method	Ordinary Least Squares	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

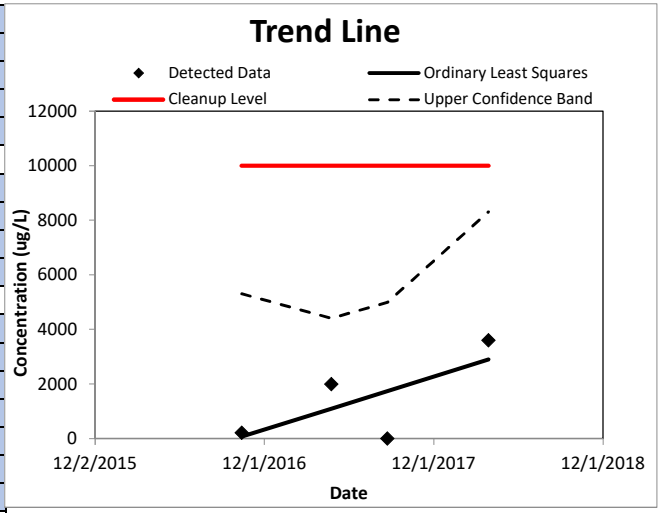
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	RW-3
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	1450
Standard deviation of concentration	1690
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	3440
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	8310
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

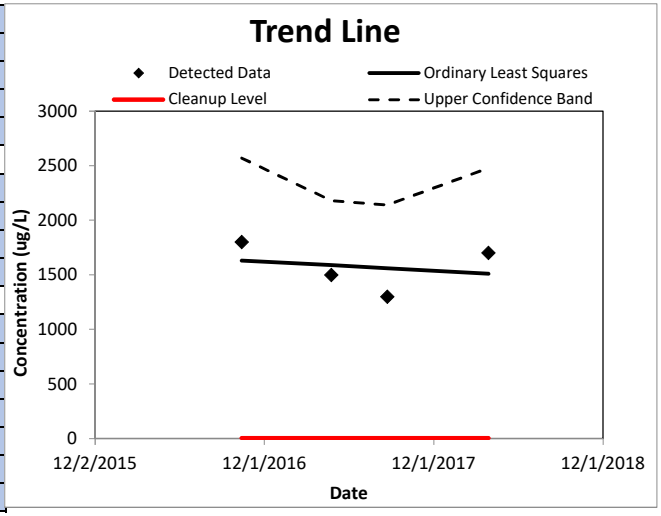
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	RW-4
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	1580
Standard deviation of concentration	222
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	1840
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	2480
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

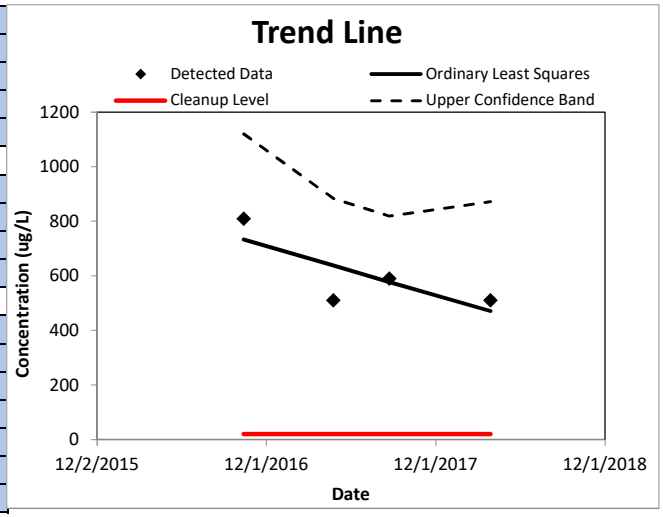
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	RW-4
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	605
Standard deviation of concentration	142
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	772
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	872
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

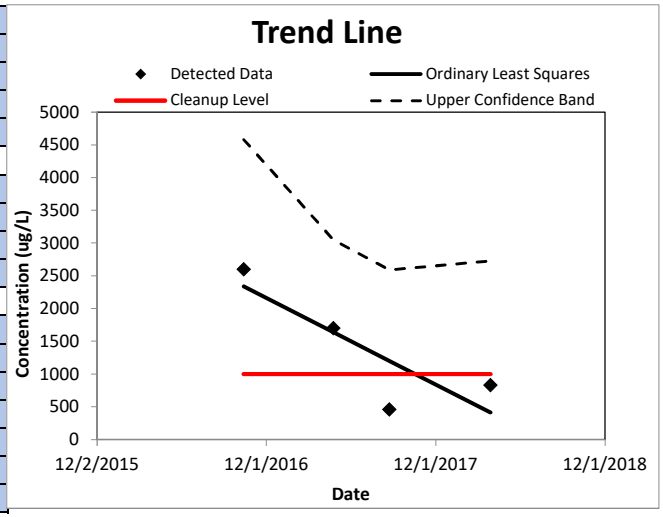
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	RW-4
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	2
Are any potential outliers present?	No
Mean of concentration	1400
Standard deviation of concentration	955
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	2520
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	2730
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

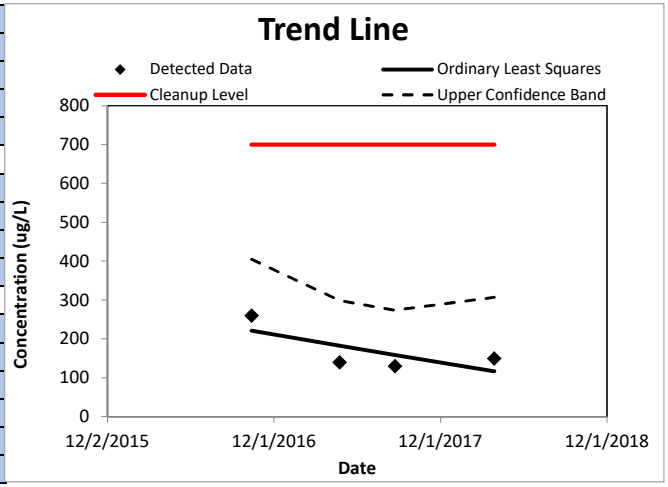
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	RW-4
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	170
Standard deviation of concentration	60.6



95% Upper Confidence Limit (UCL)	302	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	307	
Trend calculation method	Ordinary Least Squares	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

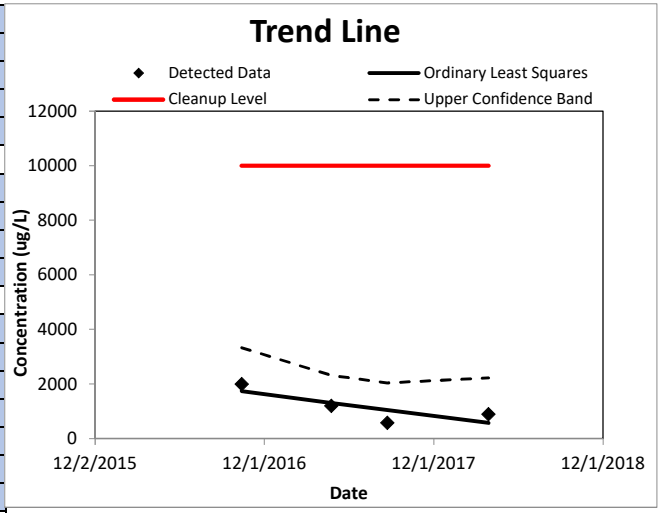
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	RW-4
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	1170
Standard deviation of concentration	610
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	1890
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	2220
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

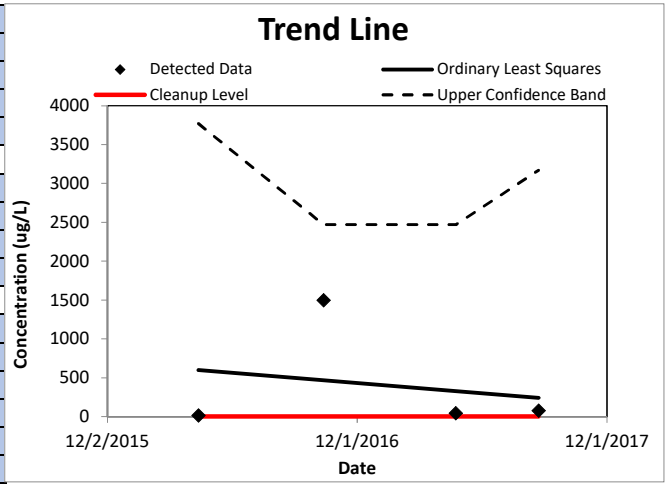
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	RW-5
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	Yes
Mean of concentration	411
Standard deviation of concentration	727



95% Upper Confidence Limit (UCL)	1995	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	3170	
Trend calculation method	Ordinary Least Squares	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

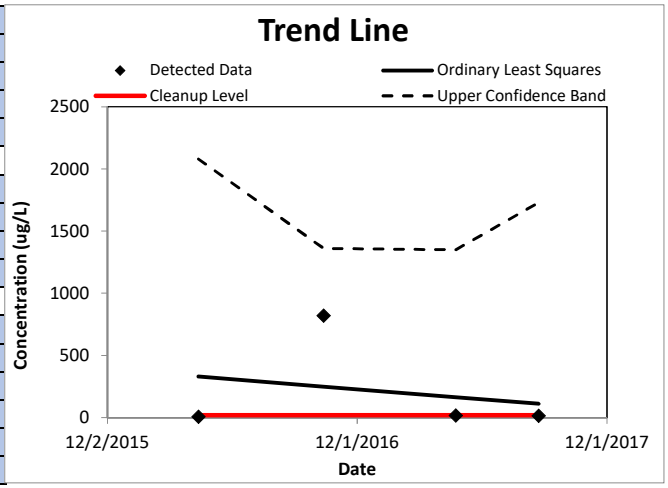
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	RW-5
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	3
Are any potential outliers present?	Yes
Mean of concentration	215
Standard deviation of concentration	403



95% Upper Confidence Limit (UCL)	1093	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1730	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

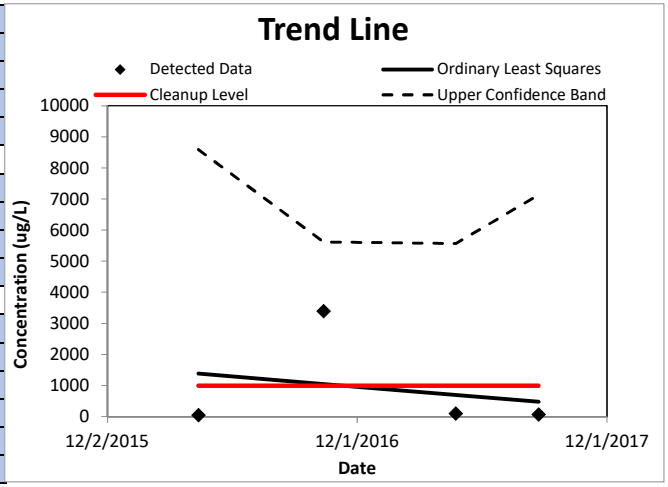
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	RW-5
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	3
Are any potential outliers present?	Yes
Mean of concentration	907
Standard deviation of concentration	1660



95% Upper Confidence Limit (UCL)	4525	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	7130	
Trend calculation method	Ordinary Least Squares	
Cleanup level	1000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

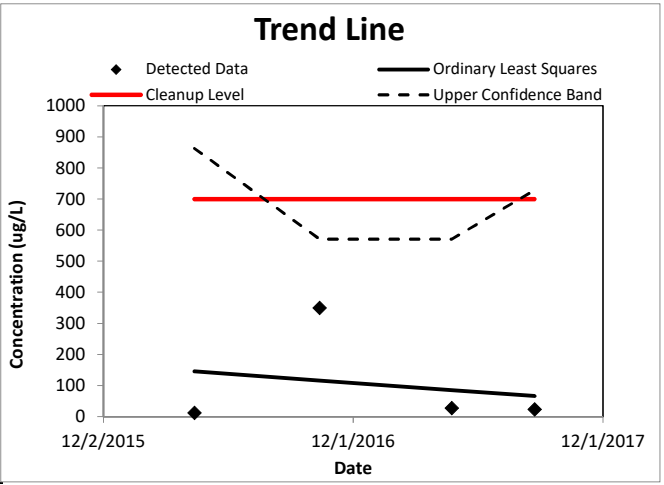
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	RW-5
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	Yes
Mean of concentration	104
Standard deviation of concentration	164



95% Upper Confidence Limit (UCL)	461	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	729	
Trend calculation method	Ordinary Least Squares	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

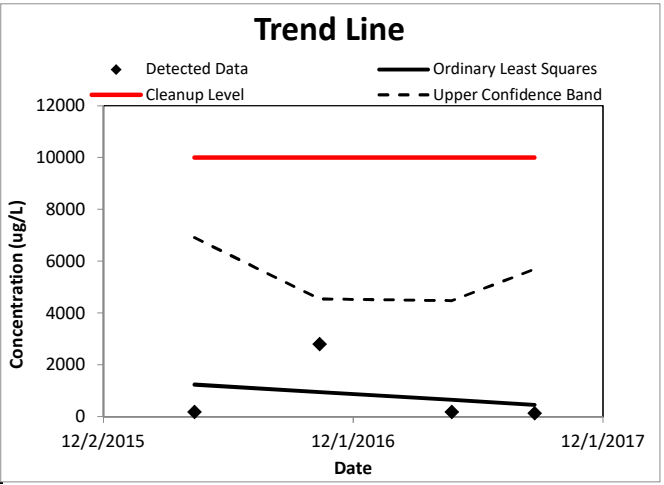
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	RW-5
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	Yes
Mean of concentration	828
Standard deviation of concentration	1320



95% Upper Confidence Limit (UCL)	3705	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	5690	
Trend calculation method	Ordinary Least Squares	
Cleanup level	10000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

Groundwater Statistics Tool

Data input worksheet

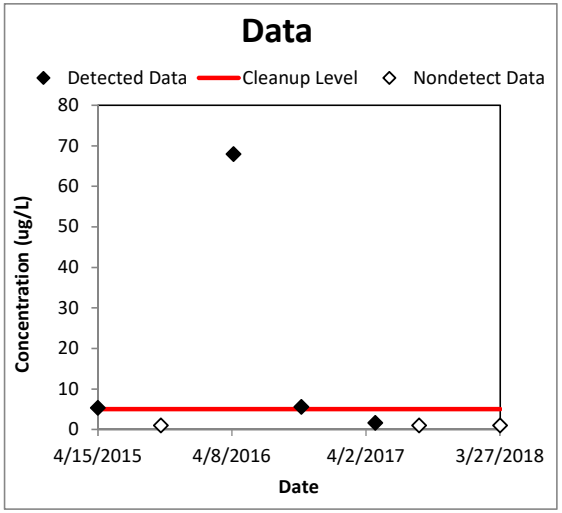
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-7A(35-40)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	7
Number of detected results:	4
Number of nondetect results:	3
Detection frequency:	0.571428571

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/15/2015	5.3		Yes
10/1/2015	1	U	No
4/12/2016	68		Yes
10/11/2016	5.6		Yes
4/27/2017	1.6		Yes
8/23/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

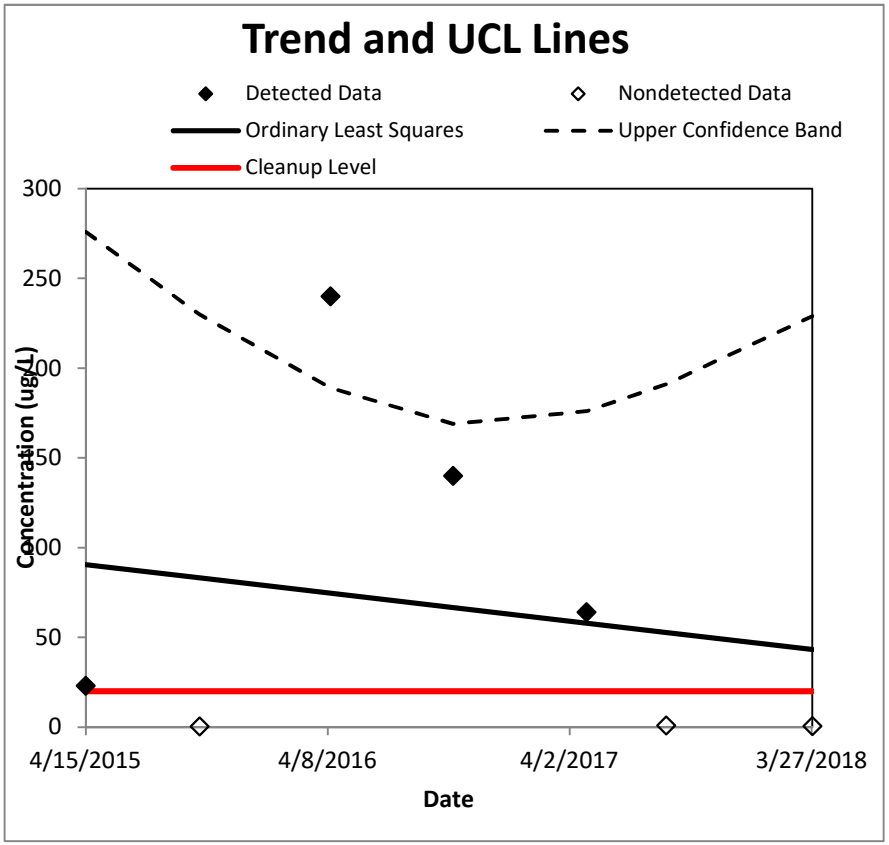
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-7A(35-40)
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	7
Number of detected results	4
Number of non-detected results	3
Detection frequency	57%
Number at or below cleanup level	3
Are any potential outliers present?	No
Mean of concentration	67.1
Standard deviation of concentration	84.7



95% Upper Confidence Limit (UCL)	223
Method for calculating UCL	KM Chebyshev UCL
Value of 95% Upper Confidence Band value at final sampling event	229
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

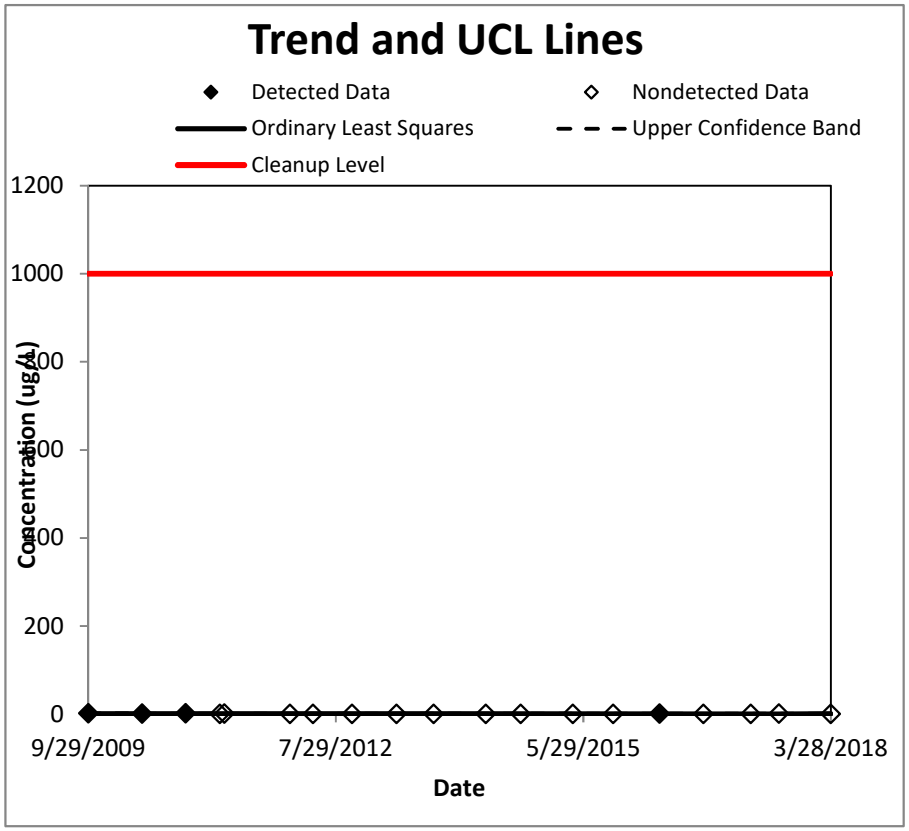
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-7A(35-40)
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	19
Number of detected results	4
Number of non-detected results	15
Detection frequency	21%
Number at or below cleanup level	19
Are any potential outliers present?	Yes
Mean of concentration	1.08
Standard deviation of concentration	0.248



95% Upper Confidence Limit (UCL)	1.36
Method for calculating UCL	KM Chebyshev UCL
Value of 95% Upper Confidence Band value at final sampling event	0.978
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

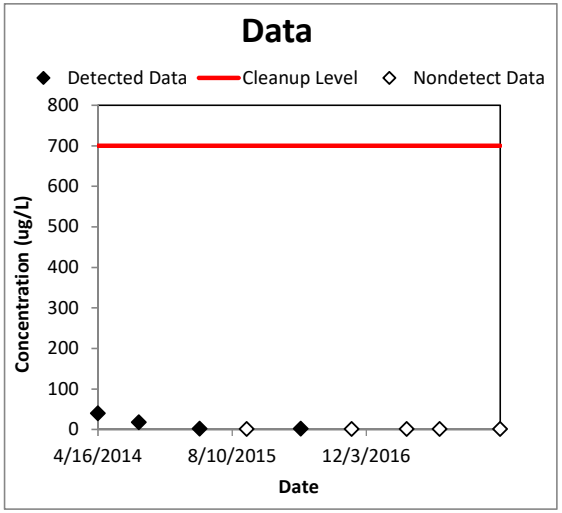
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-7A(35-40)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	9
Number of detected results:	4
Number of nondetect results:	5
Detection frequency:	0.444444444

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2014	40		Yes
9/9/2014	18		Yes
4/15/2015	2.4		Yes
10/1/2015	1	U	No
4/12/2016	2.3		Yes
10/11/2016	1	U	No
4/27/2017	1	U	No
8/23/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

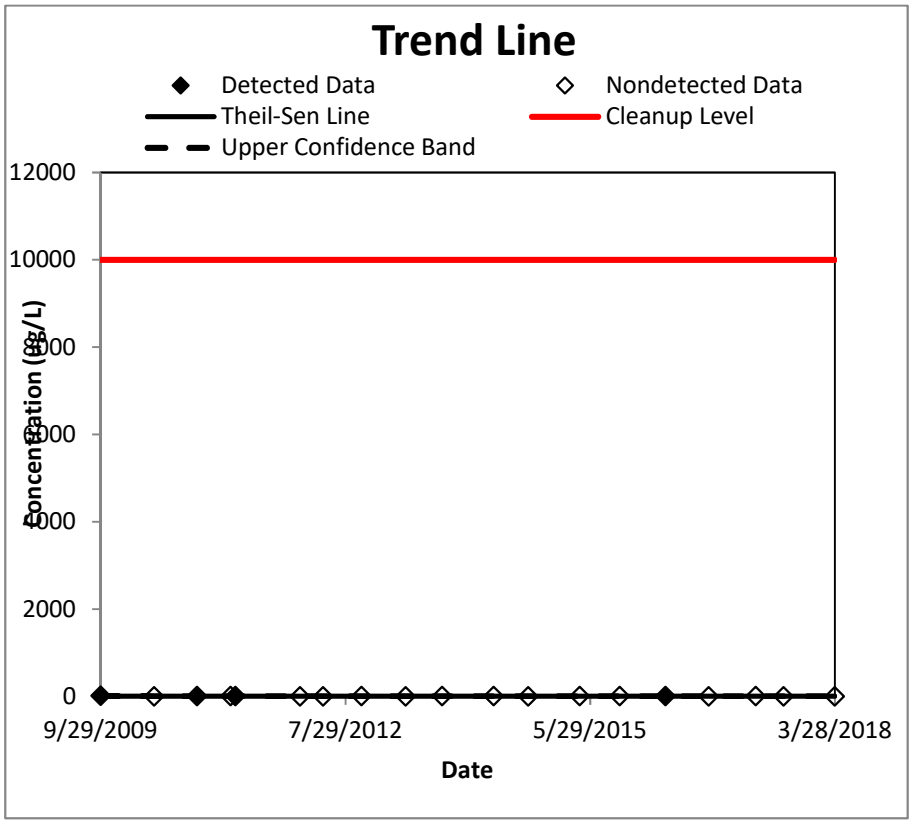
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	GP-7A(35-40)
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	19
Number of detected results	4
Number of non-detected results	15
Detection frequency	21%
Number at or below cleanup level	19
Are any potential outliers present?	Yes
Mean of concentration	4.2
Standard deviation of concentration	2.92



95% Upper Confidence Limit (UCL)	7.53
Method for calculating UCL	KM Chebyshev UCL
Value of 95% Upper Confidence Band value at final sampling event	5.87
Trend calculation method	Theil-Sen/Mann-Kendall
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

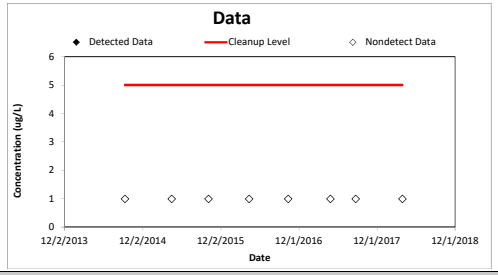
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	ISGR-PD1
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

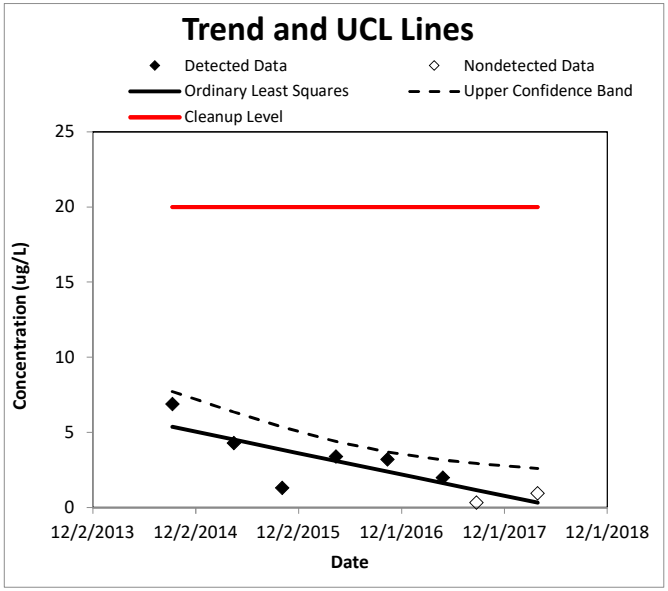
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	ISGR-PD1
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	2.89
Standard deviation of concentration	1.9



95% Upper Confidence Limit (UCL)	6.05	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	2.6	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

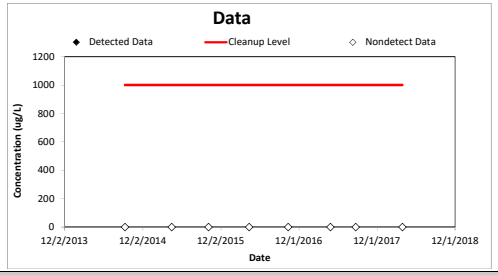
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	ISGR-PD1
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

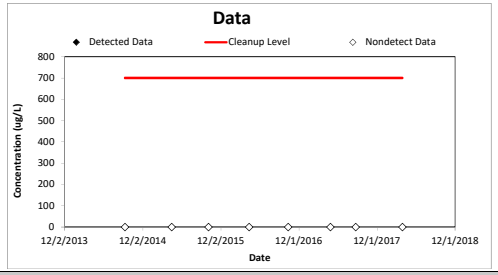
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	ISGR-PD1
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

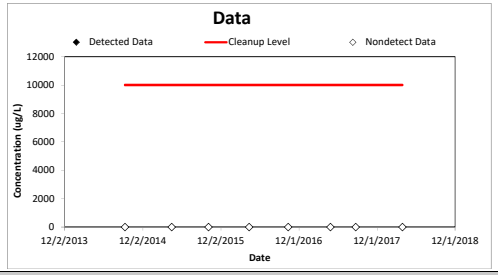
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	ISGR-PD1
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	5	U	No
4/16/2015	5	U	No
10/5/2015	5	U	No
4/12/2016	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
8/24/2017	3	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

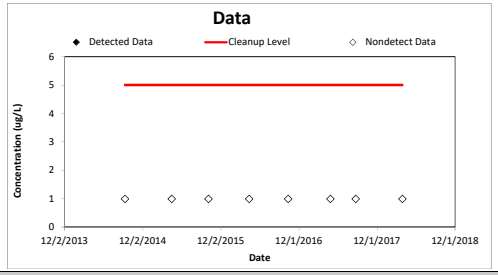
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	ISGR-PS1
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

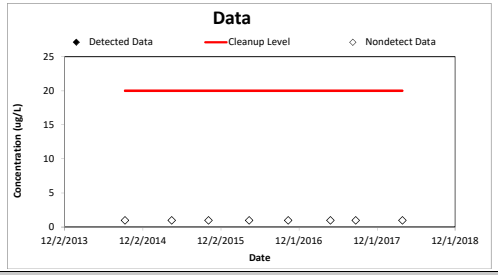
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	ISGR-PS1
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

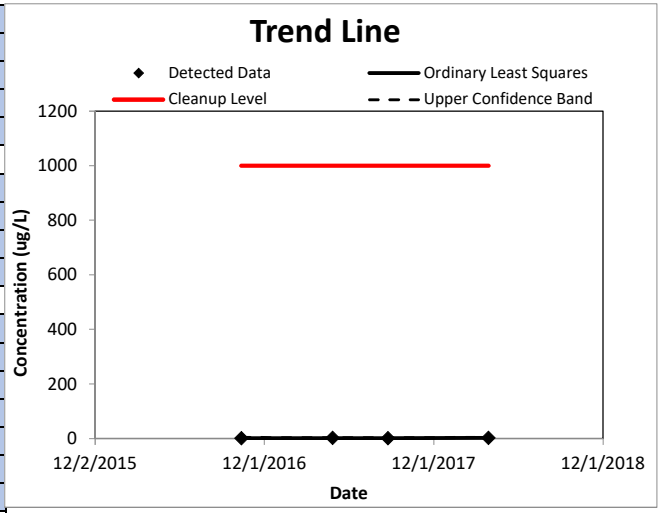
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	ISGR-PS1
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	1.88
Standard deviation of concentration	0.538
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	2.51
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	4.36
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

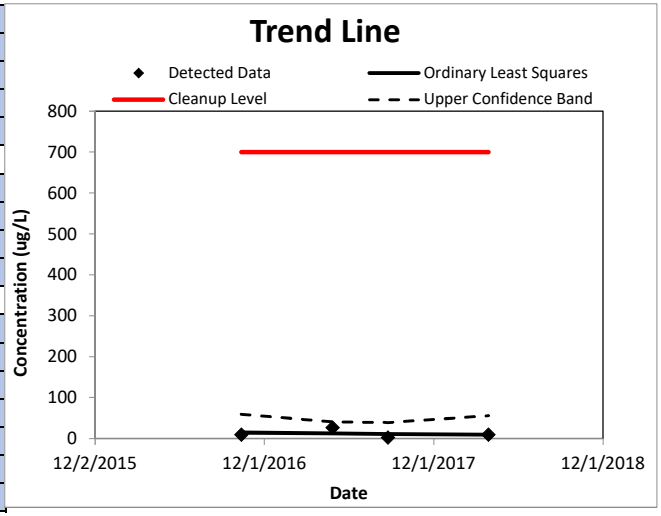
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	ISGR-PS1
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	12.1
Standard deviation of concentration	10.5
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	24.5
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	55.4
Trend calculation method	Ordinary Least Squares
Cleanup level	700
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

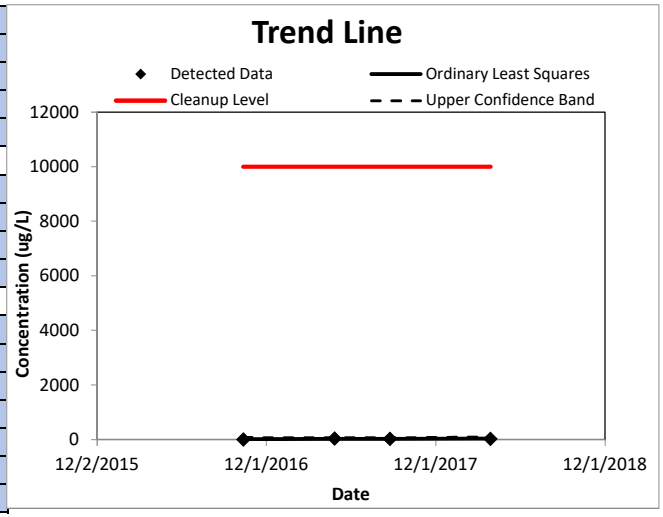
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	ISGR-PS1
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	26.2
Standard deviation of concentration	15.3
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	44.2
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	95.1
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

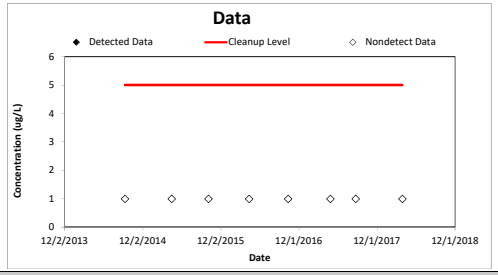
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	ISGR-PD2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

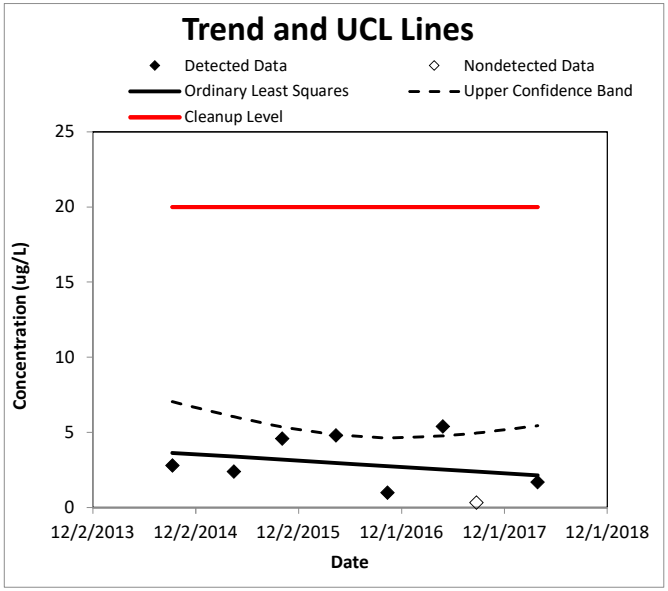
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	ISGR-PD2
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	2.96
Standard deviation of concentration	1.64



95% Upper Confidence Limit (UCL)	5.67	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	5.45	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

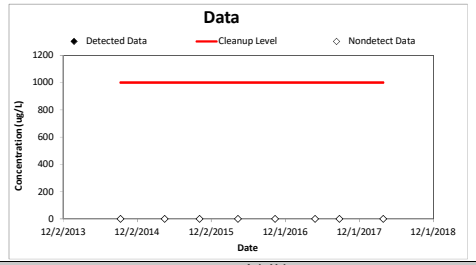
When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

Site Name	Facility No. 12220E
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis
Chemical of Concern	Toluene
Well Name/Number	ISGR-PD2
Date Units	Date
Concentration Units	ug/L
Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3
Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

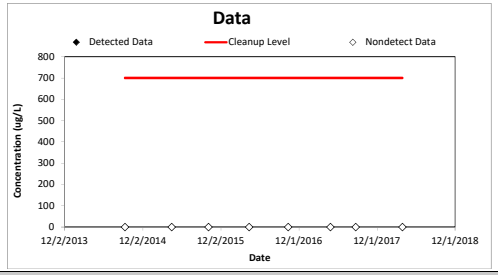
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	ISGR-PD2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

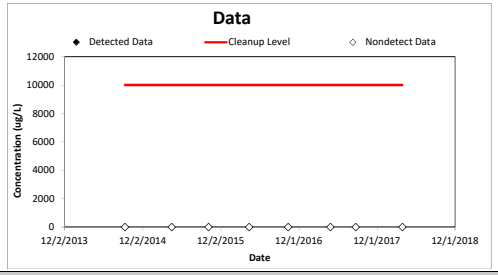
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	ISGR-PD2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	5	U	No
4/16/2015	5	U	No
10/5/2015	5	U	No
4/12/2016	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
8/24/2017	3	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

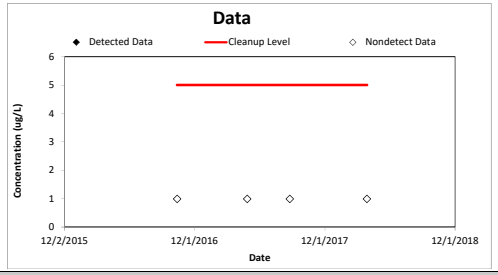
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	ISGR-PS2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

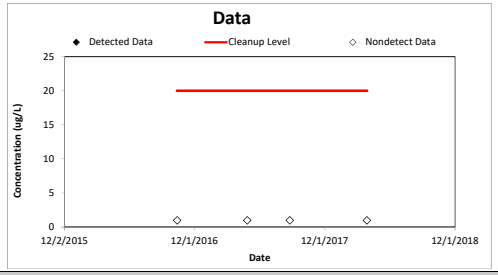
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	ISGR-PS2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data except one data point (1.1 ug/L) is non-detect.

Groundwater Statistics Tool

Data input worksheet

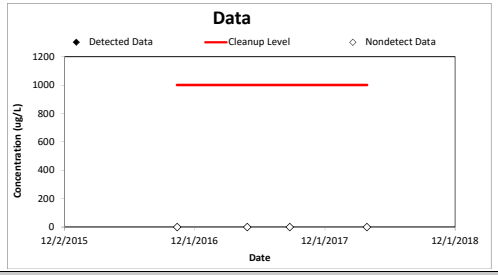
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	ISGR-PS2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

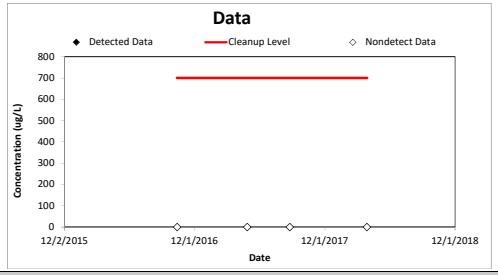
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	ISGR-PS2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

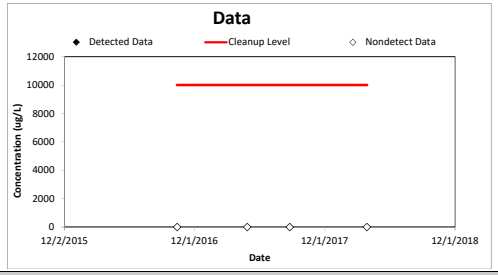
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	ISGR-PS2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/12/2016	5	U	No
4/27/2017	10	U	No
8/24/2017	3	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

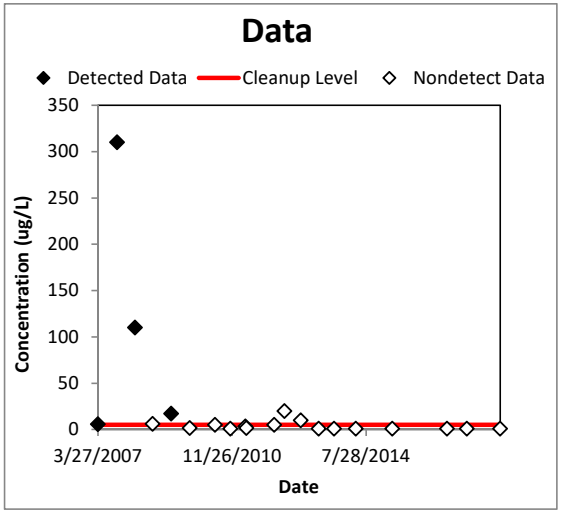
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-24B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	20
Number of detected results:	4
Number of nondetect results:	16
Detection frequency:	0.2

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/27/2007	5.6		Yes
10/2/2007	310		Yes
4/1/2008	110		Yes
9/24/2008	6	U	No
3/27/2009	17		Yes
9/29/2009	1.5	U	No
6/8/2010	5	U	No
11/9/2010	1	U	No
4/7/2011	3.4	U	No
4/18/2011	1.7	U	No
1/19/2012	5	U	No
5/3/2012	20	U	No
10/11/2012	10	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No
4/15/2015	1	U	No
10/11/2016	1	U	No
4/27/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

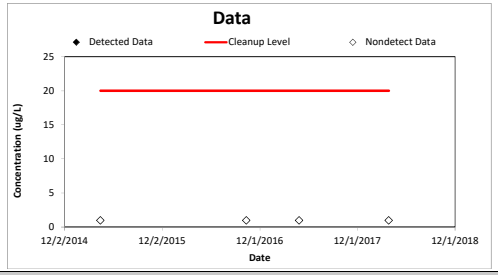
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-24B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/15/2015	1	U	No
10/11/2016	1	U	No
4/27/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

The last 21 data points (since 2006) are non-detect.

