

Chevron Environmental Management Company

SEMI-ANNUAL PROGRESS REPORT JANUARY THROUGH JUNE 2016

Former Chevron Facility No. 122208

July 2016

A large, solid orange geometric shape, resembling a stylized triangle or a section of a larger triangle, is positioned in the bottom right corner of the page. It is composed of two overlapping triangles, creating a complex, angular form. A thin white line runs diagonally through the shape, and a thin white horizontal line intersects it near the bottom.

**SEMI-ANNUAL
PROGRESS REPORT
JANUARY THROUGH
JUNE 2016**

Former Chevron Facility No. 122208



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CONTENTS

Acronyms and Abbreviations	iv
1 INTRODUCTION	1
2 SYSTEM OVERVIEW	2
2.1 Area A Dual Phase Extraction System	2
2.1.1 Total Fluids Recovery and Treatment	2
2.1.2 Soil Vapor Recovery and Treatment	2
2.2 Area B In-Situ Groundwater Remediation Wells	2
2.3 Area C Oxygen Reactive Zone	3
3 DISCONTINUED OPERATION AND MONITORING OF VAPOR MITIGATION SYSTEMS	4
4 OPERATION, MAINTENANCE, AND MONITORING	5
4.1 System Operation	5
4.1.1 Area A Dual Phase Extraction System	5
4.1.2 Area B In-Situ Groundwater Remediation Wells	5
4.1.3 Area C Oxygen Reactive Zone	6
4.2 System Maintenance	6
4.2.1 Area A Dual Phase Extraction System	6
4.2.2 Area B In-Situ Groundwater Remediation Wells	6
4.2.3 Area C Oxygen Reactive Zone	7
4.3 System Monitoring	7
4.3.1 Area A Dual Phase Extraction System	7
4.3.2 Area B In-Situ Groundwater Remediation Wells	8
4.3.3 Area C Oxygen Reactive Zone	8
4.4 Site Monitoring	9
4.4.1 Groundwater Monitoring	9
4.4.1.1 In-Situ Groundwater Remediation Wells	10
4.4.1.2 Oxygen Reactive Zone	10
4.4.2 Passive Sampling Using the HydraSieve™	10
4.4.3 Soil Vapor Monitoring	10
5 SUBMITTAL OF DELIVERABLES	11
6 SUMMARY OF FINDINGS	12
6.1 Area A Dual Phase Extraction System	12

6.2	Area B In-Situ Groundwater Remediation Wells	13
6.3	Area C Oxygen Reactive Zone.....	13
6.4	Mann-Kendall Statistical Analysis	13
6.5	Groundwater Elevation Summary	13
7	PERMIT COMPLIANCE	14
7.1	Permits for Operation of the Area A System	14
7.2	Permits for Groundwater Monitoring and Operation of Area B and C Systems.....	14
8	SUMMARY OF DEVIATIONS FROM APPROVED PLANS, PROBLEMS ENCOUNTERED, AND CORRECTIVE ACTIONS TAKEN	15
8.1	System Sampling/Monitoring.....	15
8.2	Soil Vapor Sampling	15
9	SUMMARY OF MEETINGS WITH PUBLIC AND GOVERNMENT	16
10	CHANGES IN KEY PERSONNEL DURING THE REPORTING PERIOD	17
11	PROJECTED WORK FOR THE NEXT REPORTING PERIOD.....	18

TABLES

Table 1	Summary of Groundwater and Soil Vapor Sampling Plan
Table 2	Status of Wells Installed as Part of Construction

FIGURES

Figure 1	Cumulative Total Hydrocarbons Recovered and Groundwater Treated Since 1990
Figures 2-7	Groundwater Contour and Iso-Concentration Maps
Figures 8-25	Benzene and MTBE Trend Analyses

APPENDICES

A	Area A, B, and C Piping and Instrumentation Diagrams					
B	Dual Phase Extraction System-Total Fluids Extraction Data <table><tr><td>Table B-1: Total Fluids Extraction System Data</td></tr><tr><td>Table B-2: Total Fluids Extraction System Influent Analytical Results</td></tr><tr><td>Table B-3: Total Fluids Extraction System Effluent Analytical Results</td></tr><tr><td>Table B-4: Air Stripper Vapor Carbon Influent Analytical Results</td></tr><tr><td>Table B-5: Air Stripper Vapor Carbon Effluent Analytical Results</td></tr></table>	Table B-1: Total Fluids Extraction System Data	Table B-2: Total Fluids Extraction System Influent Analytical Results	Table B-3: Total Fluids Extraction System Effluent Analytical Results	Table B-4: Air Stripper Vapor Carbon Influent Analytical Results	Table B-5: Air Stripper Vapor Carbon Effluent Analytical Results
Table B-1: Total Fluids Extraction System Data						
Table B-2: Total Fluids Extraction System Influent Analytical Results						
Table B-3: Total Fluids Extraction System Effluent Analytical Results						
Table B-4: Air Stripper Vapor Carbon Influent Analytical Results						
Table B-5: Air Stripper Vapor Carbon Effluent Analytical Results						
C	Dual Phase Extraction System-Soil Vapor Extraction Data					

Table C-1: Soil Vapor Extraction System Data

Table C-2: Soil Vapor Extraction System Influent Analytical Results

Table C-3: Soil Vapor Extraction System Effluent Analytical Results

D In-Situ Groundwater Remediation Wells

Table D-1: In-situ Groundwater Remediation Wells Monitoring Data

Table D-2: Carbon Performance Analytical Results

E Oxygen Reactive Zone

Table E-1: Oxygen Reactive Zone Monitoring Data

Table E-2: Dissolved Oxygen Measurements

F Groundwater Monitoring Data

Table F-1: Groundwater Elevation Data

Table F-2: Groundwater Analytical Results

G Soil Vapor Monitoring

Table G-1: Soil Vapor Monitoring Analytical Results

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ACRONYMS AND ABBREVIATIONS

cis 1,2-DCE	1, 2-cis-dichloroethene
AO	Administrative Order
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
DOEE	Department of Energy and the Environment
DO	Dissolved Oxygen
DPE	Dual Phase Extraction
EPA	Environmental Protection Agency
FID	Flame Ionization Detector
GAC	Granular Activated Carbon
gpm	Gallons per Minute
ISGR	In-situ Groundwater Remediation
LPH	Liquid Phase Hydrocarbons
µg/L	Micrograms per Liter
MDE	Maryland Department of the Environment
mg/L	Milligrams per Liter
MTBE	Methyl Tert-Butyl Ether
NPDES	National Pollutant Discharge Elimination System
OMM	Operation, Maintenance, and Monitoring
ORZ	Oxygen Reactive Zone
psi	Pounds per Square Inch
SVE	Soil Vapor Extraction
PCE	Tetrachloroethene
TCE	Trichloroethene
TPH-GRO	Total Petroleum Hydrocarbons – Gas Range Organics
TRPH	Total Recoverable Petroleum Hydrocarbons
VMS	Vapor Mitigation System
VOCs	Volatile Organic Compounds

1 INTRODUCTION

Pursuant to the United States Environmental Protection Agency (EPA) Administrative Order, Docket Number RCRA-03-2008-0355TH (AO), 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 3(c) of the AO, ARCADIS on behalf of Chevron has prepared this Semi-Annual Progress Report (Report) to describe actions taken by Chevron pursuant to the AO. The reporting period for this report is January through June 2016.

The remainder of this Report provides information on the following:

- Section 2.0 - System Overview
- Section 3.0 - Discontinue Operation and Maintenance of Vapor Mitigation Systems
- Section 4.0 - Operation, Maintenance, and Monitoring
- Section 5.0 - Submittal of Deliverables
- Section 6.0 - Summary of Findings
- Section 7.0 - Permit Compliance
- Section 8.0 - Summary of Deviations from Approved Plans, Problems Encountered, and Corrective Actions Taken
- Section 9.0 - Summary of Meetings with Public and Government
- Section 10.0 - Changes in Key Personnel During the Reporting Period
- Section 11.0 - Projected Work for the Next Reporting Period

2 SYSTEM OVERVIEW

The piping and instrumentation diagrams for the systems (Appendix A) provide specific system information, such as equipment models and sizes, piping sizes, controls, and other technical information.

2.1 Area A Dual Phase Extraction System

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 Dual Phase Extraction (DPE) System consists of total fluids extraction and treatment as well as soil vapor extraction (SVE) and treatment.

2.1.1 Total Fluids Recovery and Treatment

Pneumatic total fluids (i.e., groundwater and liquid phase hydrocarbons [LPH], if present) pumps are installed in 11 DPE wells (RW-1, RW-2, RW-3, RW-4, RW-5, MW-7, MW-17, MW-22R, GP-27R, GP-39R and PTW-B). 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 Maryland Department of the Environment (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. 2008-OGR-8514 (National Pollutant Discharge Elimination System [NPDES] Permit No. MDG918514).

2.1.2 Soil Vapor Recovery and Treatment

SVE is conducted at 12 wells (i.e., the 11 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.

2.2 Area B In-Situ Groundwater Remediation Wells

Area B is located in the alley between Oglethorpe Street and Eastern Avenue, NE, 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 in-situ groundwater remediation (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.

2.3 Area C Oxygen Reactive Zone

Area C is located in the alley between Oglethorpe and Nicholson Streets, NE, 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 oxygen reactive zone (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 non-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.

3 DISCONTINUED OPERATION AND MONITORING OF VAPOR MITIGATION SYSTEMS

Based on Section 5.7 of the approved Interim Measures Work Plan for Vapor Sampling and Mitigation, if the data trend over three consecutive years suggests that continuous operation of any vapor mitigation system (VMS) installed is no longer necessary to protect human health, Chevron may petition EPA for system termination review.

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

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 District Department of Energy and the Environment (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.

Additionally, 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.

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

4 OPERATION, MAINTENANCE, AND MONITORING

This section provides a summary of operation, maintenance, and monitoring (OMM) activities conducted at the site during the reporting period.

4.1 System Operation

This section provides a summary of operations for Area A, B, and C systems and includes a discussion on system uptime and downtime and other related operational points of discussion. A description of the routine OMM requirements for Areas A, B, and C, are also provided in the following sections.

4.1.1 Area A Dual Phase Extraction System

Routine OMM site visits to record measurements and collect samples are performed every other week (twice per month). The reduction from weekly routine OMM visits to every other week is based on 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. Additional visits are made to the site each month for specific maintenance needs and to respond to system alarms as needed.

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 1, 2016 through June 30, 2016, the total fluids extraction portion of the system was operating 88.8 percent of the time (3,879 hours on and 489 hours off). During the same time period, the SVE portion of the system was operating 88.5 percent of the time (3,864 hours on and 504 hours off).

Table B-1 in Appendix B contains total fluids extraction system data including date and time, on/off status, totalizer reading, cumulative gallons of hydrocarbons recovered, operating extraction points, maintenance information, reasons for system downtime, and types of maintenance performed during this reporting period and the previous period (July 1 through December 31, 2015). A detailed explanation of the tables is provided on the first page of Appendix B.

Table C-1 in Appendix C contains soil vapor extraction 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 flame ionization detector (FID), cumulative gallons of hydrocarbons recovered, operating extraction points, maintenance information, reasons for system downtime, and types of maintenance performed during this reporting period and the previous period. A detailed explanation of the tables is provided on the first page of Appendix C.

Optimization of the DPE system has typically been performed on a semi-annual basis. Data collected during optimization events is utilized to maximize mass removal by targeting vapor extraction on wells exhibiting higher influent concentrations. DPE optimization was not performed during the reporting period, but was performed on July 12, 2016. Optimization events for the next reporting period (July 1 through December 31, 2016) and onward will be performed monthly (at a minimum) to provide the project team with data to gain a better understanding of the current status of the system and the limitations related to the existing system configuration and equipment.

4.1.2 Area B In-Situ Groundwater Remediation Wells

Routine OMM visits to Area B are conducted monthly or as needed to check system operation status, to collect carbon performance samples, and record system data.

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 January 1 through June 30, 2016, ISGR-1 was operating 94.5 percent of the time (4,128 hours on and 240 hours off). During the same time period, ISGR-2 was operating 99.1 percent of the time (4,330 hours on and 38 hours off).

Table D-1 in Appendix D 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.

4.1.3 Area C Oxygen Reactive Zone

Routine OMM visits to Area C are conducted monthly or as needed to check system operation status, to collect quarterly DO measurements, and record system data. DO measurements are recorded on a quarterly basis from the injection wells and specified system performance monitoring wells.

Table E-1 in Appendix E 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.

4.2 System Maintenance

This section provides a summary of routine and non-routine maintenance activities performed for the Area A, B, and C systems.

4.2.1 Area A Dual Phase Extraction System

Routine maintenance is performed as specified or as needed, including 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.

Provided below is a description of the non-routine maintenance activities performed at Area A during the current period.

- Lag liquid phase GAC vessel internal piping replaced on January 29, 2016.
- Oil/water separator transfer pump discharge nipple replaced on February 4, 2016.
- Air stripper float replaced on May 4, 2016.
- Extraction well head compressed air tubing replaced on June 8, 2016.
- System temporarily shut down to replace the liquid phase GAC on January 29 and May 31, 2016.

4.2.2 Area B In-Situ Groundwater Remediation Wells

System maintenance is performed as needed or as specified. Routine maintenance includes checking and changing (when needed) 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, will be performed as needed.

There were no non-routine maintenance activities performed at Area B during this reporting period.

4.2.3 Area C Oxygen Reactive Zone

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 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.

Provided below is a description of the non-routine maintenance activities performed at Area C.

- The oxygen cylinder was replaced on January 7 and March 17, 2016.
- The former oxygen distribution manifold was replaced with a stainless steel manifold on January 7, 2016.

4.3 System Monitoring

This section provides a summary of monitoring activities performed for the Area A, B, and C systems.

4.3.1 Area A Dual Phase Extraction System

Routine monitoring for the DPE system includes the following activities:

- Recording groundwater and air flow rates;
- Measuring air influent and effluent concentrations using a FID;
- Recording the manifold vacuum for the SVE system;
- Recording groundwater extraction system bag filter and air stripper differential pressure;
- Recording groundwater extraction system carbon influent pressures;
- Recording the SVE hour meter;
- Recording catalytic oxidizer temperatures; and
- Recording vacuum readings.

The total fluids influent (SP-1) was sampled 6 times and the treated effluent (SP-3) was sampled 12 times for laboratory analysis during the reporting period (Tables B-2 and B-3, respectively, Appendix B).

Treated effluent samples were analyzed by EPA Method 8260 for benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert-butyl ether (MTBE), naphthalene, tetrachloroethene, trichloroethene, and 1, 2-cis-dichloroethene. Treated effluent samples were also analyzed by EPA Method 8015 for total petroleum hydrocarbons - gasoline range organics (TPH-GRO). The discharge permit limits are 100 micrograms per liter (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, tetrachloroethene (PCE), trichloroethene (TCE), and 1, 2-cis-dichloroethene (cis-1,2-DCE) concentrations without established limits. Results are documented in Section 6 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 chlorinated compounds and report chlorinated solvents in the quarterly Discharge Monitoring Report, given that 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 response to this request has not been received to date.

The air stripper vapor phase GAC influent (SP-50) air was sampled 5 times and the air stripper vapor phase GAC effluent (SP-52) air was sampled 6 times for laboratory analysis during the reporting period (Tables B-4 and B-5, respectively, Appendix B). Samples were analyzed for BTEX, MTBE, and total recoverable petroleum hydrocarbons (TRPH), reported as GRO in the C4 to C10 range, using EPA Method TO-15. The air stripper permit discharge limits are 20 pounds of volatile organic compounds (VOCs) per day and 0.02 pounds of benzene per hour. Results are documented in Section 6 of this report.

The SVE system influent (SP-100) air was sampled 6 times and the SVE treated effluent (SP-200) air was sampled 6 times for laboratory analysis during the reporting period (Tables C-2 and C-3, respectively, Appendix C) 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 EPA 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 6 of this report.

4.3.2 Area B In-Situ Groundwater Remediation Wells

Routine monitoring for the ISGR wells includes the following activities:

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

Liquid phase GAC performance samples were collected monthly during the reporting period. Since startup and throughout the reporting period, analysis of samples collected from the 50% carbon sample port of both wells have been non-detect.

Liquid phase GAC performance samples will continue to be collected on a monthly basis to determine the carbon exhaustion rate. The time between system start-up and detection of hydrocarbons at the 75% sample port will be evaluated to calculate when hydrocarbons will be detected in the 90% sample port. The carbon change out for ISGR-1 and ISGR-2 will be scheduled prior to the calculated date when the 90% sample port is expected to be impacted. Table D-2 in Appendix D provides a summary of the analysis results for the liquid phase GAC performance samples collected from ISGR-1 and ISGR-2.

4.3.3 Area C Oxygen Reactive Zone

Routine monitoring for the ORZ system includes the following activities:

- Recording oxygen cylinder pressure;
- Recording system pressure;
- Recording oxygen sensor reading; and

- Recording pressure at each well.

DO is measured in all injection wells (IW-1 through IW-5), MW-26A, MW-26B, and MW-58 on a quarterly basis. Table E-2 in Appendix E provides a summary of the DO measurements for the Area C ORZ. DO measurements were collected on March 24 and June 28, 2016.

Oxygen cylinder usage is 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 March 17, 2016 and as a result of a premature depletion due to a small leak, is currently planned for replacement on July 26, 2016. 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.

4.4 Site Monitoring

In a letter dated August 21, 2014 ARCADIS, on behalf of Chevron, submitted a request to the EPA for modification of the approved site groundwater sampling plan. The letter proposed a reduction in the number of wells being sampled, a modification to the frequency of sampling for specific wells, and compared the past two years of groundwater quality data to Maximum Contaminant Levels 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, the EPA approved the proposed modification to the site groundwater sampling plan.

The EPA-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, annual sampling of 27 monitoring wells, and semi-annual sampling of the four soil vapor wells (VW-1, VW-2, VW-3, and VW-4). Table 1 provides a summary of the newly approved groundwater and soil vapor sampling plan.

4.4.1 Groundwater Monitoring

Monthly groundwater gauging of the ten specified monitoring wells was conducted on January 5, February 22, March 28, April 4, May 31, and June 13, 2016. The spring semi-annual groundwater gauging was conducted on March 23, 2016. The groundwater gauging/elevation data for the past two years is provided on Table F-1 of Appendix F. A detailed explanation of the table is provided on the first page of Appendix F. Groundwater contour maps, provided as Figures 2 and 3, were created using gauging data collected during the spring semi-annual groundwater gauging event. Results are summarized in Section 6 of this report.

The spring semi-annual sampling event for the Maryland and D.C. monitoring wells was conducted during the period of April 11 through April 13, 2016. The analytical results for groundwater sampling events for the past two years are provided on Table F-2 of Appendix F. A detailed explanation of the table is provided on the first page of Appendix F. Groundwater iso-concentration maps, provided as Figures 4 through 7, were created using analytical results from the spring 2016 sampling event. Figures 8 through 25 present the benzene and MTBE trend analyses for select wells.

A Mann-Kendall statistical analysis will be performed in the fall of 2016 upon completion of the fall 2016 groundwater sampling event. The results of this analysis, to include the evaluation of spring and fall 2016 groundwater sample analysis results, will be provided for the next reporting period (July 1 through

December 31, 2016). Results of the Mann-Kendall statistical analysis will be documented in Section 6 of this report.

4.4.1.1 In-Situ Groundwater Remediation Wells

To evaluate system performance, groundwater samples for analysis of VOCs and TPH-GRO, are collected from MW-61A, MW-61B, MW-62A, MW-62B, and the influent (shallow piezometer) and effluent (deep piezometer) of the ISGR wells during the on-going semi-annual long-term monitoring program. Analytical results for groundwater samples collected from the Area B system performance wells during the spring 2016 semi-annual sampling event are provided on Table F-2 of Appendix F.

The influent (ISGR-1 Shallow and ISGR-2 Shallow) and effluent (ISGR-1 Deep and ISGR-2 Deep) of the ISGR wells were added to Table 1 for inclusion in the long-term monitoring program.

4.4.1.2 Oxygen Reactive Zone

To evaluate system performance, groundwater samples for analysis of VOCs and TPH-GRO, are collected from wells MW-58, MW-59, MW-60, MW-26A, and MW-26B during the ongoing semi-annual long-term monitoring program. Analytical results for groundwater samples collected from the Area C system performance wells during the spring 2016 semi-annual sampling event are provided on Table F-2 of Appendix F.

4.4.2 Passive Sampling Using the HydraSieve™

The use of HydraSleeve passive samplers was approved by DOEE and EPA for use during the spring 2016 semi-annual groundwater sampling event. Groundwater samples were collected from 8 wells (MW-27A, GP-30A, GP-35A, MW-61A, ISGR-1 Shallow, ISGR-1 Deep, ISGR-2 Shallow, and ISGR-2 Deep) using the HydraSleeve passive samplers.

4.4.3 Soil Vapor Monitoring

Semi-annual soil vapor sampling of 1 (VW-1) of the 4 soil vapor wells as well as an ambient sample for VW-1 was conducted on May 9, 2016. Wet weather conditions prevented sample collection (i.e., infiltration of precipitation fills soil pore spaces and inhibits soil vapor flow) from three of the soil vapor wells (VW-2, VW-3, and VW-4). Analytical results for soil vapor samples collected during the May 2016 semi-annual soil vapor sampling event are provided on Table G-1 of Appendix G.

5 SUBMITTAL OF DELIVERABLES

Chevron submitted the following deliverables to EPA during the reporting period:

- Semi-Annual Progress Report for July through December 2015 in January 2016.
- Letter submitted to MDE and EPA on May 10, 2016 to request a modification to the required analyte list for the Maryland Department of the Environment General Discharge Permit No. 2008-OGR-8514 (National Pollutant Discharge Elimination System Permit No. MDG918514).

6 SUMMARY OF FINDINGS

This section provides a summary of findings and results for the OMM activities performed during the reporting period.

6.1 Area A Dual Phase Extraction System

The groundwater extraction portion of the DPE system pumped approximately 1,988,105 gallons of groundwater and recovered 9.47 equivalent gallons of dissolved hydrocarbons during the reporting period. The average system flow rate over the entire period was 7.66 gpm. The total volume of groundwater pumped from this site since remediation began in 1989 is approximately 70,862,923 gallons.

The analytical results for groundwater samples collected from sample point SP-3 (treated groundwater that is discharged to the storm drain) (Table B-3 of Appendix B) 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 B-4 of Appendix B) and SP-52 (air stripper vapor phase GAC effluent to atmosphere) (Table B-5 of Appendix B) 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 86.78 equivalent gallons of hydrocarbons in the vapor phase during the reporting period. The average air flow rate was 86.78 standard cubic feet per minute when the system was on (excluding down time).

Note that a correction has been made to the Vapor Phase Hydrocarbon (equivalent gallons) Cumulative Total for System. During the July 1 through December 31, 2015 reporting period, the analytical results from the December 18, 2015 sampling event were mistakenly not included in the Semi-Annual Report. An additional 9.4 equivalent gallons of Vapor Phase Hydrocarbons has been added to the Cumulative Total for System.

The laboratory analytical results for monthly SVE system samples collected at sample points SP-100 (soil vapor influent) (Table C-2 of Appendix C) and SP-200 (soil vapor effluent to atmosphere) (Table C-3 of Appendix C) 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)
1/1/16 through 6/30/16	0.00	9.47	86.78	96.25
Cumulative Total for System	856.5	993.77	6,598.38	8,448.65

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 1).

6.2 Area B In-Situ Groundwater Remediation Wells

ISGR-1 and ISGR-2 have continued to consistently operate throughout the reporting period. The long term effects of the Area B ISGR wells on reducing the concentration of petroleum hydrocarbons in groundwater will continue to be evaluated. The carbon consumption rate for both ISGR wells has continued to be minimal with no detectable levels of petroleum hydrocarbons measured in the 50% sampling port of the liquid phase GAC of either well. System optimization will be performed as required based on observed system performance.

6.3 Area C Oxygen Reactive Zone

The long term effects of the Area C ORZ system on reducing the concentration of petroleum hydrocarbons in groundwater will require continued system operation and sample analysis evaluation over a longer period of time. System optimization will be performed as required based on observed system performance. DO measurements will continue to be collected on a quarterly basis to verify DO delivery to the subsurface. Emitter cleaning and well maintenance will be performed as required.

6.4 Mann-Kendall Statistical Analysis

A Mann-Kendall statistical analysis will be performed in the fall of 2016 upon completion of the fall 2016 groundwater sampling event. The results of this analysis, to include the evaluation of spring and fall 2016 groundwater sample analysis results, will be provided for the next reporting period (July 1 through December 31, 2016).

6.5 Groundwater Elevation Summary

Groundwater gauging measurements from the spring 2016 semi-annual groundwater gauging event indicate that groundwater flow direction is consistent with past observations. Groundwater contour maps representing the spring 2016 semi-annual groundwater gauging event are provided as Figures 2 and 3.

7 PERMIT COMPLIANCE

Permits required for activities during this reporting period are described below.

7.1 Permits for Operation of the Area A System

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 were required. Neither of these permits has an expiration date. Sampling and monitoring requirements include periodic effluent monitoring as previously described.

MDE General Discharge Permit, permit number 2008-OGR-8514 (NPDES Permit No. MDG918514) was issued for discharge of treated groundwater at the site. This permit became effective on November 1, 2013 and expires on December 11, 2017. Based on current system effluent flow (less than 500,000 gallons per month), the permit requires effluent sampling twice per month, system monitoring, and submission of a quarterly Discharge Monitoring Report. Two treated groundwater effluent (SP-3) samples were collected and analyzed each month during the reporting period.

7.2 Permits for Groundwater Monitoring and Operation of Area B and C Systems

Permit number PA10197033 for Public Space Occupancy was issued by the District Department of Transportation on January 9, 2016 to cover traffic control requirements for sampling, gauging, and OMM in Areas B and C until July 6, 2016. A new permit is applied for and issued on a semi-annual basis.

8 SUMMARY OF DEVIATIONS FROM APPROVED PLANS, PROBLEMS ENCOUNTERED, AND CORRECTIVE ACTIONS TAKEN

8.1 System Sampling/Monitoring

Provided below are the samples not collected during the reporting period and a brief justification:

- June: Sample collected from the vapor phase GAC influent sample tap (SP-50) was not analyzed due to the sample bag being deflated upon arrival at the lab.

8.2 Soil Vapor Sampling

Provided below are the samples not collected during the reporting period and a brief justification:

- May: Soil vapor samples were not collected from VW-2, VW-3, and VW-4 due to wet weather conditions. Water was observed in each of these wells and sample collection was not possible.

9 SUMMARY OF MEETINGS WITH PUBLIC AND GOVERNMENT

No meetings with the public or government officials occurred during the reporting period.

10 CHANGES IN KEY PERSONNEL DURING THE REPORTING PERIOD

No changes in key personnel during the reporting period to report.

11 PROJECTED WORK FOR THE NEXT REPORTING PERIOD

The following list identifies projected work anticipated to be performed during the next reporting period, July through December 2016:

- Routine operations and maintenance activities for the Area A, B, and C remediation systems;
- Monthly sampling of the Area A DPE system including influent and effluent sampling;
- Sampling of the Area A DPE system effluent twice per month to comply with treated water discharge permit;
- Monthly gauging of select wells near the service station to check for the presence of LPH and to document drawdown induced by the total fluids extraction system;
- Area A liquid phase GAC replacement;
- Monthly Area A system optimization;
- Pull, inspect, and clean (as needed) pneumatic pumps in Area A;
- Clean oil water separator (as needed);
- Continue optimization of the Area B ISGR wells to maintain uptime;
- Area B monthly liquid phase GAC performance sampling;
- Area B liquid phase GAC replacement (as warranted) planning;
- Area C oxygen cylinder change out;
- Area C oxygen emitter pulling and cleaning (as needed);
- Area C quarterly DO measurement collection;
- Semi-annual groundwater sampling and gauging event in the fall of 2016; and
- System maintenance on Area A, B, and C systems as required.

TABLES



**TABLE 1 SUMMARY OF GROUNDWATER AND SOIL VAPOR SAMPLING PLAN
FORMER CHEVRON FACILITY NO. 122208
5801 RIGGS ROAD, CHILLUM, MARYLAND**

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	Hydrasleeve	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	

**TABLE 1 SUMMARY OF GROUNDWATER AND SOIL VAPOR SAMPLING PLAN
FORMER CHEVRON FACILITY NO. 122208
5801 RIGGS ROAD, CHILLUM, MARYLAND**

Well Identifier	Well Location Category	Petroleum Hydrocarbon Sampling Frequency	Current Sampling Method	Groundwater Gauging Frequency⁽²⁾	Comment
GP-7A(30-35)	Dissolved Hydrocarbons	None	None	Semi-annual	Several wells in the area, duplicative
GP-7A(35-40)	Dissolved Hydrocarbons	Semi-annual	Bailer	Semi-annual	
GP-24A	Dissolved Hydrocarbons	None	None	Semi-annual	Several wells in the area, duplicative
GP-41A	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	
GP-44A	Dissolved Hydrocarbons	Annual	Bailer	Semi-annual	
MW-24A	Dissolved Hydrocarbons	None	None	Monthly	Several wells in the area, duplicative
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	Hydrasleeve	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	Located in clay body, <MCLs for past 7 events
MW-39R	Dissolved Hydrocarbons	None	None	Semi-annual	Located in clay body, ND for past 7 events

**TABLE 1 SUMMARY OF GROUNDWATER AND SOIL VAPOR SAMPLING PLAN
FORMER CHEVRON FACILITY NO. 122208
5801 RIGGS ROAD, CHILLUM, MARYLAND**

Well Identifier	Well Location Category	Petroleum Hydrocarbon Sampling Frequency	Current Sampling Method	Groundwater Gauging Frequency⁽²⁾	Comment
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	
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

**TABLE 1 SUMMARY OF GROUNDWATER AND SOIL VAPOR SAMPLING PLAN
FORMER CHEVRON FACILITY NO. 122208
5801 RIGGS ROAD, CHILLUM, MARYLAND**

Well Identifier	Well Location Category	Petroleum Hydrocarbon Sampling Frequency	Current Sampling Method	Groundwater Gauging Frequency ⁽²⁾	Comment
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	
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	

- Footnotes:
- (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).

