Corrective Action Process Report / Plan Cover Sheet

CHAPTER 245
STORAGE TANK ACT

- ☐ **Site Characterization Report – Section 245.310(b)**
- ☒ **Site Characterization Report – Site-Specific Standard**
- ☐ **Site Characterization Report – Statewide Health or Background Standard**
- ☐ **Site Characterization Report PLUS – Statewide Health Standard**
- ☐ **Remedial Action Plan – Statewide Health or Background Standard**
- ☐ **Remedial Action Plan – Site-Specific Standard**
- ☐ **Remedial Action Progress Report**
- ☐ **Remedial Action Completion Report – Statewide Health or Background Standard**
- ☐ **Remedial Action Completion Report – Site-Specific Standard**
- ☐ **Post-Remediation Care Plan Report**
- ☐ **Environmental Covenant**

(check all that apply to the enclosed submission)

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SUPPLEMENTAL SITE CHARACTERIZATION REPORT
FOR TANK 009
HARLEY-DAVIDSON MOTOR COMPANY OPERATIONS, INC.
FORMER YORK NAVAL ORDNANCE PLANT
1425 EDEN ROAD
YORK, YORK COUNTY, PENNSYLVANIA

PADEP Facility ID No. 67-00823

SAIC Project 2603100044-3000-100

Prepared for:

Harley-Davidson Motor Company Operations, Inc.
1425 Eden Road
York, PA 17402

December 2012

SAIC Energy, Environment & Infrastructure, LLC
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for Tank 009
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CL	lean clay
COCs	chemicals of concern
EPA	United States Environmental Protection Agency
fbg	feet below grade
fbtoc	feet below the top of the well casing
foc	fractional organic carbon
ft/day	feet per day
ft/ft	feet per foot
gm/cm^3	grams per cubic centimeter
gpd/ft^2	gallons per day per square foot
gpm	gallons per minute
GWTS	groundwater extraction and treatment system
Harley-Davidson	Harley-Davidson Motor Company Operations, Inc.
HASP	Health and Safety Plan
IDW	investigation-derived wastes
LNAPL	light non-aqueous phase liquid
mg/kg	milligrams per kilogram
ml	milliliter
ml/min	milliliters per minute
MSC	Medium Specific Concentrations
MTBE	methyl tertiary-butyl ether
OSHA	Occupational Safety and Health Administration
PADEP	Pennsylvania Department of Environmental Protection
PID	photoionization detector
POC	point of compliance
PPE	personal protective equipment
PRC	post-remedial care
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
QD	Quick Domenico
RACR	remedial action completion report
RAP	remedial action plan
SAIC	SAIC Energy, Environment & Infrastructure, LLC
SC	clayey sand with gravel
SCR	Site Characterization Report
SHS	Statewide health standard
SSS	site-specific standard
SWLs	static water levels
TestAmerica	TestAmerica Laboratories, Inc.
TOC	top of casing
TVOCs	total volatile organic compounds
USCS	Unified Soil Classification System
UST	underground storage tank
VI	vapor intrusion
VOA	volatile organic analysis
VOCs	volatile organic compounds
WBZ	water-bearing zone
µg/L	micrograms per liter

1.0 INTRODUCTION

1.1 Purpose

On behalf of Harley-Davidson Motor Company Operations, Inc. (Harley-Davidson), SAIC Energy, Environment & Infrastructure, LLC (SAIC) prepared this supplement to the Site Characterization Report (SCR) addressing regulations in Pennsylvania Code, Chapter 245, Section 310, in accordance with the Storage Tank Spill Prevention Act (Act 32 of 1989). It details the investigation of a release from a 10,000-gallon gasoline underground storage tank (UST) system removed in July 2010 from west of Buildings 45 and 50 (former Harley-Davidson maintenance/garage areas) at 1425 Eden Road in Springettsbury Township, York County, York, Pennsylvania (**Figure 1**). The UST was listed as Tank 009 on Harley-Davidson's Pennsylvania Department of Environmental Protection (PADEP) storage tank registration certificate. The release occurred in the area of the dispenser for Tank 009 (**Figure 2**). Tank 009 replaced Tank 4 (T-4), which was located approximately 35 feet to the south of the Tank 009 dispenser prior to 1991. In both cases, contaminated soil was removed during closure of these USTs, but residual hydrocarbon concentrations remained in the subsurface.

In January 2012, SAIC submitted a report to the PADEP entitled *Site Characterization Report Tank 009 Release, Harley-Davidson Motor Company Operations, Inc., Former York Naval Ordnance Plant, 1425 Eden Road, York, York County, Pennsylvania*. The SCR documented site background and setting and characterized the site conditions based on drilling and sampling eight soil borings; installing and developing four monitoring wells (MW-118, MW-119, MW-120, and MW-121); and sampling these newly installed wells twice. The SCR reported the accumulation of light non-aqueous phase liquid (LNAPL) in MW-119 located at the source, which was presumed as resulting from spillage during gasoline dispensing.

The SCR recommended additional monitoring wells and the evaluation of the vapor intrusion (VI) pathway. In a February 2, 2012, letter to Harley-Davidson, the PADEP approved the January 2012 SCR and concurred with the recommendations for additional site characterization.

The following report supplements the January 2012 SCR by providing the results of the recommended additional characterization activities.

1.2 Report Organization

Following this introductory statement, Chapter 2.0 provides the results of additional activities performed to further characterize the release from Tank 009. Chapter 3.0 includes discussion on potential exposure pathways. Chapter 4.0 reviews the findings and appropriate remediation standards. Conclusions and recommendations are presented in Chapter 5.0. A list of references is included in Chapter 6.0.

2.0 SITE CHARACTERIZATION

2.1 Introduction

In response to the recommendations of the January 2012 SCR, the following additional site characterization activities were completed to further investigate the release from Tank 009:

- June 18 through July 2, 2012 – Drilling and sampling of four soil borings converted into monitoring wells (MW-122 through MW-125) and installation of three soil gas sample points (SGSP-1 through SGSP-3).

- June 27 through September 12, 2012 – Weekly water level gauging of ten monitoring wells (MW-26, MW-77, and MW-118 through M-125) and three surface water locations (Johnsons Run North, Detention Basin No. 3, and Johnsons Run South) and, when present, LNAPL recovery from MW-119.

- July 18, 2012 – Leak testing of SGSP-1 through SGSP-3.

- July 25, 2012 – Hydraulic conductivity testing of monitoring wells MW-118, MW-121, MW-122, and MW-124.

- August 1 through August 2, 2012 – Collection of groundwater samples from eight monitoring wells (MW-77, MW-118, and MW-120 through MW-125).

- August 15, 2012 – Collection of soil gas samples from soil gas sampling points SGSP-1 through SGSP-3.

- August 27 through September 4, 2012 – Continuous groundwater level measurements with electronic pressure transducers/data loggers at six monitoring wells (MW-77, MW-118, MW-120, MW-122, MW-124, and MW-125) and integration of precipitation data.

- September 4 to September 6, 2012 – Drilling and sampling of one soil boring converted into a monitoring well (MW-160).

- September 12, 2012 – Collection of a second round of soil gas samples from soil gas sampling points SGSP-1 through SGSP-3 and collection of a groundwater sample from MW-160.

- October 8, 2012 – A complete gauging round of all monitoring wells installed for Tank 009 was done.

All fieldwork was performed using Level D Occupational Safety and Health Administration (OSHA) personal protective equipment (PPE) in accordance with a site-specific health and safety plan (HASP).

2.2 Soil Borings

2.2.1 Sampling Procedures

On June 18, 2012, four soil borings (MW-122 through MW-125) were completed to further assess the soil conditions upgradient and downgradient of the former dispenser for Tank 009. Based on the results of soil and groundwater sampling, an additional boring, MW-160, was completed on September 4, 2012 (**Figure 2**). The sampling was completed using a direct-push Geoprobe® rig. Soil samples were collected in each boring in 5-foot-long dedicated disposable acetate liners from the ground surface to the total depth of the borings (approximately 25 to 40 feet below grade [fbg]). The Geoprobe® sampling equipment was decontaminated before use at each sample location by washing with a Liqui-Nox®/potable water solution and a potable water rinse. The subsurface stratigraphy encountered in the wells is described in Section 2.4.

2.2.2 Environmental Assessment Results

An SAIC scientist inspected the soil samples for signs of apparent hydrocarbon impact (staining, odors, etc.) and performed screening for total volatile organic compounds (TVOCs) using a photoionization detector (PID). Hydrocarbon impact was not apparent in the five borings. Soil boring logs are included as part of the monitoring well completion logs in **Appendix A**.

Two soil samples were collected from each of the borings at various depths for laboratory analysis. Since hydrocarbon impact was not apparent, one sample was collected midway within the soil column, and one sample was collected at the bottom of the boring. The samples were collected from soils that were not observed to be water-saturated. The soil samples were collected in laboratory-provided Encore® samplers (dedicated volumetric samplers for retaining volatiles). Additionally, soil samples from the interval were collected in laboratory-provided four-ounce glass soil jars for moisture analysis. Upon collection, labels were affixed to the sample containers, and they were placed into a cooler with ice and sent to TestAmerica Laboratories, Inc. (TestAmerica). A laboratory-provided quality assurance/quality control (QA/QC) trip blank and a chain-of-custody accompanied the soil samples during shipment. The samples were laboratory analyzed for the PADEP Short List of Petroleum Products (unleaded gasoline) using United States Environmental Protection Agency (EPA) Method 8260B.

The soil sample analytical results are listed on **Table 1** and illustrated on **Figure 3**. A copy of the laboratory analysis reports is included in **Appendix B**. The concentration of benzene (0.95 milligrams per kilogram [mg/kg]) in the sample collected from MW-124 (30.0 to 30.5 fbg) was the only parameter detected above the PADEP Nonresidential Soil-to-Groundwater Contact Medium Specific Concentration (MSC) of 0.5 mg/kg. Note that this standard comparison is for soil above the saturated zone, as there is no regulatory standard for below the saturated zone. Approximately 24 hours after soil sample collection, groundwater levels in MW-124 stabilized at a shallower 15-foot depth. All other unleaded gasoline parameters in MW-124 and all other soil samples were either detected below the PADEP Nonresidential Soil-to-Groundwater MSC or not detected above quantitative reporting limits. None of the detected concentrations in MW-124 or any other borings were greater than the PADEP Nonresidential Direct Contact MSCs for subsurface soil (2 to 15 fbg).

2.3 Monitoring Wells

2.3.1 Well Drilling and Construction Procedures

On June 20 through 22, 2012, four monitoring wells were installed by Eichelbergers, Inc., using a hollow-stem auger rig under SAIC oversight after completion of the soil borings. These wells were designated MW-122 through MW-125. On September 4, 2012, an additional monitoring well (MW-160) was installed downgradient of MW-124, with respect to the groundwater hydraulic gradient.

Monitoring wells were constructed using 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) casing and screen. The drilling and sampling equipment was decontaminated with a pressure washer between each location. The tops of the wells were completed within flush-on-grade manhole covers that were concreted in place. The following is a summary of the drilling and construction activities for each of the wells:

- **MW-122 –** Drilling started on June 20, 2012, approximately 80 feet to the east of the former dispenser for Tank 009 in an anticipated upgradient direction, with respect to groundwater flow. The well was drilled to a depth of approximately 30 fbg, and the well screen was installed from approximately 7 to 30 fbg.

- **MW-123 –** Drilling started on June 20, 2012, approximately 70 feet to the north of the former dispenser for Tank 009 in an anticipated cross-gradient location, with respect to groundwater flow. The well was drilled to a depth of approximately 30 fbg and the well screen installed from approximately 7 to 30 fbg.

- **MW-124 –** Drilling started on June 20, 2012, approximately 60 feet to the south of the former dispenser for Tank 009 in an anticipated cross-gradient location, with respect to groundwater flow. Drilling was competed to a total depth of approximately 34 fbg and the well screen installed from approximately 8 to 34 fbg.

- **MW-125 –** Drilling started on June 21, 2012, approximately 140 feet to the southwest of the former dispenser for Tank 009 in an anticipated downgradient location, with respect to groundwater flow. Drilling was completed to a total depth of approximately 24 fbg and the well screen installed from approximately 4 to 24 fbg.

- **MW**-160 **–** Drilling started on September 4, 2012, approximately 150 feet to the south of the former dispenser for Tank 009 in an anticipated downgradient location, with respect to groundwater flow. Drilling was completed to a total depth of approximately 38 fbg and the well screen installed from approximately 6 to 38 fbg.

The monitoring wells were developed by SAIC with a submersible pump following installation. All wells were developed until the discharge was relatively free of sediment or the well was dewatered. The wells each had a yield of approximately 0.5 to 1 gallon per minute (gpm).

2.3.2 Well Surveying

Following the completion of the monitoring well installations, a Pennsylvania-licensed land surveyor from Nutec Group of York, Pennsylvania, conducted a survey of the horizontal and vertical positions of monitoring wells MW-26, MW-77, and MW-118 through MW-125. In addition, surface water gauging stations Johnsons Run North, Detention Basin No. 3, and Johnsons Run South were established and surveyed. At each monitoring well location, the elevation of the top of casing (TOC) and the top of the exterior protective casing were measured to the nearest 0.01 foot and vertically referenced to the North American Datum 1983 (NAD 83). For surface water gauging stations, the elevation of a reference measurement point was measured. The horizontal locations were also measured to the nearest 0.01 foot of the NAD 83 -

Pennsylvania State Plane South US feet. The horizontal location of MW-160 was measured by SAIC using a steel tape from surveyed reference points for inclusion on the site map. The vertical elevation of MW-160 was measured by SAIC relative to MW-121 using an auto level/stadia rod to within 0.01 foot.

2.3.3 Well Gauging

Monitoring wells MW-26, MW-77, and MW-118 through MW-125 were gauged for depth-to-groundwater and presence/absence of LNAPL using an interface probe. SAIC gauged the monitoring wells weekly between June 27 and September 12, 2012. After MW-160 was installed, it was gauged on September 12 and followed by a complete gauging round on October 8, 2012 (**Table 2**). The depth to groundwater in the wells ranged from approximately 7 feet below the top of the well casing (fbtoc) in MW-118 to 25 fbtoc in MW-26.

LNAPL resembling gasoline accumulated in monitoring well MW-119 located at the former gasoline dispenser. No other monitoring well exhibited LNAPL; however, depth to groundwater was above the top of the screened interval in wells MW-118 and MW-77. In MW-118, groundwater was approximately 1 foot above the top of the well screen, and in MW-77, groundwater was approximately 20 feet above the top of the well screen. As MW-119 was the only monitoring well to accumulate LNAPL, the lateral extent of LNAPL is relatively limited.

The LNAPL thickness in MW-119 ranged from a maximum of 0.23 feet on July 10, 2012, to 0.02 feet on subsequent occasions. When measured in MW-119, LNAPL was recovered by bailing and measured in a calibrated clear glass container (**Table 3**). Between June 27 and July 25, 2012, a total of 670 milliliters (ml) of LNAPL was recovered from the well. Subsequent gauging registered a thickness of between 0.02 and 0.03 feet, but manual bailing indicated no LNAPL; thus, 0.02 feet of LNAPL was the accuracy limit of the interface probe. Considering that natural capillary forces cause LNAPL to accumulate in monitoring wells at greater thicknesses than in the aquifer, the measurements support a limited LNAPL thickness in the subsurface. The fact that LNAPL only accumulated in one well indicates residual LNAPL volume in the subsurface is minor.

2.3.4 Groundwater Sampling

Three rounds of groundwater samples were collected by SAIC from monitoring wells MW-118, MW-120, and MW-121 (August 25, 2011; September 30, 2011; and August 1, 2012). MW-119 was sampled twice (August 25, 2011, and September 30, 2011) but not during any of the recent events due to LNAPL accumulation. Two rounds of groundwater samples were collected from monitoring wells MW-122 through MW-125 (July 2 and August 1, 2012). Two rounds of groundwater samples were collected from monitoring well MW-77 (June 24, 2011, and August 1, 2012). Monitoring well MW-160 was sampled on September 12, 2012. MW-26 was not sampled.

The wells were purged prior to sampling with a submersible pump at a relatively low purge rate (i.e., less than approximately 0.5 gpm) to minimize the drawdown of the groundwater level in the wells. The pump was decontaminated before use at each well by washing with a Liqui-Nox®/potable water solution and a potable water rinse. During purging, water quality field parameters were measured and recorded (temperature, pH, conductivity, dissolved oxygen, and turbidity). The water quality field parameters were documented on the sampling logs included in **Appendix C**. Upon stabilization of the field parameters during purging, groundwater samples were collected directly from the dedicated pump discharge tubing into laboratory-provided 40 ml volatile organic analysis (VOA) vials containing preservative (i.e., hydrochloric acid). Additionally, QA/QC samples during all rounds of groundwater sampling consisted of a laboratory-provided trip blank.

Upon collection, labels were affixed to the sample containers, and they were placed into a cooler with ice and a chain-of-custody. The groundwater samples were submitted to TestAmerica for laboratory analysis of the PADEP Short List of Petroleum Products (unleaded gasoline) using EPA Method 8260B. The analytical results for the groundwater samples are summarized on

Table 4 and **Figure 4**. Copies of the laboratory analysis reports are included in **Appendix D**, and schematic illustrations of the dissolved-phase plume of each gasoline constituent detected above its respective PADEP Nonresidential Used Aquifer MSC are presented in **Appendix E**.

The following is a summary of the groundwater sample analytical data:

1. Unleaded gasoline constituents were detected in the samples from MW-77, MW-118, MW-120, MW-121, MW-124, and MW-160 at concentrations above the PADEP Nonresidential Used Aquifer MSCs for groundwater.

2. Groundwater samples collected from MW-77, MW-121, and MW-124, located generally south and west of the former Tank 009 dispenser, contained the highest concentrations of unleaded gasoline constituents compared to the concentrations detected in the other wells that were sampled. This indicated that migration of dissolved-phase hydrocarbons is generally south and southwest.

3. The concentrations of benzene and MTBE detected in the groundwater sample from MW-120 were relatively low, and MW-122, MW-123, and MW-125 had non-detectable concentrations of all analyzed parameters.

4. The extent of dissolved-phase unleaded gasoline parameters in groundwater was generally delineated by wells MW-120, MW-122, MW-123, MW-125, and MW-160.

2.3.5 Investigation-Derived Waste Management

Investigation-derived waste (IDW) that was generated during the monitoring well installations, development, and sampling was containerized and managed by Harley-Davidson. The soil (i.e., drill cuttings) was disposed as nonhazardous waste at Modern Landfill in York, Pennsylvania. The groundwater was treated at the on-site Harley-Davidson groundwater treatment system (GWTS) on or about September 12, 2012 (**Appendix F**).

2.4 Subsurface Stratigraphy

The subsurface stratigraphy, soil sample depths, monitoring well screen intervals, and groundwater elevations in the study area are illustrated by **Figure 5** and **Figure 6**. Unconsolidated materials extend to a depth of greater than 67 fbg in the immediate study area and to a depth of approximately 25 fbg to the west of the study area (see well construction logs in **Appendix A**). The unconsolidated materials encountered were heterogeneous (i.e., variable both laterally and vertically) clay, silt, sand, and gravel. Shallow fill materials present are likely associated with historical development/construction activities. Examples of fill material include gravel that was used to backfill the former UST excavations and underground utilities. Limestone bedrock was encountered during drilling of monitoring well MW-125.

During August 2011, two samples of the unconsolidated materials were collected during the drilling of the monitoring wells for laboratory analysis of physical parameters. The samples were obtained using a thin-walled metal tube (i.e., Shelby tube) that facilitated the collection of a relatively intact (i.e., undisturbed) sample. The samples were collected from a depth of approximately 17 to 19 fbg in MW-118 and approximately 33 to 34.7 fbg in MW-121. The samples were sent with a chain-of-custody to TestAmerica for analysis of total organic carbon, percent solids, density, specific gravity, porosity, and grain size.

Results of the sample analyses are summarized on **Table 5**. Based upon the Unified Soil Classification System (USCS), the grain size analysis indicated that the sample from MW-118 was lean clay (CL) and the sample from MW-121 was clayey sand with gravel (SC). The physical parameters of the samples indicated a mean fractional organic carbon (foc) content of 0.162 percent and a mean bulk density of 1.85 grams per cubic centimeter (gm/cm^3). These characteristics were used as input to a groundwater fate-and-transport model discussed later in this report.

2.5 Hydrologic Conditions

2.5.1 Monitoring Wells and Manual Gauging

Discontinuous zones of water-saturated overburden materials were encountered at various depths during the drilling of the monitoring wells, as follows:

- MW-118 – In clay from approximately 15 to 25 fbg.
- MW-119 – In gravel from approximately 25 to 27 fbg.
- MW-120 – In gravel from approximately 36 to 39 fbg.
- MW-121 – In clay from approximately 10.5 to 12 fbg and 15 to 17 fbg, and in sand from approximately 31 to 32 fbg.
- MW-122 – In silt from approximately 25 to 30 fbg.
- MW-123 – In gravel from approximately 25 to 27 fbg.
- MW-124 – No distinct water-bearing zone (WBZ) was encountered.
- MW-125 – In gravel from approximately 20 to 22 fbg.
- MW-160 – In clay from approximately 20 to 22 fbg.

Water-saturated unconsolidated materials were present in areas where fill is extensive, or infiltration is enhanced relative to other locations (e.g., former UST excavations, utility corridors, etc.). These conditions, coupled with the underlying fine-grained subsurface strata, caused perched groundwater in some locations.

During the drilling of monitoring wells MW-118 through MW-125 and MW-160, groundwater was observed to rise in the boreholes after intercepting water-saturated materials (e.g., WBZs). The static water levels (SWLs) in the wells stabilized at depths above the WBZs. For example, in well MW-120, water-saturated gravel was encountered at approximately 36 to 39 fbg, and the SWL in the well subsequently rose to approximately 12 fbg after well construction. Additionally, similar conditions were documented for MW-77. These conditions suggested that the aquifers penetrated by the wells are partially or fully confined.

Depth-to-groundwater measurements in the monitoring wells within the study area were subtracted from TOC elevations to calculate groundwater elevations (**Table 2**). A groundwater elevation contour map prepared from the wells on October 8, 2012, presented on **Figure 7** is representative of the hydraulic gradient. The hydraulic gradient indicated by the wells is approximately 0.05 feet per foot (ft/ft) southwest from the area of the former dispenser for Tank 009. In general, the hydraulic gradient forms a trough that trends from MW-119 downgradient toward MW-160. Johnsons Run and the storm water line are upgradient, north and east of the study area and, thus, are not a destination for or preferential pathway of groundwater-borne hydrocarbon migration from the former Tank 009 dispenser. These features may recharge the shallow aquifer at times of precipitation.

2.5.2 Continuous Groundwater Level Measurements

On August 27, 2012, electronic pressure transducer/data loggers were installed at fixed depths below the groundwater to monitor the typical range of groundwater elevations in monitoring wells MW-77, MW118, MW-120, MW-122, MW-124, and MW-125. The loggers were programmed to record groundwater levels on a frequency of once every 10 minutes. The groundwater elevations in MW-118 and MW-122 (on the east side of the study area) were consistently higher than at other wells. The groundwater elevations in MW-119, MW-121, and MW-124 were similar to each other and approximately eight feet lower than the elevations in MW-118 and MW-122 during the period. The groundwater elevation in MW-77 (at approximately 65 feet, the deepest of the 10 wells in the study area) was consistently lower than those in nearby MW-120 and MW-124.

On September 4, 2012, after nine days, the data loggers were collected and downloaded in the field into a computer and saved for processing and interpretation. The data logger installed in MW-125 was found as defective and did not record water level data. The recorded groundwater levels (**Figures 8** through **13**) were converted to groundwater elevations and plotted graphically. Daily precipitation data for the groundwater monitoring period were provided by Clean Harbors from the rain gauge located near Outfall 004 on the south side of former Building 2. Rain events occurred on August 26 (0.1 inch [in.]), August 27 (1.0 in.), August 28 (0.05 in.), September 3 (0.2 in.), and September 4, 2012 (1.75 in.). The precipitation data were plotted graphically with groundwater elevation for interpretation of each well's response to a rain event.

MW-122 and MW-124 responded to rain events similarly. Both wells showed a fairly rapid response and decline after precipitation. The magnitude of the response was greater in height in MW-124. MW-77 responded and declined slower than MW-122 and MW-124. MW-118 showed a delayed and muted response to rain events. MW-120 showed the greatest delay in responding to precipitation. Water-saturated material was described as gravel in MW-120. All wells showed low magnitude diurnal changes in water level during non-precipitation events. These changes in water level were attributed to "earth tides," slight variations in water level due to the gravitational effects of the moon and sun.

The lack of consistent well water level responses during and after the rain events supports the presence of heterogeneous earth materials, discontinuous WBZs, and varying degrees of aquifer permeability (hydraulic conductivity) and confinement. Rapid water level responses to precipitation and rapid rate of recession afterward at MW-77 suggested a responsive aquifer with high hydraulic conductivity relative to other site wells. MW-77 had a rapid response in combination with approximately 0.6 foot of water level change during the monitoring period, which was attributed to confinement of the WBZ. Rapid water level responses to precipitation and slow rate of recession afterward by MW-122 and MW-124 suggested unhindered infiltration but relatively low hydraulic conductivity at the wells. The approximately 0.7 foot of water level change by MW-124 during the monitoring period was attributed to confinement of the WBZ within the clay where the screen was installed. An approximately 0.25 foot of water level change by MW-122 during the monitoring period was attributed to relatively limited confinement of the gravel WBZ where the screen was installed. Slower water level responses to precipitation, rapid recession rate, and diurnal variations (earth tides) were observed at MW-118. These characteristics suggested a confined aquifer with low hydraulic conductivity relative to other site wells. The water-saturated material in MW-118 was described as clay. A very slow water level response to precipitation and very slow recession at MW-120 suggested low hydraulic conductivity.

2.6 Hydraulic Conductivity Testing

2.6.1 Procedure

On July 25, 2012, hydraulic conductivity "slug" testing was conducted by SAIC on select monitoring wells (MW-118, MW121, MW-122, and MW-124). Slug testing is a field method that provides an estimate of the hydraulic conductivity (K) of the water-saturated materials intercepted by a well screen. K is defined as the rate of groundwater discharge through a unit aquifer cross-section under a unit gradient and is the capacity of a porous medium to transmit water. K values calculated from slug tests represented an average for the entire thickness of water-saturated materials intercepted by the well screens.

The slug tests were completed by instantaneously adding or removing a known solid inert volume (slug) into/from the well with continuous pressure transducer/data logger measurement of water level recovery to static conditions. Each well was tested multiple times to demonstrate repeatability and reliability of test results. After completion of each slug test, the data were downloaded from the data logger and saved for processing and interpretation. Data from the rising head tests were analyzed to calculate K using Aqtesolve ™ for Windows by applying the Bower-Rice method (1976). The K values for falling head (slug-in) tests were not considered representative and not used.

2.6.2 Results

The resulting K values for the slug tests are summarized on **Table 6**. The graphic plots of the test are included in **Appendix G**. The following is a summary of the test results:

- The K values for the individual wells range over two orders of magnitude, reflective of the heterogeneous nature of the subsurface character. The values are within the range published for unconsolidated materials composed of silt and sand (Freeze, R. V., and J. A. Cherry, 1979).

- MW-121 and MW-124 have the lowest average K values (0.1 gallon per day per square foot [gpd/ft^2] or less than 0.01 foot per day [ft/day]).

- MW-122 has the highest average K value (33.4 gpd/ft^2 or 4.5 ft/day). The well penetrates well-graded gravel with silt matrix.

- A geometric mean K value for the site is approximately 0.8 gpd/ft^2 or approximately 0.1 ft/day, which represents the overall site character.

2.6.3 Groundwater Fate-and-Transport Modeling

2.6.3.1 Objective and Method

Fate-and-transport modeling was conducted to assess the potential future extent of dissolved-phase hydrocarbon migration in groundwater from the Tank 009 dispenser release toward Eden Road, the downgradient (southwest) property boundary (point of compliance [POC]). The modeling was completed using the revised Quick Domenico (QD) model available on the PADEP Land Recycling Program website. QD is a Microsoft Excel® spreadsheet application of *An Analytical Model for Multidimensional Transport of a Decaying Contaminant Species*, by P. A. Domenico (Journal of Hydrology, 91 [1987], pp 49-58). QD considers three-dimensional dispersion, first-order decay, and retardation of dissolved-phase hydrocarbons as they migrate from a known source. It calculates the concentrations of constituents at any time and distance downgradient of a source area of known size and concentration. QD is a conservative model that assumes a constant source concentration and no mass reduction of the source materials by natural microbial degradation.

2.6.3.2 Fate-and-Transport Model Input Data

Source – The source of the groundwater impact was a subsurface release of unleaded gasoline from the former unleaded gasoline Tank 009, which was installed in 1991. The release(s) occurred between 1991 and July 2010, when the former UST was removed. MW-119 was installed at the source and represents the groundwater conditions at the source approximately 20 years since the oldest potential release date. The hydraulic gradient is southwest from MW-119, and the results of the groundwater sample analyses suggest that the axis of the dissolved hydrocarbon plume is aligned from MW-119 through MW-124 past MW-160.

Chemicals of Concern (COCs) – Benzene, ethylbenzene, methyl tertiary-butyl ether (MTBE), naphthalene, toluene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were detected in groundwater at concentrations above their Non-residential Used Aquifer Groundwater MSCs.

Source Concentrations – The source concentrations were represented by MW-119. Concentrations of COCs used in the model were those of MW-119 before LNAPL accumulated and as described below:

- Benzene – 15,000 µg/L or 15 milligrams per liter (mg/L).
- Ethylbenzene – 2,600 µg/L or 2.6 mg/L.
- MTBE – 800 µg/L or 0.80 mg/L.
- Naphthalene – 280 µg/L or 0.280 mg/L.
- Toluene – 18,000 µg/L or 18 mg/L.
- 1,2,4-trimethylbenzene – 1,300 µg/L or 1.3 mg/L.
- 1,3,5-trimethylbenzene – 480 µg/L or 0.480 mg/L.

Maximum detected groundwater concentrations were used for ethylbenzene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and toluene. Estimated concentrations that were slightly higher than the maximum detected concentrations were used for benzene and MTBE because these two compounds are more likely to migrate and degrade based on their physical-chemical properties. Thus, benzene and MTBE concentrations may have been higher in the source area prior to the installation and sampling of the monitoring wells. The higher assumed source concentrations assumed for benzene and MTBE provided more protective results and better calibration of the QD model with observed field data.

Distance to Location of Concern (X) – Modeling was performed for contamination migration from MW-119, toward MW-160, and further southwest toward Eden Road. The distance to the location of concern (i.e., POC) is 1,650 feet.

Longitudinal Dispersivity (Ax) – A default value to 50 was used for the model, based upon SAIC's experience conducting modeling at similar sites.

Transverse Dispersivity (Ay) – A value of 5 was used based upon Ax/10, as per the model instructions.

Vertical Dispersivity (Az) – The model recommended default value of 0.001 was used for the model. The QD model is not sensitive to this parameter.

Lambda (days-1) – The degradation coefficients were obtained from Appendix A, Table 5, of the PADEP Chapter 250 (Act 2) Regulations. The published lambda values were divided by 365 to obtain lambda values in days-1:

- Benzene – 0.35 years-1 or 0.00096 days-1
- Ethylbenzene – 1.11 years-1 or 0.003 days-1
- MTBE – 0.693 years-1 or 0.0018 days-1
- Naphthalene – 0.98 years-1 or 0.0027 days-1
- Toluene – 9.01 years-1 or 0.0247 days-1
- 1,2,4-trimethylbenzene – 4.5 years-1 or 0.012 days-1

- 1,3,5-trimethylbenzene – Value not published. The lambda value for 1,2,4-trimethylbenzene was used.

Source Width – No additional soil was removed when UST Tank 009 was removed. A source width was unknown but conservatively presumed to be 30 feet.

Source Thickness – A source thickness was unknown but conservatively presumed at a thickness of 10 feet.

Hydraulic Conductivity (K) – Based on the slug testing, the hydraulic conductivity for the aquifer is approximately 0.8 gpd/ft^2 or 0.1 ft/day (**Table 6**); however, because a range of hydraulic conductivities was measured, a 90 percent confidence value of approximately 0.2 ft/day was used to account for variations of subsurface characteristics in the model.

Hydraulic Gradient – Based upon groundwater elevations from October 8, 2012 (**Figure 7**), the hydraulic gradient from MW-119 to MW-160 was 0.05 ft/ft.

Effective Porosity – The analysis of soil samples from the unconsolidated materials in the saturated zone indicated total porosities of 34.1 and 28.2 percent (0.341 and 0.284). The effective porosity is typically lower than the total porosity. Thus, an assumed effective porosity of 20 percent (0.2) was used in the model.

Bulk Density – The analysis of soil samples from the unconsolidated materials in the saturated zone indicated a bulk density of 1.77 gm/cm^3 and 1.94 gm/cm^3. Thus, the mean of bulk density used in the model was 1.85.

Organic Carbon Partition Coefficient (Koc) – The following Koc values were obtained from Appendix A, Table 5, of the Act 2 Regulations:

- Benzene – 58
- Ethylbenzene – 220
- MTBE – 12
- Naphthalene – 950
- Toluene – 130
- 1,2,4-trimethylbenzene – 2,200
- 1,3,5-trimethylbenzene – 660

Fractional Organic Carbon (foc) – The analysis of soil samples from the materials in the saturated zone indicated the foc of 0.1410 percent (0.0014) and 0.1850 percent (0.0018). Thus, a mean of 0.1615 percent (0.0016) was used in the model.

2.6.3.3 Plume Stabilization

The plume of dissolved-phase gasoline constituents originates from residual hydrocarbons in the soil around the former dispenser and migrates southerly from MW-119 through MW-124, then southwest past MW-160. This plume alignment is supported by the groundwater hydraulic gradient (**Figure 7**). The QD modeling results in **Appendix H** illustrate the predicted concentrations of benzene, ethylbenzene, MTBE, naphthalene, toluene, 1,2,4-trimethlybenzene, and 1,3,5-trimethlybenzene using assumed source concentrations (MW-119) and downgradient migration after 20 and 50 years from the presumed time of release. These time frames related to present and 30-year periods.

The concentrations were modeled using conservative assumptions of site characteristics, which yielded protective estimates of plume extent toward the POC. A range of modeled time periods was examined to observe the plume spread until stabilization due to naturally occurring physical, chemical, and biological degradation (i.e., natural attenuation). Stabilization was indicated by the decrease in the rate of plume expansion between successive modeled time periods. **Appendix E** illustrates schematically the current position and concentration of the dissolved-phase plume of each gasoline constituent detected above its respective PADEP Nonresidential

Used Aquifer MSC and the simulated extent of the plume downgradient from the present position in 30 years**.** These illustrations indicate that the plume of most constituents has essentially stabilized at their current positions and will have little propensity to migrate even if the source concentrations do not decline in 30 years. Only benzene and MTBE show a potential to migrate during the interval, but the extent of migration is exceedingly small.

2.6.3.4 Model Sensitivity

Conservative site-specific input parameters were used in the QD model, and differing degrees of sensitivity to varying input parameters were observed. Most of the input parameters were conservative (such as using maximum source concentrations and assuming no source depletion) to be protective and account for the variability in the subsurface character. The results of modifying the model input parameters within various ranges or limits are not presented herein.

2.6.3.5 Model Calibration

Model calibration was done by comparing QD predictions with measured concentrations of gasoline constituents. As Tank 009 was installed in 1991, the focused of calibration was the 20-year time frame (i.e., the present day). Comparison of the model predictions at 20 years to the recent groundwater data showed relatively good model calibration for benzene and MTBE with slightly higher than the measured concentrations. For example, monitoring well MW-124 (located approximately 60 feet south of MW-119) had an average benzene concentration of 1,850 µg/L, while the QD model predicted a higher concentration of 2,269 µg/L. Monitoring well MW-160, located approximately 150 feet downgradient, had a benzene concentration of 180 µg/L, which was predicted by the QD model at 280 µg/L for the same time frame. MW-124 had an average MTBE concentration of 42 µg/L, while the QD model predicted a concentration of 106 µg/L. Monitoring well MW-160 had a MTBE concentration less than 5 µg/L, which was predicted at 11 µg/L. The higher model-predicted concentrations relative to measured concentrations are protective and resulted from presuming higher initial concentrations of these constituents, as explained in Section 2.6.3.2. The general agreement of the QD model with measured concentrations confirmed model calibration and enabled the model to be run for determining the extent of benzene and MTBE at various time frames.