Groundwater Statistics Tool

Data input worksheet

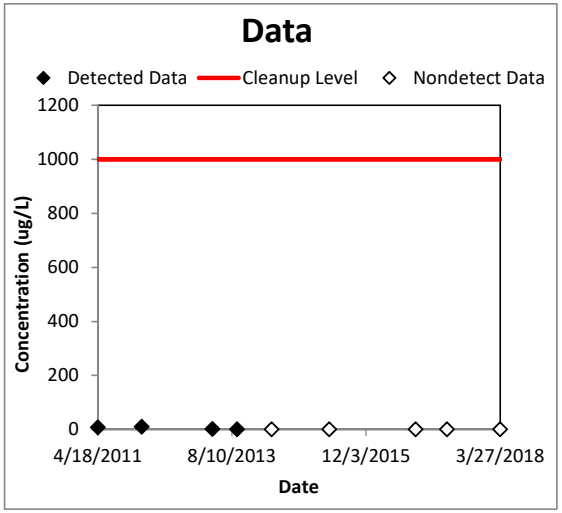
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-24B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	9
Number of detected results:	4
Number of nondetect results:	5
Detection frequency:	0.444444444

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/18/2011	7.3		Yes
1/19/2012	9.9		Yes
4/9/2013	2.1		Yes
9/10/2013	1.1		Yes
4/16/2014	1	U	No
4/15/2015	1	U	No
10/11/2016	1	U	No
4/27/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

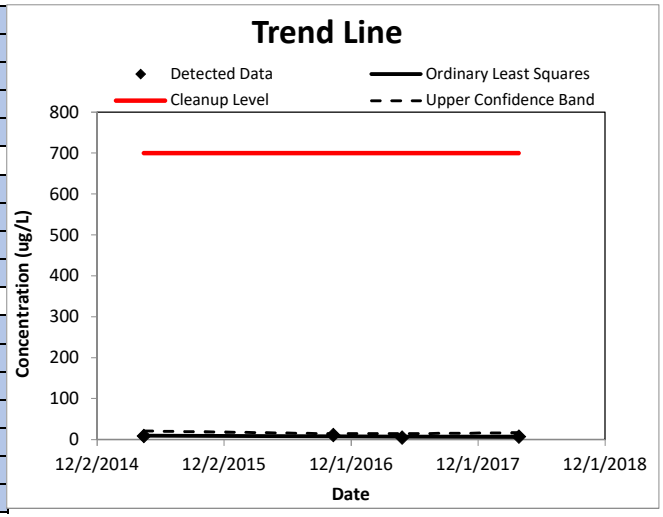
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-24B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	8.03
Standard deviation of concentration	2.72
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	11.2
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	16.9
Trend calculation method	Ordinary Least Squares
Cleanup level	700
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

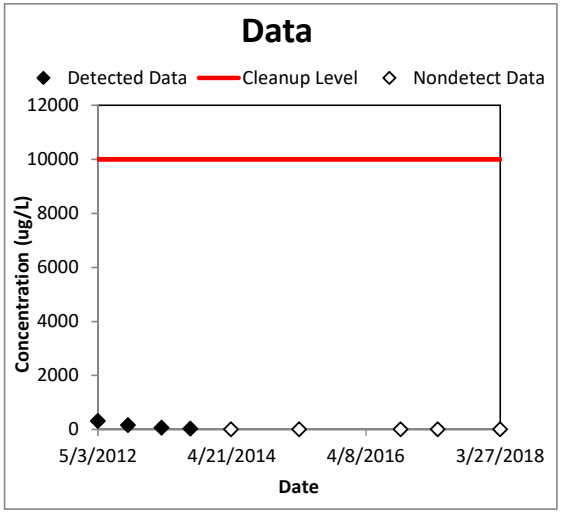
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-24B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	9
Number of detected results:	4
Number of nondetect results:	5
Detection frequency:	0.444444444

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/3/2012	310		Yes
10/11/2012	160		Yes
4/9/2013	62		Yes
9/10/2013	27		Yes
4/16/2014	5	U	No
4/15/2015	5	U	No
10/11/2016	5	U	No
4/27/2017	10	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

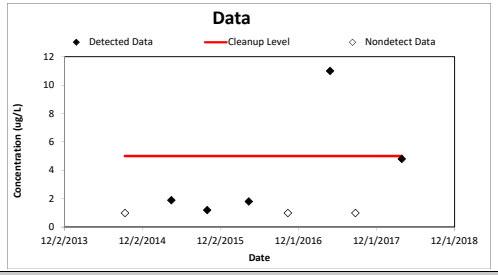
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	9-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-61A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	5
Number of nondetect results:	3
Detection frequency:	0.625

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1.9		Yes
10/1/2015	1.2		Yes
4/12/2016	1.8		Yes
10/12/2016	1	U	No
4/27/2017	11		Yes
8/24/2017	1	U	No
3/29/2018	4.8		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

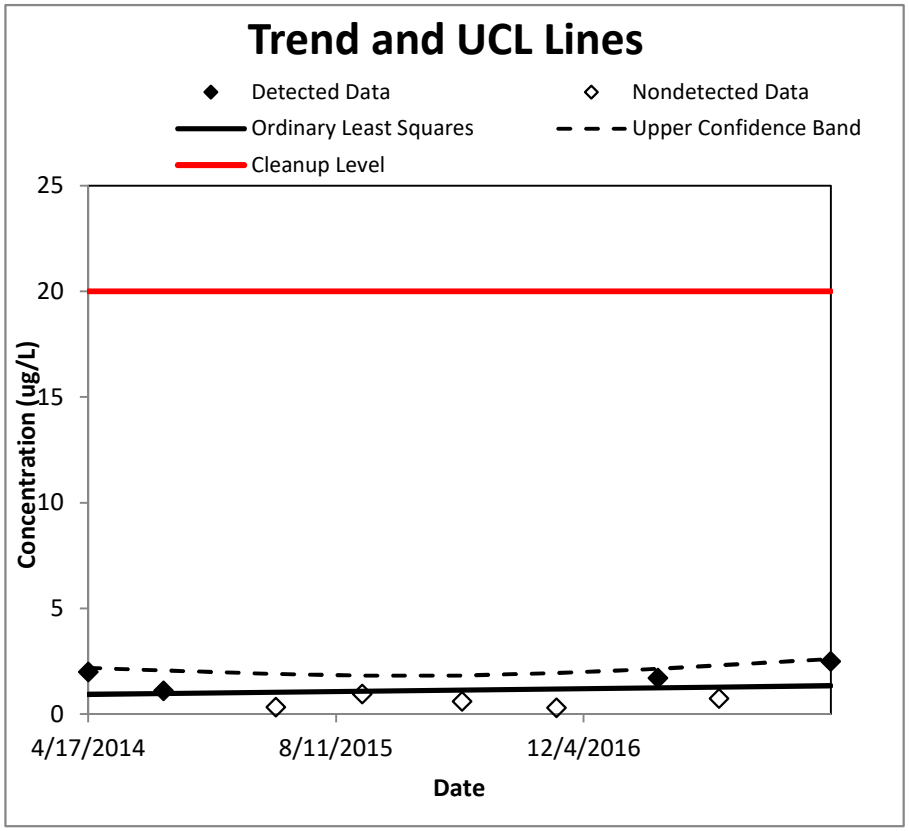
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-61A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	9
Number of detected results	4
Number of non-detected results	5
Detection frequency	44%
Number at or below cleanup level	9
Are any potential outliers present?	No
Mean of concentration	1.37
Standard deviation of concentration	0.531



95% Upper Confidence Limit (UCL)	2.23
Method for calculating UCL	KM Chebyshev UCL
Value of 95% Upper Confidence Band value at final sampling event	2.61
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

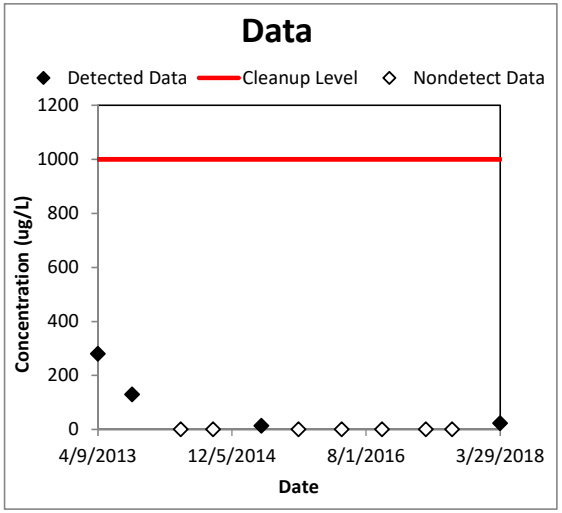
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-61A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	11
Number of detected results:	4
Number of nondetect results:	7
Detection frequency:	0.363636364

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/9/2013	280		Yes
9/10/2013	130		Yes
4/17/2014	1	U	No
9/10/2014	1	U	No
4/16/2015	14		Yes
10/1/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	23		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

Groundwater Statistics Tool

Data input worksheet

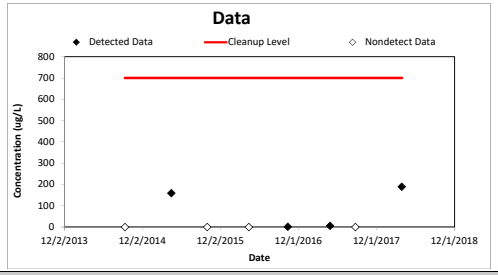
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	9-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-61A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	4
Number of nondetect results:	4
Detection frequency:	0.5

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	160		Yes
10/1/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1.8		Yes
4/27/2017	7.1		Yes
8/24/2017	1	U	No
3/29/2018	190		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Error: Trend and UCL calculations cannot be performed because negative concentrations are predicted by the linear regression.

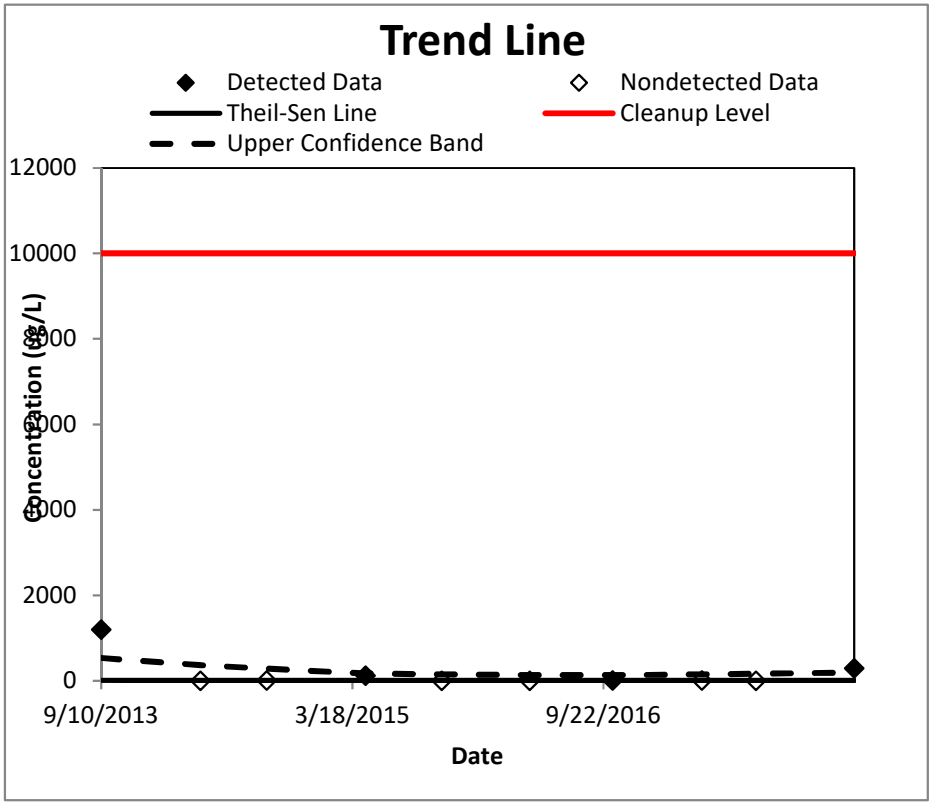
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-61A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	10
Number of detected results	4
Number of non-detected results	6
Detection frequency	40%
Number at or below cleanup level	10
Are any potential outliers present?	Yes
Mean of concentration	164
Standard deviation of concentration	356



95% Upper Confidence Limit (UCL)	713
Method for calculating UCL	KM Chebyshev UCL
Value of 95% Upper Confidence Band value at final sampling event	192
Trend calculation method	Theil-Sen/Mann-Kendall
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

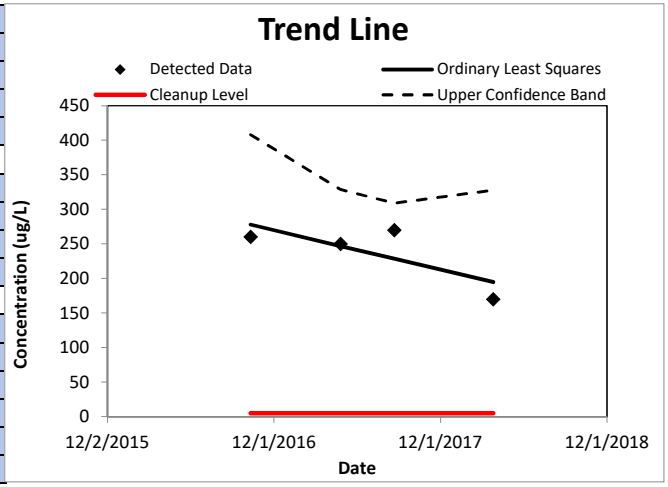
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-26B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	238
Standard deviation of concentration	45.7



95% Upper Confidence Limit (UCL)	338	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	328	
Trend calculation method	Ordinary Least Squares	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

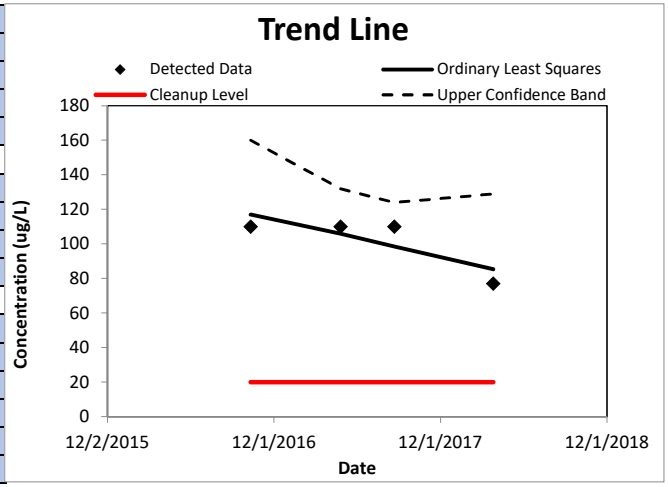
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-26B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	Yes
Mean of concentration	102
Standard deviation of concentration	16.5



95% Upper Confidence Limit (UCL)	138	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	129	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

Groundwater Statistics Tool

Data input worksheet

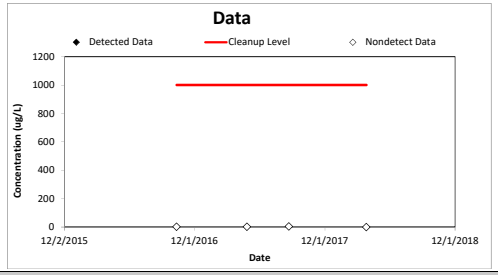
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-26B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2016	2	U	No
4/26/2017	2	U	No
8/22/2017	5	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data except one data point (1.9 ug/L) is non-detect.

Groundwater Statistics Tool

Data input worksheet

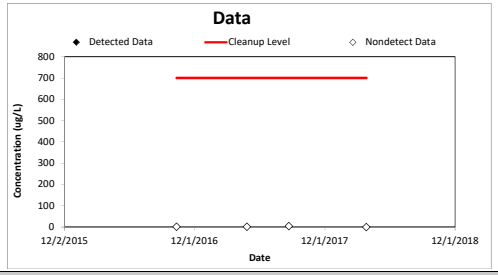
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-26B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2016	2	U	No
4/26/2017	2	U	No
8/22/2017	5	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Last 11 data points are non-detect. All data except two data points (13 ug/L and 37 ug/L) are non-detect.

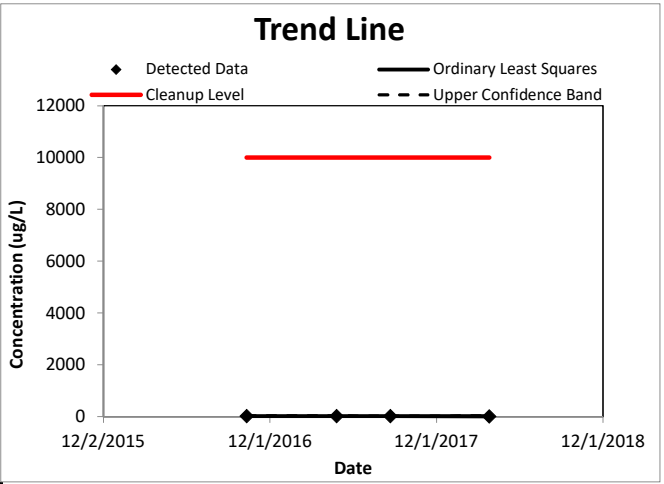
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-26B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	Yes
Mean of concentration	24
Standard deviation of concentration	5.35



95% Upper Confidence Limit (UCL)	35.7	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	32.6	
Trend calculation method	Ordinary Least Squares	
Cleanup level	10000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

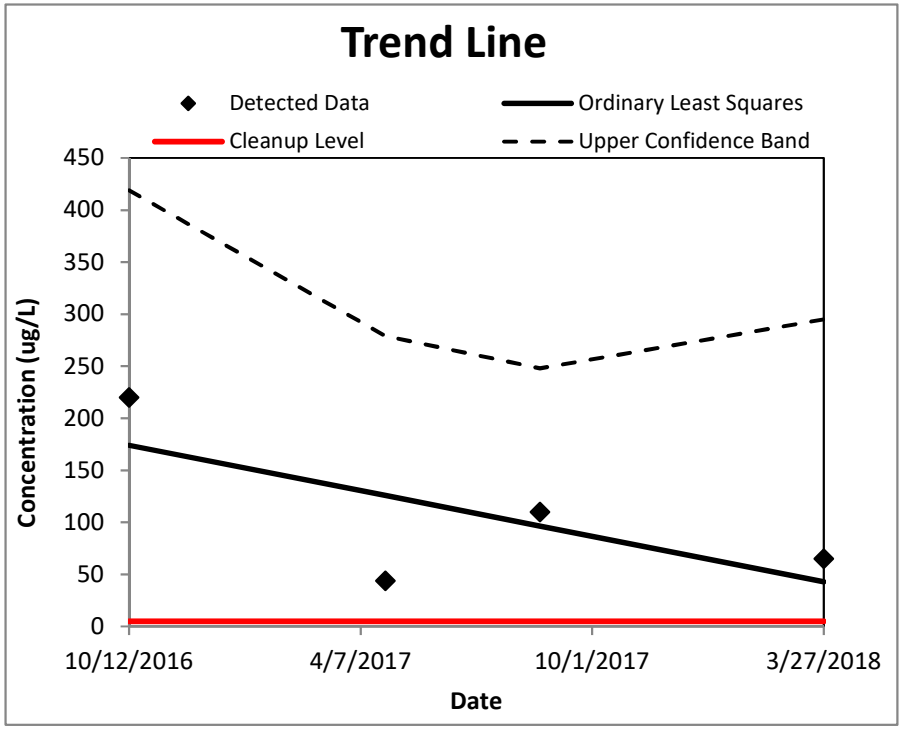
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/14/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-58
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	110
Standard deviation of concentration	78.5
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	202
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	295
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

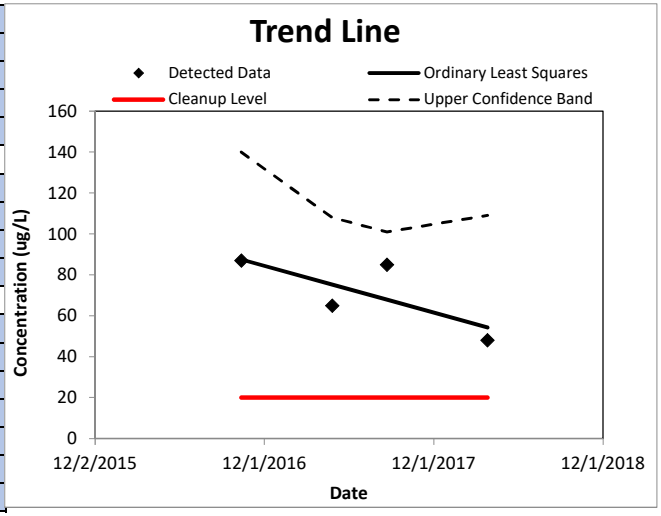
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/10/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-58
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	71.3
Standard deviation of concentration	18.4
t-value for UCL calculation	2.353



95% Upper Confidence Limit (UCL)	93
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	109
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

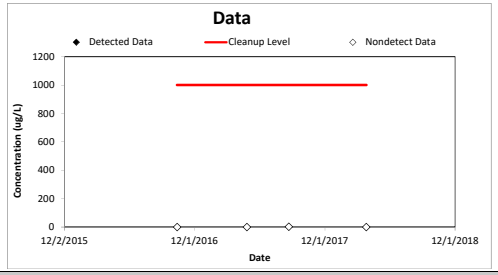
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-58
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/12/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	2	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data is non-detect.

Groundwater Statistics Tool

Data input worksheet

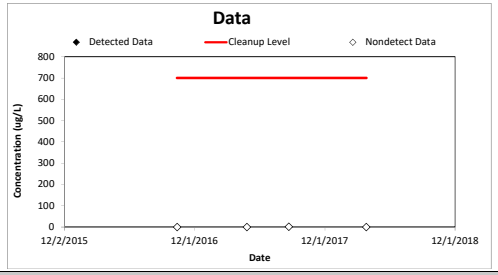
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	10-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-58
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/12/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	2	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

All data except two data points (5.9 ug/L and 5.2 ug/L) is non-detect.

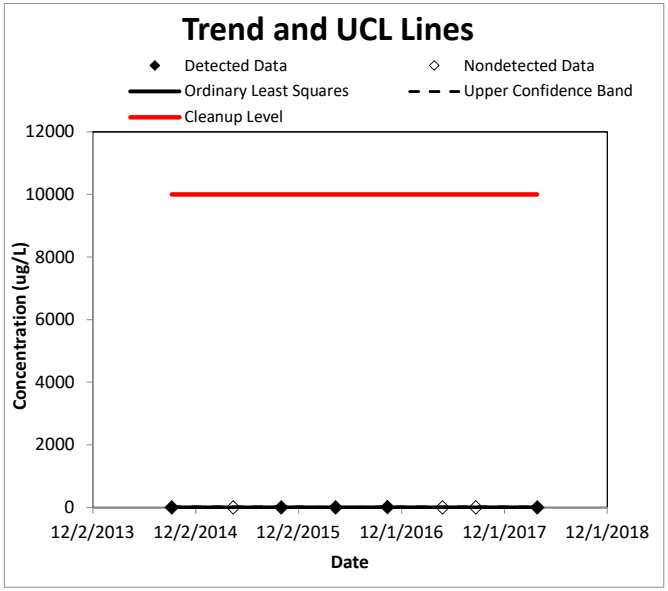
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Remediation
Date of Evaluation	5/9/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-58
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	5
Number of non-detected results	3
Detection frequency	63%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	8
Standard deviation of concentration	4.18



95% Upper Confidence Limit (UCL)	15.3	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	17.2	
Trend calculation method	Ordinary Least Squares	
Cleanup level	10000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Attainment Phase Monitoring Wells

STATISTICAL EVALUATION: ATTAINMENT PHASE WELLS
FORMER CHEVRON FACILITY 122208
5801 RIGGS ROAD
CHILLUM, MARYLAND

Well ID	Area
MW-20	BKGD
MW-21	BKGD
MW-45	BKGD
MW-46	BKGD
GP-24A	A
GP-41A	A
GP-44A	A
MW-1	A
MW-13	A
MW-18	A
MW-19	A
MW-2	A
MW-23	A
MW-3	A
MW-4	A
MW-5	A
MW-6	A
VP-4	A
GP-7A(20-25)	B
GP-7A(25-30)	B
GP-7A(30-35)	B
GP-7A(40-45)	B
MW-24A	B
MW-30R (MW-30)	B
MW-61B	B
MW-62A	B
MW-62B	B
MW-26A	C
MW-28A	C
MW-28B	C
MW-33A	C
MW-33B	C
MW-33C	C
MW-33S	C
MW-52	C
MW-59	C
MW-60	C
GP-11A(20-25)	CLAY
GP-11A(25-30)	CLAY
GP-11A(30-35)	CLAY
GP-11A(35-40)	CLAY
GP-9A(20-25)	CLAY
GP-9A(25-30)	CLAY
GP-9A(30-35)	CLAY

Well ID	Area
MW-38	CLAY
MW-39R	CLAY
MW-47	EAST-LOT
MW-48	EAST-LOT
MW-49	EAST-LOT
MW-50	EAST-LOT
MW-51	EAST-LOT
GP-2E(45-50)	EAST-RES
GP-2E(50-55)	EAST-RES
GP-2E(55-60)	EAST-RES
GP-2F(45-50)	EAST-RES
GP-2F(50-55)	EAST-RES
MW-25A	EAST-RES
MW-25B	EAST-RES
MW-40	EAST-RES
MW-41A	EAST-RES
MW-41B	EAST-RES
MW-27A	SE-RES
MW-27B	SE-RES
MW-29A	SE-RES
MW-29B	SE-RES
MW-34A	SE-RES
MW-34B	SE-RES
MW-44A	SE-RES
MW-44B	SE-RES
MW-53	SE-RES
MW-54	SE-RES
MW-32	SW-RES
MW-31A	WEST-RES
MW-31B	WEST-RES
MW-37	WEST-RES
MW-42	WEST-RES
MW-43A	WEST-RES
MW-43B	WEST-RES
MW-55	WEST-RES

Groundwater Statistics Tool

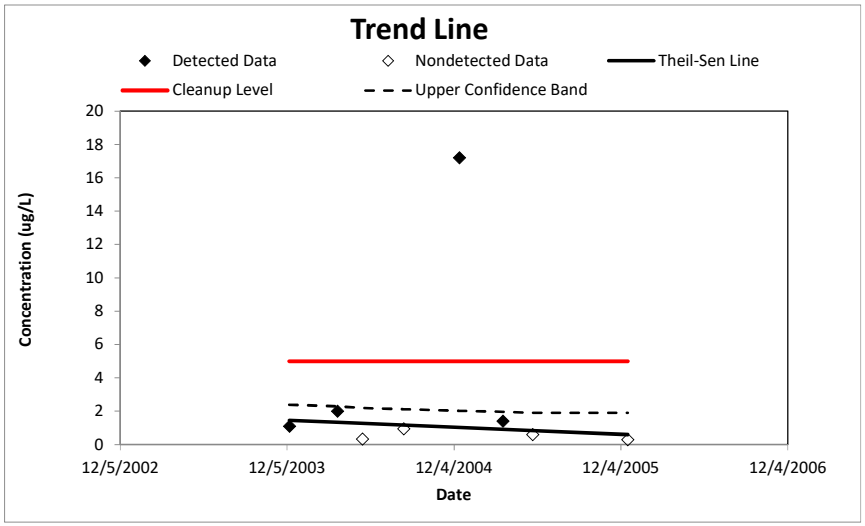
UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	VP-4
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	4
Number of non-detected results	4
Detection frequency	50%
Number at or below cleanup level	7
Are any potential outliers present?	Yes
Mean of concentration	3.21
Standard deviation of concentration	5.3

95% Upper Confidence Limit (UCL)	12.3	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1.91	
Trend calculation method	Theil-Sen/Mann-Kendall	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	



When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

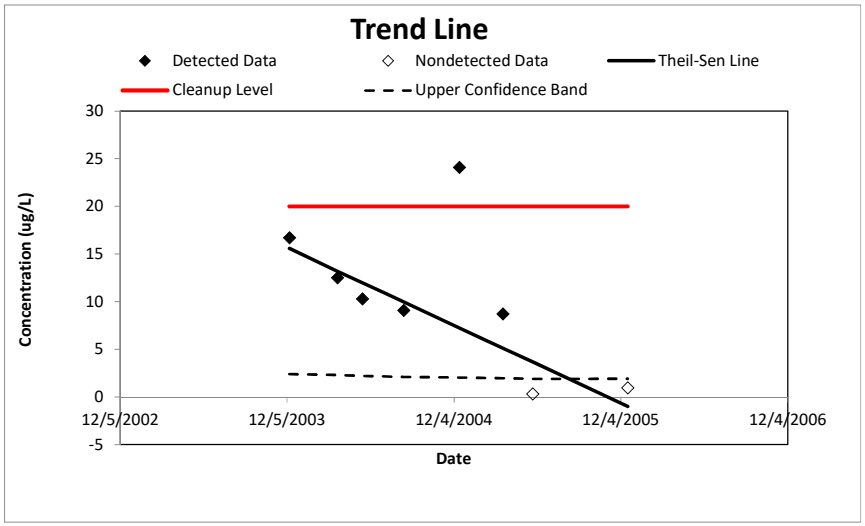
UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	VP-4
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	7
Are any potential outliers present?	No
Mean of concentration	10.4
Standard deviation of concentration	7.19

95% Upper Confidence Limit (UCL)	22.4	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1.91	
Trend calculation method	Theil-Sen/Mann-Kendall	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	



When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

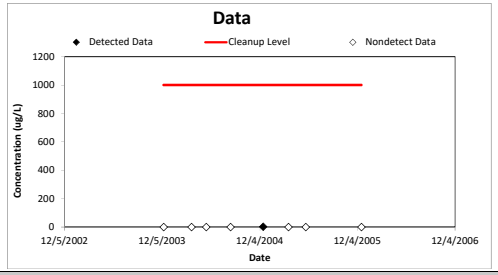
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	VP-4
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
12/10/2003	1	U	No
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	2.8		Yes
3/21/2005	1	U	No
5/25/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

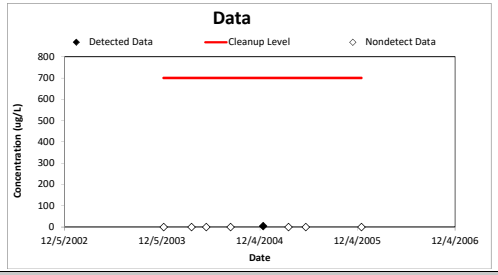
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	VP-4
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
12/10/2003	1	U	No
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	4.2		Yes
3/21/2005	1	U	No
5/25/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

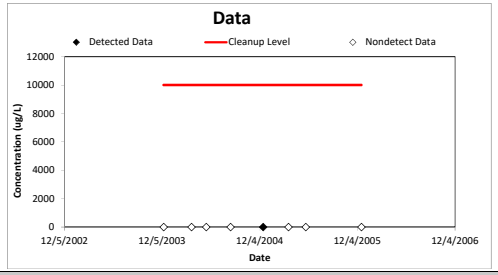
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	VP-4
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
12/10/2003	3	U	No
3/24/2004	3	U	No
5/18/2004	3	U	No
8/16/2004	3	U	No
12/16/2004	8.6		Yes
3/21/2005	3	U	No
5/25/2005	3	U	No
12/19/2005	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

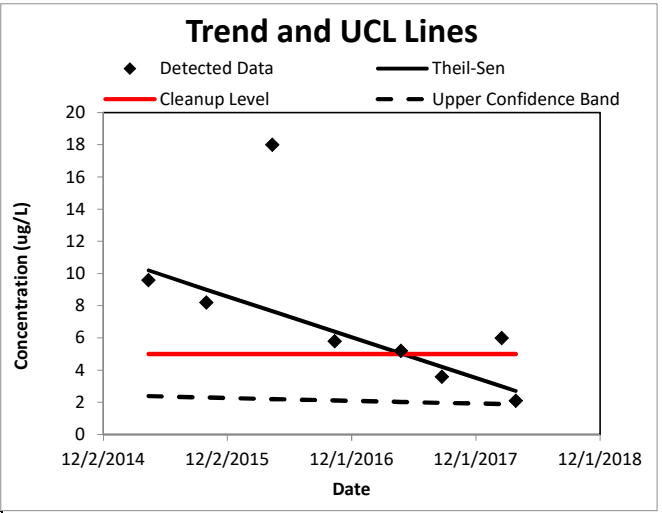
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-62B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	2
Are any potential outliers present?	No
Mean of concentration	7.31
Standard deviation of concentration	4.92
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	10.6
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	1.91
Trend calculation method	Theil-Sen/Mann-Kendall
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

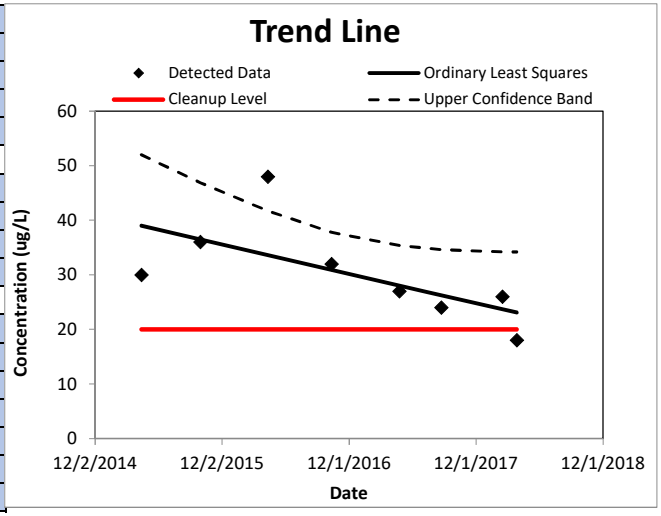
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-62B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	1
Are any potential outliers present?	No
Mean of concentration	30.1
Standard deviation of concentration	9.01
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	36.1
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	34.2
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

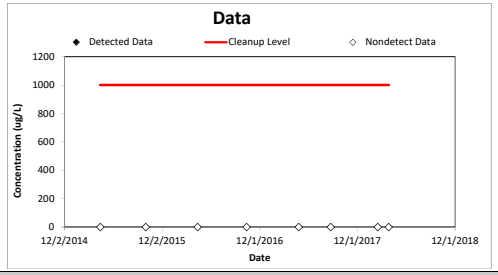
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-62B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/14/2015	1	U	No
10/1/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
8/23/2017	1	U	No
2/15/2018	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

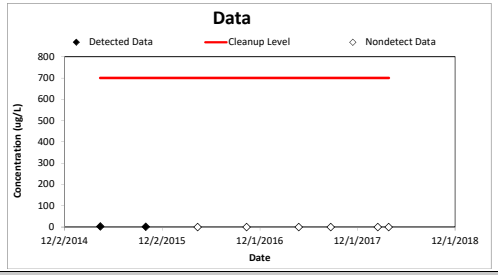
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-62B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	2
Number of nondetect results:	6
Detection frequency:	0.25

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/14/2015	4		Yes
10/1/2015	2.5		Yes
4/12/2016	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
8/23/2017	1	U	No
2/15/2018	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

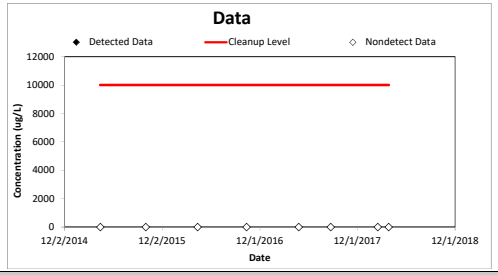
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-62B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/14/2015	5	U	No
10/1/2015	5	U	No
4/12/2016	5	U	No
10/12/2016	5	U	No
4/25/2017	10	U	No
8/23/2017	3	U	No
2/15/2018	2	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

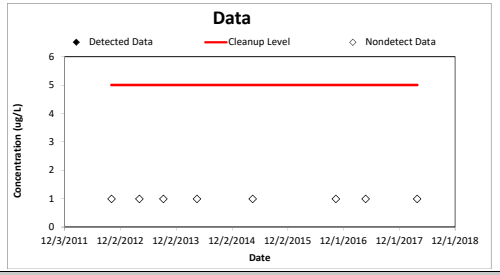
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-62A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

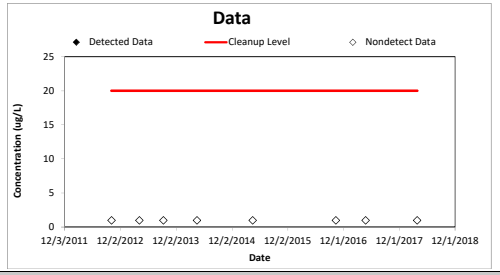
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-62A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

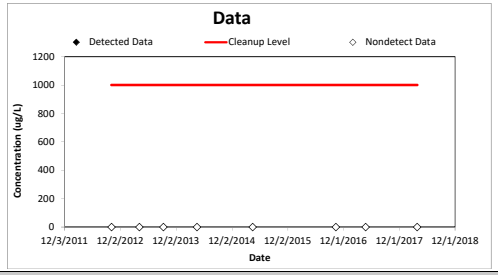
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-62A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

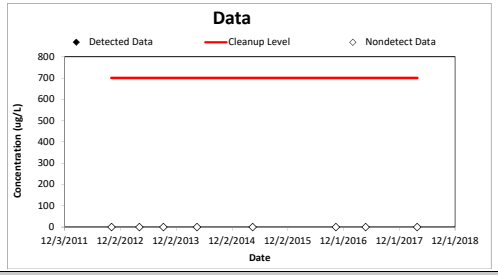
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-62A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

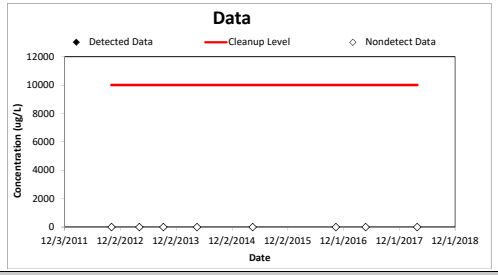
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-62A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	10	U	No
4/5/2013	5	U	No
9/10/2013	10	U	No
4/17/2014	5	U	No
4/16/2015	5	U	No
10/12/2016	5	U	No
4/25/2017	10	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

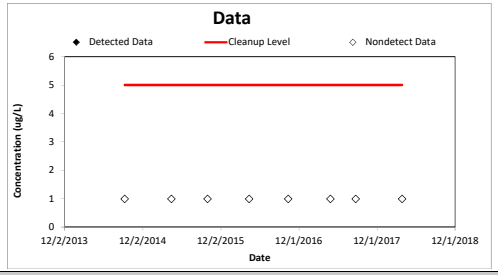
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-61B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
10/1/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/23/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

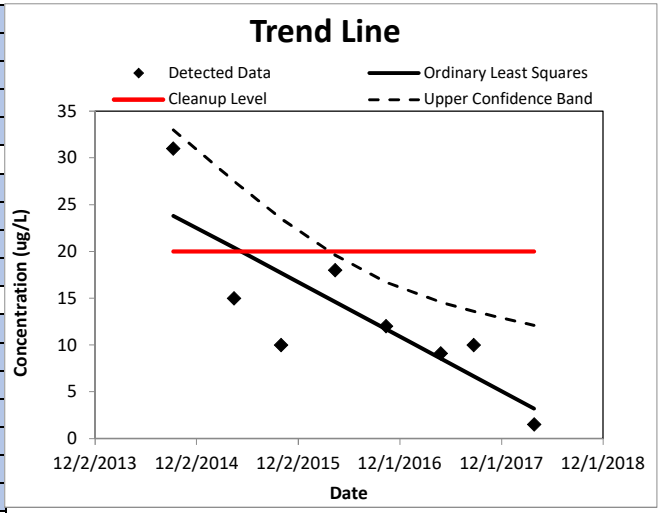
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-61B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	7
Are any potential outliers present?	No
Mean of concentration	13.3
Standard deviation of concentration	8.61
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	19.1
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	12.1
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

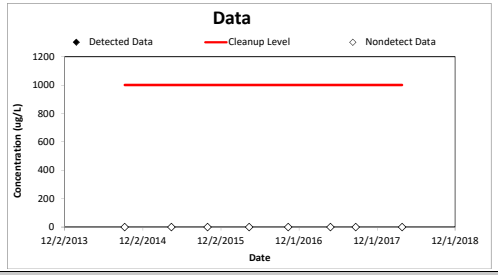
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-61B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
10/1/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/23/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

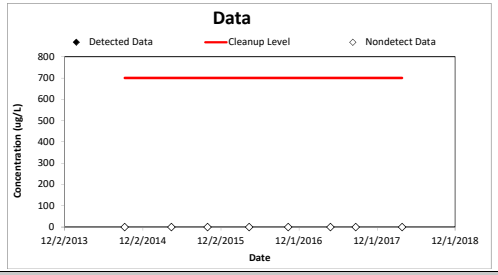
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-61B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
10/1/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/23/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

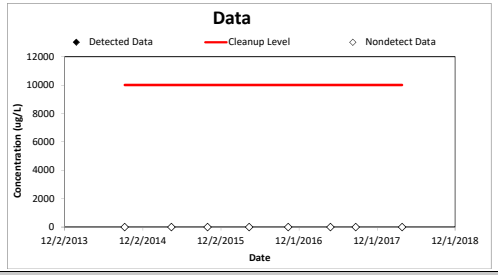
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-61B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	5	U	No
4/15/2015	5	U	No
10/1/2015	5	U	No
4/12/2016	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
8/23/2017	3	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

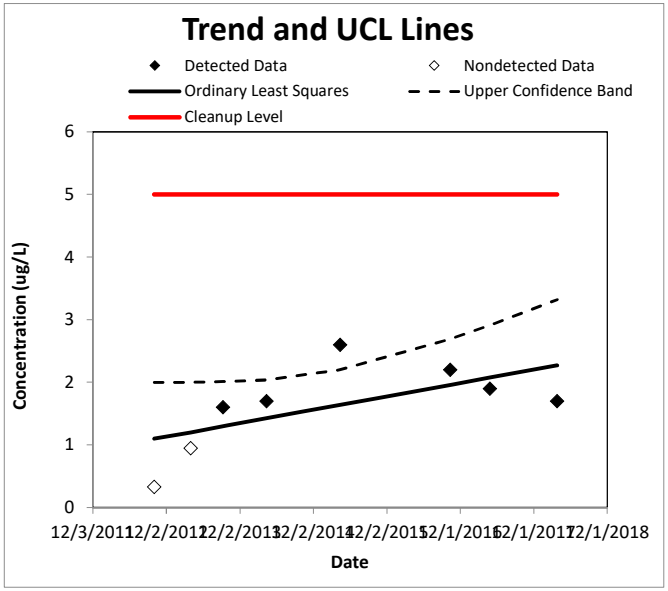
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-60
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	1.71
Standard deviation of concentration	0.511



95% Upper Confidence Limit (UCL)	2.56	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	3.32	
Trend calculation method	Ordinary Least Squares	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

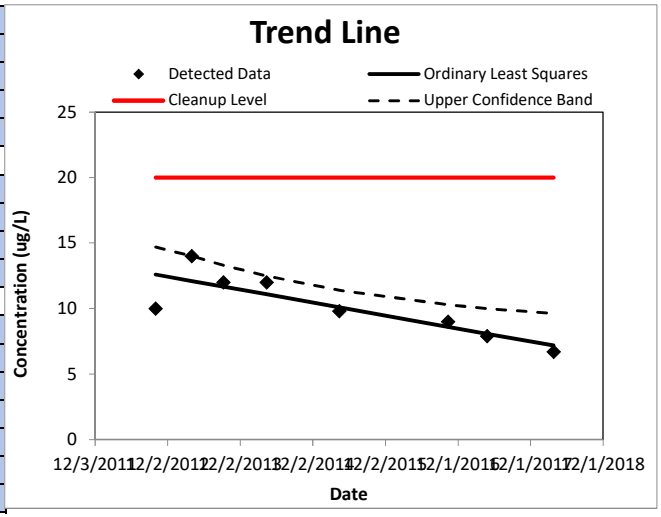
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-60
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	10.2
Standard deviation of concentration	2.39
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	11.8
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	9.63
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

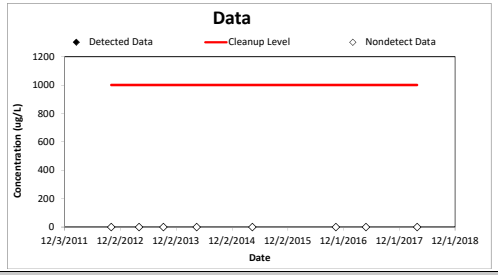
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-60
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

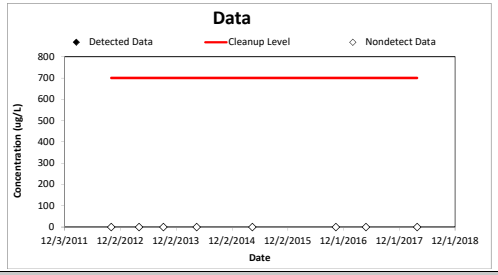
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-60
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

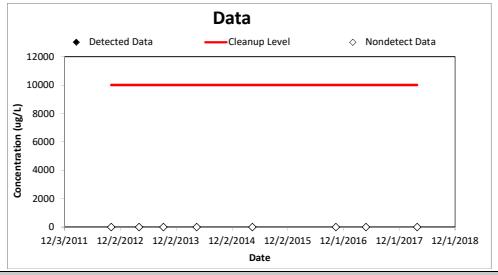
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-60
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	10	U	No
4/2/2013	5	U	No
9/9/2013	10	U	No
4/14/2014	5	U	No
4/14/2015	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
3/27/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