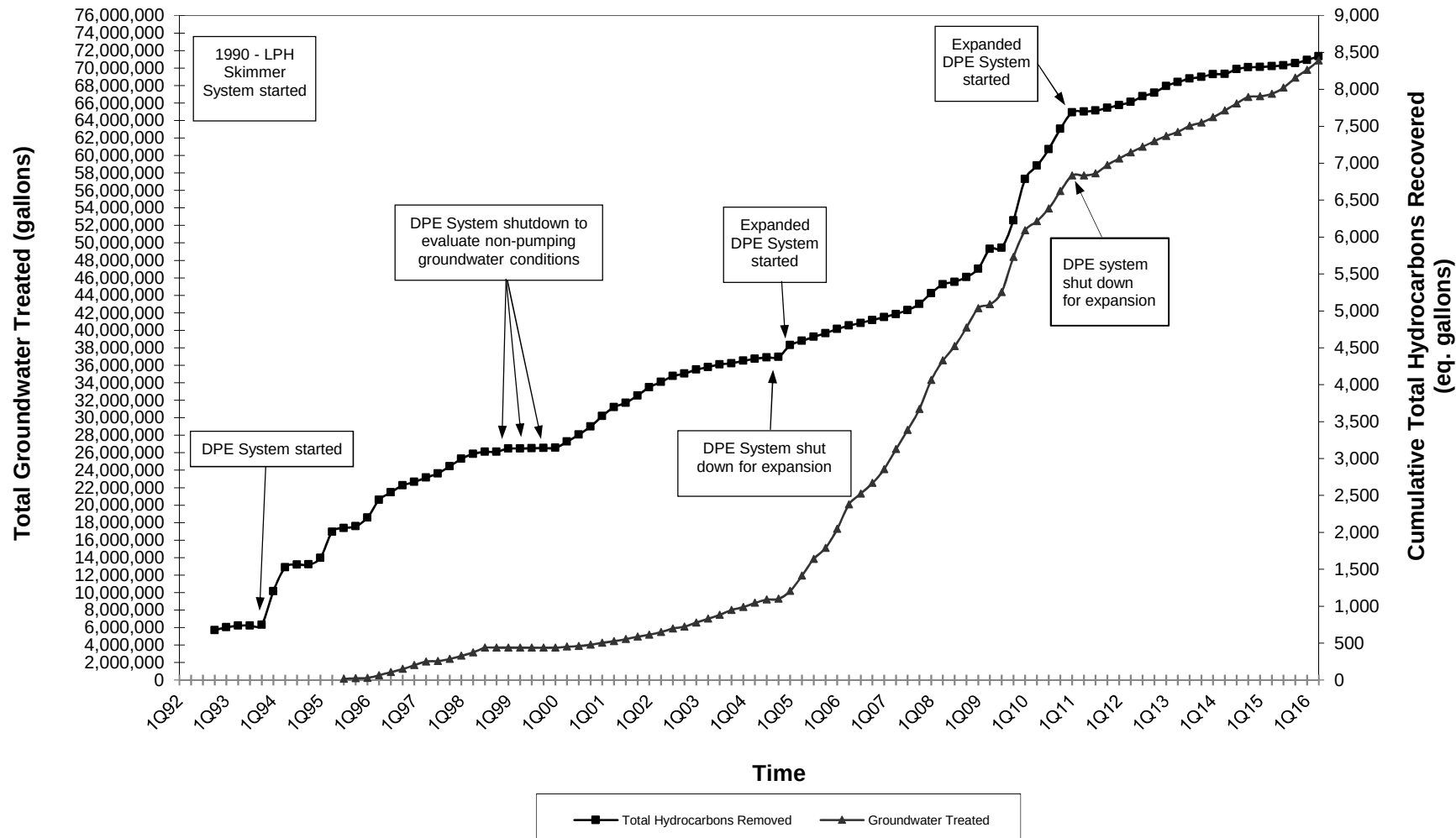
**TABLE 2 STATUS OF WELLS INSTALLED AS PART OF CONSTRUCTION
FORMER CHEVRON FACILITY NO. 122208
5801 RIGGS ROAD, CHILLUM, MARYLAND**

Well Identifier	Well Location Category	Petroleum Hydrocarbon Sampling Frequency	Current Sampling Method	Groundwater Gauging Frequency ⁽²⁾	Comment
RW-5	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	
RW-4	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	
GP-27R	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	
MW-22R	Dual-Phase Extraction System	Semi-annual	From pump	Semi-annual	
GP-39R	Dual-Phase Extraction System	None	None	Semi-annual	Located in clay body, ND for past 7 events
MW-30R	Sentinel	Annual	Bailer	Semi-annual	
ISGR-1	ISGR System	Monthly	As per approved OMM Plan	None	Per approved design plan, ISGR wells are not included in long term monitoring plan. Wells will be monitored as part of OMM.
ISGR-2					
ISGR-1Shallow	ISGR System	Semi-annual	Hydrasleeve	Semi-annual	Also gauged as needed for OMM
ISGR-1Deep					
ISGR-2Shallow					
ISGR-2Deep					
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	
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	
IW-1	Oxygen Reactive Zone	None	NA	None	Per approved design plan, oxygen injection wells are not included in long term monitoring plan. Wells will be monitored as part of OMM.
IW-2					
IW-3					
IW-4					
IW-5					

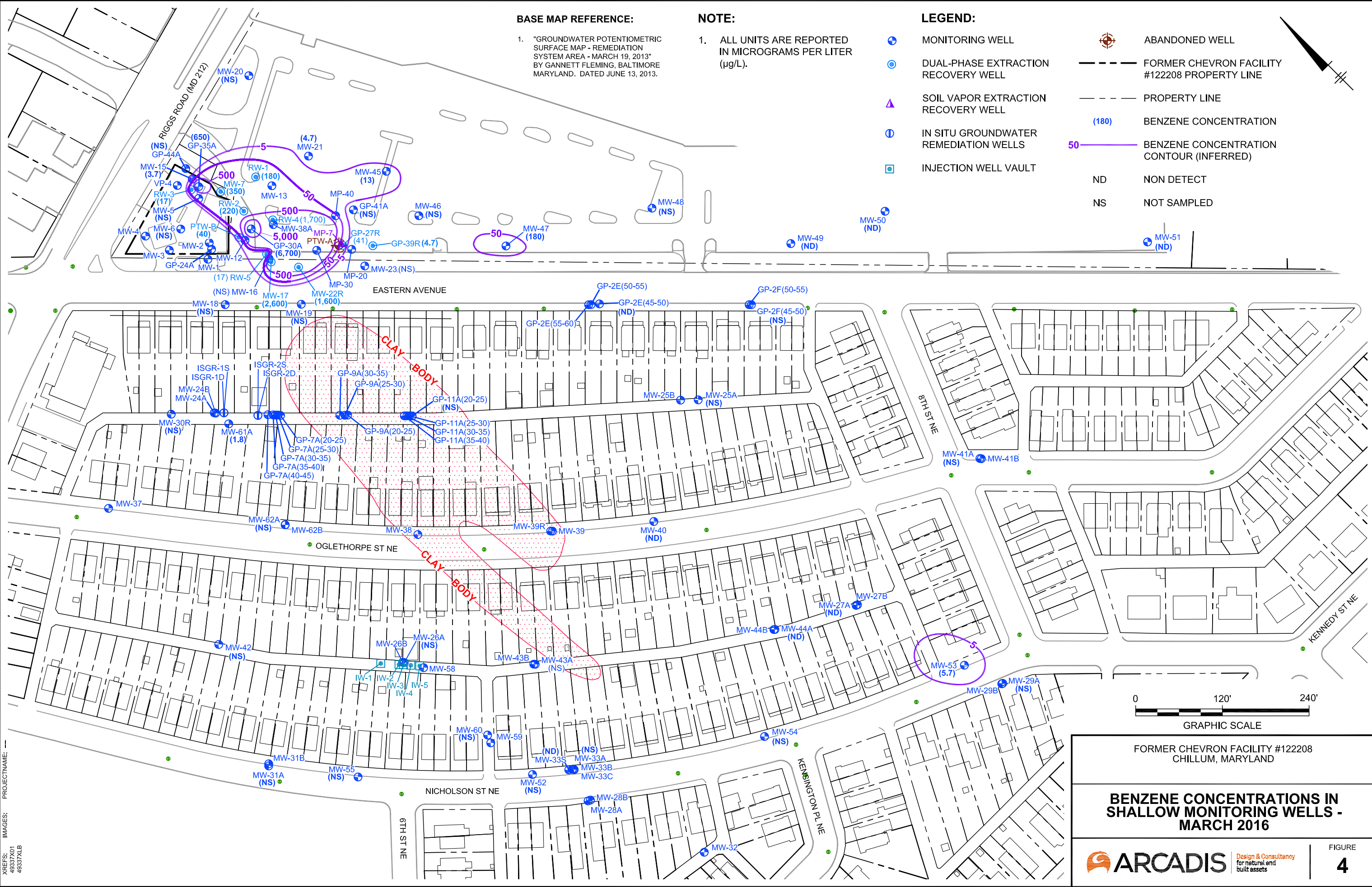
FIGURES



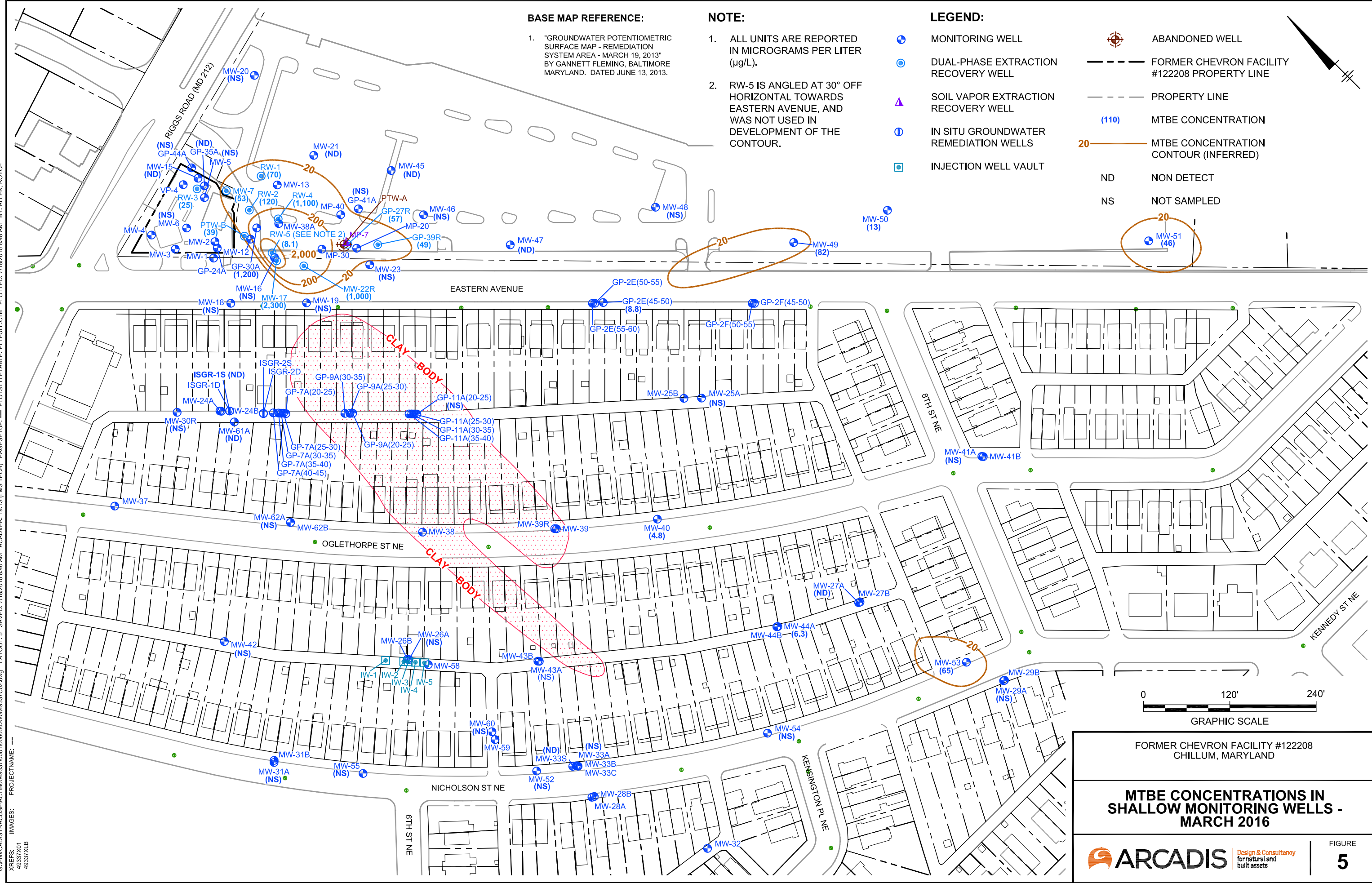
Figure 1
Cumulative Total Hydrocarbons Recovered and Groundwater Treated Since 1990
Semi-Annual Progress Report: January Through June 2016
Former Chevron Facility 122208, Chillum, Maryland



CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E. KRAHMER, R. ALLEN LD: (Ort) PIC: K. M. ABBOTT PM: L. VOGEL TR: J. MARRS LYR: (Ort) DNE: OFF: REF: G:\ENVCAD\SYRACUSE\ACT1004937\0001\0005\DWG\4937C01.dwg LAYOUT: 4. SAVED: 7/18/2016 8:35 AM ACADVER: 19.1S (LMS TECH) PAGES: 10 PLOT: PLT: FULL COTB PLOTTED: 7/18/2016 8:36 AM BY: ALLEN, ROYCE



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PROJECTNAME: --

IMAGES: --

XREFS: 49337X01 49337XLB

BASE MAP REFERENCE:

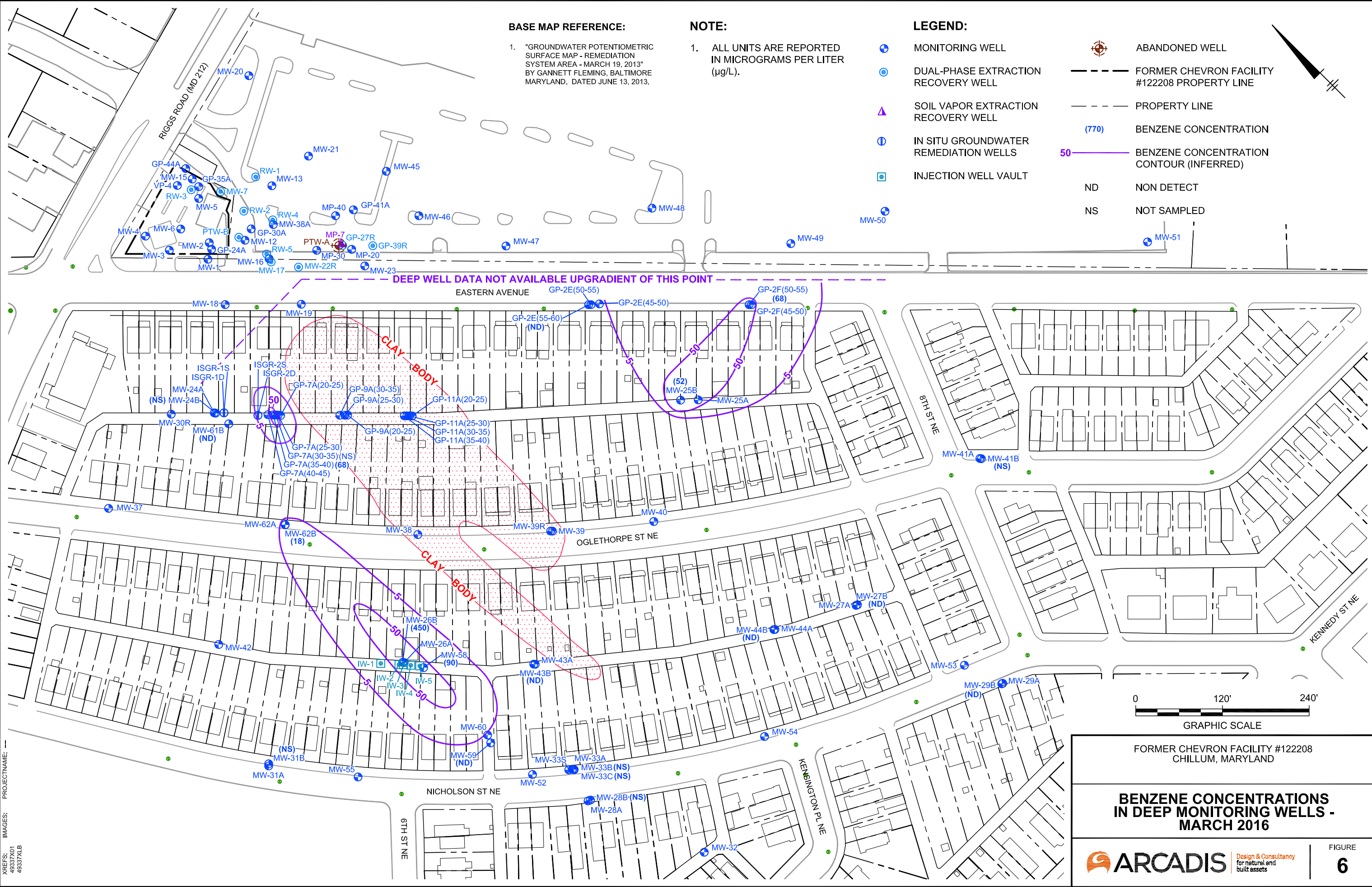
- "GROUNDWATER POTENTIOMETRIC SURFACE MAP - REMEDIATION SYSTEM AREA - MARCH 19, 2013" BY GANNETT FLEMING, BALTIMORE MARYLAND. DATED JUNE 13, 2013.

NOTE:

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

LEGEND:

- | | | | |
|---|---------------------------------------|-------|---|
| ● | MONITORING WELL | ⊗ | ABANDONED WELL |
| ⊙ | DUAL-PHASE EXTRACTION RECOVERY WELL | --- | FORMER CHEVRON FACILITY #122208 PROPERTY LINE |
| ▲ | SOIL VAPOR EXTRACTION RECOVERY WELL | --- | PROPERTY LINE |
| ① | IN SITU GROUNDWATER REMEDIATION WELLS | (770) | BENZENE CONCENTRATION |
| ■ | INJECTION WELL VAULT | 50 | BENZENE CONCENTRATION CONTOUR (INFERRED) |
| | | ND | NON DETECT |
| | | NS | NOT SAMPLED |



FORMER CHEVRON FACILITY #122208
CHILLUM, MARYLAND

BENZENE CONCENTRATIONS
IN DEEP MONITORING WELLS -
MARCH 2016

CITY: SYRACUSE NY DIV: GROUP: ENV: CAD DB: E. KRAHMER, R. ALLEN LD: (Ort) PIC: K. M. ABBOTT TR: J. MARRS LYR: (Ort) DNE: OFF: REF: G:\ENV\CAD\SYRACUSE\ACT\B049337\000\100005\DWG\49337C04.dwg LAYOUT: 7 - SAVED: 7/18/2016 9:08 AM ACADVER: 19.1S (LMS TECH) PAGES: 10 PLOT: PLT: FULL: CTD PLOTTED: 7/18/2016 9:08 AM BY: ALLEN, ROYCE XREFS: 49337X01 49337XLB