Other gasoline constituents were less similar between the QD model predictions and the measured concentrations at 20 years, even with the characteristics reasonably calibrated for benzene and MTBE. For example, ethylbenzene at MW-124 had an average concentration of 810 µg/L, but the QD model predicted less than 29 µg/L. At MW-160, ethylbenzene was 12 µg/L with a prediction of less than 1 µg/L. Toluene at MW-124 had an average concentration of 6,200 µg/L and a predicted concentration of 1 µg/L. Naphthalene at MW-124 had an average concentration of 1,070 µg/L, but the QD model predicted less than 1 µg/L. Concentrations of 1,2,4-trimethlybenzene and 1,3,5-trimethlybenzene were also dissimilar between the QD model and actual measured concentrations.

The calibration of the QD model was successful for predicting the future migration fate and transport of the most important gasoline constituents—benzene and MTBE—but not for ethylbenzene, toluene, naphthalene, 1,2,4-trimethlybenzene, and 1,3,5-trimethlybenzene. Possible explanations for the disagreement of the QD model with measured conditions include the influence of heterogeneity of the subsurface materials, as all variations could not be anticipated with the generalized characteristics modeled. An alternative explanation is multiple releases at different times and different locations occurred at or around Tank 009. The heterogeneity of the subsurface may have afforded impact to occur in the groundwater at different times and concentrations than presumed. Finally, a source separate from Tank 009, such as the predecessor UST (T-4) that was located closer to MW-124, may be the source of the QD model calibration difficulties. The T-4 release was discovered in October 1991 and was remediated; however, soil sampling performed in December 1997 documented residual hydrocarbon impact remained in the subsurface. Being older, a T-4 source would possibly be depleted of benzene and MTBE and relatively enriched by the other gasoline constituents.

The importance of the QD model calibration is the greater comparative calibration accuracy for benzene and MTBE and the fact that these two gasoline constituents are of primary importance to potential impact because of their toxicity and mobility. The fact that the other constituents are not present above the MSCs at downgradient well MW-160 supports that they are less mobile, even if they originated closer to MW-124 than MW-119.

2.6.3.6 Limitations

The QD model has some inherent limitations as discussed above. Another limitation is that the model assumed a single and continuous source of contamination. This may partially be the case as the primary source of the contamination (Tank 009) was removed in 2010, but residual hydrocarbons persist indicated by the presence of LNAPL, albeit in minor volumes. It is expected that natural processes will reduce the mass flux of hydrocarbon contribution to the groundwater over time, but QD conservatively discounts that possibility.

Additionally, the QD model assumed the plume is migrating steadily through homogeneous subsurface materials, which is not the case for the site. However, the model predictions are generally useful, consistent with the site-specific data for benzene and MTBE, and protective with respect to predicting the maximum downgradient extent of these two important gasoline constituents with respect to toxicity and mobility.

2.6.3.7 Model Results

The results of the modeling (i.e., QD model spreadsheets) are presented in **Appendix H**. Model predictions were calculated for time scenarios ranging from the earliest possible release date 20 years ago and 50 years ago, the 30-year duration required for evaluation. Examination of the concentration versus distance trends from the measured groundwater concentrations at various times in the future suggested that the plume is stable.

The model predictions indicated that detectable concentrations of the most mobile constituents—benzene and MTBE—would not reach the downgradient POC at any time in the near future or up to 30 years from current time. The higher mobility and lower MSCs of benzene and MTBE and the stability of the plume indicate that ethylbenzene, toluene, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene will not reach the POC at any time in the near future or 30 years despite the variation of the model from measured concentrations.

2.7 Vapor Intrusion

2.7.1 Objective and Method

The presence of LNAPL and concentrations of gasoline constituent concentrations in soil and groundwater samples (**Table 1** and **Table 4**, respectively) exceeding VI screening values in PADEP's November 2004 Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard (SHS) indicated that further evaluation of the vapor intrusion pathway was necessary. Therefore, further investigation of VI by soil gas sampling was completed.

2.7.2 Soil Gas Sample Point Installations

Soil gas sample points were installed and sampled to further evaluate the VI pathway. On June 21, 2012, three soil gas sample points (SGSP-1 through SGSP-3) were installed to a depth of approximately 6 fbg. The locations of the sample points are illustrated on **Figure 2**, and the construction logs are included in **Appendix I**. The soil gas sample points were installed with a direct-push drill rig and a solid point. No cuttings were produced; therefore, no lithologic description was possible. Groundwater was not encountered during sample point installation.

The sample points were constructed using one-inch-diameter flush-threaded PVC well casing and screen. A 2-foot section of well screen was installed at the base of each sample point at a depth of approximately 4 to 6 fbg, which is a depth range of industrial building foundations. Sand was used to fill the boring annulus around the well screen from approximately 3 to 6 fbg. A bentonite seal was placed from 1 to 3 fbg. The sample points were completed at grade with flush-on-grade manhole covers, concreted in place.

2.7.2 Soil Gas Sample Collection and Laboratory Analytical Results

Soil gas samples were collected by SAIC from SGSP-1 through SGSP-3 on August 15 and September 12, 2012. Before collecting the samples, an attempt was made to purge the sample points of approximately three times their internal volumes using a battery-powered, calibrated, low-flow pump to remove stagnant air. During both sampling events, the vacuum provided by the purge pump was insufficient to draw air from SGSP-1 and SGSP-2, which indicated low gas permeability; however, Summa® canisters have higher vacuum available than the purge pump. Additionally, on both occasions, water had to be bailed from SGSP-2 prior to purging.

Soil gas samples were collected using laboratory-provided, evacuated, stainless steel Summa® canisters connected to the sample points via Teflon®-coated plastic tubing. The Summa® canisters were fitted with a flow-control device calibrated to collect a continuous sample over a 1-hour period at a rate of less than 100 milliliters per minute (ml/min). One upwind ambient air sample was collected during each round of sampling to assess background conditions. After each sampling event, the Summa® canisters and completed chain-of-custody form were sent to TestAmerica for analysis of the unleaded gasoline UST parameters using EPA Method TO-15 by gas chromatograph/mass spectrometry (GC/MS).

A leak test was done by SAIC using a tracer gas (helium) at each of the sample points to determine whether it potentially leaked atmospheric air. Helium is a commonly used tracer gas able to permeate the smallest gaps or perforations, including the ability to penetrate pavement. This test was performed prior to collection of the first round of soil gas samples on August 15, 2012. The helium was introduced into a sealed container that covered the sample point. The container was equipped with a monitoring port where the internal helium concentration was measured and a port where the sample point could be purged and sampled for helium with a helium detector. After purging an air volume equal to three sample point volumes, a sample was collected into a Tedlar® bag using a vacuum box. The sample was analyzed with a hand-held helium detector. As seen during soil gas sample collection, the purge pump was unable to draw enough air from SGSP-1 and SGSP-2 to fill a Tedlar® bag, so no testing for helium could be made. The inability of the purge pump to fill a Tedlar® bag indicated these points likely were not leaking atmospheric air. Similarly, the subsurface migration of vapors into indoor air spaces would be precluded by the low gas permeability exhibited at SGSP-1 and SGSP-2.

The leak test performed on SGSP-3 detected helium, showing that atmospheric air was potentially leaking into the point. The areas around the contact between the sample point riser and concrete within the flush-mount manhole and around the contact between the flush-mount skirt and concrete pad were sealed with plumber's putty. The point was retested but continued to detect helium. A Summa® canister sample at SGSP-3 was taken recognizing the potential for atmospheric air dilution.

The analytical results of the soil gas samples are summarized on **Table 7**, and copies of the laboratory analysis reports are presented in **Appendix J**. No difficulty with a low gas sample volume in SGSP-1 and SGSP-2 was indicated by the laboratory as a result of the low gas permeability within the soil. The soil gas sampling detected quantified and estimated concentrations of all gasoline target constituents except MTBE. The soil gas sampling results were evaluated in accordance with the Land Recycling Program Technical Guidance Manual criteria for soil gas samples at 100 times the MSC for indoor air. None of the soil gas samples detected any target constituent concentrations that exceeded 100 times the MSC for indoor air. Therefore, the site conditions do not indicate a VI concern.

3.0 DISCUSSION OF POTENTIAL EXPOSURE

3.1 Groundwater

Groundwater sampling conducted in 2011 and 2012 detected dissolved-phase unleaded gasoline parameters and LNAPL in groundwater at concentrations greater than the PADEP Nonresidential Used Aquifers MSCs (**Table 4**). The age of Tank 009 and the modeling discussed in Section 2.6.3 indicated that gasoline constituents are at equilibrium in groundwater and will not change or migrate to the POC. The groundwater is at depth; therefore, no groundwater or LNAPL exposure to employees, contractors, or the general public is possible. The site is being redeveloped for nonresidential (commercial) use, and the anticipated future use of the site is for commercial purposes. A local water use ordinance requires connection to public water; however, the ordinance does not completely eliminate the potential future use of groundwater. As groundwater is predicted to meet the MSCs at the POC now and in the future, the release does not pose a threat to public or private water supply wells.

3.2 Surface Water

Johnsons Run is upgradient and not a pathway of groundwater-borne hydrocarbon migration from the former Tank 009 dispenser. The groundwater flows southwest eventually discharging to the Codorus Creek over 2,000 feet away. This is past the POC where gasoline constituents are not predicted to reach; therefore, it is expected that groundwater migrating from former Tank 009 to the Codorus Creek will meet Chapter 93 Water Quality Criteria. Based on these conditions, there is no threat to the public or aquatic exposure now or in the future.

3.3 Soil

The laboratory analysis of soil samples collected during the removal of Tank 009 and the site characterization activities documented that surface soil is not impacted and the release from Tank 009 impacted only subsurface soils with no concentrations of unleaded gasoline parameters detected above the PADEP Nonresidential Direct Contact MSCs for subsurface soil (2 to 15 fbg); thus, the release does not pose a threat to construction workers, employees, or the public by direct contact. Concentrations of unleaded gasoline parameters were above the Nonresidential Soil-to-Groundwater MSCs; therefore, the concerns are limited to the soil to groundwater pathway with the groundwater pathway not posing a current or future threat as described in Section 3.1 with no significant change in these conditions in the future. Also, as the release was to the subsurface and there is no surface soil impact, there is no threat of dust-borne contamination migration.

3.4 Indoor Air

The vapor intrusion pathway from soil and groundwater to indoor air was eliminated because soil gas samples met MSCs as discussed in Section 2.7. No change in this condition is expected in the future. As the site is planned for nonresidential development, the soil or groundwater VI pathway poses no threat.

3.5 Ecological Receptors

The subsurface hydrocarbon impact from the Tank 009 release does not pose an unacceptable risk to potential ecological (terrestrial) receptors based upon the following criteria:

- The current and anticipated future use of the site is for nonresidential (commercial) purposes.
- The ground surface is predominantly covered with buildings, asphalt paving, concrete, etc., which prevent exposure by terrestrial receptors.
- Surface soil is not impacted; the release from Tank 009 impacted subsurface soils.
- Terrestrial receptors are not directly exposed to groundwater.

- There are no known threatened or endangered species indicated at the site.

Moreover, the unleaded gasoline parameters detected in soils and groundwater in the study area are various constituents of petroleum products, which were detected at relatively low concentrations and not directly discharging at the surface or in surface water. Petroleum products are susceptible to biodegradation and are not highly toxic to ecological receptors at low concentrations.

4.0 IDENTIFICATION OF REMEDIATION STANDARDS

4.1 Soil

The laboratory analysis of soil samples collected during the removal of Tank 009 and the site characterization activities documented concentrations of unleaded gasoline parameters above the Nonresidential Soil-to-Groundwater MSCs (**Table 1**). No concentrations of unleaded gasoline parameters were detected above the PADEP Nonresidential Direct Contact MSCs for subsurface soil (2 to 15 fbg). Volatile organic compounds (VOCs) were not present at a level of concern for vapor intrusion from soil into indoor air.

The recently collected maximum concentrations in soil in the study area are not sufficiently high to cause groundwater impact at a magnitude sufficient to create an impact at the POC; therefore, they represent the recommended site-specific standard (SSS) applicable for soil with no necessity for remediation.

4.2 Groundwater

Dissolved-phase unleaded gasoline parameters were detected in groundwater samples at concentrations greater than the PADEP Nonresidential Used Aquifers MSCs (**Table 4**). VOCs in groundwater are not at a level of concern for vapor intrusion into indoor air.

The POC for attainment of the SHS for groundwater is defined by the PADEP as the property boundary that existed at the time the contamination was discovered. This boundary of concern is the southwest, downgradient boundary essentially at Eden Road, approximately 1,650 feet from Tank 009. The current data from the study area and the fate and transport modeling of groundwater transport show no potential for exceeding the Nonresidential Used Aquifer MSCs for unleaded gasoline parameters at the POC in the foreseeable future. Therefore, the SHS is applicable for groundwater with no necessity for remediation.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are presented based upon the site characterization activities taken to address the release from former Tank 009.

5.1 Conclusions

- The characterization activities addressed a subsurface release of gasoline that was discovered in July 2010 from the area of the former dispenser for Tank 009. A nearby release of gasoline from former UST T-4 was remediated prior to 1991; however, recent groundwater data suggest residual hydrocarbon impact may remain in the subsurface.

- The site characterization was conducted through the installation and sampling of 13 soil borings and 9 monitoring wells; 13 gauging events and 8 days of continuous water level monitoring; and 3 rounds of groundwater samples from MW-118 to MW-121, 2 from MW-122 to MW-125, and 1 from MW-160.

- Detailed geologic analysis and hydraulic conductivity tests were completed to characterized the heterogeneous unconsolidated materials over 67 feet thick. All were of relatively low hydraulic conductivity.

- The release from Tank 009 impacted soils in a relatively small area underneath and to the south and southwest of the former dispenser. Unleaded gasoline parameters were detected in soil samples at concentrations less than the Nonresidential Direct Contact MSC for subsurface soil (2 to 15 fbg) but greater than the Nonresidential Soil-to-Groundwater Used Aquifer MSCs. The current maximum concentrations in soil are not sufficient to impact groundwater at the POC; therefore, they represent the SSSs for soil.

- LNAPL was detected in MW-119 at the former Tank 009 dispenser location in negligible volumes and recovered to the maximum extent practicable. The residuals associated with this area represent a source of dissolved-phase impact to groundwater. Another residual source is likely near the former T-4 UST location 35 feet south.

- The magnitude and extent of dissolved-phase unleaded gasoline parameters in shallow groundwater were effectively delineated by sampling and fate-and-transport modeling. The dissolved-phase unleaded gasoline plume has essentially stabilized and has no propensity to migrate to the downgradient POC in 30 years.

- The release does not pose a threat to construction workers by direct contact or public or private water supply wells. A local water use ordinance requires connection to public water; however, the ordinance does not completely eliminate the potential future use of groundwater.

- Further evaluation of the VI pathway in the study area was done, which indicated that none of the soil gas samples detected any target constituent concentrations exceeding a soil gas MSC; therefore, the VI pathway is not a concern.

- The release does not pose a risk to ecological receptors.

5.2 Recommendations

No additional monitoring wells, subsurface investigation, or active remediation is necessary according to this site characterization, so there are no recommendations.

A remedial action plan (RAP) is recommended to be prepared in recognition of the use of the SSS for soil. The RAP should review remedial options, including recommendations for institutional controls, to prevent the use of groundwater where the Nonresidential Used Aquifer MSCs are or will be exceeded in 30 years. Attainment should be sought by quarterly sampling and analysis of the downgradient wells, MW-125 and MW-160, for gasoline target constituents. The choice of MW-125 and MW-160 as monitoring points is in recognition of their being between the source and the POC. These wells would indicate a variance of the plume from the predictions herein.

Eight quarters of compliant attainment sampling and a post-remedial care (PRC) plan should be included in a remedial action completion report (RACR) for Tank 009.

6.0 REFERENCES

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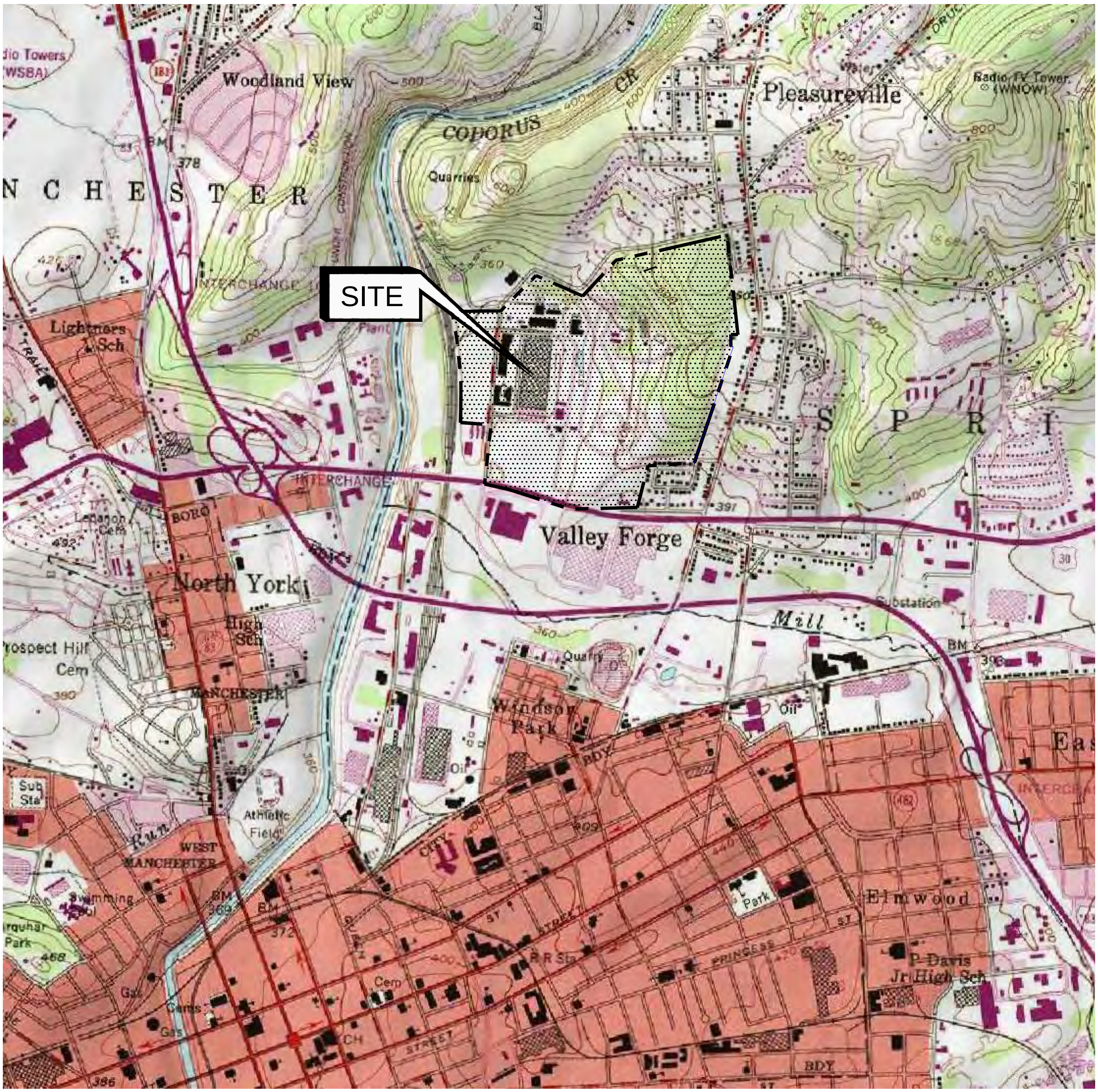
FIGURES



NOTE: BASE MAP FROM THE YORK PA., USGS 7 1/2 MIN TOPOGRAPHIC QUADRANGLE (PR 1990).

2000' 0 2000'

SCALE IN FEET

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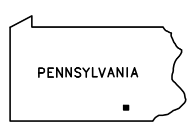

QUADRANGLE LOCATION

HARLEY-DAVIDSON MOTOR COMPANY OPERATIONS, INC.
YORK VEHICLE OPERATIONS
1425 EDEN ROAD, YORK PA 17402

SITE LOCATION MAP

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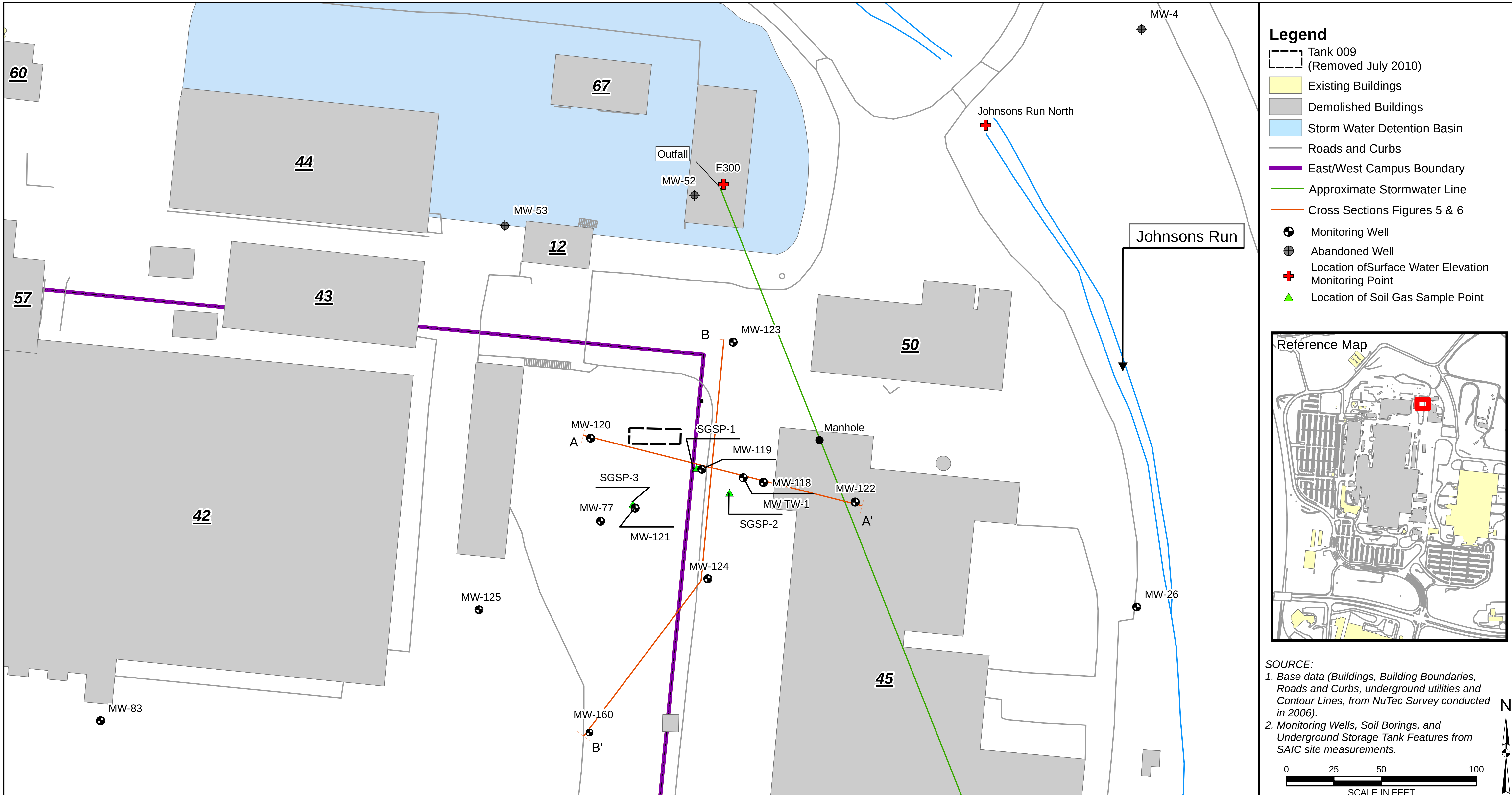

Harley-Davidson Motor Company Operations, Inc.
1425 Eden Rd York, Pa 17402

Site Map

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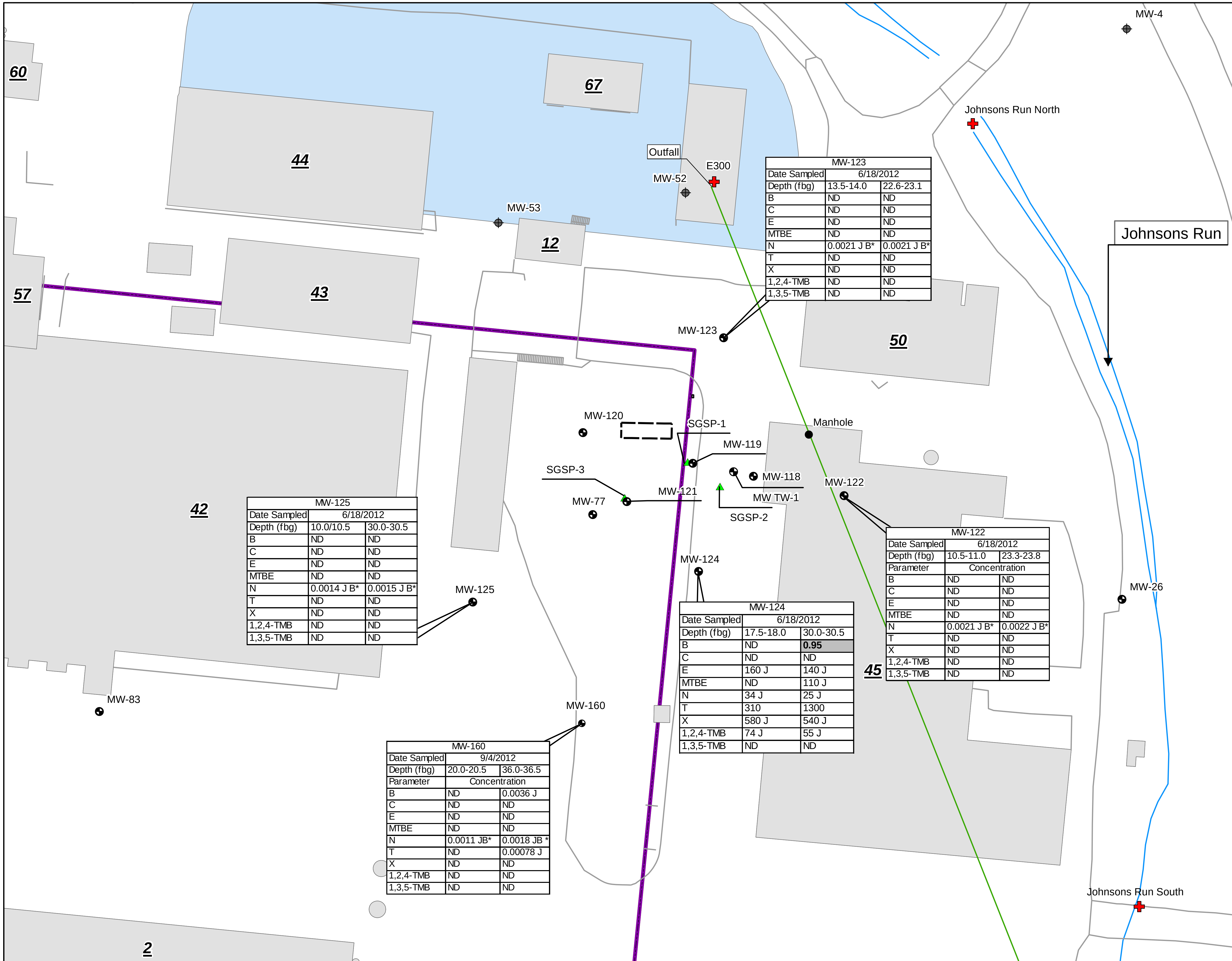

MW-123		
Date Sampled	6/18/2012	
Depth (fbg)	13.5-14.0	22.6-23.1
B	ND	ND
C	ND	ND
E	ND	ND
MTBE	ND	ND
N	0.0021 J B*	0.0021 J B*
T	ND	ND
X	ND	ND
1,2,4-TMB	ND	ND
1,3,5-TMB	ND	ND

MW-125		
Date Sampled	6/18/2012	
Depth (fbg)	10.0/10.5	30.0-30.5
B	ND	ND
C	ND	ND
E	ND	ND
MTBE	ND	ND
N	0.0014 J B*	0.0015 J B*
T	ND	ND
X	ND	ND
1,2,4-TMB	ND	ND
1,3,5-TMB	ND	ND

MW-124		
Date Sampled	6/18/2012	
Depth (fbg)	17.5-18.0	30.0-30.5
B	ND	**0.95**
C	ND	ND
E	160 J	140 J
MTBE	ND	110 J
N	34 J	25 J
T	310	1300
X	580 J	540 J
1,2,4-TMB	74 J	55 J
1,3,5-TMB	ND	ND

MW-122		
Date Sampled	6/18/2012	
Depth (fbg)	10.5-11.0	23.3-23.8
Parameter	Concentration	
B	ND	ND
C	ND	ND
E	ND	ND
MTBE	ND	ND
N	0.0021 J B*	0.0022 J B*
T	ND	ND
X	ND	ND
1,2,4-TMB	ND	ND
1,3,5-TMB	ND	ND

MW-160		
Date Sampled	9/4/2012	
Depth (fbg)	20.0-20.5	36.0-36.5
Parameter	Concentration	
B	ND	0.0036 J
C	ND	ND
E	ND	ND
MTBE	ND	ND
N	0.0011 JB*	0.0018 JB *
T	ND	0.00078 J
X	ND	ND
1,2,4-TMB	ND	ND
1,3,5-TMB	ND	ND

Legend

- Tank 009 (Removed July 2010)
- Demolished Buildings
- Storm Water Detention Basin
- Roads and Curbs
- East/West Campus Boundary
- Approximate Stormwater Line
- Monitoring Well
- Abandoned Well
- Location ofSurface Water Elevation Monitoring Point
- Location of Soil Gas Sample Point

B: Benzene
T: Toluene
E: Ethylbenzene
X: Total Xylenes
MTBE: Methy Tertiary Butyl Ether
N: Naphthalene
C: Cumene
1,2,4-TMB: 1,2,4 - Trimethylbenzene
1,3,5-TMB: 1,3,5 - Trimethylbenzene

fbg: Feet Below Grade
J: Laboratory reported concentration as an approximate value.
MSC: Medium Specific Concentration
ND: Not Detected
NS: Soil Sample Not Collected for Laboratory Analysis
PADEP: Pennsylvania Department of Environmental Protection
*RPD of the LCS and LCSD exceeds the control limits
All results reported in micrograms per liter (mg/Kg)

Bold/Shaded concentrations are greater than a PADEP Non-Residential Soil-to-Groundwater MSCs

SOURCE:
1. Base data (Buildings, Building Boundaries, Roads and Curbs, underground utilities and Contour Lines, from NuTec Survey conducted in 2006).
2. Monitoring Wells, Soil Borings, and Underground Storage Tank Features from SAIC site measurements.

Harley-Davidson Motor Company Operations, Inc.
1425 Eden Rd York, Pa 17402

Soil Sample Analytical Data

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job no. 2603100044/3000/100		file no. SoilChemMap_20121017	

initials	date	revision

SAIC

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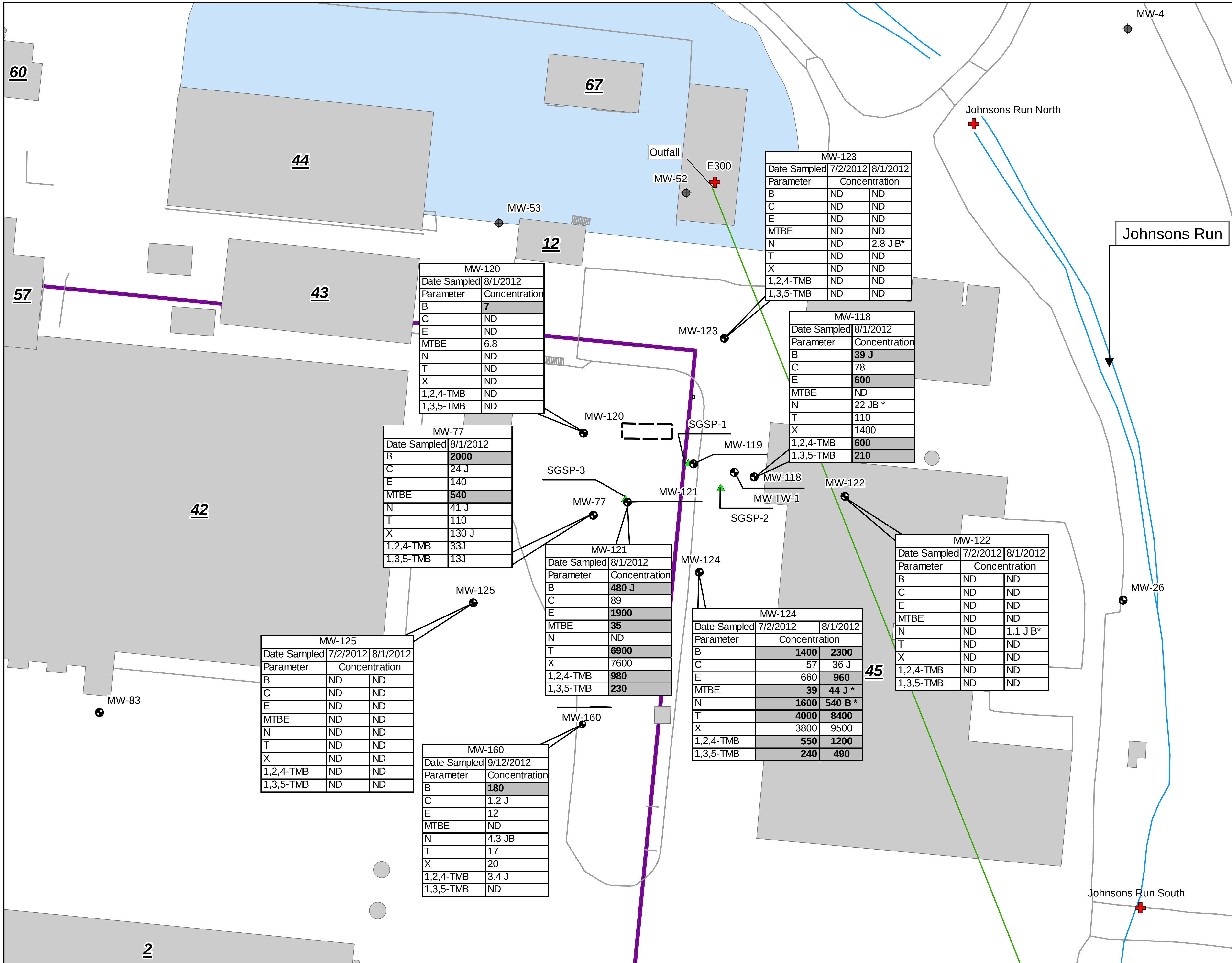

MW-123		
Date Sampled	7/2/2012	8/1/2012
Parameter	Concentration	
B	ND	ND
C	ND	ND
E	ND	ND
MTBE	ND	ND
N	ND	2.8 J B*
T	ND	ND
X	ND	ND
1,2,4-TMB	ND	ND
1,3,5-TMB	ND	ND

MW-120	
Date Sampled	8/1/2012
Parameter	Concentration
B	**7**
C	ND
E	ND
MTBE	6.8
N	ND
T	ND
X	ND
1,2,4-TMB	ND
1,3,5-TMB	ND

MW-118	
Date Sampled	8/1/2012
Parameter	Concentration
B	**39 J**
C	78
E	**600**
MTBE	ND
N	22 JB *
T	110
X	1400
1,2,4-TMB	**600**
1,3,5-TMB	**210**

MW-77	
Date Sampled	8/1/2012
B	**2000**
C	24 J
E	140
MTBE	**540**
N	41 J
T	110
X	130 J
1,2,4-TMB	33J
1,3,5-TMB	13J

MW-121	
Date Sampled	8/1/2012
Parameter	Concentration
B	**480 J**
C	89
E	**1900**
MTBE	**35**
N	ND
T	**6900**
X	7600
1,2,4-TMB	**980**
1,3,5-TMB	**230**

MW-122		
Date Sampled	7/2/2012	8/1/2012
Parameter	Concentration	
B	ND	ND
C	ND	ND
E	ND	ND
MTBE	ND	ND
N	ND	1.1 J B*
T	ND	ND
X	ND	ND
1,2,4-TMB	ND	ND
1,3,5-TMB	ND	ND

MW-124		
Date Sampled	7/2/2012	8/1/2012
Parameter	Concentration	
B	**1400**	**2300**
C	57	36 J
E	660	**960**
MTBE	**39**	**44 J ***
N	**1600**	**540 B ***
T	**4000**	**8400**
X	3800	9500
1,2,4-TMB	**550**	**1200**
1,3,5-TMB	**240**	**490**

MW-125		
Date Sampled	7/2/2012	8/1/2012
Parameter	Concentration	
B	ND	ND
C	ND	ND
E	ND	ND
MTBE	ND	ND
N	ND	ND
T	ND	ND
X	ND	ND
1,2,4-TMB	ND	ND
1,3,5-TMB	ND	ND

MW-160	
Date Sampled	9/12/2012
Parameter	Concentration
B	**180**
C	1.2 J
E	12
MTBE	ND
N	4.3 JB
T	17
X	20
1,2,4-TMB	3.4 J
1,3,5-TMB	ND

Legend

- Tank 009 (Removed July 2010)
- Demolished Buildings
- Storm Water Detention Basin
- Roads and Curbs
- East/West Campus Boundary
- Approximate Stormwater Line
- Monitoring Well
- Abandoned Well
- Location ofSurface Water Elevation Monitoring Point
- Location of Soil Gas Sample Point

B: Benzene
T: Toluene
E: Ethylbenzene
X: Total Xylenes
MTBE: Methy Tertiary Butyl Ether
N: Naphthalene
C: Cumene
1,2,4-TMB: 1,2,4 - Trimethylbenzene
1,3,5-TMB: 1,3,5 - Trimethylbenzene

fbg: Feet Below Grade
J: Laboratory reported concentration as an approximate value.
MSC: Medium Specific Concentration
ND: Not Detected
NS: Soil Sample Not Collected for Laboratory Analysis
PADEP: Pennsylvania Department of Environmental Protection
*RPD of the LCS and LCSD exceeds the control limits
All results reported in micrograms per liter (µg/L)

Bold/Shaded concentrations are greater than a PADEP Non-Residential MSC

SOURCE:
1. Base data (Buildings, Building Boundaries, Roads and Curbs, underground utilities and Contour Lines, from NuTec Survey conducted in 2006).
2. Monitoring Wells, Soil Borings, and Underground Storage Tank Features from SAIC site measurements.