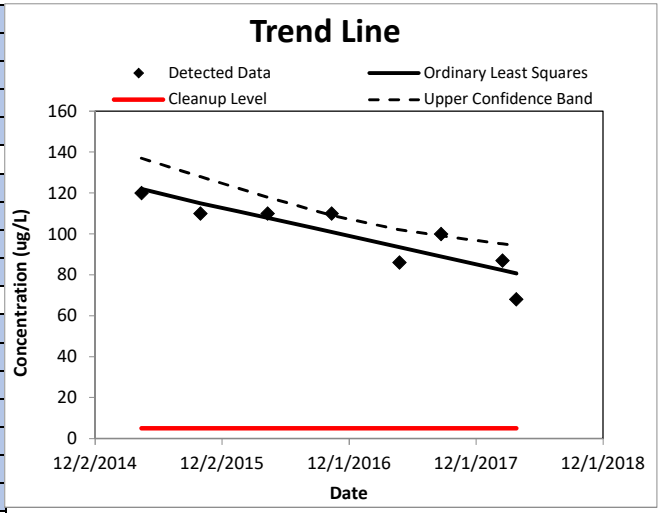
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-59
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	98.9
Standard deviation of concentration	17.2
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	110
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	94.3
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

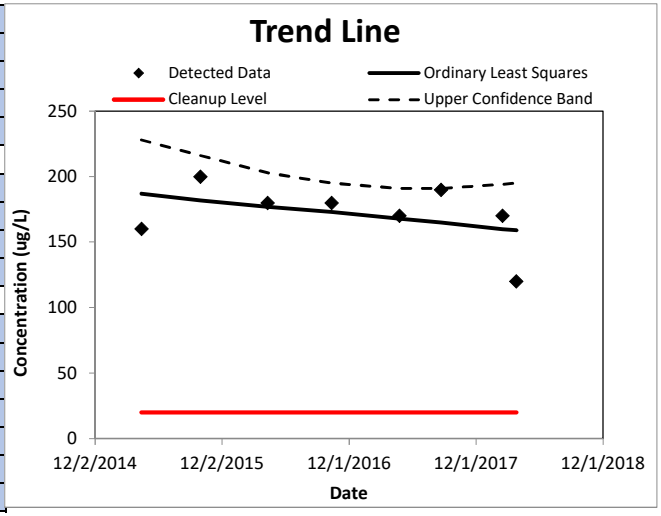
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-59
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	171
Standard deviation of concentration	24.2
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	187
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	195
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

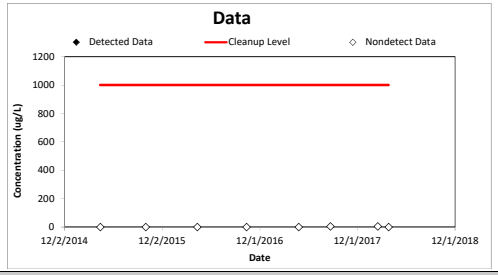
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-59
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
8/22/2017	4	U	No
2/15/2018	4	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

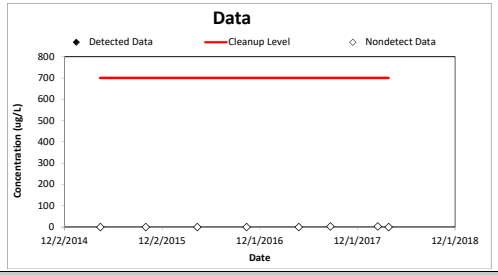
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-59
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
8/22/2017	4	U	No
2/15/2018	4	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

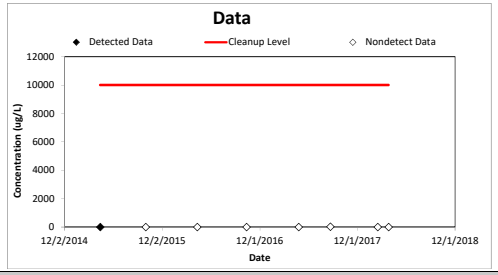
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-59
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/14/2015	5.3		Yes
10/1/2015	5	U	No
4/11/2016	5	U	No
10/12/2016	5	U	No
4/25/2017	10	U	No
8/22/2017	20	U	No
2/15/2018	8	U	No
3/27/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 5.3.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

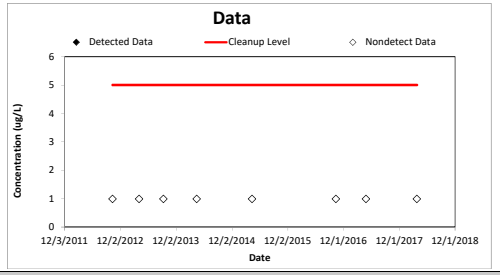
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-55
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

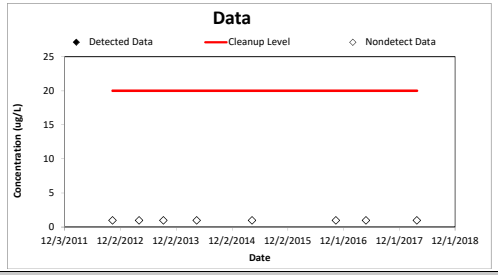
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-55
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

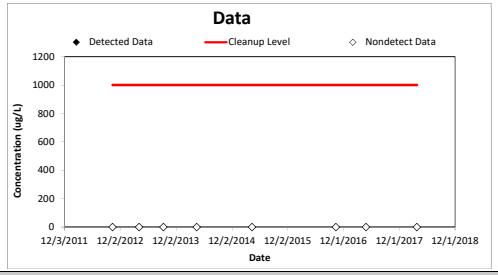
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-55
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

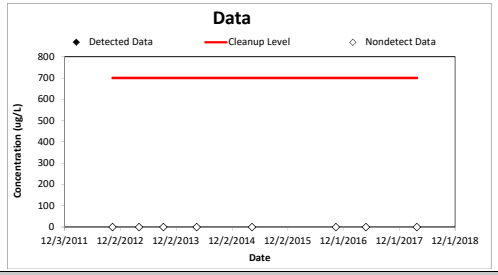
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-55
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

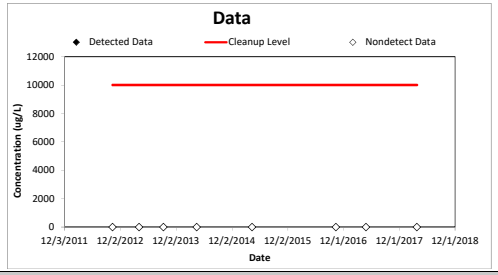
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-55
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	10	U	No
4/2/2013	5	U	No
9/9/2013	10	U	No
4/14/2014	5	U	No
4/13/2015	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
3/26/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

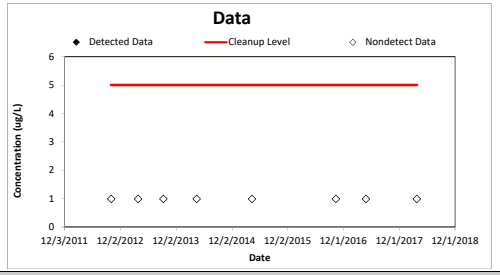
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-54
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

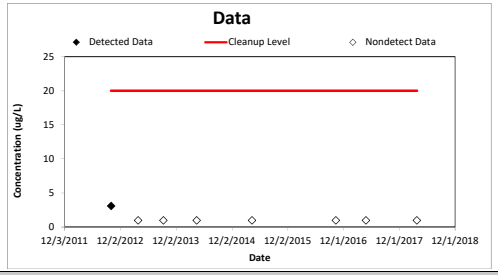
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-54
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	3.1		Yes
3/28/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

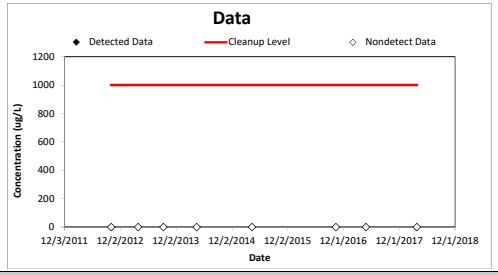
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-54
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

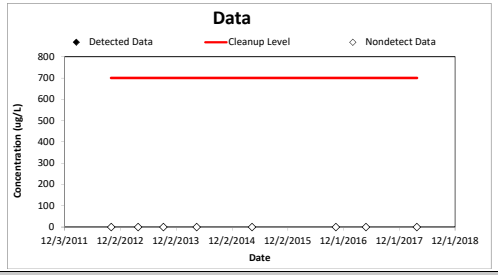
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-54
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

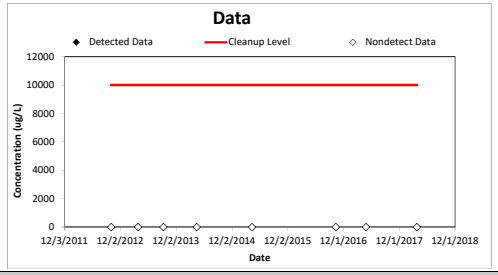
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-54
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	10	U	No
3/28/2013	5	U	No
9/10/2013	10	U	No
4/14/2014	5	U	No
4/13/2015	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
3/26/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

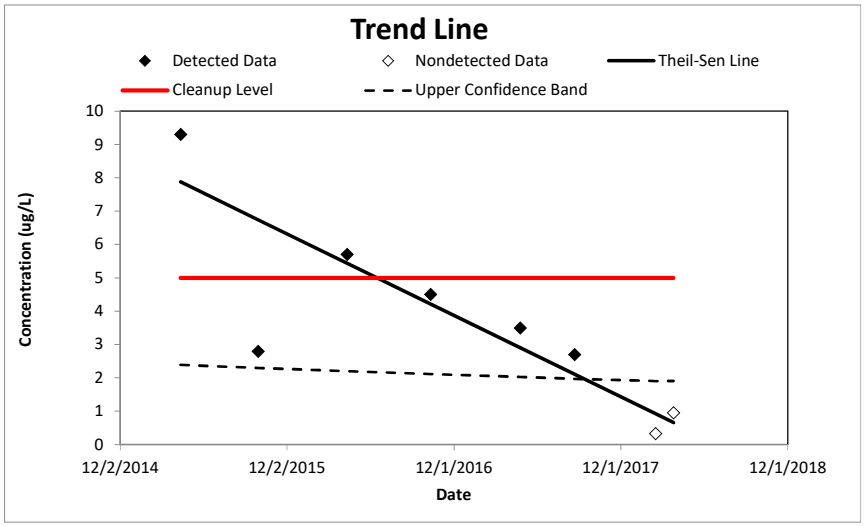
UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-53
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	6
Are any potential outliers present?	No
Mean of concentration	3.81
Standard deviation of concentration	2.56

95% Upper Confidence Limit (UCL)	8.07	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1.91	
Trend calculation method	Theil-Sen/Mann-Kendall	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	



When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

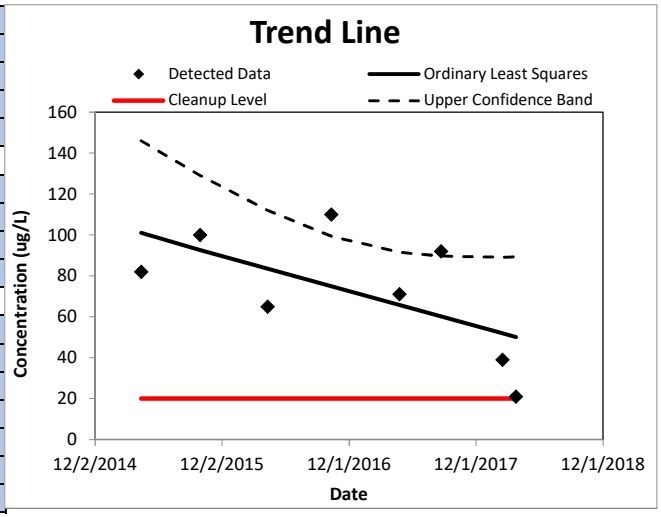
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-53
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	72.5
Standard deviation of concentration	30.4
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	92.9
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	89.3
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

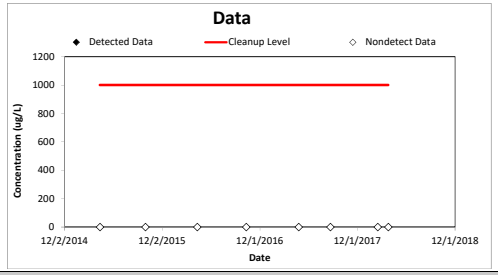
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-53
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/13/2015	1	U	No
9/30/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
8/22/2017	1	U	No
2/15/2018	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

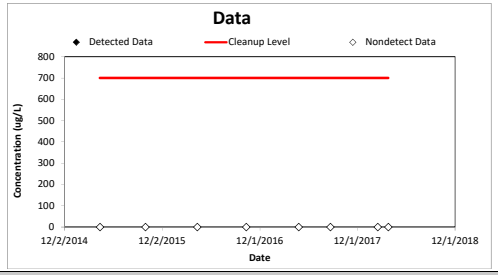
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-53
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/13/2015	1	U	No
9/30/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
8/22/2017	1	U	No
2/15/2018	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

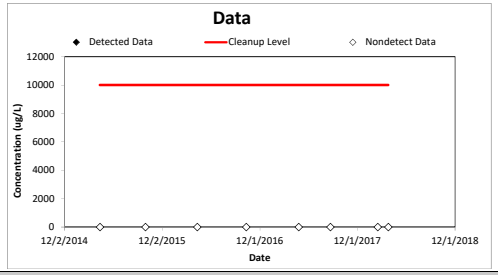
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-53
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/13/2015	5	U	No
9/30/2015	5	U	No
4/11/2016	5	U	No
10/11/2016	5	U	No
4/25/2017	10	U	No
8/22/2017	5	U	No
2/15/2018	2	U	No
3/26/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

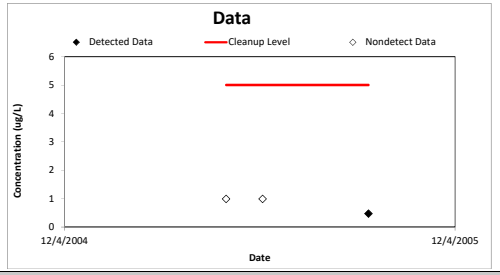
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-52
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	1
Number of nondetect results:	2
Detection frequency:	0.333333333

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/4/2005	1	U	No
6/7/2005	1	U	No
9/14/2005	0.48		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.48.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

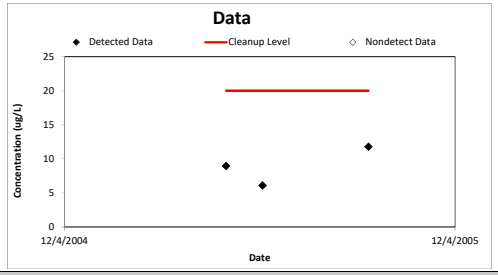
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-52
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	3
Number of nondetect results:	0
Detection frequency:	1

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/4/2005	9		Yes
6/7/2005	6.1		Yes
9/14/2005	11.8		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

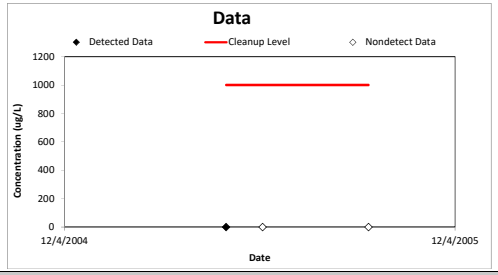
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-52
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	1
Number of nondetect results:	2
Detection frequency:	0.333333333

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/4/2005	0.6		Yes
6/7/2005	1	U	No
9/14/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.6.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

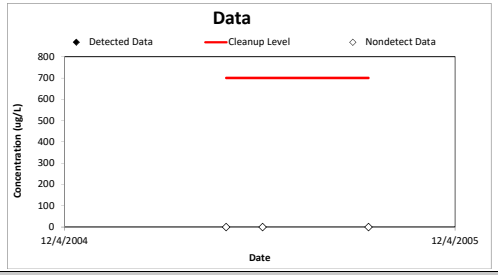
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-52
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/4/2005	1	U	No
6/7/2005	1	U	No
9/14/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

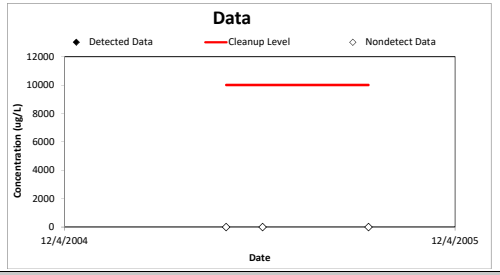
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-52
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/4/2005	1	U	No
6/7/2005	1	U	No
9/14/2005	2	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

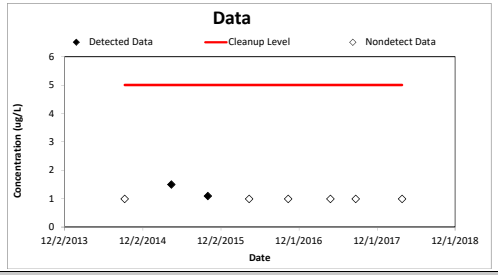
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-51
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	2
Number of nondetect results:	6
Detection frequency:	0.25

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1.5		Yes
10/2/2015	1.1		Yes
4/13/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

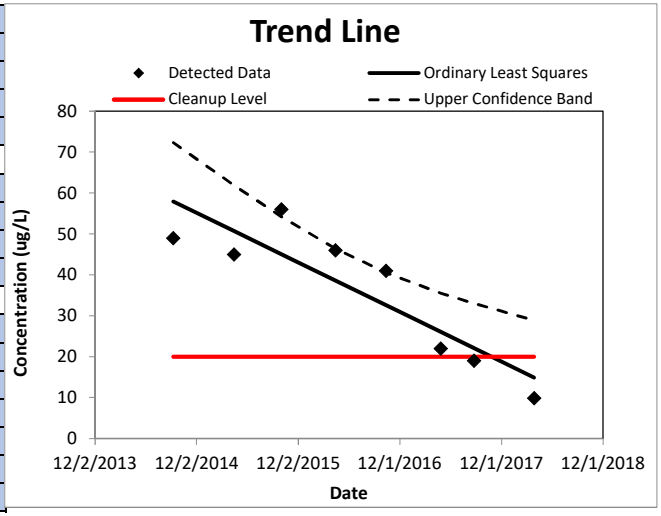
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-51
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	2
Are any potential outliers present?	No
Mean of concentration	36
Standard deviation of concentration	16.7
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	47.2
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	28.9
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

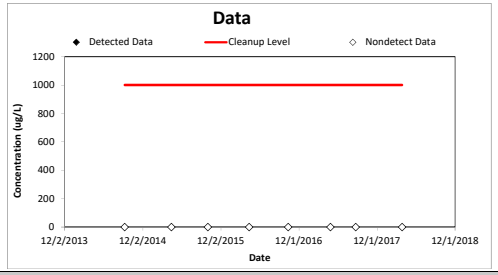
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-51
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
10/2/2015	1	U	No
4/13/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

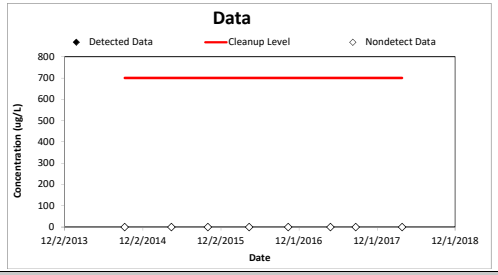
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-51
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
10/2/2015	1	U	No
4/13/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

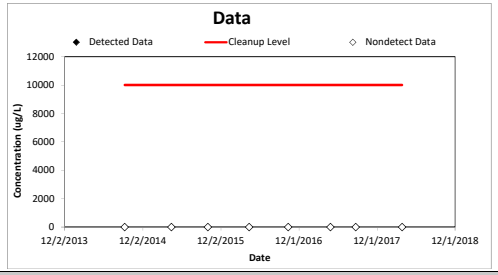
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-51
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	5	U	No
4/15/2015	5	U	No
10/2/2015	5	U	No
4/13/2016	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
8/24/2017	3	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

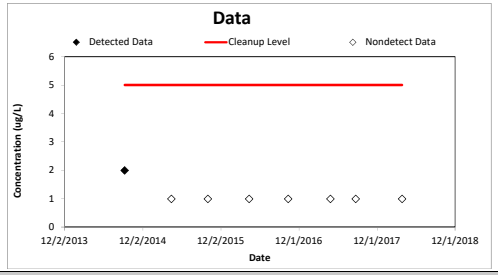
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-50
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	2		Yes
4/15/2015	1	U	No
10/2/2015	1	U	No
4/13/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

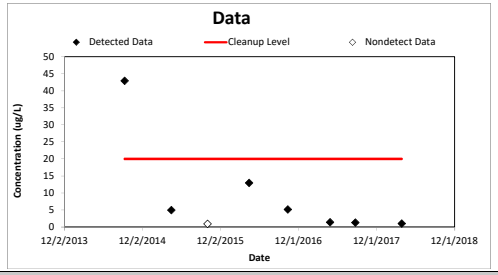
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-50
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	7
Number of nondetect results:	1
Detection frequency:	0.875

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	43		Yes
4/15/2015	5		Yes
10/2/2015	1	U	No
4/13/2016	13		Yes
10/12/2016	5.2		Yes
4/27/2017	1.4		Yes
8/24/2017	1.3		Yes
3/28/2018	1.1		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

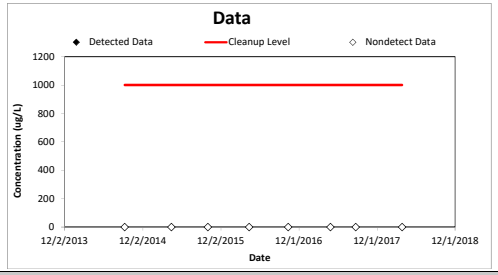
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-50
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
10/2/2015	1	U	No
4/13/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

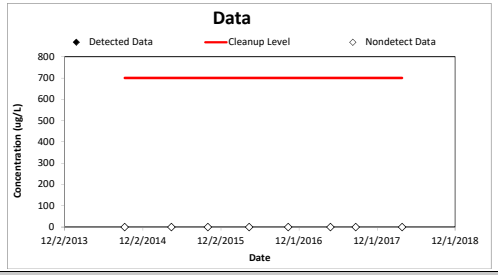
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-50
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
10/2/2015	1	U	No
4/13/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

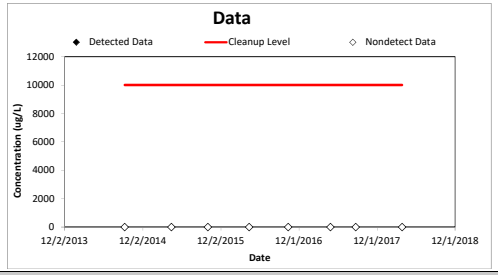
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-50
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	5	U	No
4/15/2015	5	U	No
10/2/2015	5	U	No
4/13/2016	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
8/24/2017	3	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

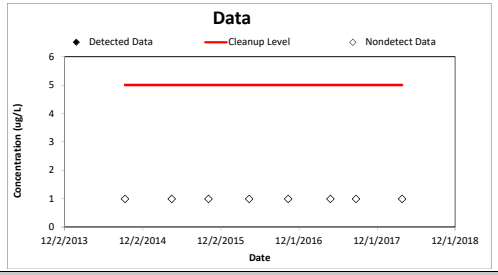
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-49
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/13/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

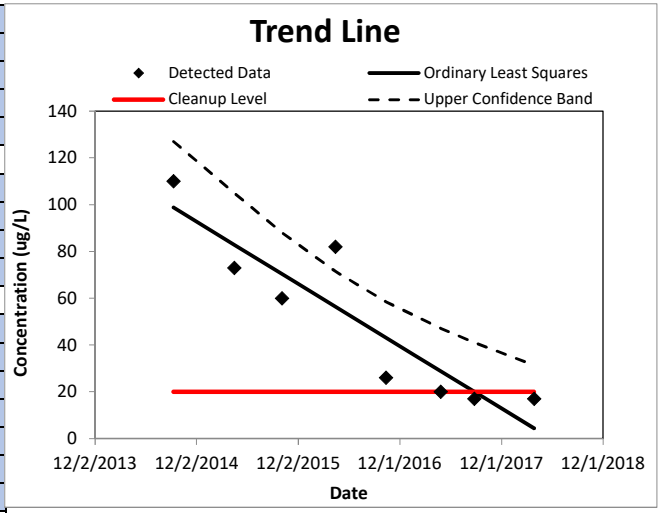
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-49
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	2
Are any potential outliers present?	No
Mean of concentration	50.6
Standard deviation of concentration	35.7
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	74.5
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	31.4
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

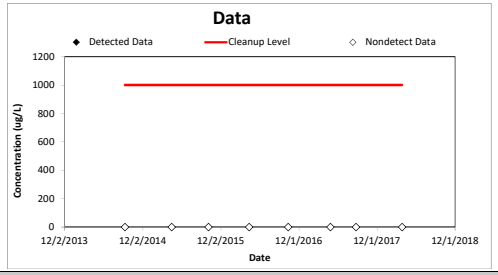
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-49
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/13/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

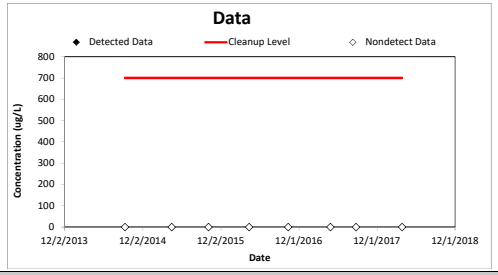
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-49
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/13/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

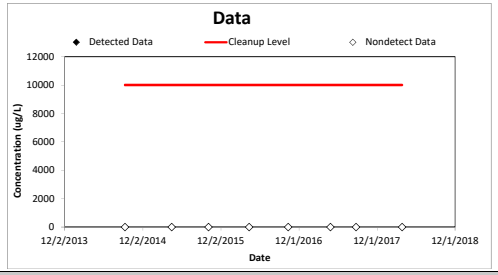
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-49
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	10	U	No
4/16/2015	5	U	No
10/5/2015	5	U	No
4/13/2016	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
8/25/2017	3	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

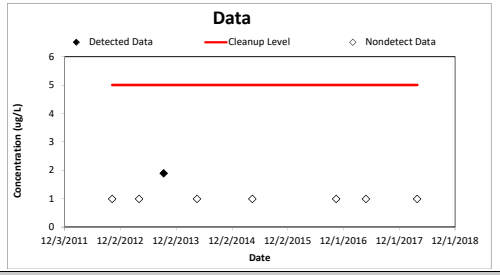
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-48
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/9/2012	1	U	No
4/3/2013	1	U	No
9/11/2013	1.9		Yes
4/16/2014	1	U	No
4/15/2015	1	U	No
10/13/2016	1	U	No
4/27/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

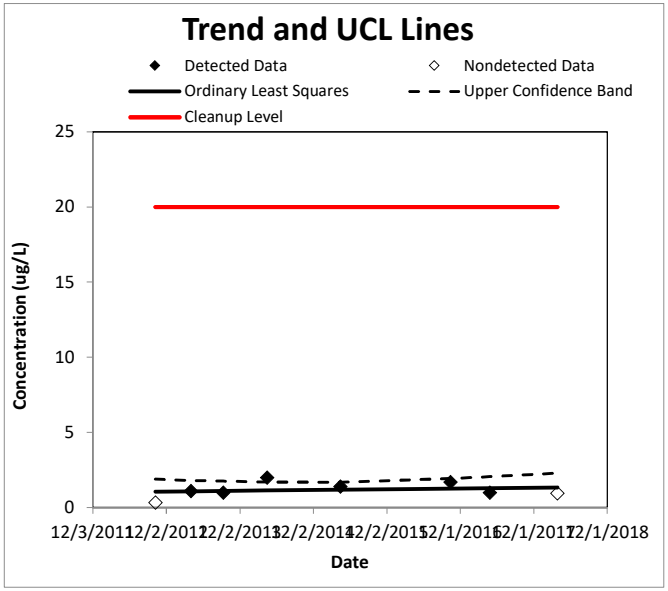
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-48
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	1.28
Standard deviation of concentration	0.363



95% Upper Confidence Limit (UCL)	1.88	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	2.29	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

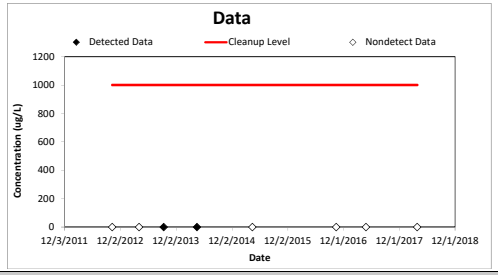
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-48
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	2
Number of nondetect results:	6
Detection frequency:	0.25

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/9/2012	1	U	No
4/3/2013	1	U	No
9/11/2013	1.1		Yes
4/16/2014	1		Yes
4/15/2015	1	U	No
10/13/2016	1	U	No
4/27/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

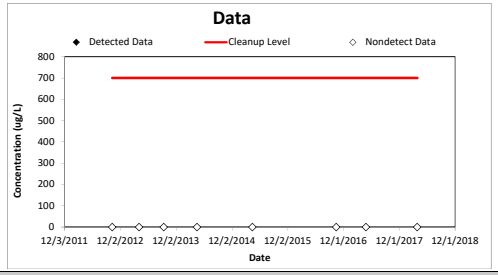
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-48
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/9/2012	1	U	No
4/3/2013	1	U	No
9/11/2013	1	U	No
4/16/2014	1	U	No
4/15/2015	1	U	No
10/13/2016	1	U	No
4/27/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

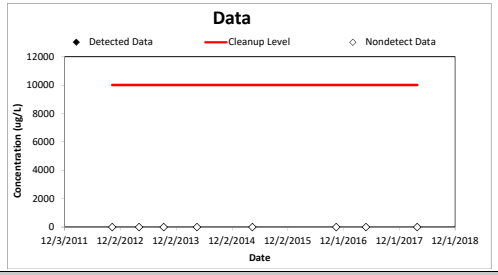
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-48
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/9/2012	10	U	No
4/3/2013	5	U	No
9/11/2013	10	U	No
4/16/2014	5	U	No
4/15/2015	5	U	No
10/13/2016	5	U	No
4/27/2017	10	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

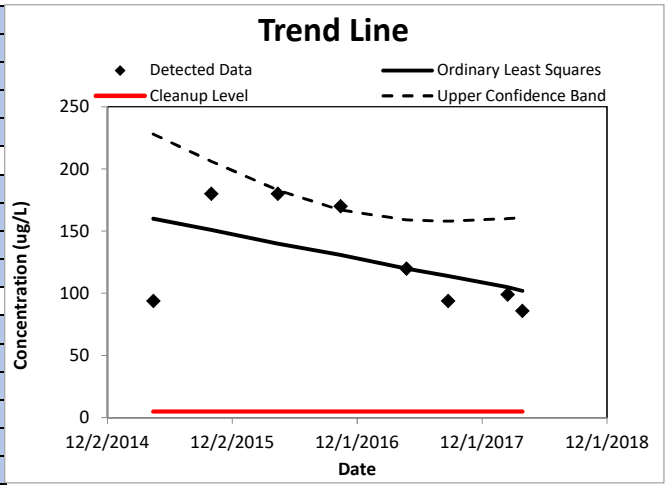
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-47
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	128
Standard deviation of concentration	41.7



95% Upper Confidence Limit (UCL)	192	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	161	
Trend calculation method	Ordinary Least Squares	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

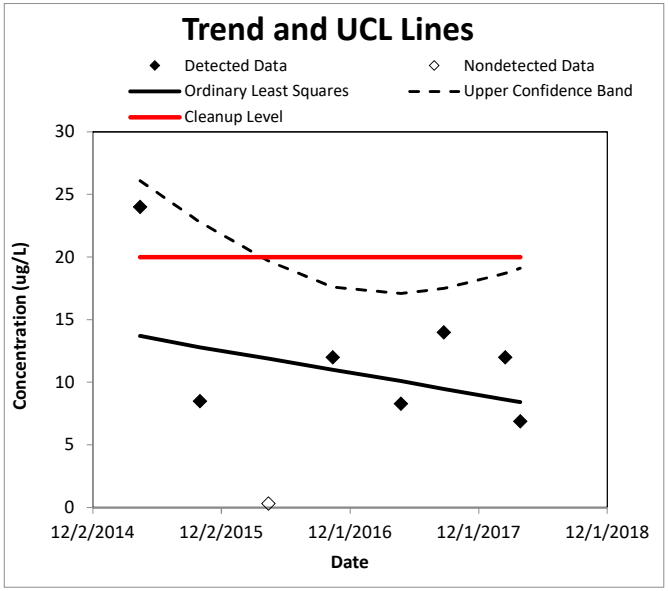
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-47
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	7
Are any potential outliers present?	No
Mean of concentration	10.8
Standard deviation of concentration	6.23



95% Upper Confidence Limit (UCL)	21.1	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	19.1	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

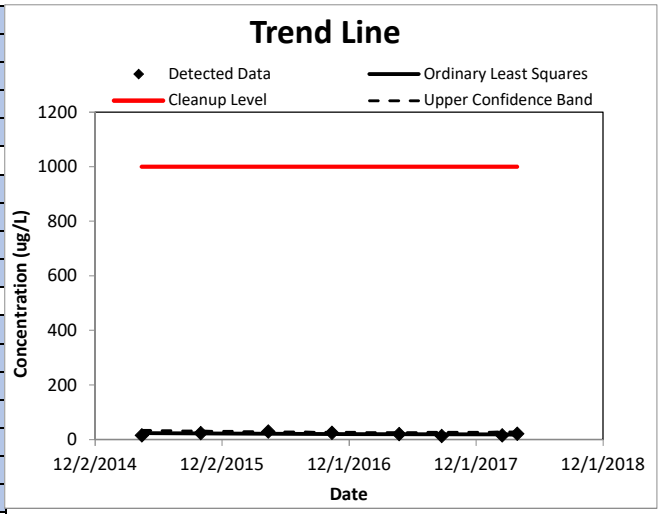
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-47
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	20.6
Standard deviation of concentration	5.6
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	24.4
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	27.1
Trend calculation method	Ordinary Least Squares
Cleanup level	1000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

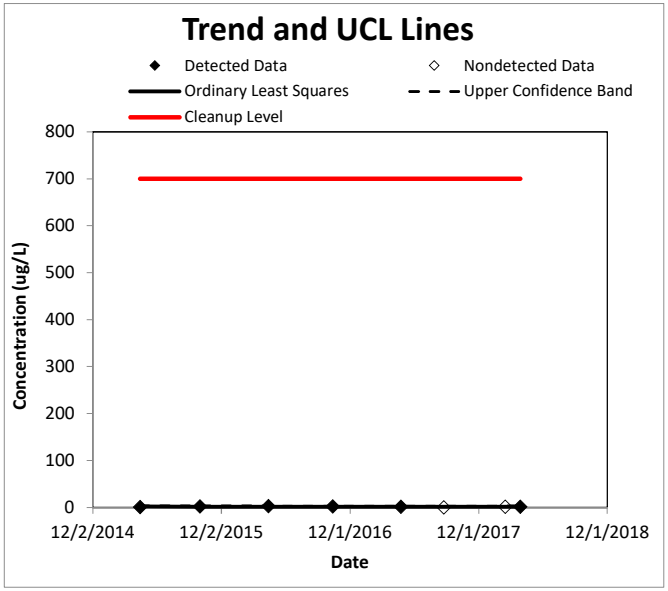
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-47
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	1.87
Standard deviation of concentration	0.614



95% Upper Confidence Limit (UCL)	2.92	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	2.84	
Trend calculation method	Ordinary Least Squares	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

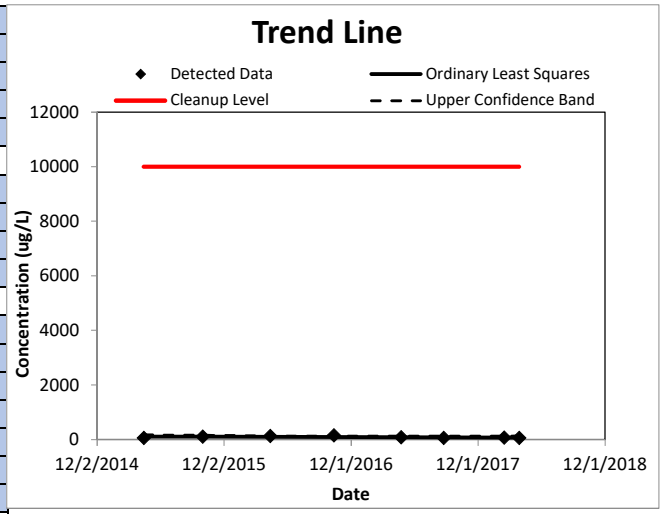
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-47
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	92.1
Standard deviation of concentration	33.9
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	115
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	128
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing

Message: None.