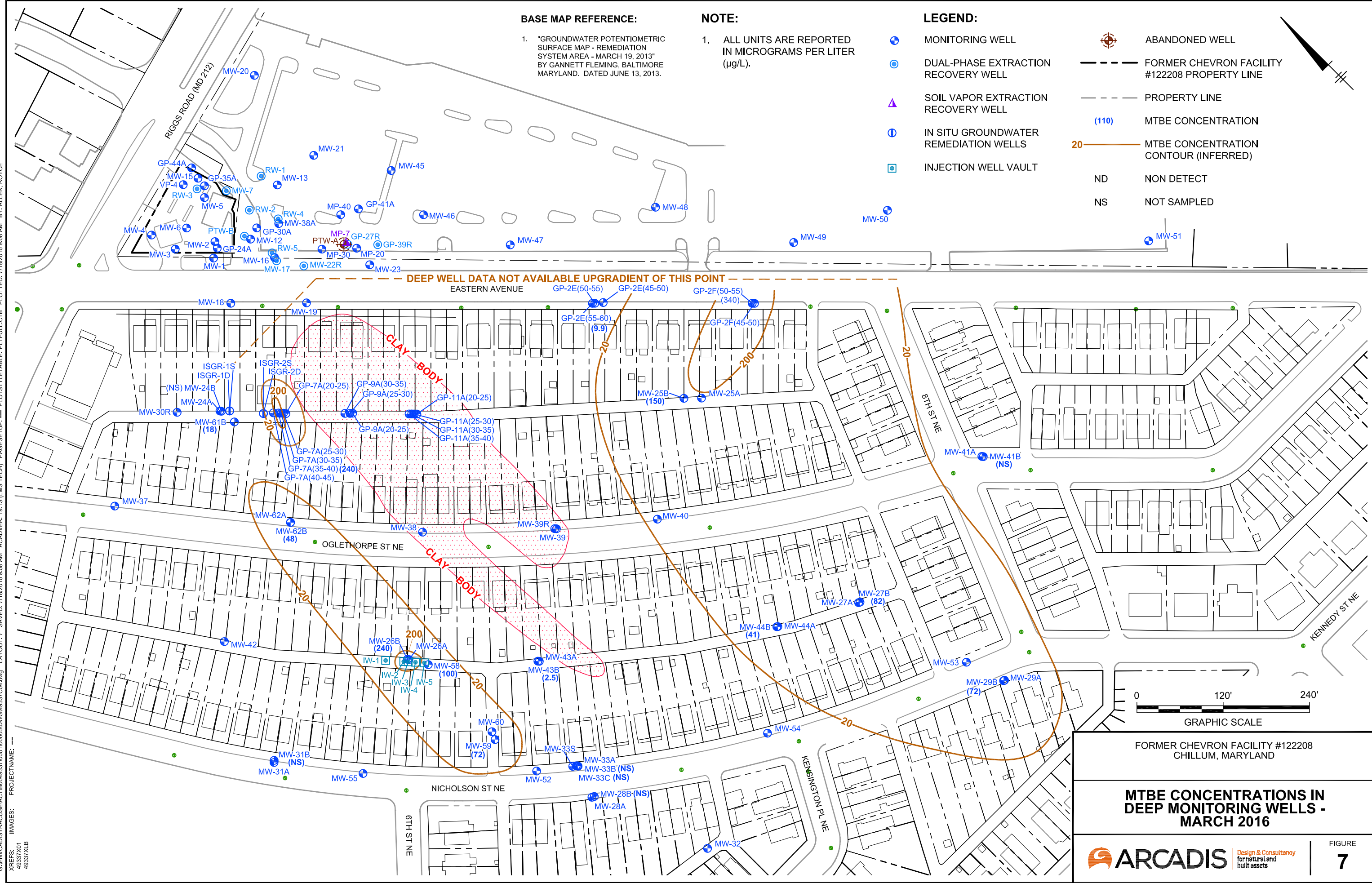


Figure 8: GP-2E (45-50) Benzene Trend Analysis

Former Chevron Facility 122208

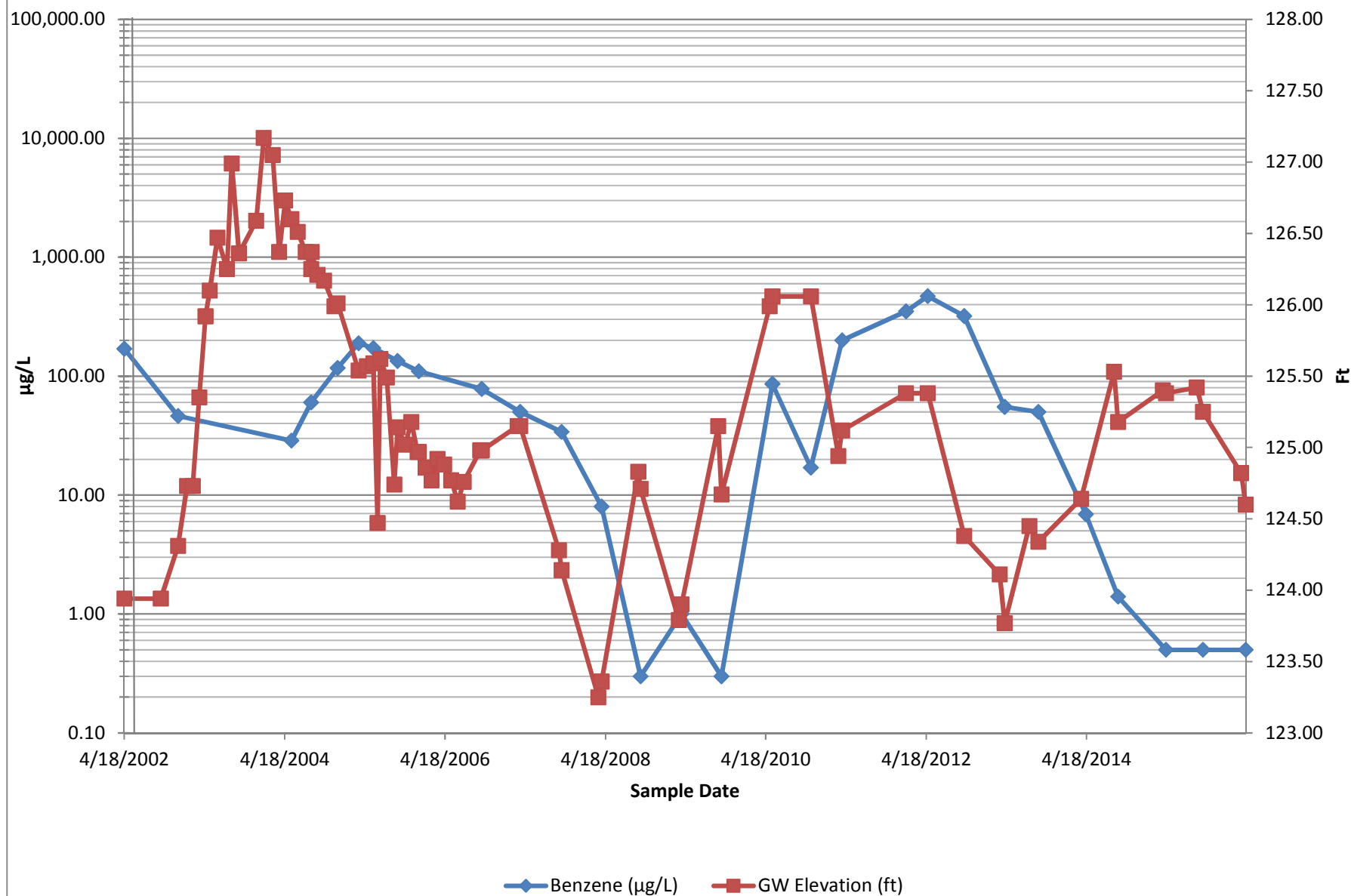


Figure 9: GP-2E (45-50) MTBE Trend Analysis

Former Chevron Facility 122208

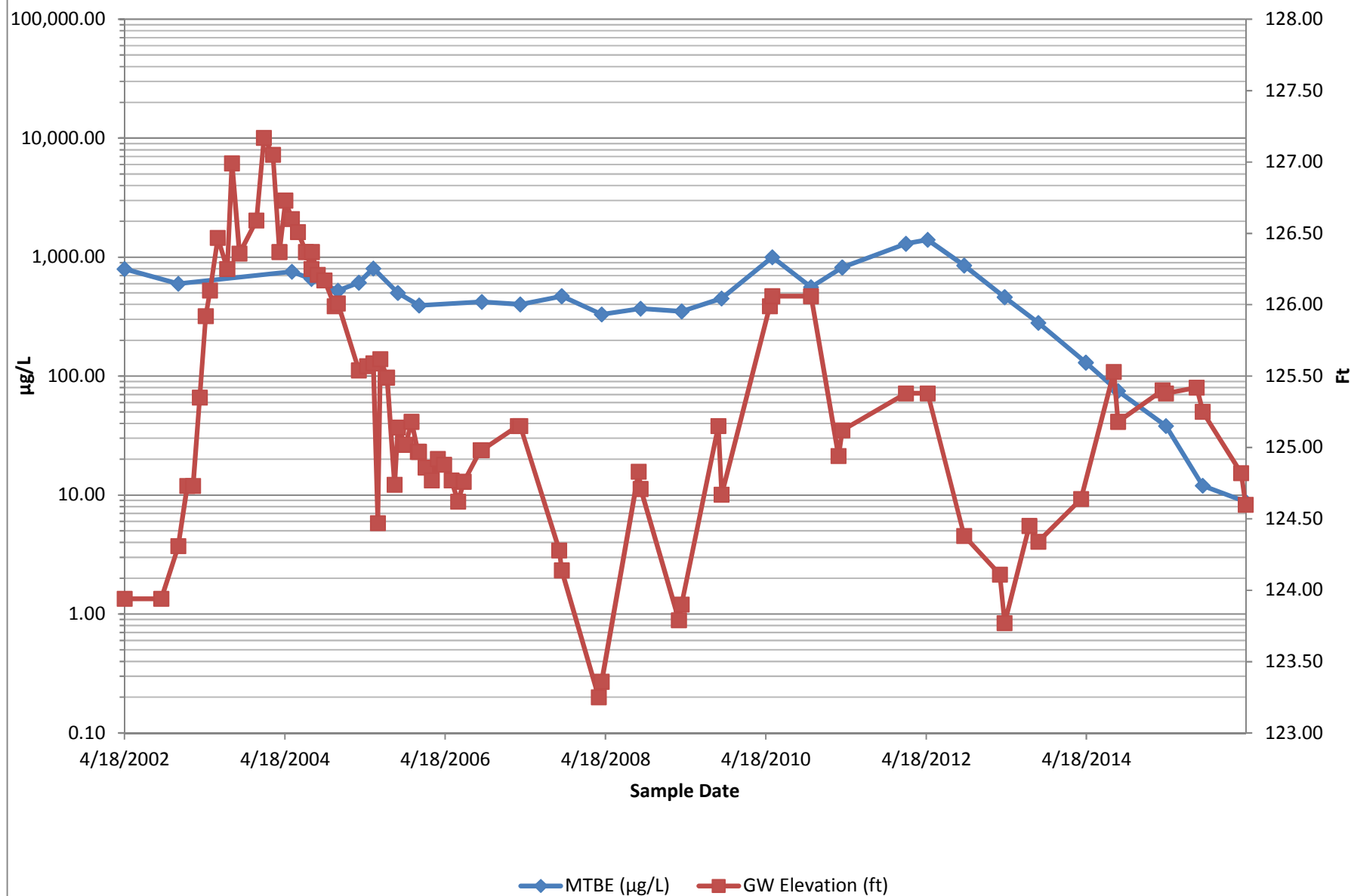


Figure 10: GP-2E (55-60) Benzene Trend Analysis

Former Chevron Facility 122208

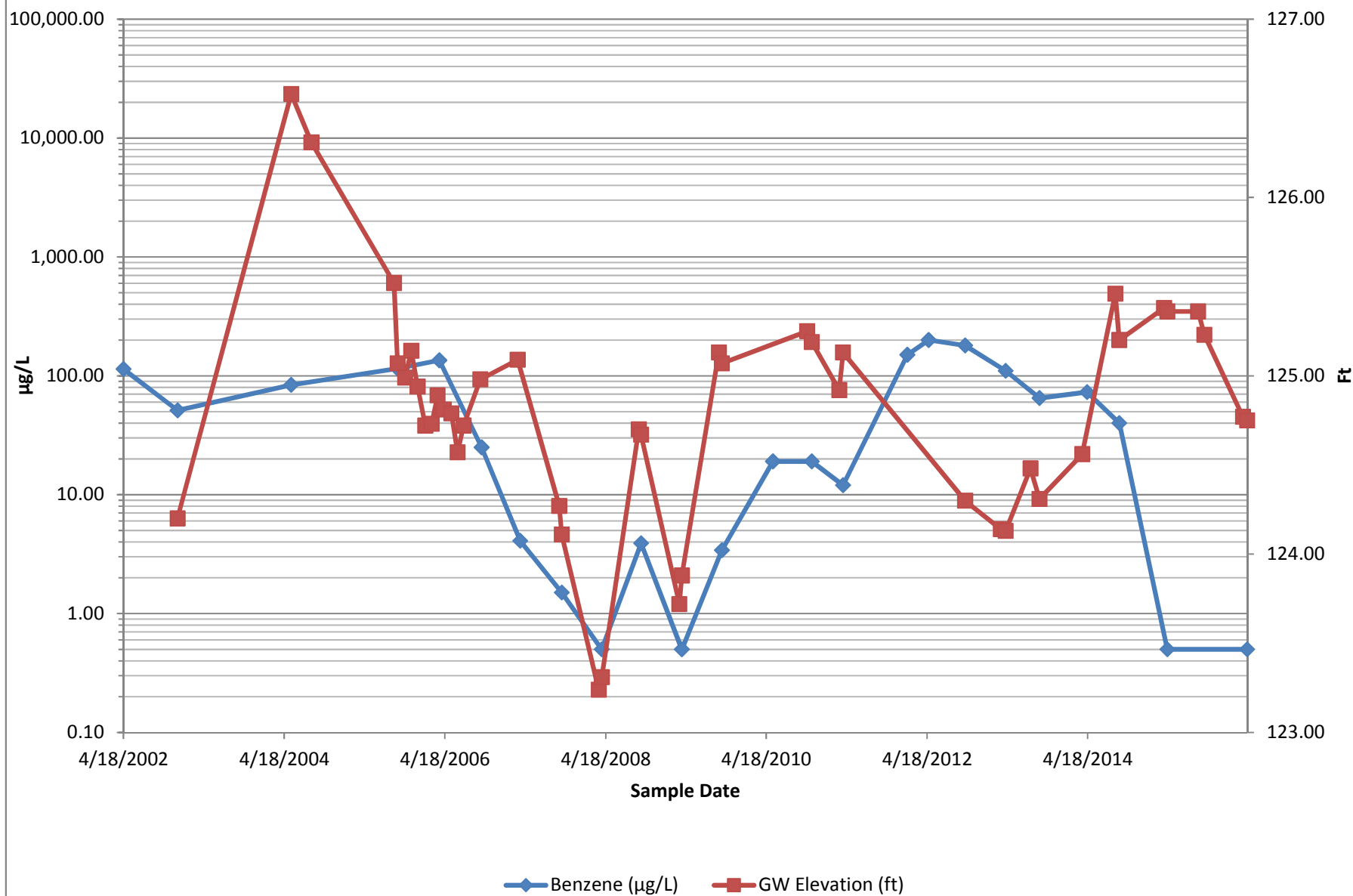


Figure 11: GP-2E (55-60) MTBE Trend Analysis

Former Chevron Facility 122208

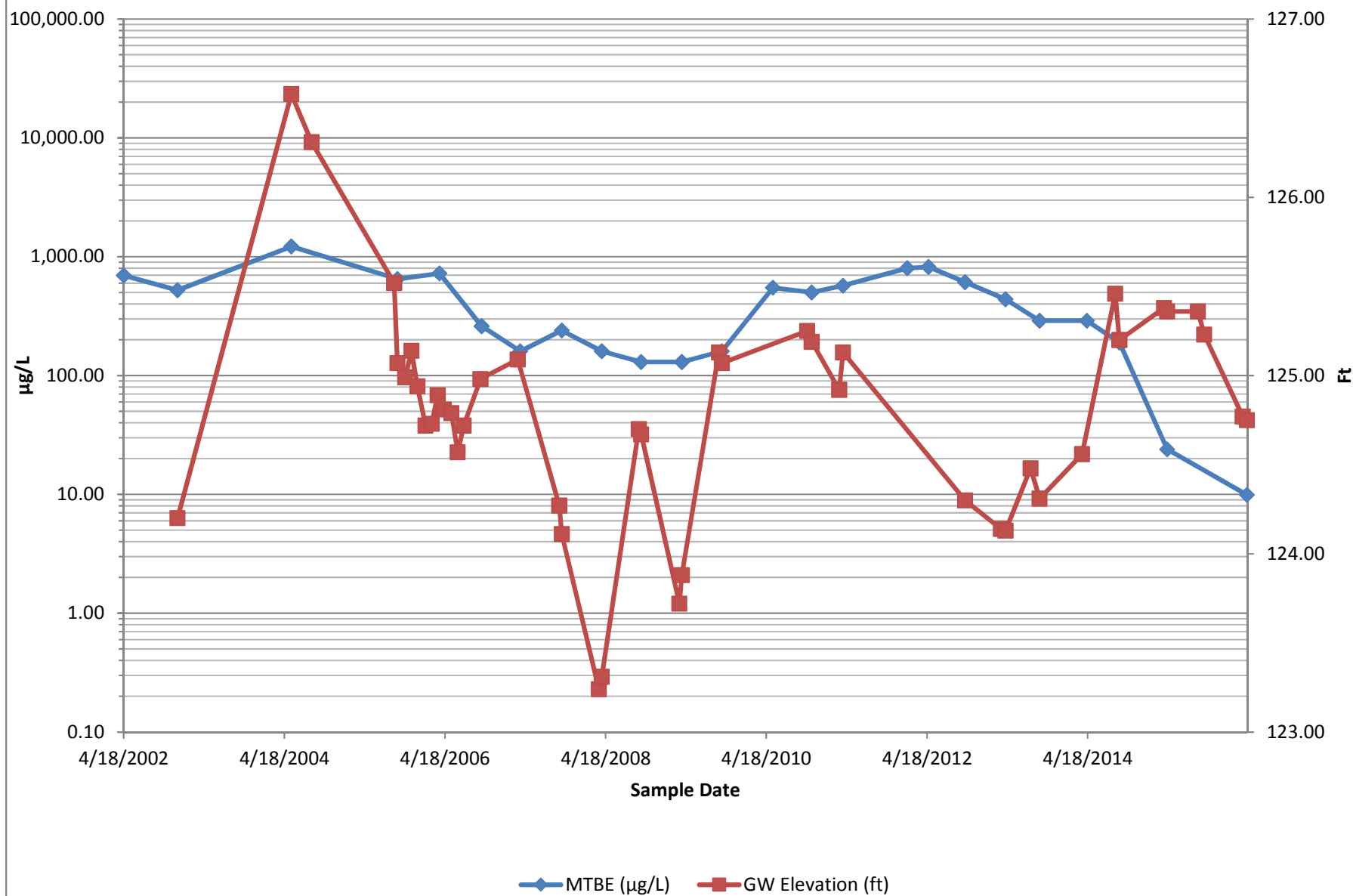


Figure 12: GP-2F (45-50) Benzene Trend Analysis
Former Chevron Facility 122208

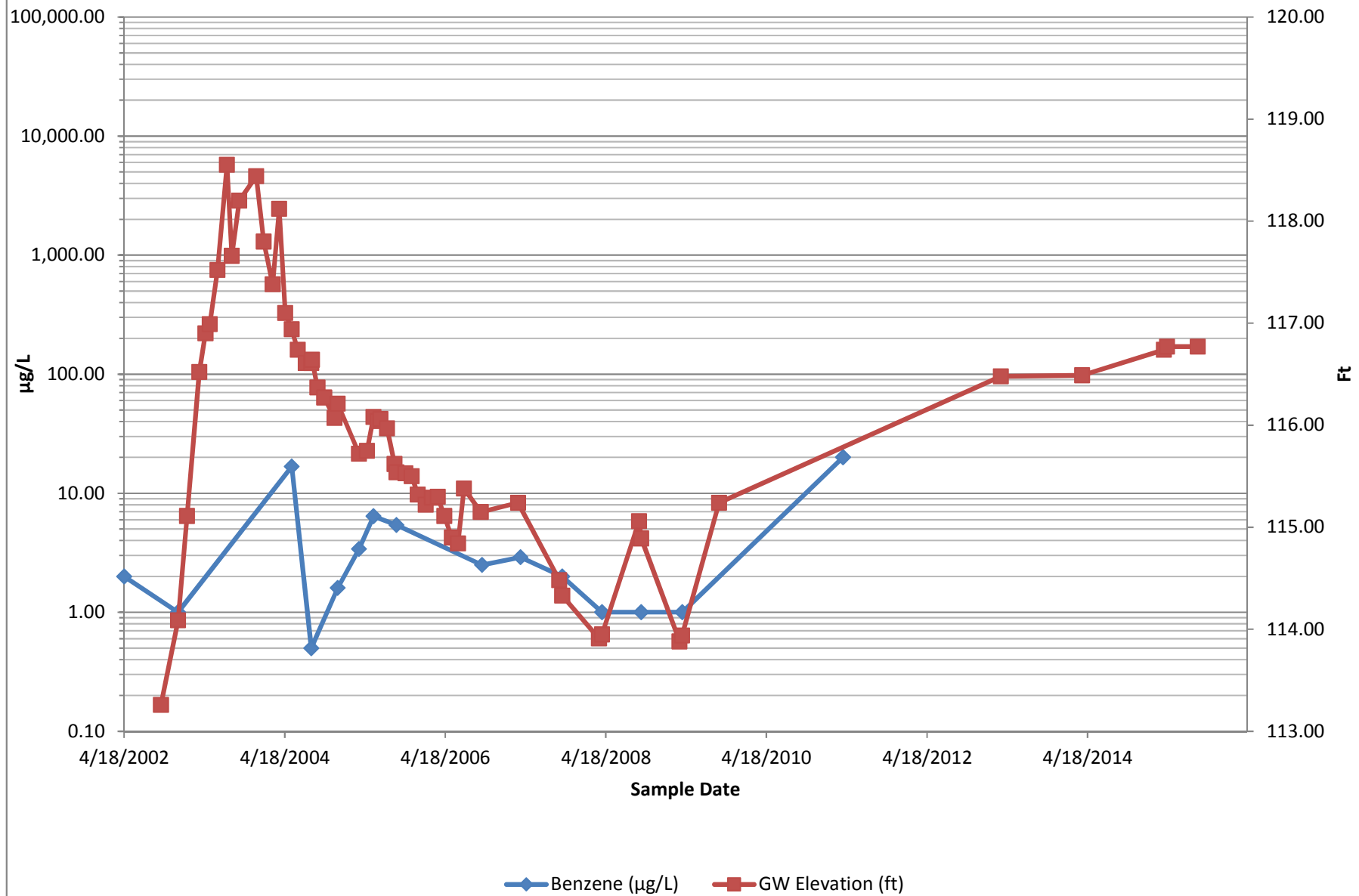


Figure 13: GP-2F (45-50) MTBE Trend Analysis

Former Chevron Facility 122208

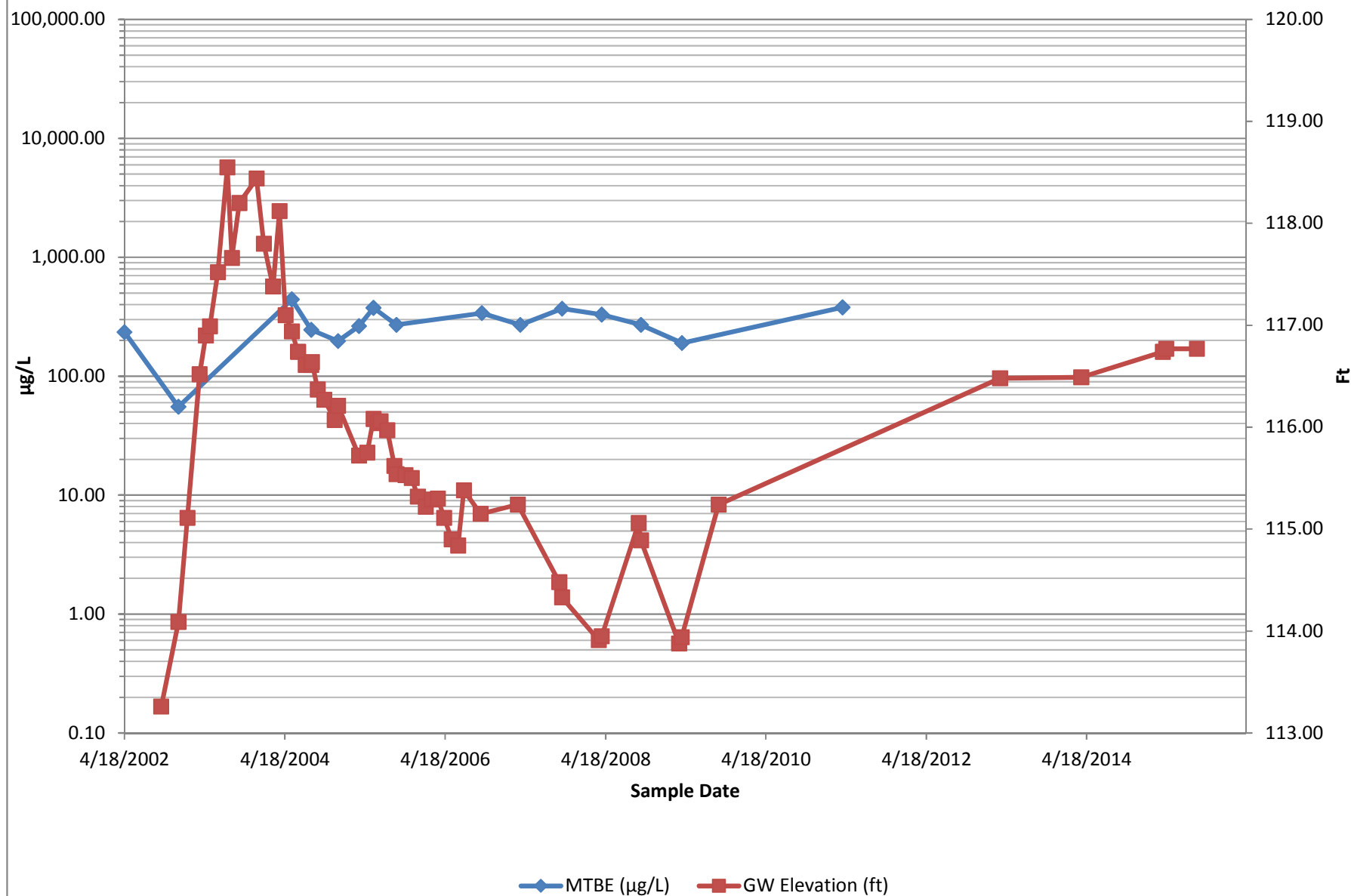


Figure 14: GP-2F (50-55) Benzene Trend Analysis

Former Chevron Facility 122208

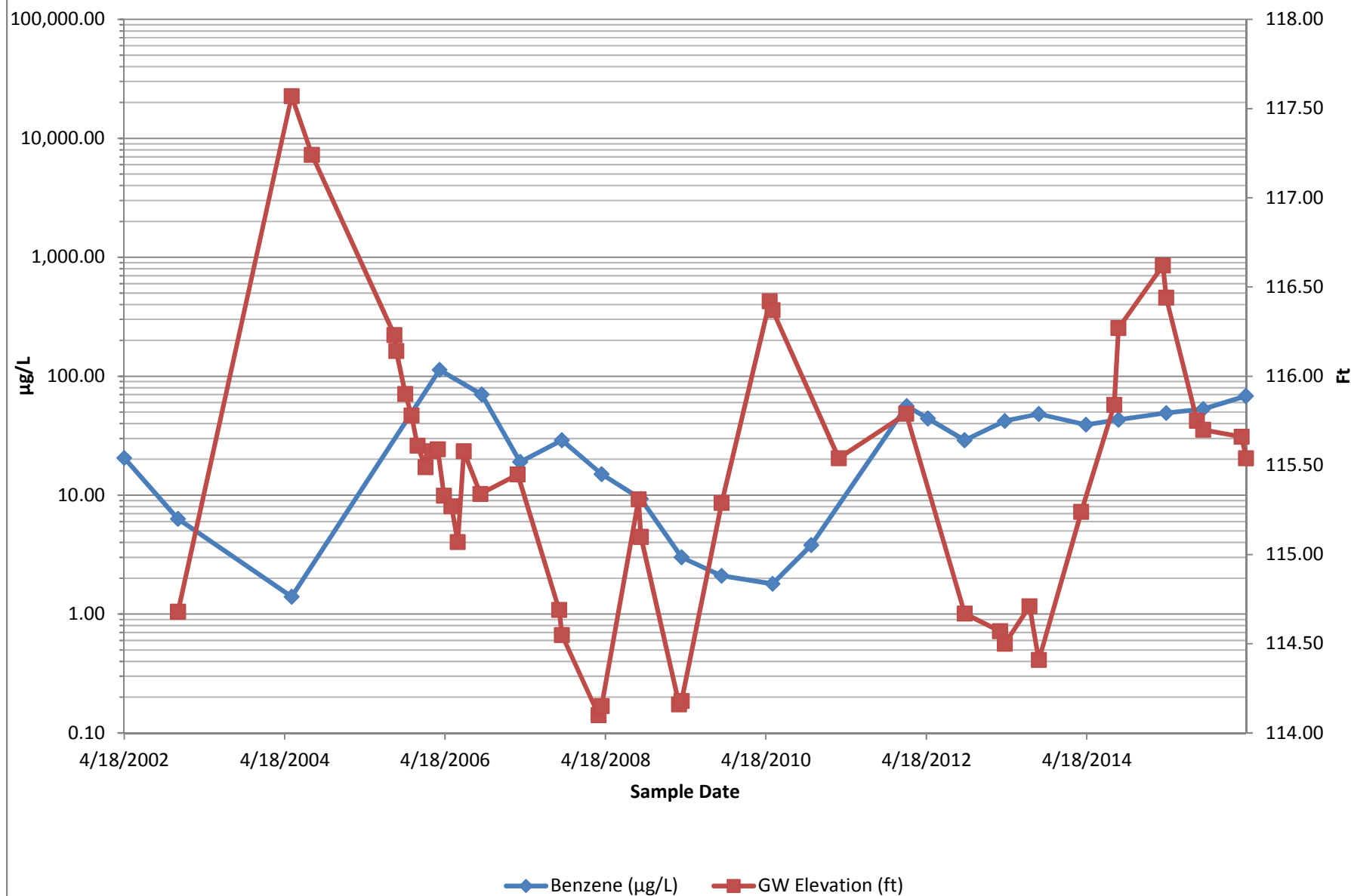


Figure 15: GP-2F (50-55) MTBE Trend Analysis

Former Chevron Facility 122208

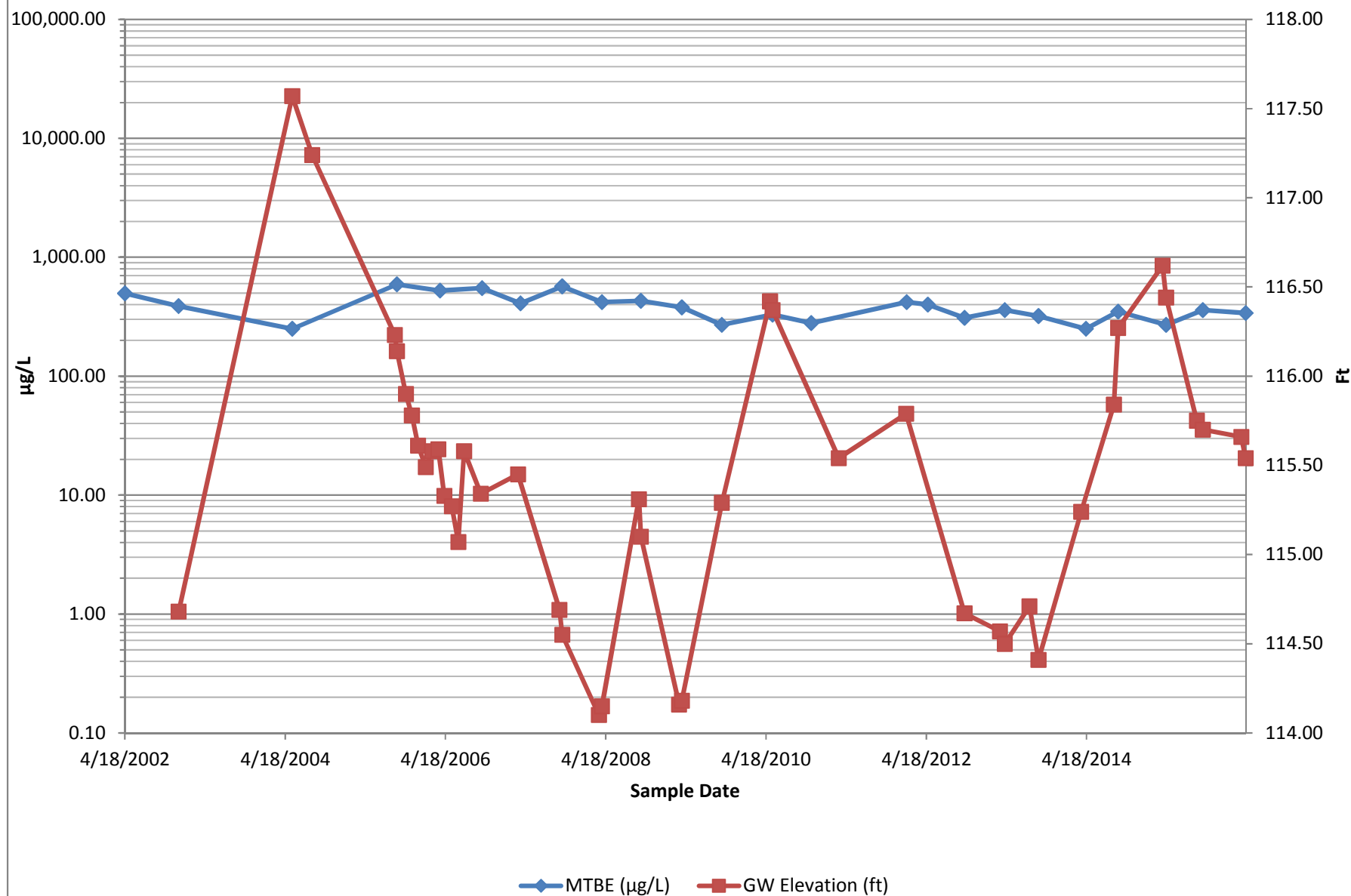


Figure 16: MW-18 Benzene Trend Analysis

Former Chevron Facility 122208

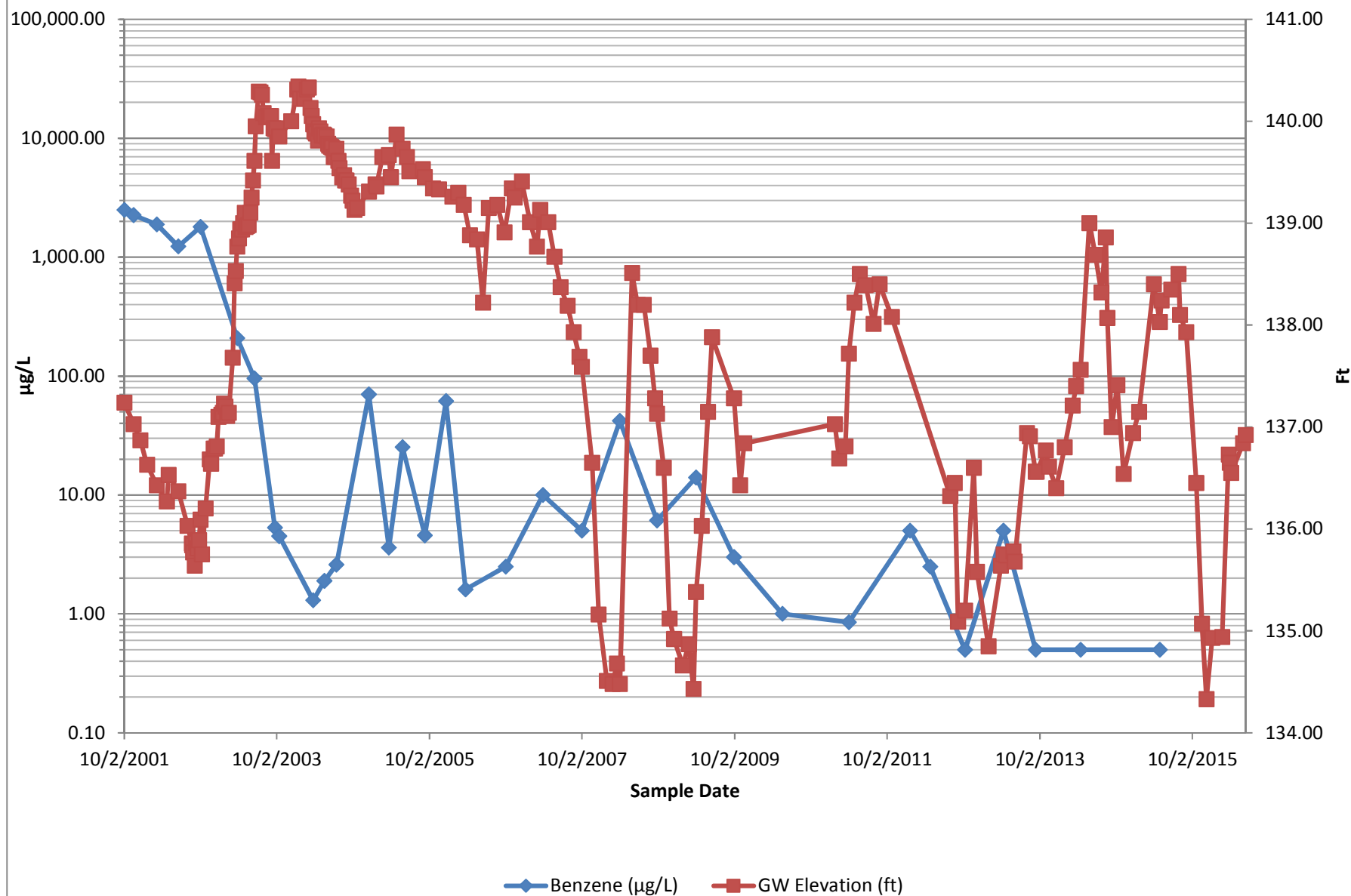


Figure 17: MW-18 MTBE Trend Analysis

Former Chevron Facility 122208

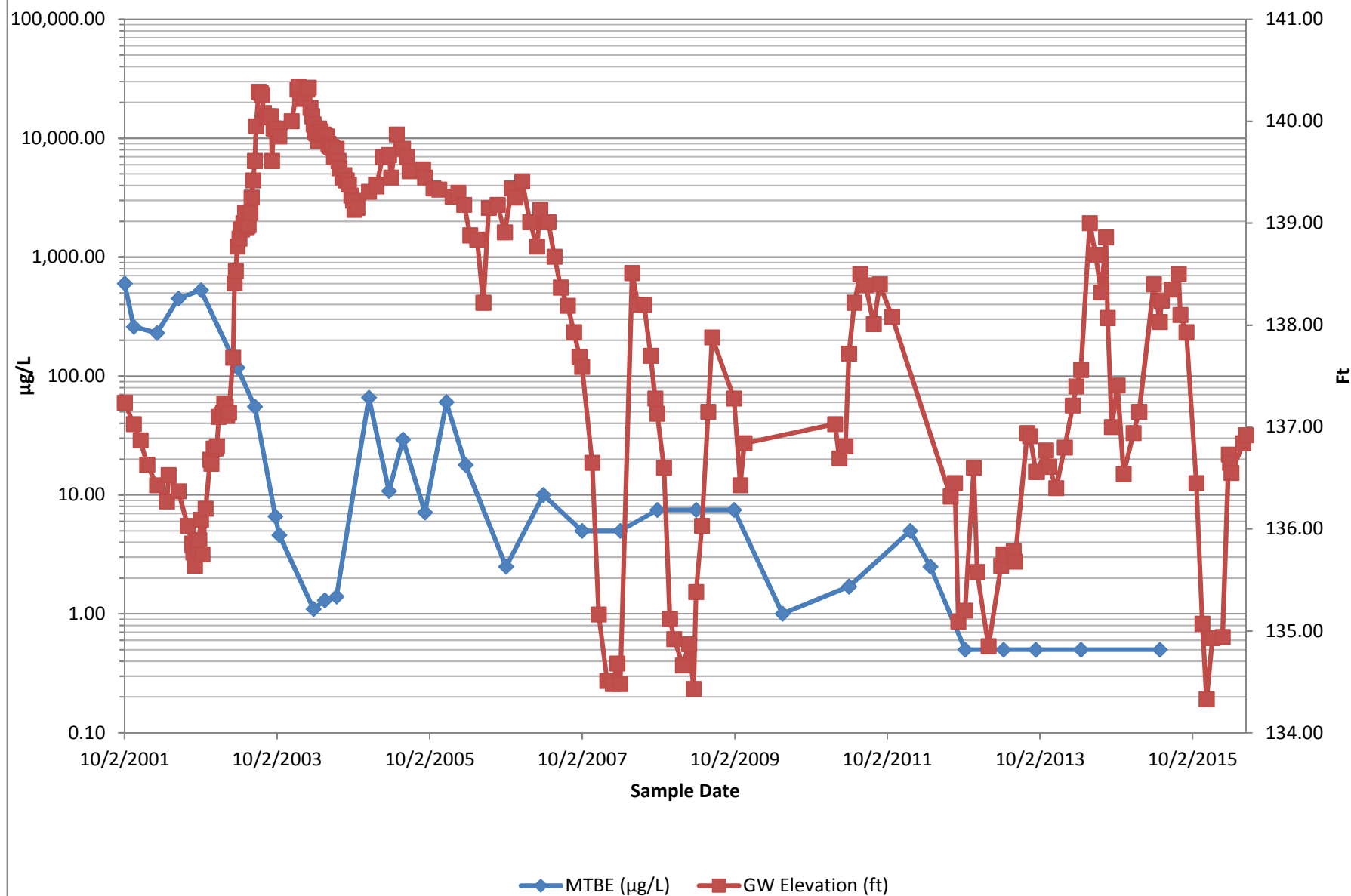


Figure 18: MW-24A Benzene Trend Analysis

Former Chevron Facility 122208

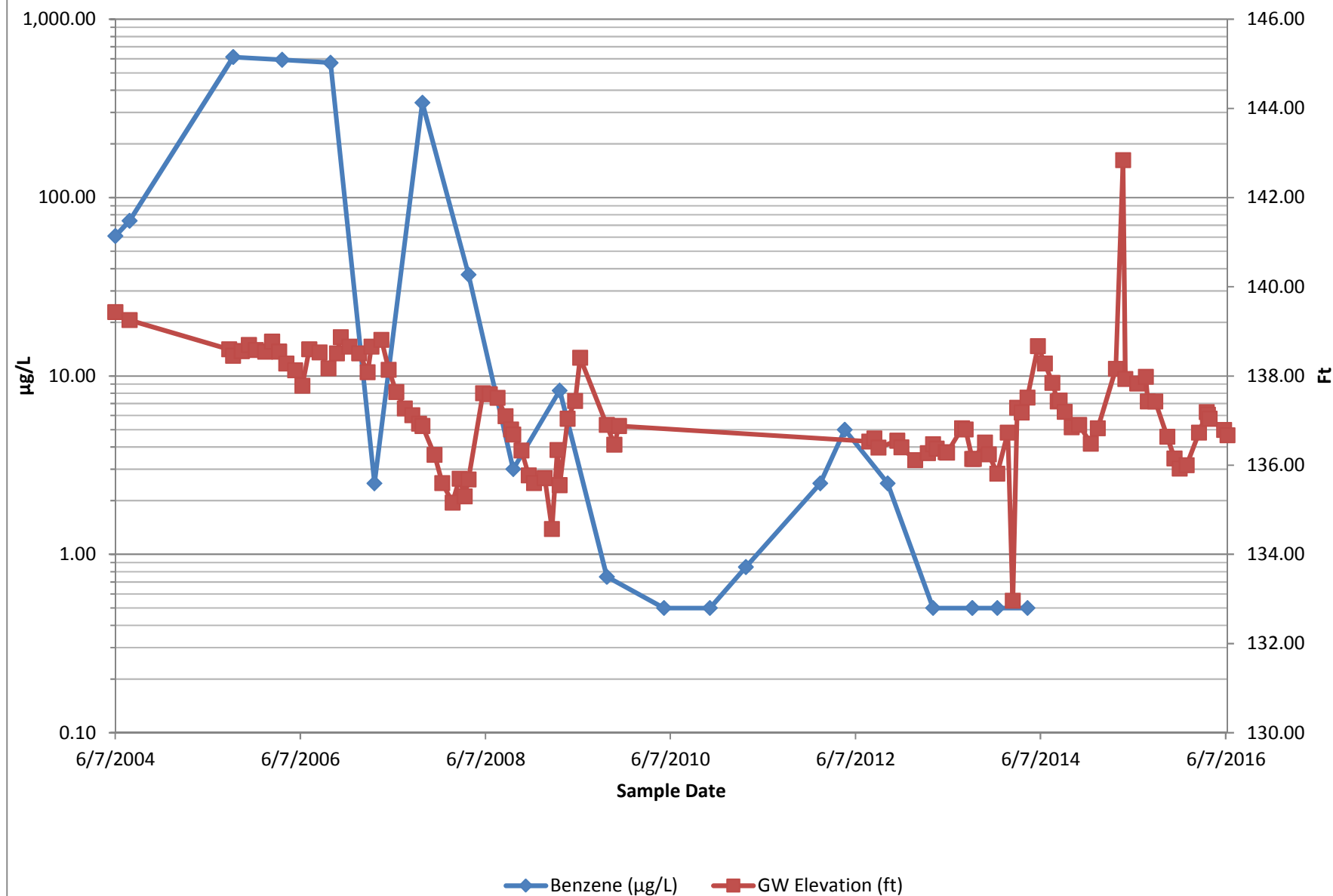


Figure 19: MW-24A MTBE Trend Analysis

Former Chevron Facility 122208

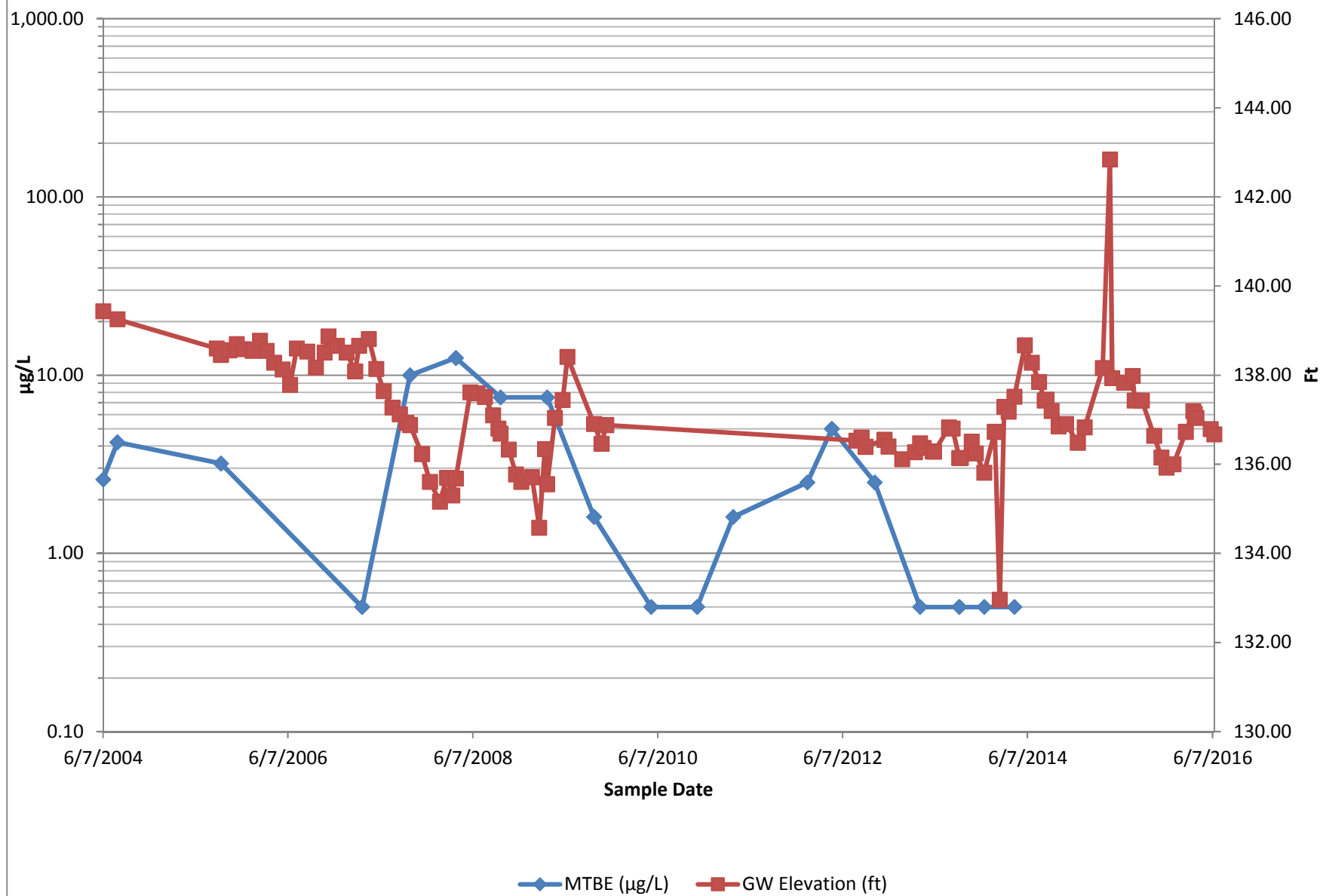


Figure 20: MW-24B Benzene Trend Analysis

Former Chevron Facility 122208

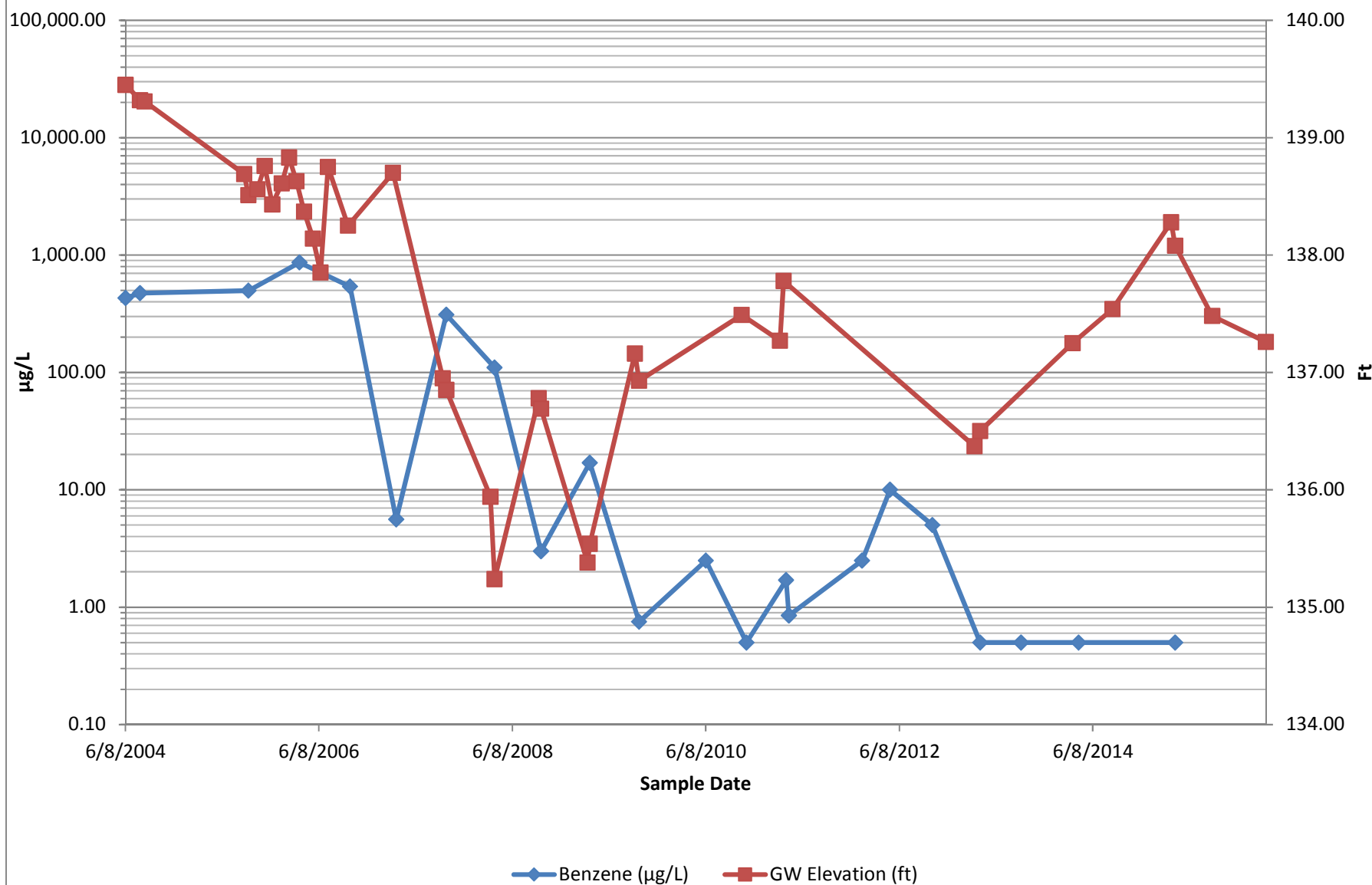


Figure 21: MW-24B MTBE Trend Analysis

Former Chevron Facility 122208