N

0 25 50 100 Feet

Harley-Davidson Motor Company Operations, Inc.
1425 Eden Rd York, Pa 17402

Groundwater Quality Analytical Data

drawn JMG	checked	approved	figure no.
date 10/17/2012	date	date	4
job no. 2603100044/3000/100		file no. GWEChemMap_20121017	

initials	date	revision

SAIC

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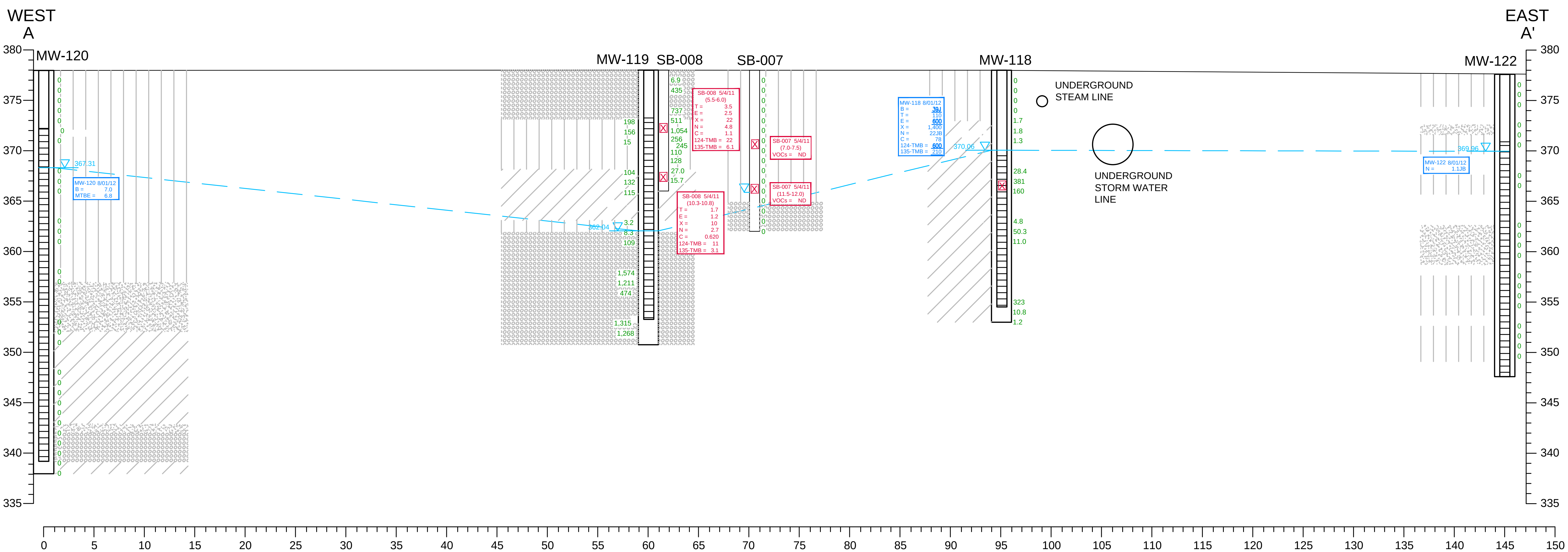


LEGEND

GRAVEL (GW)

SAND (SP)

SILT (ML)

CLAY (CL)

WELL SCREEN

SOIL SAMPLE LOCATION

GROUNDWATER ELEVATION ON OCTOBER 8, 2012

20 — PHOTOIONIZATION DETECTOR (PID) MEASUREMENT IN PPM

UG/L — MICROGRAMS PER LITER

ND — NO VOCs DETECTED

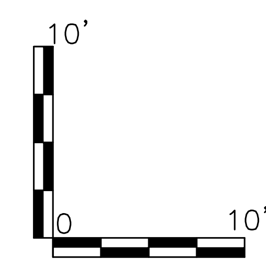
MG/KG — MILLIGRAMS PER KILOGRAM

VOC — VOLATILE ORGANIC COMPOUND

SOIL SAMPLE RESULTS SHOWN IN RED – MG/KG

GROUNDWATER SAMPLE RESULTS SHOWN IN BLUE – UG/L

MW-119 9/30/11	SAMPLE ID / SAMPLE DATE
(7.5-8.0)	SAMPLE INTERVAL (FOR SOIL SAMPLES)
B: 10	BENZENE
T: 18	TOLUENE
E: 6.2	ETHYLBENZENE
X: 10	TOTAL XYLENES
MTBE: 50	METHYL–TERTIARY–BUTYL ETHER
N: 10 J	NAPHTHALENE
C: 14	CUMENE
124-TMB: 13	1,2,4–TRIMETHYLBENZENE
135-TMB: 48	1,3,5–TRIMETHYLBENZENE
10	UNDERLINED CONCENTRATION GREATER THAN PADEP NON–RESIDENTIAL MEDIUM SPECIFIC CONCENTRATIONS (MSC)



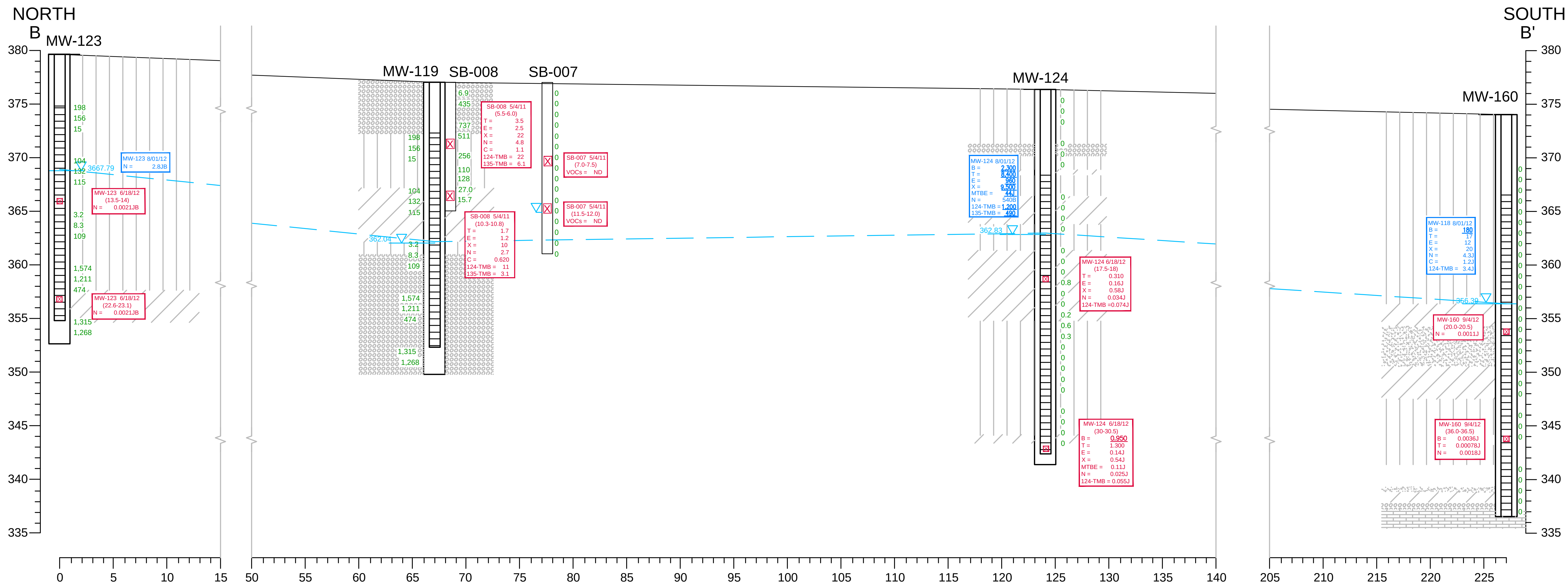
SCALE IN FEET

HARLEY–DAVIDSON MOTOR COMPANY OPERATIONS, INC.
YORK VEHICLE OPERATIONS
1425 EDEN ROAD, YORK PA 17402

GEOLOGIC CROSS SECTION PERPENDICULAR TO THE DISSOLVED–PHASE PLUME

SAIC

job no. 2603100044–3000–100
file no. X–SEC A–A.dwg
drawn RAM date 12/11/12
checked date
approved date
figure no. 5



LEGEND

GRAVEL (GW)

SAND (SP)

SILT (ML)

CLAY (CL)

LIMESTONE (LS)

WELL SCREEN

SOIL SAMPLE LOCATION

GROUNDWATER ELEVATION ON OCTOBER 8, 2012

20 PHOTOIONIZATION DETECTOR (PID) MEASUREMENT IN PPM

UG/L MICROGRAMS PER LITER

ND NO VOCs DETECTED

MG/KG MILLIGRAMS PER KILOGRAM

VOC VOLATILE ORGANIC COMPOUND

SOIL SAMPLE RESULTS SHOWN IN RED – MG/KG

GROUNDWATER SAMPLE RESULTS SHOWN IN BLUE – UG/L

MW-119 9/30/11	SAMPLE ID / SAMPLE DATE
(7.5-8.0)	SAMPLE INTERVAL (FOR SOIL SAMPLES)
B: 10	BENZENE
T: 18	TOLUENE
E: 6.2	ETHYLBENZENE
X: 10	TOTAL XYLENES
MTBE: 50	METHYL–TERTIARY–BUTYL ETHER
N: 10 J	NAPHTHALENE
C: 14	CUMENE
124-TMB: 13	1,2,4–TRIMETHYLBENZENE
135-TMB: 48	1,3,5–TRIMETHYLBENZENE

<u>10</u> UNDERLINE CONCENTRATION GREATER THAN PADEP NON–RESIDENTIAL MEDIUM SPECIFIC CONCENTRATIONS (MSC)

10'
0 10'
SCALE IN FEET

HARLEY–DAVIDSON MOTOR COMPANY OPERATIONS, INC.
YORK VEHICLE OPERATIONS
1425 EDEN ROAD, YORK PA 17402

GEOLOGIC CROSS SECTION PARALLEL TO THE DISSOLVED–PHASE PLUME

SAIC

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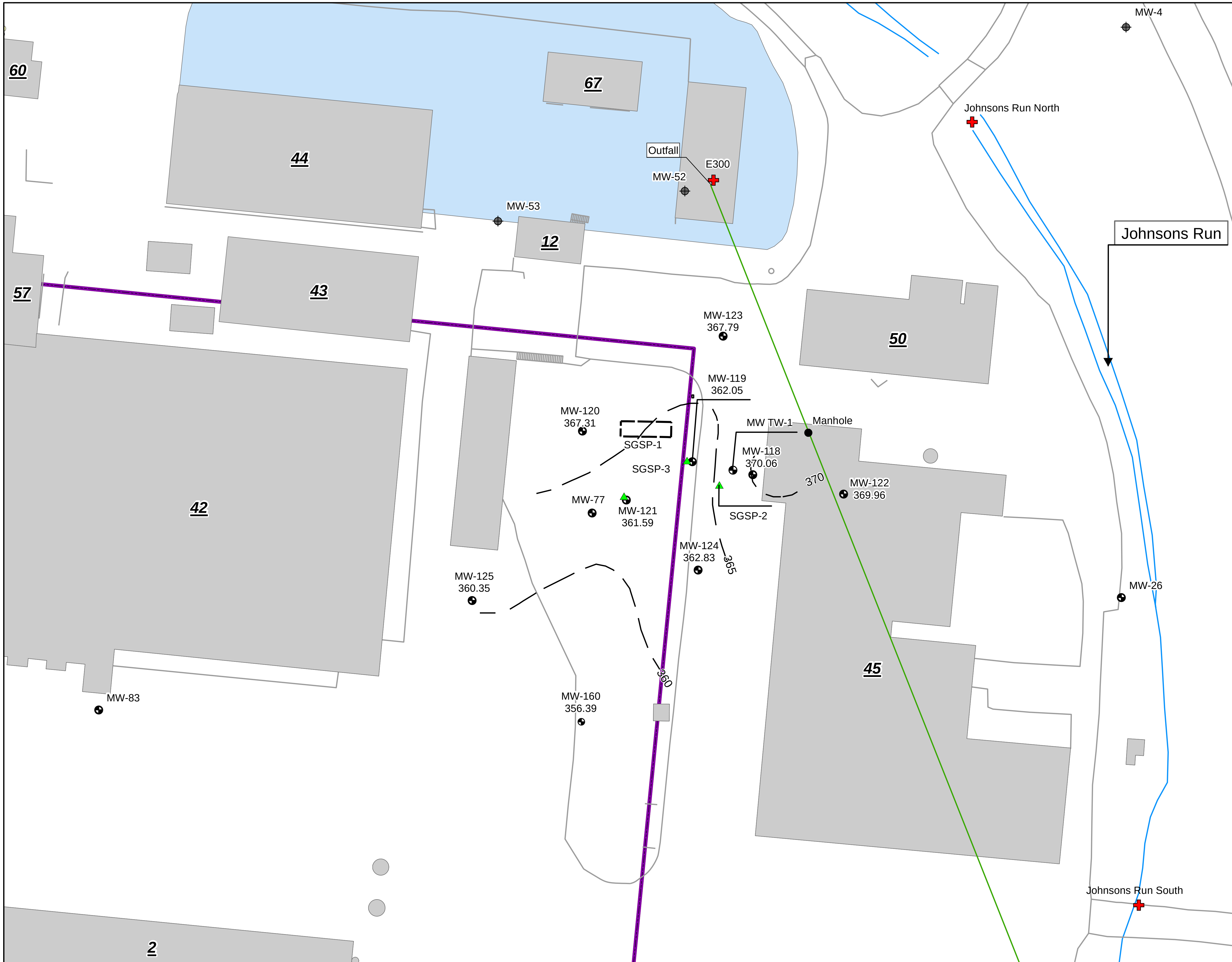
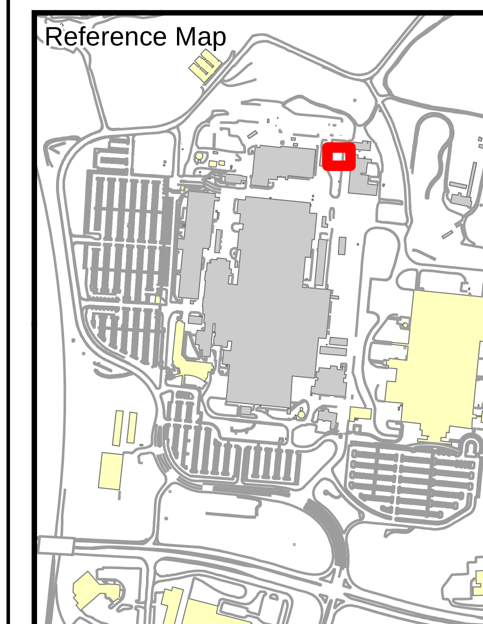
drawn RAM	date 12/11/12
checked	date
approved	date
figure no.	6



Legend

- Tank 009 (Removed July 2010)
- Existing Buildings
- Demolished Buildings
- Storm Water Detention Basin
- Roads and Curbs
- East/West Campus Boundary
- Approximate Stormwater Line
- Monitoring Well
- Abandoned Well
- Location ofSurface Water Elevation Monitoring Point
- Location of Soil Gas Sample Point
- 367.79 Groundwater Elevation
- Groundwater Elevation Contour



SOURCE:
1. Base data (Buildings, Building Boundaries, Roads and Curbs, underground utilities and Contour Lines, from NuTec Survey conducted in 2006).
2. Monitoring Wells, Soil Borings, and Underground Storage Tank Features from SAIC site measurements.

N

0 25 50 100
SCALE IN FEET

Harley-Davidson Motor Company Operations, Inc.
1425 Eden Rd York, Pa 17402

Groundwater Elevation Contour Map
October 8, 2012

drawn JMG	checked	approved	figure no.
date 10/16/2012	date	date	7
job no. 2603100044/3000/100		file no. GWElevMap_20121016	

initials	date	revision

SAIC

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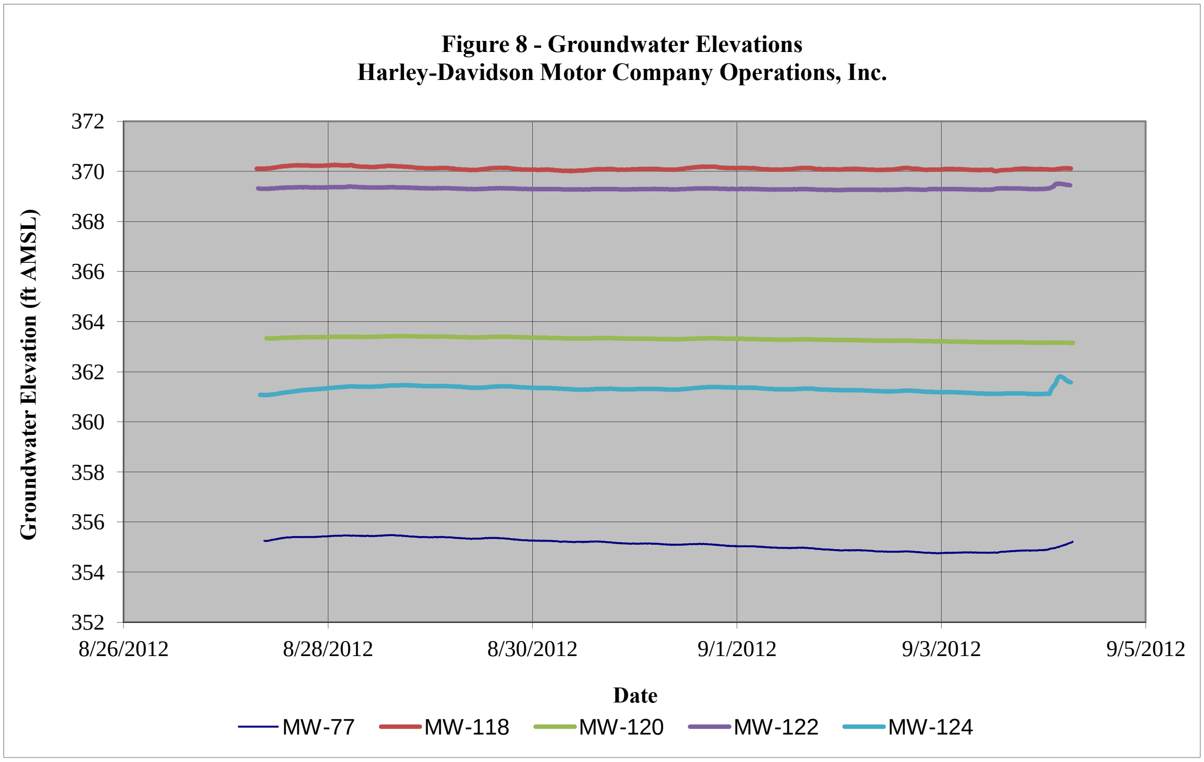
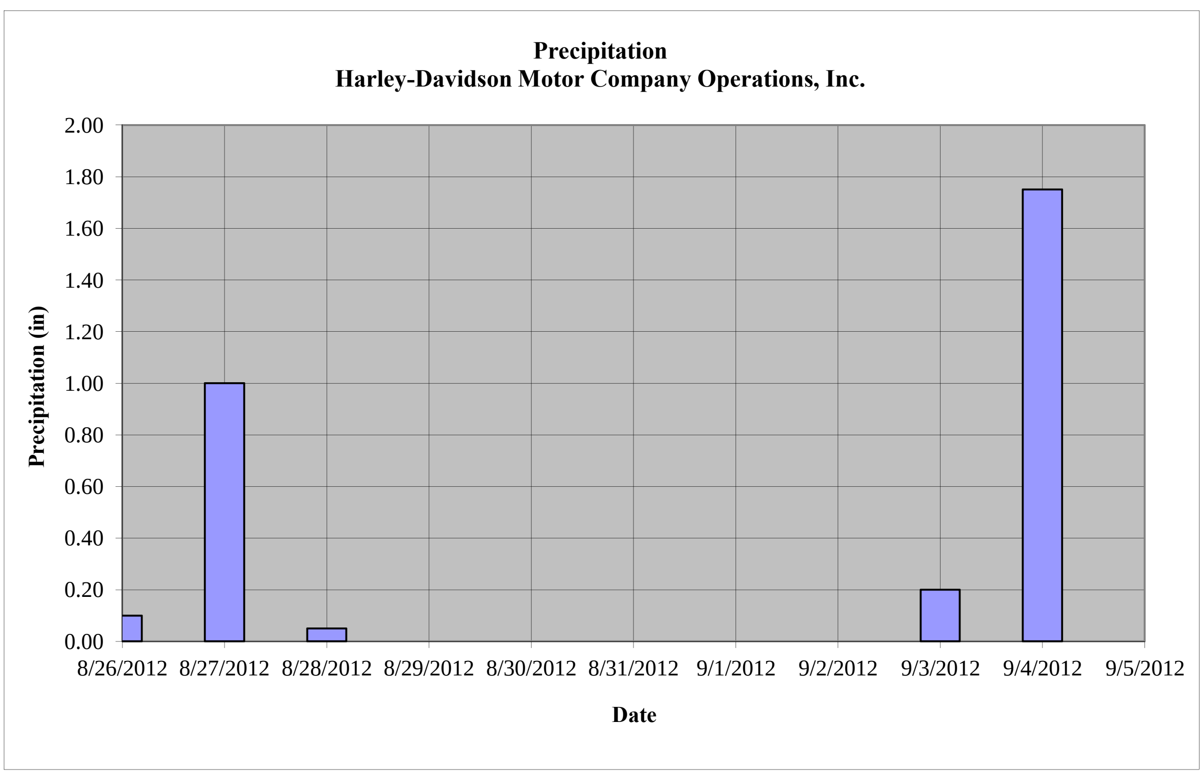


Figure 8 - Groundwater Elevations
Harley-Davidson Motor Company Operations, Inc.
372
370
368
366
364
362
360
358
356
354
352
Groundwater Elevation (ft AMSL)
8/26/2012
8/28/2012
8/30/2012
9/1/2012
9/3/2012
9/5/2012
Date
MW-77
MW-118
MW-120
MW-122
MW-124


Precipitation
Harley-Davidson Motor Company Operations, Inc.
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Precipitation (in)
8/26/2012
8/27/2012
8/28/2012
8/29/2012
8/30/2012
8/31/2012
9/1/2012
9/2/2012
9/3/2012
9/4/2012
9/5/2012
Date

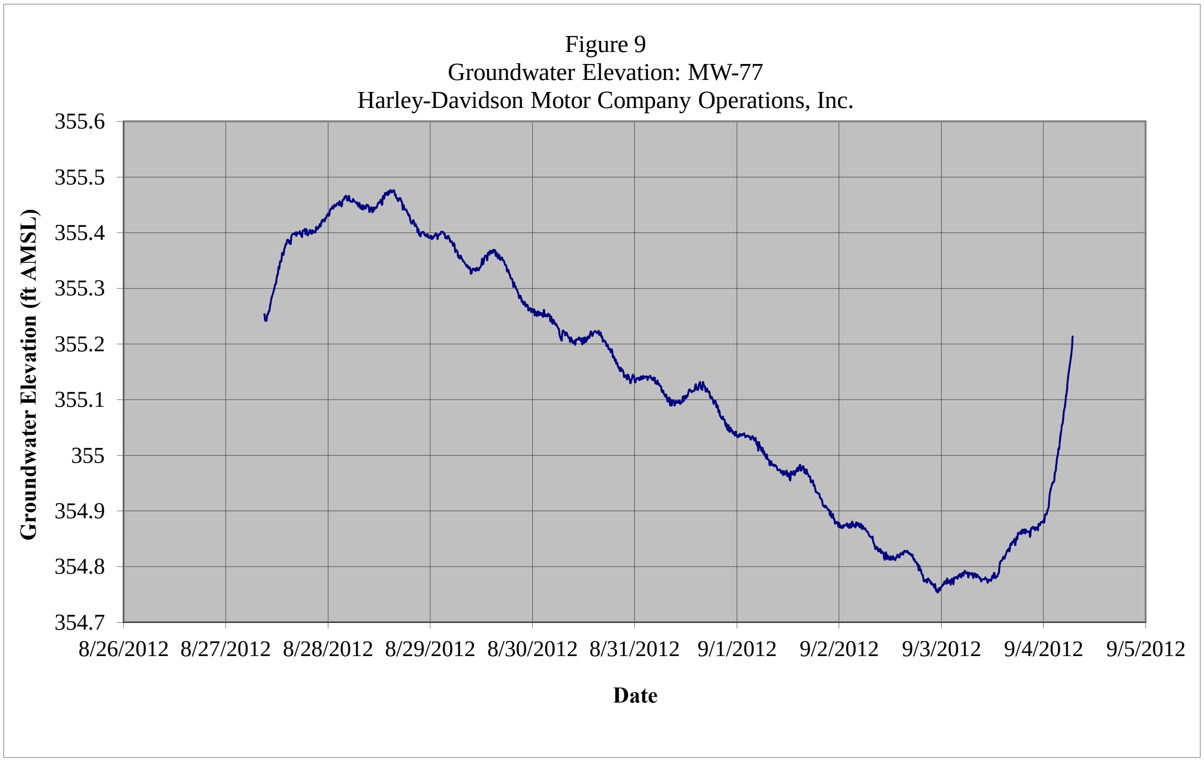


Figure 9
Groundwater Elevation: MW-77
Harley-Davidson Motor Company Operations, Inc.
355.6
355.5
355.4
355.3
355.2
355.1
355
354.9
354.8
354.7
Groundwater Elevation (ft AMSL)
8/26/2012
8/27/2012
8/28/2012
8/29/2012
8/30/2012
8/31/2012
9/1/2012
9/2/2012
9/3/2012
9/4/2012
9/5/2012
Date

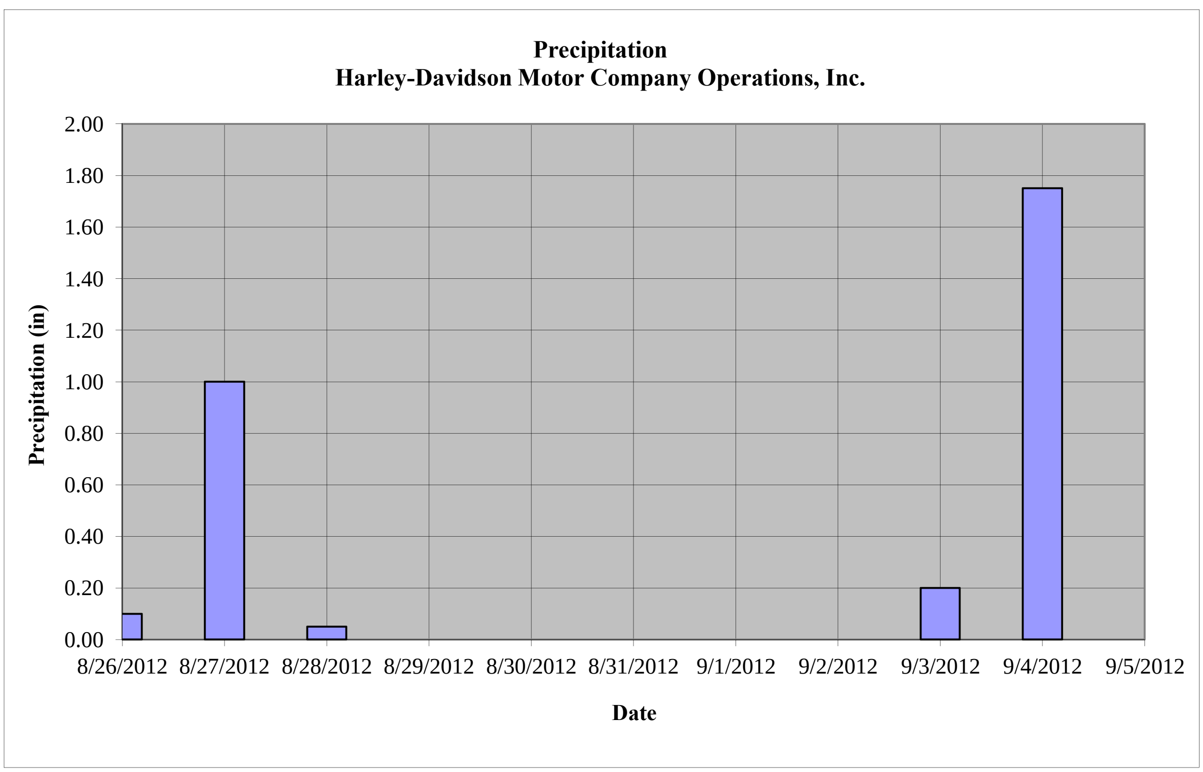
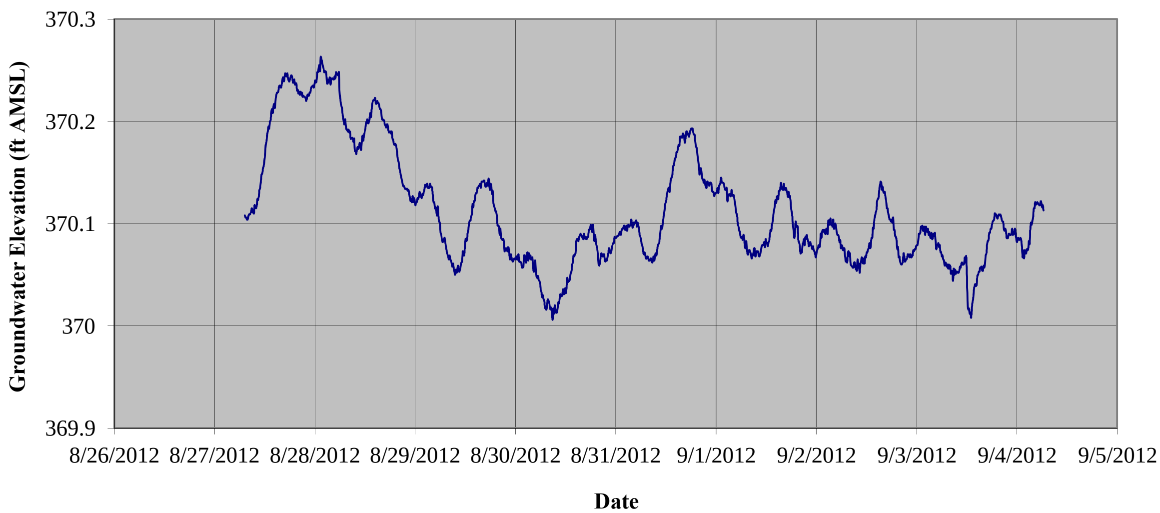

Precipitation
Harley-Davidson Motor Company Operations, Inc.
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Precipitation (in)
8/26/2012
8/27/2012
8/28/2012
8/29/2012
8/30/2012
8/31/2012
9/1/2012
9/2/2012
9/3/2012
9/4/2012
9/5/2012
Date

Figure 10
Groundwater Elevation: MW-118
Harley-Davidson Motor Company Operations, Inc.



Precipitation
Harley-Davidson Motor Company Operations, Inc.

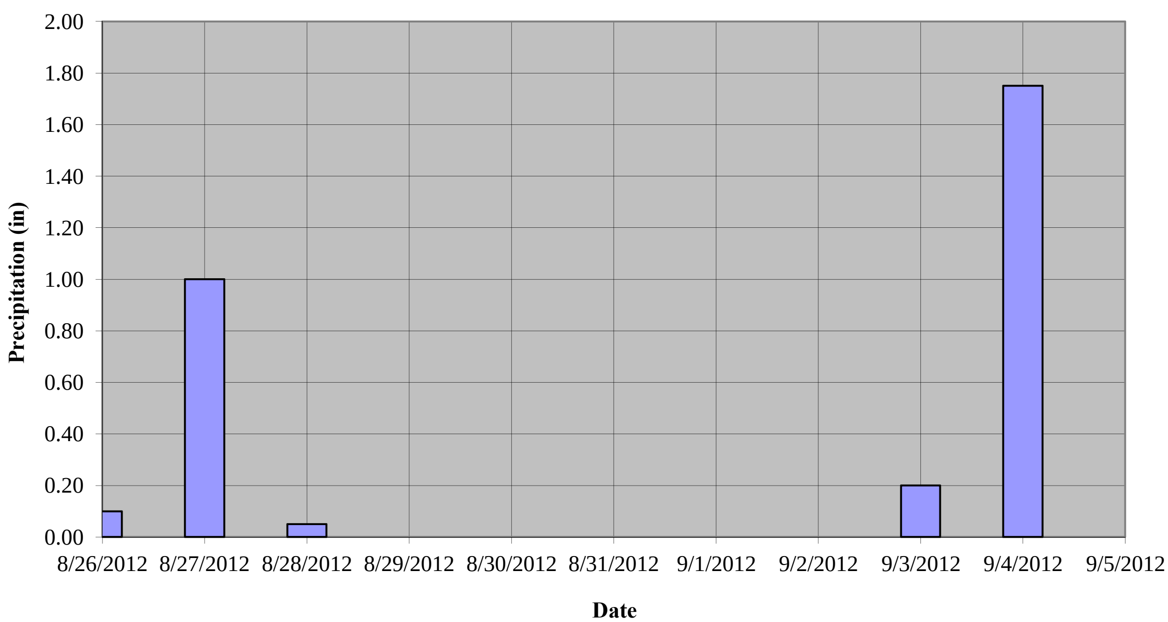


Figure 11
Groundwater Elevation: MW-120
Harley-Davidson Motor Company Operations, Inc.

Precipitation
Harley-Davidson Motor Company Operations, Inc.

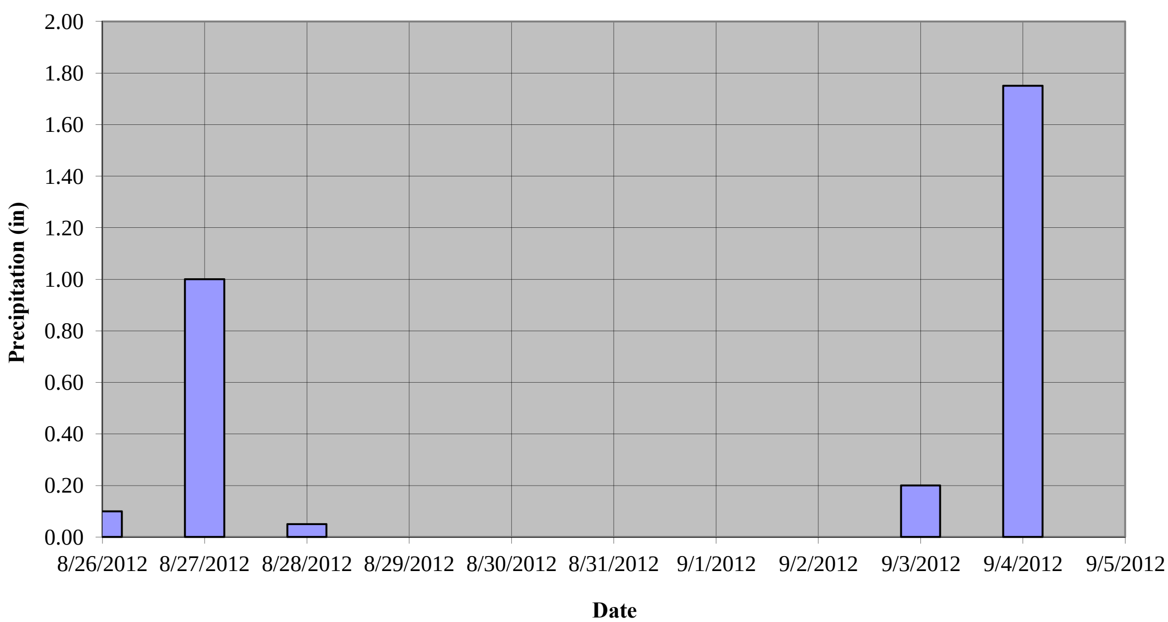


Figure 12
Groundwater Elevation: MW-122
Harley-Davidson Motor Company Operations, Inc.