Groundwater Statistics Tool

Data input worksheet

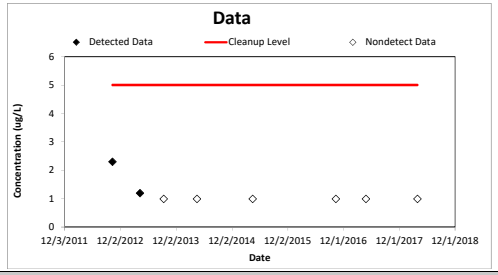
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-46
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	2
Number of nondetect results:	6
Detection frequency:	0.25

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	2.3		Yes
4/10/2013	1.2		Yes
9/11/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

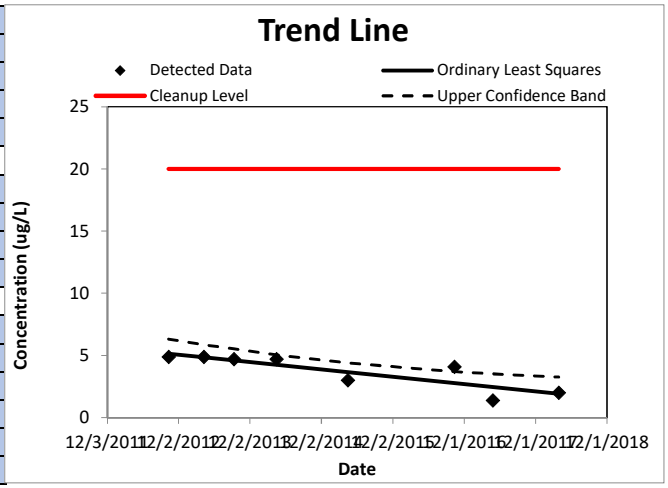
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-46
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	3.71
Standard deviation of concentration	1.4



95% Upper Confidence Limit (UCL)	5.87	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	3.27	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

Groundwater Statistics Tool

Data input worksheet

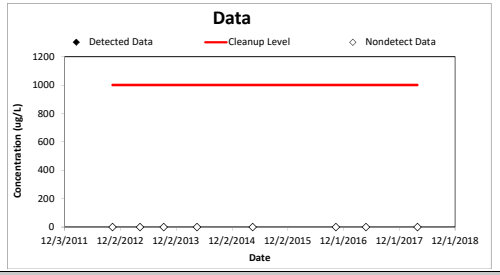
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-46
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/10/2013	1	U	No
9/11/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

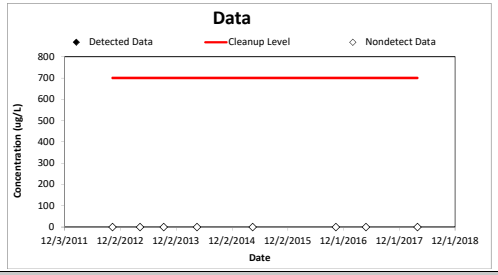
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-46
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/10/2013	1	U	No
9/11/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

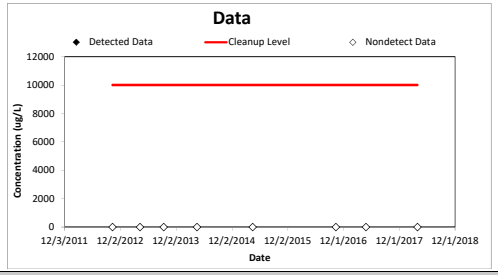
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-46
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	10	U	No
4/10/2013	5	U	No
9/11/2013	10	U	No
4/17/2014	5	U	No
4/16/2015	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

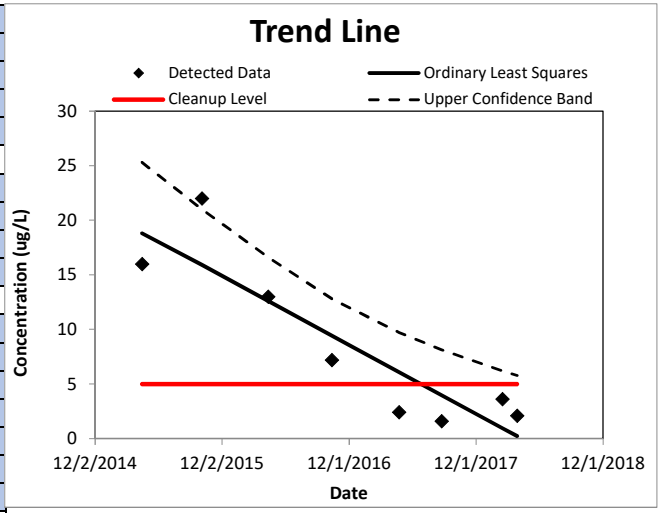
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-45
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	8.49
Standard deviation of concentration	7.66
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	13.6
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	5.78
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

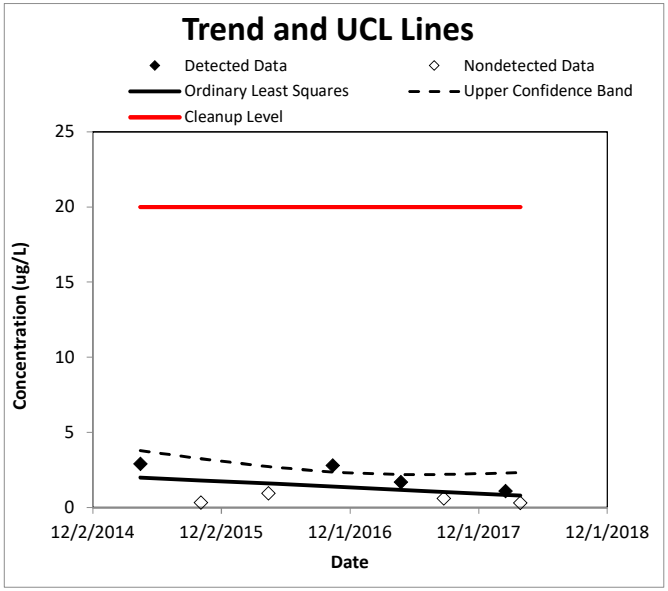
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-45
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	4
Number of non-detected results	4
Detection frequency	50%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	1.56
Standard deviation of concentration	0.776



95% Upper Confidence Limit (UCL)	2.9	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	2.34	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

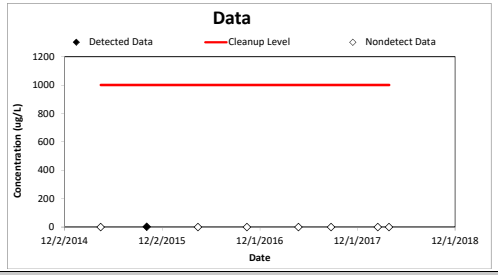
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-45
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2015	1	U	No
10/5/2015	2.5		Yes
4/13/2016	1	U	No
10/13/2016	1	U	No
4/24/2017	1	U	No
8/24/2017	1	U	No
2/15/2018	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

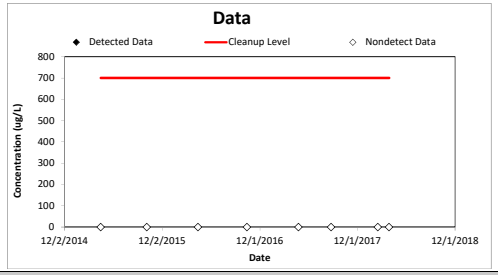
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-45
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2015	1	U	No
10/5/2015	1	U	No
4/13/2016	1	U	No
10/13/2016	1	U	No
4/24/2017	1	U	No
8/24/2017	1	U	No
2/15/2018	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

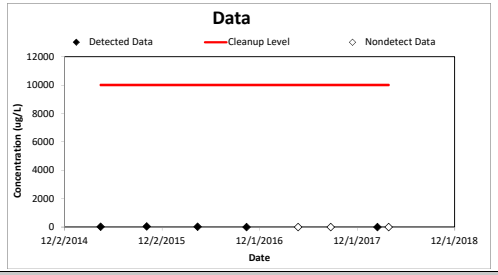
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-45
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	5
Number of nondetect results:	3
Detection frequency:	0.625

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2015	31		Yes
10/5/2015	57		Yes
4/13/2016	17		Yes
10/13/2016	13		Yes
4/24/2017	10	U	No
8/24/2017	3	U	No
2/15/2018	2.5		Yes
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

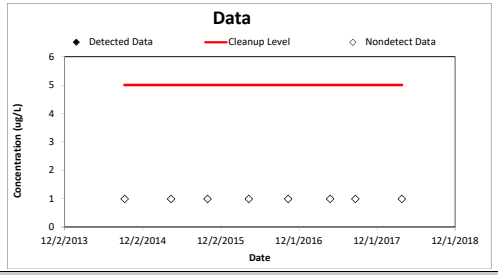
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-44B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

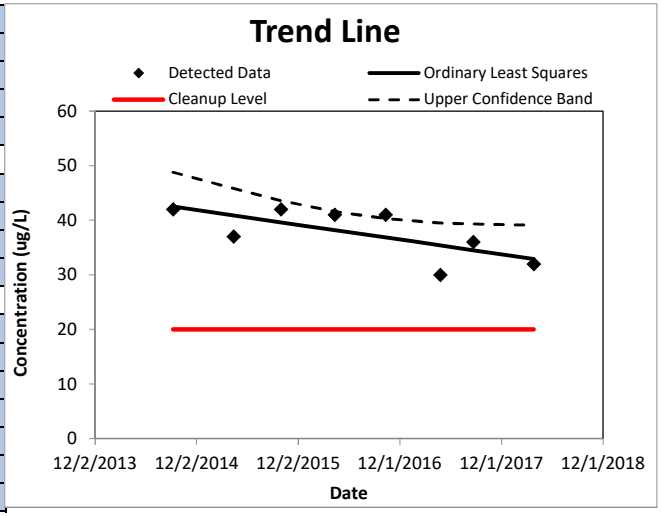
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-44B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	37.6
Standard deviation of concentration	4.69
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	40.7
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	39.1
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

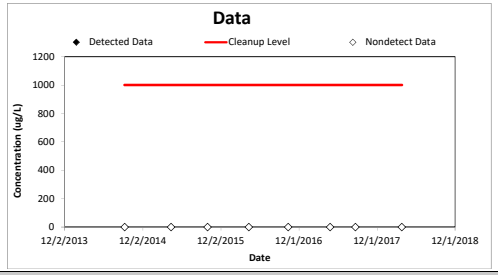
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-44B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

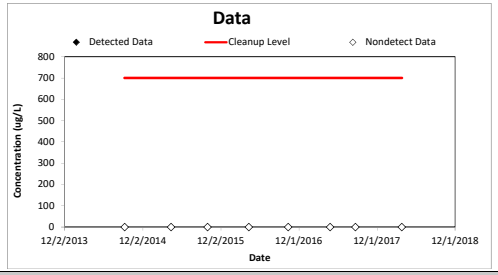
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-44B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

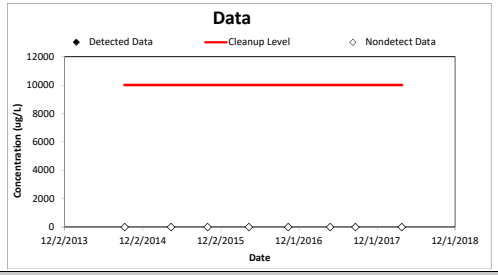
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-44B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	5	U	No
4/14/2015	5	U	No
10/1/2015	5	U	No
4/11/2016	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
8/22/2017	5	U	No
3/27/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

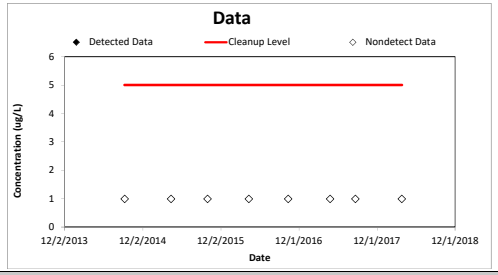
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-44A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

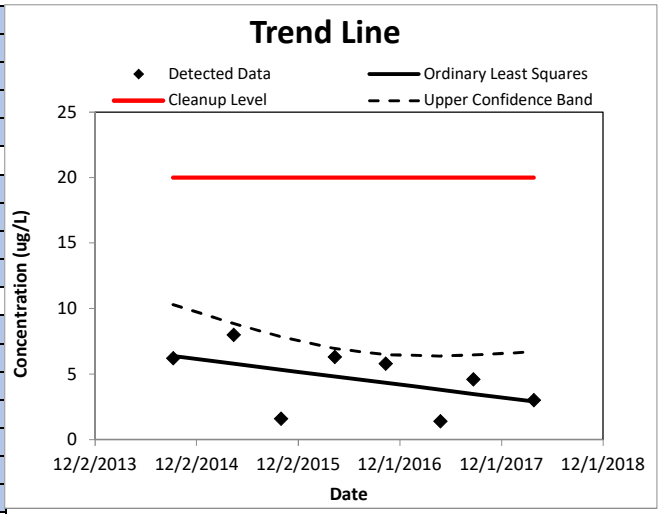
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-44A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	4.61
Standard deviation of concentration	2.4
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	6.22
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	6.71
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

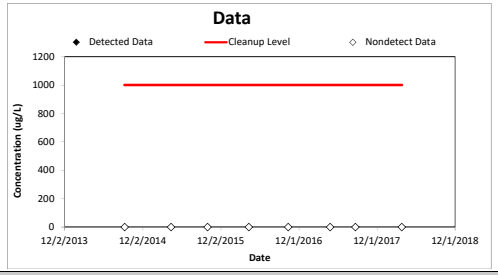
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-44A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

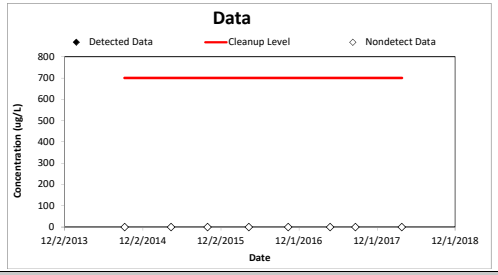
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-44A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

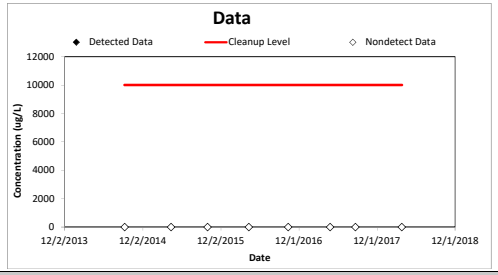
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-44A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	5	U	No
4/14/2015	5	U	No
10/1/2015	5	U	No
4/11/2016	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
8/22/2017	5	U	No
3/27/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

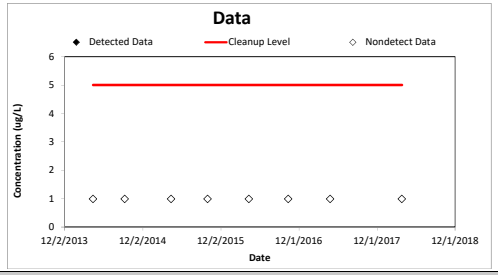
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-43B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/14/2014	1	U	No
9/8/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

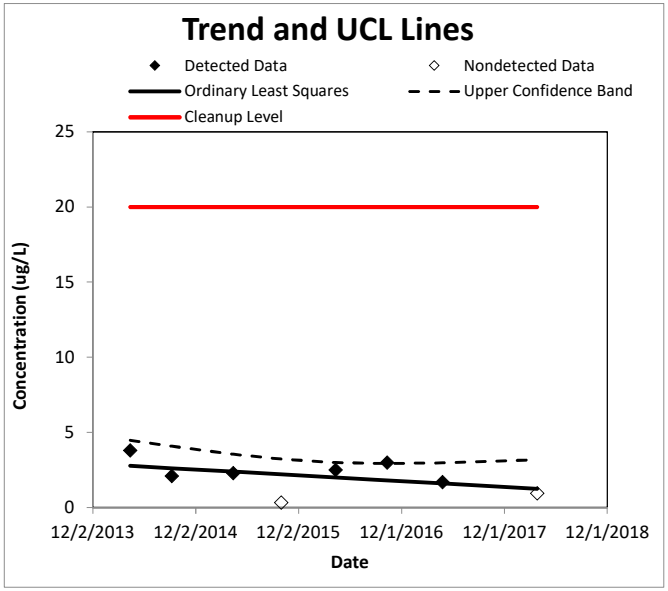
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-43B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	2.18
Standard deviation of concentration	0.897



95% Upper Confidence Limit (UCL)	3.67	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	3.19	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

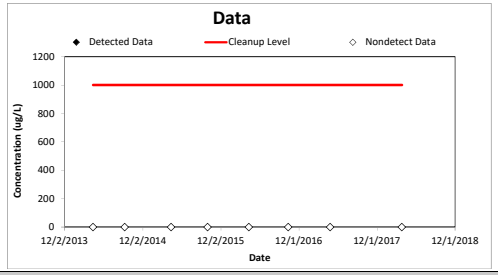
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-43B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/14/2014	1	U	No
9/8/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

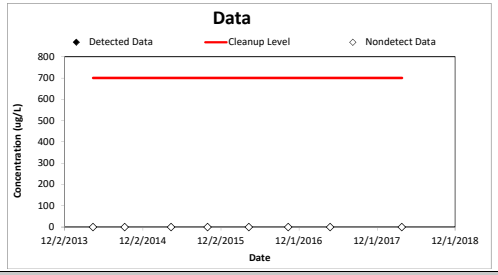
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-43B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/14/2014	1	U	No
9/8/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

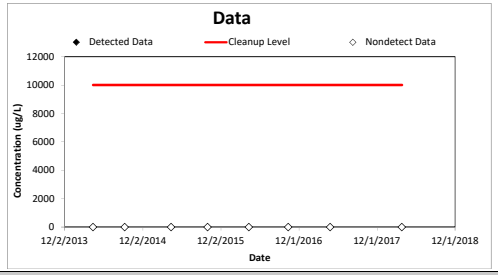
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-43B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/14/2014	5	U	No
9/8/2014	5	U	No
4/14/2015	5	U	No
10/1/2015	5	U	No
4/11/2016	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
3/27/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

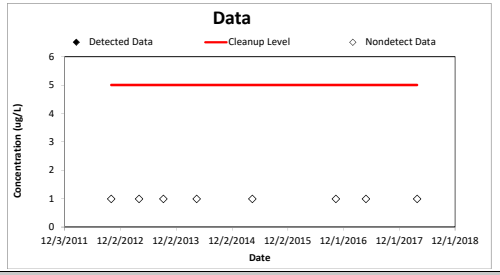
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-43A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

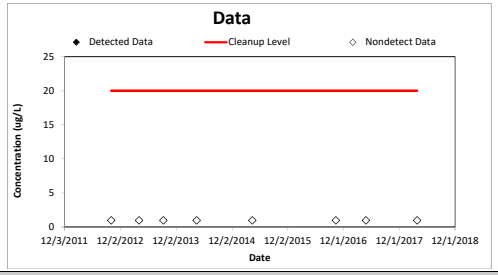
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-43A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

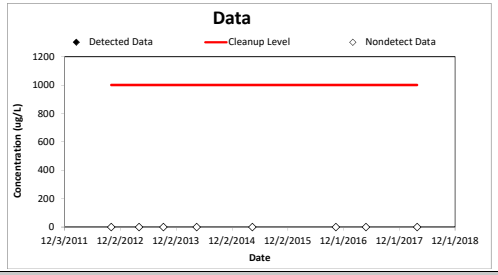
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-43A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

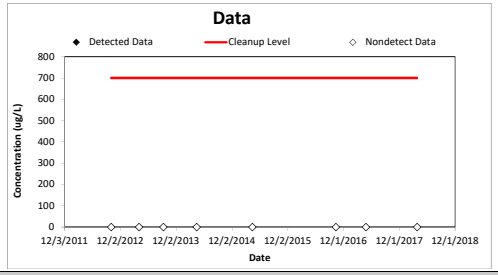
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-43A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

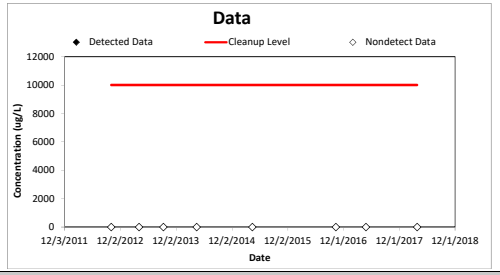
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-43A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	10	U	No
4/2/2013	5	U	No
9/9/2013	10	U	No
4/14/2014	5	U	No
4/14/2015	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
3/27/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

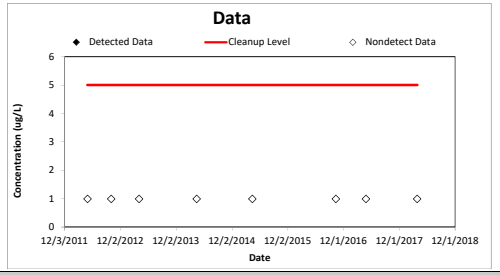
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-42
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/30/2012	1	U	No
10/3/2012	1	U	No
4/2/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

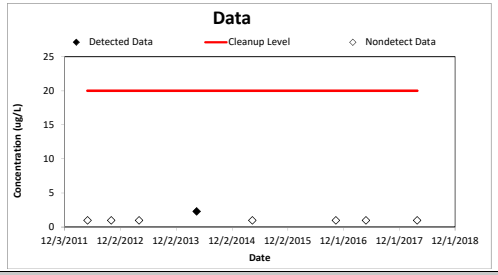
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-42
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/30/2012	1	U	No
10/3/2012	1	U	No
4/2/2013	1	U	No
4/14/2014	2.3		Yes
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

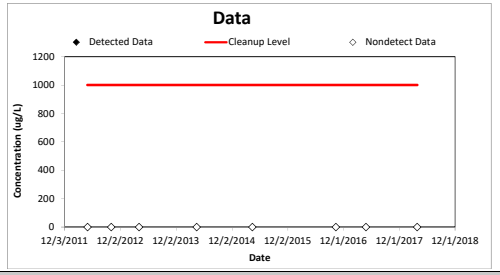
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-42
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/30/2012	1	U	No
10/3/2012	1	U	No
4/2/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

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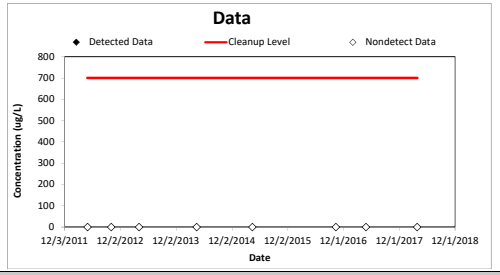
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-42
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/30/2012	1	U	No
10/3/2012	1	U	No
4/2/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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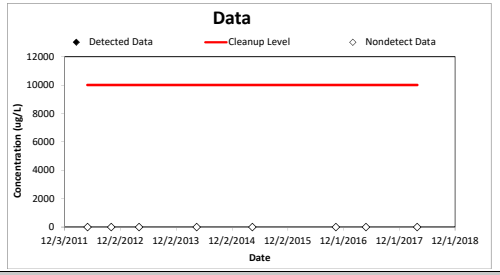
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-42
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/30/2012	5	U	No
10/3/2012	10	U	No
4/2/2013	5	U	No
4/14/2014	5	U	No
4/14/2015	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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Groundwater Statistics Tool

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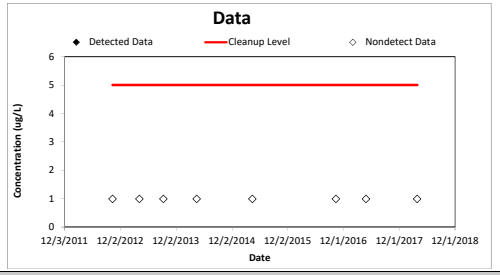
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-41B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Are all data within chart axis limits?	Yes	None

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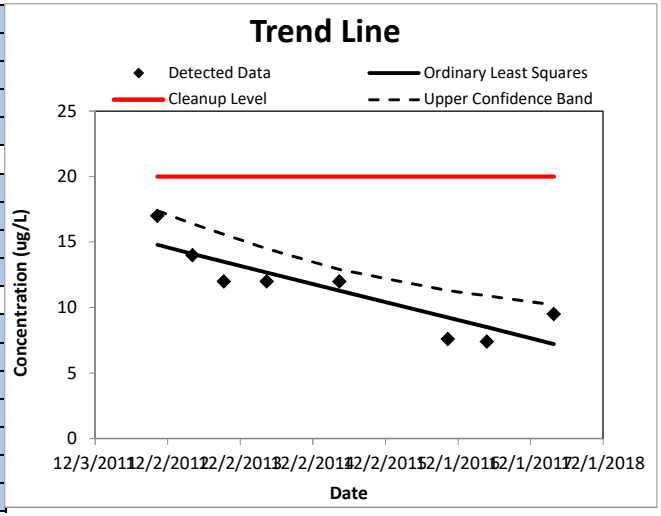
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-41B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	11.4
Standard deviation of concentration	3.23
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	13.6
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	10.2
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

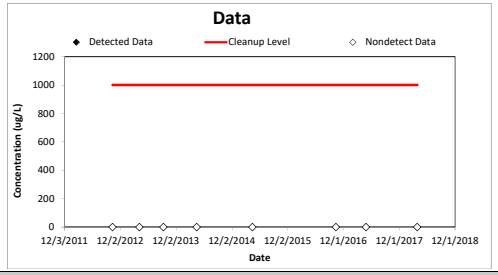
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-41B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
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Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

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Groundwater Statistics Tool

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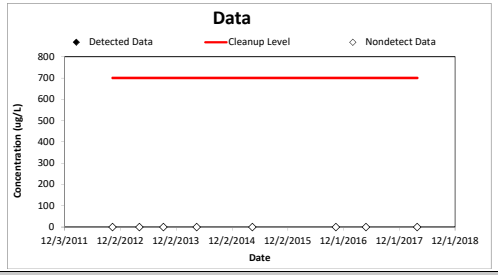
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-41B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
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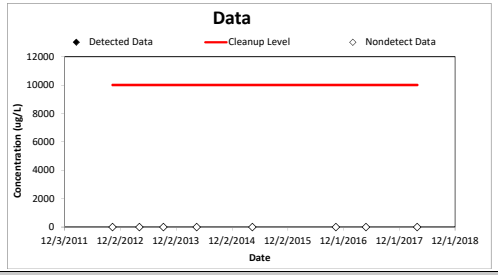
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-41B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	10	U	No
4/5/2013	5	U	No
9/10/2013	10	U	No
4/14/2014	5	U	No
4/14/2015	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
3/28/2018	3	U	No



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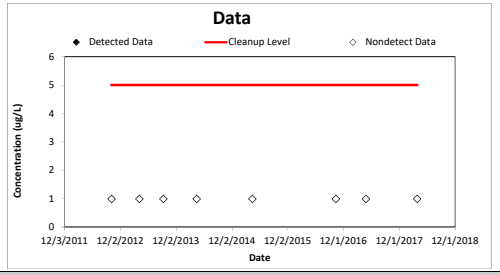
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-41A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/28/2018	1	U	No



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Time		Concentration	
Min	Max	Min	Max
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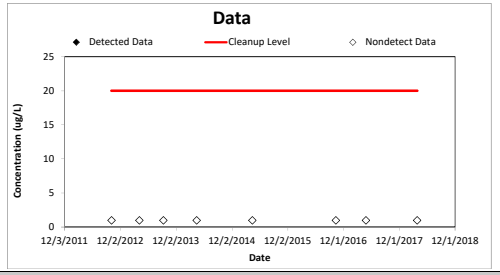
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-41A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/28/2018	1	U	No



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Time		Concentration	
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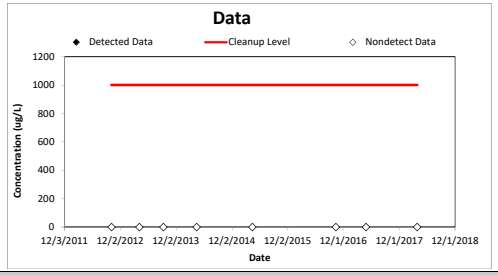
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-41A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
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Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
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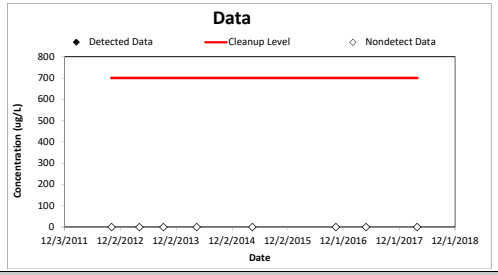
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-41A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

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Groundwater Statistics Tool

Data input worksheet

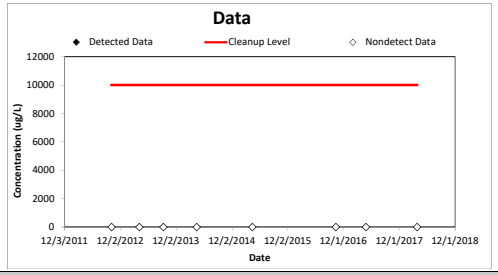
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-41A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	10	U	No
4/5/2013	5	U	No
9/10/2013	10	U	No
4/14/2014	5	U	No
4/14/2015	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

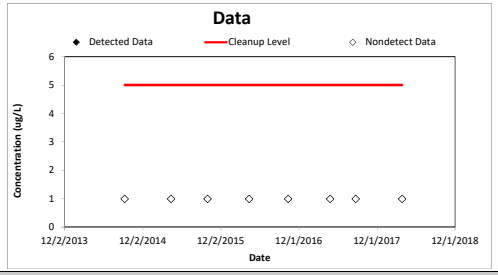
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-40
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/12/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/23/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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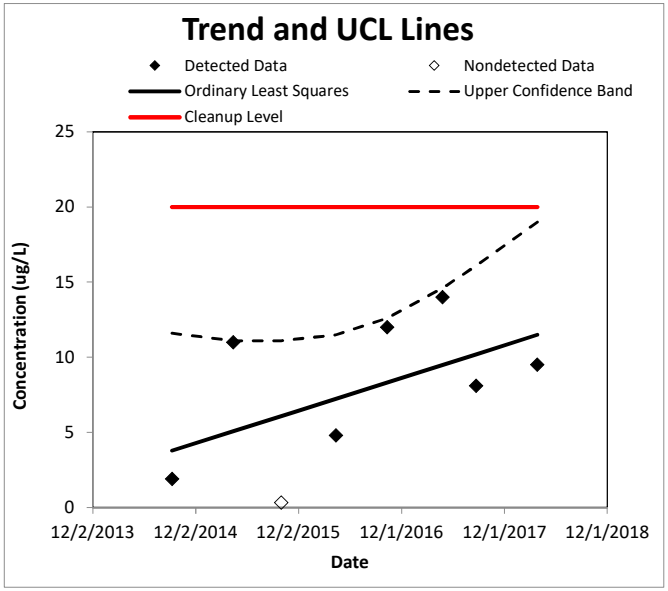
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-40
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	7.79
Standard deviation of concentration	4.46



95% Upper Confidence Limit (UCL)	15.1	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	19	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

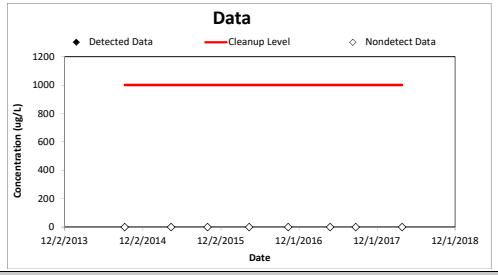
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-40
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/12/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/23/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

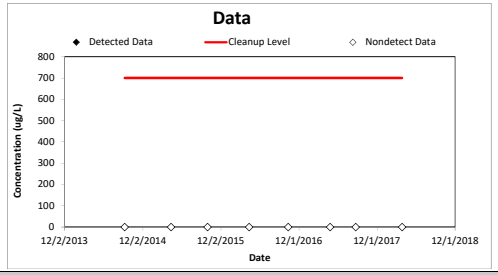
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-40
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/14/2015	1	U	No
10/1/2015	1	U	No
4/12/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/23/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

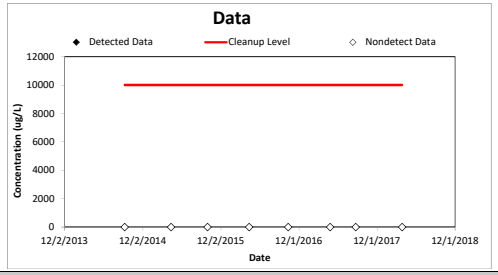
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-40
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	5	U	No
4/14/2015	5	U	No
10/1/2015	5	U	No
4/12/2016	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
8/23/2017	3	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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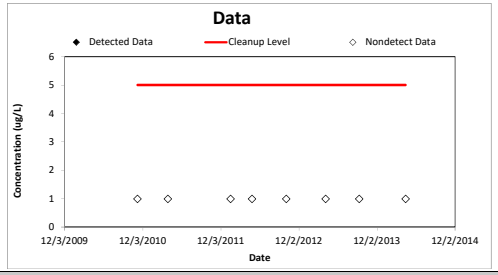
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-39R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
3/30/2011	1	U	No
1/18/2012	1	U	No
4/26/2012	1	U	No
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

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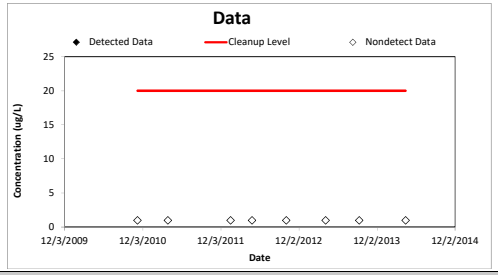
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-39R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
3/30/2011	1	U	No
1/18/2012	1	U	No
4/26/2012	1	U	No
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

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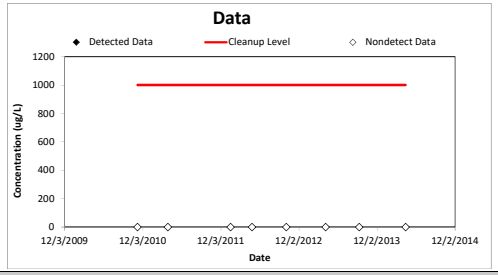
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-39R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
3/30/2011	1	U	No
1/18/2012	1	U	No
4/26/2012	1	U	No
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

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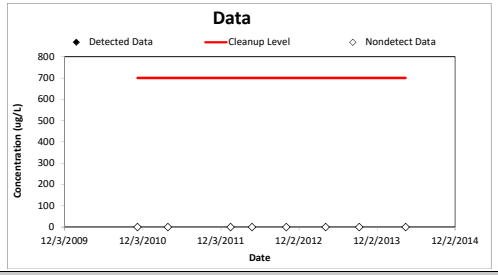
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-39R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
3/30/2011	1	U	No
1/18/2012	1	U	No
4/26/2012	1	U	No
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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Are all data within chart axis limits?	Yes	None

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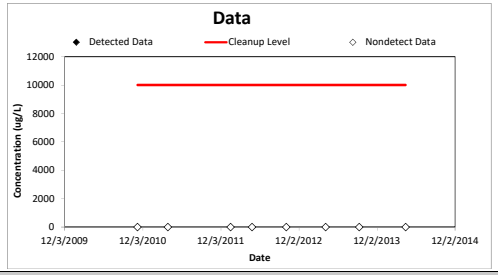
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-39R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	5	U	No
3/30/2011	5	U	No
1/18/2012	5	U	No
4/26/2012	5	U	No
10/4/2012	10	U	No
4/5/2013	5	U	No
9/10/2013	10	U	No
4/14/2014	5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

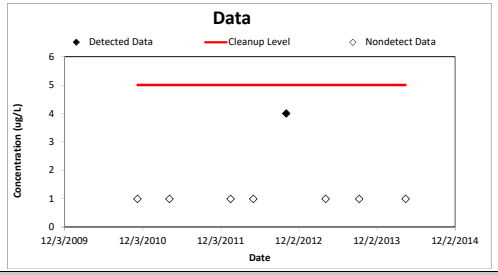
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-38
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
4/7/2011	1	U	No
1/18/2012	1	U	No
5/3/2012	1	U	No
10/4/2012	4		Yes
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

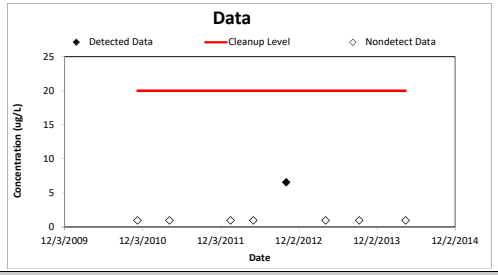
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-38
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
4/7/2011	1	U	No
1/18/2012	1	U	No
5/3/2012	1	U	No
10/4/2012	6.6		Yes
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

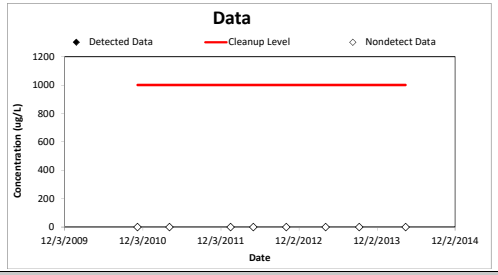
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-38
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
4/7/2011	1	U	No
1/18/2012	1	U	No
5/3/2012	1	U	No
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

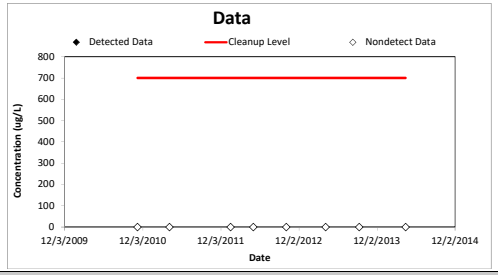
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-38
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
4/7/2011	1	U	No
1/18/2012	1	U	No
5/3/2012	1	U	No
10/4/2012	1	U	No
4/5/2013	1	U	No
9/10/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

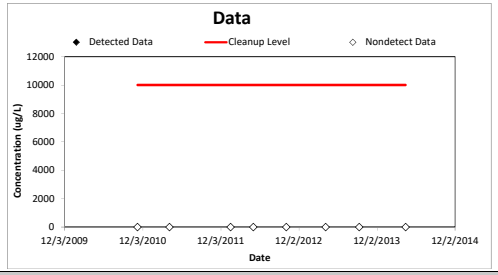
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-38
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	5	U	No
4/7/2011	5	U	No
1/18/2012	5	U	No
5/3/2012	5	U	No
10/4/2012	10	U	No
4/5/2013	5	U	No
9/10/2013	10	U	No
4/14/2014	5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-37
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	2
Number of detected results:	0
Number of nondetect results:	2
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/21/2004	1	U	No
7/19/2004	1	U	No



Axis Values			
Time		**Concentration**	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

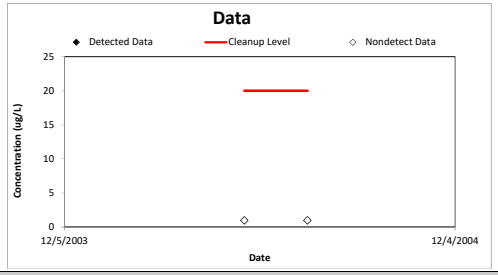
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-37
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	2
Number of detected results:	0
Number of nondetect results:	2
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/21/2004	1	U	No
7/19/2004	1	U	No



Axis Values			
Time		**Concentration**	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis
Chemical of Concern	Toluene
Well Name/Number	MW-37
Date Units	Date
Concentration Units	ug/L
Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3
Number of data points:	2
Number of detected results:	0
Number of nondetect results:	2
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/21/2004	1	U	No
7/19/2004	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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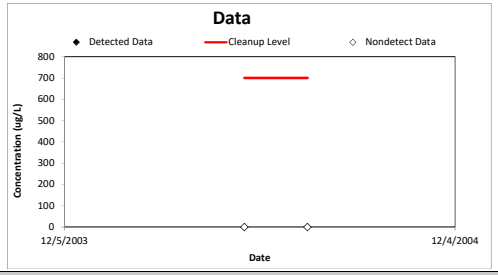
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-37
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	2
Number of detected results:	0
Number of nondetect results:	2
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/21/2004	1	U	No
7/19/2004	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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Groundwater Statistics Tool

Data input worksheet

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-37
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	2
Number of detected results:	0
Number of nondetect results:	2
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/21/2004	1	U	No
7/19/2004	1	U	No



Axis Values			
Time		**Concentration**	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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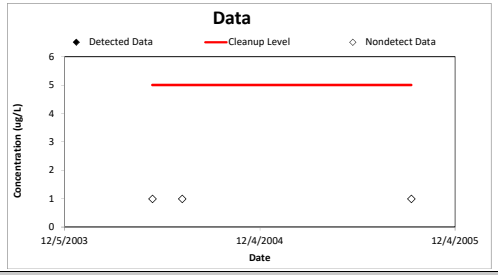
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-34B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/17/2004	1	U	No
7/12/2004	1	U	No
9/13/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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Data input worksheet

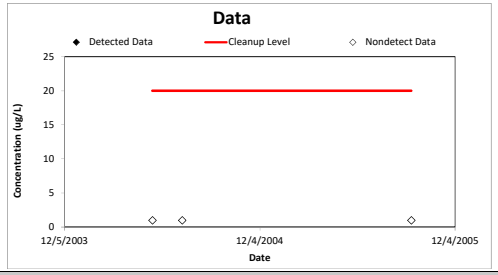
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-34B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/17/2004	1	U	No
7/12/2004	1	U	No
9/13/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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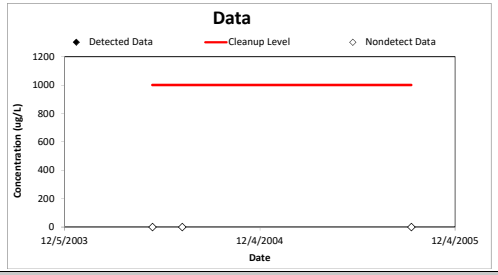
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-34B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/17/2004	1	U	No
7/12/2004	1	U	No
9/13/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

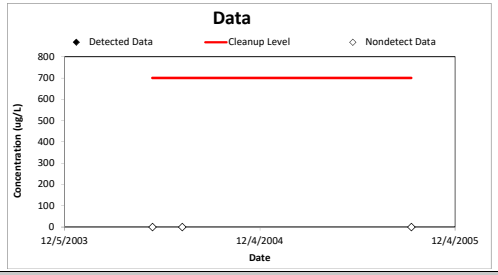
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-34B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/17/2004	1	U	No
7/12/2004	1	U	No
9/13/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

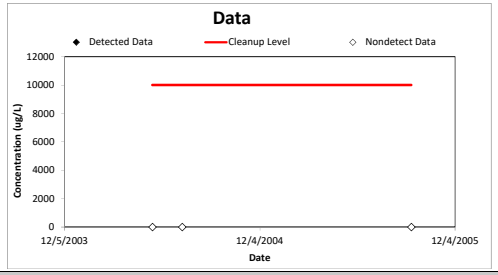
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-34B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/17/2004	1	U	No
7/12/2004	1	U	No
9/13/2005	2	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

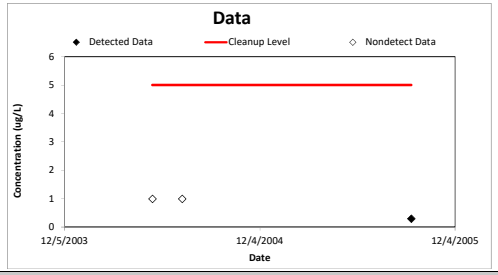
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-34A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	1
Number of nondetect results:	2
Detection frequency:	0.333333333

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/17/2004	1	U	No
7/12/2004	1	U	No
9/13/2005	0.3		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.3.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

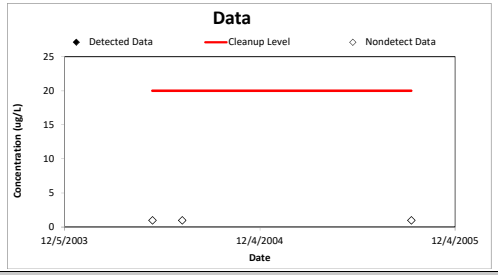
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-34A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/17/2004	1	U	No
7/12/2004	1	U	No
9/13/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

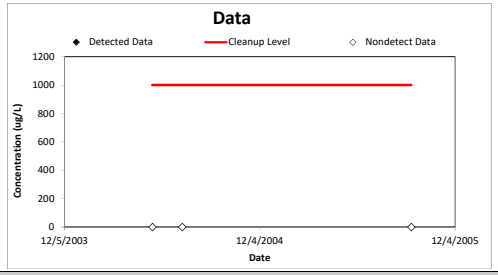
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-34A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/17/2004	1	U	No
7/12/2004	1	U	No
9/13/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

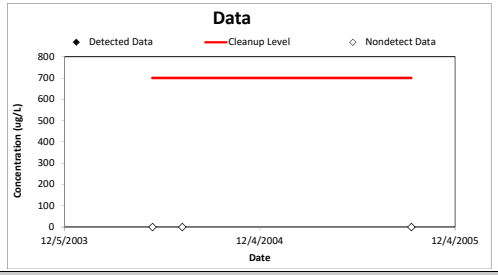
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-34A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/17/2004	1	U	No
7/12/2004	1	U	No
9/13/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

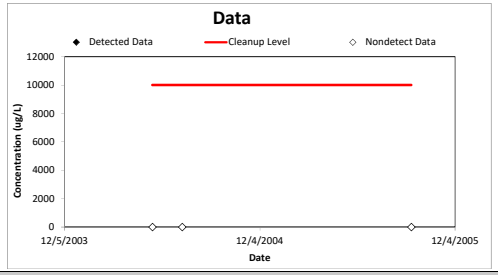
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-34A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/17/2004	1	U	No
7/12/2004	1	U	No
9/13/2005	2	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

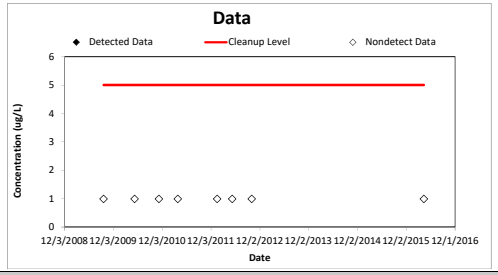
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-33S
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/21/2009	1	U	No
5/11/2010	1	U	No
11/8/2010	1	U	No
3/30/2011	1	U	No
1/18/2012	1	U	No
5/8/2012	1	U	No
10/2/2012	1	U	No
4/11/2016	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

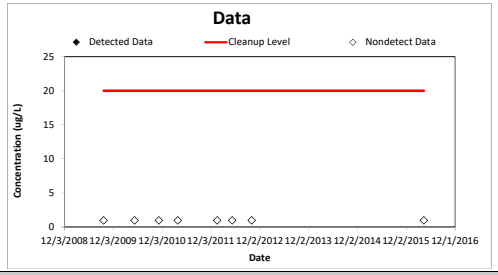
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-33S
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/21/2009	1	U	No
5/11/2010	1	U	No
11/8/2010	1	U	No
3/30/2011	1	U	No
1/18/2012	1	U	No
5/8/2012	1	U	No
10/2/2012	1	U	No
4/11/2016	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

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Groundwater Statistics Tool

Data input worksheet

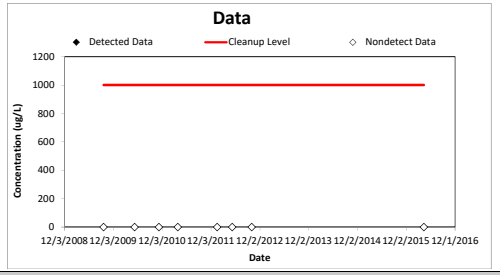
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-33S
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/21/2009	1	U	No
5/11/2010	1	U	No
11/8/2010	1	U	No
3/30/2011	1	U	No
1/18/2012	1	U	No
5/8/2012	1	U	No
10/2/2012	1	U	No
4/11/2016	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

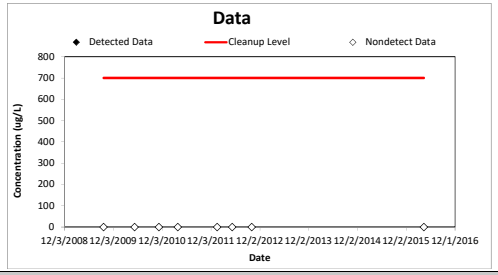
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-33S
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/21/2009	1	U	No
5/11/2010	1	U	No
11/8/2010	1	U	No
3/30/2011	1	U	No
1/18/2012	1	U	No
5/8/2012	1	U	No
10/2/2012	1	U	No
4/11/2016	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

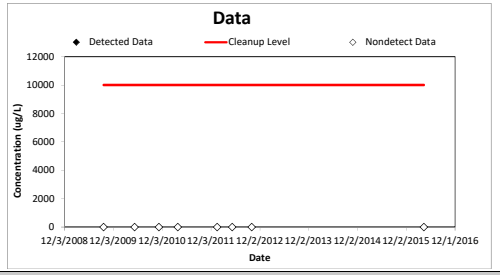
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-33S
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/21/2009	2	U	No
5/11/2010	5	U	No
11/8/2010	5	U	No
3/30/2011	5	U	No
1/18/2012	5	U	No
5/8/2012	5	U	No
10/2/2012	10	U	No
4/11/2016	5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