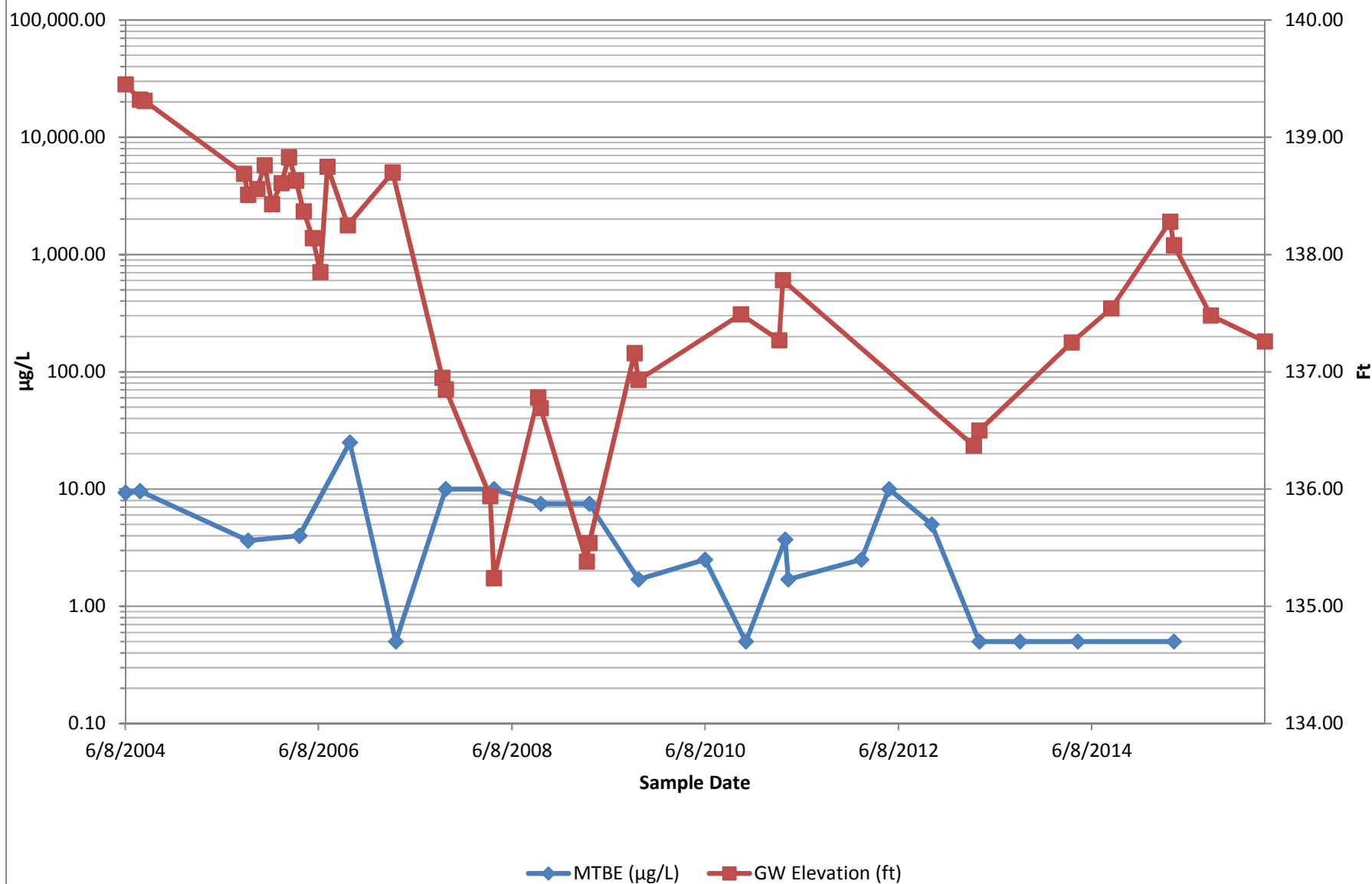


Figure 22: MW-33B Benzene Trend Analysis
Former Chevron Facility 122208

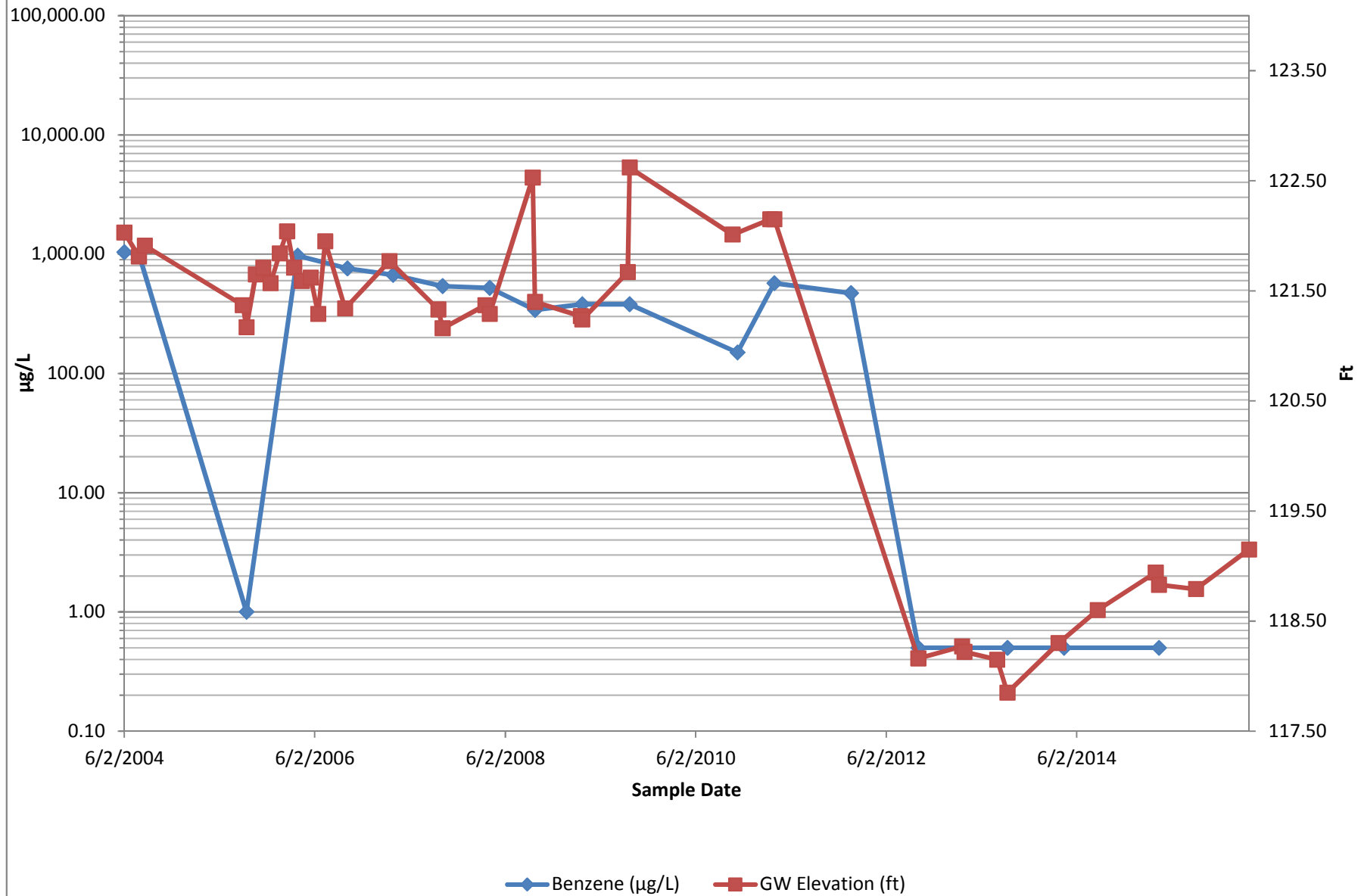


Figure 23: MW-33B MTBE Trend Analysis

Former Chevron Facility 122208

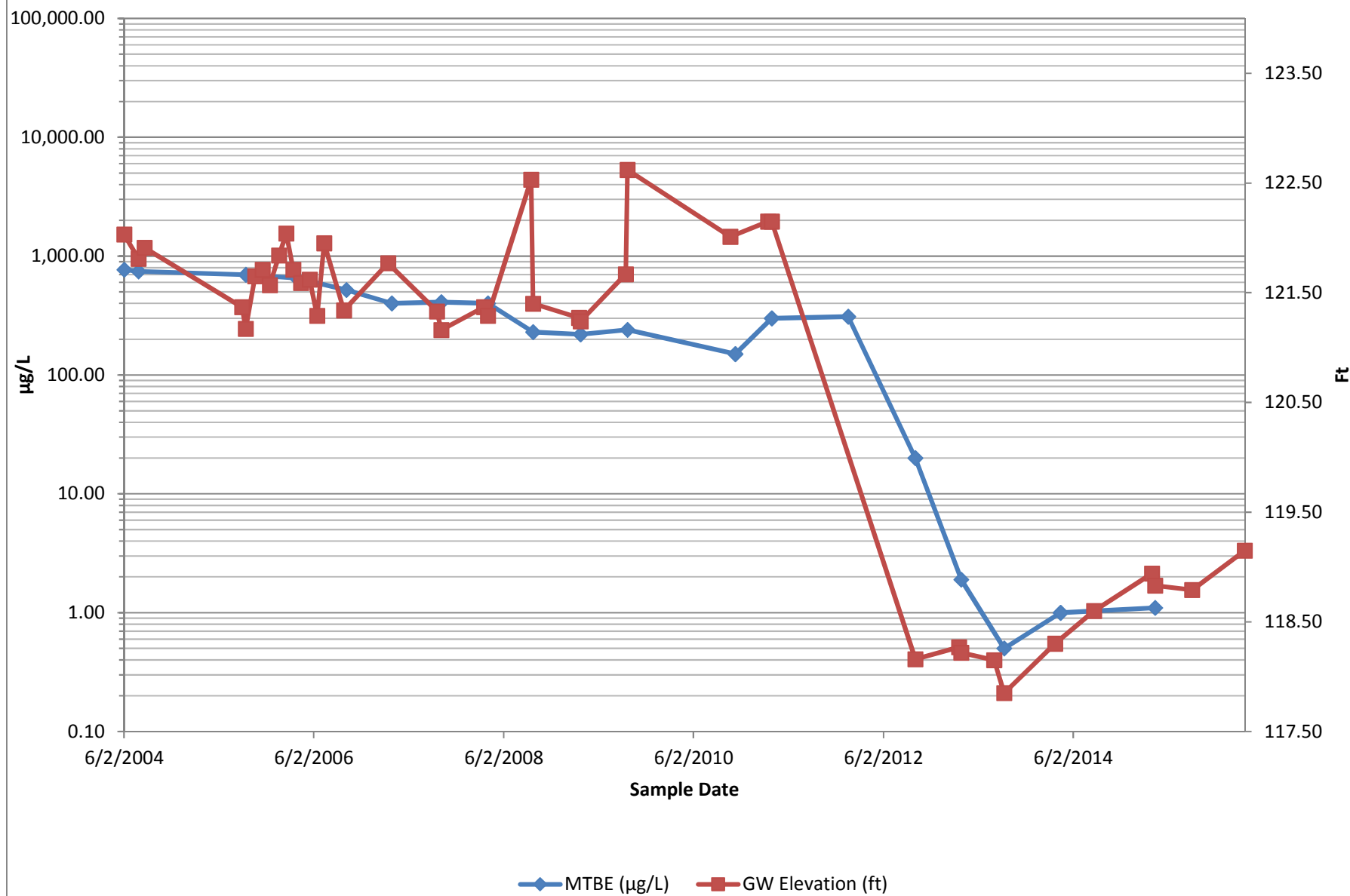


Figure 24: MW-33S Benzene Trend Analysis

Former Chevron Facility 122208

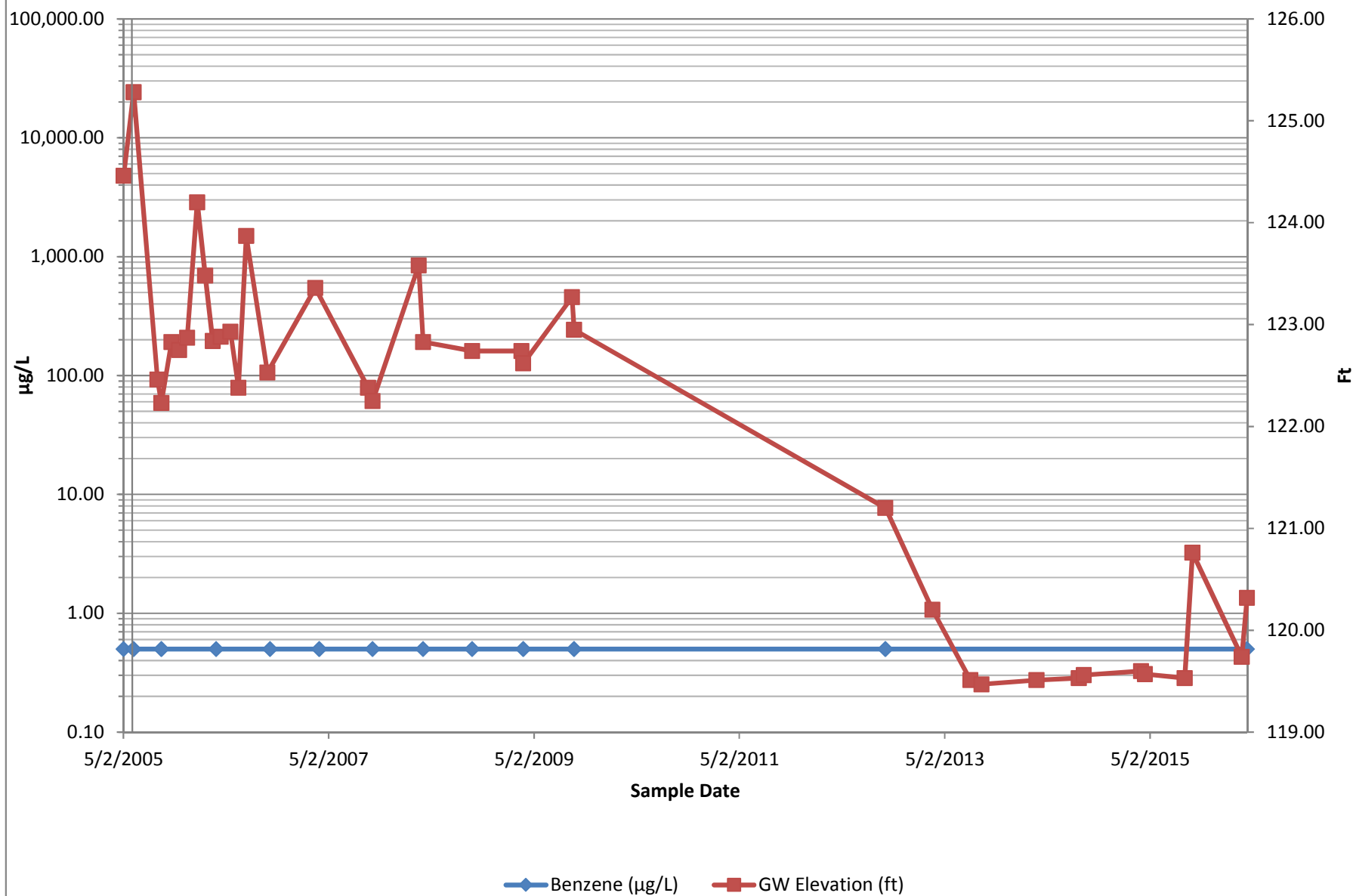
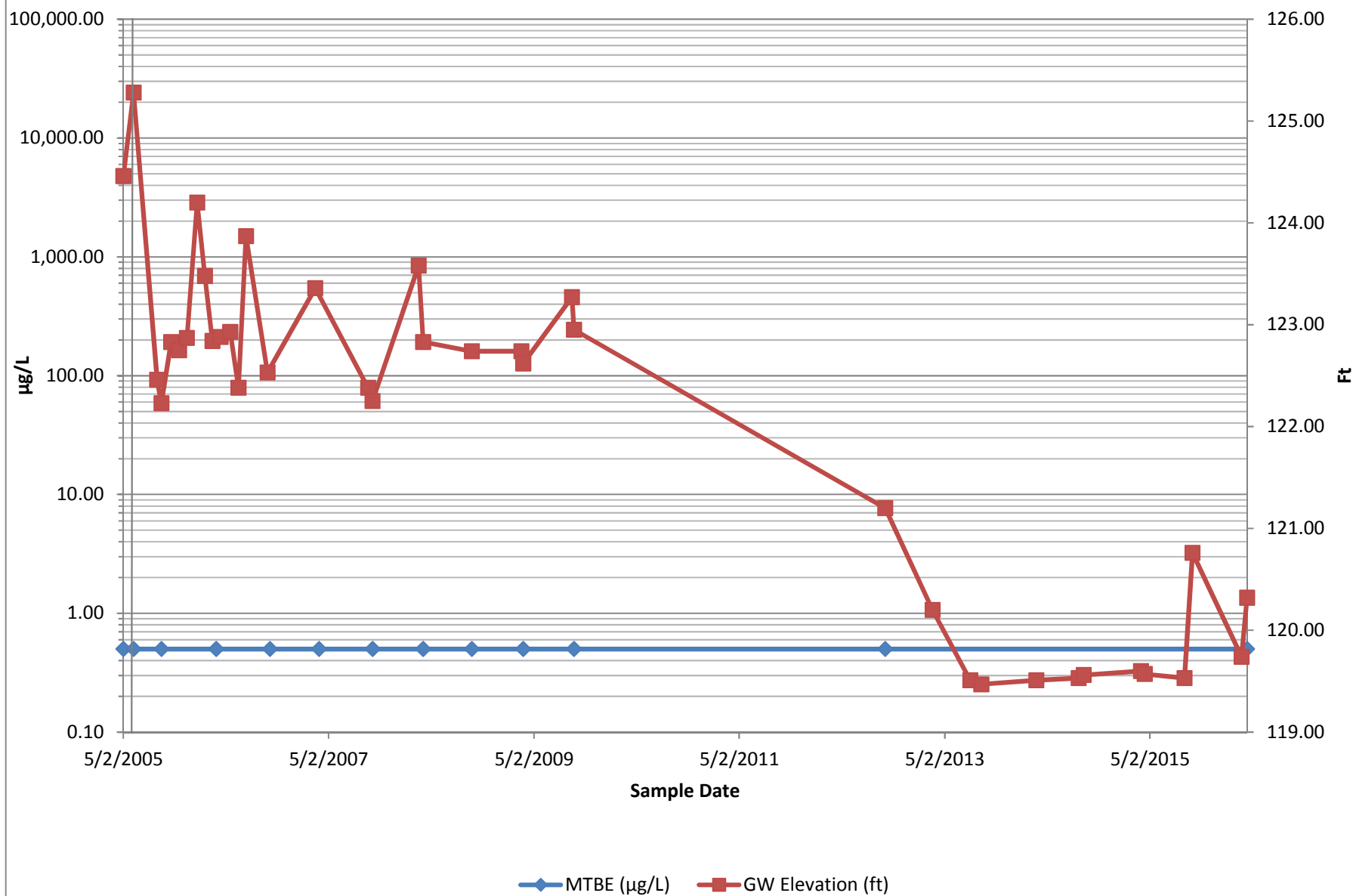


Figure 25: MW-33S MTBE Trend Analysis

Former Chevron Facility 122208



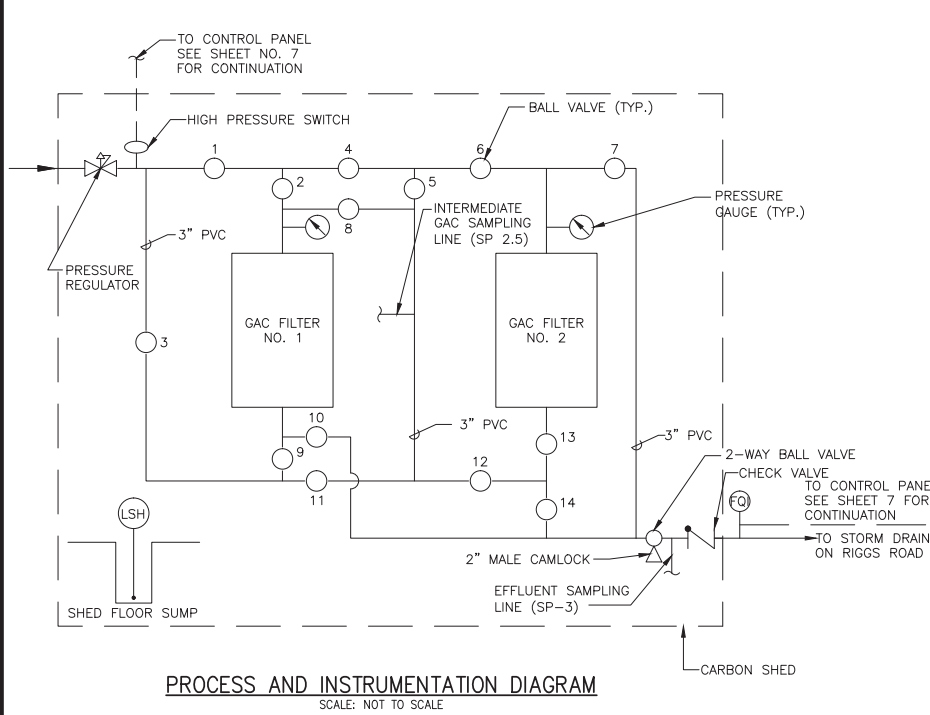
APPENDIX A

AREA A, B, AND C PIPING AND INSTRUMENTATION DIAGRAMMS

Area A: Dual Phase Extraction System

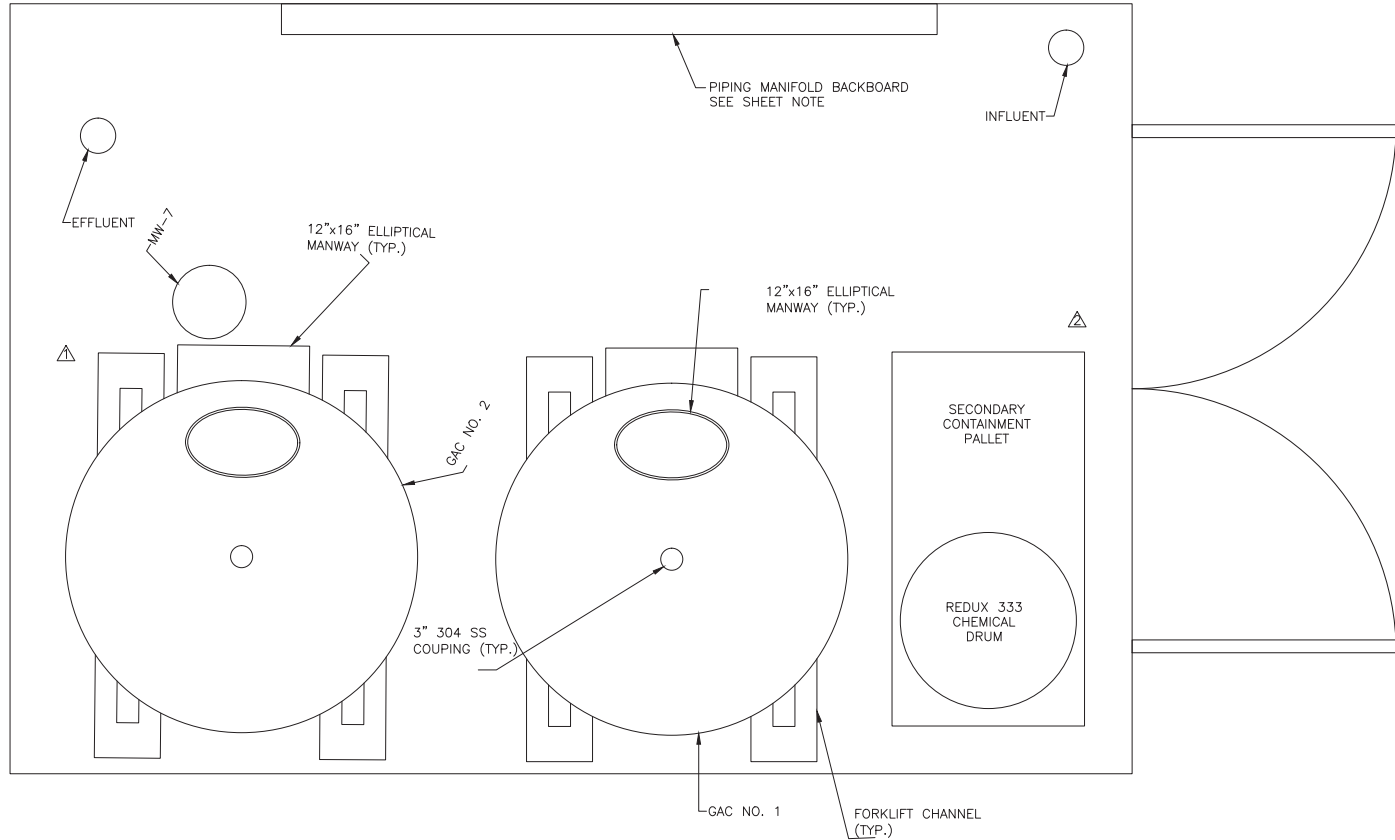
Piping and Instrumentation Diagrams

CITY: SYRACUSE-NY DIV/GROUP: 141JENW DB: K.SARTORI PIC: PM: TM: JOHN MARIS LYRON="OFF=REF"
G:\ENVCAD\S\SYRACUSE\ACT\B040487\100000000\1\DWG\CONTRACT\AREA_A\48971G04.dwg ACADVER: 18.1S (LMS TECH) PLOTTED: 11/8/2013 11:05 AM BY: SARTORI, KATHERINE
XREFS: 122208-TB2 ANGELED WELL VAULT.TJP



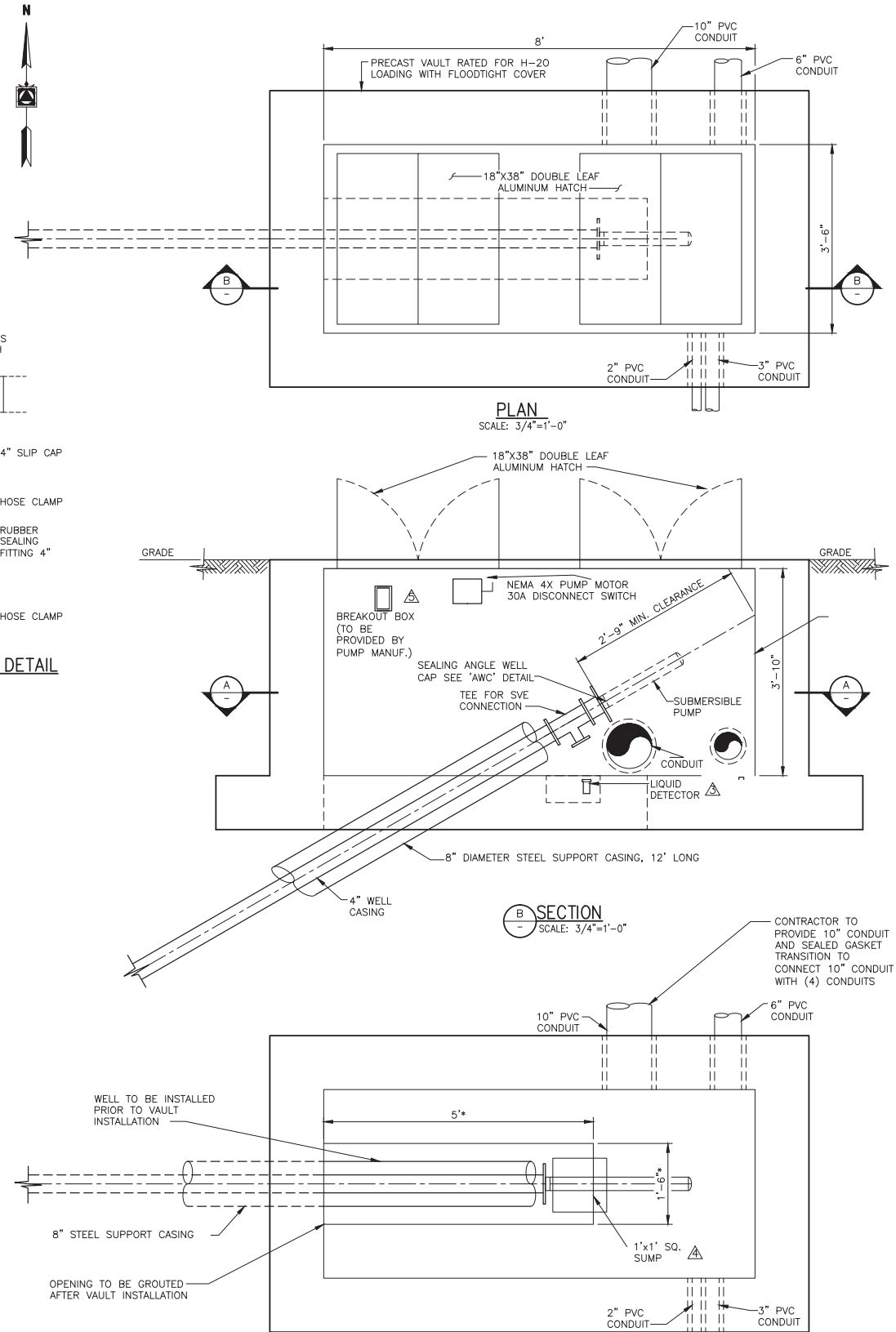
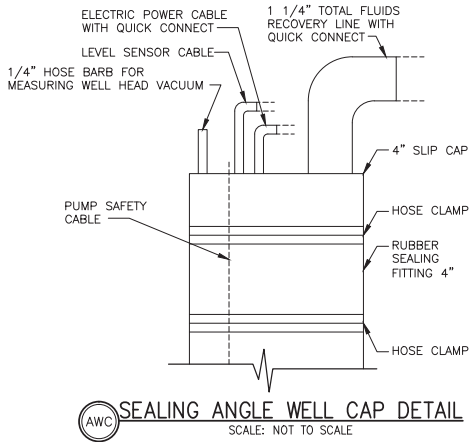
SYSTEM OPERATING MODE							
VALVE	SERIES 1-2	SERIES 2-1	GAC 1	GAC 2	BW 1-2	BW 1	BW 2
1	O	O	O	O	C	C	C
2	O	C	O	C	C	C	-
3	C	C	C	C	O	O	O
4	C	O	C	O	-	-	-
5	O	C	-	C	C	C	C
6	O	O	-	O	C	-	C
7	C	C	C	C	O	C	O
8	C	O	C	-	O	O	C
9	O	C	C	-	O	O	C
10	C	O	O	C	C	C	-
11	O	C	-	-	C	C	O
12	C	O	-	C	O	O	O
13	O	O	-	O	O	C	O
14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

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



GAC SHED PLAN VIEW
SCALE: 1" = 1"

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



- * 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.