Precipitation
Harley-Davidson Motor Company Operations, Inc.

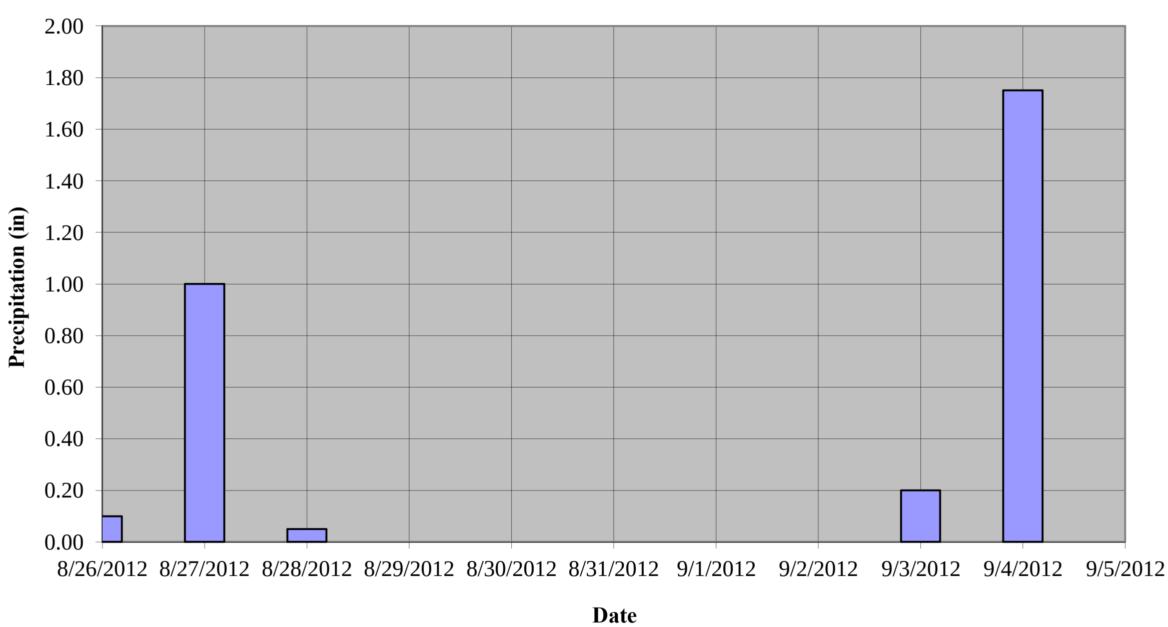
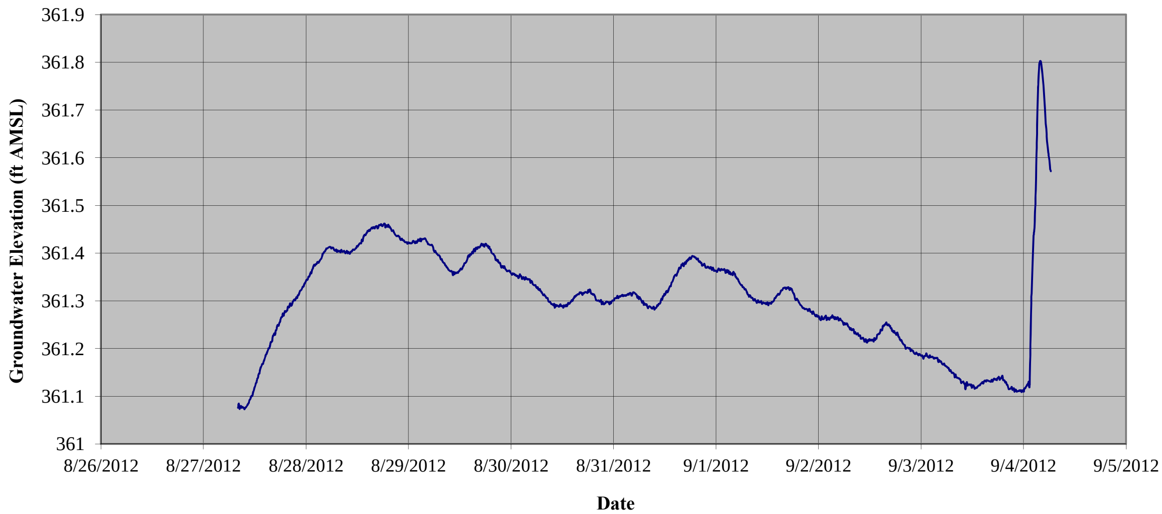
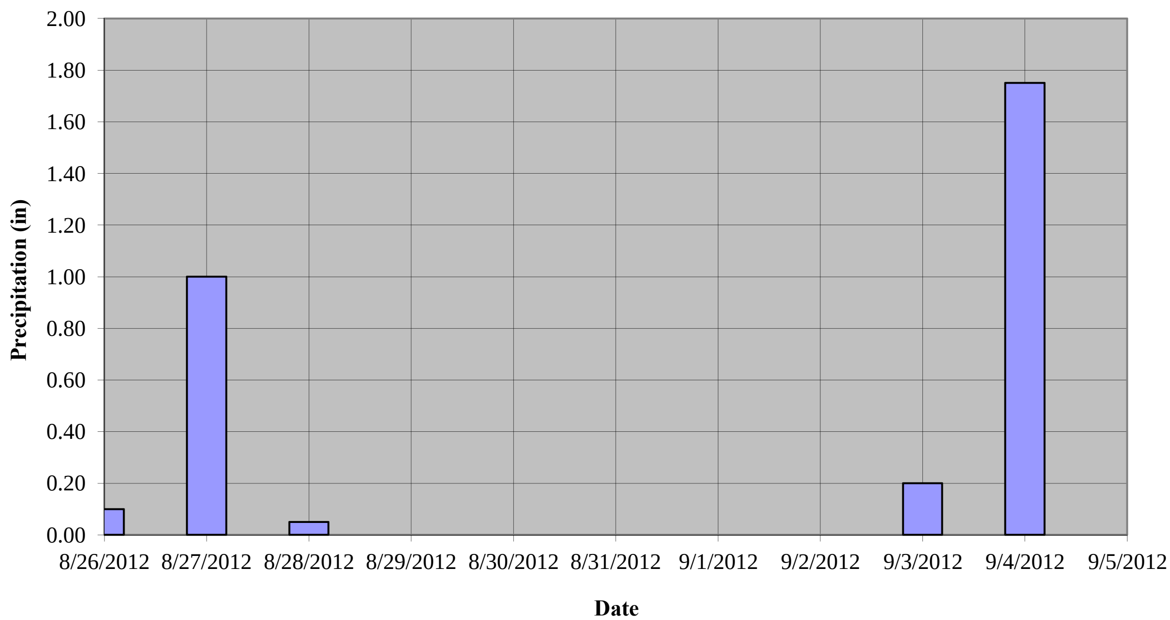


Figure 13
Groundwater Elevation: MW-124
Harley-Davidson Motor Company Operations, Inc.



Precipitation
Harley-Davidson Motor Company Operations, Inc.



TABLES

Table 1
Soil Sample Analytical Results
Building 45 UST Release Characterization
Harley-Davidson Motor Company Operations, Inc.
1425 Eden Road, York, York County, Pennsylvania
PADEP Facility ID No. 67-00823
SAIC Project Number 2603100044-3000-100

Sample Location	Sample ID	Approximate Sample Depth (feet below grade)	Date Sample Collected	Date Sample Analyzed	Analysis Method 8260/5035								
					Benzene	Toluene	Ethylbenzene	Total Xylenes	Methyl Tertiary Butyl Ether (MTBE)	Naphthalene	Isopropylbenzene (Cumene)	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
	HD-B45T-MW-122	10.5 - 11	6/18/2012	6/25/2012	<0.0056	<0.0056	<0.0056	<0.017	<0.0056	0.0021 JB	<0.0056	<0.0056	<0.0056
	HD-B45T-MW-122	23.3 - 23.8	6/18/2012	6/25/2012	<0.0061	<0.0061	<0.0061	<0.018	<0.0061	0.0022 JB	<0.0061	<0.0061	<0.0061
	HD-B45T-MW-123	13.5 - 14	6/18/2012	6/25/2012	<0.0051	<0.0051	<0.0051	<0.015	<0.0051	0.0021 JB	<0.0051	<0.0051	<0.0051
	HD-B45T-MW-123	22.6 - 23.1	6/18/2012	6/25/2012	<0.005	<0.005	<0.005	<0.015	<0.005	0.0021 JB	<0.005	<0.005	<0.005
	HD-B45T-MW-124	17.5 - 18	6/18/2012	6/25/2012	<0.28	0.310	0.16 J	0.58 J	<0.28	0.034 J	<0.28	0.074 J	<0.28
	HD-B45T-MW-124	30 - 30.5	6/18/2012	6/25/2012	**0.950**	1.300	0.14 J	0.54 J	0.11 J	0.025 J	<0.23	0.055 J	<0.23
	HD-B45T-MW-125	10 - 10.5	6/18/2012	6/25/2012	<0.0046	<0.0046	<0.0046	<0.014	<0.0046	0.0014 JB	<0.0046	<0.0046	<0.0046
	HD-B45T-MW-125	21.4 - 21.9	6/18/2012	6/25/2012	<0.0051	<0.0051	<0.0051	<0.015	<0.0051	0.0015 JB	<0.0051	<0.0051	<0.0051
	HD-B45T-MW-160	20.0 - 20.5	9/4/2012	9/7/2012	<0.0049	<0.0049	<0.0049	<0.015	<0.0049	0.0011 J	<0.0049	<0.0049	<0.0049
	HD-B45T-MW-160	36.0 - 36.5	9/4/2012	9/7/2012	0.0036 J	0.00078 J	<0.0053	<0.016	<0.0053	0.0018 J	<0.0053	<0.0053	<0.0053
PADEP Non-Residential Soil-to-Groundwater MSCs					0.5	100	70	1,000	2	25	2,500	35	9.3
PADEP Non-Residential Direct Contact MSCs (2 - 15 feet)					330	10,000	10,000	9,100	9,900	190,000	10,000	640	550
PADEP Default Non-Residential Volatilization to Indoor Air Screening Values for Soil					0.63	110	9.5	77	86	NOC	360+	29	6.4

Notes:
All results reported in milligrams per kilogram (mg/kg)
J - Result is less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL) and the concentrations is an approximate value.
MSCs - Medium Specific Concentrations
NA - Sample not analyzed for this compound
NOC - Not of Concern
PADEP - Pennsylvania Department of Environmental Protection
+ - Soil Saturation Concentration (Csat) - concentrations above Csat may suggest the need to investigate the potential presence of non-aqueous phase liquid (LNAPL)
Results that are bold/shaded are greater than PADEP nonresidential MSCs and/or indoor air screening values

Table 2
Monitoring Well Gauging Data and Groundwater Elevations
Building 45 UST Release Characterization
Harley-Davidson Motor Company Operations, Inc.
1425 Eden Road, York, York County, Pennsylvania
PADEP Facility ID No. 67-00823
SAIC Project Number 2603100044-3000-100

Location	Monitoring Well Installation Date	TOC Elevation (Feet)	Well Diameter (inches)	Total Drilled Depth (fbg)	Screened Interval (fbg)	Top of Well Screen Elevation (feet)	Date	SWL (fbtoc)	SWL Elevation (feet)
MW-118	8/15/2011	377.44	2	25	8 - 23	369.11	6/27/2012	7.50	369.94
							7/2/2012	7.59	369.85
							7/5/2012	7.49	369.95
							7/10/2012	7.59	369.85
							7/20/2012	7.03	370.41
							7/25/2012	7.62	369.82
							8/1/2012	7.45	369.99
							8/6/2012	7.55	369.89
							8/17/2012	7.25	370.19
							8/24/2012	7.22	370.22
							8/30/2012	7.51	369.93
							9/12/2012	7.50	369.94
							10/8/2012	7.38	370.06
MW-119	8/17/2011	377.03	2	27	5 - 25	372.20	6/27/2012	16.28	360.75
							7/2/2012	16.75	360.28
							7/5/2012	16.72	360.31
							7/10/2012	17.33	359.70
							7/20/2012	17.30	359.73
							7/25/2012	16.84	360.19
							8/1/2012	16.60	360.43
							8/6/2012	16.67	360.36
							8/17/2012	16.38	360.65
							8/24/2012	16.65	360.38
							8/30/2012	16.54	360.49
							9/12/2012	16.43	360.60
							10/8/2012	14.99	362.04
MW-120	8/17/2011	377.63	2	40	6 - 39	371.30	6/27/2012	9.43	368.20
							7/2/2012	10.50	367.13
							7/5/2012	11.14	366.49
							7/10/2012	12.22	365.41
							7/20/2012	13.20	364.43
							7/25/2012	13.29	364.34
							8/1/2012	13.60	364.03
							8/6/2012	15.73	361.90
							8/17/2012	14.13	363.50
							8/24/2012	14.39	363.24
							8/30/2012	14.41	363.22
							9/12/2012	14.44	363.19
							10/8/2012	10.32	367.31
MW-121	8/18/2011	376.31	2	36	7 - 35	369.08	6/27/2012	16.61	359.70
							7/2/2012	17.19	359.12
							7/5/2012	17.38	358.93
							7/10/2012	17.94	358.37
							7/20/2012	15.63	360.68
							7/25/2012	17.71	358.60
							8/1/2012	17.47	358.84
							8/6/2012	17.47	358.84
							8/17/2012	17.17	359.14
							8/24/2012	17.50	358.81
							8/30/2012	17.34	358.97
							9/12/2012	17.07	359.24
							10/8/2012	14.72	361.59
MW-122	6/20/2012	377.61	2	30	7 - 30	370.61	6/27/2012	8.98	368.63
							7/2/2012	8.93	368.68
							7/5/2012	8.90	368.71
							7/10/2012	8.93	368.68
							7/20/2012	8.75	368.86
							7/25/2012	8.78	368.83
							8/1/2012	8.52	369.09
							8/6/2012	8.43	369.18
							8/17/2012	8.34	369.27
							8/24/2012	8.40	369.21
							8/30/2012	8.36	369.25
							9/12/2012	8.30	369.31
							10/8/2012	7.65	369.96
MW-123	6/20/2012	379.64	2	30	7 - 30	372.64	6/27/2012	12.18	367.46
							7/2/2012	12.37	367.27
							7/5/2012	12.33	367.31
							7/10/2012	12.54	367.10
							7/20/2012	12.53	367.11
							7/25/2012	12.55	367.09
							8/1/2012	12.37	367.27
							8/6/2012	12.44	367.20
							8/17/2012	12.28	367.36
							8/24/2012	12.46	367.18
							8/30/2012	12.47	367.17
							9/12/2012	12.47	367.17
							10/8/2012	11.85	367.79
MW-124	6/21/2012	376.37	2	34	8 - 34	368.37	6/27/2012	14.87	361.50
							7/2/2012	15.50	360.87
							7/5/2012	15.56	360.81
							7/10/2012	16.21	360.16
							7/20/2012	16.31	360.06
							7/25/2012	15.79	360.58
							8/1/2012	15.66	360.71
							8/6/2012	15.68	360.69
							8/17/2012	14.94	361.43
							8/24/2012	15.29	361.08
							8/30/2012	15.14	361.23
							9/12/2012	14.94	361.43
							10/8/2012	13.54	362.83
MW-125	6/21/2012	366.56	2	24	4 - 24	362.56	6/27/2012	11.37	355.19
							7/2/2012	11.59	354.97
							7/5/2012	11.89	354.67
							7/10/2012	12.32	354.24
							7/20/2012	11.31	355.25
							7/25/2012	11.31	355.25
							8/1/2012	10.78	355.78
							8/6/2012	10.21	356.35
							8/17/2012	10.58	355.98
							8/24/2012	11.14	355.42
							8/30/2012	10.86	355.70
							9/12/2012	NM	NM
							10/8/2012	6.21	360.35
MW-160	9/4/2012	374.04	2	38	7.5 - 37.5	366.54	9/12/2012	19.04	355.00
							10/8/2012	17.65	356.39
MW-26	5/20/1987	379.44	2	62	11 - 61	368.44	6/27/2012	25.02	354.42
							7/2/2012	25.32	354.12
							7/5/2012	25.56	353.88
							7/10/2012	26.04	353.40
							7/20/2012	25.11	354.33
							7/25/2012	25.31	354.13
							8/1/2012	24.68	354.76
							8/6/2012	24.28	355.16
							8/17/2012	24.25	355.19
							8/24/2012	24.86	354.58
							8/30/2012	24.71	354.73
							9/12/2012	NM	NM
							10/8/2012	23.68	355.76
MW-77	6/10/1998	379.48	2	67	40 - 65	339.48	6/27/2012	24.29	355.19
							7/2/2012	24.72	354.76
							7/5/2012	24.93	354.55
							7/10/2012	25.42	354.06
							7/20/2012	24.96	354.52
							7/25/2012	24.83	354.65
							8/1/2012	24.35	355.13
							8/6/2012	24.13	355.35
							8/17/2012	24.15	355.33
							8/24/2012	24.53	354.95
							8/30/2012	24.40	355.08
							9/12/2012	24.20	355.28
							10/8/2012	23.04	356.44
							Minimum*	7.22	354.95
							Maximum*	24.53	370.22
							Average*	16.02	361.55

Notes:
* - the last five rounds of gauging data (9/12/11 to 11/28/11) were used to determine the minimum, maximum, and average values.
fbtoc - feet below top of well casing
N/A - not applicable
NM - not measured
SWL - static water level

Table 3
MW-119 Product Recovery Data
Building 45 UST Release Characterization
Harley-Davidson Motor Company Operations, Inc.
1425 Eden Road, York, York County, Pennsylvania
PADEP Facility ID No. 67-00823
SAIC Project Number 2603100044-3000-100

Location	Monitoring Well Installation Date	TOC Elevation (Feet)	Well Diameter (inches)	Total Drilled Depth (fbg)	Screened Interval (fbg)	Top of Well Screen Elevation (feet)	Date	Depth to Product (fbtoc)	SWL (fbtoc)	Product Thickness (ft)	Volume Recovered (ml)	SWL Elevation (feet)	Adjusted SWL Elevation (feet)
MW-119	8/17/2011	377.03	2	27	5 - 25	372.20	6/27/2012	16.06	16.28	0.22	140	360.75	360.90
							7/2/2012	16.53	16.75	0.22	140	360.28	360.43
							7/5/2012	16.61	16.72	0.11	70	360.31	360.39
							7/10/2012	17.10	17.33	0.23	140	359.70	359.86
							7/20/2012	17.08	17.30	0.22	140	359.73	359.88
							7/25/2012	16.77	16.84	0.07	40	360.19	360.24
							8/1/2012	16.58	16.60	0.02	NA	360.43	360.44
							8/6/2012	16.65	16.67	0.02	NA	360.36	360.37
							8/17/2012	16.36	16.38	0.02	NA	360.65	360.66
							8/24/2012	16.63	16.65	0.02	NA	360.38	360.39
							8/30/2012	16.52	16.54	0.02	NA	360.49	360.50
							9/12/2012	16.40	16.43	0.03	NA	360.60	360.62
							10/8/2012	14.97	14.99	0.02	NA	362.04	362.05

Table 4
Groundwater Sample Analytical Results
Building 45 UST Release Characterization
Harley-Davidson Motor Company Operations, Inc.
1425 Eden Road, York, York County, Pennsylvania
PADEP Facility ID No. 67-00823
SAIC Project Number 2603100044-3000-100

				Analysis Method 8260B								
Sample Location	**Sample ID**	**Date Sample Collected**	**Date Sample Analyzed**	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**Methyl Tertiary Butyl Ether (MTBE)**	**Naphthalene**	**Isopropylbenzene (Cumene)**	**1,2,4-Trimethylbenzene**	**1,3,5-Trimethylbenzene**
MW-77	HD-MW-77-01-0	6/24/2011	7/7/2011	**1,500**	56	80	74 J	**520**	NA	NA	NA	NA
	HD-MW-77-01-0	8/1/2012	8/7/2012	**2,000**	110	140	130 J	**540**	41 J	24 J	33 J	13 J
MW-118	HD-MW-118-01-0	8/25/2011	9/9/2011	**120 H**	560 H	630 H	1,900 H	<50 H	42 J H	130 H	**460 H**	**130 H**
	HD-MW-118-01-0	9/30/2011	10/11/2011	**120**	520	**1,000**	2,800	<100	**130**	88 J	**790**	**250**
	HD-MW-118-01-0	8/1/2012	8/15/2012	**39 J**	110	**600**	1,400	<50	22 JB	78	**600**	**210**
MW-119	HD-MW-119-01-0	8/25/2011	9/9/2011	**6,100 H**	**6,300 H**	510 J H	1,900 H	<630 H	**280 J H**	<630 H	**170 J H**	<630 H
	HD-MW-119-01-0	9/30/2011	10/11/2011	**11,000**	**18,000**	**2,600**	10,000	<500	**240 J**	<500	**1,300**	**480 J**
	HD-MW-119-01-0	8/1/2012	NS/FP	**NS/FP**	**NS/FP**	**NS/FP**	**NS/FP**	**NS/FP**	**NS/FP**	**NS/FP**	**NS/FP**	**NS/FP**
MW-120	HD-MW-120-01-0	8/25/2011	9/7/2011	2.2 J	0.94 J	<5.0	<15.0	14.0	<5.0	<5.0	<5.0	<5.0
	HD-MW-120-01-0	9/30/2011	10/11/2011	<5.0	<5.0	<5.0	<15.0	1.1 J	<5.0	<5.0	<5.0	<5.0
	HD-MW-120-01-0	8/1/2012	8/6/2012	**7.0**	<5.0	<5.0	<15.0	6.8	<5.0	<5.0	<5.0	<5.0
MW-121	HD-MW-121-01-0	8/25/2011	9/8/2011	**390**	**3,700 E**	**990**	3,600	**45 J**	26 J	120	**430**	**120**
	HD-MW-121-01-0	9/30/2011	10/11/2011	**430**	**4,900**	**1,000**	3,700	**56 J**	<250	45 J	**330**	**140 J**
	HD-MW-121-01-0	8/1/2012	8/7/2012	**480 J**	**6,900**	**1,900**	7,600	**35**	<500	89	**980**	**230**
MW-122	HD-MW-122-01-0	7/2/2012	7/6/2012	<5.0	<5.0	<5.0	<15.0	<5.0	<5.0	<5.0	<5.0	<5.0
	HD-MW-122-01-0	8/1/2012	8/15/2012	<5.0	<5.0	<5.0	<15.0	<5.0	1.1 JB	<5.0	<5.0	<5.0
MW-123	HD-MW-123-01-0	7/2/2012	7/6/2012	<5.0	<5.0	<5.0	<15.0	<5.0	<5.0	<5.0	<5.0	<5.0
	HD-MW-123-01-0	8/1/2012	8/15/2012	<5.0	<5.0	<5.0	<15.0	<5.0	2.8 JB	<5.0	<5.0	<5.0
MW-124	HD-MW-124-01-0	7/2/2012	7/6/2012	**1,400**	**4,000**	660	3,800	**39**	**1,600**	57	**550**	**240**
	HD-MW-124-01-0	8/1/2012	8/15/2012	**2,300**	**8,400**	**960**	9,500	**44 J**	**540 B**	36 J	**1,200**	**490**
MW-125	HD-MW-125-01-0	7/2/2012	7/6/2012	<5.0	<5.0	<5.0	<15.0	<5.0	<5.0	<5.0	<5.0	<5.0
	HD-MW-125-01-0	8/1/2012	8/6/2012	<5.0	<5.0	<5.0	<15.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-160	HD-MW-160-01-0	9/12/2012	9/21/2012	**180**	17	12	20	<5.0	4.3 J	1.2 J	3.4 J	<5.0
PADEP Non-Residential Groundwater MSCs				5	1,000	700	10,000	20	100	3,500	62	53
PADEP Default Non-Residential Volatilization to Indoor Air Screening Values for Groundwater				5,900	NOC	45,000	NOC	640,000	NOC	NOC	12,000	10,000

Notes:
All results reported in micrograms per liter (µg/L)
E - Result exceeded calibration range
H - Sample was prepped or analyzed beyond the specified holding time
J - Result is less than the reporting limit (RL) but greater than or equal to the method detection limit (MDL) and the concentration is an approximate value
NS/FP - Not Sampled, Free Product observed.
MSCs - Medium Specific Concentrations
NOC - Not of concern, value above constituent water solubility
PADEP - Pennsylvania Department of Environmental Protection
QA/QC - Quality Assurance/Quality Control
Results that are bold/shaded are greater than PADEP nonresidential MSCs and/or indoor air screening values

Table 5
Soil Sample Characterization Data
Building 45 UST Release Characterization
Harley-Davidson Motor Company Operations, Inc.
1425 Eden Road, York, York County, Pennsylvania
PADEP Facility ID No. 67-00823
SAIC Project Number 2603100044-3000-100

Sample Location	Sample ID	Approximate Sample Depth (feet below grade)	Date Sample Collected	Total Organic Carbon (mg/kg)	Percent Solids	In Place Density (g/cc)	Specific Gravity @ 20 Degrees Celsius	Percent Porosity	Percent Gravel	Percent Sand	Percent Silt	Percent Clay	Unified Soil Classification System (USCS) Group Symbol/Name
MW-118	HD-B45T-118-17.0/19.0-0	17.0 - 19.0	8/15/2011	1,410	81.0	1.77	2.69	34.1	11.6	27.7	35.9	24.8	CL - Lean Clay
MW-121	HD-B45T-121-33.0/34.7-0	33.0 - 34.7	8/17/2011	1,850	83.5	1.94	2.70	28.2	29.2	40.5	16.1	14.2	SC - Clayey Sand with Gravel

Notes:

Milligrams per kilogram (mg/kg)

g/cc - grams per cubic centimeter

TABLE 6
Summary of Slug Test Results
Building 45 UST Release Characterization
Harley-Davidson Motor Company Operations, Inc.
1425 Eden Road, York, York County, Pennsylvania
PADEP Facility ID No. 67-00823
SAIC Project Number 2603100044-3000-100

Well Location		**Hydraulic Conductivity** (gpd/ft^2)	**Hydraulic Conductivity** (ft/day)
MW-118	Test1 Rising Head	1.1	0.1
	Test2 Rising Head	3.0	0.4
	MW-118 Mean	**2.1**	0.3
MW-121	Test1 Rising Head	0.1	0.01
	Test2 Rising Head	0.1	0.01
	MW-121 Mean	**0.1**	0.01
MW-122	Test1 Rising Head	12.2	1.6
	Test2 Rising Head	91.7	12.3
	MW-122 Mean	**52.0**	6.9
MW-124	Test1 Rising Head	0.1	0.01
	Test2 Rising Head	0.1	0.01
	MW-124 Mean	**0.1**	0.01
Site Mean		**13.5**	1.8

Notes:
gpd/ft^2 - gallons per day per square foot
gpd/ft^2 was converted to ft/day using a 0.134 multiplier

Table 7
Soil Gas Sample Analytical Data
Building 45 UST Release Characterization
Harley-Davidson Motor Company Operations, Inc.
1425 Eden Road, York, York County, Pennsylvania
PADEP Facility ID No. 67-00823
SAIC Project Number 2603100044-3000-100

Sample ID	Date Sampled	Date Analyzed	PADEP Short List of Petroleum Products (Unleaded Gasoline Parameters) Via USEPA Method TO-15								
			Benzene	Ethylbenzene	Isopropylbenzene (Cumene)	Methyl Tertiary Butyl Ether (MTBE)	Naphthalene	Toluene	Total Xylenes	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
SGSP-1	8/15/2012	8/17/2012	**0.76 J**	**7.5**	**1.6 J**	<14	**7.3 J**	**13**	**54**	**37**	**7.9**
	9/12/2012	9/13/2012	**2.4 J**	**9.0**	**1.8 J**	<14	<10	**9.1**	**44**	**2.8 J**	**1.4 J**
SGSP-2	8/15/2012	8/17/2012	**0.84 J**	<3.5	<7.9	<14	<10	**2.1 J**	<3.5	<3.9	<3.9
	9/12/2012	9/14/2012	**2.4 J**	**1.5 J**	<7.9	<14	<10	**5.7**	**6.6 J**	<3.9	<3.9
SGSP-3	8/15/2012	8/17/2012	<2.6	<3.5	<7.9	<14	<10	**0.97 J**	<3.5	<3.9	<3.9
	9/12/2012	9/13/2012	<2.6	<3.5	<7.9	<14	<10	**0.98 J**	<3.5	**1.9 J**	<3.9
Ambient Air	8/15/2012	8/17/2012	**0.28**	**0.14 J**	<0.79	<1.4	**0.26 J**	**0.63**	**0.96 J**	**0.37 J**	<0.39
	9/12/2012	9/13/2012	**0.45**	**0.28 J**	<0.79	<1.4	<1.0	**1.7**	**1.2 J**	**0.32 J**	<0.39
PADEP Nonresidential MSC for Soil Gas			1,100	7,300	110,000	31,000	880	120,000	30,000	1,700	1,700

Notes:
All results reported in micrograms per cubic meter (µg/m3)
Concentrations that are bold were detected.
Concentrations that are bold and shaded were greater than the PADEP residential MSC for Soil Gas
USEPA - United States Environmental Protection Agency
PADEP - Pennsylvania Department of Environmental Protection
MSCs - Medium Specific Concentrations
MSCs for soil gas were derived in accordance with the Land Recycling Program Technical Guidance Manual - Section IV.A.4 *Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard* , dated November 2004.
< - Indicates the parameter was not detected in the sample

APPENDIX A

Well Construction Logs

WELL CONSTRUCTION LOG OF MW-118

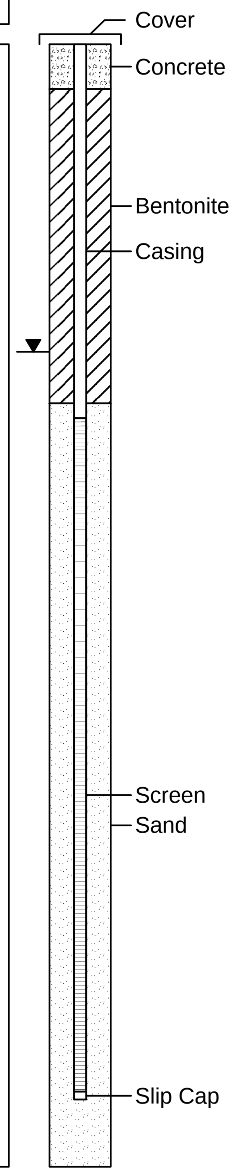
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/2000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 8/15/2011
Logged By	: Matthew J. Logan	Well Construction	: 8/15/2011
Drilling Method	: Hollow Stem Auger	Well Development	: 8/18/2011
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 8/15/2011		

Depth in Feet	Recovery	Blow Count	DESCRIPTION	USCS	GRAPHIC	PID (ppm) - bkgd = 0.0
0–5	NA		ML - Asphalt and sub-base followed by SILT, brownish yellow (10YR 6/6), dry.	ML		0.0, 0.0, 0.0, 0.0
5–7	2.0'/2.0'	5, 5, 7, 8	CL - CLAY, light yellowish brown (10YR 6/4), dry, soft, medium plasticity.	CL		1.7, 1.8, 1.3
7–10			Auger 7'-10' to next sampling interval.			
10–11	1.8'/2.0'	4, 5, 10, 9	CL - CLAY, yellow (10YR 7/8), dry, soft, low plasticity.	CL		28.4, 381
11–12			CL - CLAY with quartz fragments, yellow (10YR 7/8), dry, soft, low plasticity.	CL		160
			No recovery.			
12–15			Auger 12'-15' to next sampling interval.			
15–17	2.0'/2.0'	2, 3, 3, 4	CL - CLAY with limestone fragments, yellow (10YR 7/8), wet, soft, low plasticity.	CL		4.8, 50.3, 11.0
17–20			Auger 17'-20' to next sampling interval. Shelby Tube Sample 17.0' - 19.0' BGS.			
20–22	0.0'/2.0'	9, 7, 6, 7	No recovery.			
22–23			Auger 22'-23' to next sampling interval.			323
23–25	2.0'/2.0'	3, 6, 7, 8	CL - CLAY with limestone fragments, yellow (10YR 7/8), wet, soft, low plasticity.	CL		10.8, 1.2
25			End of boring at 25' BGS.			

Well: MW-118
Elev.377.44:



Well Construction Information

WELL CONSTRUCTION

Date Completed : 8/15/2011
Auger I.D. : 4 1/4"
Drilling Method : Hollow Stem Auger
Driller : Eichelberger's

WELL CASING :

Material : Sch 40 PVC
Diameter : 2"
From : 0' to 8.33' BPVC
Joints : Flush Threaded

WELL SCREEN :

Material : Sch 40 PVC
Diameter : 2"
From : 8.33' to 23.33' BPVC
Joints : Flush Threaded
Opening : 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS
#0 Morie Sand, 11-50 lb. bags
Bentonite hole plug (3/8"), 3-50 lb. bag

Flush Mount Surface Completion

Soil Sample HD-B45T-MW-118-11.0/12.0-0 collected from 11.0' to 12.0' BGS. Sample analyzed for PA DEP Unleaded Gasoline Short List by TestAmerica Pittsburgh.

Soil Sample HD-B45T-MW-118-17.0/19.0-0 collected from 17.0' to 19.0' BGS. Sample analyzed for porosity, specific gravity, density, particle size, total organic carbon and percent moisture by TestAmerica Burlington.

Static water level collected on September 30, 2011.
BGS-below ground surface
BPVC-below top of PVC

10-04-2012

WELL CONSTRUCTION LOG OF MW-119

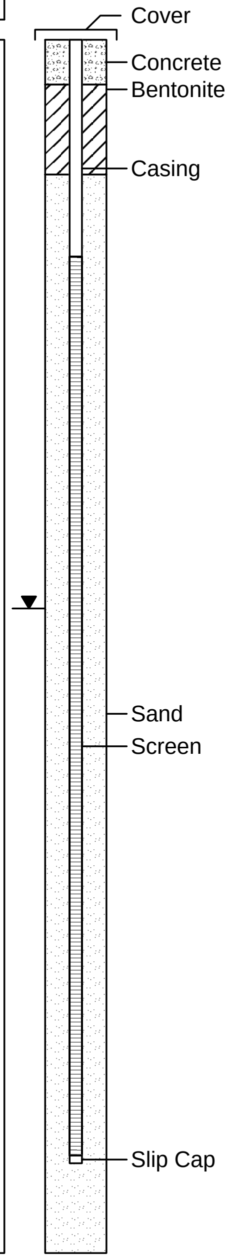
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/2000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 8/16/2011
Logged By	: Matthew J. Logan	Well Construction	: 8/17/2011
Drilling Method	: Hollow Stem Auger	Well Development	: 8/18/2011
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 8/16/2011		

Depth in Feet	Recovery	Blow Count	DESCRIPTION	USCS	GRAPHIC	PID (ppm) - bkgd = 0.0
0	NA		GP - GRAVEL with SAND, medium grained, angular gravel, fine grained sand, gray (2.5Y 5/1), loose, moist.	GP		
5	2.0'/2.0'	3 8 6 9	ML - SILT with quartz gravel, brownish yellow (10YR 6/6), dry, firm.	ML		198 156 15.0
			Auger 7'-10' to next sampling interval.			
10	2.0'/2.0'	3 6 6 8	CL - CLAY, yellow (10YR 7/8), dry, firm.	CL		104 132
			CL - CLAY with quartz gravel, yellow (10YR 7/8), dry, moist, low plasticity.	CL		115
			Auger 12'-15' to next sampling interval.			
15	2.0'/2.0'	4 4 7 11	ML - SILT, pale yellow (5Y 7/3), moist, soft.	ML		3.2 8.3
			GW - WELL GRADED QUARTZ GRAVEL, fine to coarse grained, angular with well graded sand, fine to coarse grained, angular, moist, dense.	GW		109
			Auger 17'-20' to next sampling interval.			
20	2.0'/2.0'	5 6 11 11	GW - WELL GRADED QUARTZ GRAVEL, fine to coarse grained, angular with well graded sand, fine to coarse grained, angular, moist, dense.	GW		1,574 1,211 474
			Auger 22'-25' to next sampling interval.			
25	2.0'/2.0'	5 9 11 14	GW - WELL GRADED QUARTZ GRAVEL, fine to coarse grained, angular with well graded sand, fine to coarse grained, angular, wet, dense.	GW		1,315 1,268
			End of boring at 27' BGS.			
30						

Well: MW-119
Elev.377.03:



Well Construction Information

WELL CONSTRUCTION

Date Completed : 8/17/2011
Auger I.D. : 4 1/4"
Drilling Method : Hollow Stem Auger
Driller : Eichelberger's

WELL CASING :

Material : Sch 40 PVC
Diameter : 2"
From : 0' to 4.83' BPVC
Joints : Flush Threaded

WELL SCREEN :

Material : Sch 40 PVC
Diameter : 2"
From : 4.83' to 24.83' BPVC
Joints : Flush Threaded
Opening : 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS

#0 Morie Sand, 12-50 lb. bags

Bentonite Hole Plug (3/8"), 1-50 lb. bag

Flush Mount Surface Completion

BGS-below ground surface
BPVC-below top of PVC

No soil samples were collected for laboratory analysis.