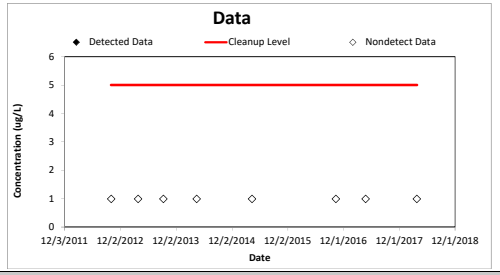
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-33C
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

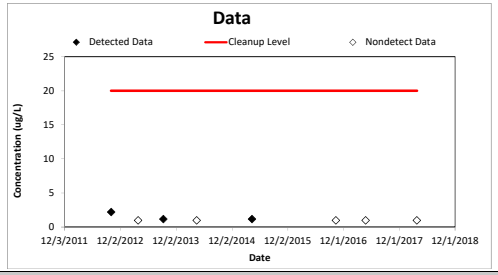
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-33C
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	3
Number of nondetect results:	5
Detection frequency:	0.375

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	2.2		Yes
3/28/2013	1	U	No
9/9/2013	1.2		Yes
4/14/2014	1	U	No
4/13/2015	1.2		Yes
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

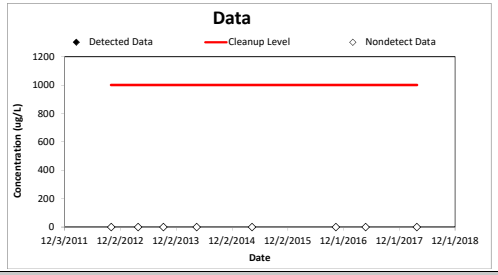
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-33C
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

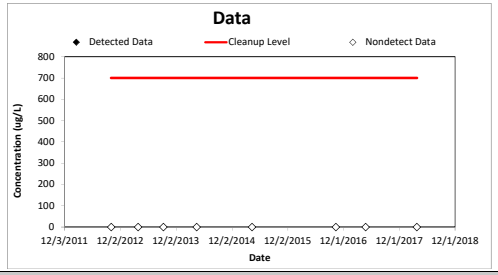
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-33C
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

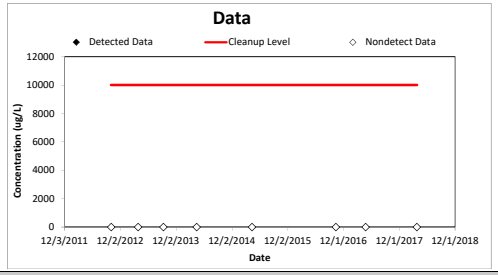
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-33C
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	10	U	No
3/28/2013	5	U	No
9/9/2013	10	U	No
4/14/2014	5	U	No
4/13/2015	5	U	No
10/11/2016	5	U	No
4/25/2017	10	U	No
3/26/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

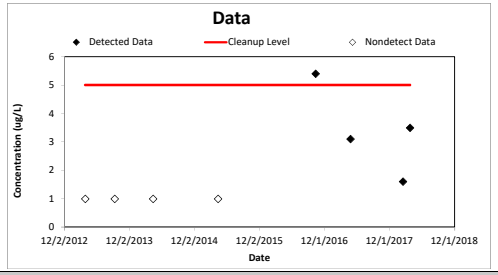
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-33B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	4
Number of nondetect results:	4
Detection frequency:	0.5

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	5.4		Yes
4/25/2017	3.1		Yes
2/15/2018	1.6		Yes
3/26/2018	3.5		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

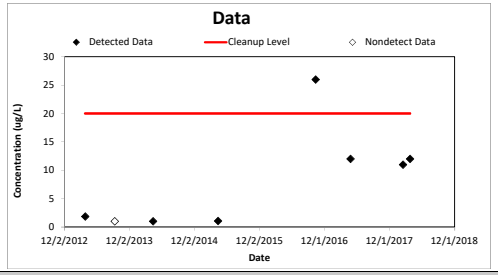
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-33B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	7
Number of nondetect results:	1
Detection frequency:	0.875

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/28/2013	1.9		Yes
9/9/2013	1	U	No
4/14/2014	1		Yes
4/13/2015	1.1		Yes
10/11/2016	26		Yes
4/25/2017	12		Yes
2/15/2018	11		Yes
3/26/2018	12		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

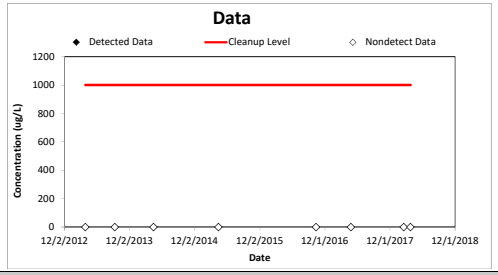
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-33B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
2/15/2018	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

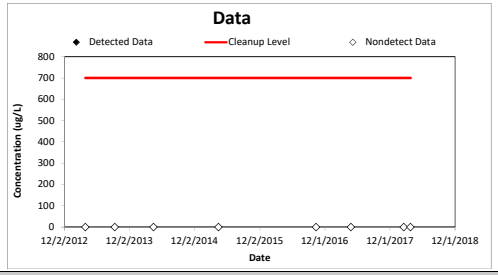
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-33B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
2/15/2018	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

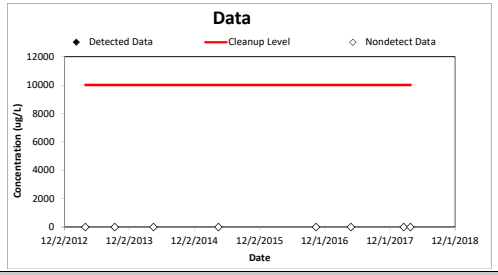
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-33B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/28/2013	5	U	No
9/9/2013	10	U	No
4/14/2014	5	U	No
4/13/2015	5	U	No
10/11/2016	5	U	No
4/25/2017	10	U	No
2/15/2018	2	U	No
3/26/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

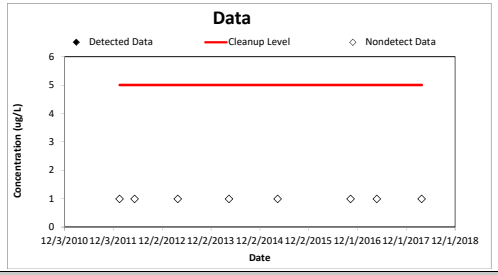
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-33A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
1/18/2012	1	U	No
5/8/2012	1	U	No
3/28/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

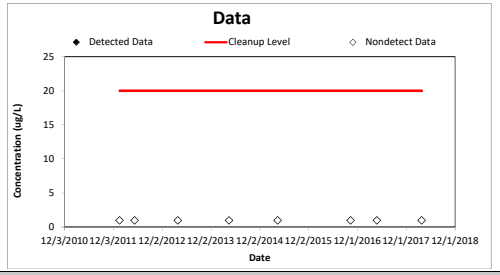
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-33A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
1/18/2012	1	U	No
5/8/2012	1	U	No
3/28/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

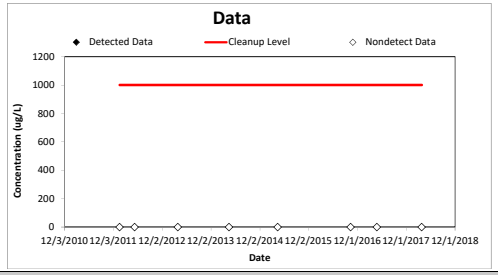
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-33A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
1/18/2012	1	U	No
5/8/2012	1	U	No
3/28/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

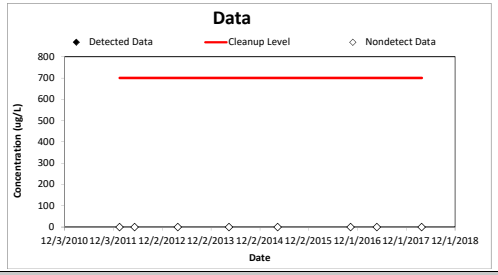
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-33A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
1/18/2012	1	U	No
5/8/2012	1	U	No
3/28/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

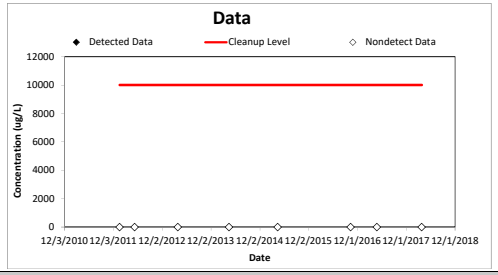
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-33A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
1/18/2012	5	U	No
5/8/2012	5	U	No
3/28/2013	5	U	No
4/14/2014	5	U	No
4/13/2015	5	U	No
10/11/2016	5	U	No
4/25/2017	10	U	No
3/26/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-32
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	2
Number of detected results:	0
Number of nondetect results:	2
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/21/2004	1	U	No
7/20/2004	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

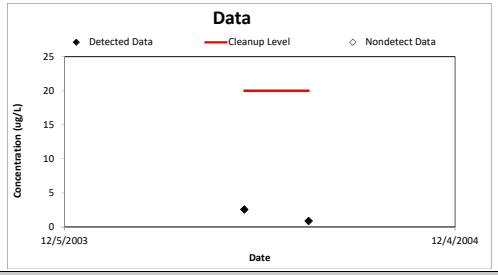
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-32
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	2
Number of detected results:	2
Number of nondetect results:	0
Detection frequency:	1

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/21/2004	2.6		Yes
7/20/2004	0.9		Yes



Axis Values			
Time		**Concentration**	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

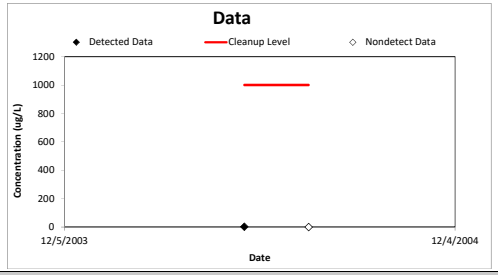
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-32
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	2
Number of detected results:	1
Number of nondetect results:	1
Detection frequency:	0.5

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/21/2004	2		Yes
7/20/2004	1	U	No



Axis Values			
Time		**Concentration**	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

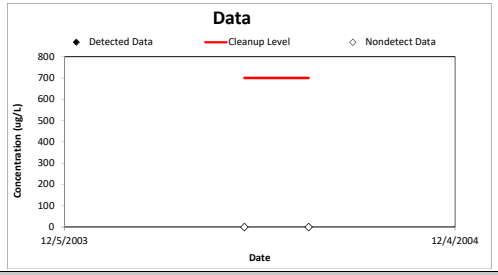
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-32
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	2
Number of detected results:	0
Number of nondetect results:	2
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/21/2004	1	U	No
7/20/2004	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

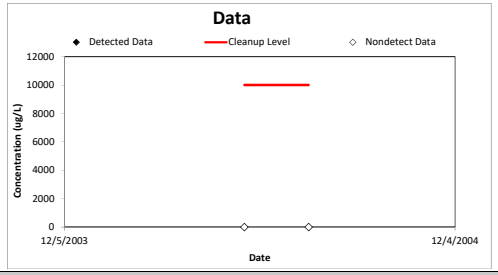
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-32
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	2
Number of detected results:	0
Number of nondetect results:	2
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/21/2004	1	U	No
7/20/2004	1	U	No



Axis Values			
Time		**Concentration**	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

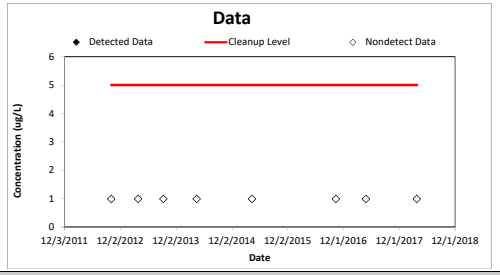
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-31B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

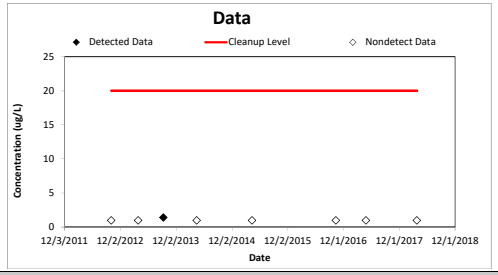
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-31B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1.4		Yes
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

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At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

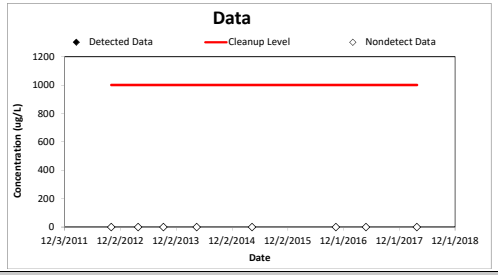
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-31B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

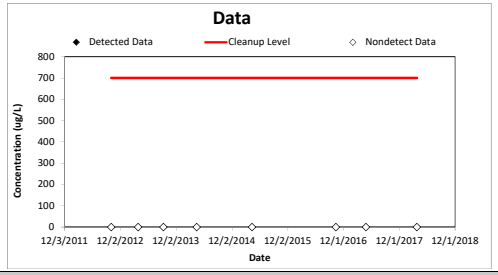
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-31B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

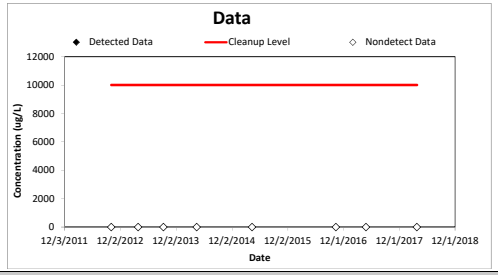
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-31B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/3/2012	10	U	No
3/28/2013	5	U	No
9/9/2013	10	U	No
4/14/2014	5	U	No
4/13/2015	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
3/26/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
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Groundwater Statistics Tool

Data input worksheet

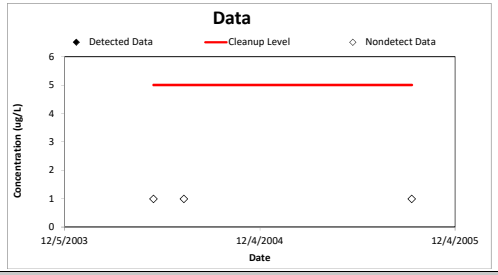
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-31A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/19/2004	1	U	No
7/15/2004	1	U	No
9/14/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

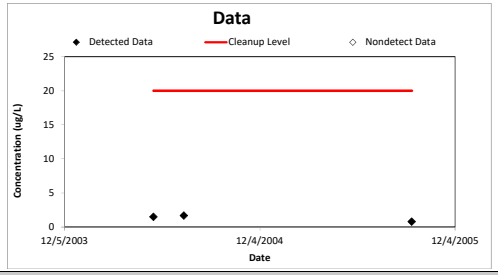
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-31A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	3
Number of nondetect results:	0
Detection frequency:	1

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/19/2004	1.5		Yes
7/15/2004	1.7		Yes
9/14/2005	0.79		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

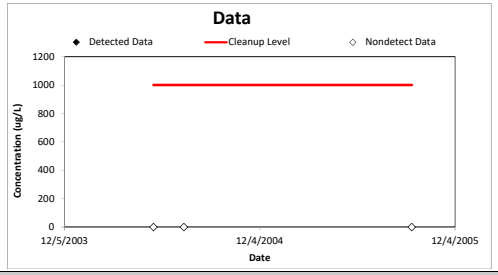
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-31A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/19/2004	1	U	No
7/15/2004	1	U	No
9/14/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

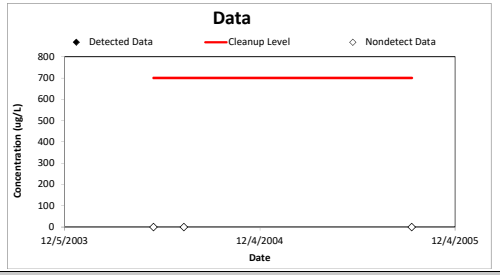
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-31A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/19/2004	1	U	No
7/15/2004	1	U	No
9/14/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

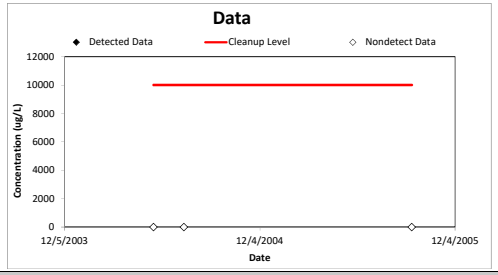
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-31A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/19/2004	1	U	No
7/15/2004	1	U	No
9/14/2005	2	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

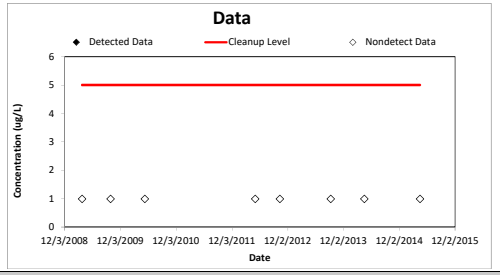
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-30R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/27/2009	1	U	No
9/29/2009	1	U	No
5/12/2010	1	U	No
5/3/2012	1	U	No
10/11/2012	1	U	No
9/10/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

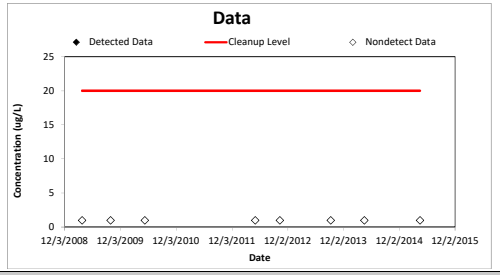
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-30R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/27/2009	1	U	No
9/29/2009	1	U	No
5/12/2010	1	U	No
5/3/2012	1	U	No
10/11/2012	1	U	No
9/10/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

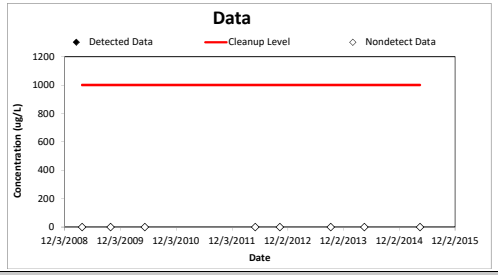
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-30R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/27/2009	1	U	No
9/29/2009	1	U	No
5/12/2010	1	U	No
5/3/2012	1	U	No
10/11/2012	1	U	No
9/10/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

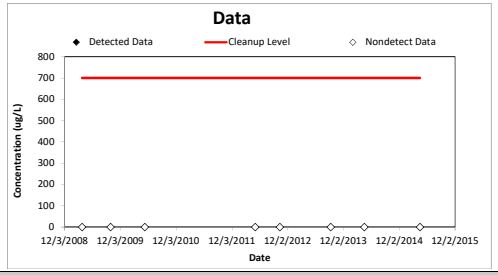
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-30R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/27/2009	1	U	No
9/29/2009	1	U	No
5/12/2010	1	U	No
5/3/2012	1	U	No
10/11/2012	1	U	No
9/10/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Groundwater Statistics Tool

Data input worksheet

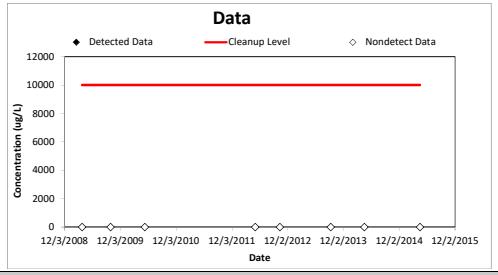
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-30R
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/27/2009	2	U	No
9/29/2009	2	U	No
5/12/2010	5	U	No
5/3/2012	5	U	No
10/11/2012	10	U	No
9/10/2013	10	U	No
4/17/2014	5	U	No
4/16/2015	5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

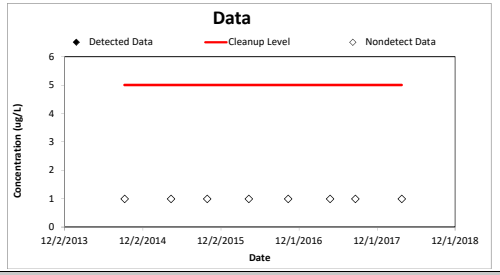
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-29B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/13/2015	1	U	No
9/30/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
8/22/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

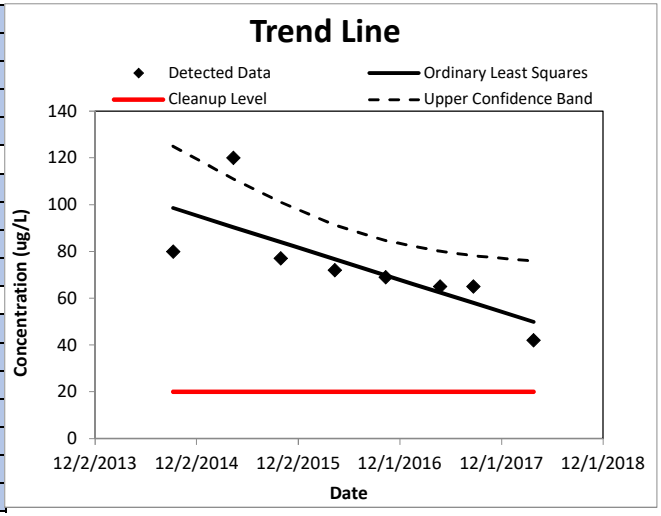
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-29B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	Yes
Mean of concentration	73.8
Standard deviation of concentration	22
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	88.5
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	75.9
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

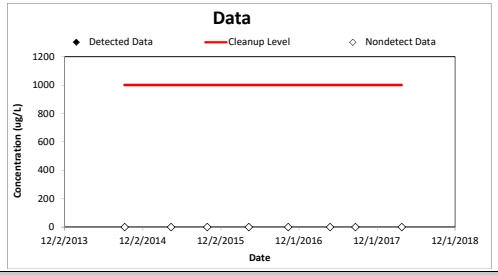
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-29B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/13/2015	1	U	No
9/30/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
8/22/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

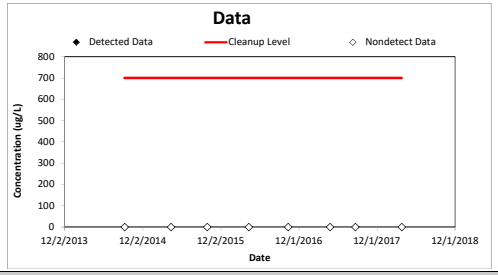
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-29B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/13/2015	1	U	No
9/30/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
8/22/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

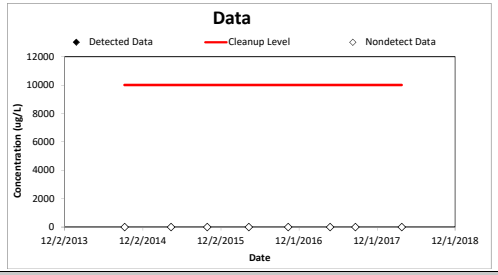
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-29B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	5	U	No
4/13/2015	5	U	No
9/30/2015	5	U	No
4/11/2016	5	U	No
10/11/2016	5	U	No
4/25/2017	10	U	No
8/22/2017	5	U	No
3/26/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

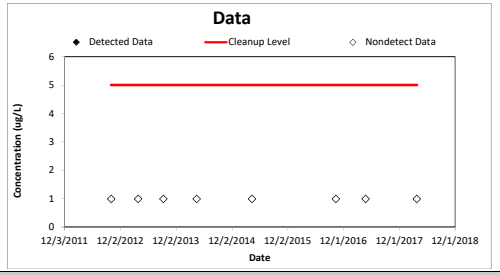
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-29A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

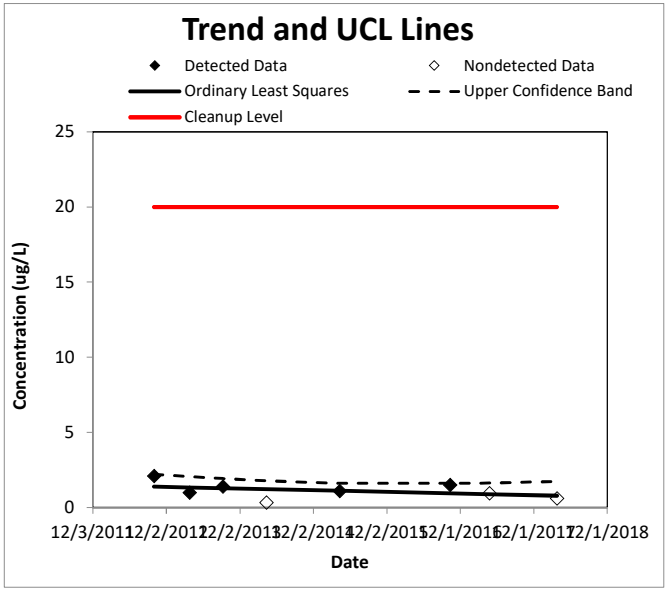
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-29A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	5
Number of non-detected results	3
Detection frequency	63%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	1.26
Standard deviation of concentration	0.367



95% Upper Confidence Limit (UCL)	1.88	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1.74	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

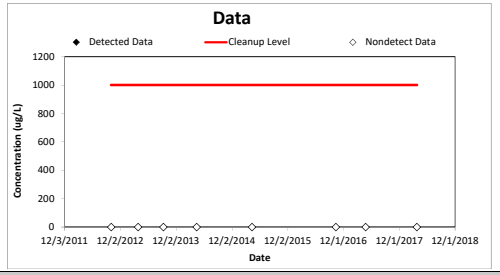
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-29A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

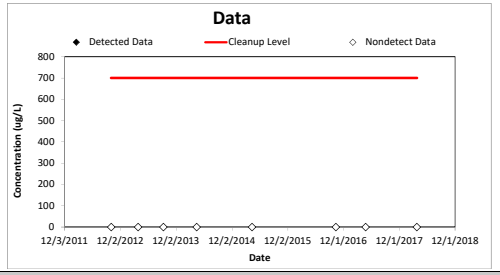
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-29A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

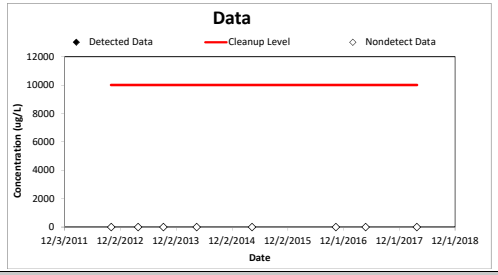
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-29A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	10	U	No
3/28/2013	5	U	No
9/9/2013	10	U	No
4/14/2014	5	U	No
4/13/2015	5	U	No
10/11/2016	5	U	No
4/25/2017	10	U	No
3/26/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

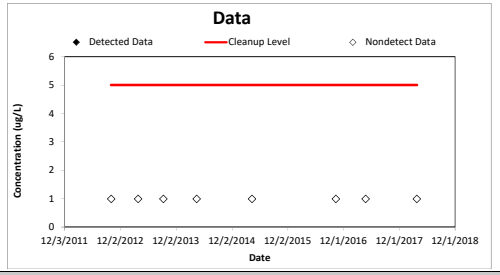
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-28B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

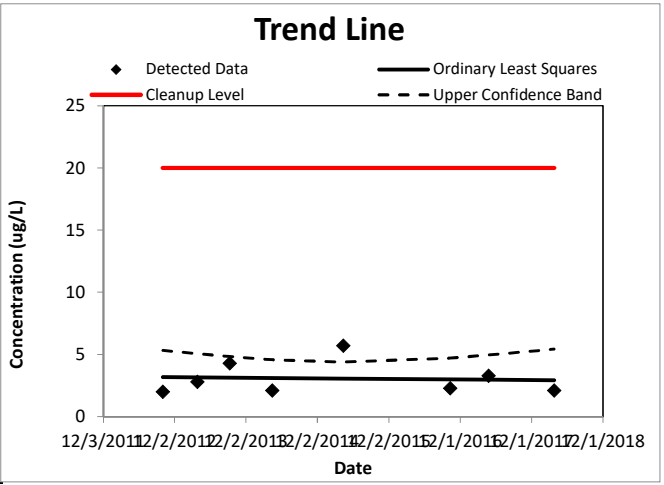
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-28B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	3.08
Standard deviation of concentration	1.32



95% Upper Confidence Limit (UCL)	5.11	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	5.43	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

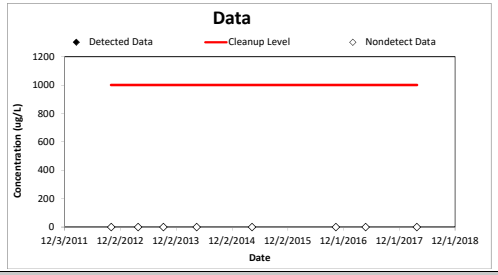
When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: None.	

Groundwater Statistics Tool

Data input worksheet

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis
Chemical of Concern	Toluene
Well Name/Number	MW-28B
Date Units	Date
Concentration Units	ug/L
Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3
Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

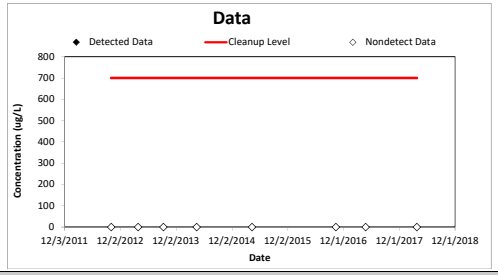
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-28B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/13/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/26/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

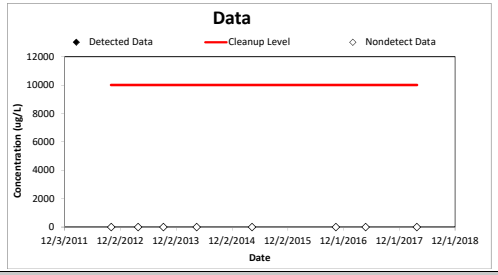
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-28B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/2/2012	10	U	No
3/28/2013	5	U	No
9/9/2013	10	U	No
4/14/2014	5	U	No
4/13/2015	5	U	No
10/11/2016	5	U	No
4/25/2017	10	U	No
3/26/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

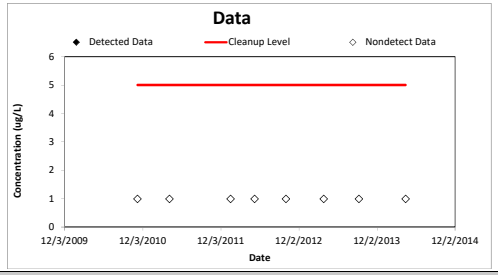
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-28A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
4/7/2011	1	U	No
1/18/2012	1	U	No
5/8/2012	1	U	No
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

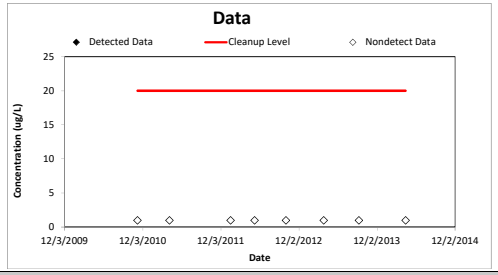
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-28A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
4/7/2011	1	U	No
1/18/2012	1	U	No
5/8/2012	1	U	No
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

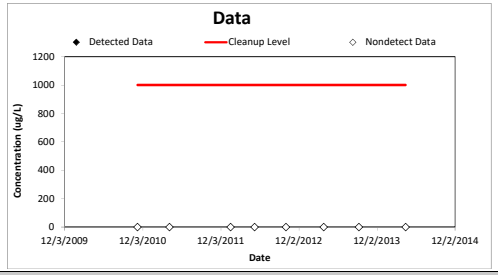
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-28A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
4/7/2011	1	U	No
1/18/2012	1	U	No
5/8/2012	1	U	No
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

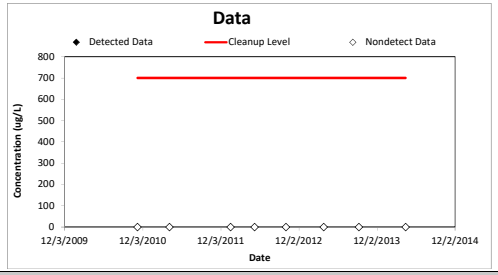
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-28A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	1	U	No
4/7/2011	1	U	No
1/18/2012	1	U	No
5/8/2012	1	U	No
10/2/2012	1	U	No
3/28/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

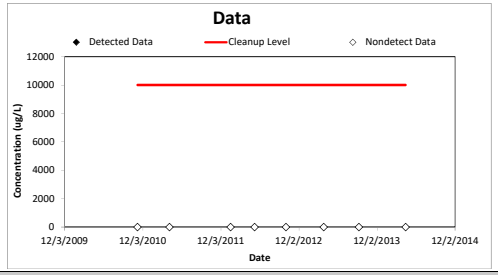
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-28A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/9/2010	5	U	No
4/7/2011	5	U	No
1/18/2012	5	U	No
5/8/2012	5	U	No
10/2/2012	10	U	No
3/28/2013	5	U	No
9/9/2013	10	U	No
4/14/2014	5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

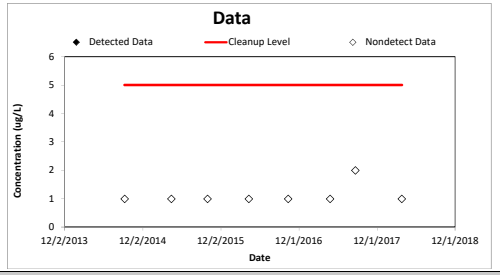
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-27B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/15/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	2	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

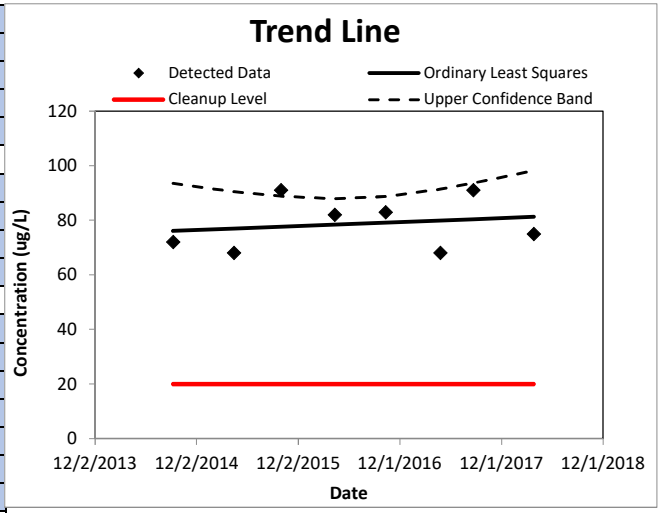
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-27B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	78.8
Standard deviation of concentration	9.41
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	85.1
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	98.2
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

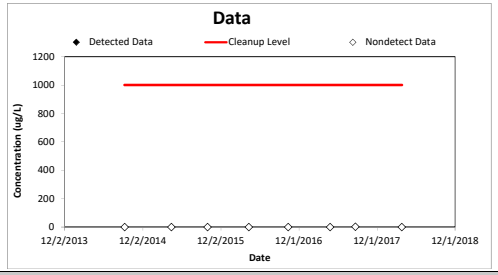
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-27B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/15/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	2	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

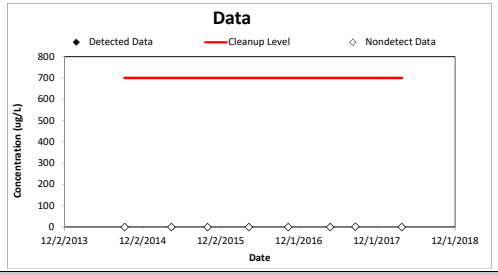
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-27B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/15/2015	1	U	No
10/1/2015	1	U	No
4/11/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	2	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

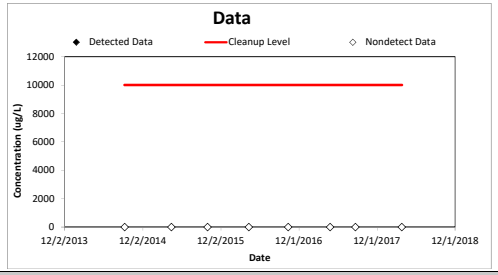
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-27B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	5	U	No
4/15/2015	5	U	No
10/1/2015	5	U	No
4/11/2016	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
8/22/2017	10	U	No
3/27/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

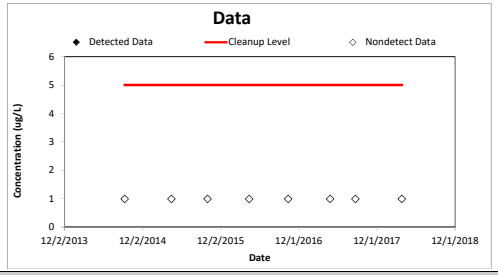
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-27A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/15/2015	1	U	No
10/1/2015	1	U	No
4/13/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

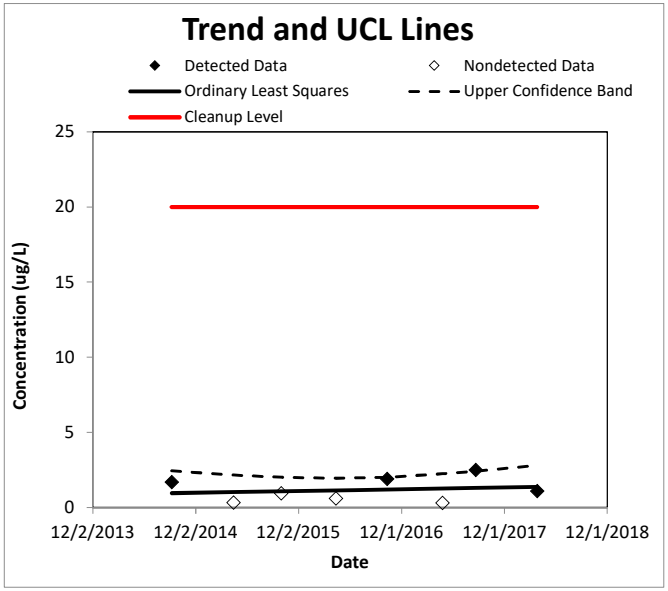
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-27A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	4
Number of non-detected results	4
Detection frequency	50%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	1.4
Standard deviation of concentration	0.534



95% Upper Confidence Limit (UCL)	2.32	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	2.81	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

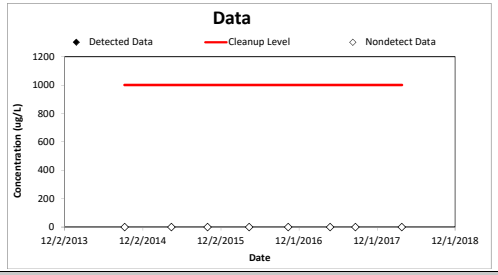
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-27A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/15/2015	1	U	No
10/1/2015	1	U	No
4/13/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

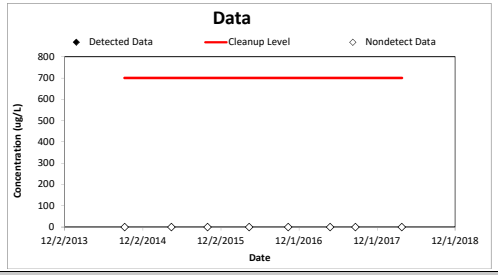
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-27A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	1	U	No
4/15/2015	1	U	No
10/1/2015	1	U	No
4/13/2016	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
8/22/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

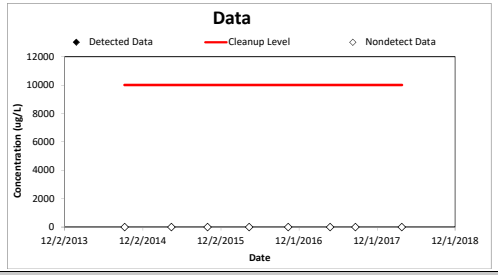
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-27A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2014	5	U	No
4/15/2015	5	U	No
10/1/2015	5	U	No
4/13/2016	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
8/22/2017	5	U	No
3/27/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Groundwater Statistics Tool

Data input worksheet

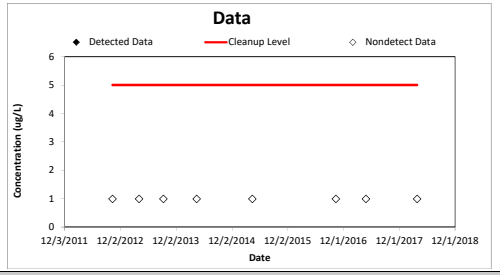
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-26A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

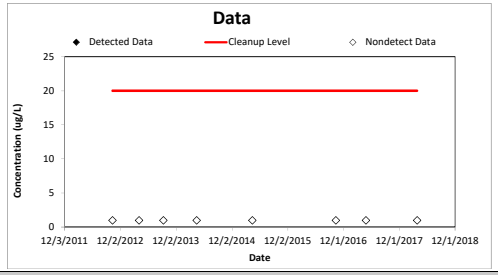
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-26A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

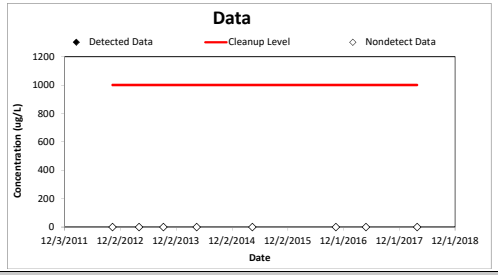
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-26A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Groundwater Statistics Tool

Data input worksheet

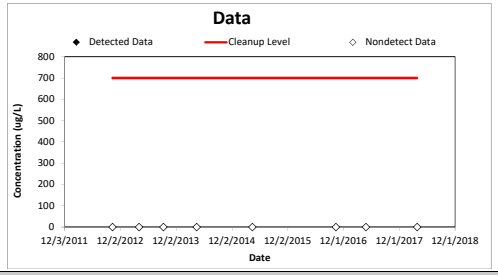
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-26A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/2/2013	1	U	No
9/9/2013	1	U	No
4/14/2014	1	U	No
4/14/2015	1	U	No
10/11/2016	1	U	No
4/26/2017	1	U	No
3/27/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

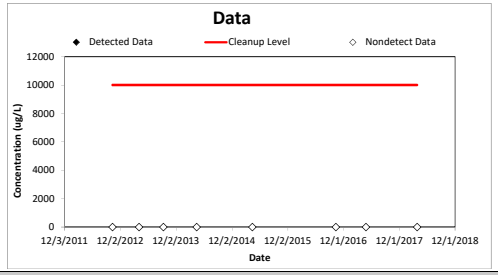
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-26A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	10	U	No
4/2/2013	5	U	No
9/9/2013	10	U	No
4/14/2014	5	U	No
4/14/2015	5	U	No
10/11/2016	5	U	No
4/26/2017	10	U	No
3/27/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Groundwater Statistics Tool