SECTION A-A
SCALE: 3/4"=1'-0"
ANGLE WELL VAULT

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 FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND

LICENSE NO. 33568

EXP DATE 09/12/12

ENGINEER: ROBERT W. SCRAFFORD
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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

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

BALTIMORE, MARYLAND

Gannett Fleming

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 10

CITY: SYRACUSE-NY DIV/GRP: 14/JENY DR: K-SARTORI PIC: PM: TM: JOHN MARIS LYRON: OFF=REF: G:\ENVCAD\SYRACUSE\ACT18004897\1000000001\DWG\CONTRACT\AREA_A\4897PID7.dwg LAYOUT: 7 SAVED: 11/8/2013 11:11 AM ACADVER: 18.1S (LMS TECH) PAGES: 7 PLOT: 11/8/2013 11:11 AM BY: SARTORI, KATHERINE

IMAGES: 122208-TB2

SEAL

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED, OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. 33568
EXP. DATE 09/12/12
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ADDED BAG FILTER F-1C, ADDED NOTE.	10/25/13		
RE-ROUTED PIPE PER AS-BUILT CONDITIONS	10/29/13		
ADDED CHECK VALVE	10/29/13		
REMOVED BALL VALVE	10/29/13		
ADDED CS-2 AND FSL-100	11/08/13		
NO.	DESCRIPTION	DATE	BY

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

Gannett Fleming

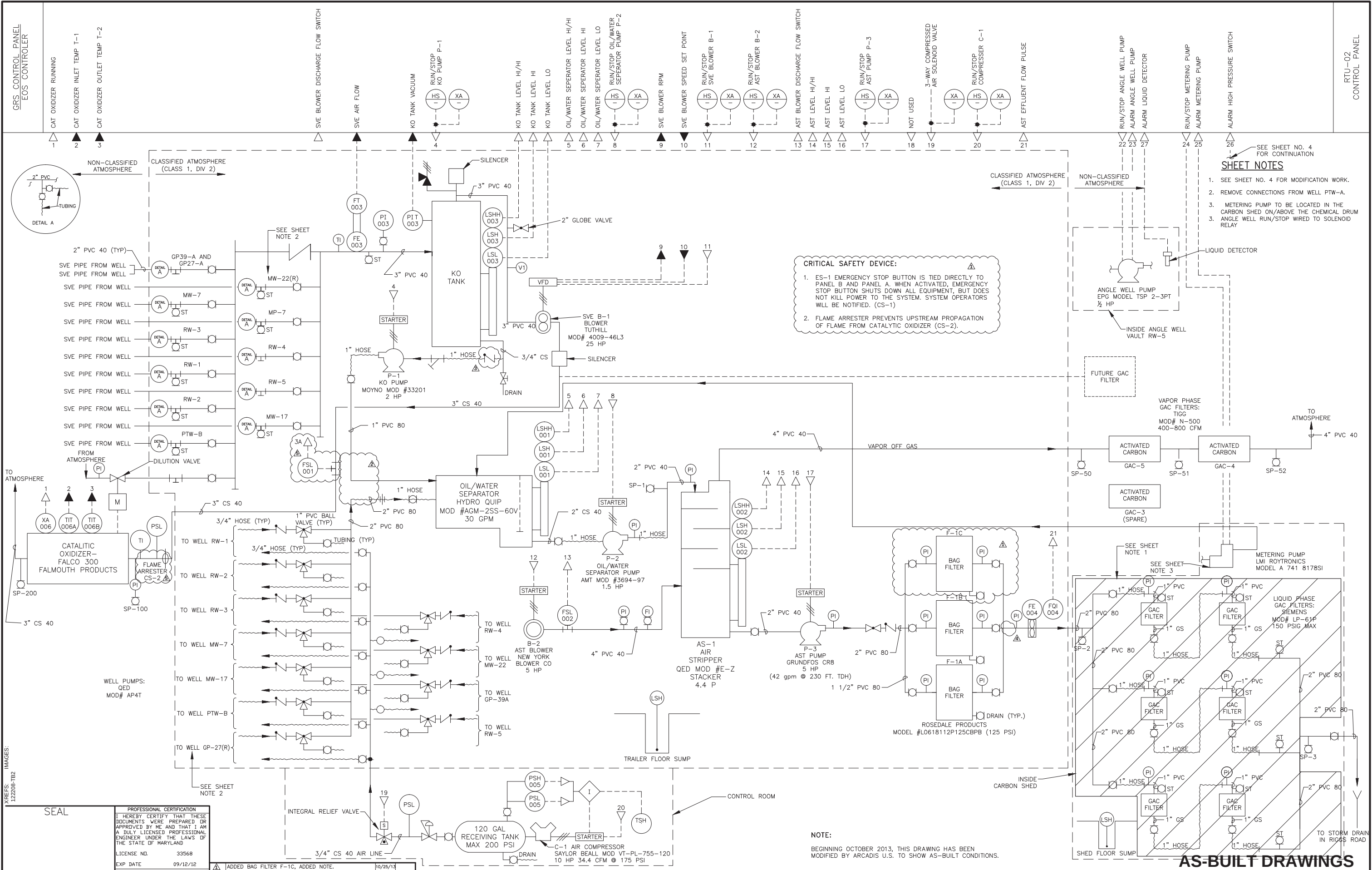
BALTIMORE, MARYLAND

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. 7
7 OF 10



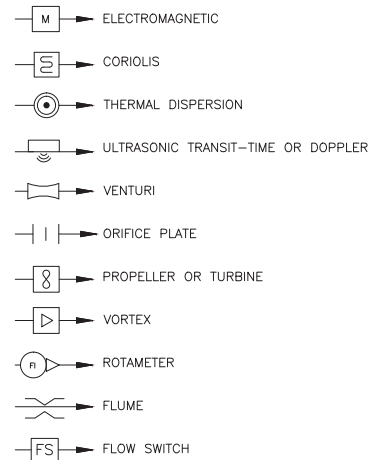
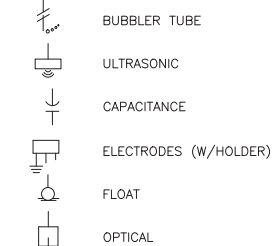
DATE:

Area B: In-Situ Groundwater Remediation Wells

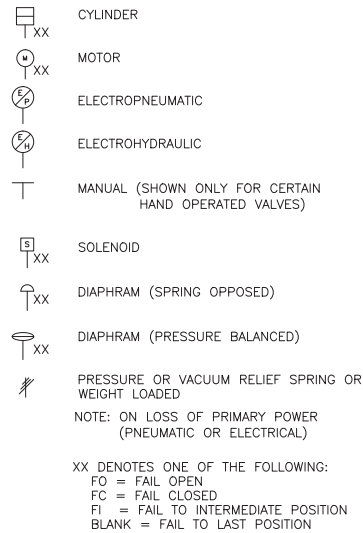
Piping and Instrumentation Diagrams

PRIMARY ELEMENT:

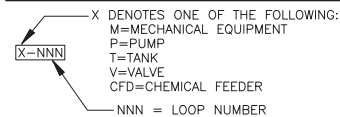
FLOW

LEVELTEMPERATURE

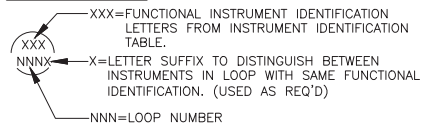
ACTUATORS:



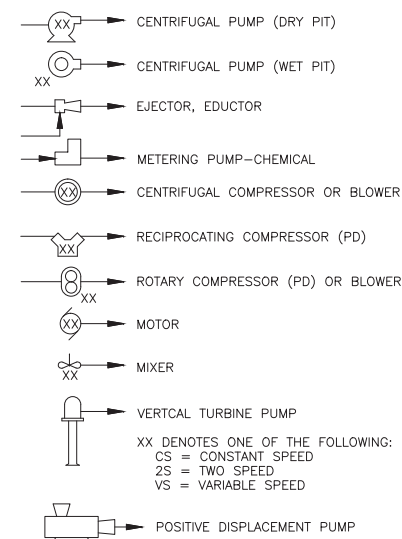
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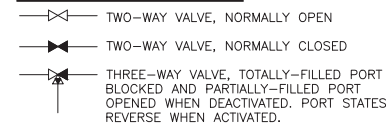
INSTRUMENT & FUNCTION TAGGING:



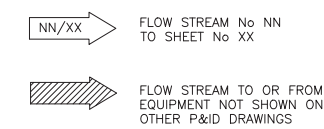
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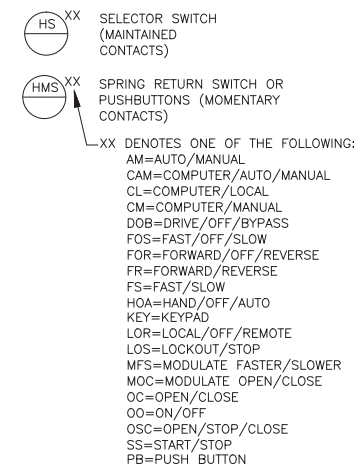
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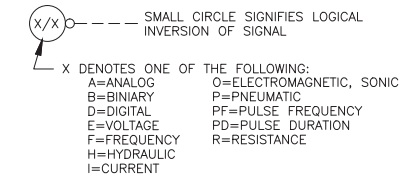
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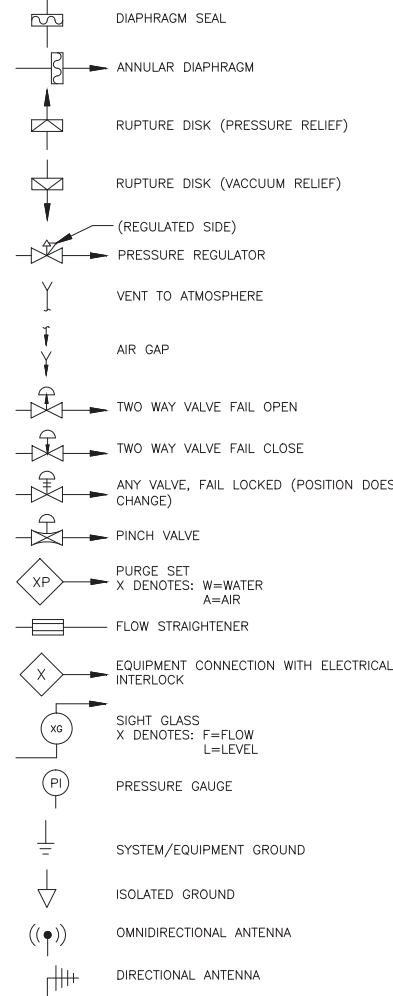
HAND SWITCHES



SIGNAL CONVERTERS



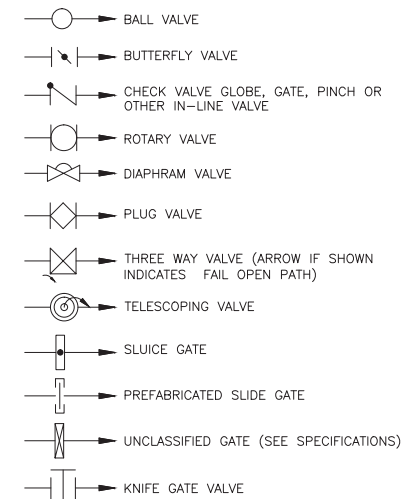
MISCELLANEOUS:



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					
HAND SWITCH MOMENTARY CONTACTS					
COMPOUND INSTRUMENTS (SHARE COMMON HOUSING)					

INSTRUMENT IDENTIFICATION TABLE

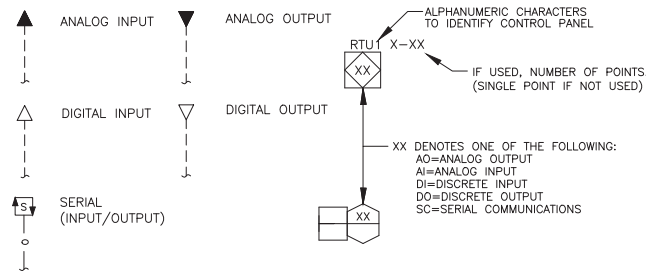
LETTER	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (2)		ALARM		
B	BURNER, COMBUSTION			CLOSE, STOP, DECREASE (1)	OFF (1)
C				CONTROL	
D		DIFFERENTIAL		OPEN, START, INCREASE (1)	
E	VOLTAGE		SENSOR (PRIMARY 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			
T	TEMPERATURE			SWITCH	
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.

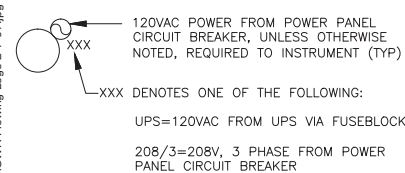
INPUTS & OUTPUTS INTERFACED

WITH COMPUTER DATA

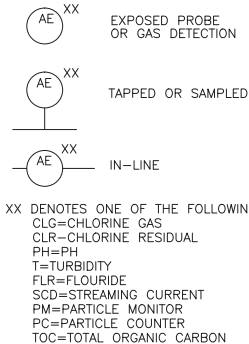
ACQUISITION & CONTROL SYSTEM:



EQUIPMENT POWER:



ANALYSIS INSTRUMENTS:



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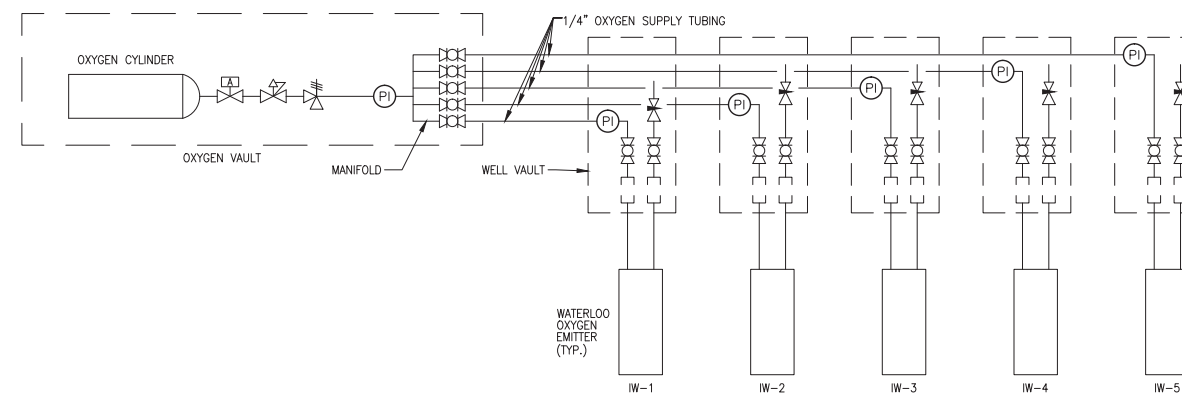
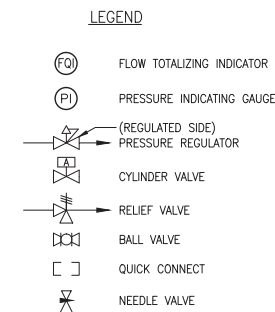
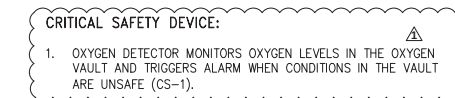
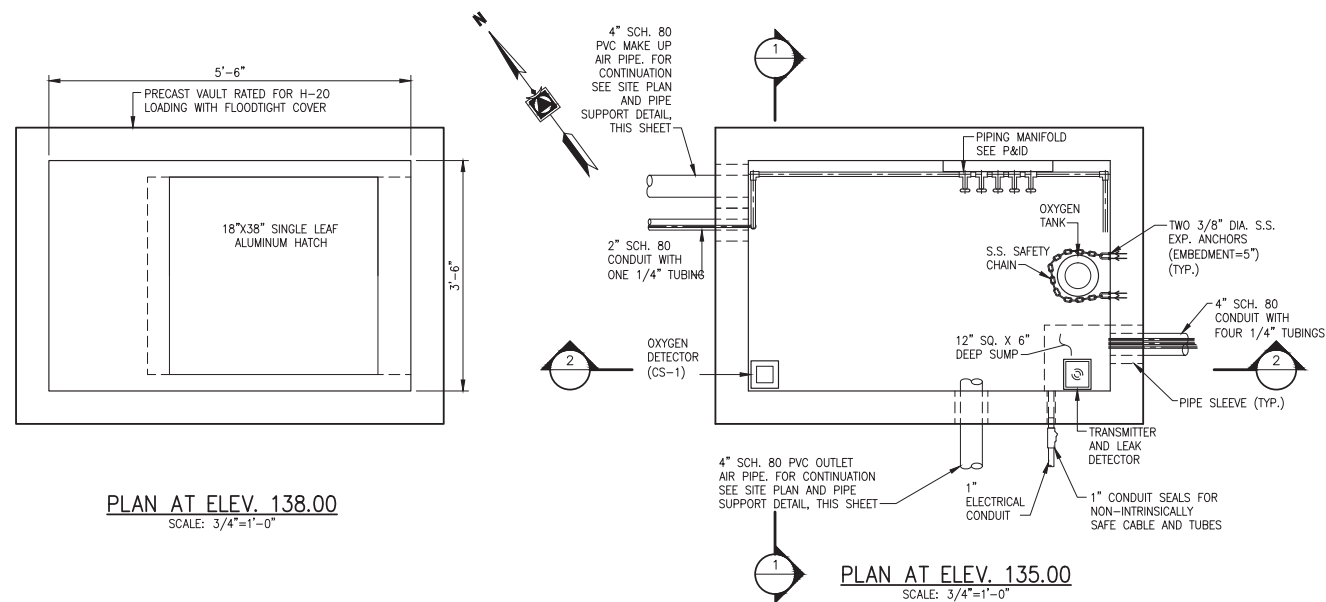
NOTE:
BEGINNING OCTOBER 2013, THIS DRAWING HAS BEEN
MODIFIED BY ARCADIS U.S. TO SHOW AS-BUILT CONDITIONS.

AS-BUILT DRAWINGS

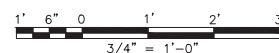
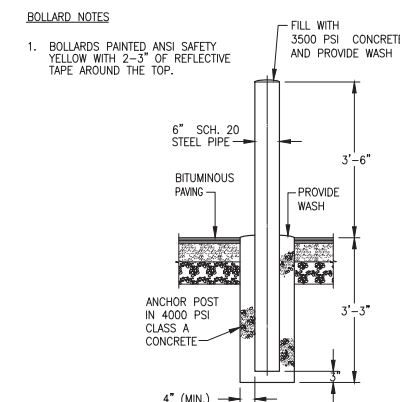
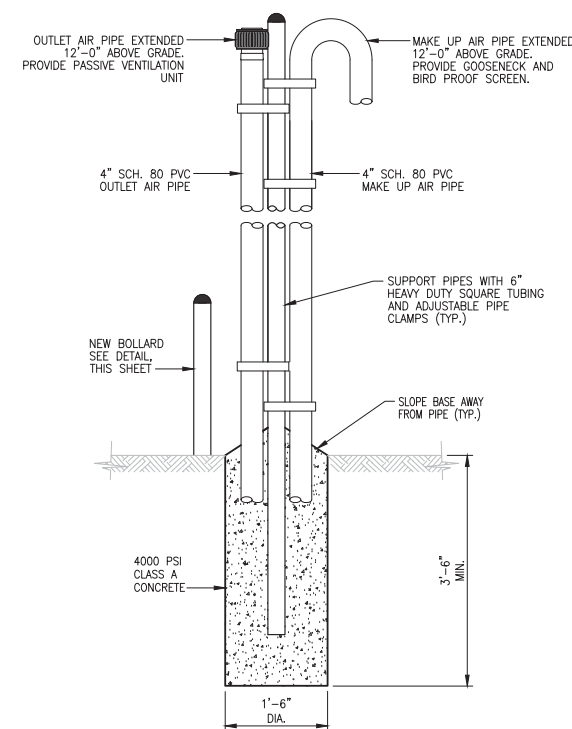
				DESIGNED	CADD	SCALE	Gannett Fleming BALTIMORE, MARYLAND 	CHEVRON PRODUCTS COMPANY ATLANTA, GEORGIA		AREA B INSTRUMENTATION LEGEND, ABBREVIATIONS, AND GENERAL NOTES	JOB NO. 50641	SHEET NO. 5
				CME	SJM	NONE					DATE JUNE 2013	
NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED	APPROVED		FORMER CHEVRON FACILITY NO. 122208 CHILLUM, MARYLAND			CAD FILE AB 1-LEG	
REVISIONS				EL	RWS	X					5 OF 12	

Area C: Oxygen Reactive Zone

Piping and Instrumentation Diagrams



PROCESS AND INSTRUMENTATION DIAGRAM
SCALE: NOT TO SCALE



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 V. SCRAFFORD GANNETT FLEMING, INC. THE SEALED DRAWING IS AND SHALL REMAIN PROPERTY OF GANNETT FLEMING, INC. ANY REUSE, REUSE, ALTERATIONS, ADDITIONS, AND/OR DELETIONS OF THESE DRAWINGS OR ANY 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 DRAWING AND THE ELECTRONIC FILES, THE SEALED DRAWING WILL GOVERN.	VENT PIPE SUPPORT SYSTEM SCALE: NOT TO SCALE			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			AREA C VAULT SECTIONS AND DETAILS AND PROCESS AND INSTRUMENTATION DIAGRAM			JOB NO. 55588 DATE JUNE 2013 CAD FILE AC VAULTDET		
DATE:	ADDED NOTE 11/22/13	DESIGNED EL	CADD EL	SCALE AS SHOWN	 CHEVRON PRODUCTS COMPANY HOUSTON, TEXAS FORMER CHEVRON FACILITY NO.122208-AREA C CHILLUM, MARYLAND	SHEET NO. 4 OF 7			
NO. DESCRIPTION REVISIONS	DATE BY	CHECKED RWS	APPROVED RWS	APPROVED RWS	BALTIMORE, MARYLAND				

APPENDIX B

DUAL PHASE EXTRACTION SYSTEM-TOTAL FLUIDS EXTRACTION DATA

APPENDIX B

DUAL-PHASE EXTRACTION SYSTEM – TOTAL FLUIDS EXTRACTION DATA

DESCRIPTION OF DATA TABLES

Chevron uses a central database to store remediation system data and laboratory analytical data. The tabulated data in Tables A-1, A-2, A-3, A-4, and A-5 is an exported summary of the total fluids extraction system data from the database. These data were recorded by the field technician during site visits. The analytical data for influent samples collected for laboratory analysis (Table A-2) are used to calculate the mass (and to estimate the volume) of hydrocarbons recovered in the dissolved phase. Effluent sample data are included in Table A-3 for comparison with permit limits.

The data table includes recent system data. Historical data collected are available in previous progress reports.

The following table lists the column headings in the table with a brief description of each. Please refer to the piping and instrumentation Diagram (Appendix H) for a schematic of equipment and sample ports.

Column Heading	Description
Date / Time	Date and time data were recorded.
System Status	System ON or OFF when technician recorded the data.
Influent BTEX (µg/L)	Sum of benzene, toluene, ethylbenzene, and total xylenes from influent sample port SP-1.
Effluent BTEX (µg/L)	Sum of benzene, toluene, ethylbenzene, and total xylenes from effluent sample port SP-3.
Treatment Efficiency (%)	Equation: (Influent-Effluent) / (Influent).
Totalizer Reading (gallons)	Reading on the totalizing flow meter.
Pumped Period (gallons)	Equation: (current totalizer reading) – (previous totalizer reading).
Pumped Total (gallons)	Cumulative total gallons of groundwater recovered.
Period Average (GPM)	Equation: (Gallons Pumped During Period) / (current Date-Time – previous Date-Time)
Hydrocarbons Recovered Period (gallons) ¹	Equation: [Avg. Influent BTEX (ug/L)] * e ⁶ * (1/0.2) * (3.785 L/gal) * (1 lb/453.6 g) * (gallons pumped) * (1 gal/6.26 lbs). NOTE: Formula assumes BTEX equals 20% of gasoline.
Hydrocarbons Recovered Cumulative (gallons)	Equation: (Hydrocarbons Recovered During Period) + (Previous Cumulative)
Operating Extraction Points	Wells in operation during the reporting period.

Notes:

(1) Assumptions: BTEX is 20% of hydrocarbon product by volume; density of hydrocarbon product is 6.26 pounds/gallon. The Average (Avg.) Influent BTEX concentration is defined as the mean of the influent concentration for the current and previous sampling events.