Static water level collected on September 30, 2011.

10-04-2012

SAIC

WELL CONSTRUCTION LOG OF MW-120

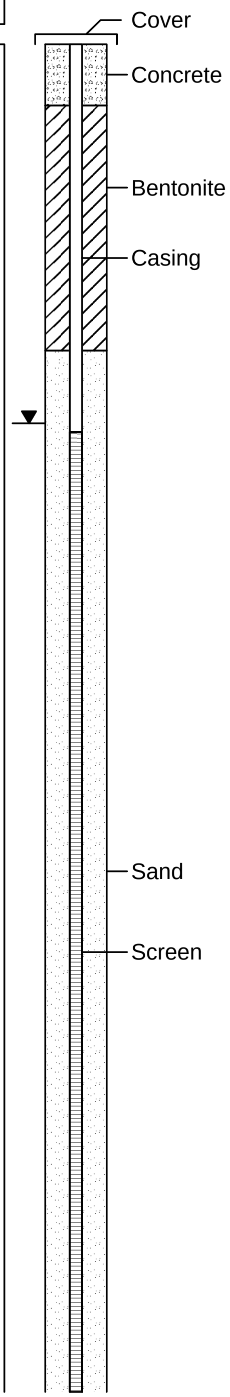
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/2000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 8/16/2011
Logged By	: Matthew J. Logan	Well Construction	: 8/17/2011
Drilling Method	: Hollow Stem Auger	Well Development	: 8/18/2011
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 8/16/2011		

Depth in Feet	Recovery	Blow Count	DESCRIPTION	USCS	PID (ppm) - bkgd = 0.0
0–5	NA		ML - SILT, brownish yellow (10YR 6/6), dry, with well graded gravel, fine to coarse grained, angular.	ML	0.0, 0.0, 0.0, 0.0, 0.0
5–7	2.0'/2.0'	5 6 7 8	ML - SILT, brownish yellow (10YR 6/6), dry, with well graded gravel, fine to coarse grained, angular.	ML	0.0, 0.0
7–10			Auger 7'-10' to next sampling interval.		0.0
10–12	2.0'/2.0'	2 3 2 2	ML - SILT, dark gray (5Y 6/1), with fine grained sand, moist, very soft.	ML	0.0, 0.0, 0.0
12–15			Auger 12'-15' to next sampling interval.		
15–17	2.0'/2.0'	2 3 5 7	ML - SILT, dark gray (5Y 6/1), with fine grained sand, moist, very soft.	ML	0.0
			ML - SILT, gray (5Y 6/1), moist, firm.	ML	0.0, 0.0
17–20			Auger 17'-20' to next sampling interval.		
20–22	2.0'/2.0'	4 7 6 12	ML - SILT, gray (5Y 6/1), moist, firm.	ML	0.0
			SP - POORLY GRADED SAND WITH GRAVEL, fine grained sand, coarse grained, angular quartz gravel, moist, loose.	SP	0.0

Well: MW-120
Elev.377.63:



Well Construction Information

WELL CONSTRUCTION

Date Completed : 8/17/2011
Auger I.D. : 4 1/4"
Drilling Method : Hollow Stem Auger
Driller : Eichelberger's

WELL CASING :

Material : Sch 40 PVC
Diameter : 2"
From : 0' to 6.33' BPVC
Joints : Flush Threaded

WELL SCREEN :

Material : Sch 40 PVC
Diameter : 2"
From : 6.33' to 39.33' BPVC
Joints : Flush Threaded
Opening : 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS

#0 Morie Sand, 21-50 lb. bags

Bentonite Hole Plug (3/8"), 2-50 lb. bag

Flush Mount Surface Completion

BGS-below ground surface
BPVC-below top of PVC

No soil samples were collected for laboratory analysis.

Static water level collected on September 30, 2011.

SAIC	WELL CONSTRUCTION LOG OF MW-120 (Page 2 of 2)

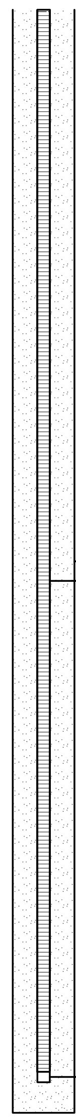
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/2000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 8/16/2011
Logged By	: Matthew J. Logan	Well Construction	: 8/17/2011
Drilling Method	: Hollow Stem Auger	Well Development	: 8/18/2011
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 8/16/2011		

Depth in Feet	Recovery	Blow Count	DESCRIPTION	USCS	GRAPHIC	PID (ppm) - bkgd = 0.0
22			Auger 22'-25' to next sampling interval.			
	2.0'/2.0'	6 4 7 10	SP - POORLY GRADED SAND WITH GRAVEL, fine grained sand, coarse grained, angular quartz gravel, moist, loose.	SP		0.0
				CL		0.0
27			CL - CLAY, pale olive (5Y 6/4), moist, firm, medium plasticity.			0.0
			Auger 27'-30' to next sampling interval.			
	1.8'/2.0'	2 3 4 9	CL - CLAY, pale olive (5Y 6/4), moist, firm, medium plasticity.	CL		0.0
			CL - CLAY, pale olive (5Y 6/4), moist, firm, medium plasticity, with limestone fragments.	CL		0.0
32	2.0'/2.0'	12 12 13 14	No recovery.			0.0
			CL - CLAY, pale olive (5Y 6/4), moist, firm, medium plasticity, with limestone fragments.	CL		0.0
	2.0'/2.0'	11 12 17 17	CL - CLAY, pale olive (5Y 6/4), moist, firm, medium plasticity, with limestone fragments.	CL		0.0 0.0
			SP - POORLY GRADED SAND, fine to medium grained, with coarse, angular quartz gravel, olive (5Y 5/3), moist, loose.	SP		0.0
37	1.4'/2.0'	3 4 9 10	GW - WELL GRADED GRAVEL WITH SAND, light gray (5Y 7/1), wet, fine to coarse grained angular gravel with fine to coarse grained sand.	GW		0.0 0.0
	2.0'/2.0'	7 10 8 8	No recovery.	GW		0.0
			GW - WELL GRADED GRAVEL WITH SAND, light gray (5Y 7/1), wet, fine to coarse grained angular gravel with fine to coarse grained sand.	CL		0.0
42			CL - CLAY, light olive brown (2.5Y 5/6), moist, firm, with quartz gravel.			
			End of boring at 40' BGS.			

Well: MW-120
Elev.377.63:



Well Construction Information

WELL CONSTRUCTION

Date Completed	: 8/17/2011
Auger I.D.	: 4 1/4"
Drilling Method	: Hollow Stem Auger
Driller	: Eichelberger's

WELL CASING :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0' to 6.33' BPVC
Joints	: Flush Threaded

WELL SCREEN :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 6.33' to 39.33' BPVC
Joints	: Flush Threaded
Opening	: 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS

#0 Morie Sand, 21-50 lb. bags

Bentonite Hole Plug (3/8"), 2-50 lb. bag

Flush Mount Surface Completion

BGS-below ground surface
BPVC-below top of PVC

No soil samples were collected for laboratory analysis.

Static water level collected on September 30, 2011.

10-04-2012

WELL CONSTRUCTION LOG OF MW-121

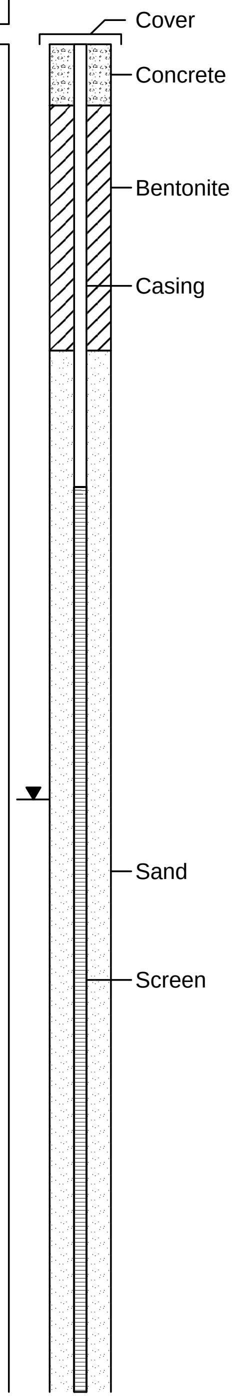
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/2000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 8/17/2011
Logged By	: Matthew J. Logan	Well Construction	: 8/17/2011
Drilling Method	: Hollow Stem Auger	Well Development	: 8/18/2011
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 8/15/2011		

Well: MW-121
Elev.376.31:

Depth in Feet	Recovery	Blow Count	DESCRIPTION	USCS	PID (ppm) - bkgd = 0.0
0–5	NA		ML - SILT, brownish yellw (10YR 6/6), dry, with well graded gravel, fine to coarse grained, angular.	ML	0.0, 0.0, 0.0, 0.0, 0.0
5–7	1.6'/2.0'	4, 5, 5, 6	ML - SILT, brownish yellow (10YR 6/6), dry, soft, with quartz gravel.	ML	0.0
			No recovery.		
7–10			Auger 7'-10' to next sampling interval.		
10–12	1.2'/2.0'	2, 2, 4, 3	CL - CLAY, olive (5Y 4/4), moist, very soft, high plasticity.	CL	0.0
			CLAY - olive yellow (2.5Y 6/6), wet at 11.2' BGS.	CL	0.0
12–15			Auger 12'-15' to next sampling interval.		
15–17	2.0'/2.0'	WH, WH, WH, 2	CLAY - olive gray (5Y 5/2), wet, very soft, with well graded gravel, fine to coarse grained, angular.	CL	10.6, 2.0, 12.7
17–20			Auger 17'-20' to next sampling interval.		
20–22	2.0'/2.0'	4, 5, 8, 9	CL - CLAY, brownish yellow (10YR 6/8), moist, soft, high plasticity.	CL	0.0, 0.0



Well Construction Information

WELL CONSTRUCTION

Date Completed : 8/17/2011
Auger I.D. : 4 1/4"
Drilling Method : Hollow Stem Auger
Driller : Eichelberger's

WELL CASING :

Material : Sch 40 PVC
Diameter : 2"
From : 0' to 7.23' BPVC
Joints : Flush Threaded

WELL SCREEN :

Material : Sch 40 PVC
Diameter : 2"
From : 7.23' to 35.23' BPVC
Joints : Flush Threaded
Opening : 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS

#0 Morie Sand, 19-50 lb. bags

Bentonite Hole Plug (3/8"), 2-50 lb. bag

Flush Mount Surface Completion

BGS-below ground surface
BPVC-below top of PVC

WH-split spoon sampler was advance with the weight of the hammer alone, not driven.

Soil Sample HD-B45T-MW-121-33.0/34.7-0 collected from 33.0' to 34.7' BGS. Sample analyzed for porosity, specific gravity, density, particle size, total organic carbon and percent moisture by TestAmerica Burlington.

Static water level collected on September 30, 2011.

10-04-2012

WELL CONSTRUCTION LOG OF MW-121

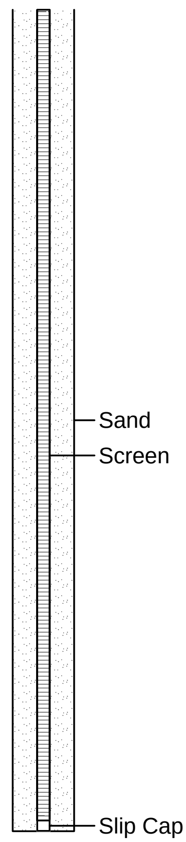
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/2000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 8/17/2011
Logged By	: Matthew J. Logan	Well Construction	: 8/17/2011
Drilling Method	: Hollow Stem Auger	Well Development	: 8/18/2011
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 8/15/2011		

Well: MW-121
Elev.376.31:

Depth in Feet	Recovery	Blow Count	DESCRIPTION	USCS	GRAPHIC	PID (ppm) - bkgd = 0.0
22			Auger 22'-23' to next sampling interval.			
	1.0'/2.0'	2, 5, 5, 9	CL - CLAY, brownish yellow (10YR 6/8), moist, soft, medium plasticity, with limestone fragments.	CL		0.0
	2.0'/2.0'	2, 5, 6, 7	ML - SILT, yellow (2.5Y 7/8) mottled with light gray (5Y 7/1), moist, soft.	ML		0.0
27	2.0'/2.0'	7, 10, 12, 13	ML - SILT, yellow (2.5Y 7/8) mottled with light gray (5Y 7/1), moist, soft.	ML		0.0
			ML - SILT, yellow (2.5Y 7/8) mottled with light gray (5Y 7/1), moist, soft, with limestone fragments.	ML		21.2
	1.0'/2.0'	3, 6, 7, 9	CL - CLAY, yellow (10YR 7/8), moist, firm, low plasticity.	CL		4.7
			CL - CLAY, brownish yellow (10YR 6/8), moist, soft, with quartz fragments.	CL		11.0
32	2.0'/2.0'	5, 7, 9, 11	No recovery.	CL		17.0
			SP - WELL GRADED SAND, light gray (2.5Y 7/1), fine to coarse grained, angular, wet, very loose.	SP		11.1
			CL - CLAY, olive (2.5Y 6/8), wet, very soft.	CL		10.9
			CL - CLAY, yellowish brown (10YR 5/6), moist, firm.	CL		
			Auger 33' - 35' BGS.			
			Shelby Tube Sample 33' - 34.7' BGS.			
37						
42						



Well Construction Information

WELL CONSTRUCTION

Date Completed : 8/17/2011
Auger I.D. : 4 1/4"
Drilling Method : Hollow Stem Auger
Driller : Eichelberger's

WELL CASING :

Material : Sch 40 PVC
Diameter : 2"
From : 0' to 7.23' BPVC
Joints : Flush Threaded

WELL SCREEN :

Material : Sch 40 PVC
Diameter : 2"
From : 7.23' to 35.23' BPVC
Joints : Flush Threaded
Opening : 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS

#0 Morie Sand, 19-50 lb. bags

Bentonite Hole Plug (3/8"), 2-50 lb. bag

Flush Mount Surface Completion

BGS-below ground surface
BPVC-below top of PVC

WH-split spoon sampler was advance with the weight of the hammer alone, not driven.

Soil Sample HD-B45T-MW-121-33.0/34.7-0 collected from 33.0' to 34.7' BGS. Sample analyzed for porosity, specific gravity, density, particle size, total organic carbon and percent moisture by TestAmerica Burlington.

Static water level collected on September 30, 2011.

SAIC

WELL CONSTRUCTION LOG OF MW-122

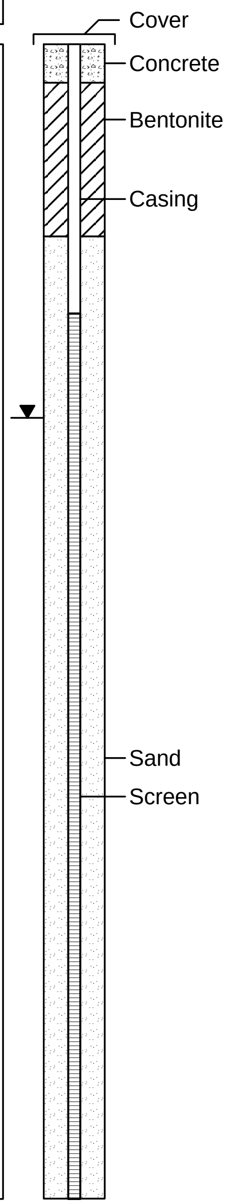
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/3000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 6/20/2012
Logged By	: Matthew J. Logan	Well Construction	: 6/20/2012
Drilling Method	: Hollow Stem Auger	Well Development	: 6/22/2012
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 6/20/2012		

Depth in Feet	Recovery	DESCRIPTION	USCS	PID (ppm) - bkgd = 0.0
0	3.2'/5.0'	ML - Asphalt and sub-base followed by SANDY SILT with quartz fragments and limestone aggregate, yellowish brown (10YR 5/8), very soft, moist.	ML	0.0, 0.0, 0.0
		No Recovery.		
5	2.9'/5.0'	GP - POORLY GRADED QUARTZ GRAVEL with silt and sand, fine to medium grained, angular gravel, strong brown (7.5YR 5/6) matrix, loose, dry.	GP	0.0, 0.0
		ML - SILT, yellowish brown (10YR 5/8), soft, moist.	ML	0.0
		No Recovery.		
10	1.9'/5.0'	ML - SILT with fine to coarse grained, angular quartz gravel, yellowish brown (10YR 5/6), soft, moist.	ML	0.0, 0.0
		No Recovery.		
15	3.9'/5.0'	GW - WELL GRADED QUARTZ GRAVEL with silt, fine to coarse grained, angular to rounded gravel, brownish yellow (10YR6/6) matrix, very hard, moist.	GW	0.0, 0.0, 0.0, 0.0
		No Recovery.		
20	3.8'/5.0'	ML - SILT with fine to coarse grained, angular quartz gravel, yellowish brown (10YR 5/6), soft, moist to wet.	ML	0.0, 0.0
		ML - SILT, light brownish yellow (10YR 6/4) and yellowish brown (10YR 5/6), firm, moist.	ML	0.0, 0.0
		No Recovery.		
25	3.5'/5.0'	ML - SANDY SILT, pale yellow (2.5Y 7/4), hard, moist.	ML	0.0, 0.0, 0.0, 0.0
		No Recovery		
30		End of boring at 30' BGS.		
35				

Well: MW-122
Elev.377.61:



Well Construction Information

WELL CONSTRUCTION

Date Completed	: 6/20/2012
Auger I.D.	: 4 1/4"
Drilling Method	: Hollow Stem Auger
Driller	: Eichelberger's

WELL CASING :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0' to 7' BPVC
Joints	: Flush Threaded

WELL SCREEN :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 7' to 30' BPVC
Joints	: Flush Threaded
Opening	: 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS
#1 Morie Sand, 15-50 lb. bags
Bentonite hole plug (3/8"), 2-50 lb. bag

Flush Mount Surface Completion

Soil Samples
HD-B45T-MW-122-10.5/11.0-0 collected from 10.5' to 11.0' BGS. and HD-B45T-MW-122-23.3/23.8-0 collected from 23.3' to 23.8' BGS. Samples analyzed for PA DEP Unleaded Gasoline Short List by TestAmerica Pittsburgh.

Static water level collected on June 22, 2012.
BGS-below ground surface
BPVC-below top of PVC

10-04-2012

WELL CONSTRUCTION LOG OF MW-123

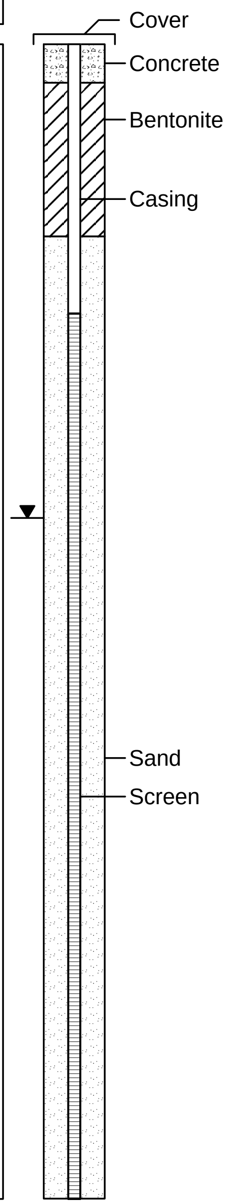
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/3000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 6/20/2012
Logged By	: Matthew J. Logan	Well Construction	: 6/20/2012
Drilling Method	: Hollow Stem Auger	Well Development	: 6/22/2012
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 6/20/2012		

Depth in Feet	Recovery	DESCRIPTION	USCS	PID (ppm) - bkgd = 0.0
0–5	5.0'/5.0'	ML - Concrete and sub-base followed by SILT, brownish yellow (10YR 6/6) and olive yellow (2.5Y 6/6), hard, dry.	ML	0.0, 0.0, 0.0, 0.0, 0.0
5–10	4.3'/5.0'	ML - SANDY SILT with sandstone fragments, yellow (10YR 7/8), very hard, dry.	ML	0.0, 0.0
		ML - SILT, brownish yellow (10YR 6/6), very hard, dry.	ML	0.0, 0.0, 0.0
		No Recovery.		
10–15	4.0'/5.0'	ML - SANDY SILT with fine to coarse grained, angular quartz gravel, brownish yellow (10YR 6/6), very hard, dry.	ML	0.0, 0.0, 0.0, 0.0
		ML - SILT, yellow (10YR 7/6), firm, moist.	ML	0.0
		No Recovery.		0.0
15–20	3.6'/5.0'	ML - SILT with fine to coarse, angular quartz gravel and sandy rock fragments, brownish yellow (10YR 6/6), very hard, moist.	ML	0.0, 0.0, 0.0, 0.0
		No Recovery.		
20–25	3.1'/5.0'	ML - SILT with fine to coarse, angular quartz gravel and sandy rock fragments, brownish yellow (10YR 6/6), very hard, moist.	ML	0.0, 0.0
		ML - SILT, pale yellow (2.5Y 7/4), hard, moist	ML	
		GW - WELL GRADED QUARTZ GRAVEL with silt, fine to coarse grained, angular to rounded gravel, yellowish brown (10YR 5/8) matrix, hard, moist.	GW	0.0, 0.0
		No Recovery.		
25–30	3.7'/5.0'	GW - WELL GRADED QUARTZ GRAVEL with silt, fine to coarse grained, angular to rounded gravel, yellowish brown (10YR 5/8) matrix, hard, water saturated.	GW	0.0, 0.0
		CL - CLAY, light yellowish brown (2.5Y 6/4), high plasticity, hard, moist.	CL	0.0, 0.0
		No Recovery.		

End of boring at 30' BGS.



Well Construction Information

WELL CONSTRUCTION

Date Completed	: 6/20/2012
Auger I.D.	: 4 1/4"
Drilling Method	: Hollow Stem Auger
Driller	: Eichelberger's

WELL CASING :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0' to 7' BPVC
Joints	: Flush Threaded

WELL SCREEN :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 7' to 30' BPVC
Joints	: Flush Threaded
Opening	: 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS
#1 Morie Sand, 17-50 lb. bags
Bentonite hole plug (3/8"), 2-50 lb. bag

Flush Mount Surface Completion

Soil Samples HD-B45T-MW-123-13.5/14.0-0 collected from 13.5' to 14.0' BGS. and HD-B45T-MW-123-22.6/23.1-0 collected from 22.6' to 23.1' BGS. Samples analyzed for PA DEP Unleaded Gasoline Short List by TestAmerica Pittsburgh.

Static water level collected on June 22, 2012.
BGS-below ground surface
BPVC-below top of PVC

10-04-2012

WELL CONSTRUCTION LOG OF MW-124

Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/3000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 6/21/2012
Logged By	: Matthew J. Logan	Well Construction	: 6/21/2012
Drilling Method	: Hollow Stem Auger	Well Development	: 6/22/2012
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 6/20/2012		

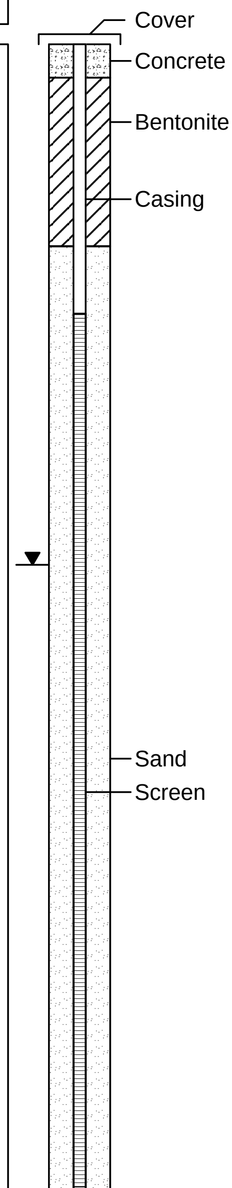
Depth in Feet	Recovery	DESCRIPTION
0	3.7'/5.0'	ML - SANDY SILT with quartz gravel and limestone fragments, yellowish brown (10YR 5/6), soft, moist.
		LUMBER.
		CONCRETE.
		No Recovery.
5	2.8'/5.0'	FILL - concrete, red brick and rock fragments.
		ML - SILT with fine to coarse grained, angular quartz fragments, yellowish brown (10YR 5/6), very hard, moist.
10	3.5'/5.0'	CL - CLAY, light yellowish brown (2.5Y 6/4), very soft, medium plasticity, moist.
		No Recovery.
		CL - CLAY, light yellowish brown (2.5Y 6/4), very soft, medium plasticity, wet.
		ML - SANDY SILT with sandstone fragments, reddish yellow (7.5YR 6/8), firm, moist.
15	5.0'/5.0'	No Recovery.
		CL - CLAY, light brownish gray (2.5Y 6/2), very soft, high plasticity, moist.
		CL - SANDY CLAY, brownish yellow (10YR 6/6), minor black staining, firm, moist.
20	4.2'/5.0'	CL - CLAY, brownish yellow (10YR 6/6), hard, low plasticity, moist.
		CL - CLAY, brownish yellow (10YR 6/6), hard, low plasticity, moist.
25	3.3'/5.0'	ML - SILT with fine to coarse grained, angular quartz gravel, brownish yellow (10YR 6/6), hard, moist.
		No Recovery.
		ML - SILT with fine to coarse grained, angular quartz gravel, brownish yellow (10YR 6/6), hard, moist.
30	3.1'/5.0'	No Recovery.
		ML - SILT with fine to coarse grained, angular quartz gravel, brownish yellow (10YR 6/6), hard, moist.
		CL - CLAY, light yellowish brown (2.5Y 6/4), firm, medium plasticity, moist.
35		No Recovery
		End of Boring at 35' BGS.
40		

USCS: ML, GC, Fill, ML, CL, CL, ML, CL, CL, CL, CL, ML, GW, ML, CL

GRAPHIC

PID (ppm) - bkgd = 0.0: 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.8, 0.0, 0.0, 0.2, 0.6, 0.3, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0

Well: MW-124
Elev.376.37:



Well Construction Information

WELL CONSTRUCTION

Date Completed	: 6/21/2012
Auger I.D.	: 4 1/4"
Drilling Method	: Hollow Stem Auger
Driller	: Eichelberger's

WELL CASING :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0' to 8' BPVC
Joints	: Flush Threaded

WELL SCREEN :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 8' to 34' BPVC
Joints	: Flush Threaded
Opening	: 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS
#1 Morie Sand, 20-50 lb. bags
Bentonite hole plug (3/8"), 3-50 lb. bag

Flush Mount Surface Completion

Soil Samples
HD-B45T-MW-124-17.5/18.0-0 collected from 17.5' to 18.0' BGS. and HD-B45T-MW-124-30.0/30.5-0 collected from 33.0' to 33.5' BGS. Samples analyzed for PA DEP Unleaded Gasoline Short List by TestAmerica Pittsburgh.

Static water level collected on June 22, 2012.
BGS-below ground surface
BPVC-below top of PVC

WELL CONSTRUCTION LOG OF MW-125

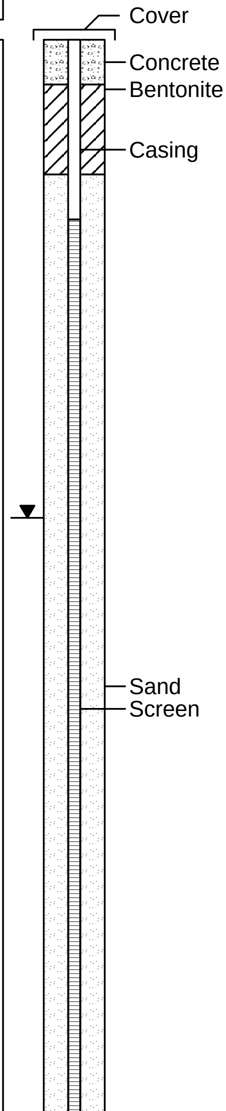
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/3000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 6/21/2012
Logged By	: Matthew J. Logan	Well Construction	: 6/21/2012
Drilling Method	: Hollow Stem Auger	Well Development	: 6/22/2012
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 6/21/2012		

Depth in Feet	Recovery	DESCRIPTION	USCS	GRAPHIC	PID (ppm) - bkgd = 0.0
0	2.6'/5.0'	ML - Asphalt and sub-base followed by SANDY SILT, light gray (2.5Y 7/1) and gray (2.5Y 5/1), very hard, dry.	ML		0.0 0.0
		No Recovery.			
5	2.3'/5.0'	ML - SANDY SILT, light gray (2.5Y 7/1) and gray (2.5Y 5/1), very hard, dry.	ML		0.0 0.0
		ML - SILT with fine to medium grained, angular quartz gravel, light brownish gray (2.5Y 6/2), firm, moist.	ML		0.0
		No Recovery.			
10	2.4'/5.0'	ML - SILT, light brownish gray (2.5Y 6/2) and gray (2.5Y 5/1), hard to soft, moist.	ML		0.0 0.0 0.0
		No Recovery.			
15	2.9'/5.0'	ML - SILT, light brownish gray (2.5Y 6/2) and gray (2.5Y 5/1), hard to soft, moist.	ML		0.0 0.0
		ML - SILT with fine to coarse grained, angular quartz gravel, brownish yellow (10YR 6/6), hard, moist.	ML		0.0
		No Recovery.			
20	3.1'/5.0'	GW - WELL GRADED QUARTZ GRAVEL with silt, fine to coarse garined, angular gravel, brownish yellow (10YR 6/6) matrix, very hard, moist	GW		0.0 0.0
		CL - CLAY, very dark gray (5Y 3/1), hard, moist.	CL		0.0
		WEATHERED LIMESTONE.	LS		0.0
		No Recovery.			
25		End of Boring at 25' BGS.			
30					

Well: MW-125
Elev.366.56:



Well Construction Information

WELL CONSTRUCTION

Date Completed	: 6/21/2012
Auger I.D.	: 4 1/4"
Drilling Method	: Hollow Stem Auger
Driller	: Eichelberger's

WELL CASING :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0' to 4' BPVC
Joints	: Flush Threaded

WELL SCREEN :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 4' to 24' BPVC
Joints	: Flush Threaded
Opening	: 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS
#1 Morie Sand, 13-50 lb. bags
Bentonite hole plug (3/8"), 1-50 lb. bag

Flush Mount Surface Completion

Soil Samples
HD-B45T-MW-125-10.0/10.5-0 collected from 10.0' to 10.5' BGS. and HD-B45T-MW-125-21.4/21.9-0 collected from 21.4' to 21.9' BGS. Samples analyzed for PA DEP Unleaded Gasoline Short List by TestAmerica Pittsburgh.

Static water level collected on June 22, 2012.
BGS-below ground surface
BPVC-below top of PVC

SAIC

WELL CONSTRUCTION LOG OF MW-160

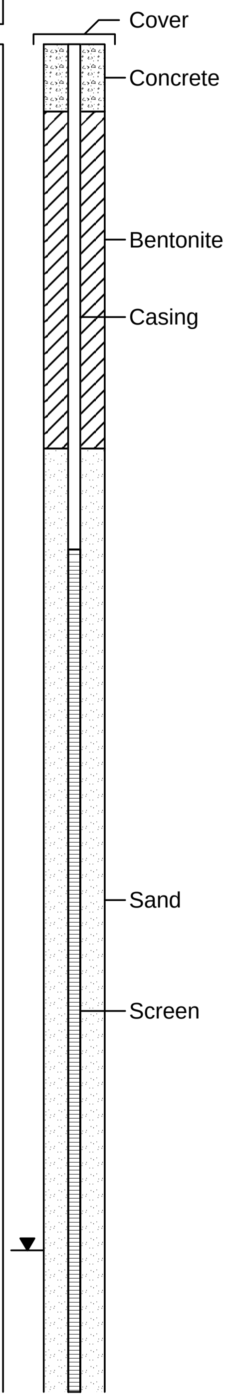
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/3000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 9/4/2012
Logged By	: Matthew J. Logan	Well Construction	: 9/4/2012
Drilling Method	: Hollow Stem Auger	Well Development	: 9/6/2012
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 9/4/2012		

Depth in Feet	Recovery	DESCRIPTION	USCS	GRAPHIC	PID (ppm) - bkgd = 0.0
0	NA	Pre-cleared with Air-Knife. Unconsolidated material consisting of silt and rock fragments.	ML		
5	4.0'/5.0'	ML - SILT, grayish brown (2.5Y 5/2), dry, hard.	ML		0.0, 0.0, 0.0, 0.0
		ML - SILT, very dark grayish brown (2.5Y 3/2), dry, hard.	ML		0.0
		No Recovery.			0.0
10	4.1'/5.0'	ML - SILT, gray (5Y6/1), with coarse, angular quartz gravel from 11.0' - 11.6', dry, very hard.	ML		0.0, 0.0, 0.0, 0.0
		No Recovery.			0.0
15	4.6'/5.0'	ML - SILT, gray (5Y6/1)', dry, very hard.	ML		0.0, 0.0, 0.0
		GW - WELL GRADED QUARTZ GRAVEL, fine to coarse grained, angular, fine sand and silt matrix, gray (5Y 6/1), dry, very hard.	GW		0.0, 0.0
20		No Recovery.			

Well: MW-160
Elev.374.04:



Well Construction Information

WELL CONSTRUCTION

Date Completed	: 9/4/2012
Auger I.D.	: 4 1/4"
Drilling Method	: Hollow Stem Auger
Driller	: Eichelberger's

WELL CASING :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0' to 7.5' BPVC
Joints	: Flush Threaded

WELL SCREEN :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 7.5' to 37.5' BPVC
Joints	: Flush Threaded
Opening	: 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS

#1 Morie Sand, 16-50 lb. bags
Bentonite hole plug (3/8"), 1.5-50 lb. bag

Flush Mount Surface Completion

Soil Samples HD-B45T-MW-160-20.0/20.5-0 collected from 20.0' to 20.5' BGS. and HD-B45T-MW-160-36.0/36.5-0 collected from 36.0' to 36.5' BGS. Samples analyzed for PA DEP Unleaded Gasoline Short List by TestAmerica Pittsburgh.