Data input worksheet

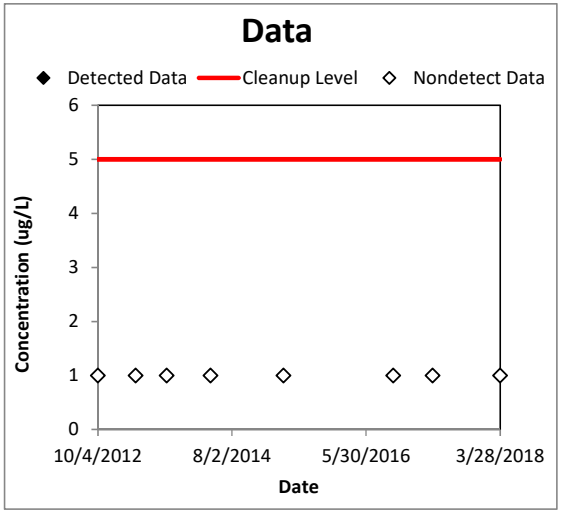
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/17/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-25A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No
4/15/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

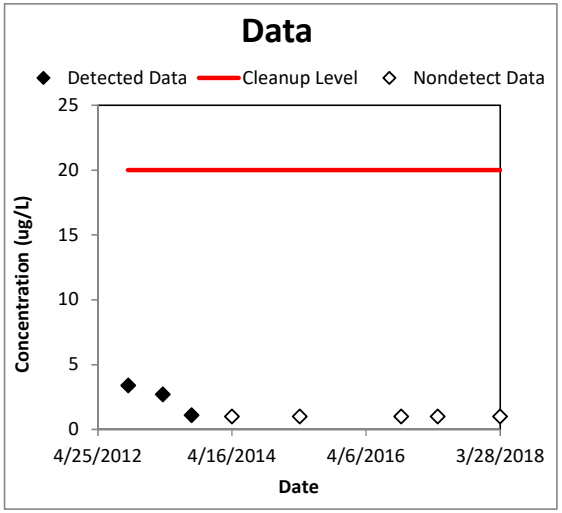
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/17/2018
Person performing analysis	Arcadis

Chemical of Concern	MTBE
Well Name/Number	MW-25A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	3
Number of nondetect results:	5
Detection frequency:	0.375

Date (Date)	MTBE Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	3.4		Yes
4/9/2013	2.7		Yes
9/10/2013	1.1		Yes
4/16/2014	1	U	No
4/15/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

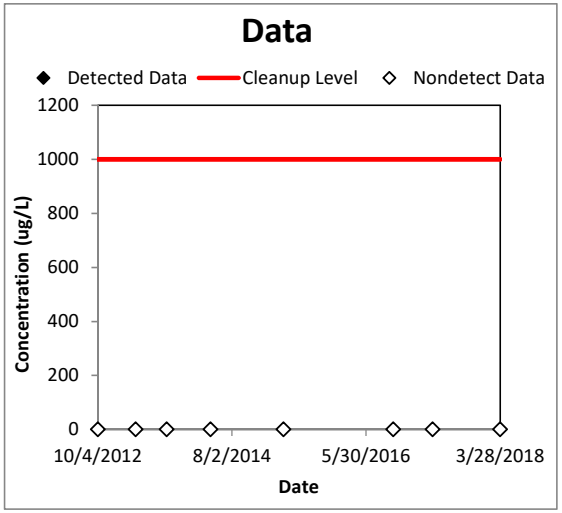
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/17/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-25A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No
4/15/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

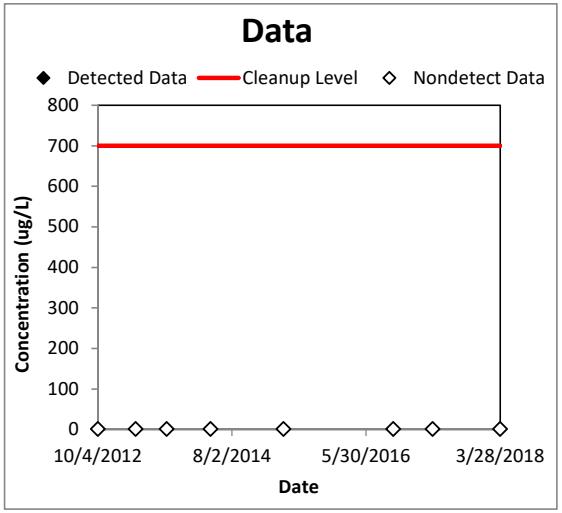
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/17/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-25A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No
4/15/2015	1	U	No
10/11/2016	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

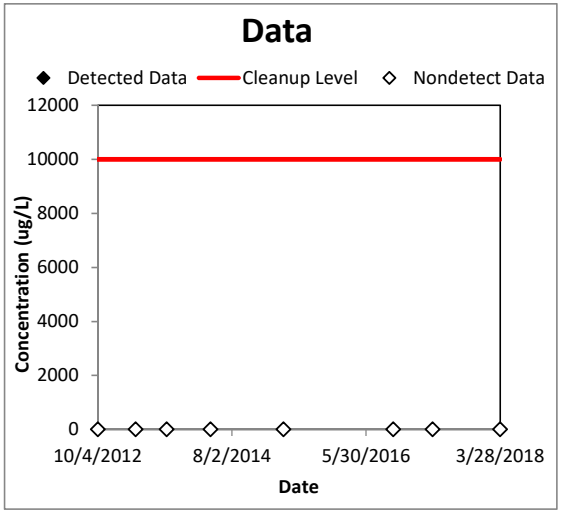
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/17/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes total
Well Name/Number	MW-25A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/4/2012	10	U	No
4/9/2013	5	U	No
9/10/2013	10	U	No
4/16/2014	5	U	No
4/15/2015	5	U	No
10/11/2016	5	U	No
4/25/2017	10	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

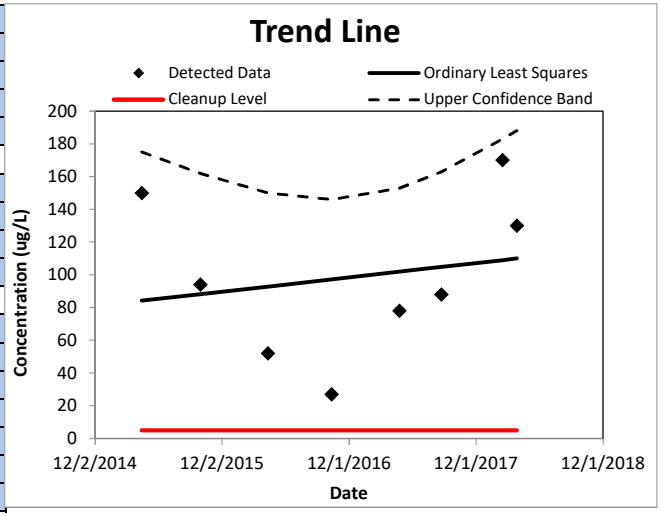
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-25B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	98.6
Standard deviation of concentration	48.7
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	131
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	188
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

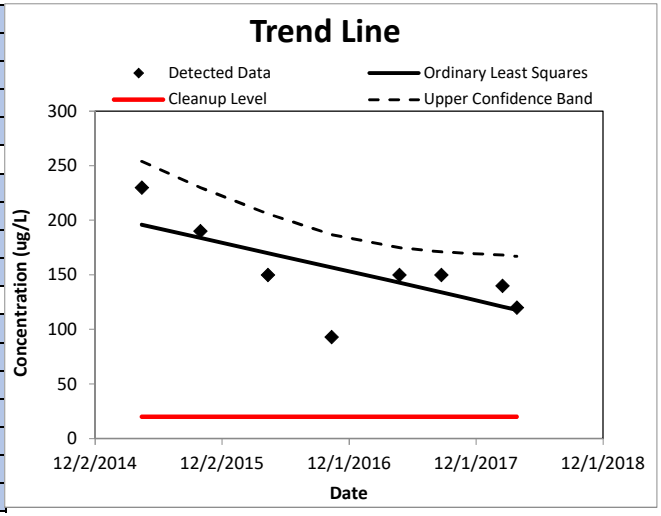
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-25B
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	153
Standard deviation of concentration	41.7
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	181
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	167
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

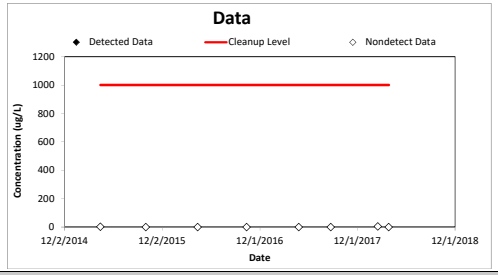
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-25B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/15/2015	2	U	No
10/1/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
8/23/2017	1	U	No
2/15/2018	4	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

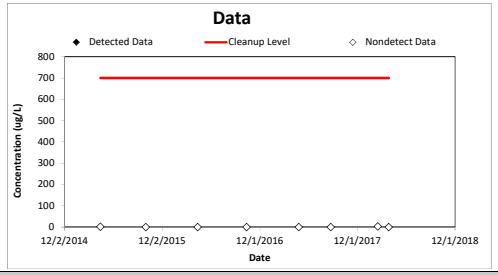
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-25B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/15/2015	2	U	No
10/1/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
8/23/2017	1	U	No
2/15/2018	4	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

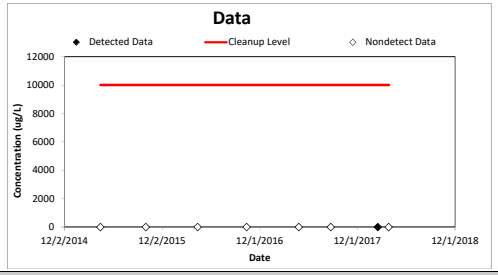
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-25B
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/15/2015	10	U	No
10/1/2015	5	U	No
4/12/2016	5	U	No
10/12/2016	5	U	No
4/25/2017	10	U	No
8/23/2017	3	U	No
2/15/2018	4.6		Yes
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 4.6.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

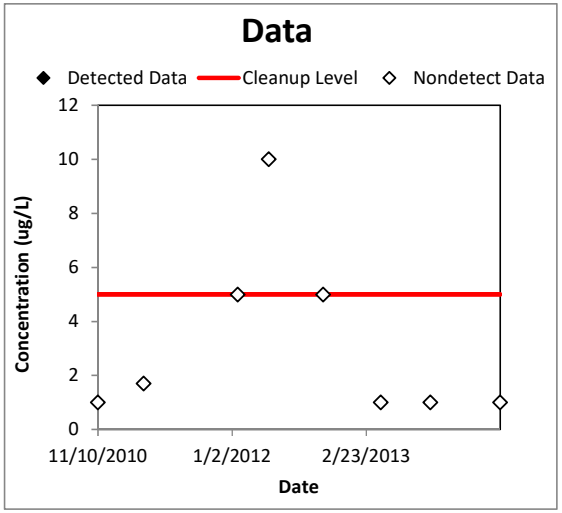
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/17/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-24A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1.7	U	No
1/19/2012	5	U	No
4/25/2012	10	U	No
10/11/2012	5	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

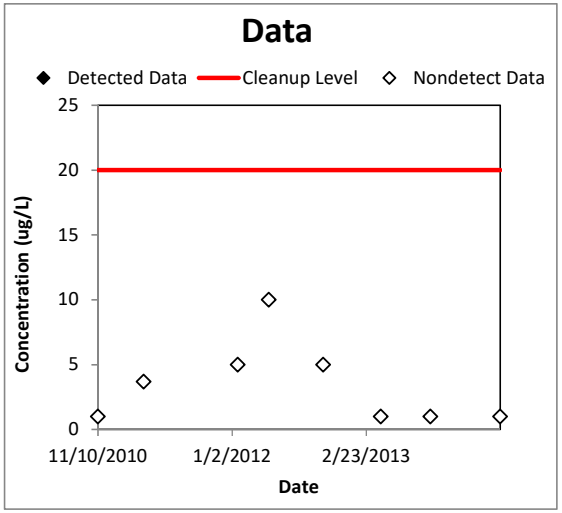
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/17/2018
Person performing analysis	Arcadis

Chemical of Concern	MTBE
Well Name/Number	MW-24A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	MTBE Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	3.7	U	No
1/19/2012	5	U	No
4/25/2012	10	U	No
10/11/2012	5	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

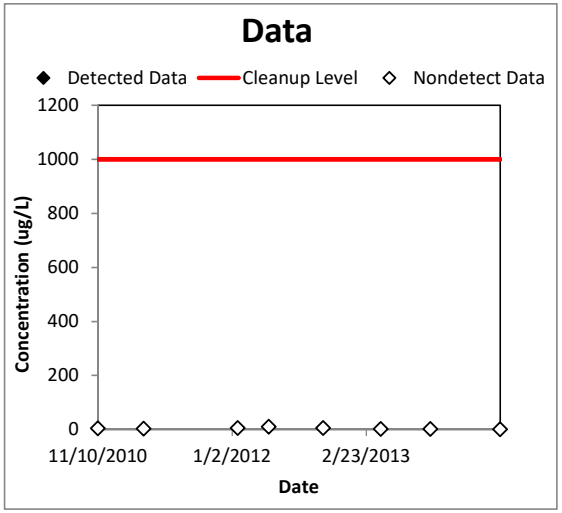
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/17/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-24A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1,000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	4.7	U	No
4/1/2011	3.5	U	No
1/19/2012	5	U	No
4/25/2012	10	U	No
10/11/2012	5	U	No
4/9/2013	2.4	U	No
9/10/2013	2.1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Reset Concentration Axis

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

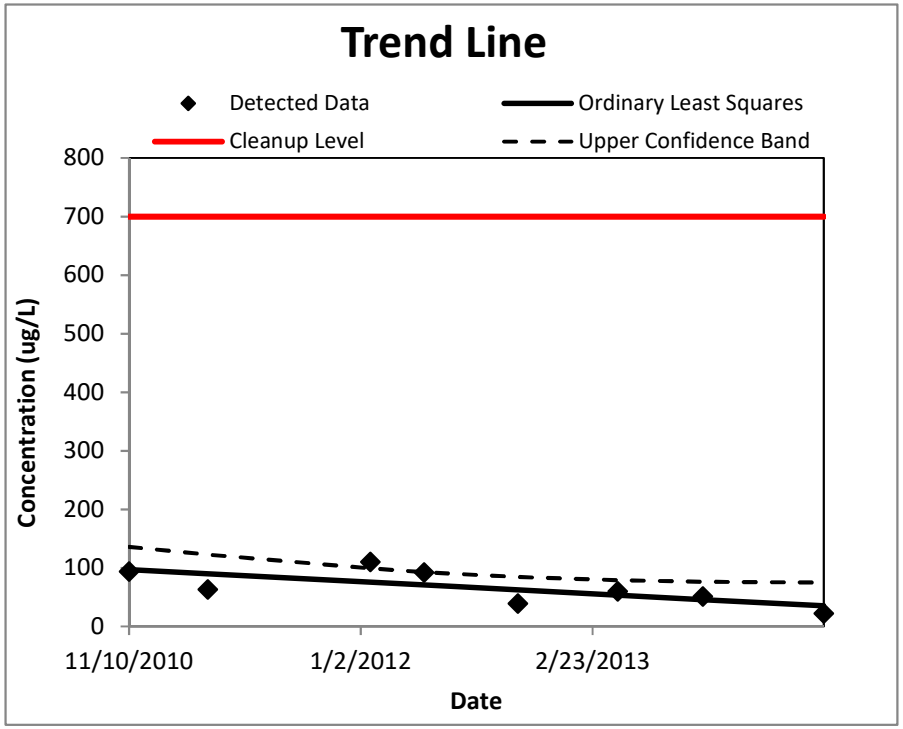
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/17/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-24A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	66.4
Standard deviation of concentration	30.1
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	86.6
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	75
Trend calculation method	Ordinary Least Squares
Cleanup level	700
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

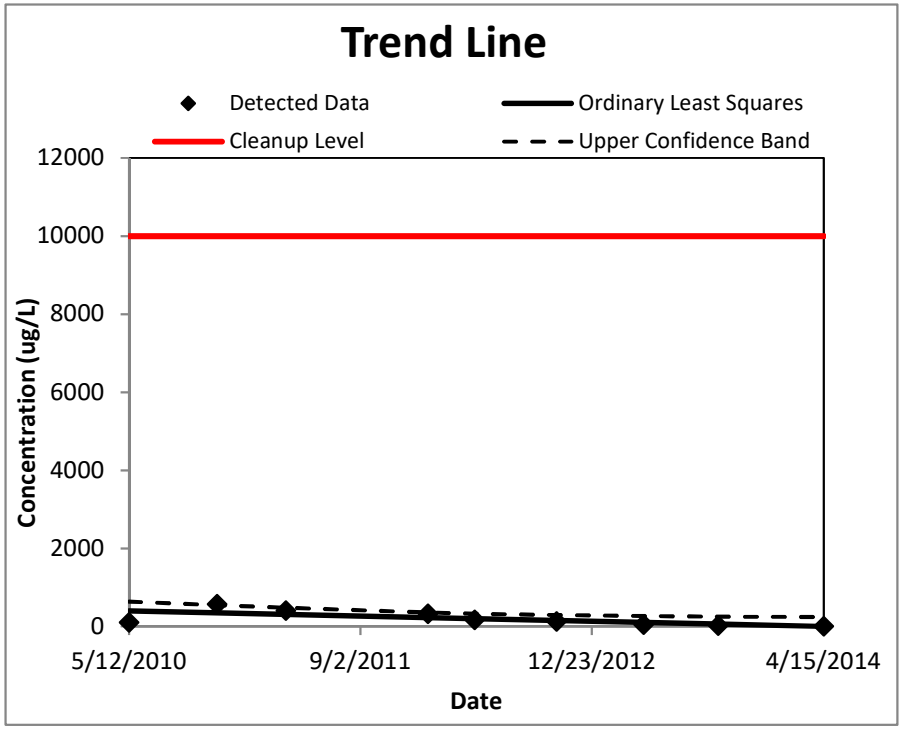
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/17/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes total
Well Name/Number	MW-24A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	9
Number < cleanup level	9
Are any potential outliers present?	No
Mean of concentration	200
Standard deviation of concentration	195
t-value for UCL calculation	1.860



95% Upper Confidence Limit (UCL)	321
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	242
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

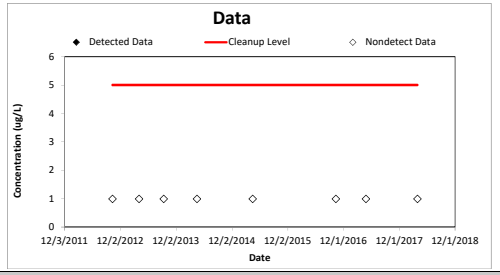
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-23
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/3/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

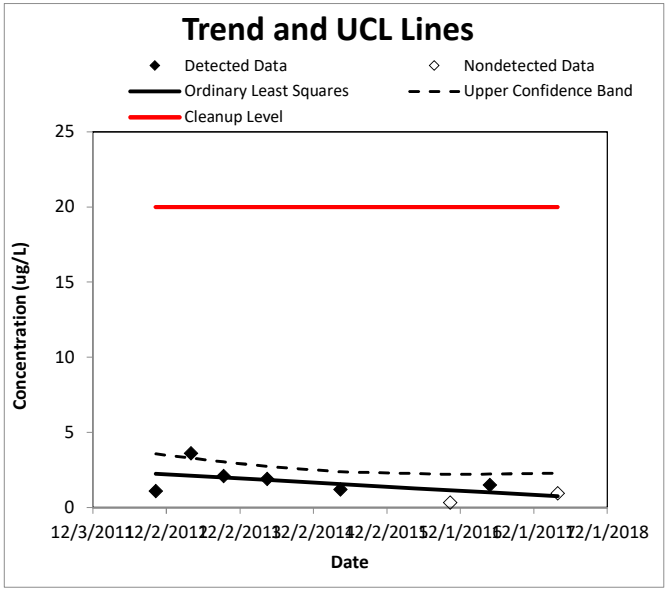
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-23
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	1.68
Standard deviation of concentration	0.824



95% Upper Confidence Limit (UCL)	3.05	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	2.29	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

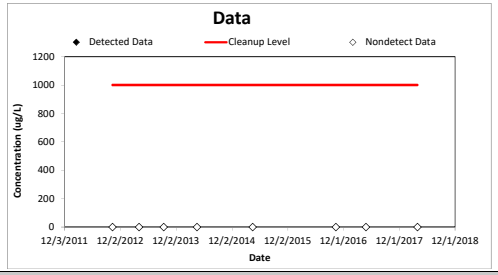
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-23
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/3/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

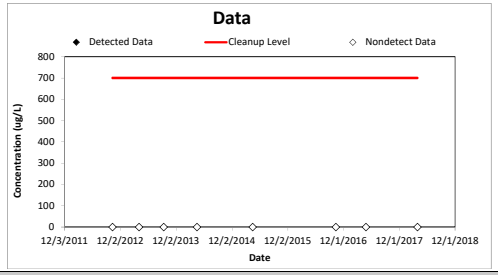
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-23
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/3/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

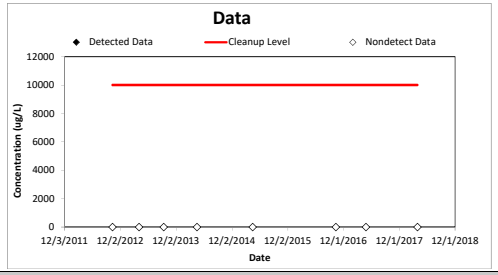
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-23
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	10	U	No
4/3/2013	5	U	No
9/12/2013	10	U	No
4/17/2014	5	U	No
4/16/2015	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

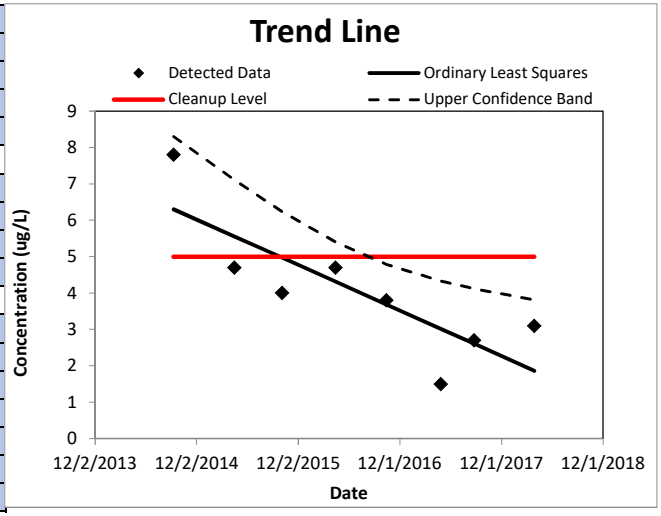
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-21
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	7
Are any potential outliers present?	No
Mean of concentration	4.04
Standard deviation of concentration	1.86
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	5.29
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	3.81
Trend calculation method	Ordinary Least Squares
Cleanup level	5
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

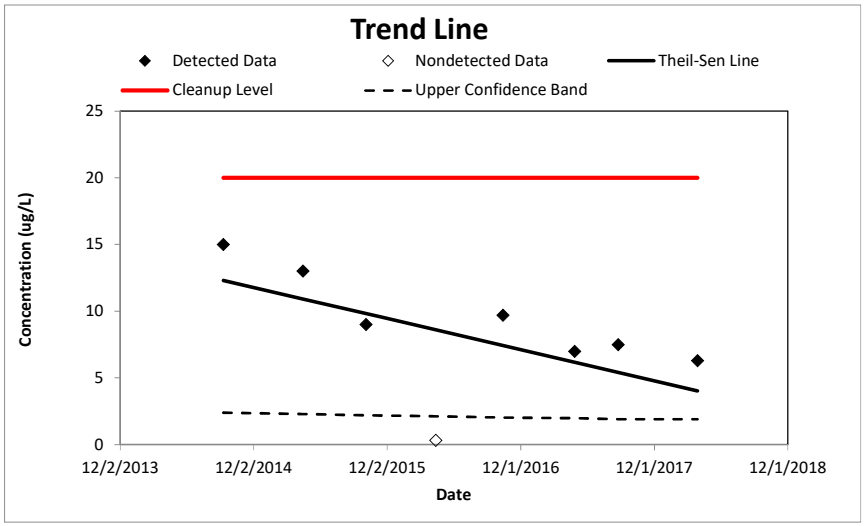
UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-21
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	8.56
Standard deviation of concentration	4.01

95% Upper Confidence Limit (UCL)	15.2	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1.91	
Trend calculation method	Theil-Sen/Mann-Kendall	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	



When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

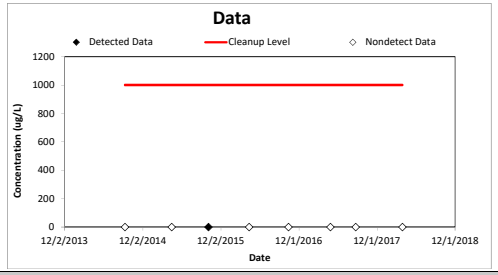
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-21
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1.2		Yes
4/13/2016	1	U	No
10/13/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

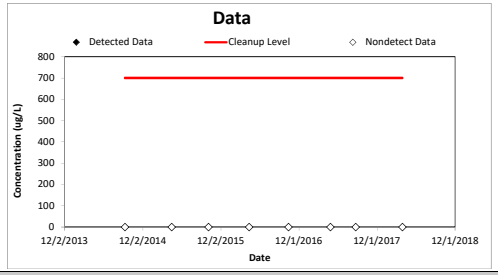
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-21
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	1	U	No
4/16/2015	1	U	No
10/5/2015	1	U	No
4/13/2016	1	U	No
10/13/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

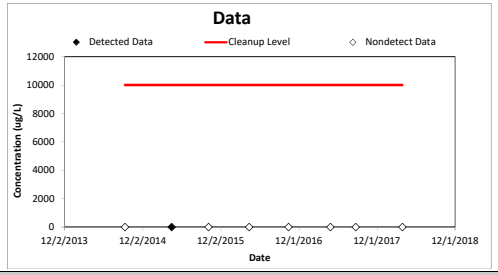
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-21
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/10/2014	10	U	No
4/16/2015	6.7		Yes
10/5/2015	5	U	No
4/13/2016	5	U	No
10/13/2016	5	U	No
4/27/2017	10	U	No
8/24/2017	3	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 6.7.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

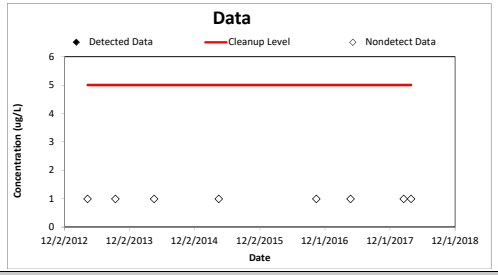
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-20
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/13/2016	1	U	No
4/24/2017	1	U	No
2/15/2018	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

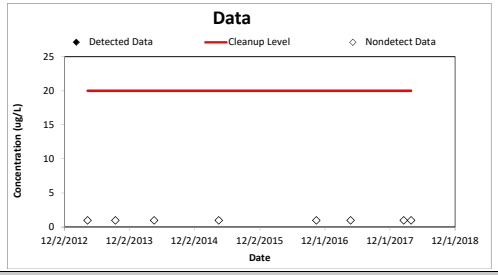
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-20
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/13/2016	1	U	No
4/24/2017	1	U	No
2/15/2018	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

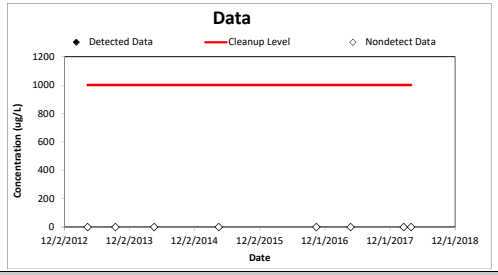
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-20
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/13/2016	1	U	No
4/24/2017	1	U	No
2/15/2018	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

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Groundwater Statistics Tool

Data input worksheet

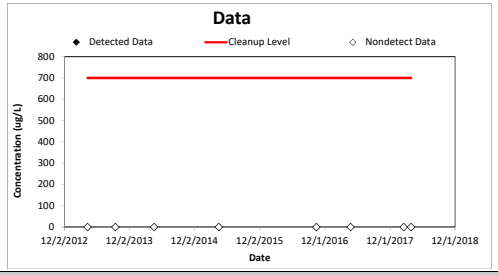
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-20
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/13/2016	1	U	No
4/24/2017	1	U	No
2/15/2018	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

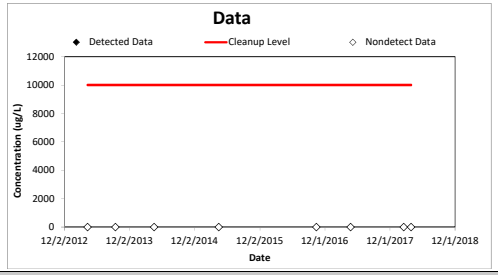
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-20
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	5	U	No
9/12/2013	10	U	No
4/17/2014	5	U	No
4/16/2015	5	U	No
10/13/2016	5	U	No
4/24/2017	10	U	No
2/15/2018	2	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

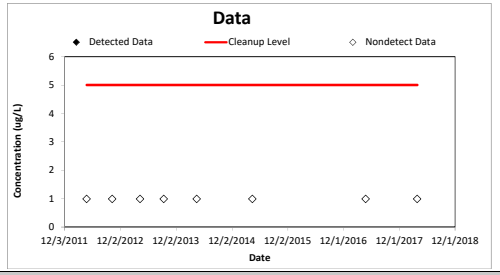
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-19
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/25/2012	1	U	No
10/8/2012	1	U	No
4/10/2013	1	U	No
9/11/2013	1	U	No
4/15/2014	1	U	No
4/15/2015	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

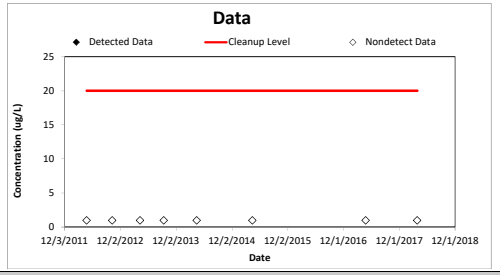
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-19
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/25/2012	1	U	No
10/8/2012	1	U	No
4/10/2013	1	U	No
9/11/2013	1	U	No
4/15/2014	1	U	No
4/15/2015	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

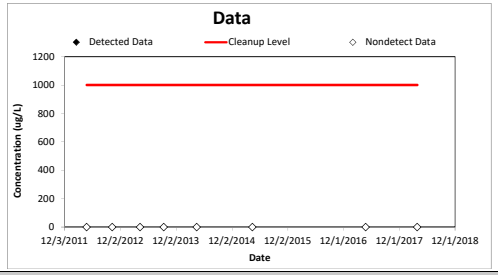
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-19
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/25/2012	1	U	No
10/8/2012	1	U	No
4/10/2013	1	U	No
9/11/2013	1	U	No
4/15/2014	1	U	No
4/15/2015	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

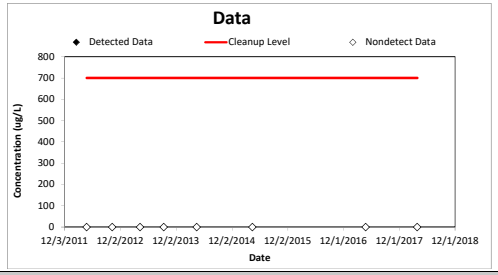
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-19
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/25/2012	1	U	No
10/8/2012	1	U	No
4/10/2013	1	U	No
9/11/2013	1	U	No
4/15/2014	1	U	No
4/15/2015	1	U	No
4/25/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
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Groundwater Statistics Tool

Data input worksheet

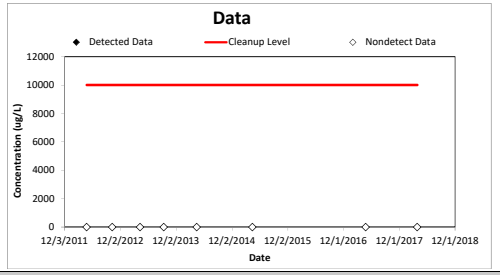
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-19
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/25/2012	5	U	No
10/8/2012	10	U	No
4/10/2013	5	U	No
9/11/2013	10	U	No
4/15/2014	5	U	No
4/15/2015	5	U	No
4/25/2017	10	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

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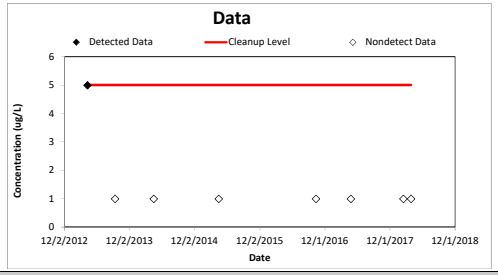
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-18
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	5		Yes
9/11/2013	1	U	No
4/15/2014	1	U	No
4/15/2015	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
2/14/2018	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

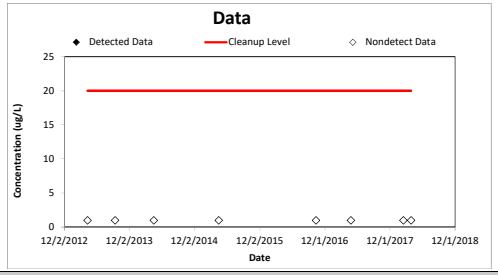
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-18
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	1	U	No
9/11/2013	1	U	No
4/15/2014	1	U	No
4/15/2015	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
2/14/2018	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

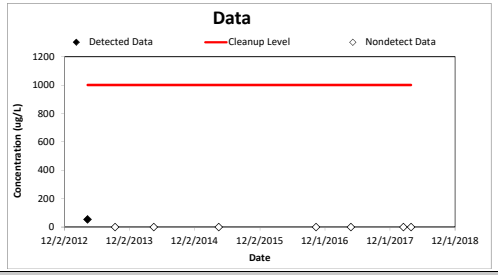
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-18
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	54		Yes
9/11/2013	1	U	No
4/15/2014	1	U	No
4/15/2015	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
2/14/2018	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

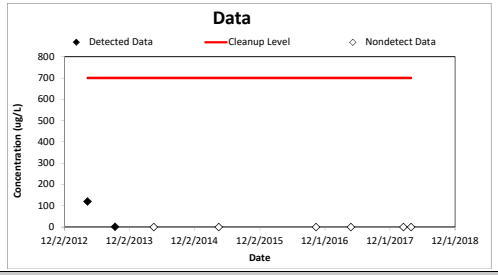
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-18
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	2
Number of nondetect results:	6
Detection frequency:	0.25

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	120		Yes
9/11/2013	1.3		Yes
4/15/2014	1	U	No
4/15/2015	1	U	No
10/12/2016	1	U	No
4/25/2017	1	U	No
2/14/2018	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

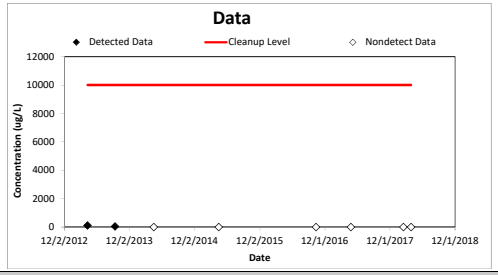
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-18
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	2
Number of nondetect results:	6
Detection frequency:	0.25

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	124		Yes
9/11/2013	48		Yes
4/15/2014	5	U	No
4/15/2015	5	U	No
10/12/2016	5	U	No
4/25/2017	10	U	No
2/14/2018	2	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

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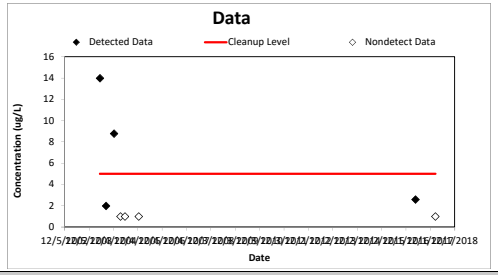
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-13
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	4
Number of nondetect results:	4
Detection frequency:	0.5

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/18/2004	14		Yes
8/16/2004	2		Yes
12/16/2004	8.8		Yes
3/21/2005	1	U	No
5/25/2005	1	U	No
12/19/2005	1	U	No
4/26/2017	2.6		Yes
2/14/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

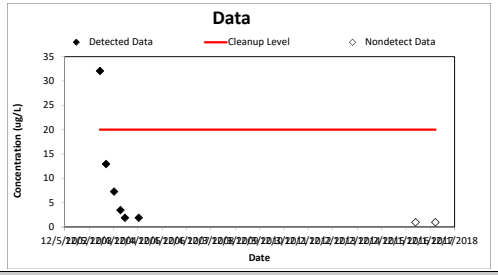
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-13
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	6
Number of nondetect results:	2
Detection frequency:	0.75

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/18/2004	32.1		Yes
8/16/2004	13		Yes
12/16/2004	7.3		Yes
3/21/2005	3.5		Yes
5/25/2005	1.9		Yes
12/19/2005	1.92		Yes
4/26/2017	1	U	No
2/14/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

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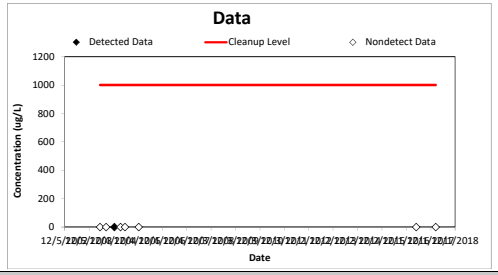
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-13
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1		Yes
3/21/2005	1	U	No
5/25/2005	1	U	No
12/19/2005	1	U	No
4/26/2017	1	U	No
2/14/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

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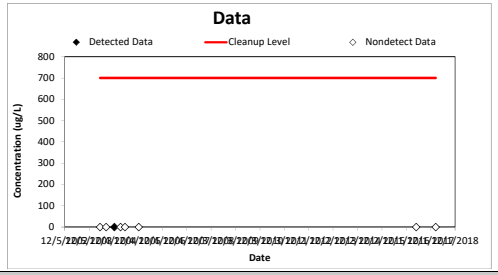
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-13
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1		Yes
3/21/2005	1	U	No
5/25/2005	1	U	No
12/19/2005	1	U	No
4/26/2017	1	U	No
2/14/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Are all data within chart axis limits?	Yes	None

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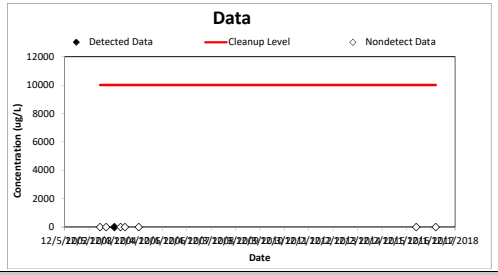
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-13
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/18/2004	3	U	No
8/16/2004	3	U	No
12/16/2004	3		Yes
3/21/2005	3	U	No
5/25/2005	3	U	No
12/19/2005	3	U	No
4/26/2017	10	U	No
2/14/2018	2	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 3.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

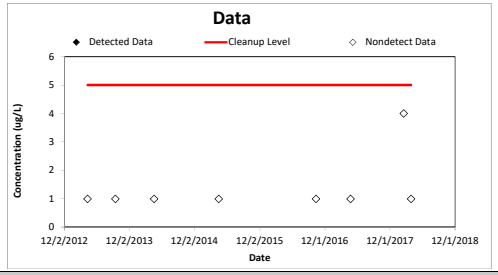
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-6
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/24/2017	1	U	No
2/15/2018	4	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

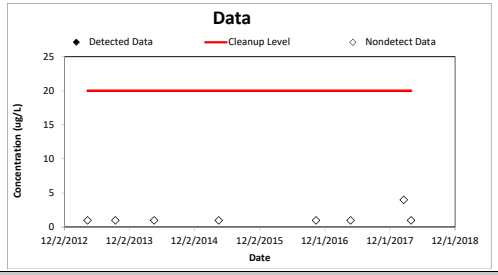
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-6
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/24/2017	1	U	No
2/15/2018	4	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

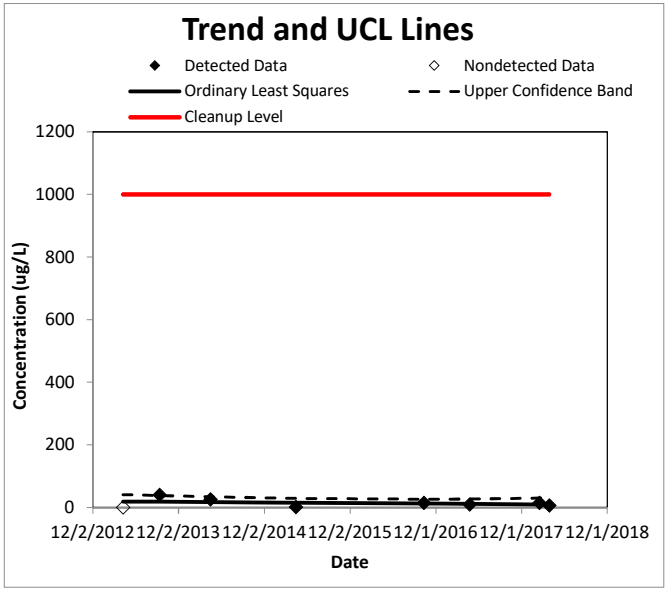
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-6
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	14.4
Standard deviation of concentration	12.3



95% Upper Confidence Limit (UCL)	34.7	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	30.3	
Trend calculation method	Ordinary Least Squares	
Cleanup level	1000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

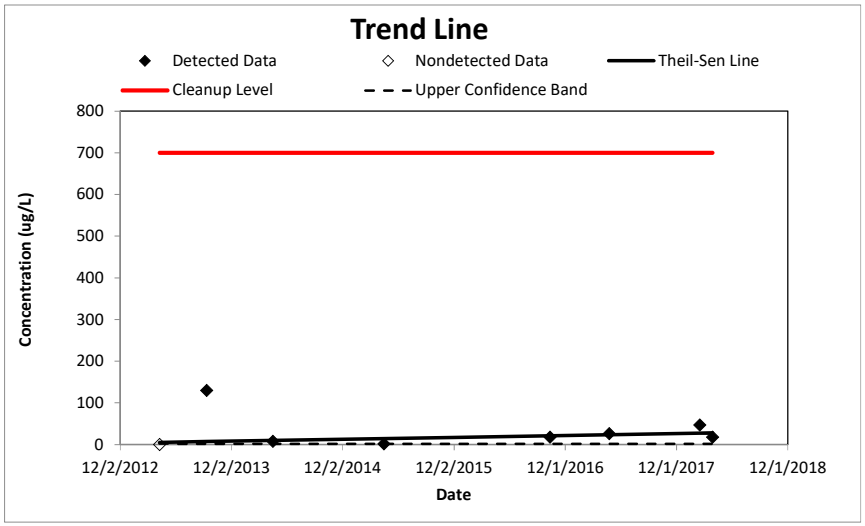
UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-6
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	31.2
Standard deviation of concentration	39.8

95% Upper Confidence Limit (UCL)	96.9	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1.91	
Trend calculation method	Theil-Sen/Mann-Kendall	
Cleanup level	700	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	