TABLE B-1: TOTAL FLUIDS EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 Period (gallons)	Cumulative (gallons)	Operating Extraction Points
7/2/12 8:46	ON	443	0	100.0	47,767,322	60,687	60,472,244	6.10	0.47	925.09	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
7/9/12 9:56	ON	NS	0	-	47,767,819	497	60,472,741	0.05	-	925.09	Totalizer malfunctioning (not counting). Total gallons is incorrect. RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
7/9/12 12:51	OFF	NS	NS	-	47,767,819	0	60,472,741	0.00	-	925.09	Off for cleaning of totalizer paddle. Total gallons is incorrect due to malfunctioning totalizer.
7/9/12 14:50	ON	NS	NS	-	47,767,819	0	60,472,741	0.00	-	925.09	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
7/16/12 11:21	ON	NS	0	-	47,820,897	53,078	60,525,819	5.38	-	925.09	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
7/16/12 12:15	OFF	NS	NS	-	47,821,181	284	60,526,103	5.26	-	925.09	Off for cleaning of view tubes on OWS and AST
7/16/12 13:19	ON	NS	0	-	47,821,181	0	60,526,103	0.00	-	925.09	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
7/23/12 12:50	ON	NS	NS	-	47,876,302	55,121	60,581,224	5.48	-	925.09	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
8/1/12 9:12	ON	NS	0	-	47,924,025	47,723	60,628,947	3.75	-	925.09	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
8/1/12 11:23	OFF	NS	NS	-	47,942,748	18,723	60,647,670	142.92	-	925.09	Off for cleaning of oil-water separator
8/6/12 13:16	ON	NS	0	-	47,942,748	0	60,647,670	0.00	-	925.09	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
8/6/12 17:10	OFF	NS	NS	-	47,943,629	881	60,648,551	3.76	-	925.09	System shut down due to malfunctioning float in AST
8/8/12 9:46	ON	NS	NS	-	47,943,629	0	60,648,551	0.00	-	925.09	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
8/15/12 8:42	OFF	NS	NS	-	47,995,950	52,321	60,700,872	5.22	-	925.09	Shut down due to leak in carbon vessel
8/20/12 9:21	ON	3,300	0	100.0	47,995,950	0	60,700,872	0.00	2.85	927.94	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
8/27/12 9:20	ON	NS	0	-	48,055,618	59,668	60,760,540	5.92	-	927.94	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
9/1/12 0:00	ON	NS	NS	-	48,081,292	25,674	60,786,214	3.87	-	927.94	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
9/4/12 8:38	ON	479	0	100.0	48,116,529	35,237	60,821,451	7.28	1.52	929.46	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
9/10/12 9:42	ON	NS	0	-	48,166,689	50,160	60,871,611	5.76	-	929.46	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
9/17/12 9:46	ON	NS	0	-	48,225,321	58,632	60,930,243	5.81	-	929.46	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
9/24/12 13:46	ON	NS	0	-	48,283,905	58,584	60,988,827	5.68	-	929.46	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
10/1/12 9:00	ON	511	0	100.0	48,337,337	53,432	61,042,259	5.46	0.73	930.19	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
10/8/12 9:43	ON	NS	0	-	48,392,693	55,356	61,097,615	5.47	-	930.19	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
10/15/12 13:00	ON	NS	3.7	-	48,457,989	65,296	61,162,911	6.35	-	930.19	Estimated
10/23/12 9:36	ON	NS	NS	-	48,517,289	59,300	61,222,211	5.24	-	930.19	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5

TABLE B-1: TOTAL FLUIDS EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 Period (gallons)	Cumulative (gallons)	Operating Extraction Points
10/23/12 10:20	OFF	NS	NS	-	48,517,550	261	61,222,472	5.93	-	930.19	Shut down due to oil/water separator pump leaking, air stripper tray being broken, and carbon being spent
11/9/12 11:10	ON	NS	NS	-	48,517,550	0	61,222,472	0.00	-	930.19	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
11/9/12 12:45	OFF	NS	NS	-	48,517,889	339	61,222,811	3.57	-	930.19	Shut down due to pressure on carbon units and bag filters being too high
11/12/12 9:50	ON	NS	NS	-	48,517,889	0	61,222,811	0.00	-	930.19	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
11/19/12 9:04	ON	391	0	100.0	48,576,018	58,129	61,280,940	5.79	0.72	930.91	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7
11/26/12 11:48	ON	NS	0	-	48,637,017	60,999	61,341,939	5.95	-	930.91	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
12/3/12 10:18	ON	563	0	100.0	48,695,667	58,650	61,400,589	5.87	0.38	931.29	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
12/4/12 11:59	ON	NS	NS	-	48,704,839	9,172	61,409,761	5.95	-	931.29	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
12/10/12 9:50	ON	NS	0	-	48,758,755	53,916	61,463,677	6.33	-	931.29	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
12/17/12 8:04	ON	NS	0	-	48,820,437	61,682	61,525,359	6.18	-	931.29	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
12/27/12 9:31	ON	NS	0	-	48,907,858	87,421	61,612,780	6.03	-	931.29	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
12/30/12 1:00	OFF	NS	NS	-	48,930,652	22,794	61,635,574	5.98	-	931.29	Off due to compressor fault from low oil.
1/2/13 12:30	ON	1,990	0	100.0	48,930,652	0	61,635,574	0.00	2.00	933.29	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
1/2/13 19:50	OFF	NS	NS	-	48,932,272	1,620	61,637,194	3.68	-	933.29	Off due to unknown reason
1/7/13 10:27	ON	NS	0	-	48,932,272	0	61,637,194	0.00	-	933.29	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
1/11/13 12:26	OFF	NS	NS	-	48,969,288	37,016	61,674,210	6.30	-	933.29	Off due to SVE knockout tank leaking and triggering sump alarm
1/15/13 11:30	ON	NS	0	-	48,969,288	0	61,674,210	0.00	-	933.29	RW1 RW2 RW3 RW-4 MW17 MW-22 PTWB GP-27R GP-39R MW-7 RW-5
1/16/13 16:30	OFF	NS	NS	-	48,980,806	11,518	61,685,728	6.62	-	933.29	Off due to floor sump alarm.
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

TABLE B-1: TOTAL FLUIDS EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 Period (gallons)	Cumulative (gallons)	Operating Extraction Points
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	Off for Air Stripper cleaning.
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	
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	
7/23/13 9:38	ON	NS	0.00	-	50,260,915	0	62,965,837	0.00	-	939.81	Down due to blown fuse in the control panel and bad battery backup

TABLE B-1: TOTAL FLUIDS EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)	
7/29/13 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 RW3 RW-4 MW-22 PTWB 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	
9/4/13 10:35	OFF	NS	0.00	-	50,608,831	0	63,313,753	0.00	-	940.22	Down due to compressor fault from low oil
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
9/10/13 13:59	OFF	NS	NS	-	-	-	0	-	-	940.22	
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	
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	Down due to trailer sump high level
9/17/13 9:00	OFF	NS	NS	-	50,674,231	0	63,379,153	0.00	-	940.22	Down due to pipe repair
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	Down due to pipe repair
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	Down due to pipe repair
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	Down due to pipe repair
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	Down due to engagement of exterior emergency stop button
12/6/13 12:00	OFF	NS	NS	-	50,914,780	0	63,619,702	0.00	-	945.15	Down due to engagement of exterior emergency stop button
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

TABLE B-1: TOTAL FLUIDS EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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
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	Down due to engagement of exterior emergency stop button
1/6/14 8:30	OFF	NS	0.00	-	51,075,832	0	63,780,754	0	-	945.91	Down due to engagement of exterior emergency stop button
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	Down due to high level in building sump due to leaking ball valve and check valve. Valves froze due to unusually low temperatures.
2/7/14 7:00	OFF	NS	NS	-	51,196,153	0	63,901,075	0	-	945.91	Down due to high level in building sump due to leaking ball valve and check valve. Valves froze due to unusually low temperatures.
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	Down to await carbon replacement. Carbon replaced on 4/11/2014, systems restarted.
4/11/14 9:00	OFF	NS	NS	-	51,814,501	0	64,519,423	0	-	947.24	Down to await carbon replacement. Carbon replaced on 4/11/2014, systems restarted.
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	Down due to malfunction of OWS discharge valve.

TABLE B-1: TOTAL FLUIDS EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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
5/15/14 12:33	OFF	NS	0	-	52,051,990	0	64,756,912	0	-	948.92	Down due to malfunction of OWS discharge valve.
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
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	AST HH due to clogged bag filters
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	Emergency stop button pushed
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	Shutdown due to faulty OWS pump
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	Air line leak drained air compressor
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	Manually shut down to await LPGAC changeout
9/30/14 12:00	OFF	NS	NS	-	53,227,678	0	65,932,600	0	-	959.78	Manually shut down to await LPGAC changeout
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	OWS transfer pump shaft coupler sheared
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	Low air compressor oil
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	Shutdown caused by trailer sump level indicator due to cracked and leaking PVC pipe

TABLE B-1: TOTAL FLUIDS EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 Period (gallons)	Cumulative (gallons)	Operating Extraction Points
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	CMP-LO
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	Emergency stop button pushed
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	Shutdown caused by OWS high high alarm possibly due to power outage
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	Oil water separator pump failure
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	Compressor motor failure
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	Air compressor low oil
3/17/15 10:20	OFF	NS	NS	-	54,062,083	0	66,767,005	0	-	967.18	Broken pipe in enclosure
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	Broken bag filter repair
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	Air compressor low oil, breather filter release dropped oil level below set point
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	Air compressor low oil
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	Air compressor low oil
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	Power outage at system enclosure
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	Shutdown to await carbon change out
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	Carbon vessel transfer pipe failure
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	Air stripper high high pressure due to clogged bag filters
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

TABLE B-1: TOTAL FLUIDS EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 5:00	OFF	NS	NS	-	54,474,484	22876	67,179,406	9	-	972.52	Air compressor low pressure
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	Air stripper high high pressure due to clogged bag filters
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	Air compressor low pressure due to blown air line
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	Air compressor low oil
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	Sump high high level due to air stripper leak
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	Air stripper high high pressure due to clogged bag filters
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	Air compressor low oil
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	Air compressor low oil
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	Planned shutdown for severe weather
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

TABLE B-1: TOTAL FLUIDS EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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
11/7/15 22:03	OFF	NS	NS	-	55,535,644	257551	68,240,566	10	-	982.19	Oil water separator broken float
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	Air compressor low pressure
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	Air Compressor Low Air Pressure
1/5/16 10:30	ON	NS	NS	0.0	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	0.0	56,437,411	267515	69,142,333	9	-	984.31	Air Stripper High High; Clogged Bag Filters
1/29/16 11:55	ON	NS	NS	0.0	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	0.0	56,498,532	61121	69,203,454	9	-	984.31	Sump High/Broken OWS Pump Nipple
2/4/16 12:25	ON	NS	NS	0.0	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	0.0	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	0.0	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	0.0	56,751,452	31089	69,456,374	9	-	984.31	Sump High/Broken OWS Pump Nipple
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	0.0	56,832,003	80551	69,536,925	9	-	989.10	Oil/Water Separator High High
3/11/16 8:40	ON	NS	NS	0.0	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	0.0	56,833,833	1830	69,538,755	11	-	989.10	Oil/Water Separator High High
3/11/16 13:20	ON	NS	NS	0.0	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	0.0	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	0.0	57,078,784	25250	69,783,706	18	-	989.10	Shutdown for Air Stripper Cleaning and Oil Change
3/29/16 10:45	ON	NS	NS	0.0	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	0.0	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	0.0	57,513,521	8091	70,218,443	9	-	992.74	Shutdown fo ASTHH due to Broken Float Tree Pin
5/4/16 9:55	ON	NS	NS	0.0	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

TABLE B-1: TOTAL FLUIDS EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)	
5/20/16 9:10	ON	NS	NS	0.0	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	0.0	57,844,030	136480	70,548,952	9	-	992.74	Shutdown for Carbon Changeout
5/31/16 12:00	ON	NS	NS	0.0	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	0.0	57,917,046	73016	70,621,968	8	-	992.74	Shutdown Air Stripper High High
6/8/16 10:20	ON	NS	NS	0.0	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
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	0.0	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

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 B-2: TOTAL FLUIDS EXTRACTION SYSTEM INFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Napthalene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)
9/9/09 9:00	1,200	1,700	NA	150	1,010	4,060	600
10/28/09 10:00	130	200	NA	19	163	512	180
11/23/09 14:35	100	200	NA	23	187	510	130
12/22/09 13:00	410	600	NA	70	520	1,600	300
1/4/10 10:41	400	590	NA	55	400	1,445	340
2/2/10 8:50	150	300	NA	26	240	716	160
3/1/10 9:08	150	260	NA	26	206	642	210
4/27/10 12:10	460	800	NA	85	590	1,935	360
5/3/10 10:25	390	650	NA	57	470	1,567	460
6/2/10 13:55	630	1,100	NA	130	730	2,590	340
7/12/10 11:35	1,800	2,800	NA	300	1,770	6,670	900
8/9/10 14:42	550	850	NA	99	670	2,169	430
9/15/10 13:10	150	260	NA	25	228	663	160
10/4/10 13:08	550	810	NA	59	460	1,879	220
11/5/10 11:20	580	890	NA	61	490	2,021	360
12/6/10 10:36	240	380	NA	30	250	900	260
1/3/11 10:40	480	630	NA	67	370	1,547	250
2/2/11 12:03	150	230	NA	21	155	556	99
8/19/11 13:20	740	1,000	NA	110	770	2,620	480
10/3/11 9:10	470	680	NA	62	480	1,692	560
11/7/11 7:51	700	910	NA	83	680	2,373	580
12/5/11 9:00	560	860	NA	77	610	2,107	530
1/3/12 8:30	380	560	NA	56	400	1,396	440
2/2/12 13:06	320	580	NA	61	420	1,381	350
3/5/12 12:54	520	1,100	NA	150	1,020	2,790	490
4/2/12 10:35	660	1,400	NA	140	830	3,030	430
5/2/12 10:55	300	600	NA	59	410	1,369	370
6/5/12 8:57	81	140	NA	13	107	341	160
7/2/12 8:55	89	170	NA	20	164	443	170
8/20/12 11:33	780	1,300	NA	170	1,050	3,300	510
9/4/12 10:00	110	190	NA	18	161	479	160
10/1/12 9:00	120	210	NA	19	162	511	190
11/19/12 9:00	100	150	NA	14	127	391	160
12/3/12 9:30	140	220	NA	24	179	563	210
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

TABLE B-2: TOTAL FLUIDS EXTRACTION SYSTEM INFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Napthalene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)
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

Notes:

- (1) ND: Not Detected above reporting limit.
- (2) <##: Parameter not detected above the reporting limit.
- (3) NA: Not Analyzed.

TABLE B-3: TOTAL FLUIDS EXTRACTION SYSTEM EFFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Nathalene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)
9/9/09 9:10	<1	<1	NA	<1	<3	0	1.5
9/17/09 15:50	<1	<1	NA	<1	<3	0	6.5
9/21/09 12:24	<1	<1	NA	<1	<3	0	8.9
10/5/09 13:01	<1	<1	NA	<1	<3	0	18
10/12/09 7:20	<1	<1	NA	<1	<3	0	14
10/19/09 12:58	<1	<1	NA	<1	<3	0	36
10/28/09 8:45	<1	<1	NA	<1	<10	0	33
11/2/09 11:55	<1	<1	NA	<1	<10	0	34
11/9/09 8:45	<1	<1	NA	<1	<10	0	36
11/23/09 14:45	<1	<1	NA	<1	<10	0	39
12/4/09 12:51	<1	<1	NA	<1	<10	0	63
12/10/09 12:15	<1	<1	NA	<1	<10	0	66
12/22/09 13:25	<1	<1	NA	<1	<10	0	<1
12/28/09 13:00	<1	<1	NA	<1	<10	0	<1
1/4/10 10:52	<1	<1	NA	<1	<10	0	<1
1/12/10 12:57	<1	<1	NA	<1	<10	0	<1
1/18/10 13:00	<1	<1	NA	<1	<10	0	1.2
1/25/10 10:00	<1	<1	NA	<1	<10	0	2.7
2/2/10 8:00	<1	<1	NA	<1	<10	0	4.9
2/16/10 13:00	<1	<1	NA	<1	<10	0	8.4
2/22/10 12:50	<1	<1	NA	<1	<10	0	9.3
3/1/10 9:14	<1	<1	NA	<1	<10	0	13
3/8/10 11:30	<1	<1	NA	<1	<10	0	12
3/15/10 9:50	<1	<1	NA	<1	<10	0	15
3/22/10 12:06	<1	<1	NA	<1	<10	0	19
4/20/10 14:30	<1	<1	NA	<1	<10	0	9
4/27/10 12:26	<1	<1	NA	<1	<10	0	15
5/3/10 10:33	<1	<1	NA	<1	<10	0	17
5/10/10 12:15	<1	<1	NA	<1	<10	0	19
5/17/10 9:00	<1	<1	NA	<1	<10	0	16
5/24/10 11:30	<1	<1	NA	<1	<10	0	19
6/2/10 14:10	<1	<1	NA	<1	<10	0	17
6/7/10 14:50	<1	<1	NA	<1	<10	0	17
6/14/10 12:00	<1	<1	NA	<1	<10	0	19
7/12/10 11:25	<1	<1	NA	<1	<10	0	20
7/19/10 12:14	<1	<1	NA	<1	<10	0	17
7/26/10 10:00	<1	<1	NA	<1	<10	0	13
8/4/10 14:02	<1	<1	NA	<1	<10	0	<1
8/9/10 14:49	<1	<1	NA	<1	<10	0	<1
8/16/10 9:50	<1	<1	NA	<1	<10	0	<1
8/23/10 8:53	<1	<1	NA	<1	<10	0	<1
9/7/10 15:10	<1	<1	NA	<1	<10	0	<1
9/15/10 13:17	<1	<1	NA	<1	<10	0	<1
9/20/10 8:55	<1	<1	NA	<1	<10	0	<1
9/27/10 15:05	<1	<1	NA	<1	<10	0	<1
10/4/10 13:12	<1	<1	NA	<1	<10	0	<1
10/11/10 13:50	<1	<1	NA	<1	<10	0	<1
10/19/10 13:30	<1	<1	NA	<1	<10	0	1.1
10/25/10 14:00	<1	<1	NA	<1	<10	0	3.4
11/5/10 11:12	<1	<1	NA	<1	<10	0	6.6
11/15/10 10:15	<1	<1	NA	<1	<10	0	7.6
11/29/10 14:27	<1	<1	NA	<1	<10	0	10
11/30/10 17:00	<1	<1	NA	<1	<10	0	8.5
12/6/10 10:25	<1	<1	NA	<1	<10	0	9.5
12/13/10 10:37	<1	<1	NA	<1	<10	0	6.7
12/20/10 10:30	<1	<1	NA	<1	<10	0	11
12/27/10 13:15	<1	<1	NA	<1	<10	0	8
1/3/11 10:45	<1	<1	NA	<1	<10	0	9.7
1/10/11 11:15	<1	<1	NA	<1	<10	0	<1
1/19/11 10:15	<1	<1	NA	<1	<10	0	3.9
1/25/11 12:32	<1	<1	NA	<1	<10	0	9.5
2/2/11 12:12	<1	<1	NA	<1	<10	0	9.7
2/7/11 10:45	<1	<1	NA	<1	<10	0	8.8
2/21/11 9:55	<1	<1	NA	<1	<5	0	12

TABLE B-3: TOTAL FLUIDS EXTRACTION SYSTEM EFFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Nathalene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)
2/28/11 9:00	<1	<1	NA	<1	<5	0	12
3/21/11 12:15	<1	<1	NA	<1	<5	0	16
8/19/11 13:42	<1	<1	NA	<1	<10	0	<1
9/6/11 13:50	<1	<1	NA	<1	<10	0	<1
9/19/11 9:11	<1	<1	NA	<1	<10	0	<1
9/30/11 9:30	<1	<1	NA	<1	<10	0	<1
10/3/11 9:03	<1	<1	NA	<1	<10	0	<1
10/10/11 10:57	<1	<1	NA	<1	<10	0	<1
10/17/11 10:45	<1	<1	NA	<1	<10	0	<1
10/24/11 8:51	<1	<1	NA	<1	<10	0	<1
11/7/11 8:03	<1	<1	NA	<1	<10	0	<1
11/14/11 9:07	<1	<1	NA	<1	<10	0	1.4
11/21/11 8:35	<1	<1	NA	<1	<10	0	1.8
11/28/11 7:41	<1	<1	NA	<1	<10	0	3.1
12/5/11 9:05	<1	<1	NA	<1	<10	0	4.3
12/12/11 13:10	<1	<1	NA	<1	<10	0	3.4
12/19/11 12:10	<1	<1	NA	<1	<10	0	2.2
12/27/11 12:33	<1	<1	NA	<1	<10	0	2.7
1/3/12 8:45	<1	<1	NA	<1	<10	0	2.3
1/9/12 8:19	<1	<1	NA	<1	<10	0	4.1
1/16/12 10:13	<1	<1	NA	<1	<10	0	4.6
1/23/12 8:17	<1	<1	NA	<1	<10	0	2.6
2/2/12 13:14	<1	<1	NA	<1	<10	0	5
2/13/12 11:20	<1	<1	NA	<1	<10	0	8.8
2/20/12 9:38	<1	<1	NA	<1	<10	0	7.6
2/27/12 8:10	<1	<1	NA	<1	<10	0	7.5
3/5/12 13:05	<1	<1	NA	<1	<10	0	6.6
3/12/12 8:20	<1	<1	NA	<1	<10	0	5.2
3/19/12 10:15	<1	<1	NA	<1	<10	0	4.5
3/26/12 8:25	<1	<1	NA	<1	<10	0	4.5
4/2/12 10:15	<1	<1	NA	<1	<10	0	3.2
4/9/12 9:40	<1	<1	NA	<1	<10	0	3.5
4/16/12 9:00	<1	<1	NA	<1	<10	0	3.7
4/23/12 9:15	<1	<1	NA	<1	<10	0	2.1
5/2/12/ 1045	<1	<1	NA	<1	<10	0	2.3
5/7/12 10:30	<1	<1	NA	<1	<10	0	2.3
5/14/12 10:58	<1	<1	NA	<1	<10	0	3.2
5/23/12 9:10	<1	<1	NA	<1	<10	0	2.1
6/5/12 9:10	<1	<1	NA	<1	<10	0	2
6/11/12 9:49	<1	<1	NA	<1	<10	0	2.6
6/25/12 13:50	<1	<1	NA	<1	<10	0	3.4
7/2/12 9:10	<1	<1	NA	<1	<10	0	3.8
7/9/12 11:14	<1	<1	NA	<1	<10	0	2
7/16/12 11:15	<1	<1	NA	<1	<10	0	2.3
7/23/12 13:20	<1	<1	NA	<1	<10	0	1.6
8/1/12 10:45	<1	<1	NA	<1	<10	0	1.5
8/6/12 14:40	<1	<1	NA	<1	<10	0	2.9
8/20/12 11:38	<1	<1	NA	<1	<10	0	3.4
8/27/12 8:30	<1	<1	NA	<1	<10	0	2.3
9/4/12 10:15	<1	<1	NA	<1	<10	0	1.3
9/10/12 10:35	<1	<1	NA	<1	<10	0	1.1
9/17/12 10:00	<1	<1	NA	<1	<10	0	<1
9/24/12 10:00	<1	<1	NA	<1	<10	0	<1
10/1/12 9:10	<1	<1	NA	<1	<10	0	<1
10/8/12 10:00	<1	<1	NA	<1	<10	0	<1
10/15/12 13:00	1.4	2.3	NA	<1	<10	3.7	2.8
11/19/12 9:15	<1	<1	NA	<1	<10	0	<1
11/26/12 11:50	<1	<1	NA	<1	<10	0	<1
12/3/12 9:45	<1	<1	NA	<1	<10	0	<1
12/10/12 14:20	<1	<1	NA	<1	<10	0	<1
12/17/12 8:15	<1	<1	NA	<1	<10	0	<1
12/27/12 9:30	<1	<1	NA	<1	<10	0	<1
1/2/13 14:15	<1	<1	NA	<1	<10	0	<1
1/7/13 9:30	<1	<1	NA	<1	<10	0	<1

TABLE B-3: TOTAL FLUIDS EXTRACTION SYSTEM EFFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Nathalene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)
1/15/13 13:00	<1	<1	NA	<1	<10	0	<1
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

TABLE B-3: TOTAL FLUIDS EXTRACTION SYSTEM EFFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MD

Date/Time	Benzene (µg/L)	Toluene (µg/L)	Nathalene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	BTEX (µg/L)	MTBE (µg/L)
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
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
1/5/16 11:10	<1	<1	<1	<1	<10	0	3
1/29/16 13:00	<1	<1	<1	<1	<10	0	<1
2/11/16 13:45	<1	<1	<1	<1	<10	0	<1
2/22/16 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

Notes:

- (1) ND: Not Detected above reporting limit.
- (2) <##: Parameter not detected above the reporting limit.
- (3) NA: Not Analyzed.

TABLE B-4: AIR STRIPPER VAPOR CARBON INFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)
11/21/2011 9:58	SP-50	1300	1500	79	610	4900	165	0.0016	0.1721
12/27/2011 12:48	SP-50	4	4	<4.0	<4.0	<1000	186	-0.0009	-0.0424
2/20/2012 10:10	SP-50	530	640	63	430	1700	181	0.0009	0.0000
3/12/2012 8:35	SP-50	16	37	<4.0	25	<1000	194	-0.0007	-0.0696
4/9/2012 13:45	SP-50	680	770	47	290	4400	184	0.0010	0.1860
5/23/2012 8:50	SP-50	8	50	<4.0	20	<1000	181	-0.0006	-0.0767
6/5/2012 10:30	SP-50	29	100	16	120	1000	181	-0.0007	-0.0472
7/2/2012 10:00	SP-50	620	740	67	400	<1800	280	0.0014	0.0000
9/4/2012 9:00	SP-50	4	8	<4.0	<4.0	<1800	280	-0.0008	0.0000
10/1/2012 10:15	SP-50	580	600	34	270	3600	280	0.0014	0.1643
11/26/2012 12:10	SP-50	57	54	4	25	<1800	280	-0.0009	0.0730
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

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 values will be updated following calculation of actual flow.

TABLE B-5: AIR STRIPPER VAPOR CARBON EFFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)
11/21/2011 10:05	SP-52	570	700	57	330	2300	165	0.0013	0.1237
12/27/2011 12:56	SP-52	360	410	26	160	1700	186	0.0009	0.1031
2/20/2012 10:20	SP-52	160	160	12	87	1700	181	0.0004	0.1003
3/12/2012 8:40	SP-52	280	390	38	240	1700	194	0.0007	0.1075
4/9/2012 13:55	SP-52	260	400	43	250	2100	184	0.0006	0.1260
5/23/2012 9:00	SP-52	270	240	17	92	1300	181	0.0007	0.0767
6/5/2012 10:20	SP-52	330	380	35	290	2300	181	0.0008	0.1357
7/2/2012 10:10	SP-52	260	300	34	230	<1800	280	0.0010	0.1643
9/4/2012 9:10	SP-52	220	230	14	77	<1800	280	0.0008	0.1643
10/1/2012 10:40	SP-52	220	310	25	140	<1800	280	0.0008	0.1643
11/26/2012 12:20	SP-52	290	140	10	58	<1800	280	0.0011	0.1643
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

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 values will be updated following calculation of actual flow.

APPENDIX C

DUAL PHASE EXTRACTION SYSTEM-SOIL VAPOR EXTRACTION DATA

APPENDIX C

DUAL-PHASE EXTRACTION SYSTEM – SOIL VAPOR EXTRACTION DATA

DESCRIPTION OF DATA TABLES

Overview

Chevron uses a central database to store remediation system data and laboratory analytical data. The tabulated data in Tables B-1, B-2 and B-3 is an exported summary of soil vapor extraction system data from the database. These data were recorded by the field technician during site visits. Analytical data for influent samples collected for laboratory analysis are included in Table B-2 to calculate the mass recovery rates of total petroleum hydrocarbons and benzene. Effluent sample data are included in Table B-3 for comparison with permit limits.

The data table includes recent system data. Historical data collected are available in previous progress reports.

The following table lists the column headings in the table with a brief description of each. Please refer to the piping and instrumentation Diagram (Appendix H) for a schematic of equipment and sample ports.

Column Heading	Description
Date / Time	Date and time data were recorded.
System Status	System ON or OFF when technician recorded the data.
Hour Meter (hours)	Field measurement of the hour meter.
Manifold Vacuum (in Hg)	Field measurement of vacuum in manifold.
Influent (ppmv)	Field measurement of vapor concentration prior to treatment using a photoionization detector.
Influent (cfm)	Field measurement of total vapor flow in manifold.
Effluent (ppmv)	Field measurement of vapor concentration after treatment using a photoionization detector.
Treatment Efficiency (%)	Equation: (Influent-Effluent) / (Influent).
Hydrocarbons Recovered (lbs/day) ¹	Equation: [(Influent) / (10 ⁻⁶)] * [Manifold Extraction-Flow Rate] * CV1
Hydrocarbons Recovered Period (gal)	Equation: [(Avg. Influent) x (10 ⁻⁶)] * [Avg. Manifold Extraction-Flow Rate]
Hydrocarbons Recovered Cumulative (gal)	Equation: (Avg. Influent BTEX) * (1 L / 0.26 gal) * (lb/454x10 ⁶ µg) * (current Total Gallons Pumped – previous Total Gallons Pumped on last sampling date) * (gal hydrocarbons / 6.48 lbs hydrocarbons) * (0.2 gal BTEX / gal hydrocarbons).
Operating Extraction Points	Wells in operation during the reporting period.

Notes:

- (1) Assumptions: Hydrocarbon molecular weight is 92 grams/mole; vapor behaves like an ideal gas; Average (Avg.) Influent (ppmv) and flow rate (Manifold Extraction in the table) are averages between the current and last events. Unit conversion factors (CV) equations are:

$$CV1 = (92 \text{ grams/mole}) * (1 \text{ mol}/24.45 \text{ L}) * (28.32 \text{ L}/\text{ft}^3) * (1440 \text{ min}/\text{day}) * (1 \text{ lb}/454 \text{ grams}) = 338 \text{ min} * \text{lbs}/\text{day}.$$

$$CV2 = (92 \text{ grams/mole}) * (1 \text{ mol}/24.45 \text{ L}) * (28.32 \text{ L}/\text{ft}^3) * (\text{Runtime in minutes}) * (1 \text{ lb}/454 \text{ grams}) = 0.235 \text{ min} * \text{lbs}.$$

TABLE C-1: SOIL VAPOR EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)	
7/2/12 8:49	ON	40,146.8	12	132	134	66.1	49.9	6.0	6.6	6,084.9	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
7/9/12 9:55	ON	40,315.9	12	149	135	65.6	56.0	6.8	7.0	6,091.9	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
7/9/12 12:51	OFF	40,318.9	-	-	-	-	-	-	0.1	6,092.1	Off for cleaning of totalizer paddle.
7/9/12 14:50	ON	40,318.9	-	-	-	-	-	-	-	6,092.1	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
7/16/12 12:15	OFF	40,484.6	-	-	-	-	-	-	-	6,092.1	Off for cleaning of view tubes
7/16/12 13:19	ON	40,484.6	12	37	131	36.5	1.1	1.6	-	6,092.1	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
7/23/12 12:48	ON	40,652.8	13	75	127	30.0	60.0	3.2	2.7	6,094.7	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
8/1/12 9:09	ON	40,865.1	12	70	127	31.0	55.4	3.0	4.3	6,099.0	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
8/1/12 11:23	OFF	40,867.4	-	-	-	-	-	-	0.0	6,099.1	Off for system cleaning
8/6/12 13:16	ON	40,867.9	13	40	127	30.7	22.9	1.7	-	6,099.1	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
8/6/12 17:10	OFF	40,871.8	-	-	-	-	-	-	0.0	6,099.1	System shut down due to malfunctioning float in AST
8/8/12 9:46	ON	40,871.8	13	-	126	-	-	-	-	6,099.1	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
8/15/12 8:42	OFF	41,038.8	-	-	-	-	-	-	-	6,099.1	Shut down due to leak in carbon vessel
8/20/12 9:21	ON	41,038.8	12	59	127	19.8	66.2	2.5	-	6,099.1	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
8/27/12 9:21	ON	41,206.8	12	64	135	25.8	59.4	2.9	3.0	6,102.1	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
9/4/12 8:35	ON	41,398.1	12	58	131	33.7	41.5	2.6	3.4	6,105.5	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
9/10/12 9:42	ON	41,543.2	13	64	127	34.9	45.6	2.8	2.5	6,108.0	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
9/17/12 9:46	ON	41,711.2	12	131	133	53.6	59.2	5.9	4.7	6,112.7	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
9/24/12 13:13	ON	41,882.7	12	126	132	57.3	54.6	5.6	6.5	6,119.2	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
10/1/12 9:00	ON	42,046.5	12	83	127	34.8	57.9	3.5	4.9	6,124.1	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings

TABLE C-1: SOIL VAPOR EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)	
10/8/12 9:46	ON	42,215.3	12	51	122	22.1	56.8	2.1	3.1	6,127.2	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
10/23/12 9:35	ON	42,575.1	13	80	120	31.6	60.4	3.2	6.3	6,133.5	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
10/23/12 10:20	OFF	42,575.8	-	-	-	-	-	-	0.0	6,133.5	Shut down due to oil/water separator pump leaking, air stripper tray being broken, and carbon being spent
11/9/12 11:45	ON	42,575.8	-	-	-	-	-	-	-	6,133.5	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
11/9/12 12:45	OFF	42,578.5	-	-	-	-	-	-	-	6,133.5	Shut down due to pressure on carbon units and bag filters being too high
11/12/12 10:41	ON	42,578.5	13	37	125	8.1	78.3	1.6	-	6,133.5	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 *FID Readings
11/19/12 9:08	ON	42,745.0	13	27	124	6.9	74.7	1.1	1.5	6,134.9	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
11/26/12 0:00	ON	42,915.6	12	55	135	11.0	80.0	2.5	1.9	6,136.8	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
12/3/12 10:17	ON	43,082.1	12	70	128	14.6	79.2	3.0	3.2	6,140.0	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
12/4/12 12:00	ON	43,107.9	12	125	160	25.6	79.6	6.8	0.8	6,140.8	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
12/10/12 9:53	ON	43,249.7	12	153	168	43.8	71.4	8.7	7.1	6,148.0	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
12/17/12 8:53	ON	43,416.7	12	91	167	5.0	94.5	5.1	7.5	6,155.5	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
12/27/12 9:29	ON	43,657.3	12	153	166	28.4	81.4	8.6	10.8	6,166.2	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
12/30/12 1:00	OFF	43,720.9	-	-	-	-	-	-	3.5	6,169.8	Off due to compressor low
1/2/13 12:30	ON	43,720.9	12	131	176	31.5	75.9	7.8	-	6,169.8	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
1/2/13 19:50	OFF	43,725.2	-	-	-	-	-	-	0.4	6,170.2	Off due to unknown reason
1/7/13 11:26	ON	43,725.2	12	92	177	33.8	63.4	5.5	-	6,170.2	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings
1/11/13 12:26	OFF	43,846.2	-	-	-	-	-	-	3.5	6,173.7	Off due to SVE knockout tank leaking and triggering sump alarm
1/15/13 11:44	ON	43,846.2	12	62	177	18.5	70.0	3.7	-	6,173.7	GP-27R MP-7 MW-22 MW-17 PTW-B RW-3 MW-7 RW-5 *FID Readings

TABLE C-1: SOIL VAPOR EXTRACTION SYSTEM DATA
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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 (lbs/day)	Period (gallons)	Cumulative (gallons)	Operating Extraction Points
1/16/13 16:30	OFF	43,875.7	-	-	-	-	-	-	0.7	6,174.4	Off due to high sump alarm.
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

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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 (lbs/day)	Period (gallons)	Cumulative (gallons)	Operating Extraction Points
5/27/13 12:30	OFF	46,902.9	-	-	-	-	-	-	7.1	6,302.1	Shut down due to high water level inside knockout tank
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	Shut down due to high water level inside knockout tank
6/3/13 9:00	OFF	46,930.4	-	-	-	-	-	-	-	6,302.5	Shut down due to high water level inside knockout tank
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	
7/8/13 7:00	OFF	0.00	-	-	-	-	-	-	-	6325.02	
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	
7/22/13 7:00	OFF	0.00	-	-	-	-	-	-	-	6339.21	
7/23/13 6:30	OFF	47215.00	13	-	131.75	-	-	-	0.68	6339.89	Down due to blown fuse in the control panel and bad battery backup
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	
8/5/13 7:00	OFF	47472.90	13	14.50	138.52	7.10	51.03	0.68	1.11	6342.26	
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	
9/4/13 10:30	OFF	48125.70	11	-	141.46	-	-	-	1.40	6345.67	Down due to compressor fault from low oil
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
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	
9/13/13 7:00	OFF	48289.50	-	-	-	-	-	-	-	6345.67	

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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)		
9/13/13 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	Down due to trailer sump high level	
9/17/13 9:00	OFF	48294.80	-	-	0.00	-	-	-	-	6345.67	Down due to pipe repair	
9/19/13 8:00	OFF	48294.80	12	-	128.73	-	-	-	-	6345.67	Down due to pipe repair	
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	Down due to pipe repair	
9/30/13 7:00	OFF	48302.00	-	-	-	-	-	-	-	6345.67	Down due to pipe repair	
10/10/13 7:00	OFF	48302.00	-	-	-	-	-	-	-	6345.67	Down due to pipe repair	
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		
11/7/13 7:00	OFF	48320.10	12	-	131.81	-	-	-	9.33	6361.92	Down due to compressor fault from low oil	
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	Down due to engagement of exterior emergency stop button	
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	Down due to enaggement of exterior emergency stop button	
1/6/14 8:30	OFF	49200.50	12	-	167.23	-	-	-	-	6365.39	Down due to enaggement of exterior emergency stop button	
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	Down due to high level in building sump due to leaking ball valve and check valve. Valves froze due to unusually low temperatures.	