Static water level collected on September 6, 2012.
BGS-below ground surface
BPVC-below top of PVC

SAIC®

WELL CONSTRUCTION LOG OF MW-160

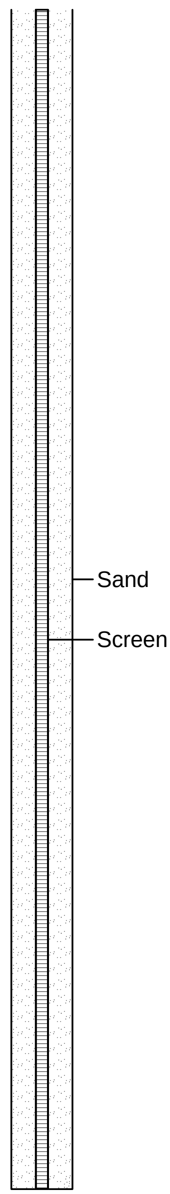
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

SAIC Project #2603100044/3000/100

Drilling Company	: Eichelberger's Inc.	Drilling Completed	: 9/4/2012
Logged By	: Matthew J. Logan	Well Construction	: 9/4/2012
Drilling Method	: Hollow Stem Auger	Well Development	: 9/6/2012
Drilling Bit Diameter	: 8 1/4" O.D.		
Drilling Started	: 9/4/2012		

Depth in Feet	Recovery	DESCRIPTION	USCS	GRAPHIC	PID (ppm) - bkgd = 0.0
20	4.4'/5.0'	CL - CLAY, light olive brown (2.5Y 5/4), moist, saturated with water from 20.9' - 21.6', very soft, medium plasticity,	CL		0.0
		GW - WELL GRADED QUARTZ GRAVEL, fine to coarse grained, angular, lenses of medium grained, angular sand, light olive gray (5Y 6/2), moist, very hard.	GW		0.0 0.0 0.0
		No Recovery.			
25	3.8'/5.0'	GW - WELL GRADED QUARTZ GRAVEL, fine to coarse grained, angular, lenses of medium grained, angular sand, light olive gray (5Y 6/2), moist, very hard.	GW		0.0 0.0
		CL - CLAY, olive gray (5Y5/2), moist, very soft, high plasticity.	CL		0.0 0.0
		No Recovery.			
30	2.9'/5.0'	SM - SAND with SILT and GRAVEL, fine grained sand, coarse angular gravel, olive gray (5Y 4/2), moist, loose.	SM		0.0 0.0
		ML - SILT, olive (5Y 5/4), moist, firm.	ML		0.0
		No Recovery			
35	3.9'/4.0'	SP - POORLY GRADED SAND, olive brown (2.5Y 5/4), medium grained, angular, moist, loose.	SP		0.0
		CL - CLAY, olive (5Y 4/3), moist, firm, medium plasticity.	CL		0.0
		GP - POORLY GRADED GRAVEL, fine grained, angular, with limestone fragments, wet, very hard.	GP		0.0
		LS - LIMESTONE, weathered, with clay seams, gray (2.5Y 5/1), moist.	LS		0.0 0.0
		No Recovery.			
40					

Well: MW-160
Elev.374.04:



Well Construction Information

WELL CONSTRUCTION

Date Completed	: 9/4/2012
Auger I.D.	: 4 1/4"
Drilling Method	: Hollow Stem Auger
Driller	: Eichelberger's

WELL CASING :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0' to 7.5' BPVC
Joints	: Flush Threaded

WELL SCREEN :

Material	: Sch 40 PVC
Diameter	: 2"
From	: 7.5' to 37.5' BPVC
Joints	: Flush Threaded
Opening	: 0.010 slot

ADDITIONAL CONSTRUCTION DETAILS
#1 Morie Sand, 16-50 lb. bags
Bentonite hole plug (3/8"), 1.5-50 lb. bag

Flush Mount Surface Completion

Soil Samples
HD-B45T-MW-160-20.0/20.5-0 collected from 20.0' to 20.5' BGS. and HD-B45T-MW-160-36.0/36.5-0 collected from 36.0' to 36.5' BGS. Samples analyzed for PA DEP Unleaded Gasoline Short List by TestAmerica Pittsburgh.

Static water level collected on September 6, 2012.
BGS-below ground surface
BPVC-below top of PVC

Langan Environmental Services, Inc.

WELL CONSTRUCTION SUMMARY

Well No. 77

PROJECT: Harley Davidson	PROJECT NO.: 1406701
LOCATION: York, PA	ELEVATION AND DATUM:
DRILLING AGENCY: Eichelberger's	DATE STARTED: 6/9/1998 DATE FINISHED: 6/10/1998
DRILLING EQUIPMENT: CME-85	DRILLER: Bob Austin
SIZE AND TYPE OF BIT: 4.25 inch Hollow Stem Auger	INSPECTOR: Lou Russo/Dave Wilson

METHOD OF INSTALLATION

Well was advanced by hollow stem auger method to 67 feet. The screen was set from 65 to 40 ft. inside the auger stem. Sand and then bentonite were added as the augers were removed. Benseal grout and a flush mount assembly completed the well to the surface..

METHOD OF WELL DEVELOPMENT

The well was developed on 7/16/98 and 7/17/98 using airlift method at a rate of 0.75 gallons per minute for a total of 3 hours. The well was also surged several times. The discharge was very dirty at the start, but a light brown at the end.

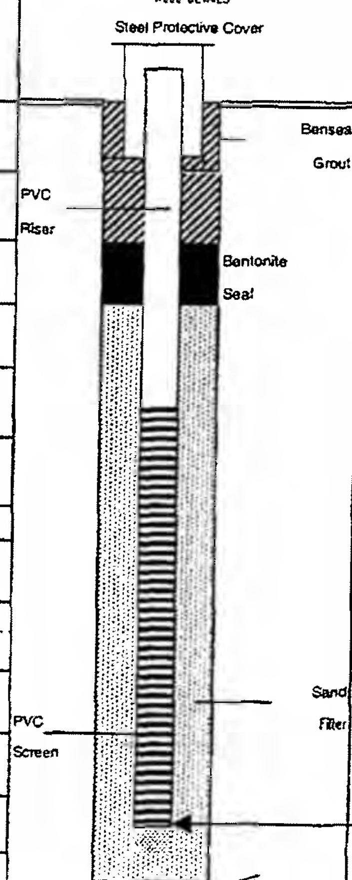
TYPE OF CASING: PVC DIAMETER: 2 Inch	TYPE OF BACKFILL MATERIAL: Portland Cement
TYPE OF SCREEN: PVC DIAMETER: 2 Inch	TYPE OF SEAL MATERIAL: Bentonite Pellets/Cement Bentonite Mix
BOREHOLE DIAMETER:	TYPE OF FILTER MATERIAL: # 1 Morie Sand

	ELEVATION	DEPTH
TOP OF CASING: Flush Mount		
TOP OF SEAL		Bentonite 31 ft.
TOP OF FILTER		Sand pack 35 ft.
TOP OF SCREEN		40 ft.
BOTTOM OF BORING		67 ft.
SCREEN LENGTH: 25 ft.		
SLOT SIZE: .010 inch		

GROUNDWATER ELEVATIONS

ELEVATION	DATE
DTW = 19.0 ft. on 6/10/98	
DTW = 22.3 ft. on 7/16/98	

WELL DETAILS



SOIL CLASSIFICATION	DEPTH (FT)
Silts, Sand, and Gravel.	31.0
	35.0
	40.0
	65.0
	67.0

Project Name	Harley Davidson	**Project No.**	1406701
Boring Location	York, PA	**Elevation and Datum**	
Drilling Company	Eichelberger's	**Date Started**	**Date Finished**
Drilling Equipment	CME-85	6/9/1998	6/10/98
Size and Type of Bit	4-1/4" ID Hollow Stem Auger	**Completion Depth**	**Rock Depth**
Casing	2 Inch PVC - - -	67 ft.	Not Encountered
Casing Hammer Weight	- - - **Drop** - - -	**Water Level**	19.0 ft. at completion
Sampler	2" OD Split Spoon	**Driller**	Bob Austin
Sampler Hammer Weight	140 lb **Drop** 30"	**Inspector**	Lou Russo

Depth (ft)	S	Type	Recov. (ft)	SPT* bl/6"	DESCRIPTION		REMARKS
1	S1	SS	NA	NA	Grass/ topsoil Brown, fine to medium SILTY SAND; tr fine GRAVEL. Dry, medium dense.	13:00	
2							
3							
4							
5							
6	S2	SS	0.9	6 10	Brown SILT; tr fine to medium SAND; tr fine GRAVEL; (quartz). Dry, medium dense.		Odor present. PID = 0.5 - 0.6 ppm background 1 -2 ppm at borehole.
7				10 11			
8							
9							
10							
11	S3	SS	0.5	6 6	Brown, SILT; tr fine to medium SAND; tr fine sub angular, GRAVEL. Dry, medium dense.		
12				7 8			
13							
14							
15							
16	S4	SS	1.8	4 4	Light brown, CLAYEY SILT; tr fine to coarse SAND.		5 ppm
17				5 7	(dry/moist)		3 ppm 4 ppm
18							
19							
20							
21	S5	SS	2.0	4 4 6	Light brown, mottled orange, CLAYEY SILT; tr fine to coarse SAND; tr fine GRAVEL, subangular, limestone.		7 ppm Borehole = 15 - 20 ppm 10 ppm 50 ppm

*Standard Penetration Test N-Value

LOG OF BORING NO: *MW-77*

Project Name	Harley Davidson	**Project No.**	1406701
Boring Location	York, PA	**Date Started**	**Date Finished**
Drilling Company	Eichelberger's	6/9/1998	6/10/1998

Depth (ft)	S	Type	Recov. (ft)	SPT* bl/6"	DESCRIPTION	REMARKS
22	S5			6	(moist/dry)	
23						
24						
25						
26	S6	SS	2	6 7	Brown, CLAYEY SILT; tr to some fine to coarse SAND; tr fine GRAVEL, angular quartz.	2 ppm Borehole = 20 ppm 10 ppm Gravelly zone = 25.5 to 26
27				8 9		5 ppm 7 ppm
28						
29						
30						
31	S7	SS	0.5	6 8	Light brown/gray SILT; some CLAY; some fine to coarse SAND; tr fine subangular GRAVEL. Loose to dense, moist.	0.8 ppm Top of bentonite at 31 ft.
32				10 12		Spoon wet.
33						
34						
35						
36	S8	SS	2	7 8	Light brown CLAYEY SILT; tr to some fine to coarse SAND; tr fine, quartz, angular to subangular, GRAVEL. Dense, moist.	3 ppm 1.5 ppm
37				9 11		2 ppm 2 ppm Top of sand pack at 35 ft.
38						
39						
40						Top of screen. 0.5 ppm background
41	S9	SS	1.1	5 6	Brown, CLAYEY SILT; tr fine SAND. moist	
42				5 6		

*Standard Penetration Test N-Value

LOG OF BORING NO: MW-77 Sheet 3 of

Project Name	Harley Davidson	**Project No.**	1406701
Boring Location	York, PA	**Date Started**	**Date Finished**
Drilling Company	Eichelberger's	6/9/1998	6/10/1998

Depth (ft)	S	Type	Recov. (ft)	SPT* bl/6"	DESCRIPTION	REMARKS
43						
44						
45						
46	S10	SS	0.8	1 1	Light brown, CLAYEY SILT; tr fine to medium SAND; fine GRAVEL.	2-4 ppm
47				1 2	Wet.	Quartz in nose piece.
48						
49						
50						
51	S11	SS	2	3 4	Brown/gray CLAYEY SILT; tr fine to coarse SAND; tr fine GRAVEL.	Very soft 50 to 51 ft.
52				5 5	Wet	Dense 51 to 52 ft. 0.5 ppm
53						
54						
55						
56	S12	SS	1.3	3 6	Brown, CLAYEY SILT; tr to some fine to coarse SAND and fine GRAVEL.	1-5 ppm Pieces red gravel
57				6 7	Wet	
58	S13	SS	0.3	3 3	Brown, CLAYEY SILT; some fine to coarse SAND and fine GRAVEL.	STOP 16:00 6/9/98 Water started coming into hole very rapidly. Suspect that 55 - 57 ft sample released containing pressure to a higher "k" unit.
59				4 7		
60						@ 16:00 dtw=34 ft bgs
61	S14	SS	1	3 5	Brown, CLAYEY SILT; some fine to coarse SAND and fine GRAVEL. quartz, rounded to subrounded.	@ 16:30 dtw= 24 ft. bgs @ 18:00 dtw = 21 ft. bgs Seemed stable
62				5 5		Start 08:00 6/10/98 PID = 8-10 from borehole.
63						S13, S14, S15, background PID readings = 0.5 ppm.

*Standard Penetration Test N-Value

LOG OF BORING NO: MW-77 Sheet 4 of

Project Name	Harley Davidson	**Project No.**	1406701
Boring Location	York, PA	**Date Started**	**Date Finished**
Drilling Company	Eichelberger's	6/9/1998	6/10/1998

Depth (ft)	S	Type	Recov. (ft)	SPT* bl/6"	DESCRIPTION	REMARKS
64						
65						Bottom of screen at 65 ft. 10 slot.
66	S15	SS	1.3	5 5		
67				5 5		
68					TD = 67 ft.	
69						
70						

*Standard Penetration Test N-Value

LANGAN Engineering and Environmental Services, Inc.
River Drive Center 1, Elmwood Park, NJ 07407

TABLE 2
SITE-WIDE GROUNDWATER LEVELS AND ELEVATION DATA
FORMER YORK NAVAL ORDNANCE PLANT

1425 Eden Road, York PA 17402

Monitoring Location	Date	Time	Reference Elevation (ft. AMSL)	Depth (ft.)	Water Level (ft. AMSL)
MW-55	6/4/2009	12:48	365.22	20.8	344.42
MW-56	6/4/2009	14:10	371.83	17.76	354.07
MW-57	6/4/2009	13:34	364.54	18.56	345.98
MW-64D	6/5/2009	10:02	416.43	57.13	359.3
MW-64S	6/5/2009	10:03	416.34	32.1	384.24
MW-65D	6/5/2009	8:36	546.8	46.83	499.97
MW-65S	6/5/2009	8:37	546.82	48.04	498.78
MW-66D	6/5/2009	9:03	506.92	37.49	469.43
MW-66S	6/5/2009	9:04	506.73	36.57	470.16
MW-67D	6/5/2009	9:51	446.26	1.43	444.83
MW-67S	6/5/2009	9:53	446.26	8.89	437.37
MW-68	6/5/2009	9:44	458.06	5.7	452.36
MW-69	6/5/2009	7:00	411.9	6.31	405.59
MW-70D	6/5/2009	7:08	413.26	16.55	396.71
MW-70S	6/5/2009	7:10	413.2	16.61	396.59
MW-74D	6/4/2009	9:42	359.79	19.44	340.35
MW-74S	6/4/2009	9:43	359.85	20.18	339.67
MW-75D	6/4/2009	8:09	359.85	20.32	339.53
MW-75S	6/4/2009	8:10	359.03	19.02	340.01
MW-77	6/4/2009	15:39	379.48	23.38	356.1
MW-78	6/4/2009	15:35	367.08	13.28	353.8
MW-79	6/4/2009	14:13	375.84	20.72	355.12
MW-80	6/4/2009	13:40	370.29	23.72	346.57
MW-81D	6/4/2009	16:23	359.89	15.61	344.28
MW-81S	6/4/2009	16:22	360.12	16.09	344.03
MW-82	6/4/2009	11:22	384.27	37.52	346.75
MW-83	6/4/2009	15:45	363.69	12.56	351.13
MW-84	6/4/2009	15:30	366.97	13.28	353.69
MW-85	6/4/2009	10:45	371.54	26.53	345.01
MW-86D	6/5/2009	6:54	406.56	7.8	398.76
MW-86S	6/5/2009	6:55	406.5	10.13	396.37
MW-87	6/4/2009	13:44	370.64	23.83	346.81
MW-88	6/4/2009	13:27	367.93	22.31	345.62
MW-91	6/5/2009	9:18	501.18	53.69	447.49
MW-92	6/5/2009	10:09	476.87	81.28	395.59
MW-93D	6/4/2009	8:16	360.14	18.65	341.49
MW-93S	6/4/2009	8:14	360.76	18.48	342.28
MW-94	6/4/2009	14:19	365.03	10.45	354.58
MW-95	6/4/2009	9:50	358.72	18.88	339.84
MW-96D	6/4/2009	9:55	361	21.87	339.13
MW-96S	6/4/2009	9:56	361.21	22.17	339.04
MW-97	6/4/2009	9:19	357.39	21.03	336.36
MW-98D	6/4/2009	7:05	361.41	19.96	341.45
MW-98I	6/4/2009	7:07	360.78	20.38	340.4
MW-98S	6/4/2009	7:09	360.77	20.2	340.57

Note:

A= Location was artesian.
D= Location was dry.
*= Active extraction well.

DDC= Gauged on different date due to inaccessibility.
OG= Water was over the gauge.

Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Parameter / Location/ID / Sample Date	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	MW-74S 6/22/2009	MW-75D 7/13/2009	MW-75S 7/14/2009	MW-77 7/8/2009	MW-79 6/22/2009	MW-81D 7/13/2009	MW-81S 7/13/2009	MW-82 6/23/2009	MW-85 7/1/2009	MW-87 7/9/2009	MW-88 6/26/2009	MW-91 6/25/2009	MW-92 7/8/2009	MW-93D 6/26/2009	MW-93S 6/17/2009
1,4-Dioxane																			
1,4-Dioxane	5.6	24		6.1										19					
Cyanide, Free																			
Cyanide, Free	200	200	200	730					2.1 B J							3.3 B J	14		
Cyanide, Total																			
Cyanide, Total	200	200		730					10 U							25	13		
METAL																			
Antimony	6	6	6	15															
Arsenic	10	10	10	0.045															
Beryllium	4	4	4	73															
Cadmium	5	5	5	18															
Chromium	100	100	100																
Hexavalent Chromium	100	100		110															
Lead	5	5	15											0.52 B					
Mercury	2	2	2	0.57															
Nickel	100	100		730															
METAL (Dissolved)																			
Antimony	6	6	6	15															
Arsenic	10	10	10	0.045															
Beryllium	4	4	4	73															
Cadmium	5	5	5	18															
Chromium	100	100	100																
Hexavalent Chromium	100	100		110															
Lead	5	5	15											1 U					
Mercury	2	2	2	0.57															
Nickel	100	100		730															
TOTAL VOC																			
					86.21	4168	26600	2980	78.3	1243	3483	59.21	54.5	2646	532.1	141.9	289.1	483.5	7.17
VOC																			
1,1,1,2-Tetrachloroethane	70	70		0.52	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,1,1-Trichloroethane	200	200	200	9100	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	32 J	7.7 J	10 U	10 U	9.8 J	1 U
1,1,2,2-Tetrachloroethane	0.3	0.3		0.067	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,1,2-Trichloroethane	5	5	5	0.24	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,1-Dichloroethane	27	110		2.4	0.68 J	200 U	2000 U	100 U	21	50 U	15 J	0.21 J	5 U	100 U	25 U	10 U	10 U	4.1 J	0.66 J
1,1-Dichloroethene	7	7	7	340	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	40 J	8.4 J	10 U	10 U	6.6 J	1 U
1,2-Dibromoethane	0.05	0.05	0.05	0.0065	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,2-Dichloroethane	5	5	5	0.15	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,2-Dichloropropane	5	5	5	0.39	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
1,4-Dioxane	5.6	24		6.1	400 U	40000 U	400000 U	20000 U	800 U	10000 U	25000 U	200 U	1000 U	20000 U	5000 U	2000 U	2000 U	2500 U	200 U
2-Butanone	4000	4000		7100	20 U	2000 U	20000 U	1000 U	40 U	500 U	1200 U	10 U	50 U	1000 U	250 U	100 U	100 U	120 U	10 U
2-Hexanone					20 U	2000 U	20000 U	1000 U	40 U	500 U	1200 U	10 U	50 U	1000 U	250 U	100 U	100 U	120 U	10 U
4-Methyl-2-Pentanone	190	410		2000	20 U	2000 U	20000 U	1000 U	40 U	500 U	1200 U	10 U	50 U	1000 U	250 U	100 U	100 U	120 U	10 U
Acetone	3700	10000		22000	20 U	2000 U	20000 U	1000 U	40 U	500 U	1200 U	10 U	50 U	1000 U	250 U	100 U	100 U	120 U	10 U
Acrylonitrile	0.63	2.7		0.045	40 U	4000 U	40000 U	2000 U	80 U	1000 U	2500 U	20 U	100 U	2000 U	500 U	200 U	200 U	250 U	20 U
Benzene	5	5	5	0.41	2 U	200 U	2000 U	2000	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Bromochloromethane	90	90			2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Bromodichloromethane	100	100		0.12	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Bromoform	80	80		8.5	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Bromomethane	10	10		8.7	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Carbon Disulfide	1900	4100		1000	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Carbon Tetrachloride	5	5	5	0.2	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Chlorobenzene	100	100	100	91	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Chlorodibromomethane	80	80		0.15	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Chloroethane	230	900		21000	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Chloroform	80	80		0.19	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	0.41 J
Chloromethane	30	30		190	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U

Note
Blank results indicate analyte was not analyzed for.
U= Not detected.
J= Organics, estimated. Inorganics; blank contamination.
B= Organics; blank contamination. Inorganics; estimated.
E= Inorganics: matrix interference.

Table 5
Groundwater Quality Analyses Summary
June 2009 Key Well Sampling Event
Former York Naval Ordnance Plant - York, PA

Location/ID Sample Date Parameter	MSC Used Aquifer R (ug/L)	MSC Used Aquifer NR (ug/L)	Federal MCL (ug/L)	EPA RSL Tap Water (ug/L)	MW-74S 6/22/2009	MW-75D 7/13/2009	MW-75S 7/14/2009	MW-77 7/8/2009	MW-79 6/22/2009	MW-81D 7/13/2009	MW-81S 7/13/2009	MW-82 6/23/2009	MW-85 7/1/2009	MW-87 7/9/2009	MW-88 6/26/2009	MW-91 6/25/2009	MW-92 7/8/2009	MW-93D 6/26/2009	MW-93S 6/17/2009
cis-1,2-Dichloroethene	70	70	70	370	27	68 J	2000 U	100 U	53	230	720	29	53	840	120	10 U	10 U	23	2.9
cis-1,3-Dichloropropene	6.6	26		0.43	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Ethylbenzene	700	700	700	1.5	2 U	200 U	2000 U	110	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Methyl tert-butyl ether	20	20		12	2 U	200 U	2000 U	610	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Methylene chloride	5	5		4.8	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	1.5 J B	100 U	25 U	1.9 J	5.1 J	12 U	1 U
Styrene	100	100	100	1600	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Tetrachloroethene	5	5	5	0.11	5.8	2900	20000	100 U	4 U	43 J	48 J	1.6	5 U	34 J	16 J	120	240	200	1.9
Toluene	1000	1000	1000	2300	2 U	200 U	2000 U	100	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
trans-1,2-Dichloroethene	100	100	100	110	0.73 J	200 U	2000 U	100 U	1.6 J	50 U	120 U	1.4	5 U	100 U	25 U	10 U	10 U	12 U	1 U
trans-1,3-Dichloropropene	6.6	26		0.43	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Trichloroethene	5	5	5	1.7	52	1200	6600	100 U	2.7 J	970	2700	27	5 U	1700	380	20	44	240	1.3
Vinyl Chloride	2	2	2	0.016	2 U	200 U	2000 U	100 U	4 U	50 U	120 U	1 U	5 U	100 U	25 U	10 U	10 U	12 U	1 U
Xylenes (Total)	10000	10000	10000	200	6 U	600 U	6000 U	160 J	12 U	150 U	380 U	3 U	15 U	300 U	75 U	30 U	30 U	38 U	3 U

Note
Blank results indicate analyte was not analyzed for.
U= Not detected.
J= Organics, estimated. Inorganics; blank contamination.
B= Organics; blank contamination. Inorganics, estimated.
E= Inorganics: matrix interference.

APPENDIX B

Soil Sample Analytical Reports

ANALYTICAL REPORT

Job Number: 180-11688-1

Job Description: Harley Davidson

For:
Science Applications International Corp
6310 Allentown Boulevard
Harrisburg, PA 17112

Attention: Mr. Rodney Myers

Approved for release.
Roseann S Ruyechan
Department Manager I
6/29/2012 6:25 AM

Designee for
Jill L Colussy
Project Manager I
jill.colussy@testamericainc.com
06/29/2012

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CASE NARRATIVE

Client: Science Applications International Corp

Project: Harley Davidson

Report Number: 180-11688-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 06/19/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.6 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Naphthalene was detected in method blank MB 180-39453/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged “J”. If the associated sample reported a result above the MDL and/or RL, the result has been “B” flagged.

Naphthalene exceeded the RPD limit between the LCS/LCSD 180-39453/5-A. The recoveries were within control limits.

Due to the concentraiton of compounds detected, several samples were analyzed at medium level.

PERCENT SOLIDS
No difficulties were encountered during the % solids analyses.

SAMPLE SUMMARY

Client: Science Applications International Corp   Job Number: 180-11688-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
180-11688-1	HD-B45T-MW-123-13.5/14.0-0	Solid	06/18/2012 1020	06/19/2012 1000
180-11688-2	HD-B45T-MW-123-22.6/23.1-0	Solid	06/18/2012 1040	06/19/2012 1000
180-11688-3	HD-B45T-MW-124-17.5/18.0-0	Solid	06/18/2012 1235	06/19/2012 1000
180-11688-4	HD-B45T-MW-124-30.0/30.5-0	Solid	06/18/2012 1245	06/19/2012 1000
180-11688-5	HD-B45T-MW-122-10.5/11.0-0	Solid	06/18/2012 1440	06/19/2012 1000
180-11688-6	HD-B45T-MW-122-23.3/23.8-0	Solid	06/18/2012 1520	06/19/2012 1000
180-11688-7	HD-B45T-MW-125-10.0/10.5-0	Solid	06/18/2012 1710	06/19/2012 1000
180-11688-8	HD-B45T-MW-125-21.4/21.9-0	Solid	06/18/2012 1720	06/19/2012 1000
180-11688-9	TRIP BLANK	Water	06/18/2012 0000	06/19/2012 1000

EXECUTIVE SUMMARY - Detections

Client: Science Applications International Corp Job Number: 180-11688-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
180-11688-1	**HD-B45T-MW-123-13.5/14.0-0**					
Naphthalene		2.1	J B *	5.1	ug/Kg	8260B
Percent Moisture		16		0.10	%	Moisture
Percent Solids		84		0.10	%	Moisture
180-11688-2	**HD-B45T-MW-123-22.6/23.1-0**					
Naphthalene		2.1	J B *	5.0	ug/Kg	8260B
Percent Moisture		10		0.10	%	Moisture
Percent Solids		90		0.10	%	Moisture
180-11688-3	**HD-B45T-MW-124-17.5/18.0-0**					
Toluene		310		280	ug/Kg	8260B
Ethylbenzene		160	J	280	ug/Kg	8260B
Xylenes, Total		580	J	840	ug/Kg	8260B
1,2,4-Trimethylbenzene		74	J	280	ug/Kg	8260B
Naphthalene		34	J	280	ug/Kg	8260B
Percent Moisture		23		0.10	%	Moisture
Percent Solids		77		0.10	%	Moisture
180-11688-4	**HD-B45T-MW-124-30.0/30.5-0**					
Methyl tert-butyl ether		110	J	230	ug/Kg	8260B
Benzene		950		230	ug/Kg	8260B
Toluene		1300		230	ug/Kg	8260B
Ethylbenzene		140	J	230	ug/Kg	8260B
Xylenes, Total		540	J	690	ug/Kg	8260B
1,2,4-Trimethylbenzene		55	J	230	ug/Kg	8260B
Naphthalene		25	J	230	ug/Kg	8260B
Percent Moisture		13		0.10	%	Moisture
Percent Solids		87		0.10	%	Moisture
180-11688-5	**HD-B45T-MW-122-10.5/11.0-0**					
Naphthalene		2.1	J B *	5.6	ug/Kg	8260B
Percent Moisture		17		0.10	%	Moisture
Percent Solids		83		0.10	%	Moisture
180-11688-6	**HD-B45T-MW-122-23.3/23.8-0**					
Naphthalene		2.2	J B *	6.1	ug/Kg	8260B
Percent Moisture		25		0.10	%	Moisture
Percent Solids		75		0.10	%	Moisture

EXECUTIVE SUMMARY - Detections

Client: Science Applications International Corp

Job Number: 180-11688-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
180-11688-7	**HD-B45T-MW-125-10.0/10.5-0**					
Naphthalene		1.4	J B *	4.6	ug/Kg	8260B
Percent Moisture		15		0.10	%	Moisture
Percent Solids		85		0.10	%	Moisture
180-11688-8	**HD-B45T-MW-125-21.4/21.9-0**					
Naphthalene		1.5	J B *	5.1	ug/Kg	8260B
Percent Moisture		11		0.10	%	Moisture
Percent Solids		89		0.10	%	Moisture

METHOD SUMMARY

Client: Science Applications International Corp — Job Number: 180-11688-1

Description	Lab Location	Method	Preparation Method
Matrix Solid			
Volatile Organic Compounds (GC/MS)	TAL PIT	SW846 8260B	
Closed System Purge and Trap	TAL PIT		SW846 5035
Volatile Organic Compounds (GC/MS)	TAL PIT	SW846 8260B	
Purge and Trap	TAL PIT		SW846 5035
Percent Moisture	TAL PIT	EPA Moisture	
Matrix Water			
Volatile Organic Compounds (GC/MS)	TAL PIT	SW846 8260B	
Purge and Trap	TAL PIT		SW846 5030B

Lab References:

TAL PIT = TestAmerica Pittsburgh

Method References:

EPA = US Environmental Protection Agency

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

METHOD / ANALYST SUMMARY

Client: Science Applications International Corp

Job Number: 180-11688-1

Method	Analyst	Analyst ID
SW846 8260B	Gordon, Kathy L	KLG
SW846 8260B	Lipay, Josh	JL
SW846 8260B	Zukowski, Mike	MZ
EPA Moisture	Wesoloski, Michael	MW

Analytical Data

Client: Science Applications International Corp — Job Number: 180-11688-1

Client Sample ID: **HD-B45T-MW-123-13.5/14.0-0**

Lab Sample ID:	180-11688-1			Date Sampled:	06/18/2012 1020
Client Matrix:	Solid	% Moisture:	16.4	Date Received:	06/19/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-39858	Instrument ID:	HP3
Prep Method:	5035	Prep Batch:	180-39453	Lab File ID:	3062217.D
Dilution:	1.0			Initial Weight/Volume:	5.8218 g
Analysis Date:	06/22/2012 1132			Final Weight/Volume:	5 mL
Prep Date:	06/19/2012 1624				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Methyl tert-butyl ether		5.1	U	0.77	5.1
Benzene		5.1	U	0.69	5.1
Toluene		5.1	U	0.75	5.1
Ethylbenzene		5.1	U	0.66	5.1
Xylenes, Total		15	U	2.3	15
Cumene		5.1	U	0.70	5.1
1,3,5-Trimethylbenzene		5.1	U	0.69	5.1
1,2,4-Trimethylbenzene		5.1	U	0.67	5.1
Naphthalene		2.1	J B *	1.0	5.1

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	76		52 - 124
Toluene-d8 (Surr)	101		72 - 127
4-Bromofluorobenzene (Surr)	88		63 - 120
Dibromofluoromethane (Surr)	89		68 - 121

Client: Science Applications International Corp | Job Number: 180-11688-1

Client Sample ID: **HD-B45T-MW-123-22.6/23.1-0**

Lab Sample ID:	180-11688-2			Date Sampled:	06/18/2012 1040
Client Matrix:	Solid	% Moisture:	10.1	Date Received:	06/19/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-39858	Instrument ID:	HP3
Prep Method:	5035	Prep Batch:	180-39453	Lab File ID:	3062218.D
Dilution:	1.0			Initial Weight/Volume:	5.5495 g
Analysis Date:	06/22/2012 1155			Final Weight/Volume:	5 mL
Prep Date:	06/19/2012 1624				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Methyl tert-butyl ether		5.0	U	0.75	5.0
Benzene		5.0	U	0.68	5.0
Toluene		5.0	U	0.73	5.0
Ethylbenzene		5.0	U	0.64	5.0
Xylenes, Total		15	U	2.2	15
Cumene		5.0	U	0.68	5.0
1,3,5-Trimethylbenzene		5.0	U	0.67	5.0
1,2,4-Trimethylbenzene		5.0	U	0.65	5.0
Naphthalene		2.1	J B *	1.0	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	79		52 - 124
Toluene-d8 (Surr)	103		72 - 127
4-Bromofluorobenzene (Surr)	91		63 - 120
Dibromofluoromethane (Surr)	92		68 - 121

Analytical Data

Client: Science Applications International Corp | Job Number: 180-11688-1

Client Sample ID: **HD-B45T-MW-124-17.5/18.0-0**

Lab Sample ID:	180-11688-3			Date Sampled:	06/18/2012 1235
Client Matrix:	Solid	% Moisture:	22.5	Date Received:	06/19/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-39692	Instrument ID:	HP4
Prep Method:	5035	Prep Batch:	180-39458	Lab File ID:	4062210.D
Dilution:	1.0			Initial Weight/Volume:	5.7792 g
Analysis Date:	06/22/2012 0611			Final Weight/Volume:	5 mL
Prep Date:	06/19/2012 1813				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Methyl tert-butyl ether		280	U	57	280
Benzene		280	U	55	280
Toluene		310		47	280
Ethylbenzene		160	J	35	280
Xylenes, Total		580	J	110	840
Cumene		280	U	30	280
1,3,5-Trimethylbenzene		280	U	33	280
1,2,4-Trimethylbenzene		74	J	29	280
Naphthalene		34	J	26	280

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	74		52 - 124
Toluene-d8 (Surr)	96		72 - 127
4-Bromofluorobenzene (Surr)	91		63 - 120
Dibromofluoromethane (Surr)	87		68 - 121

Client: Science Applications International Corp   Job Number: 180-11688-1

Client Sample ID: **HD-B45T-MW-124-30.0/30.5-0**

Lab Sample ID:	180-11688-4			Date Sampled:	06/18/2012 1245
Client Matrix:	Solid	% Moisture:	13.3	Date Received:	06/19/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-39692	Instrument ID:	HP4
Prep Method:	5035	Prep Batch:	180-39458	Lab File ID:	4062211.D
Dilution:	1.0			Initial Weight/Volume:	6.3081 g
Analysis Date:	06/22/2012 0641			Final Weight/Volume:	5 mL
Prep Date:	06/19/2012 1813				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Methyl tert-butyl ether		110	J	47	230
Benzene		950		45	230
Toluene		1300		39	230
Ethylbenzene		140	J	28	230
Xylenes, Total		540	J	90	690
Cumene		230	U	24	230
1,3,5-Trimethylbenzene		230	U	27	230
1,2,4-Trimethylbenzene		55	J	24	230
Naphthalene		25	J	22	230

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	70		52 - 124
Toluene-d8 (Surr)	96		72 - 127
4-Bromofluorobenzene (Surr)	92		63 - 120
Dibromofluoromethane (Surr)	85		68 - 121

Client: Science Applications International Corp | Job Number: 180-11688-1

Client Sample ID: **HD-B45T-MW-122-10.5/11.0-0**

Lab Sample ID: 180-11688-5 | Date Sampled: 06/18/2012 1440
Client Matrix: Solid | % Moisture: 17.2 | Date Received: 06/19/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-39858	Instrument ID:	HP3
Prep Method:	5035	Prep Batch:	180-39453	Lab File ID:	3062219.D
Dilution:	1.0			Initial Weight/Volume:	5.3618 g
Analysis Date:	06/22/2012 1217			Final Weight/Volume:	5 mL
Prep Date:	06/19/2012 1624				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Methyl tert-butyl ether		5.6	U	0.84	5.6
Benzene		5.6	U	0.76	5.6
Toluene		5.6	U	0.82	5.6
Ethylbenzene		5.6	U	0.72	5.6
Xylenes, Total		17	U	2.5	17
Cumene		5.6	U	0.76	5.6
1,3,5-Trimethylbenzene		5.6	U	0.75	5.6
1,2,4-Trimethylbenzene		5.6	U	0.73	5.6
Naphthalene		2.1	J B *	1.1	5.6

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	78		52 - 124
Toluene-d8 (Surr)	101		72 - 127
4-Bromofluorobenzene (Surr)	93		63 - 120
Dibromofluoromethane (Surr)	93		68 - 121

Client: Science Applications International Corp | Job Number: 180-11688-1

Client Sample ID: **HD-B45T-MW-122-23.3/23.8-0**

Lab Sample ID:	180-11688-6			Date Sampled:	06/18/2012 1520
Client Matrix:	Solid	% Moisture:	25.1	Date Received:	06/19/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-39858	Instrument ID:	HP3
Prep Method:	5035	Prep Batch:	180-39453	Lab File ID:	3062220.D
Dilution:	1.0			Initial Weight/Volume:	5.4639 g
Analysis Date:	06/22/2012 1241			Final Weight/Volume:	5 mL
Prep Date:	06/19/2012 1624				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Methyl tert-butyl ether		6.1	U	0.91	6.1
Benzene		6.1	U	0.82	6.1
Toluene		6.1	U	0.89	6.1
Ethylbenzene		6.1	U	0.78	6.1
Xylenes, Total		18	U	2.7	18
Cumene		6.1	U	0.83	6.1
1,3,5-Trimethylbenzene		6.1	U	0.82	6.1
1,2,4-Trimethylbenzene		6.1	U	0.79	6.1
Naphthalene		2.2	J B *	1.2	6.1

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	86		52 - 124
Toluene-d8 (Surr)	102		72 - 127
4-Bromofluorobenzene (Surr)	95		63 - 120
Dibromofluoromethane (Surr)	98		68 - 121