When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

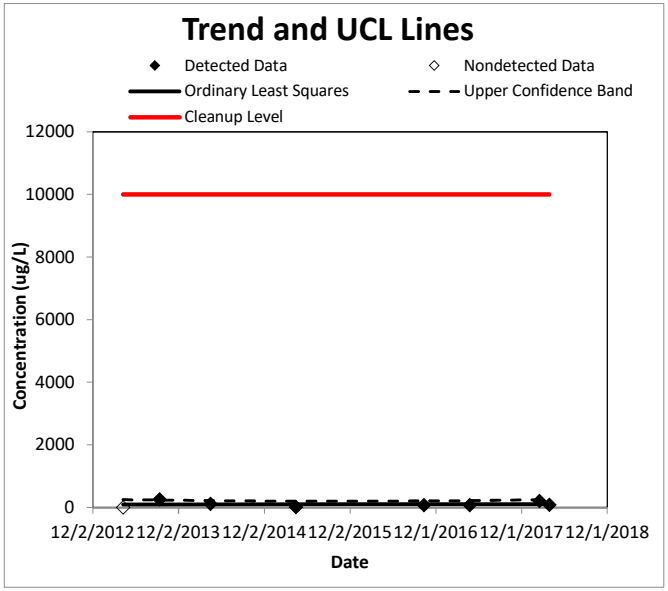
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-6
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	106
Standard deviation of concentration	84.1



95% Upper Confidence Limit (UCL)	244	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	259	
Trend calculation method	Ordinary Least Squares	
Cleanup level	10000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

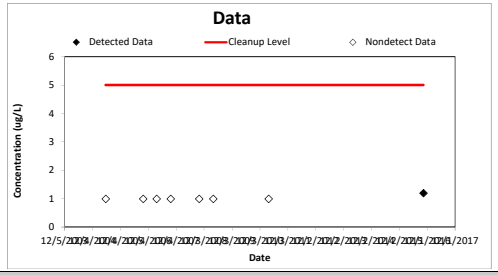
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-5
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/25/2005	1	U	No
9/29/2006	1	U	No
3/23/2007	1	U	No
9/25/2007	1	U	No
10/1/2008	1	U	No
4/1/2009	1	U	No
3/29/2011	1	U	No
10/13/2016	1.2		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

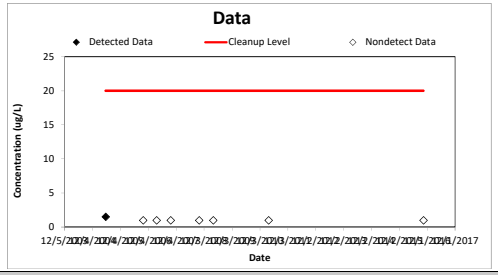
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-5
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/25/2005	1.5		Yes
9/29/2006	1	U	No
3/23/2007	1	U	No
9/25/2007	1	U	No
10/1/2008	1	U	No
4/1/2009	1	U	No
3/29/2011	1	U	No
10/13/2016	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

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Groundwater Statistics Tool

Data input worksheet

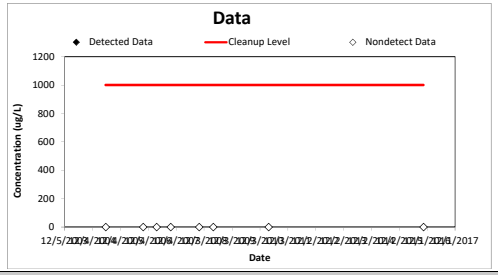
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-5
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/25/2005	1	U	No
9/29/2006	1	U	No
3/23/2007	1	U	No
9/25/2007	1	U	No
10/1/2008	1	U	No
4/1/2009	1	U	No
3/29/2011	1	U	No
10/13/2016	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

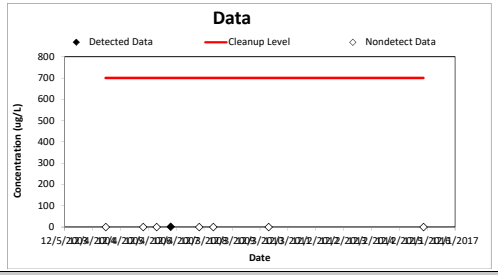
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-5
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/25/2005	1	U	No
9/29/2006	1	U	No
3/23/2007	1	U	No
9/25/2007	1.6		Yes
10/1/2008	1	U	No
4/1/2009	1	U	No
3/29/2011	1	U	No
10/13/2016	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

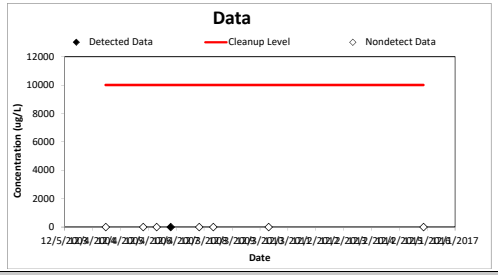
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-5
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
5/25/2005	3	U	No
9/29/2006	2	U	No
3/23/2007	2	U	No
9/25/2007	6		Yes
10/1/2008	2	U	No
4/1/2009	2	U	No
3/29/2011	5	U	No
10/13/2016	5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

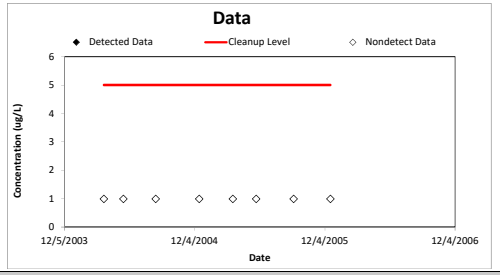
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-4
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1	U	No
3/21/2005	1	U	No
5/25/2005	1	U	No
9/7/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

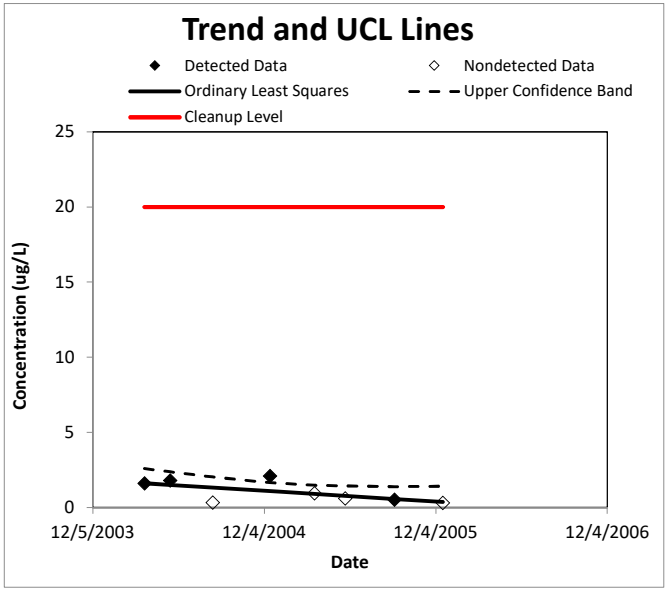
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-4
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	4
Number of non-detected results	4
Detection frequency	50%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	1.01
Standard deviation of concentration	0.648



95% Upper Confidence Limit (UCL)	2.17	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1.41	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

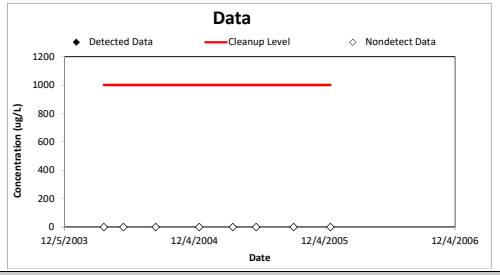
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-4
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1	U	No
3/21/2005	1	U	No
5/25/2005	1	U	No
9/7/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

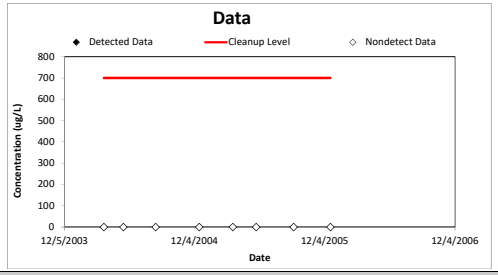
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-4
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1	U	No
3/21/2005	1	U	No
5/25/2005	1	U	No
9/7/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

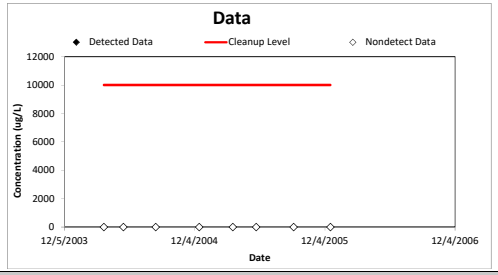
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-4
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/24/2004	3	U	No
5/18/2004	3	U	No
8/16/2004	3	U	No
12/16/2004	3	U	No
3/21/2005	3	U	No
5/25/2005	3	U	No
9/7/2005	2	U	No
12/19/2005	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

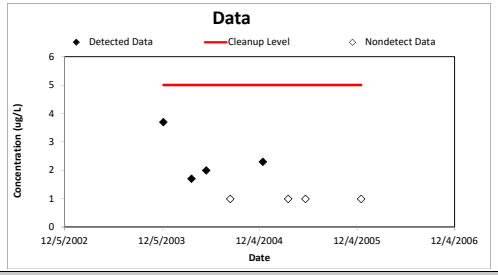
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-3
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	4
Number of nondetect results:	4
Detection frequency:	0.5

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
12/10/2003	3.7		Yes
3/24/2004	1.7		Yes
5/18/2004	2		Yes
8/16/2004	1	U	No
12/16/2004	2.3		Yes
3/21/2005	1	U	No
5/25/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

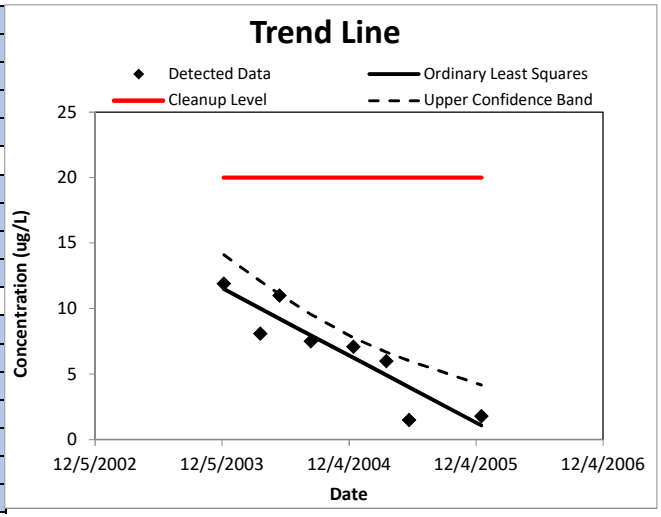
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-3
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	6.86
Standard deviation of concentration	3.77
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	9.39
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	4.17
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

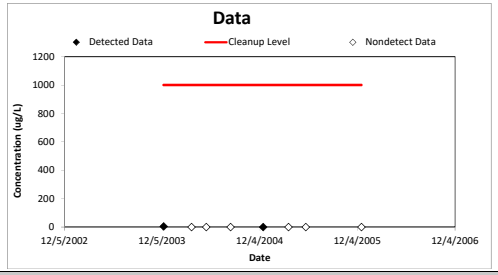
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-3
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	2
Number of nondetect results:	6
Detection frequency:	0.25

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
12/10/2003	4.9		Yes
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1		Yes
3/21/2005	1	U	No
5/25/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

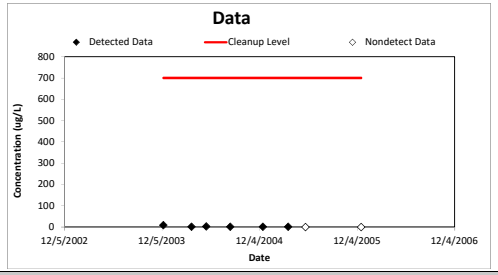
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-3
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	6
Number of nondetect results:	2
Detection frequency:	0.75

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
12/10/2003	9.1		Yes
3/24/2004	2		Yes
5/18/2004	3		Yes
8/16/2004	2.1		Yes
12/16/2004	2		Yes
3/21/2005	1.4		Yes
5/25/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

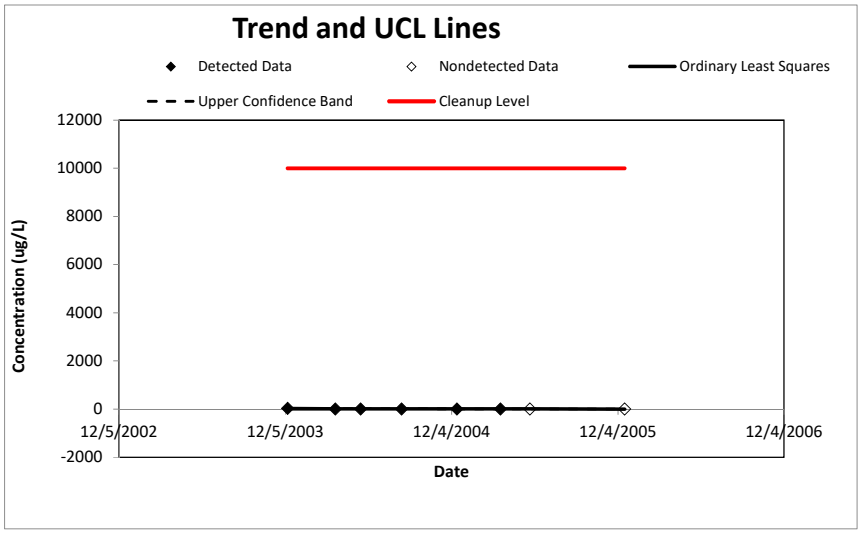
UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	MW-3
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	8
Are any potential outliers present?	Yes
Mean of concentration	10.3
Standard deviation of concentration	8.91

95% Upper Confidence Limit (UCL)	25.2	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1.91	
Trend calculation method	Theil-Sen/Mann-Kendall	
Cleanup level	10000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	



When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing

Message: None.

Groundwater Statistics Tool

Data input worksheet

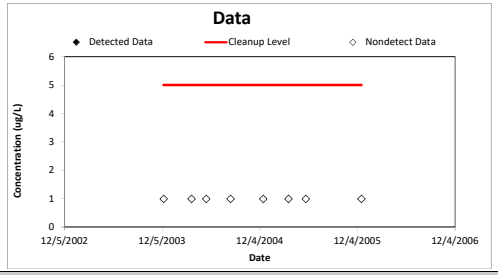
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
12/10/2003	1	U	No
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1	U	No
3/21/2005	1	U	No
5/25/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

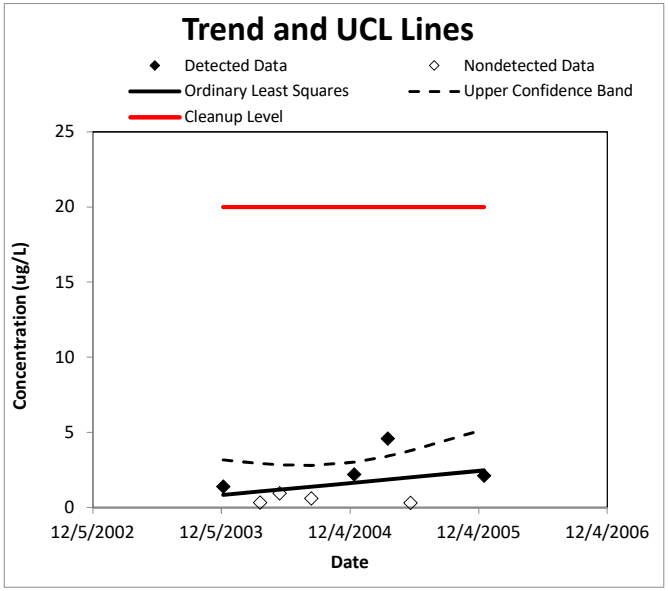
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-2
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	4
Number of non-detected results	4
Detection frequency	50%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	1.79
Standard deviation of concentration	1.16



95% Upper Confidence Limit (UCL)	3.8	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	5.2	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

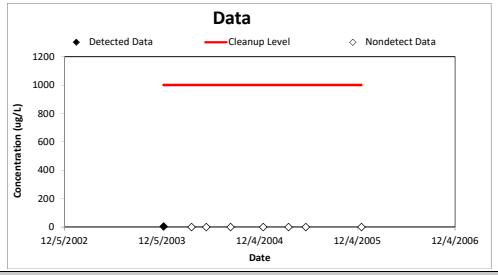
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
12/10/2003	4.8		Yes
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1	U	No
3/21/2005	1	U	No
5/25/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

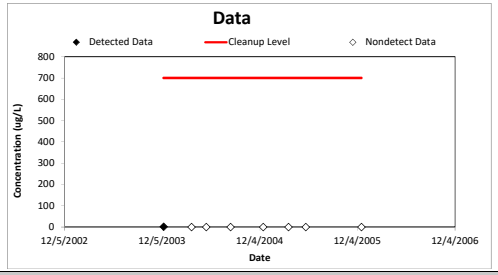
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
12/10/2003	1.6		Yes
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1	U	No
3/21/2005	1	U	No
5/25/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

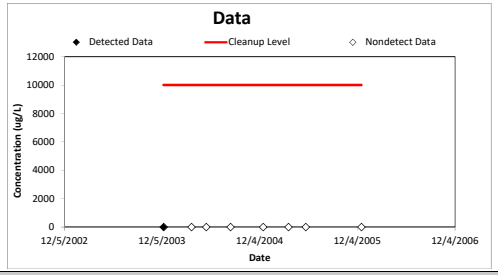
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-2
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
12/10/2003	9.6		Yes
3/24/2004	3	U	No
5/18/2004	3	U	No
8/16/2004	3	U	No
12/16/2004	3	U	No
3/21/2005	3	U	No
5/25/2005	3	U	No
12/19/2005	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

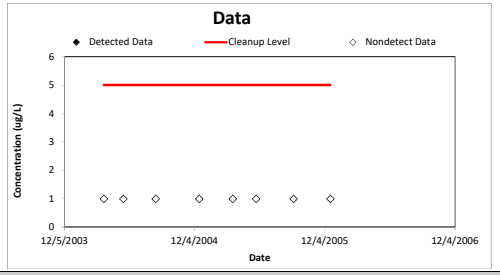
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	MW-1
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1	U	No
3/21/2005	1	U	No
5/25/2005	1	U	No
9/7/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

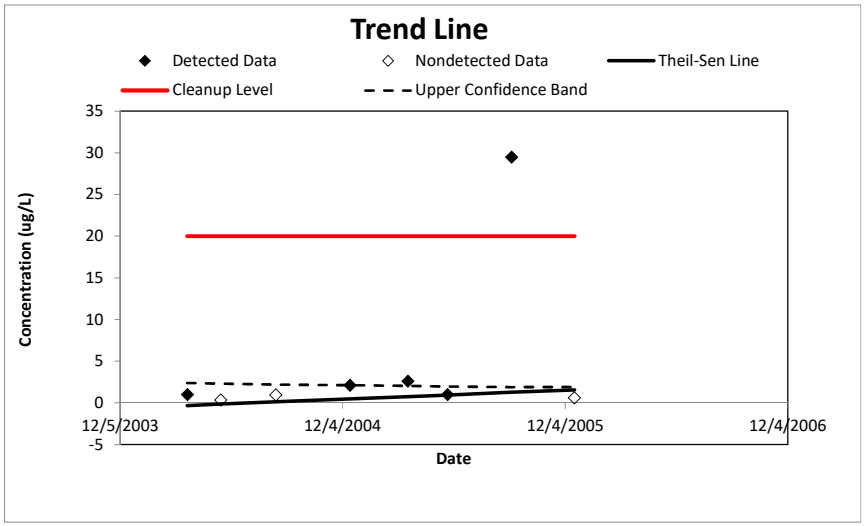
UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	MW-1
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	5
Number of non-detected results	3
Detection frequency	63%
Number at or below cleanup level	7
Are any potential outliers present?	Yes
Mean of concentration	4.9
Standard deviation of concentration	9.32

95% Upper Confidence Limit (UCL)	20.6	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	1.91	
Trend calculation method	Theil-Sen/Mann-Kendall	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	



When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

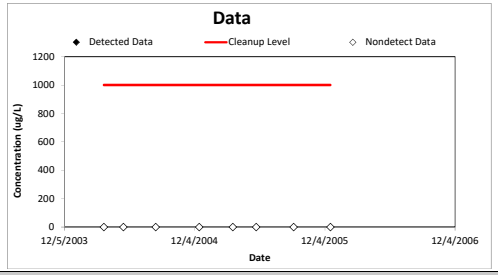
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	MW-1
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1	U	No
3/21/2005	1	U	No
5/25/2005	1	U	No
9/7/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

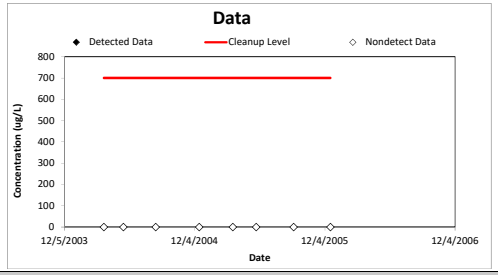
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	MW-1
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/24/2004	1	U	No
5/18/2004	1	U	No
8/16/2004	1	U	No
12/16/2004	1	U	No
3/21/2005	1	U	No
5/25/2005	1	U	No
9/7/2005	1	U	No
12/19/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

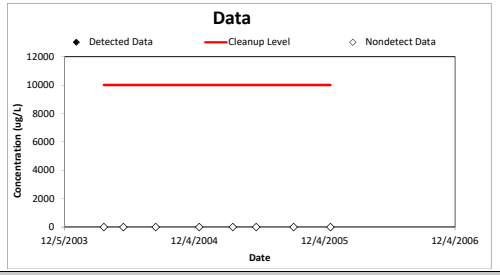
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	MW-1
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/24/2004	3	U	No
5/18/2004	3	U	No
8/16/2004	3	U	No
12/16/2004	3	U	No
3/21/2005	3	U	No
5/25/2005	3	U	No
9/7/2005	2	U	No
12/19/2005	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

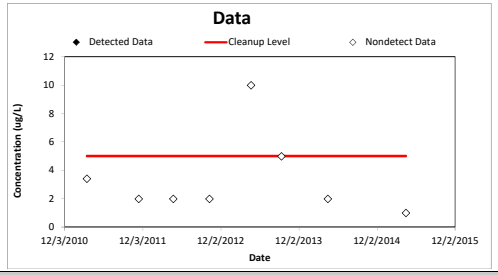
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-44A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/17/2011	3.4	U	No
11/15/2011	2	U	No
4/24/2012	2	U	No
10/10/2012	2	U	No
4/22/2013	10	U	No
9/12/2013	5	U	No
4/16/2014	2	U	No
4/16/2015	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

Not all detection limits are below the action level. It is recommended that more data be collected using a method with better sensitivity. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

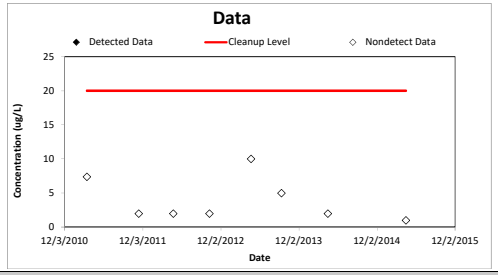
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-44A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
3/17/2011	7.4	U	No
11/15/2011	2	U	No
4/24/2012	2	U	No
10/10/2012	2	U	No
4/22/2013	10	U	No
9/12/2013	5	U	No
4/16/2014	2	U	No
4/16/2015	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

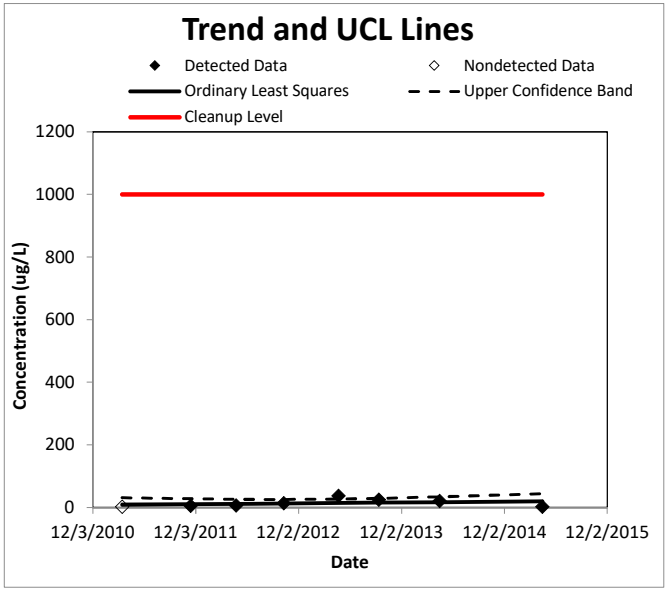
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-44A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	8
Are any potential outliers present?	No
Mean of concentration	14.4
Standard deviation of concentration	11.6



95% Upper Confidence Limit (UCL)	33.7	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	44.5	
Trend calculation method	Ordinary Least Squares	
Cleanup level	1000	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

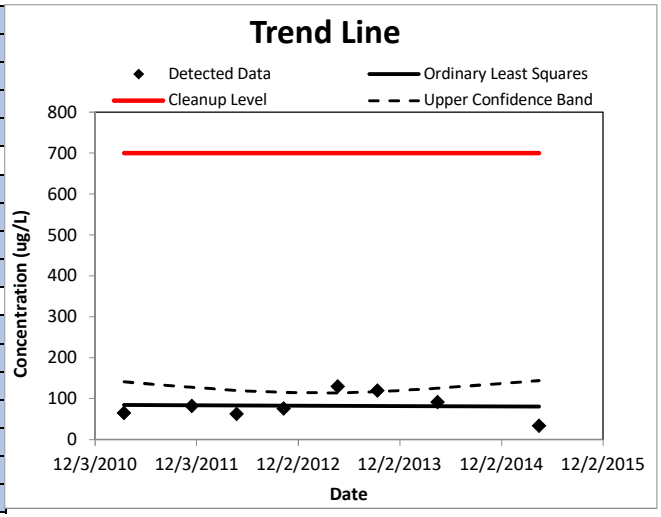
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-44A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	82.8
Standard deviation of concentration	31.2
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	104
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	144
Trend calculation method	Ordinary Least Squares
Cleanup level	700
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

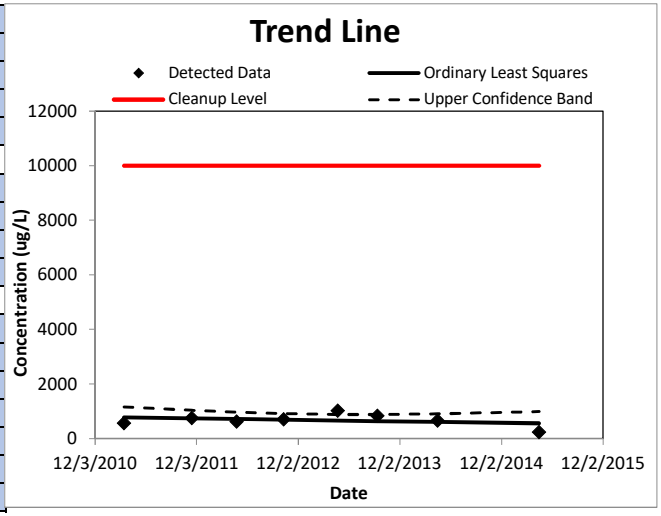
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-total
Well Name/Number	GP-44A
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	8
Are any potential outliers present?	No
Mean of concentration	675
Standard deviation of concentration	225
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	826
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	994
Trend calculation method	Ordinary Least Squares
Cleanup level	10000
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing

Message: None.

Groundwater Statistics Tool

Data input worksheet

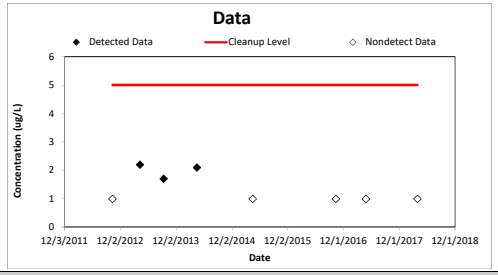
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-41A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	3
Number of nondetect results:	5
Detection frequency:	0.375

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/10/2013	2.2		Yes
9/12/2013	1.7		Yes
4/17/2014	2.1		Yes
4/16/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

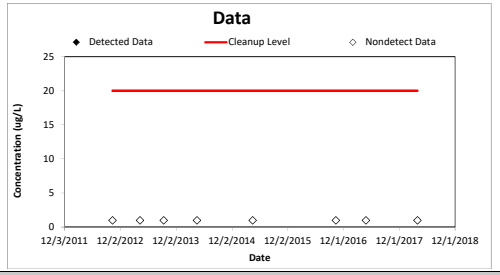
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-41A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

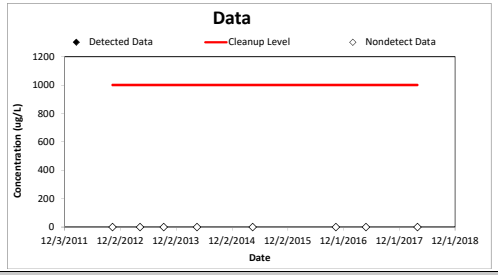
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-41A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

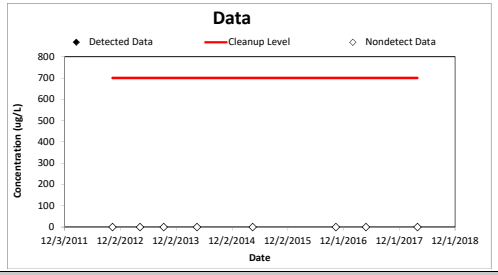
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-41A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	1	U	No
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No
4/16/2015	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
3/29/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

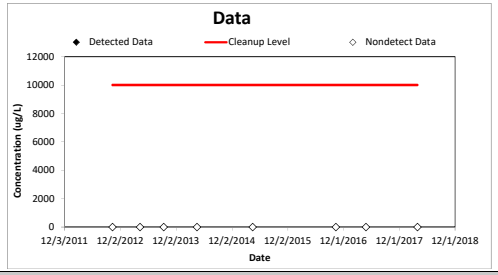
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-41A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/11/2012	10	U	No
4/10/2013	5	U	No
9/12/2013	10	U	No
4/17/2014	5	U	No
4/16/2015	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
3/29/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Groundwater Statistics Tool

Data input worksheet

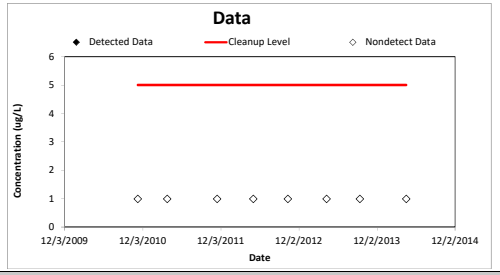
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-24A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
3/28/2011	1	U	No
11/15/2011	1	U	No
5/3/2012	1	U	No
10/11/2012	1	U	No
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

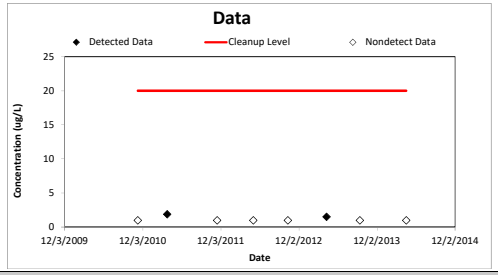
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-24A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	2
Number of nondetect results:	6
Detection frequency:	0.25

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
3/28/2011	1.9		Yes
11/15/2011	1	U	No
5/3/2012	1	U	No
10/11/2012	1	U	No
4/10/2013	1.5		Yes
9/12/2013	1	U	No
4/17/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

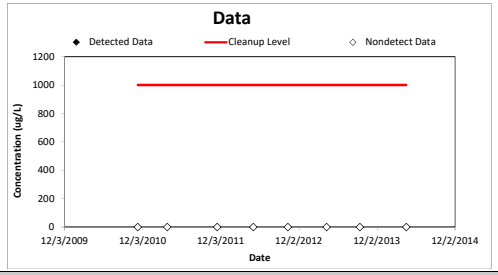
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-24A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
3/28/2011	1	U	No
11/15/2011	1	U	No
5/3/2012	1	U	No
10/11/2012	1	U	No
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

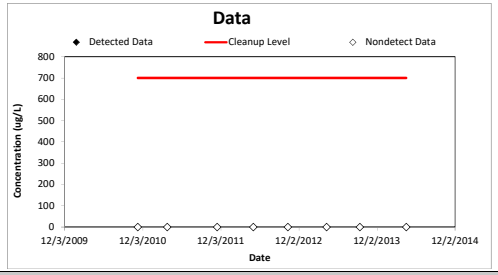
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-24A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
3/28/2011	1	U	No
11/15/2011	1	U	No
5/3/2012	1	U	No
10/11/2012	1	U	No
4/10/2013	1	U	No
9/12/2013	1	U	No
4/17/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Data input worksheet

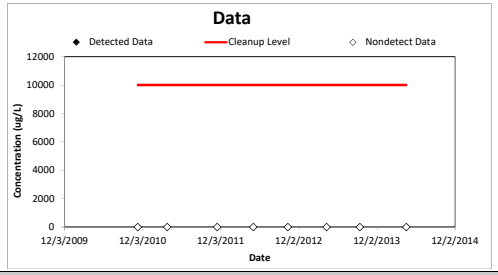
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-24A
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	5	U	No
3/28/2011	5	U	No
11/15/2011	5	U	No
5/3/2012	5	U	No
10/11/2012	10	U	No
4/10/2013	5	U	No
9/12/2013	10	U	No
4/17/2014	5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Are all data within chart axis limits?	Yes	None

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Data input worksheet

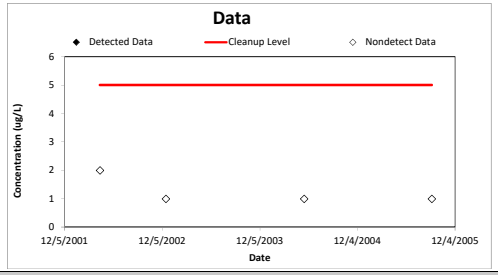
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-11A(35-40)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/19/2002	1	U	No
5/19/2004	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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Groundwater Statistics Tool

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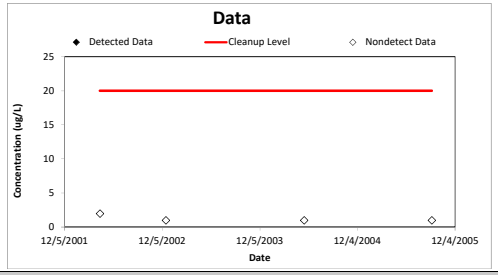
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-11A(35-40)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/19/2002	1	U	No
5/19/2004	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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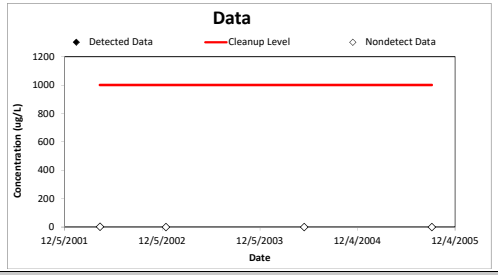
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-11A(35-40)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/19/2002	1	U	No
5/19/2004	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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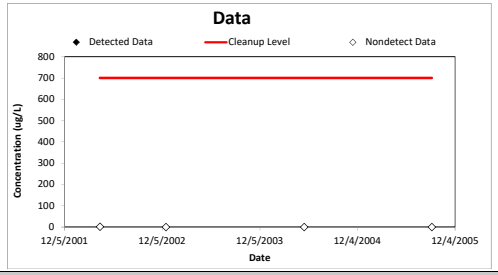
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-11A(35-40)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/19/2002	1	U	No
5/19/2004	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

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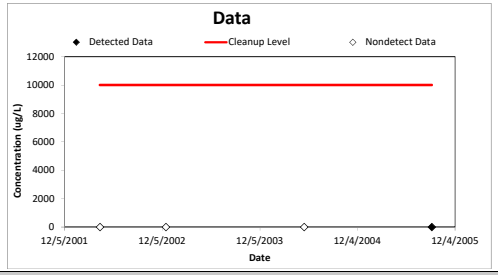
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-11A(35-40)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	1
Number of nondetect results:	3
Detection frequency:	0.25

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/19/2002	1	U	No
5/19/2004	3	U	No
9/8/2005	0.36		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.36.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

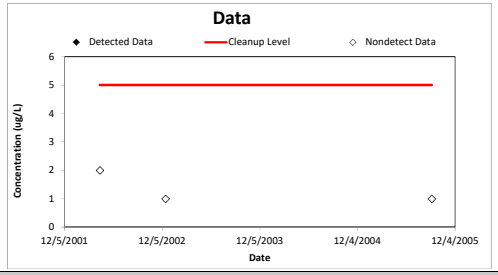
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-11A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

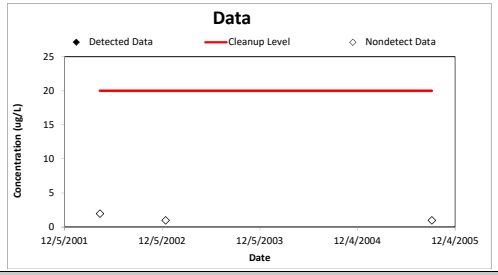
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-11A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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Data input worksheet

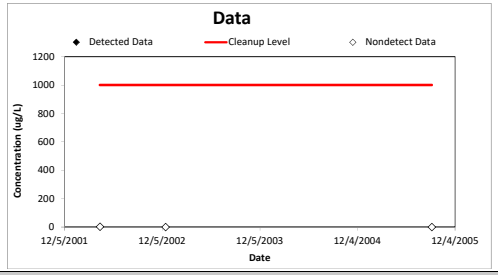
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-11A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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Data input worksheet

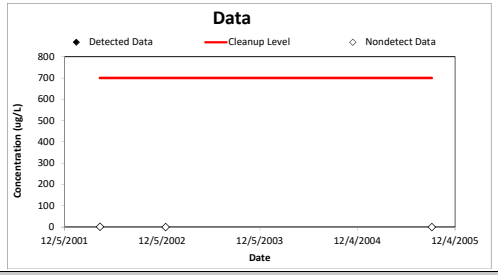
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-11A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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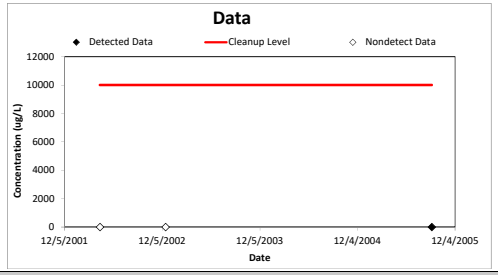
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-11A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	1
Number of nondetect results:	2
Detection frequency:	0.333333333

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	0.56		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.56.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

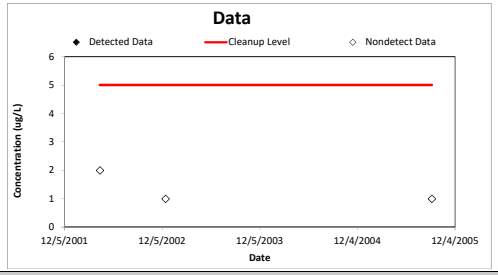
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-11A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Are all data within chart axis limits?	Yes	None

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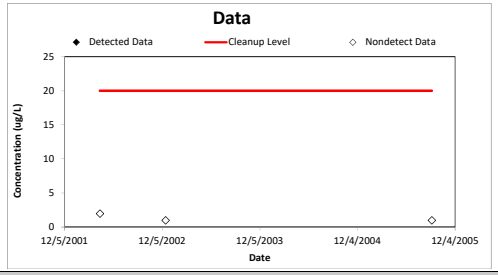
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-11A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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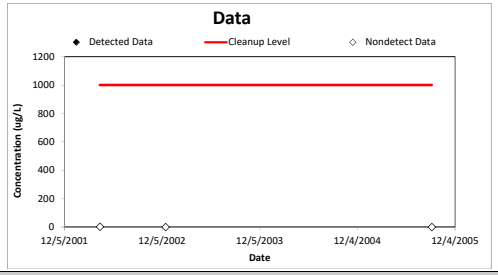
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-11A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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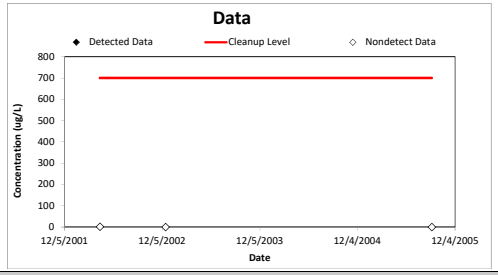
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-11A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
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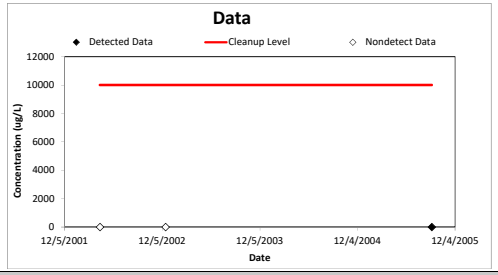
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-11A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	1
Number of nondetect results:	2
Detection frequency:	0.333333333

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	0.86		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.86.
Are all data within chart axis limits?	Yes	None

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Data input worksheet

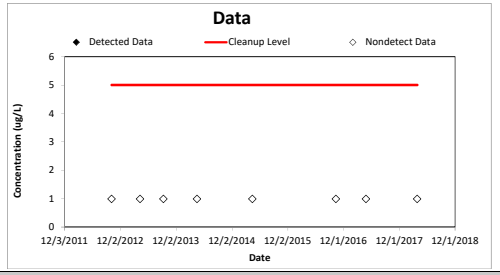
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-11A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No
4/15/2015	1	U	No
10/11/2016	1	U	No
4/27/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

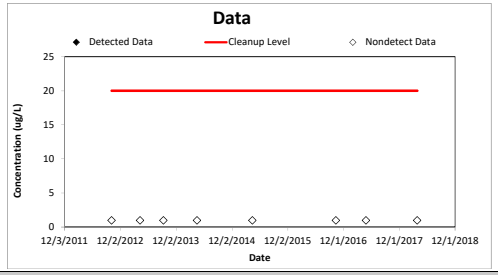
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-11A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No
4/15/2015	1	U	No
10/11/2016	1	U	No
4/27/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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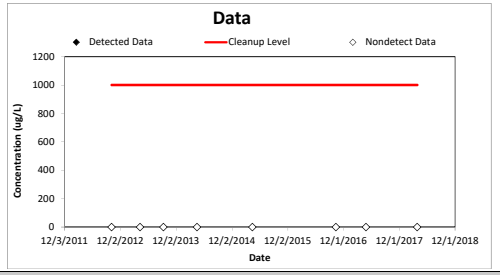
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-11A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No
4/15/2015	1	U	No
10/11/2016	1	U	No
4/27/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

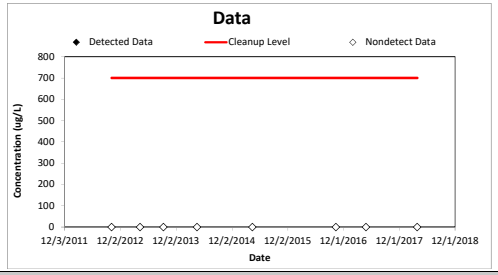
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-11A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No
4/15/2015	1	U	No
10/11/2016	1	U	No
4/27/2017	1	U	No
3/28/2018	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
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Groundwater Statistics Tool