TABLE C-1: SOIL VAPOR EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 (lbs/day)	Period (gallons)	Cumulative (gallons)	Operating Extraction Points
2/7/14 7:00	OFF	49,474.3	-	-	-	-	-	-	-	6,365.4	Down due to high level in building sump due to leaking ball valve and check valve. Valves froze due to unusually low temperatures.
2/17/14 9:00	OFF	-	-	-	-	-	-	-	-	6,365.4	Down due to crack found in KO tank pump on 2/7/2014.
2/27/14 7:30	OFF	49,567.4	12	-	135.18	-	-	-	-	6,365.4	Down due to crack found in KO tank pump on 2/7/2014.
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	Down to await carbon replacement. Carbon replaced on 4/11/2014, systems restarted.
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	Down due to blower over amperage.
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	Down due to over voltage on blower VFD.
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	Down due to over voltage on blower VFD.
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	Down due to over voltage on blower VFD.
5/4/14 17:16	OFF	50,667.8	-	-	-	-	-	-	-	6,402.2	Down due to over voltage on blower VFD.
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	Down due to over voltage on blower VFD.
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	Down due to over voltage on blower VFD.
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	Down due to over voltage on blower VFD.
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	Down due to over voltage on blower VFD.
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	Down due to over voltage on blower VFD.

TABLE C-1: SOIL VAPOR EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 (lbs/day)	Period (gallons)	Cumulative (gallons)	Operating Extraction Points
6/6/14 14:04	OFF	50,774.3	-	-	-	-	-	-	-	6,402.2	Down due to over voltage on blower VFD.
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	Down due to malfunctioning Knockout Tank pump.
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	Unknown shutdown of CatOx
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	Air Stripper high high alarm
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	Emergency stop button pushed
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 shut down due to water intrailer sump
8/18/14 10:45	OFF	51,362.3	-	-	-	-	-	-	-	6,449.7	Shutdown due to faulty OWS pump
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	Air line leak drained air compressor
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
9/24/14 16:20	OFF	52,203.1	-	-	-	-	-	-	-	6,456.6	Manually shut down to await LPGAC changeout
9/30/14 12:00	OFF	52,203.1	-	-	-	-	-	-	-	6,456.6	Manually shut down to await LPGAC changeout
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	OWS transfer pump shaft coupler sheared
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	Low air compressor oil

TABLE C-1: SOIL VAPOR EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)	
11/25/14 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	
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	
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	Shutdown caused by OWS high high alarm possibly due to power outage
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	Oil water separator pump failure
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	Compressor motor failure
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	Air compressor low oil
3/17/15 14:30	OFF	53,529.0	-	-	-	-	-	-	-	6,480.1	Broken pipe in enclosure
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	Broken bag filter repair
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	Air compressor low oil, breather filter release dropped oil level below set point
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	Air compressor low oil
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	Air compressor low oil
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	Power outage at system enclosure
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

TABLE C-1: SOIL VAPOR EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 (lbs/day)	Period (gallons)	Cumulative (gallons)	Operating Extraction Points
5/13/15 15:40	OFF	54,142.2	-	-	-	-	-	-	-	6,484.2	Shutdown to await carbon change out
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	Carbon vessel transfer pipe failure
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	Air stripper high high pressure due to clogged bag filters
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	Knock Out Tank high high level
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	Air compressor low pressure
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	Air stripper high high pressure due to clogged bag filters
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	Air compressor low pressure due to blown air line
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	Air compressor low oil
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	Sump high high level due to air stripper leak
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	Air stripper high high pressure due to clogged bag filters
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	Air compressor low oil
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	Air compressor low oil
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	Planned shutdown for severe weather
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

TABLE C-1: SOIL VAPOR EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 (lbs/day)	Period (gallons)	Cumulative (gallons)	Operating Extraction Points
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	Oil water separator broken float
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	Air compressor low pressure
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	Air Compressor Low Air Pressure
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	Air Stripper High High; Clogged Bag Filters
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	Sump High/Broken OWS Pump Nipple
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	Sump High/Broken OWS Pump Nipple
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	Oil/Water Separator High High
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	Oil/Water Separator High High
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
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	Shutdown for Air Stripper Cleaning and Oil Change
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

TABLE C-1: SOIL VAPOR EXTRACTION SYSTEM DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)	
4/28/16 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	-	-	0.00	-	-	-	-	6,577.0	Shutdown fo ASTHH due to Broken Float Tree Pin
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	-	-	0.00	-	-	-	-	6,577.0	Shutdown for Carbon Changeout
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	-	-	0.00	-	-	-	-	6,577.0	Shutdown Air Stripper High High
6/8/16 10:30	ON	60,303.8	-	-	0.00	-	-	-	-	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

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 C-2: SOIL VAPOR EXTRACTION SYSTEM INFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)
7/2/12 10:15	1.00	11.00	3.00	19.00	350	135	0.0005	4.26
8/27/12 8:34	0.30	1.90	0.40	2.80	180	135	0.0002	2.18
9/4/12 9:15	0.40	2.40	0.58	4.00	180	131	0.0002	2.13
10/1/12 10:45	1.80	6.40	1.30	7.20	320	127	0.0009	3.64
11/26/12 12:25	0.70	3.60	1.30	11.00	190	135	0.0004	2.30
12/3/12 9:50	0.14	0.79	0.30	2.60	230	128	0.0001	2.64
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	-

TABLE C-2: SOIL VAPOR EXTRACTION SYSTEM INFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)
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

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.
- BTEX values after 7/1/2013 were converted from ppb

TABLE C-3: SOIL VAPOR EXTRACTION SYSTEM EFFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)
7/2/12 10:20	0.51	4.50	0.95	5.60	160	135	0.0003	1.95
8/27/12 8:34	0.18	0.89	0.15	0.99	85	135	0.0001	1.03
9/4/12 9:20	0.19	1.30	0.24	1.70	97	131	0.0001	1.15
10/1/12 10:50	0.76	3.00	0.74	3.90	170	127	0.0004	1.93
11/26/12 12:30	0.14	0.43	0.13	1.00	38	135	0.0001	0.46
12/3/12 9:55	0.03	0.12	0.04	0.33	39	128	0.0000	0.45
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	<0.043	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	-

TABLE C-3: SOIL VAPOR EXTRACTION SYSTEM EFFLUENT ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)
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

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 D

IN-SITU GROUNDWATER REMEDIATION WELLS

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	

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	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	
	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														

TABLE D-2: CARBON PERFORMANCE ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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

TABLE D-2: CARBON PERFORMANCE ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 -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

TABLE D-2: CARBON PERFORMANCE ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 -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

TABLE D-2: CARBON PERFORMANCE ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 -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

TABLE D-2: CARBON PERFORMANCE ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 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

TABLE D-2: CARBON PERFORMANCE ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 -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

TABLE D-2: CARBON PERFORMANCE ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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 -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

TABLE D-2: CARBON PERFORMANCE ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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

TABLE D-2: CARBON PERFORMANCE ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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)
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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

APPENDIX E

OXYGEN REACTIVE ZONE



TABLE E-1: OXYGEN REACTIVE ZONE MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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	-	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

TABLE E-2: DISSOLVED OXYGEN MEASUREMENTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
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
	Dissovled 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

APPENDIX F

GROUNDWATER MONITORING DATA

APPENDIX F

GROUNDWATER MONITORING DATA

DESCRIPTION OF DATA TABLE

Overview

Chevron uses a central database to store groundwater monitoring data including laboratory analytical data. The tabulated data in Appendix C (Tables C-1 and C-2) are exported summaries of groundwater elevation data and analytical data for the past two years. Groundwater elevation data were measured using an interface probe in wells near the service station and a water level indicator at all other locations.

The following table lists the column headings in the table with a brief description of each.

Column Heading	Description
Date of Measurement	Date data were recorded.
Depth to Water (feet)	Depth to groundwater (ft)
TOC Elevation (feet)	Top of casing elevation (ft)
Water Table Elevation (feet)	Corrected water table elevation equation: (TOC) – (Depth to Water) + [(0.75)*(LPH Thickness)]
Depth to LPH (feet)	Depth to LPH (feet)
LPH Thickness (feet)	Equation: (Depth to Water-Depth to LPH)
LPH Elevation (feet)	Equation: (TOC-Depth to LPH)
Benzene (µg/L)	Laboratory reported concentration
Toluene (µg/L)	Laboratory reported concentration
Ethylbenzene (µg/L)	Laboratory reported concentration
m,p-Xylene (µg/L)	Laboratory reported concentration
o-Xylene (µg/L)	Laboratory reported concentration
Methyl-t-butyl ether (µg/L)	Laboratory reported concentration
TPH-GRO (µg/L)	Laboratory reported concentration

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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)	08/21/2014	17.800	158.28	140.48				
	03/31/2015	17.230		141.05				
	04/15/2015	17.000		141.28				
	09/02/2015	18.120		140.16				
	03/23/2016	17.360		140.92				
GP-11A(25-30)	08/21/2014	20.630	158.43	137.80				
	03/31/2015	20.260		138.17				
	09/02/2015	20.050		138.38				
	03/23/2016	18.700		139.73				
GP-11A(30-35)	08/21/2014	21.070	158.38	137.31				
	03/31/2015	21.000		137.38				
	09/02/2015	21.210		137.17				
	03/23/2016	21.270		137.11				
GP-11A(35-40)	08/21/2014	27.170	158.38	131.21				
	03/31/2015	26.850		131.53				
	09/02/2015	27.480		130.90				
	03/23/2016	27.600		130.78				
GP-24A	08/22/2014	31.960	170.83	138.87				
	03/31/2015	31.640		139.19				
	09/02/2015	33.250		137.58				
	03/23/2016	33.030		137.80				
GP-27R	04/11/2014		166.21					Top of Pump
	05/27/2014							Top of Pump
	06/24/2014	29.570		136.64				
	08/13/2014							Covered by Car
	08/21/2014	37.650		128.56				
	09/10/2014							Not Gauged - Pumping
	10/07/2014							Covered by Car
	11/06/2014	44.570		121.64				
	01/19/2015	36.830		129.38				Pumping
	02/24/2015							Covered by car
	03/31/2015	37.430		128.78				
	04/28/2015	31.230		134.98				
	05/07/2015	30.870		135.34				
	6/23/2015	37.510		128.70				
	07/27/2015	40.80		125.41				
	08/4/2015							
	09/2/2015							
	10/20/2015							
	11/17/2015							

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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 Cont'd	12/8/2015		166.21					
	1/5/2016	41.76		124.45				
	2/22/2016							Top of Pump @ 42.50
	03/23/2016							Pumping
	3/28/2016	41.53		124.68				Pumping
	4/4/2016	41.22		124.99				
	04/13/2016							Manifold
	5/31/2016	42.23		123.98				Pumping
GP-2E(45-50)	6/13/2016		168.17					
	08/21/2014	42.650		125.52				
	09/09/2014	43.000		125.17				
	03/31/2015	42.780		125.39				
	04/15/2015	42.800		125.37				
	09/02/2015	42.750		125.42				
	09/30/2015	42.920		125.25				
	03/23/2016	43.350		124.82				
GP-2E(50-55)	04/12/2016	43.570	168.27	124.60				
	08/21/2014	42.740		125.53				
	03/31/2015	42.850		125.42				
	09/02/2015	42.860		125.41				
GP-2E(55-60)	03/23/2016	43.410	168.53	124.86				
	08/21/2014	43.080		125.45				
	09/09/2014	43.340		125.19				
	03/31/2015	43.160		125.37				
	04/15/2015	43.180		125.35				
	09/02/2015	43.170		125.36				
	09/30/2015	43.300		125.23				
	09/30/2015	43.890		124.64				
GP-2F(45-50)	03/23/2016	43.760	159.59	124.77				
	04/12/2016	43.780		124.75				
	08/21/2014							Dry at 43.10
	09/09/2014							Dry
	03/31/2015	42.850		116.74				
	04/15/2015	42.820		116.77				
	09/02/2015	43.200		116.39				
	03/23/2016							Dry at 42.82
	04/12/2016							Dry at 42.82

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-2F(50-55)	08/21/2014	43.750	159.59	115.84				
	09/09/2014	43.320		116.27				
	03/31/2015	42.970		116.62				
	04/15/2015	43.150		116.44				
	09/02/2015	43.840		115.75				
	03/23/2016	43.930		115.66				
	04/12/2016	44.050		115.54				
GP-30A	04/11/2014	36.180	171.78	135.60				
	05/27/2014	39.950		131.83				
	06/24/2014	40.890		130.89				
	08/13/2014	39.300		132.48				
	08/21/2014	35.950		135.83				
	09/10/2014	41.990		129.79				
	10/07/2014	34.430		137.35				
	11/06/2014	42.200		129.58				
	01/19/2015	37.680		134.10				
	02/24/2015							Covered by ice
	03/31/2015	35.310		136.47				
	04/28/2015	36.820		134.96				
	05/07/2015	33.940		137.84				
	06/23/2015	33.360		138.42				
	07/27/2015							
	08/4/2015							
	09/02/2015	41.660		130.12				
	10/02/2015	41.60		130.18				
	10/20/2015	42.35		129.43				
	11/17/2015	38.74		133.04				
	12/8/2015	42.31		129.47				
	01/5/2016	38.49		133.29				
	02/22/2016	41.68		130.10				
	03/23/2016	41.380		130.40				
	03/28/2016	41.08		130.70				
	04/4/2016	41.40		130.38				
	04/13/2016	41.680		130.10				HS Installed
	05/31/2016	39.80		131.98				
	06/13/2016	41.25		130.53				
GP-35A	04/11/2014	34.280	171.10	136.82				
	05/27/2014	35.830		135.27				
	06/24/2014	36.640		134.46				
	08/13/2014	35.110		135.99				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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'd	08/22/2014	33.450	171.10	137.65				
GP-35A Cont'd	09/08/2014	43.870	171.10	127.23				
	10/07/2014	34.470		136.63				
	11/06/2014	43.130		127.97				
	01/19/2015	33.820		137.28				
	02/24/2015							Covered by snow pile
	03/31/2015	32.880		138.22				
	04/28/2015	39.730		131.37				
	05/07/2015	36.810		134.29				
	06/23/2015	35.350		135.75				
	7/27/2015	33.83		137.27				
	08/4/2015	33.67		137.43				
	09/02/2015	43.330		127.77				
	10/02/2015	41.600		129.50				
	10/20/2015	44.24		126.86				
	11/17/2015	36.73		134.37				
	12/8/2015	44.02		127.08				
	1/5/2016	35.31		135.79				
	2/22/2016	38.49		132.61				
	03/23/2016	37.20		133.90				
	3/28/2016	36.59		134.51				
	4/4/2016	37.16		133.94				
	04/13/2016	38.18		132.92				HS Installed
	5/31/2016	36.67		134.43				
	6/13/2016	36.04		135.06				
GP-39R	08/21/2014	41.36	171.81	130.45				
	09/10/2014							Not Gauged - Pumping
	03/31/2015	41.150		130.66				
	03/23/2016							Not Gauged - Pumping
GP-41A	04/13/2016		172.28					Manifold
	08/21/2014	40.840		131.44				
	03/31/2015	40.900		131.38				
	04/13/2015	40.980		131.30				
	09/02/2015	40.950		131.33				
GP-44A	03/23/2016	41.630	176.20	130.65				
	08/22/2014	30.480		145.72				
	03/31/2015	30.690		145.51				
	04/16/2015	30.990		145.21				
	09/02/2015	30.980		145.22				
	03/23/2016	30.740		145.46				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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(20-25)	08/21/2014	19.920	158.11	138.19				
	03/31/2015	17.800		140.31				
	09/02/2015	18.700		139.41				
	03/23/2016	18.410		139.70				
GP-7A(25-30)	08/21/2014	19.180	158.08	138.90				
	03/31/2015	18.000		140.08				
	09/02/2015	19.070		139.01				
	03/23/2016	18.670		139.41				
GP-7A(30-35)	08/21/2014	20.530	158.09	137.56				
	03/31/2015	19.750		138.34				
	09/02/2015	20.600		137.49				
	03/23/2016	20.750		137.34				
GP-7A(35-40)	08/21/2014	20.840	158.09	137.25				
	09/10/2014	21.330		136.76				
	03/31/2015	20.360		137.73				
	04/15/2015	20.810		137.28				
	09/02/2015	21.060		137.03				
	10/01/2015	20.760		137.33				
	03/23/2016	21.350		136.74				
	04/12/2016	21.550		136.54				
GP-7A(40-45)	08/21/2014	21.000	158.11	137.11				
	03/31/2015	20.400		137.71				
	09/02/2015	21.180		136.93				
	03/23/2016	21.390		136.72				
GP-9A(20-25)	08/21/2014	17.940	158.86	140.92				
	03/31/2015	16.280		142.58				
	09/02/2015	17.730		141.13				
	03/23/2016	16.660		142.20				
GP-9A(25-30)	08/21/2014	19.730	158.81	139.08				
	03/31/2015	20.060		138.75				
	09/02/2015	19.510		139.30				
	03/23/2016	19.890		138.92				
GP-9A(30-35)	08/21/2014	21.220	158.76	137.54				
	03/31/2015	21.670		137.09				
	09/02/2015	21.110		137.65				
	03/23/2016	21.470		137.29				
MP-7	04/11/2014	38.820	172.17	133.35				
	05/27/2014	37.670		134.50				
	06/24/2014	37.230		134.94				
	08/13/2014	37.650		134.52				

Well No.	Date of Measurement	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
MP-7 Cont'd	08/21/2014	40.310	172.17	131.86				
	09/10/2014	37.720		134.45				
	10/07/2014	37.510		134.66				
	11/06/2014	37.920		134.25				
	01/19/2015	37.650		134.52				
	02/24/2015	40.640		131.53				
	03/31/2015	40.150		132.02				LPH 40.14' BTOC
	04/16/2015	37.820		134.35				
	04/28/2015	37.410		134.76				
	05/07/2015	37.600		134.57				
	06/23/2015	40.040		132.13				
	7/27/2015	37.60		134.57				
	8/4/2015	36.84		135.33				
	09/02/2015	37.23		134.94				
	10/20/2015	37.95		134.22				
	11/17/2015	37.87		134.3				
	12/8/2015	38.18		133.99				
	1/5/2016	38.16		134.01				
	2/22/2016	38.26		133.91				
	03/23/2016	37.950		134.22				
	3/28/2016	37.64		134.53				
	4/4/2016	37.85		134.32				
	5/31/2016	37.71		134.46				
	6/13/2016	38.05		134.12				
MW-1	08/22/2014	31.630	170.46	138.83				
	03/31/2015	31.410		139.05				
	09/02/2015	32.300		138.16				
	03/23/2016	32.300		138.16				
MW-2	08/22/2014	31.640	171.41	139.77				
	03/31/2015	31.570		139.84				
	09/02/2015	33.270		138.14				
	03/23/2016	32.250		139.16				
MW-3	08/22/2014		171.41					Dry at 29.05
	03/31/2015	28.520		142.89				
	03/23/2016							Dry at 28.14
MW-4	08/22/2014	29.640	171.14	141.50				
	03/31/2015	29.860		141.28				
	09/02/2015	30.160		140.98				
	03/23/2016	30.310		140.83				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-5	08/22/2014	31.360	172.31	140.95				
	09/10/2014							Dry at 33.7
	03/31/2015	30.940		141.37				
	04/13/2015	32.440		139.87				
	09/02/2015	33.700		138.61				
	10/02/2015	44.300		128.01				
	03/23/2016	33.300		139.01				
	04/13/2016							Dry 33-35
MW-6	08/22/2014	31.990	171.12	139.13				
	03/31/2015	31.640		139.48				
	04/16/2015	33.670		137.45				
	09/02/2015	33.830		137.29				
	03/23/2016	33.700		137.42				
MW-7	04/11/2014	51.960	177.11	125.15				
	05/27/2014	51.810		125.30				
	06/24/2014	52.150		124.96				
	08/13/2014	56.950		120.16				
	08/21/2014	40.610		136.50				
	09/10/2014							Not Gauged - Pumping
	10/07/2014	56.980		120.13				
	11/06/2014	56.930		120.18				
	01/19/2015	55.380		121.73				Pumping
	02/24/2015	40.490		136.62				
	03/31/2015	39.890		137.22				
	04/28/2015	57.000		120.11				
	05/07/2015	57.180		119.93				
	06/23/2015	40.070		137.04				
	7/27/2015	57.11		120.00				
	08/4/2015	57.32		119.79				
	09/2/2015	56.98		120.13				
	10/20/2015	57.15		119.96				
	11/17/2015	56.63		120.48				
	12/8/2015							Top of Pump 55.35
	1/5/2016	57.04		120.07				
	2/22/2016							Top of Pump 56.94
	03/23/2016							Not Gauged - Pumping
	3/28/2016	57.00		120.11				Pumping
	4/4/2016	57.01		120.10				
	04/13/2016							Manifold
	5/31/2016	57.35		119.76				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-7 Cont'd	6/13/2016	57.31	177.11	119.80				
MW-12	08/21/2014	35.410	177.11	141.70				
	03/31/2015	35.130		141.98				
	09/02/2015	41.900		135.21				
	03/23/2016	42.050		135.06				
MW-13	08/22/2014	35.420	172.47	137.05				
	03/31/2015	35.120		137.35				
	09/02/2015	36.220		136.25				
	03/23/2016	36.580		135.89				
MW-15	08/22/2014	30.360	172.34	141.98				
	09/10/2014	30.730		141.61				
	03/31/2015							Blocked by vehicle
	04/13/2015	30.670		141.67				
	09/02/2015	30.840		141.50				
	10/02/2015	43.400		128.94				
	03/23/2016	30.570		141.77				
	04/13/2016	30.590		141.75				
MW-16	04/11/2014	38.230	171.05	132.82				
	05/27/2014	36.370		134.68				
	06/24/2014	38.350		132.7				
	08/13/2014	38.310		132.74				
	08/21/2014	37.370		133.68				
	10/07/2014	37.400		133.65				
	11/06/2014	39.600		131.45				
	01/19/2015	37.030		134.02				Pumping
	02/24/2015	35.880		135.17				
	03/31/2015	34.920		136.13				
	04/16/2015	37.240		133.81				
	04/28/2015	36.820		134.23				
	05/07/2015	35.680		135.37				
	06/23/2015	35.000		136.05				
	07/27/2015	36.54		134.51				
	08/4/2015	36.55		134.5				
	09/02/2015	38.54		132.51				
	10/20/2015	40.25		130.8				
	11/17/2015	39.67		131.38				
	12/8/2015	40.43		130.62				
	1/5/2016	39.33		131.72				
	2/22/2016	38.49		132.56				
	03/23/2016							Dry at 41.50

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-16 Cont'd	3/28/2016	40.25	171.05	130.80				
	4/4/2016	39.93		131.12				
	5/31/2016	40.30		130.75				
	6/13/2016	40.40		130.65				
MW-17	08/21/2014	35.960	170.67	134.71				
	09/10/2014							Not Gauged - Pumping
	03/31/2015	34.770		135.90				
	03/23/2016							Not Gauged - Pumping
	04/13/2016							Manifold
MW-18	04/11/2014	30.890	168.45	137.56				
	05/27/2014	29.450		139.00				
	06/24/2014	29.760		138.69				
	08/13/2014	30.590		137.86				
	08/21/2014	30.380		138.07				
	10/07/2014	31.040		137.41				
	11/06/2014	31.910		136.54				
	01/19/2015	31.300		137.15				
	02/24/2015							Covered by snow
	03/31/2015	30.050		138.40				
	04/15/2015	30.230		138.22				
	04/28/2015	30.420		138.03				
	05/07/2015	30.210		138.24				
	06/23/2015	30.100		138.35				
	07/27/2015	29.95		138.50				
	08/4/2015	30.35		138.10				
	09/02/2015	30.52		137.93				
	10/20/2015	32.00		136.45				
	11/17/2015	33.38		135.07				
	12/8/2015	34.12		134.33				
	1/5/2016	33.52		134.93				
	2/22/2016	33.51		134.94				
	03/23/2016	31.720		136.73				
	3/28/2016	31.80		136.65				
	4/4/2016	31.90		136.55				
	5/31/2016	31.61		136.84				
	6/13/2016	31.53		136.92				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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	08/21/2014	33.850	169.56	135.71				
	03/31/2015	33.580		135.98				
	04/15/2015	34.230		135.33				
	09/02/2015	34.330		135.23				
	03/23/2016	35.000		134.56				
MW-20	08/22/2014	36.570	176.27	139.70				
	03/31/2015	36.530		139.74				
	04/16/2015	36.720		139.55				
	09/02/2015	36.330		139.94				
	03/23/2016	37.200		139.07				
MW-21	08/22/2014	35.250	173.37	138.12				
	09/10/2014	35.480		137.89				
	03/31/2015	34.980		138.39				
	04/16/2015	35.480		137.89				
	09/02/2015	38.200		135.17				
	09/30/2015	30.740		142.63				
	03/23/2016	36.010		137.36				
	04/13/2016	36.240		137.13				
MW-22R	04/11/2014		165.08					Top of Pump
	05/27/2014							Top of Pump
	06/24/2014	40.100		124.98				
	08/13/2014	40.200		124.88				Depth to Pump
	08/21/2014	37.020		128.06				
	09/10/2014							Not Gauged - Pumping
	10/07/2014	40.410		124.67				
	11/06/2014	35.150		129.93				Top of Pump
	01/19/2015	40.300		124.78				
	02/24/2015	36.950		128.13				
	03/31/2015	36.330		128.75				
	04/28/2015							Top of Pump 41.20
	05/07/2015	40.100		124.98				Top of Pump
	06/23/2015	36.340		128.74				
	07/27/2015	39.25		125.83				Top of Pump
	08/4/2015							Top of Pump 41.25
	09/02/2015							Top of Pump 40.32
	10/20/2015	40.21		124.87				
	11/17/2015							Top of Pump 40.30
	12/8/2015							Top of Pump 39.85
	1/5/2016	39.00		126.08				
	2/22/2016							Top of Pump 40.30

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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'd	03/23/2016		165.08					Not Gauged - Pumping
	3/28/2016	39.94		125.14				Pumping
	4/4/2016	41.65		123.43				
	04/13/2016							Manifold
	5/31/2016	40.15		124.93				Pumping
	6/13/2016	41.03		124.05				
MW-23	08/21/2014	41.970	171.31	129.34				
	03/31/2015	41.980		129.33				
	04/13/2015	41.970		129.34				
	09/02/2015	42.510		128.80				
	03/23/2016	43.100		128.21				
MW-24A	04/11/2014	19.860	157.38	137.52				
	05/27/2014	18.710		138.67				
	06/24/2014	19.100		138.28				
	08/13/2014	19.950		137.43				
	08/21/2014	19.930		137.45				
	10/07/2014	20.530		136.85				
	11/06/2014	20.480		136.90				
	01/19/2015	20.550		136.83				
	02/24/2015							Covered by snow
	03/31/2015	19.220		138.16				
	04/28/2015	19.540		137.84				
	05/07/2015	19.450		137.93				
	6/23/2015	19.550		137.83				
	07/27/2015	19.40		137.98				
	08/4/2015	19.95		137.43				
	09/02/2015	19.95		137.43				
	10/20/2015	20.74		136.64				
	11/17/2015	21.23		136.15				
	12/8/2015	21.46		135.92				
	1/5/2016	21.38		136.00				
	2/22/2016	20.65		136.73				
	03/23/2016	20.190		137.19				
	3/28/2016	20.25		137.13				
	4/4/2016	20.34		137.04				
	5/31/2016	20.59		136.79				
	6/13/2016	20.71		136.67				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-24B	08/21/2014	19.910	157.45	137.54				
	03/31/2015	19.170		138.28				
	04/15/2015	19.370		138.08				
	09/02/2015	19.970		137.48				
	03/23/2016	20.190		137.26				
MW-25A	08/21/2014	26.040	149.99	123.95				
	03/31/2015	26.190		123.80				
	04/15/2015	26.140		123.85				
	09/02/2015	26.090		123.90				
	03/23/2016	26.420		123.57				
MW-25B	08/21/2014	26.940	150.95	124.01				
	09/10/2014	26.870		124.08				
	03/31/2015	26.510		124.44				
	04/15/2015	26.330		124.62				
	09/02/2015	27.470		123.48				
	10/01/2015	26.580		124.37				
	03/23/2016	26.490		124.46				
	04/12/2016	26.880		124.07				
MW-26A	08/21/2014	4.6000	135.62	131.02				
	03/31/2015	2.2700		133.35				
	04/14/2015	2.8400		132.78				
	09/02/2015	4.7000		130.92				
	03/23/2016	3.4600		132.16				
MW-26B	08/21/2014	11.180	135.74	124.56				
	09/08/2014	9.4000		126.34				
	03/31/2015	7.6500		128.09				
	04/14/2015	7.0100		128.73				
	09/02/2015	7.8000		127.94				
	10/01/2015	7.3000		128.44				
	03/23/2016	12.440		123.30				
	04/11/2016	8.940		126.80				
MW-27A	08/21/2014	9.9600	128.92	118.96				
	09/08/2014	10.140		118.78				
	03/31/2015	9.8400		119.08				
	04/15/2015	9.8700		119.05				
	09/02/2015	10.030		118.89				
	10/01/2015	10.190		118.73				
	03/23/2016	10.110		118.81				
	04/13/2016							HS