Client: Science Applications International Corp   Job Number: 180-11688-1

Client Sample ID: **HD-B45T-MW-125-10.0/10.5-0**

Lab Sample ID:	180-11688-7			Date Sampled:	06/18/2012 1710
Client Matrix:	Solid	% Moisture:	15.1	Date Received:	06/19/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-39858	Instrument ID:	HP3
Prep Method:	5035	Prep Batch:	180-39453	Lab File ID:	3062221.D
Dilution:	1.0			Initial Weight/Volume:	6.4151 g
Analysis Date:	06/22/2012 1305			Final Weight/Volume:	5 mL
Prep Date:	06/19/2012 1624				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Methyl tert-butyl ether		4.6	U	0.69	4.6
Benzene		4.6	U	0.62	4.6
Toluene		4.6	U	0.67	4.6
Ethylbenzene		4.6	U	0.59	4.6
Xylenes, Total		14	U	2.1	14
Cumene		4.6	U	0.62	4.6
1,3,5-Trimethylbenzene		4.6	U	0.61	4.6
1,2,4-Trimethylbenzene		4.6	U	0.60	4.6
Naphthalene		1.4	J B *	0.92	4.6

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	80		52 - 124
Toluene-d8 (Surr)	106		72 - 127
4-Bromofluorobenzene (Surr)	90		63 - 120
Dibromofluoromethane (Surr)	95		68 - 121

Client: Science Applications International Corp | Job Number: 180-11688-1

Client Sample ID: HD-B45T-MW-125-21.4/21.9-0

Lab Sample ID:	180-11688-8			Date Sampled:	06/18/2012 1720
Client Matrix:	Solid	% Moisture:	11.5	Date Received:	06/19/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-39858	Instrument ID:	HP3
Prep Method:	5035	Prep Batch:	180-39453	Lab File ID:	3062222.D
Dilution:	1.0			Initial Weight/Volume:	5.5316 g
Analysis Date:	06/22/2012 1330			Final Weight/Volume:	5 mL
Prep Date:	06/19/2012 1624				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Methyl tert-butyl ether		5.1	U	0.76	5.1
Benzene		5.1	U	0.69	5.1
Toluene		5.1	U	0.75	5.1
Ethylbenzene		5.1	U	0.66	5.1
Xylenes, Total		15	U	2.3	15
Cumene		5.1	U	0.69	5.1
1,3,5-Trimethylbenzene		5.1	U	0.68	5.1
1,2,4-Trimethylbenzene		5.1	U	0.66	5.1
Naphthalene		1.5	J B *	1.0	5.1

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	79		52 - 124
Toluene-d8 (Surr)	101		72 - 127
4-Bromofluorobenzene (Surr)	88		63 - 120
Dibromofluoromethane (Surr)	87		68 - 121

Analytical Data

Client: Science Applications International Corp | Job Number: 180-11688-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 180-11688-9
Client Matrix: Water

Date Sampled: 06/18/2012 0000
Date Received: 06/19/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-39841	Instrument ID:	HP5
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	5062328.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	06/23/2012 2009			Final Weight/Volume:	5 mL
Prep Date:	06/23/2012 2009				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	110		62 - 123
Toluene-d8 (Surr)	96		80 - 120
4-Bromofluorobenzene (Surr)	96		75 - 120
Dibromofluoromethane (Surr)	112		80 - 120

General Chemistry

Client Sample ID: **HD-B45T-MW-123-13.5/14.0-0**

Lab Sample ID: 180-11688-1 Date Sampled: 06/18/2012 1020

Client Matrix: Solid Date Received: 06/19/2012 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Percent Moisture	16		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N
Percent Solids	84		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N

General Chemistry

Client Sample ID: **HD-B45T-MW-123-22.6/23.1-0**

Lab Sample ID:	180-11688-2	Date Sampled:	06/18/2012 1040
Client Matrix:	Solid	Date Received:	06/19/2012 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Percent Moisture	10		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N
Percent Solids	90		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N

General Chemistry

Client Sample ID: **HD-B45T-MW-124-17.5/18.0-0**

Lab Sample ID: 180-11688-3 Date Sampled: 06/18/2012 1235
Client Matrix: Solid Date Received: 06/19/2012 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Percent Moisture	23		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N
Percent Solids	77		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N

General Chemistry

Client Sample ID: **HD-B45T-MW-124-30.0/30.5-0**

Lab Sample ID: 180-11688-4 | Date Sampled: 06/18/2012 1245
Client Matrix: Solid | Date Received: 06/19/2012 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Percent Moisture	13		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N
Percent Solids	87		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N

General Chemistry

Client Sample ID: **HD-B45T-MW-122-10.5/11.0-0**

Lab Sample ID: 180-11688-5 Date Sampled: 06/18/2012 1440
Client Matrix: Solid Date Received: 06/19/2012 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Percent Moisture	17		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N
Percent Solids	83		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N

General Chemistry

Client Sample ID: **HD-B45T-MW-122-23.3/23.8-0**

Lab Sample ID: 180-11688-6 Date Sampled: 06/18/2012 1520
Client Matrix: Solid Date Received: 06/19/2012 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Percent Moisture	25		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433						DryWt Corrected: N
Percent Solids	75		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433						DryWt Corrected: N

General Chemistry

Client Sample ID: **HD-B45T-MW-125-10.0/10.5-0**

Lab Sample ID:	180-11688-7	Date Sampled:	06/18/2012 1710
Client Matrix:	Solid	Date Received:	06/19/2012 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Percent Moisture	15		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N
Percent Solids	85		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433					DryWt Corrected: N

General Chemistry

Client Sample ID: **HD-B45T-MW-125-21.4/21.9-0**

Lab Sample ID: 180-11688-8 Date Sampled: 06/18/2012 1720

Client Matrix: Solid Date Received: 06/19/2012 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Percent Moisture	11		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433						DryWt Corrected: N
Percent Solids	89		%	0.10	0.10	1.0	Moisture
Analysis Batch: 180-39433	Analysis Date: 06/19/2012 1433						DryWt Corrected: N

Client: Science Applications International Corp Job Number: 180-11688-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
180-11688-1	HD-B45T-MW-123-13 .5/14.0-0	89	76	101	88
180-11688-2	HD-B45T-MW-123-22 .6/23.1-0	92	79	103	91
180-11688-5	HD-B45T-MW-122-10 .5/11.0-0	93	78	101	93
180-11688-6	HD-B45T-MW-122-23 .3/23.8-0	98	86	102	95
180-11688-7	HD-B45T-MW-125-10 .0/10.5-0	95	80	106	90
180-11688-8	HD-B45T-MW-125-21 .4/21.9-0	87	79	101	88
MB 180-39453/1-A		91	90	97	89
LCS 180-39453/3-A		96	88	97	88
LCSD 180-39453/5-A		98	92	102	96

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	68-121
DCA = 1,2-Dichloroethane-d4 (Surr)	52-124
TOL = Toluene-d8 (Surr)	72-127
BFB = 4-Bromofluorobenzene (Surr)	63-120

Client: Science Applications International Corp   Job Number: 180-11688-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
180-11688-3	HD-B45T-MW-124-17 .5/18.0-0	87	74	96	91
180-11688-4	HD-B45T-MW-124-30 .0/30.5-0	85	70	96	92
MB 180-39458/1-A		88	73	120	100
LCS 180-39458/2-A		86	72	96	91
LCSD 180-39458/3-A		88	70	96	94

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	68-121
DCA = 1,2-Dichloroethane-d4 (Surr)	52-124
TOL = Toluene-d8 (Surr)	72-127
BFB = 4-Bromofluorobenzene (Surr)	63-120

Client: Science Applications International Corp Job Number: 180-11688-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
180-11688-9	TRIP BLANK	112	110	96	96
MB 180-39841/4		109	110	99	95
LCS 180-39841/7		104	103	101	97
180-11802-E-3 MS		106	105	106	100
180-11802-E-3 MSD		106	105	107	98

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	80-120
DCA = 1,2-Dichloroethane-d4 (Surr)	62-123
TOL = Toluene-d8 (Surr)	80-120
BFB = 4-Bromofluorobenzene (Surr)	75-120

Client: Science Applications International Corp | Job Number: 180-11688-1

Method Blank - Batch: 180-39453

Method: 8260B
Preparation: 5035

Lab Sample ID:	MB 180-39453/1-A	Analysis Batch:	180-39858	Instrument ID:	HP3
Client Matrix:	Solid	Prep Batch:	180-39453	Lab File ID:	3062205.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	4.9996 g
Analysis Date:	06/22/2012 0638	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	06/19/2012 1624				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Benzene	5.0	U	0.68	5.0
Toluene	5.0	U	0.73	5.0
Methyl tert-butyl ether	5.0	U	0.75	5.0
Ethylbenzene	5.0	U	0.64	5.0
Xylenes, Total	15	U	2.2	15
Cumene	5.0	U	0.68	5.0
1,3,5-Trimethylbenzene	5.0	U	0.67	5.0
1,2,4-Trimethylbenzene	5.0	U	0.65	5.0
Naphthalene	4.54	J	1.0	5.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	90	52 - 124
Toluene-d8 (Surr)	97	72 - 127
4-Bromofluorobenzene (Surr)	89	63 - 120
Dibromofluoromethane (Surr)	91	68 - 121

Shipping and Receiving Documents

FedEx Express US Airbill

FedEx Tracking Number 8746 2360 8053

0200 Form ID No.

1 From

Date: 6-18-12

Sender's FedEx Account Number:

Sender's Name: Emily Wade Phone: 717 425-8894

Company: SAIC

Address: 6310 Allentown Blvd Dept./Floor/Suite/Room

City: Harrisburg State: PA ZIP: 17112

2 Your Internal Billing Reference

3 To

Recipient's Name: Sample Receiving Phone: 412 963-2428

Company: Test America - Pittsburgh

Address: 301 Alpha Drive Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.

01 ☐ HOLD Weekday — FedEx location address REQUIRED. NOT available for FedEx First Overnight.

Address:
Use this line for the HOLD location address or for continuation of your shipping address.

31 ☐ HOLD Saturday — FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

City: Pittsburgh State: PA ZIP: 15238

FedE

4a Express Package Service *To most locations.

01 ☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

05 ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

03 ☐ FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

20 ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

4b Express Freight Service **To most locations.

70 ☐ FedEx 1Day Freight — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

FedEx 1Day Freight Booking No.

80 ☐ FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

83 ☐ FedEx 3Da[y Freight] — Third business

5 Packaging *Declared value limit $500.

06 ☐ FedEx Envelope* 02 ☐ FedEx Pak* Includes FedEx Small Pak and FedEx Large Pak. 03 ☐ FedEx Box

6 Special Handling and Delivery Signature Options

03 ☐ SATURDAY DELIVERY

☐ No Signature Required — Package may be left without obtaining a signature for delivery.

10 ☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.

Does this shipment contain dangerous goods?
One box must be checked.

☒ No 04 ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. 06 ☐ Dry Ic[e] Dry ice,

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. belo[w]

1 ☐ Sender Acct. No. in Section 1 will be billed. 2 ☒ Recipient 3 ☐ Third Party 4 ☐

[redacted] 2 [redacted]

Total Packages: 1 Total Weight: 41 lbs. Credi[t]

TestAmerica Pittsburgh
301 Alpha Drive

Pittsburgh, PA 15238
phone 412.963.7058 fax 412.963.2470

E.4 2-C #1 11688

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Rodney Myers	Site Contact: Emily Wade	Date Submitted: 6/18/2012	COC No: TAPBldg45061820121
Science Applications International Corp. (SAIC)	Tel/Fax: 717-468-1439 / 717-901-8102	Lab Contact: Carrie Gamber	Carrier:	1 of 1 COCs
6310 Allentown Blvd.	Analysis Turnaround Time			Job No.
Harrisburg, PA 17112	Calendar (C) or Work Days (W) ______			
(717) 901 - 8100 Phone	TAT if different from Below: Standard			
(717) 901-8102 FAX	☐ 2 weeks			Container No. 1
Project Name: HD Bldg 45 UST Characterization	☐ 1 week			SDG No.
Site: York PA	☐ 2 days			
Quote # 18009897-0	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	PADEP UST Shortlist Unleaded (8260B)	Total Solids	Sample Specific Notes:
HD-B45T-MW-123-13.5/14.0-0	6/18/2012	10:20	Soil Boring	Soil	4	X	X	
HD-B45T-MW-123-22.6/23.1-0	6/18/2012	10:40	Soil Boring	Soil	4	X	X	
HD-B45T-MW-124-17.5/18.0-0	6/18/2012	12:35	Soil Boring	Soil	4	X	X	
HD-B45T-MW-124-30.0/30.5-0	6/18/2012	12:45	Soil Boring	Soil	4	X	X	
HD-B45T-MW-122-10.5/11.0-0	6/18/2012	14:40	Soil Boring	Soil	4	X	X	
HD-B45T-MW-122-23.3/23.8-0	6/18/2012	15:20	Soil Boring	Soil	4	X	X	
HD-B45T-MW-125-10.0/10.5-0	6/18/2012	17:10	Soil Boring	Soil	4	X	X	
HD-B45T-MW-125-21.4/21.9-0	6/18/2012	17:20	Soil Boring	Soil	4	X	X	
Trip Blank 1	6/11/2012	18:00	Trip Blank	Water	2	X		
Temp Blank 1	6/18/2012	18:00	Temp Blank	Water	1			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Unpreserved 7=Na2S2O3

Preservation	2	6	4	6	6	5	5	6	4	4	4	4	4	4	4	4	4	4
Field Filter	N	N	Y	N	Y	N	N	N	Y	N	Y	N	Y	N	Y	N	Y	N

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months

Special Instructions/QC Requirements & Comments: **CLP Like Deliverables, Project Specific Analyte Lists**

Relinquished by: Matthew J. Logan	Company: SAIC	Date/Time: 06/18/2012/ 1800	Received by: Fed-Ex	Company: TAPIT	Date/Time: 6/19/12 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: Science Applications International Corp

Job Number: 180-11688-1

Login Number: 11688

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Gamber, Tom

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 180-14086-1

Job Description: Harley Davidson

For:
Science Applications International Corp
6310 Allentown Boulevard
Harrisburg, PA 17112

Attention: Mr. Rodney Myers

Approved for release.
Jill L Colussy
Project Manager I
9/25/2012 1:19 PM

Jill L Colussy
Project Manager I
jill.colussy@testamericainc.com
09/25/2012

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238
Tel (412) 963-7058 Fax (412) 963-2468 www.testamericainc.com

Table of Contents

Table of Contents

CASE NARRATIVE

Client: Science Applications International Corp

Project: Harley Davidson

Report Number: 180-14086-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 09/05/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.7 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Naphthalene was detected in the method blank at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

The relative percent difference between the laboratory control standard and the laboratory control duplicate was outside of the control limits for naphthalene. All recoveries were within the control limits.

PERCENT SOLIDS
No difficulties were encountered during the % solids analysis.

SAMPLE SUMMARY

Client: Science Applications International Corp

Job Number: 180-14086-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
180-14086-1	HD-B45T-MW-160-20.0-20.5-0	Solid	09/04/2012 0940	09/05/2012 1000
180-14086-2	HD-B45T-MW-160-36.0-36.5-0	Solid	09/04/2012 1130	09/05/2012 1000
180-14086-3	TRIP BLANK 1	Water	08/29/2012 1800	09/05/2012 1000

EXECUTIVE SUMMARY - Detections

Client: Science Applications International Corp

Job Number: 180-14086-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
180-14086-1	**HD-B45T-MW-160-20.0-20.5-0**					
Naphthalene		1.1	J B *	4.9	ug/Kg	8260B
Percent Moisture		18		0.10	%	Moisture
180-14086-2	**HD-B45T-MW-160-36.0-36.5-0**					
Benzene		3.6	J	5.3	ug/Kg	8260B
Toluene		0.78	J	5.3	ug/Kg	8260B
Naphthalene		1.8	J B *	5.3	ug/Kg	8260B
Percent Moisture		23		0.10	%	Moisture

METHOD SUMMARY

Client: Science Applications International Corp		Job Number: 180-14086-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Volatile Organic Compounds (GC/MS)	TAL PIT	SW846 8260B	
Purge and Trap	TAL PIT		SW846 5035
Percent Moisture	TAL PIT	EPA Moisture	
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL PIT	SW846 8260B	
Purge and Trap	TAL PIT		SW846 5030B

Lab References:

TAL PIT = TestAmerica Pittsburgh

Method References:

EPA = US Environmental Protection Agency

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

METHOD / ANALYST SUMMARY

Client: Science Applications International Corp | Job Number: 180-14086-1

Method	Analyst	Analyst ID
SW846 8260B	Gordon, Kathy L	KLG
SW846 8260B	Journet, Patrick	PJ
EPA Moisture	Kunkle, Sarah	SK

Client: Science Applications International Corp | Job Number: 180-14086-1

Client Sample ID: **HD-B45T-MW-160-20.0-20.5-0**

Lab Sample ID:	180-14086-1			Date Sampled:	09/04/2012 0940
Client Matrix:	Solid	% Moisture:	18.3	Date Received:	09/05/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-47590	Instrument ID:	HP3
Prep Method:	5035	Prep Batch:	180-47362	Lab File ID:	3090715.D
Dilution:	1.0			Initial Weight/Volume:	6.262 g
Analysis Date:	09/07/2012 1022			Final Weight/Volume:	5 mL
Prep Date:	09/05/2012 1411				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Methyl tert-butyl ether		4.9	U	0.73	4.9
Benzene		4.9	U	0.66	4.9
Toluene		4.9	U	0.71	4.9
Ethylbenzene		4.9	U	0.63	4.9
Xylenes, Total		15	U	2.2	15
Cumene		4.9	U	0.66	4.9
1,3,5-Trimethylbenzene		4.9	U	0.65	4.9
1,2,4-Trimethylbenzene		4.9	U	0.64	4.9
Naphthalene		1.1	J B *	0.98	4.9

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	107		52 - 124
Toluene-d8 (Surr)	101		72 - 127
4-Bromofluorobenzene (Surr)	98		63 - 120
Dibromofluoromethane (Surr)	108		68 - 121

Client: Science Applications International Corp | Job Number: 180-14086-1

Client Sample ID: **HD-B45T-MW-160-36.0-36.5-0**

Lab Sample ID:	180-14086-2			Date Sampled:	09/04/2012 1130
Client Matrix:	Solid	% Moisture:	23.0	Date Received:	09/05/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-47590	Instrument ID:	HP3
Prep Method:	5035	Prep Batch:	180-47362	Lab File ID:	3090714.D
Dilution:	1.0			Initial Weight/Volume:	6.0661 g
Analysis Date:	09/07/2012 1000			Final Weight/Volume:	5 mL
Prep Date:	09/05/2012 1411				

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Methyl tert-butyl ether		5.3	U	0.80	5.3
Benzene		3.6	J	0.72	5.3
Toluene		0.78	J	0.78	5.3
Ethylbenzene		5.3	U	0.69	5.3
Xylenes, Total		16	U	2.4	16
Cumene		5.3	U	0.73	5.3
1,3,5-Trimethylbenzene		5.3	U	0.71	5.3
1,2,4-Trimethylbenzene		5.3	U	0.70	5.3
Naphthalene		1.8	J B *	1.1	5.3

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	88		52 - 124
Toluene-d8 (Surr)	102		72 - 127
4-Bromofluorobenzene (Surr)	94		63 - 120
Dibromofluoromethane (Surr)	98		68 - 121

Client: Science Applications International Corp | Job Number: 180-14086-1

Client Sample ID: **TRIP BLANK 1**

Lab Sample ID: 180-14086-3 | Date Sampled: 08/29/2012 1800
Client Matrix: Water | Date Received: 09/05/2012 1000

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-47545	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	40906N26.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	09/06/2012 2304			Final Weight/Volume:	5 mL
Prep Date:	09/06/2012 2304				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	85		62 - 123
Toluene-d8 (Surr)	102		80 - 120
4-Bromofluorobenzene (Surr)	92		75 - 120
Dibromofluoromethane (Surr)	105		80 - 120

Analytical Data

Client: Science Applications International Corp | Job Number: 180-14086-1

General Chemistry

Client Sample ID: **HD-B45T-MW-160-20.0-20.5-0**

Lab Sample ID: 180-14086-1 | Date Sampled: 09/04/2012 0940

Client Matrix: Solid | Date Received: 09/05/2012 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Percent Moisture	18		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-47531	Analysis Date: 09/06/2012 1544					DryWt Corrected: N

General Chemistry

Client Sample ID: **HD-B45T-MW-160-36.0-36.5-0**

Lab Sample ID: 180-14086-2 Date Sampled: 09/04/2012 1130
Client Matrix: Solid Date Received: 09/05/2012 1000

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Percent Moisture	23		%	0.10	0.10	1.0	Moisture
	Analysis Batch: 180-47531	Analysis Date: 09/06/2012 1544					DryWt Corrected: N

Client: Science Applications International Corp | Job Number: 180-14086-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
180-14086-1	HD-B45T-MW-160-20 .0-20.5-0	108	107	101	98
180-14086-2	HD-B45T-MW-160-36 .0-36.5-0	98	88	102	94
MB 180-47362/1-A		97	97	100	89
LCS 180-47362/3-A		102	94	97	92
LCSD 180-47362/5-A		103	98	102	95

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	68-121
DCA = 1,2-Dichloroethane-d4 (Surr)	52-124
TOL = Toluene-d8 (Surr)	72-127
BFB = 4-Bromofluorobenzene (Surr)	63-120

Client: Science Applications International Corp Job Number: 180-14086-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
180-14086-3	TRIP BLANK 1	105	85	102	92
MB 180-47545/3		98	94	110	98
LCS 180-47545/4		103	91	105	102
LCSD 180-47545/5		104	95	109	106

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	80-120
DCA = 1,2-Dichloroethane-d4 (Surr)	62-123
TOL = Toluene-d8 (Surr)	80-120
BFB = 4-Bromofluorobenzene (Surr)	75-120

Client: Science Applications International Corp | Job Number: 180-14086-1

Method Blank - Batch: 180-47362

Method: 8260B
Preparation: 5035

Lab Sample ID:	MB 180-47362/1-A	Analysis Batch:	180-47590	Instrument ID:	HP3
Client Matrix:	Solid	Prep Batch:	180-47362	Lab File ID:	3090706.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5.0000 g
Analysis Date:	09/07/2012 0659	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	09/05/2012 1411				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Benzene	5.0	U	0.68	5.0
Toluene	5.0	U	0.73	5.0
Methyl tert-butyl ether	5.0	U	0.75	5.0
Ethylbenzene	5.0	U	0.64	5.0
Xylenes, Total	15	U	2.2	15
Cumene	5.0	U	0.68	5.0
1,3,5-Trimethylbenzene	5.0	U	0.67	5.0
1,2,4-Trimethylbenzene	5.0	U	0.65	5.0
Naphthalene	2.98	J	1.0	5.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	97	52 - 124
Toluene-d8 (Surr)	100	72 - 127
4-Bromofluorobenzene (Surr)	89	63 - 120
Dibromofluoromethane (Surr)	97	68 - 121

Shipping and Receiving Documents

fedex.com 1.800.GoFedEx 1.800.463.3339

FedEx Express *US Airbill* 8709 1952 2570 0200 Form ID No. **FedEx**

1 From
Date 9-4-17 Sender's FedEx Account Number
Sender's Name Emily Wade Phone 717 425-8894
Company SAIC
Address 6310 Allentown Blvd Dept./Floor/Suite/Room
City Harrisburg State PA ZIP 17112

2 Your Internal Billing Reference

3 To
Recipient's Name Sample Receiving Phone 412 963-2444
Company Test America - Pittsburgh
1 ☐ HOLD Weekday — Print FedEx location address below. NOT available for FedEx First Overnight.
31 ☐ HOLD Saturday — Print FedEx location address below. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.
Address 301 Alpha Drive Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.
Address
Print FedEx location address here if a HOLD option is selected.
City Pittsburgh State PA ZIP 15238

4a Express Package Service *To most locations.
1 ☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
5 ☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
6 ☐
3 ☐ FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
20 ☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

4b Express Freight Service ** To most locations.
7 ☐ FedEx 1Day Freight — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
FedEx 1Day Freight Booking No.
8 ☐ FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
83 ☐ FedEx 3Day Fr… Third business day.

5 Packaging * Declared value limit $500.
6 ☐ FedEx Envelope*
2 ☐ FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
3 ☐ FedEx Box
4 ☐

6 Special Handling and Delivery Signature Options
3 ☐ **SATURDAY DELIVERY**
☐ No Signature Required — Package may be left without obtaining a signature for delivery.
10 ☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
34 ☐ Indir… If no o… addres… addres… resider…

Does this shipment contain dangerous goods?
One box must be checked.
☒ No
4 ☐ Yes — As per attached Shipper's Declaration.
☐ Yes — Shipper's Declaration not required.
6 ☐ Dry Ice — Dry Ice, 9, UN 1…
☐ C…
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment *Bill to:*
Enter FedEx Acct. No. or Credit Card No. below.
1 ☐ Sender — Acct. No. in Section 1 will be billed.
2 ☒ Recipient
3 ☐ Third Party
4 ☐ Cre…
[redacted]
Total Packages 1 Total Weight 13 lbs. Credit Card …

†Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for de…

14084

~~TestAmerica~~ Pittsburgh
301 Alpha Drive

Pittsburgh, PA 15238
phone 412.963.7058 fax 412.963.2470

1.8#3

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Rodney Myers	Site Contact: Emily Wade	Date Submitted: 9/4/2012	COC No: TAP090420121
Science Applications International Corp. (SAIC)	Tel/Fax: 717-468-1439 / 717-901-8102	Lab Contact: Carrie Gamber	Carrier:	1 of 1 COCs
6310 Allentown Blvd.	Analysis Turnaround Time			Job No.
Harrisburg, PA 17112	Calendar (C) or Work Days (W)			
(717) 901 - 8100 Phone	TAT if different from Below: Standard			Container No. 1
(717) 901-8102 FAX	☐ 2 weeks			SDG No.
Project Name: HD Bldg 45 UST Characterization	☐ 1 week			
Site: York PA	☐ 2 days			
Quote # 18009897-0	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	PADEP UST Shortlist Unleaded (8260B)	Total Solids	Sample Specific Notes:
HD-B45T-MW-160-20.0-20.5-0	9/4/2012	9:40	Soil Boring	Soil	4	X	X	
HD-B45T-MW-160-36.0-36.5-0	9/4/2012	11:30	Soil Boring	Soil	4	X	X	
Trip Blank 1	8/29/2012	18:00	Trip Blank	Water	2	X		
Temp Blank 1	9/4/2012	18:00	Temp Blank	Water	1			

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Unpreserved 7=Na2S2O3	2	6	4	6	6	5	5	6	4	4	4	4	4	4	4	4	4	4
Field Filter	N	N	Y	N	Y	N	N	N	Y	N	Y	N	Y	N	Y	N	Y	N

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☒ *Disposal By Lab* ☐ *Archive For ______ Months*

Special Instructions/QC Requirements & Comments: **CLP Like Deliverables, Project Specific Analyte Lists**

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by: Matthew J. Logan [signature]	Company: SAIC	Date/Time: 09/04/2012/18:00	Received by: Fed-Ex	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by: [signature]	Company: TA PITT	Date/Time: 9-5-12 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: Science Applications International Corp

Job Number: 180-14086-1

Login Number: 14086

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Ras, Erin F

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX C

Groundwater Sample Logs

Science Applications International Corporation
From Science to Solutions

GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson			Well Identification:	MW-122
Project Number:				Project Location:	York, Pa
Purged by:	MJL	&		Date:	7.2.12
Sampled by:	MJL	&		Date:	7.2.12
Checked by:		&		Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below:
1" I.D., K=0.041 gal/ft
2" I.D., K=0.163 gal/ft
4" I.D., K=0.653 gal/ft
6" I.D., K=1.469 gal/ft
8" I.D., K=2.61 gal/ft
10" ID, K=4.08 gal/ft

1 Well Volume:
Total Depth (30.28 ft) - Depth to Water (8.93 ft) = Height of water column (21.35 ft)
Height of water column (21.35 ft) x K value (0.163 gal/ft) = 1 Well Volume (3.5 gal)

Purge Volume:
1 Well Volume (________gallons) x 3 = 3 Well Volumes (________gallons)
Purge Rate (________gpm) x (________min) = 1 Well Volume
Purge Rate (________gpm) x (________min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
1150	19.70	5.45	0.442	-5	3.85	182				0.66
1155	21.28	5.06	0.395	623	3.50	184			9.80	0.57
1200	21.36	5.09	0.403	382	3.84	178			11.84	0.49
1205	20.21	5.00	0.384	452	3.00	174			12.83	0.44
1210	19.67	5.11	0.406	331	1.75	162			13.30	0.40
1215	19.39	5.17	0.425	408	1.19	151			13.59	0.40
1220	19.19	5.20	0.440	280	1.03	144			13.76	0.36
1225	19.24	5.24	0.448	99.6	0.89	137			13.85	0.36
1230	19.10	5.24	0.453	73.5	0.93	134			13.91	

PURGE INFORMATION:
Time / Date Started: 1150 / 7.2.12
Time Purge End: 1230
Purge Method: Pump x Bailer
Depth to Intake: ~ 29.3 (ft)
Pump Type and ID: Monsoon # 1664
Purge Rate: 0.46 (gpm)
Purged Volume: 18.4 (gal)
Water Quality Meter: Horiba U-22# 15509
How was yield measured? Calibrated Cup/Stopwatch
Was well cavitated? Yes ___ No x
Water containerized/Amount 18.4
Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:
Time / Date Started: 1230 / 7.2.12
Sampled by: MJL &
Sample Method: Bailer ___ Other Pump
Grab x Composite
\# of Bottles Collected: 3
Bottle Preservatives: HCL
Recovering WL:
Duplicate Sampling:
Laboratory:
COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

Science Applications International Corporation
From Science to Solutions

GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson	Well Identification:	MW-123
Project Number:		Project Location:	York, Pa
Purged by:	MDL &	Date:	7.2.12
Sampled by:	MDL &	Date:	7.2.12
Checked by:	&	Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below: 1" I.D., K=0.041 gal/ft; 2" I.D., K=0.163 gal/ft; 4" I.D., K=0.653 gal/ft; 6" I.D., K=1.469 gal/ft; 8" I.D., K=2.61 gal/ft; 10" ID, K=4.08 gal/ft

1 Well Volume:

Total Depth (30.44 ft) - Depth to Water (12.37 ft) = Height of water column (18.07 ft)

Height of water column (18.07 ft) x K value (0.163 gal/ft) = 1 Well Volume (2.9 gal)

Purge Volume:

1 Well Volume (_____ gallons) x 3 = 3 Well Volumes (_____ gallons)

Purge Rate (_____ gpm) x (_____ min) = 1 Well Volume

Purge Rate (_____ gpm) x (_____ min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
1046	16.13	5.98	0.591	-5	2.00	94				0.49
1051	15.60	5.08	0.578	-5	1.22	128			18.03	0.49
1056	15.38	4.57	0.574	770	1.20	145			18.95	0.57
1101	15.32	4.45	0.575	684	1.22	148			19.29	0.57
1106	15.29	4.36	0.577	612	1.27	151			13.12*	0.57
1111	15.29	4.32	0.578	586	1.28	153			13.15	
1116	15.26	4.29	0.579	573	1.29	154			13.17	0.57

PURGE INFORMATION:

Time / Date Started: 1046 / 7.2.12
Time Purge End: 1116
Purge Method: Pump x Bailer
Depth to Intake: ~ 29.4 (ft)
Pump Type and ID: Mini monsoon# 1664
Purge Rate: 0.54 (gpm)
Purged Volume: 16.2 (gal)
Water Quality Meter: Horiba U-22# 15509
How was yield measured? Calibrated Cup/Stopwatch
Was well cavitated? Yes ___ No ✓
Water containerized/Amount 16.2
Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:

Time / Date Started: 1116 / 7.2.12
Sampled by: MDL &
Sample Method: Bailer ___ Other Pump
Grab x Composite
\# of Bottles Collected: 3
Bottle Preservatives: HCL
Recovering WL:
Duplicate Sampling:
Laboratory:
COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

* interface probe reading unusually

Science Applications International Corporation
From Science to Solutions

GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson	Well Identification:	MW-124
Project Number:		Project Location:	York, Pa
Purged by:	MDL &	Date:	7-2-12
Sampled by:	MDL &	Date:	7-2-12
Checked by:	&	Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below:
1" I.D., K=0.041 gal/ft
2" I.D., K=0.163 gal/ft
4" I.D., K=0.653 gal/ft
6" I.D., K=1.469 gal/ft
8" I.D., K=2.61 gal/ft
10" ID, K=4.08 gal/ft

1 Well Volume:
Total Depth (34.11 ft) - Depth to Water (15.50 ft) = Height of water column (18.61 ft)
Height of water column (18.61 ft) x K value (0.163 gal/ft) = 1 Well Volume (3.0 gal)
Purge Volume:
1 Well Volume (_____ gallons) x 3 = 3 Well Volumes (_____ gallons)
Purge Rate (_____ gpm) x (_____ min) = 1 Well Volume
Purge Rate (_____ gpm) x (_____ min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
1258	17.59	5.36	1.72	887	6.03	154				0.25
1303	16.62	5.17	1.68	387	3.80	141			16.83	0.19
1308	17.11	5.14	1.68	304	3.81	132			17.61	0.18
1313	16.36	5.12	1.62	347	4.13	129			18.57	0.23
1318	16.33	5.09	1.46	231	4.82	124			19.42	0.21
1323	16.43	5.07	1.38	225	5.60	118			20.13	0.18
1328	16.48	5.07	1.38	180	5.55	113			20.86	0.19
1333	16.55	5.06	1.38	149	5.53	108			21.34	

PURGE INFORMATION:
Time / Date Started: 1258 / 7-2-12
Time Purge End: 1333
Purge Method: Pump x Bailer
Depth to Intake: ~33.1 (ft)
Pump Type and ID: M.M. monsoon 16164
Purge Rate: 0.20 (gpm)
Purged Volume: 7 (gal)
Water Quality Meter: Horiba U-22# 15509
How was yield measured? Calibrated Cup/Stopwatch
Was well cavitated? Yes ___ No X
Water containerized/Amount 7
Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:
Time / Date Started: 1333 / 7-2-12
Sampled by: MDL &
Sample Method: Bailer ___ Other Pump
Grab x Composite
\# of Bottles Collected: 3
Bottle Preservatives: HCL
Recovering WL:
Duplicate Sampling:
Laboratory:
COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)
Hydrocarbon odor.

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GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson	Well Identification:	MW-12S
Project Number:		Project Location:	York, Pa
Purged by:	MJL &	Date:	7-2-12
Sampled by:	MJL &	Date:	7-2-12
Checked by:	&	Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below:
- 1" I.D., K=0.041 gal/ft
- 2" I.D., K=0.163 gal/ft
- 4" I.D., K=0.653 gal/ft
- 6" I.D., K=1.469 gal/ft
- 8" I.D., K=2.61 gal/ft
- 10" ID, K=4.08 gal/ft

1 Well Volume:

Total Depth (22.30 ft) - Depth to Water (11.59 ft) = Height of water column (10.71 ft)

Height of water column (10.71 ft) x K value (0.163 gal/ft) = 1 Well Volume (1.7 gal)

Purge Volume:

1 Well Volume (_____ gallons) x 3 = 3 Well Volumes (_____ gallons)

Purge Rate (_____ gpm) x (_____ min) = 1 Well Volume

Purge Rate (_____ gpm) x (_____ min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
0845	18.30	6.44	1.33	-5	0.05	-121				0.23
0850	18.20	6.56	1.31	-5	0.00	-157			12.61	0.23
0855	18.00	6.67	1.31	-5	0.00	-191			12.89	0.19
0900	18.02	6.72	1.32	-5	0.00	-203			13.03	0.20
0905	17.74	6.76	1.34	-5	0.00	-216			13.38	0.26
0910	17.67	6.77	1.35	-5	0.00	-220			13.69	0.25
0915	17.66	6.80	1.35	-5	0.00	-224				

PURGE INFORMATION:

- Time / Date Started: 0845 / 7-2-12
- Time Purge End: 0915
- Purge Method: Pump x Bailer ____
- Depth to Intake: ~ 21.30 (ft)
- Pump Type and ID: Mini Monsoon# 16164
- Purge Rate: 0.23 (gpm)
- Purged Volume: 6.9 (gal)
- Water Quality Meter: Horiba U-22# 15589
- How was yield measured? Calibrated Cup/Stopwatch
- Was well cavitated? Yes ____ No X
- Water containerized/Amount 6.9
- Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:

- Time / Date Started: 0915 / 7-2-12
- Sampled by: MJL &
- Sample Method: Bailer ____ Other Pump
- Grab x Composite ____
- # of Bottles Collected: 3
- Bottle Preservatives: HCL
- Recovering WL:
- Duplicate Sampling:
- Laboratory:
- COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

Soft bottom.