Data input worksheet

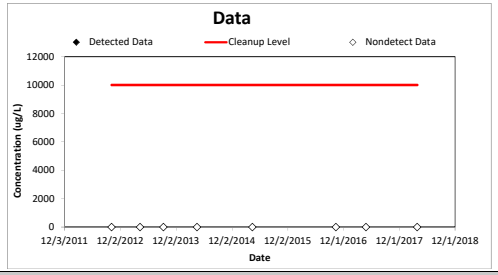
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-11A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
10/5/2012	10	U	No
4/9/2013	5	U	No
9/10/2013	10	U	No
4/16/2014	5	U	No
4/15/2015	5	U	No
10/11/2016	5	U	No
4/27/2017	10	U	No
3/28/2018	3	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Groundwater Statistics Tool

Data input worksheet

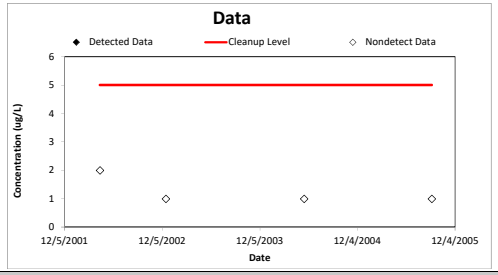
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-9A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/19/2002	1	U	No
5/19/2004	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Groundwater Statistics Tool

Data input worksheet

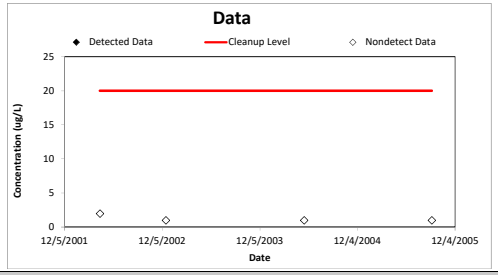
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-9A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/19/2002	1	U	No
5/19/2004	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

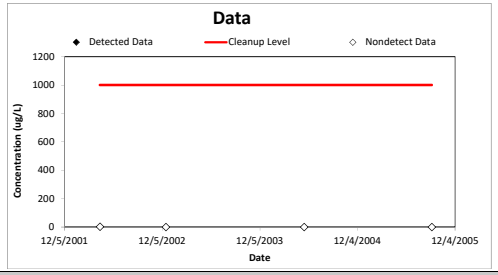
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-9A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/19/2002	1	U	No
5/19/2004	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

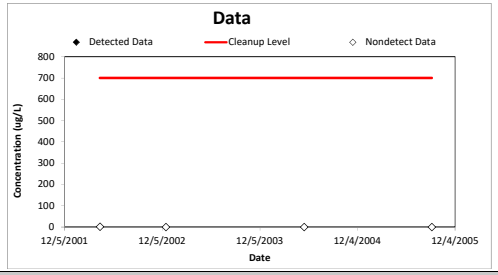
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-9A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/19/2002	1	U	No
5/19/2004	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

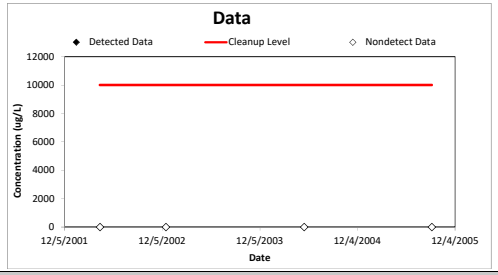
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-9A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	0
Number of nondetect results:	4
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/19/2002	1	U	No
5/19/2004	3	U	No
9/8/2005	2	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Groundwater Statistics Tool

Data input worksheet

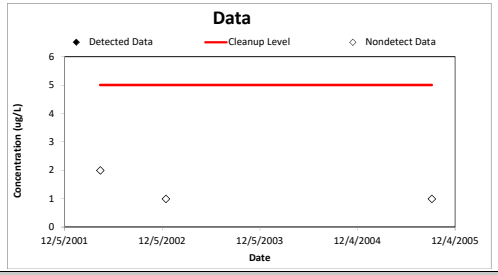
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-9A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/17/2002	2	U	No
12/19/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

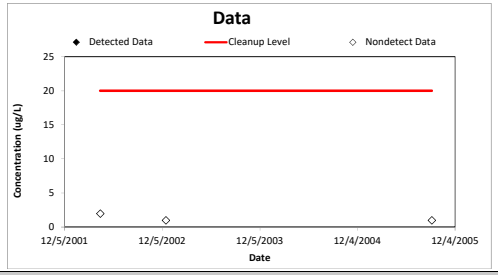
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-9A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/17/2002	2	U	No
12/19/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

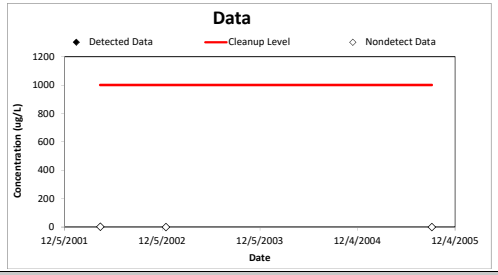
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-9A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/17/2002	2	U	No
12/19/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

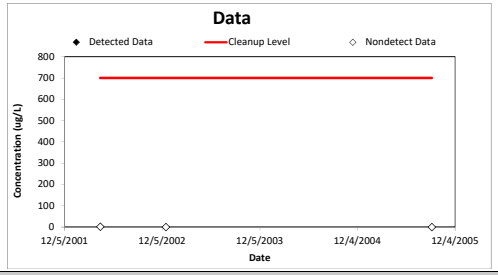
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-9A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/17/2002	2	U	No
12/19/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
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Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

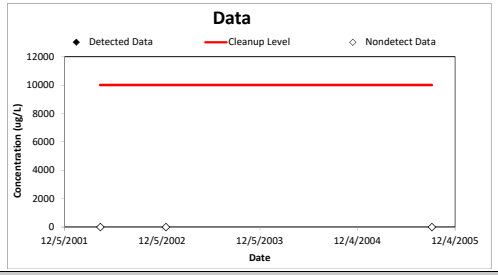
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-9A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/17/2002	2	U	No
12/19/2002	1	U	No
9/8/2005	2	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
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Groundwater Statistics Tool

Data input worksheet

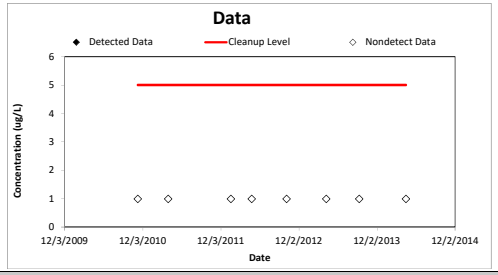
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-9A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

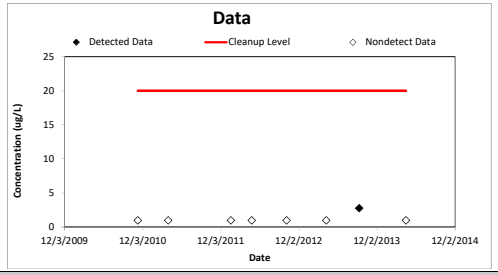
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-9A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	2.8		Yes
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

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At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

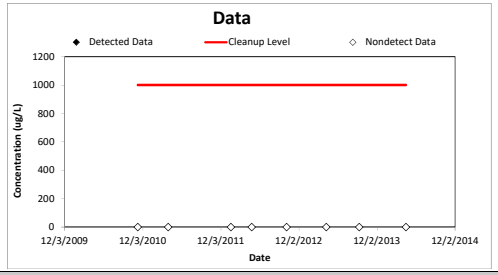
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-9A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

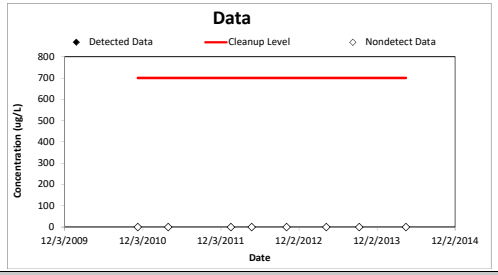
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-9A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

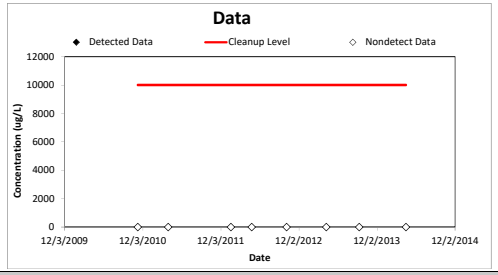
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-9A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	5	U	No
4/1/2011	5	U	No
1/19/2012	5	U	No
4/25/2012	5	U	No
10/5/2012	10	U	No
4/9/2013	5	U	No
9/10/2013	10	U	No
4/16/2014	5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

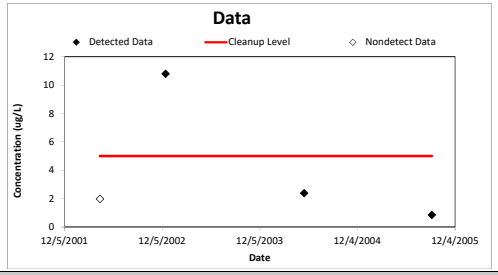
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-7A(40-45)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	3
Number of nondetect results:	1
Detection frequency:	0.75

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	10.8		Yes
5/19/2004	2.4		Yes
9/8/2005	0.86		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

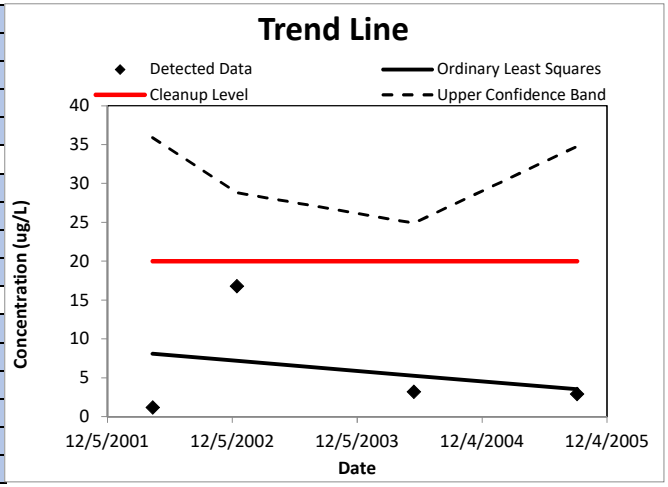
Groundwater Statistics Tool

UCL calculations and summary statistics for nonparametric data sets

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-7A(40-45)
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	4
Number < cleanup level	4
Are any potential outliers present?	No
Mean of concentration	6.03
Standard deviation of concentration	7.23



95% Upper Confidence Limit (UCL)	21.8	
Method for calculating UCL	Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	34.8	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Random Seed Used	1
Message: EPA guidance recommends that at least 8 data points be used for the attainment evaluation.	

Groundwater Statistics Tool

Data input worksheet

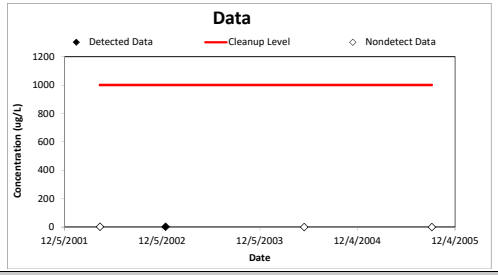
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-7A(40-45)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	1
Number of nondetect results:	3
Detection frequency:	0.25

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	3.1		Yes
5/19/2004	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

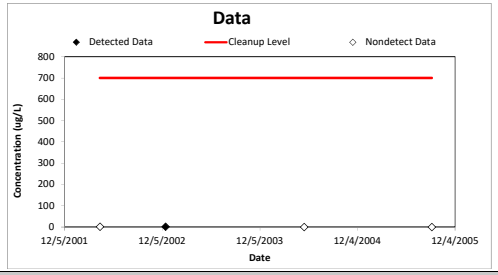
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-7A(40-45)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	1
Number of nondetect results:	3
Detection frequency:	0.25

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1.1		Yes
5/19/2004	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 1.1.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

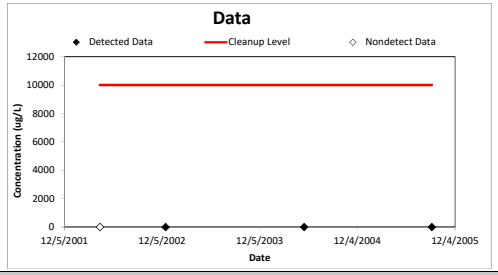
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-7A(40-45)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	4
Number of detected results:	3
Number of nondetect results:	1
Detection frequency:	0.75

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	9.3		Yes
5/19/2004	5.1		Yes
9/8/2005	0.52		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

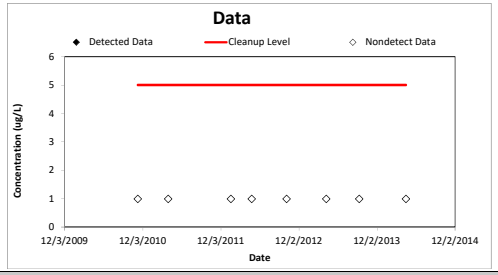
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-7A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

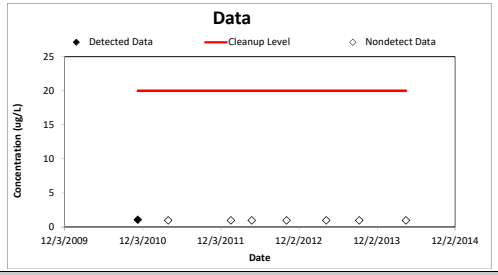
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-7A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1.1		Yes
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

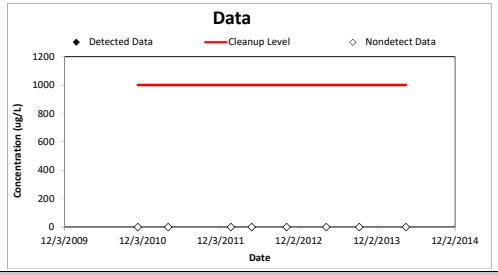
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-7A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

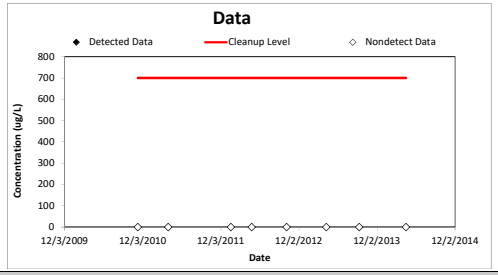
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-7A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

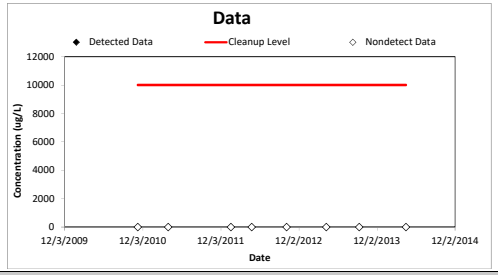
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-7A(30-35)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	5	U	No
4/1/2011	5	U	No
1/19/2012	5	U	No
4/25/2012	5	U	No
10/5/2012	10	U	No
4/9/2013	5	U	No
9/10/2013	10	U	No
4/16/2014	5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

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Groundwater Statistics Tool

Data input worksheet

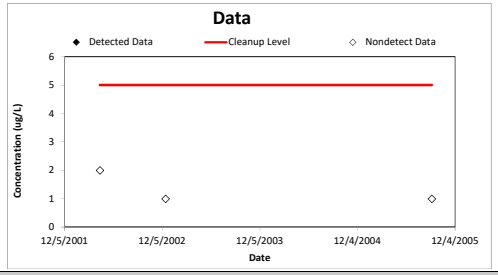
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-7A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

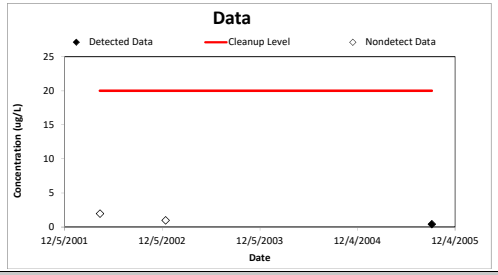
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-7A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	1
Number of nondetect results:	2
Detection frequency:	0.333333333

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	0.42		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.42.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

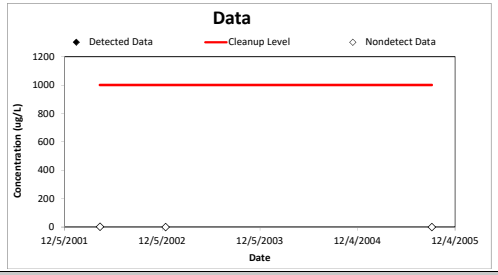
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-7A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

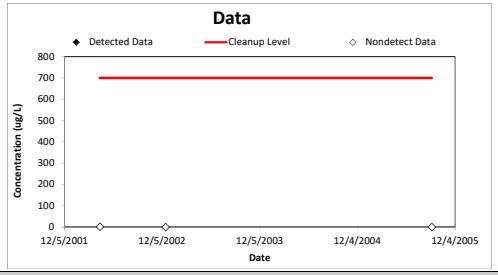
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-7A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

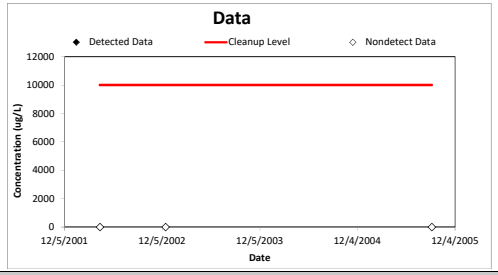
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-7A(25-30)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	0
Number of nondetect results:	3
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/16/2002	2	U	No
12/18/2002	1	U	No
9/8/2005	2	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

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Groundwater Statistics Tool

Data input worksheet

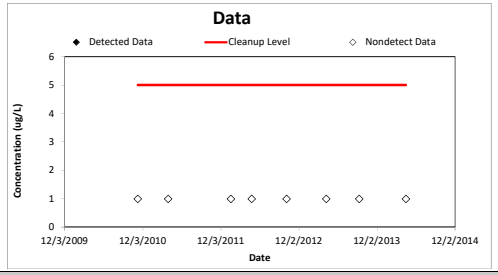
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-7A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

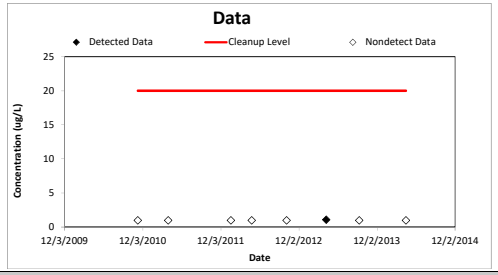
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-7A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1.1		Yes
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

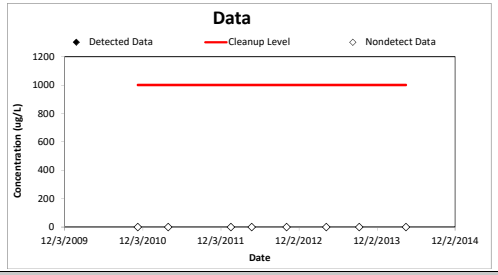
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-7A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

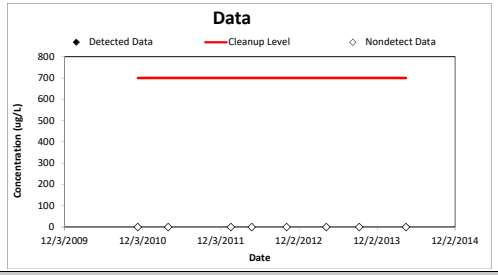
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-7A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	1	U	No
4/1/2011	1	U	No
1/19/2012	1	U	No
4/25/2012	1	U	No
10/5/2012	1	U	No
4/9/2013	1	U	No
9/10/2013	1	U	No
4/16/2014	1	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

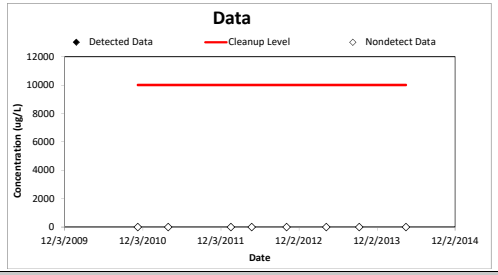
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-7A(20-25)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
11/10/2010	5	U	No
4/1/2011	5	U	No
1/19/2012	5	U	No
4/25/2012	5	U	No
10/5/2012	10	U	No
4/9/2013	5	U	No
9/10/2013	10	U	No
4/16/2014	5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

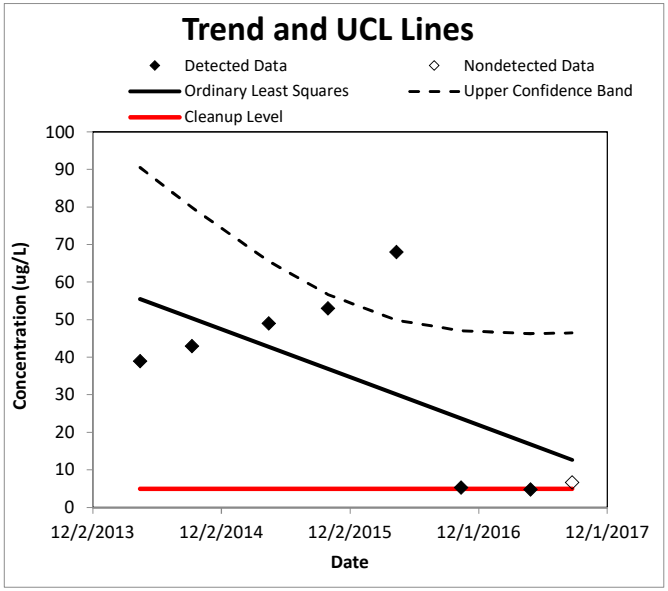
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-2F(50-55)
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	7
Number of non-detected results	1
Detection frequency	88%
Number at or below cleanup level	1
Are any potential outliers present?	No
Mean of concentration	33.4
Standard deviation of concentration	23.3



95% Upper Confidence Limit (UCL)	72.3	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	46.5	
Trend calculation method	Ordinary Least Squares	
Cleanup level	5	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

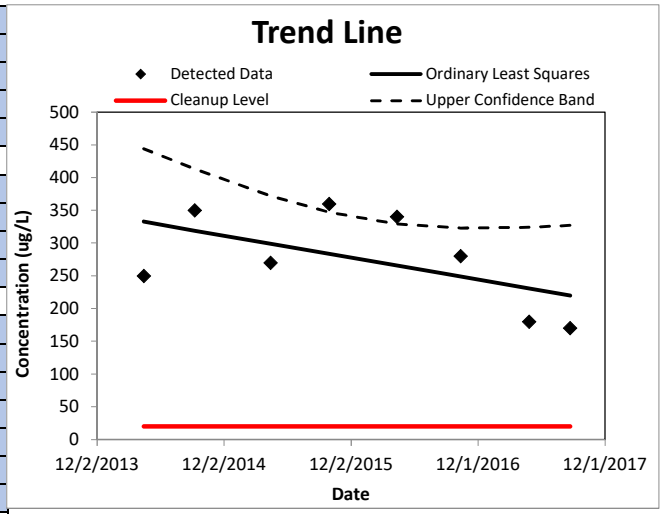
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-2F(50-55)
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	275
Standard deviation of concentration	73.5
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	324
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	327
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

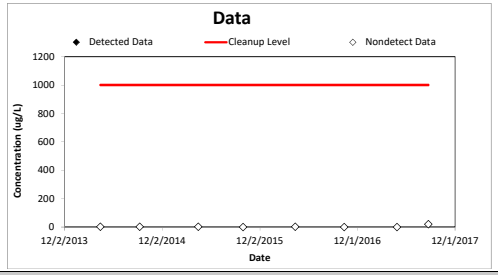
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-2F(50-55)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/15/2014	2	U	No
9/9/2014	2	U	No
4/15/2015	2	U	No
9/30/2015	1	U	No
4/12/2016	2	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/23/2017	20	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

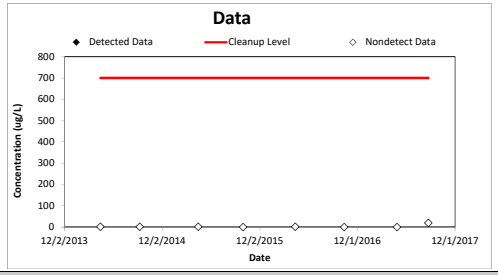
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-2F(50-55)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/15/2014	2	U	No
9/9/2014	2	U	No
4/15/2015	2	U	No
9/30/2015	1	U	No
4/12/2016	2	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/23/2017	20	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

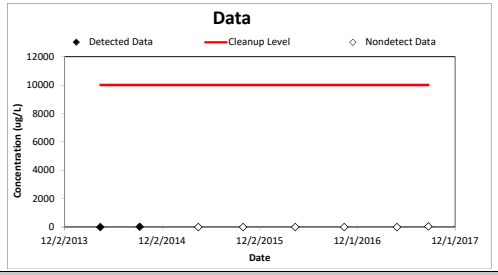
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-2F(50-55)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	2
Number of nondetect results:	6
Detection frequency:	0.25

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/15/2014	15		Yes
9/9/2014	21		Yes
4/15/2015	10	U	No
9/30/2015	5	U	No
4/12/2016	10	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
8/23/2017	60	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 21.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

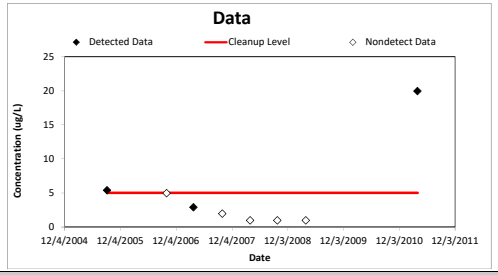
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-2F(45-50)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	3
Number of nondetect results:	5
Detection frequency:	0.375

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2005	5.41		Yes
10/2/2006	5	U	No
3/26/2007	2.9		Yes
10/2/2007	2	U	No
3/31/2008	1	U	No
9/25/2008	1	U	No
3/31/2009	1	U	No
4/1/2011	20		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

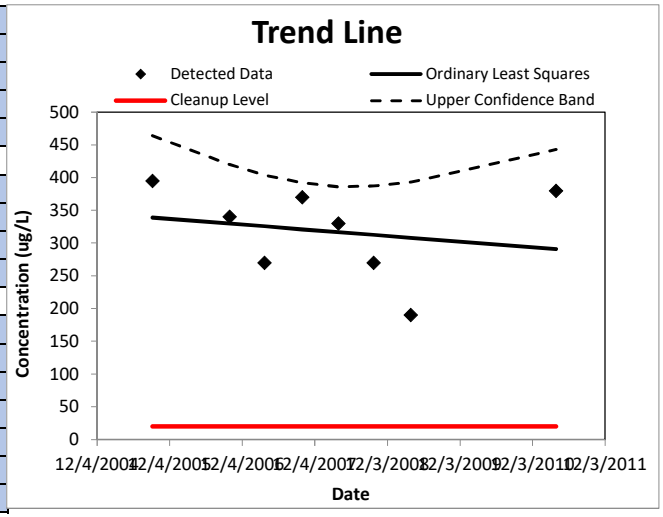
Groundwater Statistics Tool

UCL calculations and summary statistics for data sets that are normally distributed

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-2F(45-50)
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number < cleanup level	0
Are any potential outliers present?	No
Mean of concentration	318
Standard deviation of concentration	69.8
t-value for UCL calculation	1.895



95% Upper Confidence Limit (UCL)	365
Method for calculating UCL	Student's t UCL
Value of 95% Upper Confidence Band value at final sampling event	443
Trend calculation method	Ordinary Least Squares
Cleanup level	20
Source of cleanup level	EPA_MCL
Is the trend decreasing or statistically insignificant?	**Yes**

When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

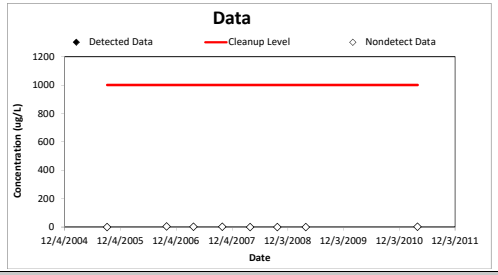
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-2F(45-50)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2005	1	U	No
10/2/2006	5	U	No
3/26/2007	2	U	No
10/2/2007	2	U	No
3/31/2008	1	U	No
9/25/2008	1	U	No
3/31/2009	1	U	No
4/1/2011	3.5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

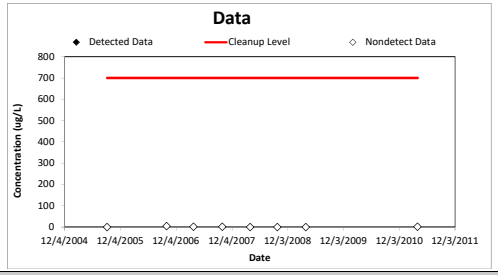
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-2F(45-50)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2005	1	U	No
10/2/2006	5	U	No
3/26/2007	2	U	No
10/2/2007	2	U	No
3/31/2008	1	U	No
9/25/2008	1	U	No
3/31/2009	1	U	No
4/1/2011	2.5	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

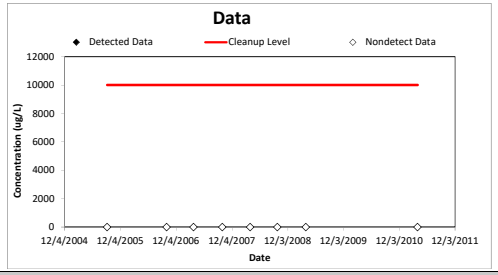
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-2F(45-50)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/8/2005	3	U	No
10/2/2006	10	U	No
3/26/2007	4	U	No
10/2/2007	4	U	No
3/31/2008	2	U	No
9/25/2008	2	U	No
3/31/2009	2	U	No
4/1/2011	8	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

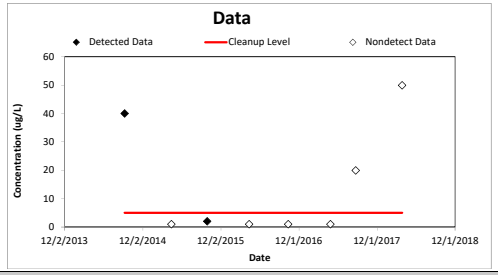
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-2E(55-60)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	2
Number of nondetect results:	6
Detection frequency:	0.25

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	40		Yes
4/15/2015	1	U	No
9/30/2015	2.1		Yes
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	20	U	No
3/28/2018	50	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 40.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

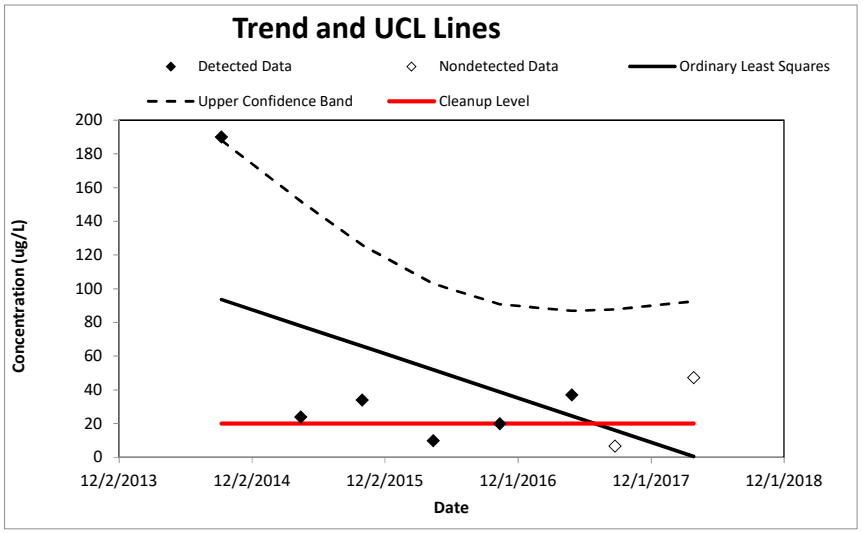
UCL calculations and summary statistics for data sets with nondetects

Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	5/12/2018
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-2E(55-60)
Date Units	Date
Concentration Units	ug/L

Confidence Level	95%
Number of results	8
Number of detected results	6
Number of non-detected results	2
Detection frequency	75%
Number at or below cleanup level	3
Are any potential outliers present?	Yes
Mean of concentration	43.4
Standard deviation of concentration	56.3

95% Upper Confidence Limit (UCL)	139	
Method for calculating UCL	KM Chebyshev UCL	
Value of 95% Upper Confidence Band value at final sampling event	92.6	
Trend calculation method	Ordinary Least Squares	
Cleanup level	20	
Source of cleanup level	EPA_MCL	
Is the trend decreasing or statistically insignificant?	**Yes**	



When is the concentration predicted to exceed the MCL?	Not applicable - slope is not statistically increasing
Message: None.	

Groundwater Statistics Tool

Data input worksheet

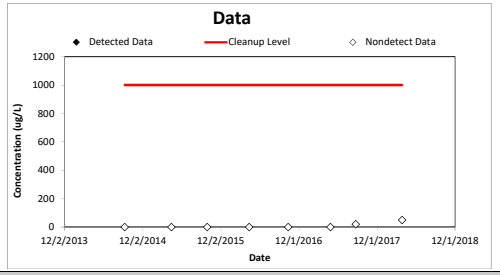
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-2E(55-60)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
9/30/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	20	U	No
3/28/2018	50	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

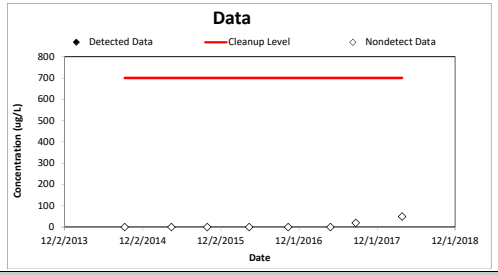
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-2E(55-60)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
9/30/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	20	U	No
3/28/2018	50	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

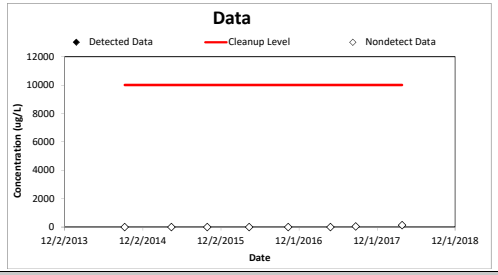
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-2E(55-60)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	5	U	No
4/15/2015	5	U	No
9/30/2015	5	U	No
4/12/2016	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
8/24/2017	60	U	No
3/28/2018	150	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

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Groundwater Statistics Tool

Data input worksheet

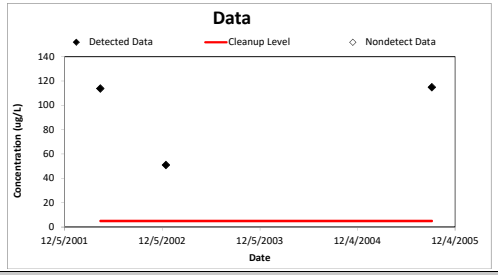
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-2E(50-55)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	3
Number of nondetect results:	0
Detection frequency:	1

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/18/2002	114		Yes
12/19/2002	51.2		Yes
9/8/2005	115		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

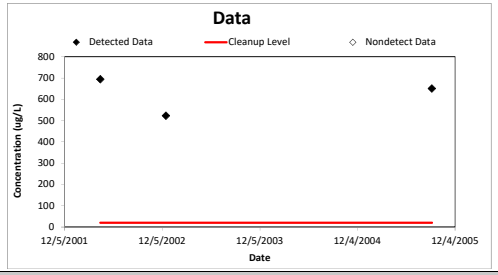
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-2E(50-55)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	3
Number of nondetect results:	0
Detection frequency:	1

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/18/2002	695		Yes
12/19/2002	524		Yes
9/8/2005	651		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

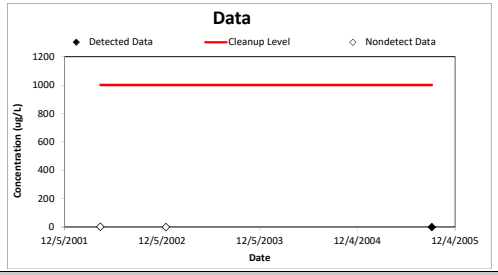
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-2E(50-55)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	1
Number of nondetect results:	2
Detection frequency:	0.333333333

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/18/2002	2	U	No
12/19/2002	1	U	No
9/8/2005	1.08		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 1.08.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

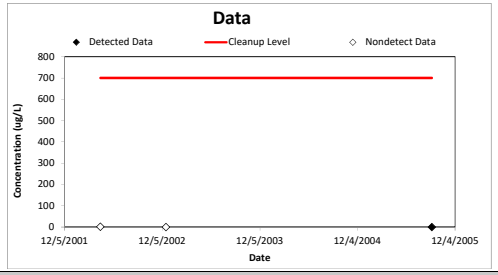
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-2E(50-55)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	1
Number of nondetect results:	2
Detection frequency:	0.333333333

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/18/2002	2	U	No
12/19/2002	1	U	No
9/8/2005	0.97		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.97.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

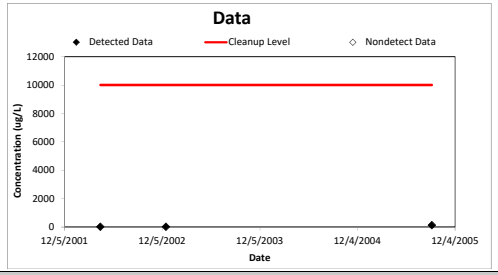
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-2E(50-55)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	3
Number of detected results:	3
Number of nondetect results:	0
Detection frequency:	1

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
4/18/2002	27.1		Yes
12/19/2002	16.5		Yes
9/8/2005	142		Yes



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

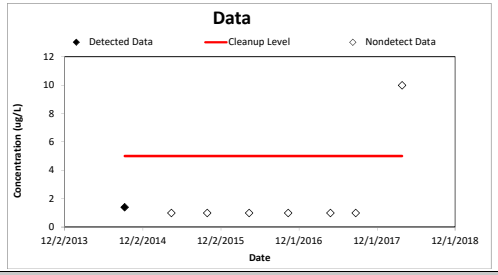
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Benzene
Well Name/Number	GP-2E(45-50)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	5
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	1
Number of nondetect results:	7
Detection frequency:	0.125

Date (Date)	Benzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1.4		Yes
4/15/2015	1	U	No
9/30/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/28/2018	10	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 1.4.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

At least 4 results and 4 detected results are needed to use the tool.Collect more data, with lower detection limits if necessary.

Groundwater Statistics Tool

Data input worksheet

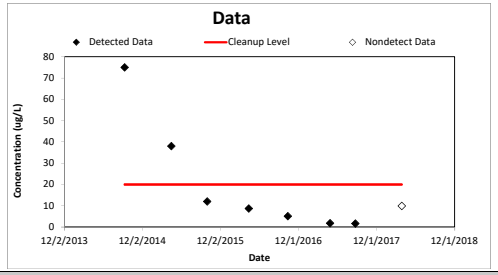
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Methyl-Tert-Butylether
Well Name/Number	GP-2E(45-50)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	20
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	7
Number of nondetect results:	1
Detection frequency:	0.875

Date (Date)	Methyl-Tert-Butylether Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	75		Yes
4/15/2015	38		Yes
9/30/2015	12		Yes
4/12/2016	8.8		Yes
10/12/2016	5.1		Yes
4/27/2017	1.9		Yes
8/24/2017	1.7		Yes
3/28/2018	10	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	Yes	None
Are detection limits for nondetects ≤ maximum detected value?	Yes	None
Are all data within chart axis limits?	Yes	None

Groundwater Statistics Tool

Data input worksheet

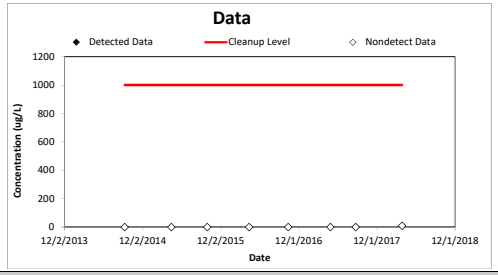
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Toluene
Well Name/Number	GP-2E(45-50)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	1000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Toluene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
9/30/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/28/2018	10	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

Groundwater Statistics Tool

Data input worksheet

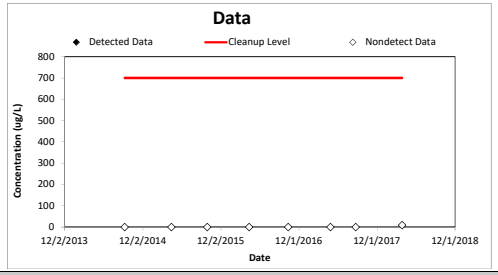
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Ethylbenzene
Well Name/Number	GP-2E(45-50)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	700
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Ethylbenzene Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	1	U	No
4/15/2015	1	U	No
9/30/2015	1	U	No
4/12/2016	1	U	No
10/12/2016	1	U	No
4/27/2017	1	U	No
8/24/2017	1	U	No
3/28/2018	10	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

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Groundwater Statistics Tool

Data input worksheet

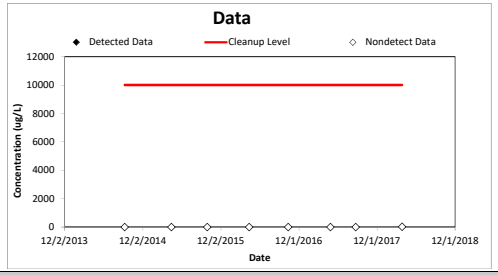
Site Name	Facility No. 122208
Operating Unit (OU)	N/A
Type of Evaluation	Attainment
Date of Evaluation	12-May
Person performing analysis	Arcadis

Chemical of Concern	Xylenes-tota
Well Name/Number	GP-2E(45-50)
Date Units	Date
Concentration Units	ug/L

Confidence Level Desired	95%
Cleanup Level	10000
Source of cleanup level (e.g. MCL or risk-based concentration)	EPA_MCL
Risk of False Outlier Rejection	1%
Random Seed (may be left blank)	1
Significant figures to use	3

Number of data points:	8
Number of detected results:	0
Number of nondetect results:	8
Detection frequency:	0

Date (Date)	Xylenes-total Concentration (ug/L)	Data Qualifier	Detected? (Yes or No)
9/9/2014	5	U	No
4/15/2015	5	U	No
9/30/2015	5	U	No
4/12/2016	5	U	No
10/12/2016	5	U	No
4/27/2017	10	U	No
8/24/2017	3	U	No
3/28/2018	30	U	No



Axis Values			
Time		Concentration	
Min	Max	Min	Max
Auto	Auto	Auto	Auto

Data Review		Recommendations
Are all necessary data fields entered, and in proper format?	Yes	None
Are at least 4 data points present for statistical analysis?	No	This tool cannot be used with fewer than 4 data points, and 4 detected data points.
Are detection limits for nondetects ≤ maximum detected value?	No	Remove all nondetected results with detection limits above 0.
Are all data within chart axis limits?	Yes	None

Pressing the "Check for Outliers" button to the right will open a worksheet that shows the results of a Dixons's test for outliers.

No detected values, but all results are below the Action Level. You may be able to justify no further corrective action at this well with agreement from the project team. See Instructions worksheet for further discussion.

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