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-27B	08/21/2014	12.540	128.92	116.38				
	09/08/2014	12.860		116.06				
	03/31/2015	12.900		116.02				
	04/15/2015	12.690		116.23				
	09/02/2015	12.950		115.97				
	10/01/2015	12.910		116.01				
	03/23/2016	12.860		116.06				
	04/11/2016	12.710		116.21				
MW-28A	08/21/2014	7.2500	126.13	118.88				
	03/31/2015	6.7200		119.41				
	09/02/2015	7.1400		118.99				
	03/23/2016	6.6200		119.51				
MW-28B	08/21/2014	6.9400	125.49	118.55				
	03/31/2015	6.6700		118.82				
	04/13/2015	6.7000		118.79				
	09/02/2015	6.7900		118.70				
	03/23/2016	6.4600		119.03				
MW-29A	08/21/2014	7.1800	115.70	108.52				
	03/31/2015	6.5200		109.18				
	04/13/2015	6.6800		109.02				
	09/02/2015	7.1800		108.52				
	03/23/2016	6.6500		109.05				
MW-29B	08/21/2014	6.0000	115.54	109.54				
	09/08/2014	6.0200		109.52				
	03/31/2015	5.6000		109.94				
	04/13/2015	5.6000		109.94				
	09/02/2015	5.9500		109.59				
	09/30/2015	10.180		105.36				
	03/23/2016	5.6100		109.93				
	04/11/2016	5.3400		110.2				
MW-30R	08/21/2014	19.290	156.75	137.46				
	03/31/2015	18.790		137.96				
	04/13/2015	18.700		138.05				
	09/02/2015	19.310		137.44				
	03/23/2016	19.410		137.34				
MW-31A	08/21/2014	6.1200	135.19	129.07				
	03/31/2015	4.5900		130.60				
	09/02/2015	5.7900		129.40				
	03/23/2016	5.0500		130.14				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-31B	08/21/2014	5.6300	135.81	130.18				
	03/31/2015	4.4100		131.40				
	04/13/2015	4.5800		131.23				
	09/02/2015	5.3000		130.51				
	03/23/2016	5.7700		130.04				
MW-32	08/21/2014	8.9200	128.47	119.55				
	03/31/2015	8.0000		120.47				
	09/02/2015	9.0600		119.41				
	03/23/2016	8.4500		120.02				
MW-33A	08/21/2014	7.8600	126.35	118.49				
	03/31/2015	7.0200		119.33				
	04/13/2015	7.5300		118.82				
	09/02/2015	7.5100		118.84				
	03/23/2016	6.5900		119.76				
MW-33B	08/21/2014	7.5000	126.10	118.60				
	03/31/2015	7.1600		118.94				
	04/13/2015	7.2700		118.83				
	09/02/2015	7.3100		118.79				
	03/23/2016	6.9500		119.15				
MW-33C	08/21/2014	7.0600	125.84	118.78				
	03/31/2015	6.7500		119.09				
	04/13/2015	6.8100		119.03				
	09/02/2015	6.9000		118.94				
	03/23/2016	6.5600		119.28				
MW-33S	08/21/2014	7.0500	126.58	119.53				
	09/08/2014	7.0200		119.56				
	03/31/2015	6.9800		119.60				
	04/13/2015	7.0100		119.57				
	09/02/2015	7.0500		119.53				
	09/30/2015	5.9500		120.63				
	03/23/2016	6.8400		119.74				
	04/11/2016	6.2600		120.32				Grab Sample
MW-34A	08/21/2014	9.1000	126.58	117.48				
	03/31/2015	8.7600		117.82				
	09/02/2015	8.9300		117.65				
	03/23/2016	8.5400		118.04				
MW-34B	08/21/2014	8.5500	107.41	98.86				
	03/31/2015	9.0000		98.41				
	09/02/2015	8.5800		98.83				
	03/23/2016	8.6500		98.76				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-37	08/21/2014		152.61					Dry at 15.08
	03/31/2015	14.820		137.79				
	09/02/2015	15.140		137.47				
	03/23/2016							Dry at 14.81
MW-38	08/21/2014	10.280	146.91	136.63				
	03/31/2015	9.3300		137.58				
	09/02/2015	10.300		136.61				
	03/23/2016	9.5000		137.41				
MW-39R	08/21/2014	16.280	146.01	129.73				
	03/31/2015	15.940		130.07				
	09/02/2015	16.350		129.66				
	03/23/2016	15.710		130.3				
MW-40	08/21/2014	21.540	145.18	123.64				
	09/10/2014	21.760		123.42				
	03/31/2015	21.450		123.73				
	04/14/2015	21.910		123.27				
	09/02/2015	21.600		123.58				
	10/01/2015	21.900		123.28				
	03/23/2016	21.720		123.46				
	04/12/2016	21.840		123.34				
MW-41A	08/21/2014	18.260	136.96	118.70				
	03/31/2015	18.320		118.64				
	04/14/2015	18.400		118.56				
	09/02/2015	18.260		118.70				
	03/23/2016	18.700		118.26				
MW-41B	08/21/2014	18.730	136.82	118.09				
	03/31/2015	18.800		118.02				
	04/14/2015	18.880		117.94				
	09/02/2015	18.750		118.07				
	03/23/2016	19.200		117.62				
MW-42	08/21/2014	7.8400	140.03	132.19				
	03/31/2015	6.6900		133.34				
	04/14/2015	6.9400		133.09				
	09/02/2015	7.7400		132.29				
	03/23/2016	7.5500		132.48				
MW-43A	08/21/2014	4.2900	133.98	129.69				
	03/31/2015	2.3500		131.63				
	04/14/2015	2.8000		131.18				
	09/02/2015	4.5000		129.48				
	03/23/2016	3.2800		130.70				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-43B	08/21/2014	9.2000	134.09	124.89				
	09/08/2014	9.5300		124.56				
	03/31/2015	8.4000		125.69				
	04/14/2015	8.5500		125.54				
	09/02/2015	9.2000		124.89				
	10/01/2015	9.3400		124.75				
	03/23/2016	8.7500		125.34				
	04/11/2016	8.8500		125.24				
MW-44A	08/21/2014	9.2700	130.22	120.95				
	09/08/2014	9.4700		120.75				
	03/31/2015	8.9000		121.32				
	04/14/2015	8.9600		121.26				
	09/02/2015	9.3400		120.88				
	03/23/2016	9.2100		121.01				
	04/11/2016	9.3100		120.91				
MW-44B	08/21/2014	11.860	130.24	118.38				
	09/08/2014	11.990		118.25				
	03/31/2015	12.000		118.24				
	04/14/2015	11.750		118.49				
	09/02/2015	11.910		118.33				
	10/01/2015	9.6100		120.63				
	03/23/2016	12.590		117.65				
	04/11/2016	12.020		118.22				
MW-45	08/21/2014	41.390	173.89	132.50				
	09/10/2014	42.640		131.25				
	03/31/2015	41.270		132.62				
	04/16/2015	42.210		131.68				
	09/02/2015	42.000		131.89				
	09/30/2015	34.900		138.99				
	03/23/2016	42.780		131.11				
	04/13/2016	43.000		130.89				
MW-46	08/21/2014	46.070	174.12	128.05				
	03/31/2015	46.150		127.97				
	04/13/2015	46.110		128.01				
	09/02/2015	46.270		127.85				
	03/23/2016	46.860		127.26				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-47	08/21/2014	45.080	171.50	126.42				
	09/09/2014	45.380		126.12				
	03/31/2015	45.240		126.26				
	04/15/2015	45.270		126.23				
	09/02/2015	45.190		126.31				
	10/02/2015	41.330		130.17				
	03/23/2016	45.830		125.67				
	04/13/2016	45.910		125.59				
MW-48	08/21/2014	40.980	165.96	124.98				
	03/31/2015	41.000		124.96				
	04/15/2015	41.180		124.78				
	09/02/2015	41.200		124.76				
	03/23/2016	41.710		124.25				
MW-49	08/21/2014	44.110	159.15	115.04				
	09/08/2014	44.320		114.83				
	03/31/2015	43.260		115.89				
	04/13/2015	45.390		113.76				
	09/02/2015	44.170		114.98				
	09/30/2015	45.440		113.71				
	03/23/2016	44.330		114.82				
	04/13/2016	44.490		114.66				
MW-50	08/21/2014	36.680	156.12	119.44				
	09/09/2014	36.770		119.35				
	03/31/2015	36.540		119.58				
	04/15/2015	36.520		119.60				
	09/02/2015	36.450		119.67				
	10/02/2015	36.540		119.58				
	03/23/2016	36.960		119.16				
	04/13/2016	37.040		119.08				
MW-51	08/21/2014	49.000	158.12	109.12				
	09/09/2014	49.110		109.01				
	03/31/2015	48.850		109.27				
	04/15/2015	48.910		109.21				
	09/02/2015	48.880		109.24				
	10/02/2015	49.050		109.07				
	03/23/2016	49.190		108.93				
	04/13/2016	49.400		108.72				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-52	08/21/2014	4.6000	127.58	122.98				
	03/31/2015	3.5600		124.02				
	09/02/2015	4.9600		122.62				
	03/23/2016	3.8800		123.70				
MW-53	08/21/2014	5.7700	116.18	110.41				
	09/08/2014	5.9500		110.23				
	03/31/2015	5.6800		110.50				
	04/13/2015	5.6700		110.51				
	09/02/2015	5.9700		110.21				
	09/30/2015	5.8200		110.36				
	03/23/2016	5.6300		110.55				
	04/11/2016	5.5000		110.68				
MW-54	08/21/2014	5.5000	121.76	116.26				
	03/31/2015	4.6400		117.12				
	04/13/2015	4.9500		116.81				
	09/02/2015	5.7300		116.03				
	03/23/2016	4.8600		116.90				
MW-55	08/22/2014	1.9700	131.49	129.52				
	03/31/2015	1.3000		130.19				
	04/13/2015	1.7400		129.75				
	03/23/2016	1.5500		129.94				
MW-58	08/21/2014	6.4600	134.97	128.51				
	09/08/2014	6.9300		128.04				
	03/31/2015	6.5700		128.40				
	04/14/2015	6.5100		128.46				
	09/02/2015	7.5600		127.41				
	10/01/2015	12.000		122.97				
	03/23/2016	7.5700		127.40				
	04/11/2016	6.600		128.37				
MW-59	08/21/2014	10.310	131.10	120.79				
	09/08/2014	10.610		120.49				
	03/31/2015	9.7800		121.32				
	04/14/2015	9.9300		121.17				
	09/02/2015	10.110		120.99				
	10/01/2015	6.8200		124.28				
	03/23/2016	9.5900		121.51				
	04/11/2016	9.5900		121.51				

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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-60	08/21/2014	14.060	131.08	117.02				
	03/31/2015	11.680		119.40				
	04/14/2015	10.710		120.37				
	09/02/2015	13.400		117.68				
	03/23/2016	10.930		120.15				
MW-61A	08/21/2014	20.210	158.49	138.28				
	09/10/2014	20.590		137.90				
	03/31/2015	19.900		138.59				
	04/13/2015	20.310		138.18				
	09/02/2015	20.270		138.22				
	09/30/2015	20.500		137.99				
	03/23/2016	20.130		138.36				
MW-61B	04/12/2016	20.610	157.54	137.88				HS Installed
	08/21/2014	21.450		136.09				
	09/10/2014	23.140		134.40				
	03/31/2015	21.270		136.27				
	04/15/2015	22.540		135.00				
	09/02/2015	23.000		134.54				
	10/01/2015	23.050		134.49				
	03/23/2016	23.260		134.28				
MW-62A	04/12/2016	23.430	148.58	134.11				
	08/21/2014	11.380		137.20				
	03/31/2015	9.9000		138.68				
	04/13/2015	10.380		138.20				
	09/02/2015	11.360		137.22				
MW-62B	03/23/2016	10.610	148.50	137.97				
	08/21/2014	12.820		135.68				
	09/10/2014	13.850		134.65				
	03/31/2015	12.470		136.03				
	04/14/2015	12.560		135.94				
	09/02/2015	13.250		135.25				
	10/01/2015	13.650		134.85				
	03/23/2016	13.110		135.39				
PTW-B	04/12/2016	13.350	171.75	135.15				
	08/21/2014	35.140		136.61				
	09/10/2014							Not Gauged - Pumping
	03/31/2015	34.890		136.86				
	03/23/2016							Not Gauged - Pumping
	04/13/2016							Manifold

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Date of Measurement	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
RW-1	08/22/2014	37.510	173.36	135.85				
	09/10/2014							Not Gauged - Pumping
	03/31/2015	36.950		136.41				
	03/23/2016							Not Gauged - Pumping
	04/13/2016							Manifold
RW-2	08/21/2014	35.690	172.21	136.52				
	09/10/2014							Not Gauged - Pumping
	03/31/2015	34.960		137.25				
	03/23/2016							Not Gauged - Pumping
	04/13/2016							Manifold
RW-3	08/22/2014	32.070	171.62	139.55				
	09/10/2014							Not Gauged - Pumping
	03/31/2015	32.050		139.57				
	03/23/2016							Not Gauged - Pumping
	04/13/2016							Manifold
RW-4	04/11/2014		171.62					Top of Pump
	05/27/2014							Top of Pump
	06/24/2014	41.000		130.62				
	08/13/2014	40.610		131.01				Depth to Pump
	08/21/2014	35.920		135.70				
	09/10/2014							Not Gauged - Pumping
	10/07/2014	44.580		127.04				Depth to Pump
	11/06/2014	42.330		129.29				Top of Pump
	01/19/2015	41.750		129.87				Top of pump; pumping
	02/24/2015	36.320		135.30				
	03/31/2015	36.110		135.51				
	04/28/2015							Top of pump 47.90
	05/07/2015	41.350		130.27				Top of Pump
	06/23/2015	36.230		135.39				
	07/27/2015	50.25		121.37				
	08/4/2015							
	09/02/2015							
	10/20/2015							
	11/17/2015	50.45		121.17				
	12/8/2015							
	1/5/2016							Top of Pump 46.72
	2/22/2016							Top of Pump 41.40
	03/23/2016							Pumping
	3/28/2016							Top of Pump 47.50
	4/4/2016							Top of Pump 47.60

Table F-1: GROUNDWATER MONITORING DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND



Well No.	Date of Measurement	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
RW-4 Cont'd	04/13/2016		171.62					Manifold
	5/31/2016							Top of Pump 49.70
	6/13/2016							Top of Pump 42.62
RW-5	09/10/2014		171.75					Pumping
	04/13/2016							Manifold

Table F-2: GROUNDWATER ANALYTICAL DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2015
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m,p-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)	04/16/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/15/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
GP-24A	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
GP-27R	04/15/2014	76	35	3.6	10	10		68	350
	09/10/2014	35	10	1.9			<10	57	210
	04/16/2015	3.2	11	3.1			31	9.8	470
	10/05/2015	<1.0	<1.0	<1.0			<5.0	2.2	<100
	04/13/2016	41	9.2	1.2			<5.0	57	190
GP-2E(45-50)	04/15/2014	6.9	<1.0	<1.0	<5.0	<5.0		130	120
	09/09/2014	1.4	<1.0	<1.0	<5.0	<5.0		75	<100
	04/15/2015	<1.0	<1.0	<1.0			<5.0	38	<100
	09/30/2015	<1.0	<1.0	<1.0			<5.0	12	<100
	04/12/2016	<1.0	<1.0	<1.0			<5.0	8.8	<100
GP-2E(55-60)	04/15/2014	73	3.6	<2.0	<10	<10		290	500
	09/09/2014	40	<1.0	<1.0	<5.0	<5.0		190	300
	04/15/2015	<1.0	<1.0	<1.0			<5.0	24	<100
	09/30/2015	2.1	<1.0	<1.0			<5.0	34	<100
	04/12/2016	<1.0	<1.0	<1.0			<5.0	9.9	<100
GP-2F(50-55)	04/15/2014	39	<2.0	<2.0	<10	15		250	300
	09/09/2014	43	<2.0	<2.0	<10	21		350	420
	04/15/2015	49	<2.0	<2.0			<10	270	580
	09/30/2015	53	<1.0	<1.0			<5.0	360	530
	04/12/2016	68	<2.0	<2.0			<10	340	560
GP-30A	04/17/2014	8500	10000	750	4300	2600		3500	57000
	09/10/2014	4900	6400	720			5600	4900	65000
	04/16/2015	2900	3600	360			2600	970	24000
	10/02/2015	5900	6100	440			3800	2700	34000
	04/13/2016	6700	10000	600			4000	1200	48000
GP-35A	04/17/2014	770	3300	380	2900	2200		13	27000
	09/10/2014	230	460	91			1000	13	7200
	04/16/2015	400	1400	530			3000	11	27000
	10/02/2015	390	720	200			1300	<5.0	7900
	04/13/2016	650	3800	820			6300	<20	34000
GP-39R	04/15/2014	130	59	4.9	16	21		160	640
	09/10/2014	120	62	5.9			48	220	850
	04/16/2015	1.8	<1.0	<1.0			<5.0	65	130
	10/02/2015	27	1.4	<1.0			5.7	100	160
	04/13/2016	4.7	<1.0	<1.0			<5.0	49	<100
GP-41A	04/17/2014	2.1	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100

Table F-2: GROUNDWATER ANALYTICAL DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2015
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m,p-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
GP-44A	04/16/2014	<2.0	21	92	470	190		<2.0	9500
	04/16/2015	<1.0	2.1	34			240	<1.0	8200
GP-7A(20-25)	04/16/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
GP-7A(30-35)	04/16/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
GP-7A(35-40)	04/16/2014	31	<1.0	40	<5.0	<5.0		240	1200
	09/09/2014	25	<1.0	18	<5.0	<5.0		220	820
	04/15/2015	5.3	<1.0	2.4			<5.0	23	130
	10/01/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	04/12/2016	68	1	2.3			6.6	240	840
GP-9A(20-25)	04/16/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
ISGR-1 DEEP	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		5.4	<100
	09/10/2014	<1.0	<1.0	<1.0	<5.0	<5.0		6.9	<100
	04/16/2015	<1.0	<1.0	<1.0			<5.0	4.3	<100
	10/05/2015	<1.0	<1.0	<1.0			<5.0	1.3	<100
	04/12/2016	<1.0	<1.0	<1.0			<5.0	3.4	<100
ISGR-1 SHALLOW	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	09/10/2014	<1.0	<1.0	<1.0	<5.0	6.1		<1.0	890
	04/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	180
	10/05/2015	<1.0	1	1			10	<1.0	<100
	04/12/2016	<1.0	<1.0	<1.0			<5.0	<1.0	440
ISGR-2 DEEP	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		2.5	<100
	09/10/2014	<1.0	<1.0	<1.0	<5.0	<5.0		2.8	<100
	04/16/2015	<1.0	<1.0	<1.0			<5.0	2.4	<100
	10/05/2015	<1.0	<1.0	<1.0			<5.0	4.6	<100
	04/12/2016	<1.0	<1.0	<1.0			<5.0	4.8	<100
ISGR-2 SHALLOW	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	09/10/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/05/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	04/12/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MP-7	04/16/2014	3200	3500	820	3300	1600		2200	220000
	09/10/2014	1700	1200	320			2100	1300	28000
MW-15	04/16/2014	2.2	6.6	1.2	<5.0	<5.0		<1.0	<100
	09/10/2014	4.2	22	5.7			30	<1.0	240
	04/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/02/2015	4.4	8.1	2.2			6.4	<1.0	<100
	04/13/2016	3.7	17	7.7			27	<1.0	370
MW-16	04/16/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/16/2015	<1.0	<1.0	<1.0			<5.0	1.3	<100

Table F-2: GROUNDWATER ANALYTICAL DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2015
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m,p-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-17	04/15/2014	4700	8600	950	4100	2100		3700	43000
	09/10/2014	3100	7100	760			5300	2800	43000
	04/16/2015	2700	4400	640			3700	1900	34000
	10/02/2015	3000	4600	620			3800	2800	37000
	04/13/2016	2600	4000	580			3400	2300	38000
MW-18	04/15/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	15000
	04/15/2015	<1.0	<1.0	<1.0			<5.0	<1.0	270
MW-19	04/15/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/15/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-20	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	360
	04/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	430
MW-21	04/17/2014	7.5	<1.0	<1.0	<5.0	<5.0		12	430
	09/10/2014	7.8	<1.0	<1.0			<10	15	380
	04/16/2015	4.7	<1.0	<1.0			6.7	13	400
	10/05/2015	4	1.2	<1.0			<5.0	9	230
	04/13/2016	4.7	<1.0	<1.0			<5.0	<1.0	360
MW-22R	04/15/2014	3300	6500	700	3000	1600		1500	37000
	09/10/2014	2000	5000	550			3800	1500	30000
	04/16/2015	2200	4400	630			3800	1500	32000
	10/02/2015	2500	4000	570			3200	1800	32000
	04/13/2016	1600	2800	460			2500	1000	24000
MW-23	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		1.9	<100
	04/16/2015	<1.0	<1.0	<1.0			<5.0	1.2	<100
MW-24A	04/16/2014	<1.0	<1.0	22	<5.0	7.3		<1.0	6900
MW-24B	04/16/2014	<1.0	<1.0	5.1	<5.0	<5.0		<1.0	3000
	04/15/2015	<1.0	<1.0	9.1			<5.0	<1.0	1600
MW-25A	04/16/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/15/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-25B	04/16/2014	23	<1.0	<1.0	<5.0	<5.0		25	<100
	09/09/2014	430	<2.0	<2.0	<10	33		430	1200
	04/15/2015	150	<2.0	<2.0			<10	230	580
	10/01/2015	94	<1.0	<1.0			<5.0	190	300
	04/12/2016	52	<1.0	<1.0			<5.0	150	310
MW-26A	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/14/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-26B	04/14/2014	340	<2.0	<2.0	<10	31		140	870
	09/08/2014	520	<5.0	<5.0	<25	36		230	1300
	04/14/2015	320	<1.0	<1.0			41	150	1300
	10/01/2015	600	<5.0	<5.0			38	320	1200
	04/11/2016	450	<2.0	<2.0			44	240	1600

Table F-2: GROUNDWATER ANALYTICAL DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2015
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m,p-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-27A	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		13	<100
	09/08/2014	<1.0	<1.0	<1.0	<5.0	<5.0		1.7	<100
	04/15/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	10/01/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	04/13/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-27B	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		71	<100
	09/08/2014	<1.0	<1.0	<1.0	<5.0	<5.0		72	<100
	04/15/2015	<1.0	<1.0	<1.0			<5.0	68	<100
	10/01/2015	<1.0	<1.0	<1.0			<5.0	91	<100
	04/11/2016	<1.0	<1.0	<1.0			<5.0	82	120
MW-28A	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
MW-28B	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		2.1	<100
	04/13/2015	<1.0	<1.0	<1.0			<5.0	5.7	<100
MW-29A	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/13/2015	<1.0	<1.0	<1.0			<5.0	1.1	<100
MW-29B	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		58	<100
	09/08/2014	<1.0	<1.0	<1.0	<5.0	<5.0		80	<100
	04/13/2015	<1.0	<1.0	<1.0			<5.0	120	<100
	09/30/2015	<1.0	<1.0	<1.0			<5.0	77	100
	04/11/2016	<1.0	<1.0	<1.0			<5.0	72	<100
MW-30R	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-31B	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/13/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-33A	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/13/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-33B	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		1	<100
	04/13/2015	<1.0	<1.0	<1.0			<5.0	1.1	<100
MW-33C	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/13/2015	<1.0	<1.0	<1.0			<5.0	1.2	<100
MW-33S	04/11/2016	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-38	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
MW-39R	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
MW-40	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		1.8	<100
	09/09/2014	<1.0	<1.0	<1.0	<5.0	<5.0		1.9	<100
	04/14/2015	<1.0	<1.0	<1.0			<5.0	11	<100
	10/01/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	04/12/2016	<1.0	<1.0	<1.0			<5.0	4.8	<100
MW-41A	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/14/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-41B	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		12	<100
	04/14/2015	<1.0	<1.0	<1.0			<5.0	12	<100

Table F-2: GROUNDWATER ANALYTICAL DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2015
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m,p-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-42	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		2.3	<100
	04/14/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-43A	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/14/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-43B	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		3.8	<100
	09/08/2014	<1.0	<1.0	<1.0	<5.0	<5.0		2.1	<100
	04/14/2015	<1.0	<1.0	<1.0			<5.0	2.3	<100
	10/01/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	04/11/2016	<1.0	<1.0	<1.0			<5.0	2.5	<100
MW-44A	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		7.1	<100
	09/08/2014	<1.0	<1.0	<1.0	<5.0	<5.0		6.2	<100
	04/14/2015	<1.0	<1.0	<1.0			<5.0	8	<100
	10/01/2015	<1.0	<1.0	<1.0			<5.0	1.6	<100
	04/11/2016	<1.0	<1.0	<1.0			<5.0	6.3	<100
MW-44B	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		51	<100
	09/08/2014	<1.0	<1.0	<1.0	<5.0	<5.0		42	<100
	04/14/2015	<1.0	<1.0	<1.0			<5.0	37	<100
	10/01/2015	<1.0	<1.0	<1.0			<5.0	42	<100
	04/11/2016	<1.0	<1.0	<1.0			<5.0	41	<100
MW-45	04/17/2014	19	1.9	<1.0	15	27		2	640
	09/10/2014	6.4	<1.0	<1.0			<10	<1.0	220
	04/16/2015	16	<1.0	<1.0			31	2.9	660
	10/05/2015	22	2.5	<1.0			57	<1.0	1100
	04/13/2016	13	<1.0	<1.0			17	<1.0	650
MW-46	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		4.7	<100
	04/16/2015	<1.0	<1.0	<1.0			<5.0	3	<100
MW-47	04/16/2014	280	49	3.5	28	150		43	2300
	09/09/2014	210	27	1.6	21	140		<1.0	1300
	04/15/2015	94	16	1.3			67	24	1400
	10/02/2015	180	24	2.3			110	8.5	1900
	04/13/2016	180	30	3			130	<1.0	1300
MW-48	04/16/2014	<1.0	1	<1.0	<5.0	<5.0		2	<100
	04/15/2015	<1.0	<1.0	<1.0			<5.0	1.4	<100
MW-49	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		200	130
	09/10/2014	<1.0	<1.0	<1.0			<10	110	120
	04/16/2015	<1.0	<1.0	<1.0			<5.0	73	<100
	10/05/2015	<1.0	<1.0	<1.0			<5.0	60	<100
	04/13/2016	<1.0	<1.0	<1.0			<5.0	82	100
MW-50	04/16/2014	2.5	<1.0	<1.0	<5.0	<5.0		74	<100
	09/09/2014	2	<1.0	<1.0	<5.0	<5.0		43	<100
	04/15/2015	<1.0	<1.0	<1.0			<5.0	5	<100
	10/02/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
	04/13/2016	<1.0	<1.0	<1.0			<5.0	13	<100

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SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2015
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m,p-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-51	04/16/2014	2.6	1.1	<1.0	<5.0	<5.0		62	<100
	09/09/2014	<1.0	<1.0	<1.0	<5.0	<5.0		49	<100
	04/15/2015	1.5	<1.0	<1.0			<5.0	45	<100
	10/02/2015	1.1	<1.0	<1.0			<5.0	56	<100
	04/13/2016	<1.0	<1.0	<1.0			<5.0	46	<100
MW-53	04/14/2014	5	<1.0	<1.0	<5.0	<5.0		76	<100
	09/08/2014	3.1	<1.0	<1.0	<5.0	<5.0		110	130
	04/13/2015	9.3	<1.0	<1.0			<5.0	82	150
	09/30/2015	2.8	<1.0	<1.0			<5.0	100	<100
	04/11/2016	5.7	<1.0	<1.0			<5.0	65	<100
MW-54	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/13/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-55	04/14/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/13/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100
MW-58	04/14/2014	72	<1.0	<1.0	<5.0	5.1		81	280
	09/08/2014	120	<1.0	<1.0	<5.0	10		82	380
	04/14/2015	57	<1.0	<1.0			<5.0	51	240
	10/01/2015	110	<1.0	<1.0			5.9	140	630
	04/11/2016	90	<1.0	<1.0			8.3	100	320
MW-59	04/14/2014	73	<1.0	<1.0	<5.0	<5.0		140	320
	09/08/2014	120	<2.0	<2.0	<10	<10		170	580
	04/14/2015	120	<1.0	<1.0			5.3	160	660
	10/01/2015	110	<1.0	<1.0			<5.0	200	510
	04/11/2016	110	<1.0	<1.0			<5.0	180	650
MW-6	04/17/2014	<1.0	26	7.8	58	64		<1.0	780
	04/16/2015	<1.0	2	2			11	<1.0	280
MW-60	04/14/2014	1.7	<1.0	<1.0	<5.0	<5.0		12	<100
	04/14/2015	2.6	<1.0	<1.0			<5.0	9.8	<100
MW-61A	04/17/2014	1.5	<1.0	<1.0	<5.0	<5.0		2	<100
	09/10/2014	<1.0	<1.0	<1.0			<10	1.1	<100
	04/16/2015	1.9	14	160			120	<1.0	2600
	10/01/2015	1.2	<1.0	<1.0			<5.0	<1.0	<100
	04/12/2016	1.8	<1.0	<1.0			<5.0	<1.0	<100
MW-61B	04/16/2014	<1.0	1.8	<1.0	<5.0	<5.0		29	<100
	09/09/2014	<1.0	<1.0	<1.0	<5.0	<5.0		31	<100
	04/15/2015	<1.0	<1.0	<1.0			<5.0	15	<100
	10/01/2015	<1.0	<1.0	<1.0			<5.0	10	<100
	04/12/2016	<1.0	<1.0	<1.0			<5.0	18	<100
MW-62A	04/17/2014	<1.0	<1.0	<1.0	<5.0	<5.0		<1.0	<100
	04/16/2015	<1.0	<1.0	<1.0			<5.0	<1.0	<100

Table F-2: GROUNDWATER ANALYTICAL DATA
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2015
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

Well No.	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m,p-Xylenes (µg/L)	o-Xylene (µg/L)	Total Xylenes (µg/L)	Methyl-t-butyl ether (µg/L)	TPH-GRO (µg/L)
MW-62B	04/14/2014	3.3	<1.0	2.1	<5.0	<5.0		17	260
	09/09/2014	40	<1.0	3.8	<5.0	<5.0		71	660
	04/14/2015	9.6	<1.0	4			<5.0	30	770
	10/01/2015	8.2	<1.0	2.5			<5.0	36	310
	04/12/2016	18	<1.0	<1.0			<5.0	48	790
MW-7	04/15/2014	460	570	48	280	170		73	3500
	09/10/2014	340	530	54			400	62	3500
	04/16/2015	510	580	88			500	89	3500
	10/02/2015	270	300	35			290	49	1400
	04/13/2016	350	350	46			290	53	2500
PTW-B	04/15/2014	15	14	2.6	7.7	<5.0		17	150
	09/10/2014	23	26	4.8			26	33	370
	04/16/2015	18	19	5.5			33	20	320
	10/02/2015	22	17	3.9			17	26	220
	04/13/2016	40	46	8			41	39	160
RW-1	04/15/2014	350	290	41	130	84		90	2100
	09/10/2014	210	230	38			190	87	1600
	04/16/2015	290	120	30			130	110	1400
	10/02/2015	170	68	10			60	81	670
	04/13/2016	180	140	38			120	70	660
RW-2	04/15/2014	250	240	20	170	150		170	1700
	09/10/2014	180	140	11			210	130	1200
	04/16/2015	270	300	29			280	140	2300
	10/02/2015	140	91	9.6			97	140	820
	04/13/2016	220	380	46			320	120	2800
RW-3	04/15/2014	6.5	11	<1.0	<5.0	<5.0		6.6	200
	09/10/2014	44	590	80			970	21	5400
	04/16/2015	73	730	130			1200	33	7200
	10/02/2015	53	350	55			510	12	2000
	04/13/2016	17	120	12			240	25	740
RW-4	04/15/2014	3200	5100	600	2400	1300		1600	19000
	09/10/2014	2400	3000	420			2300	1400	19000
	04/16/2015	1700	1700	370			1400	930	25000
	10/02/2015	1900	2200	320			1600	1300	13000
	04/13/2016	1700	2700	430			2400	1100	15000
RW-5	04/15/2014	13	11	5.5	21	25		3.2	800
	09/10/2014	160	390	140			680	48	6500
	04/16/2015	160	280	130			400	37	4600
	10/02/2015	190	250	100			320	48	1800
	04/13/2016	17	55	12			190	8.1	1600

APPENDIX G

SOIL VAPOR MONITORING

TABLE G-1 SOIL VAPOR MONITORING ANALYTICAL RESULTS
SEMI-ANNUAL PROGRESS REPORT: JANUARY THROUGH JUNE 2016
FORMER CHEVRON FACILITY 122208, 5801 RIGGS ROAD, CHILLUM, MARYLAND

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)
VW-1	01/23/2012	23	ND 3.3	ND 4.4	ND 4.4	ND 3.7	ND 4.4	ND 3.9
	05/10/2012	840	ND 3.9	ND 5.4	ND 5.4	ND 4.4	ND 5.4	13
	10/18/2012	3,700 E	ND 3.8	ND 5.1	ND 5.1	ND 4.2	ND 5.1	ND 4.4
	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
VW-1 (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
VW-2	05/10/2012	96	25	7.9	7.6	25	ND 5.4	5.1
	10/18/2012	ND 12	ND 3.7	ND 5.0	ND 5.0	ND 4.2	ND 5.0	ND 4.4
	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
VW-03	10/18/2012	1,200	ND 6.8	ND 9.2	14	ND 7.6	ND 9.2	ND 8.0
VW-2(Ambient)	10/18/2012	--	ND 2.3	ND 3.1	ND 3.1	ND 2.6	ND 3.1	ND 2.7
VW-04(Ambient)	01/23/2012	--	ND 2.8	ND 3.8	ND 3.8	ND 3.2	ND 3.8	ND 3.3

Notes:

- 1) J - Estimated value
- 2) ND - Not detected at the minimum reported quantification limit
- 3) Wells VW-03 and VW-04 were not sampled during the reporting period due to the presence of water.
- 4) E - Exceeds instrument calibration range