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GROUNDWATER SAMPLE LOG

Project Name: Harley-Davidson
Project Number:
Purged by: MJL &
Sampled by: MJL &
Checked by: &

Well Identification: MW-118
Project Location: York, Pa
Date: 8-2-12
Date: 8-2-12
Date:

WELL VOLUME CALCULATION:

Circle diameter and K used below: 1" I.D., K=0.041 gal/ft
2" I.D., K=0.163 gal/ft
4" I.D., K=0.653 gal/ft
6" I.D., K=1.469 gal/ft
8" I.D., K=2.61 gal/ft
10" ID, K=4.08 gal/ft

1 Well Volume:

Total Depth (23.50 ft) - Depth to Water (7.47 ft) = Height of water column (16.03 ft)
Height of water column (16.03 ft) x K value (0.163 gal/ft) = 1 Well Volume (2.6 gal)

Purge Volume:

1 Well Volume (_____gallons) x 3 = 3 Well Volumes (_____gallons)
Purge Rate (_____gpm) x (_____min) = 1 Well Volume
Purge Rate (_____gpm) x (_____min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
0945	18.0	5.34	0.813	-5	1.37	-50				0.28
0950	18.1	5.10	0.794	-5	0.32	-66			9.28	0.28
0955	18.3	5.06	0.777	172	0.13	-103			9.60	0.25
1000	18.4	5.06	0.787	60.5	0.13	-123			9.79	0.22
1005	18.5	5.08	0.779	64.9	0.16	-141			9.82	0.22
1010	18.3	5.09	0.808	3.4	0.13	-151			9.84	

PURGE INFORMATION:

Time / Date Started: 0945 / 8-2-12
Time Purge End: 1010
Purge Method: Pump x Bailer
Depth to Intake: ~ 22.5 (ft)
Pump Type and ID: Mini Monsoon # 16164
Purge Rate: 0.25 (gpm)
Purged Volume: 6.3 (gal)
Water Quality Meter: Horiba U-22# 87558
How was yield measured? Calibrated Cup/Stopwatch
Was well cavitated? Yes No x
Water containerized/Amount 6.3
Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:

Time / Date Started: 1010 / 8-2-12
Sampled by: MJL &
Sample Method: Bailer Other Pump
Grab x Composite
\# of Bottles Collected: 3
Bottle Preservatives: HCL
Recovering WL:
Duplicate Sampling:
Laboratory:
COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

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GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson	Well Identification:	MW-120
Project Number:		Project Location:	York, Pa
Purged by:	MJL &	Date:	8-1-12
Sampled by:	MJL &	Date:	8-1-12
Checked by:	&	Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below: 1" I.D., K=0.041 gal/ft
2" I.D., K=0.163 gal/ft
4" I.D., K=0.653 gal/ft
6" I.D., K=1.469 gal/ft
8" I.D., K=2.61 gal/ft
10" ID, K=4.08 gal/ft

1 Well Volume:
Total Depth (39.50 ft) - Depth to Water (13.60 ft) = Height of water column (25.90 ft)
Height of water column (25.90 ft) x K value (0.163 gal/ft) = 1 Well Volume (4.2 gal)

Purge Volume:
1 Well Volume (_____ gallons) x 3 = 3 Well Volumes (_____ gallons)
Purge Rate (_____ gpm) x (_____ min) = 1 Well Volume
Purge Rate (_____ gpm) x (_____ min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
0929	16.2	6.03	0.251	484	1.96	110				0.25
0934	15.7	5.34	0.239	218	0.57	181			14.88	0.20
0939	16.0	5.11	0.241	168	1.24	204			15.53	0.12
0944	16.1	5.05	0.243	183	1.27	207			16.15	0.14
0949	16.4	5.06	0.240	176	1.77	201			16.67	0.17
0954	16.4	4.99	0.235	138	0.91	177			17.36	0.11
0959	16.6	5.02	0.234	110	1.17	165			17.82	0.11
1004	16.5	4.98	0.232	82.5	0.38	163			18.45	0.12
1009	16.7	4.98	0.228	64.8	0.88	164			18.95	0.17
1014	16.3	4.97	0.225	61.1	0.19	175			19.66	0.17
1019	16.3	4.96	0.224	56.4	0.11	176			20.31	0.12
1024	16.6	4.99	0.224	55.6	0.17	175				

PURGE INFORMATION:
Time / Date Started: 0929 / 8-1-12
Time Purge End: 1024
Purge Method: Pump x Bailer
Depth to Intake: ~ 38.5 (ft)
Pump Type and ID: Mini monsoon # 1664
Purge Rate: 0.15 (gpm)
Purged Volume: 8.3 (gal)
Water Quality Meter: Horiba U-22# 82552
How was yield measured? Calibrated Cup/Stopwatch
Was well cavitated? Yes No X
Water containerized/Amount 8.3
Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:
Time / Date Started: 1024 / 8-1-12
Sampled by: MJL &
Sample Method: Bailer Other Pump
Grab x Composite
# of Bottles Collected: 3
Bottle Preservatives: HCL
Recovering WL:
Duplicate Sampling:
Laboratory:
COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

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GROUNDWATER SAMPLE LOG

Project Name: Harley-Davidson
Project Number:
Purged by: MJL &
Sampled by: MJL &
Checked by: &

Well Identification: MW-121
Project Location: York, Pa
Date: 8-1-12
Date: 8-1-12
Date:

WELL VOLUME CALCULATION:

Circle diameter and K used below:
- 1" I.D., K=0.041 gal/ft
- 2" I.D., K=0.163 gal/ft
- 4" I.D., K=0.653 gal/ft
- 6" I.D., K=1.469 gal/ft
- 8" I.D., K=2.61 gal/ft
- 10" ID, K=4.08 gal/ft

1 Well Volume:
Total Depth (35.40 ft) - Depth to Water (17.45 ft) = Height of water column (17.95 ft)
Height of water column (17.95 ft) x K value (0.163 gal/ft) = 1 Well Volume (2.9 gal)

Purge Volume:
1 Well Volume (_________gallons) x 3 = 3 Well Volumes (_________gallons)
Purge Rate (_________gpm) x (_______min) = 1 Well Volume
Purge Rate (_________gpm) x (_______min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
1050	16.2	5.80	0.532	-5	1.65	-95				0.21
1055	16.0	5.69	0.529	684	0.40	-233			18.95	0.14
1100	16.5	5.68	0.529	464	0.46	-225			19.61	0.19
1105	16.3	5.65	0.541	701	0.32	-217			20.35	0.12
1110	16.6	5.65	0.540	695	0.25	-216			20.94	0.14
1115	16.6	5.61	0.529	913	0.23	-213			21.45	0.12
1120	16.6	5.57	0.516	-5	0.19	-213			21.94	0.14
1125	16.5	5.53	0.499	-5	0.14	-213			22.45	0.14
1130	16.3	5.48	0.484	537	0.07	-215			23.17	0.11
1135	16.5	5.49	0.480	428	0.05	-218			23.68	

PURGE INFORMATION:
Time / Date Started: 1050 / 8-1-12
Time Purge End: 1135
Purge Method: Pump x Bailer
Depth to Intake: ~34.4 (ft)
Pump Type and ID: Mini monsoon # 1614
Purge Rate: 0.15 (gpm)
Purged Volume: 6.8 (gal)
Water Quality Meter: Horiba U-22# 82852
How was yield measured? Calibrated Cup/Stopwatch
Was well cavitated? Yes No X
Water containerized/Amount 6.8
Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:
Time / Date Started: 1135 / 8-1-12
Sampled by: MJL &
Sample Method: Bailer Other Pump
Grab x Composite
\# of Bottles Collected: 3
Bottle Preservatives: HCl
Recovering WL:
Duplicate Sampling:
Laboratory:
COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

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GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson	Well Identification:	MW-122
Project Number:		Project Location:	York, Pa
Purged by:	MJL &	Date:	8-2-12
Sampled by:	MJL &	Date:	8-2-12
Checked by:	&	Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below:

- 1" I.D., K=0.041 gal/ft
- 2" I.D., K=0.163 gal/ft
- 4" I.D., K=0.653 gal/ft
- 6" I.D., K=1.469 gal/ft
- 8" I.D., K=2.61 gal/ft
- 10" ID, K=4.08 gal/ft

1 Well Volume:

Total Depth (30.28 ft) - Depth to Water (8.56 ft) = Height of water column (21.72 ft)

Height of water column (21.72 ft) x K value (0.163 gal/ft) = 1 Well Volume (3.5 gal)

Purge Volume:

1 Well Volume (________gallons) x 3 = 3 Well Volumes (________gallons)

Purge Rate (________gpm) x (______min) = 1 Well Volume

Purge Rate (________gpm) x (______min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
0839	21.6	5.25	0.280	.5	1.99	236				0.29
0844	23.5	5.30	0.249	780	1.93	244			10.63	0.33
0849	23.3	5.16	0.286	637	2.01	242			11.14	0.33
0854	22.6	5.14	0.316	980	2.00	248			11.51	0.31
0859	22.1	5.22	0.292	216	1.45	245			11.79	0.28
0904	21.9	5.20	0.282	87.6	1.31	243			11.90	0.28
0909	21.7	5.20	0.281	59.7	1.20	242			12.01	0.28
0914	21.6	5.21	0.281	41.7	1.09	239			12.14	0.28
0919	21.5	5.22	0.282	33.1	1.07	237			12.22	

PURGE INFORMATION:

Time / Date Started: 0839 / 8-2-12
Time Purge End: 0919
Purge Method: Pump x Bailer
Depth to Intake: ~ 29.2 (ft)
Pump Type and ID: Monsoon 16164
Purge Rate: 0.32 (gpm)
Purged Volume: 12.8 (gal)
Water Quality Meter: Horiba U-22# 82552
How was yield measured? Calibrated Cup/Stopwatch
Was well cavitated? Yes No X
Water containerized/Amount 12.8
Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:

Time / Date Started: 0919 / 8-2-12
Sampled by: MJL &
Sample Method: Bailer Other Pump
Grab x Composite
\# of Bottles Collected: 3
Bottle Preservatives: HCL
Recovering WL:
Duplicate Sampling:
Laboratory:
COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

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GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson	Well Identification:	MW-123
Project Number:		Project Location:	York, Pa
Purged by:	MJL &	Date:	8-2-12
Sampled by:	MJL &	Date:	8-2-12
Checked by:	&	Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below: 1" I.D., K=0.041 gal/ft; 2" I.D., K=0.163 gal/ft; 4" I.D., K=0.653 gal/ft; 6" I.D., K=1.469 gal/ft; 8" I.D., K=2.61 gal/ft; 10" ID, K=4.08 gal/ft

1 Well Volume:
Total Depth (30.44 ft) - Depth to Water (12.41 ft) = Height of water column (18.03 ft)
Height of water column (18.03 ft) x K value (0.163 gal/ft) = 1 Well Volume (2.9 gal)

Purge Volume:
1 Well Volume (_____ gallons) x 3 = 3 Well Volumes (_____ gallons)
Purge Rate (_____ gpm) x (_____ min) = 1 Well Volume
Purge Rate (_____ gpm) x (_____ min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
0748	16.6	5.02	0.439	-5	2.97	214				0.33
0753	16.2	4.54	0.404	-5	1.46	262			12.76	0.40
0758	16.1	4.40	0.402	960	1.35	289			12.84	0.36
0803	15.8	4.27	0.403	925	1.28	302			12.91	0.49
0808	15.9	4.24	0.405	-5	1.20	310			13.08	0.49
0813	15.8	4.17	0.407	540	1.21	320			13.16	

PURGE INFORMATION:
Time / Date Started: 0748 / 8-2-12
Time Purge End: 0813
Purge Method: Pump x Bailer
Depth to Intake: ~ 29.4 (ft)
Pump Type and ID: Mini monsoon 1664
Purge Rate: 0.41 (gpm)
Purged Volume: 10.3 (gal)
Water Quality Meter: Horiba U-22# 22557
How was yield measured? Calibrated Cup/Stopwatch
Was well cavitated? Yes __ No X
Water containerized/Amount 10.3
Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:
Time / Date Started: 0813 / 8-2-12
Sampled by: MJL &
Sample Method: Bailer __ Other Pump
Grab x Composite
\# of Bottles Collected: 3
Bottle Preservatives: HCL
Recovering WL:
Duplicate Sampling:
Laboratory:
COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

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GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson	Well Identification:	MW-124
Project Number:		Project Location:	York, Pa
Purged by:	MJL &	Date:	8-2-12
Sampled by:	MJL &	Date:	8-2-12
Checked by:	&	Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below: 1" I.D., K=0.041 gal/ft; 2" I.D., K=0.163 gal/ft; 4" I.D., K=0.653 gal/ft; 6" I.D., K=1.469 gal/ft; 8" I.D., K=2.61 gal/ft; 10" ID, K=4.08 gal/ft

1 Well Volume:

Total Depth (34.11 ft) - Depth to Water (15.55 ft) = Height of water column (18.56 ft)

Height of water column (18.56 ft) x K value (0.163 gal/ft) = 1 Well Volume (3.0 gal)

Purge Volume:

1 Well Volume (______gallons) x 3 = 3 Well Volumes (______gallons)

Purge Rate (______gpm) x (______min) = 1 Well Volume

Purge Rate (______gpm) x (______min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
1042	18.0	5.39	2.15	-5	1.73	131				0.17
1047	17.3	5.35	2.15	413	0.71	130			16.73	0.12
1052	17.4	5.33	2.14	208	0.46	133			17.08	0.16
1057	17.2	5.31	2.16	126	0.29	140			17.80	0.16
1102	17.1	5.29	2.12	61.4	0.23	146			18.44	0.20
1107	17.0	5.19	1.89	25.9	0.13	147			19.00	0.17
1112	17.0	5.16	1.80	21.9	0.07	149			19.79	0.14
1117	17.2	5.13	1.72	45.1	0.07	150			20.25	0.15
1122	17.3	5.09	1.69	40.6	0.06	151			20.77	0.14
1127	17.2	5.07	1.68	33.0	0.05	150				

PURGE INFORMATION:

Time / Date Started: 1042 | 8-2-12

Time Purge End: 1127

Purge Method: Pump x Bailer

Depth to Intake: ~33.1 (ft)

Pump Type and ID: Mini-Monsoon #1664

Purge Rate: 0.16 (gpm)

Purged Volume: 7.2 (gal)

Water Quality Meter: Horiba U-22# 27558

How was yield measured? Calibrated Cup/Stopwatch

Was well cavitated? Yes__ No X

Water containerized/Amount 7.2

Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:

Time / Date Started: 1127 | 8-2-12

Sampled by: MJL &

Sample Method: Bailer__ Other Pump

Grab x Composite

# of Bottles Collected: 3

Bottle Preservatives: HCL

Recovering WL:

Duplicate Sampling:

Laboratory:

COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

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GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson		Well Identification:	MW-125
Project Number:			Project Location:	York, Pa
Purged by:	MJL	&	Date:	8-1-12
Sampled by:	MJL	&	Date:	8-1-12
Checked by:		&	Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below:
1" I.D., K=0.041 gal/ft
2" I.D., K=0.163 gal/ft
4" I.D., K=0.653 gal/ft
6" I.D., K=1.469 gal/ft
8" I.D., K=2.61 gal/ft
10" ID, K=4.08 gal/ft

1 Well Volume:
Total Depth (22.30 ft) - Depth to Water (10.79 ft) = Height of water column (11.51 ft)
Height of water column (11.51 ft) x K value (0.163 gal/ft) = 1 Well Volume (1.9 gal)

Purge Volume:
1 Well Volume (________gallons) x 3 = 3 Well Volumes (________gallons)
Purge Rate (________gpm) x (________min) = 1 Well Volume
Purge Rate (________gpm) x (________min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
0826	19.2	6.63	1.17	-5	0.92	-155				0.23
0831	19.2	6.66	1.17	-5	0.34	-223			11.43	0.20
0836	19.2	6.61	1.19	-5	0.54	-124			11.70	0.31
0841	18.9	6.57	1.23	-5	0.53	-90			12.09	0.28
0846	18.6	6.57	1.24	505	0.32	-87			12.35	0.25
0851	18.6	6.51	1.24	404	0.38	-84			12.53	0.23
0856	18.6	6.52	1.24	324	0.19	-82			12.61	0.22
0901	18.5	6.50	1.23	801	0.14	-97			12.74	0.25
0906	18.4	6.50	1.22	475	0.11	-95			12.81	

PURGE INFORMATION:

Time / Date Started: 0826 / 8-1-12
Time Purge End: 0906
Purge Method: Pump x Bailer
Depth to Intake: ~21.3 (ft)
Pump Type and ID: Minimonsoon# K1664
Purge Rate: 0.25 (gpm)
Purged Volume: 10 (gal)
Water Quality Meter: Horiba U-22# 82552
How was yield measured? Calibrated Cup/Stopwatch
Was well cavitated? Yes ___ No X
Water containerized/Amount 10
Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:

Time / Date Started: 0906 / 8-1-12
Sampled by: MJL &
Sample Method: Bailer ___ Other Pump
Grab x Composite
# of Bottles Collected: 3
Bottle Preservatives: HCL
Recovering WL:
Duplicate Sampling:
Laboratory:
COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

Science Applications International Corporation
From Science to Solutions℠

GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson	Well Identification:	MW-77
Project Number:		Project Location:	York, Pa
Purged by:	MJL &	Date:	8-1-12
Sampled by:	MJL &	Date:	8-1-12
Checked by:	&	Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below: 1" I.D., K=0.041 gal/ft; 2" I.D., K=0.163 gal/ft; 4" I.D., K=0.653 gal/ft; 6" I.D., K=1.469 gal/ft; 8" I.D., K=2.61 gal/ft; 10" ID, K=4.08 gal/ft

1 Well Volume:
Total Depth (65.62 ft) - Depth to Water (23.26 ft) = Height of water column (42.36 ft)
Height of water column (42.36 ft) x K value (0.163 gal/ft) = 1 Well Volume (6.9 gal)

Purge Volume:
1 Well Volume (_____ gallons) x 3 = 3 Well Volumes (_____ gallons)
Purge Rate (_____ gpm) x (_____ min) = 1 Well Volume
Purge Rate (_____ gpm) x (_____ min) = 3 Well Volume

below steel

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
1202	16.9	6.42	0.551	-5	1.21	-84				0.25
1207	17.0	6.32	0.560	-5	0.21	-121			27.42	0.25
1212	16.7	6.21	0.497	-5	0.20	-140			27.73	0.25
1217	16.6	6.13	0.456	-5	0.30	-143			27.72	0.25
1222	16.8	6.19	0.480	823	0.18	-147			27.68	0.25
1227	16.7	6.21	0.516	518	0.08	-151			27.60	
1232	16.8	6.20	0.542	328	0.03	-151			27.60	0.25
1237	16.8	6.20	0.554	304	0.01	-153			27.60	
1242	16.9	6.21	0.560	278	0.00	-153			27.60	
1247	16.8	6.21	0.565	259	0.00	-152				

PURGE INFORMATION:
Time / Date Started: 1202 | 8-1-12
Time Purge End: [illegible] 1247
Purge Method: Pump x Bailer
Depth to Intake: ~646 (ft)
Pump Type and ID: Mini [illegible] 16164
Purge Rate: 0.25 (gpm)
Purged Volume: 11.3 (gal)
Water Quality Meter: Horiba U-22# 82552
How was yield measured? Calibrated Cup/Stopwatch
Was well cavitated? Yes __ No X
Water containerized/Amount 11.3
Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:
Time / Date Started: 1247 | 8-1-12
Sampled by: [illegible] &
Sample Method: Bailer __ Other Pump
Grab x Composite
\# of Bottles Collected: 3
Bottle Preservatives: HCL
Recovering WL:
Duplicate Sampling:
Laboratory:
COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

Science Applications International Corporation
From Science to Solutions

GROUNDWATER SAMPLE LOG

Project Name:	Harley-Davidson	Well Identification:	MW-160
Project Number:	2603100044-3000-100	Project Location:	York, Pa
Purged by:	MJL &	Date:	9.12.12
Sampled by:	MJL &	Date:	9.12.12
Checked by:	&	Date:	

WELL VOLUME CALCULATION:

Circle diameter and K used below: 1" I.D., K=0.041 gal/ft; 2" I.D., K=0.163 gal/ft; 4" I.D., K=0.653 gal/ft; 6" I.D., K=1.469 gal/ft; 8" I.D., K=2.61 gal/ft; 10" ID, K=4.08 gal/ft

1 Well Volume:

Total Depth (36.95 ft) - Depth to Water (19.06 ft) = Height of water column (17.89 ft)

Height of water column (17.89 ft) x K value (0.163 gal/ft) = 1 Well Volume (2.9 gal)

Purge Volume:

1 Well Volume (_________gallons) x 3 = 3 Well Volumes (_________gallons)

Purge Rate (_________gpm) x (_______min) = 1 Well Volume

Purge Rate (_________gpm) x (_______min) = 3 Well Volume

Time	Temp °C	pH	Cond mS/cm	Turbidity NTU	D.O. mg/l	ORP mv	Purged Quantity	Well Volume	Depth to Water	Purge Rate
1113	15.84	6.58	0.463	NM	12.02	-11.1				0.26
1118	15.68	6.51	0.434		0.85	-56.9			20.17	0.31
1123	15.58	6.43	0.378		0.54	-77.6			20.67	0.28
1128	15.55	6.40	0.355		0.44	-88.2			21.03	0.28
1133	15.55	6.41	0.356		0.40	-96.1			21.24	0.28
1138	15.57	6.42	0.356		0.37	-99.7			21.38	

PURGE INFORMATION:

Time / Date Started: 1113 / 9.12.12

Time Purge End: 1138

Purge Method: Pump x Bailer

Depth to Intake: ~ 35.9 (ft)

Pump Type and ID: Mini-Monsoon # 81326

Purge Rate: 0.28 (gpm)

Purged Volume: 7 (gal)

Water Quality Meter: ~~Horiba U-22#~~ 15667

How was yield measured? YSI-556 Calibrated cup/stopwatch

Was well cavitated? Yes___ No X

Water containerized/Amount 7

Grunfos controller set @ NA (Hertz)

SAMPLING INFORMATION:

Time / Date Started: 1138 / 9.12.12

Sampled by: MJL &

Sample Method: Bailer ___ Other Pump

Grab x Composite

\# of Bottles Collected: 3

Bottle Preservatives: HCL

Recovering WL:

Duplicate Sampling:

Laboratory:

COC Form:

ADDITIONAL INFORMATION: (i.e. weather conditions, problems encountered, maintenance required, unusual color/odor, etc.)

Water quality meter does not measure turbidity

APPENDIX D

Groundwater Analytical Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 180-12129-1

Job Description: Harley Davidson

For:
Science Applications International Corp
6310 Allentown Boulevard
Harrisburg, PA 17112

Attention: Mr. Rodney Myers

Approved for release.
Jill L Colussy
Project Manager I
7/25/2012 5:11 PM

Jill L Colussy
Project Manager I
jill.colussy@testamericainc.com
07/25/2012

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager or designee who has signed this report.

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238
Tel (412) 963-7058 Fax (412) 963-2468 www.testamericainc.com

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CASE NARRATIVE

Client: Science Applications International Corp

Project: Harley Davidson

Report Number: 180-12129-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 07/03/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.3 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Due to the concentration of target compounds detected, sample HD-MW-124-01-0 (180-12129-4)[50X] was analyzed at a dilution. The reporting limits have been adjusted accordingly.

SAMPLE SUMMARY

Client: Science Applications International Corp

Job Number: 180-12129-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
180-12129-1	HD-MW-125-01-0	Water	07/02/2012 0915	07/03/2012 1015
180-12129-2	HD-MW-123-01-0	Water	07/02/2012 1116	07/03/2012 1015
180-12129-3	HD-MW-122-01-0	Water	07/02/2012 1230	07/03/2012 1015
180-12129-4	HD-MW-124-01-0	Water	07/02/2012 1333	07/03/2012 1015
180-12129-5	TRIP BLANK 1	Water	07/02/2012 1400	07/03/2012 1015

EXECUTIVE SUMMARY - Detections

Client: Science Applications International Corp

Job Number: 180-12129-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
180-12129-4	**HD-MW-124-01-0**					
Benzene		1400		250	ug/L	8260B
Toluene		4000		250	ug/L	8260B
Ethylbenzene		660		250	ug/L	8260B
Xylenes, Total		3800		15	ug/L	8260B
Cumene		57		5.0	ug/L	8260B
Methyl tert-butyl ether		39		5.0	ug/L	8260B
1,2,4-Trimethylbenzene		550		250	ug/L	8260B
1,3,5-Trimethylbenzene		240		5.0	ug/L	8260B
Naphthalene		1600		250	ug/L	8260B

METHOD SUMMARY

Client: Science Applications International Corp Job Number: 180-12129-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL PIT	SW846 8260B	
Purge and Trap	TAL PIT		SW846 5030B

Lab References:

TAL PIT = TestAmerica Pittsburgh

Method References:

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

METHOD / ANALYST SUMMARY

Client: Science Applications International Corp | Job Number: 180-12129-1

Method	Analyst	Analyst ID
SW846 8260B	Journet, Patrick	PJ

Analytical Data

Client: Science Applications International Corp | Job Number: 180-12129-1

Client Sample ID: **HD-MW-125-01-0**

Lab Sample ID: 180-12129-1 | Date Sampled: 07/02/2012 0915
Client Matrix: Water | Date Received: 07/03/2012 1015

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-40957	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4070619.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	07/06/2012 1658			Final Weight/Volume:	5 mL
Prep Date:	07/06/2012 1658				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	97		62 - 123
Toluene-d8 (Surr)	101		80 - 120
4-Bromofluorobenzene (Surr)	96		75 - 120
Dibromofluoromethane (Surr)	105		80 - 120

Client: Science Applications International Corp | Job Number: 180-12129-1

Client Sample ID: **HD-MW-123-01-0**

Lab Sample ID: 180-12129-2 | Date Sampled: 07/02/2012 1116
Client Matrix: Water | Date Received: 07/03/2012 1015

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-40957	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4070620.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	07/06/2012 1723			Final Weight/Volume:	5 mL
Prep Date:	07/06/2012 1723				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	96		62 - 123
Toluene-d8 (Surr)	108		80 - 120
4-Bromofluorobenzene (Surr)	101		75 - 120
Dibromofluoromethane (Surr)	101		80 - 120

Client: Science Applications International Corp | Job Number: 180-12129-1

Client Sample ID: **HD-MW-122-01-0**

Lab Sample ID: 180-12129-3
Client Matrix: Water

Date Sampled: 07/02/2012 1230
Date Received: 07/03/2012 1015

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-40957	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4070621.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	07/06/2012 1748			Final Weight/Volume:	5 mL
Prep Date:	07/06/2012 1748				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	98		62 - 123
Toluene-d8 (Surr)	97		80 - 120
4-Bromofluorobenzene (Surr)	92		75 - 120
Dibromofluoromethane (Surr)	104		80 - 120

Client: Science Applications International Corp | Job Number: 180-12129-1

Client Sample ID: HD-MW-124-01-0

Lab Sample ID:	180-12129-4	Date Sampled:	07/02/2012 1333
Client Matrix:	Water	Date Received:	07/03/2012 1015

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-40957	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4070622.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	07/06/2012 1812			Final Weight/Volume:	5 mL
Prep Date:	07/06/2012 1812				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	1100	E	0.99	5.0
Toluene	2200	E	0.85	5.0
Ethylbenzene	670	E	0.62	5.0
Xylenes, Total	3800		2.0	15
Cumene	57		0.53	5.0
Methyl tert-butyl ether	39		1.0	5.0
1,2,4-Trimethylbenzene	670	E	0.52	5.0
1,3,5-Trimethylbenzene	240		0.59	5.0
Naphthalene	280	E	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	106		62 - 123
Toluene-d8 (Surr)	98		80 - 120
4-Bromofluorobenzene (Surr)	100		75 - 120
Dibromofluoromethane (Surr)	95		80 - 120

Analytical Data

Client: Science Applications International Corp | Job Number: 180-12129-1

Client Sample ID: **HD-MW-124-01-0**

Lab Sample ID:	180-12129-4	Date Sampled:	07/02/2012 1333
Client Matrix:	Water	Date Received:	07/03/2012 1015

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-41257	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4071011.D
Dilution:	50			Initial Weight/Volume:	5 mL
Analysis Date:	07/10/2012 1409	Run Type:	DL	Final Weight/Volume:	5 mL
Prep Date:	07/10/2012 1409				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	1400		49	250
Toluene	4000		42	250
Ethylbenzene	660		31	250
Xylenes, Total	4300		98	750
Cumene	53	J	27	250
Methyl tert-butyl ether	250	U	51	250
1,2,4-Trimethylbenzene	550		26	250
1,3,5-Trimethylbenzene	210	J	30	250
Naphthalene	1600		24	250

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	87		62 - 123
Toluene-d8 (Surr)	85		80 - 120
4-Bromofluorobenzene (Surr)	99		75 - 120
Dibromofluoromethane (Surr)	94		80 - 120

Client: Science Applications International Corp | Job Number: 180-12129-1

Client Sample ID: **TRIP BLANK 1**

Lab Sample ID: 180-12129-5 | Date Sampled: 07/02/2012 1400
Client Matrix: Water | Date Received: 07/03/2012 1015

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-40957	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4070608.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	07/06/2012 1214			Final Weight/Volume:	5 mL
Prep Date:	07/06/2012 1214				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	81		62 - 123
Toluene-d8 (Surr)	86		80 - 120
4-Bromofluorobenzene (Surr)	80		75 - 120
Dibromofluoromethane (Surr)	86		80 - 120

Client: Science Applications International Corp Job Number: 180-12129-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
180-12129-1	HD-MW-125-01-0	105	97	101	96
180-12129-2	HD-MW-123-01-0	101	96	108	101
180-12129-3	HD-MW-122-01-0	104	98	97	92
180-12129-4	HD-MW-124-01-0	95	106	98	100
180-12129-4 DL	HD-MW-124-01-0 DL	94	87	85	99
180-12129-5	TRIP BLANK 1	86	81	86	80
MB 180-40957/5		91	94	90	92
MB 180-41257/6		94	101	92	97
LCS 180-40957/9		96	87	86	89
LCS 180-41257/1		96	86	88	92
LCSD 180-40957/10		99	92	89	92
LCSD 180-41257/2		96	87	89	93

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	80-120
DCA = 1,2-Dichloroethane-d4 (Surr)	62-123
TOL = Toluene-d8 (Surr)	80-120
BFB = 4-Bromofluorobenzene (Surr)	75-120

Client: Science Applications International Corp | Job Number: 180-12129-1

Method Blank - Batch: 180-40957 | **Method: 8260B** **Preparation: 5030B**

Lab Sample ID:	MB 180-40957/5	Analysis Batch:	180-40957	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	4070607.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	07/06/2012 1151	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	07/06/2012 1151				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	94	62 - 123
Toluene-d8 (Surr)	90	80 - 120
4-Bromofluorobenzene (Surr)	92	75 - 120
Dibromofluoromethane (Surr)	91	80 - 120

Shipping and Receiving Documents

Login Container Summary Report

Temperature readings: ______________________

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
HD-MW-125-01-0	180-12129-A-1	Voa Vial 40ml - Hydrochloric Acid	P		
HD-MW-125-01-0	180-12129-B-1	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-125-01-0	180-12129-C-1	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-123-01-0	180-12129-A-2	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-123-01-0	180-12129-B-2	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-123-01-0	180-12129-C-2	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-122-01-0	180-12129-A-3	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-122-01-0	180-12129-B-3	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-122-01-0	180-12129-C-3	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-124-01-0	180-12129-A-4	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-124-01-0	180-12129-B-4	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-124-01-0	180-12129-C-4	Voa Vial 40ml - Hydrochloric Acid			
TRIP BLANK 1	180-12129-A-5	Voa Vial 40ml - Hydrochloric Acid			
TRIP BLANK 1	180-12129-B-5	Voa Vial 40ml - Hydrochloric Acid			

FedEx Express **NEW** Package US Airbill

FedEx Tracking Number 8758 0959 6190

Form ID No. 0200

1 From

Date 7.7.18 [redacted]

Sender's Name Emily Wade Phone 717 425-8894

Company SAIC

Address 6310 Allentown Blvd Dept/Floor/Suite/Room

City Harrisburg State PA ZIP 17112

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 412 963-2428

Company Test America - Pittsburgh

Address 301 Alpha Drive Dept/Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.

☐ HOLD Weekday
FedEx location address REQUIRED. NOT available for FedEx First Overnight.

☐ HOLD Saturday
FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Address
Use this line for the HOLD location address or for continuation of your shipping address.

City Pittsburgh State PA ZIP 15238

4 Express Package Service *To most locations.
NOTE: Service order has changed. Please select carefully.

Next Business Day

☒ ~~FedEx First Overnight~~
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☒ FedEx Priority Overnight
Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Standard Overnight
Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

☐ NEW FedEx 2Day A.M.
Second business morning.* Saturday Delivery NOT available

☐ FedEx 2Day
Second business afternoon.* Th... will be delivered on Monday unl... Delivery is selected.

☐ FedEx Express Saver
Third business day.* Saturday Delivery NOT available

5 Packaging *Declared value limit $500.

☐ FedEx Envelope* ☐ FedEx Pak* ☐ FedEx Box ☐ F... T...

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.

☐ No Signature Required
Package may be left without obtaining a signature for delivery.

☐ Direct Signature
Someone at recipient's address may sign for delivery. *Fee applies.*

☐ Indi...

Does this shipment contain dangerous goods?
One box must be checked.

☒ No ☐ Yes As per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required. ☐ Dry Ice Dry Ice, 9, UN 1845 ☐ Cargo...

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

☐ Sender Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Ca...

[redacted]

Total Packages	Total Weight	Total Declared Value†	Credit Card Auth.
1	27 lbs.	$ .00	

12/29 #4 3.2

TestAmerica Pittsburgh
301 Alpha Drive

Pittsburgh, PA 15238
phone 412.963.7058 fax 412.963.2470

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Rodney Myers	Site Contact: Emily Wade	Date Submitted: 7/2/2012	COC No: TAP070220121
Science Applications International Corp. (SAIC)	Tel/Fax: 717-468-1439 / 717-901-8102	Lab Contact: Carrie Gamber	Carrier:	1 of 1 COCs
6310 Allentown Blvd.	Analysis Turnaround Time			Job No.
Harrisburg, PA 17112	Calendar (C) or Work Days (W) ____			
(717) 901 - 8100 Phone	TAT if different from Below: Standard			
(717) 901-8102 FAX	☐ 2 weeks			Container No. 1
Project Name: HD Bldg 45 UST Characterization	☐ 1 week			SDG No.
Site: York PA	☐ 2 days			
Quote # 18009897-0	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	PADEP UST Shortlist Unleaded (8260B0)																		Sample Specific Notes:
HD-MW-125-01-0	7/2/2012	9:15	Groundwater	Water	3	X																		
HD-MW-123-01-0	7/2/2012	11:16	Groundwater	Water	3	X																		
HD-MW-122-01-0	7/2/2012	12:30	Groundwater	Water	3	X																		
HD-MW-124-01-0	7/2/2012	13:33	Groundwater	Water	3	X																		
Trip Blank 1	7/2/2012	14:00	Trip Blank	Water	2	X																		
Temp Blank 1	7/2/2012	14:00	Temp Blank	Water	1																			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Unpreserved 7=Na2S2O3						2	6	4	6	6	5	5	6	4	4	4	4	4	4	4	4	4	4	
Field Filter						N	N	Y	N	Y	N	N	N	Y	N	Y	N	Y	N	Y	N	Y	N	

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☒ *Disposal By Lab* ☐ *Archive For ____ Months*

Special Instructions/QC Requirements & Comments: **CLP Like Deliverables, Project Specific Analyte Lists**

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Matthew J. Logan	SAIC	07/02/2012/ 1430	Fed-Ex		
			Debbie Watson	TA Pitt	7-3-12 1015

Login Sample Receipt Checklist

Client: Science Applications International Corp

Job Number: 180-12129-1

Login Number: 12129

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Watson, Debbie

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Job Number: 180-13083-1

Job Description: Harley Davidson

For:
Science Applications International Corp
6310 Allentown Boulevard
Harrisburg, PA 17112

Attention: Mr. Rodney Myers

Approved for release.
Jill L Colussy
Project Manager I
8/24/2012 4:56 PM

Jill L Colussy
Project Manager I
jill.colussy@testamericainc.com
08/24/2012

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238
Tel (412) 963-7058 Fax (412) 963-2468 www.testamericainc.com

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CASE NARRATIVE

Client: Science Applications International Corp

Project: Harley Davidson

Report Number: 180-13083-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 08/03/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.4 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Due to the concentration of target compounds detected, samples HD-MW-121-01-0 (180-13083-3)[100X], HD-MW-77-01-0 (180-13083-4) [10X], HD-MW-118-01-0 (180-13083-7)[10X] and HD-MW-124-01-0 (180-13083-8)[40X] were analyzed at a dilution. The reporting limits have been adjusted accordingly.

Naphthalene was detected in the method blank for batch 180-45069 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged.

The relative percent difference between the laboratory control standard and the laboratory control duplicate for batch 180-45069 was outside of the control limits for methyl tert-butyl ether and naphthalene.

SAMPLE SUMMARY

Client: Science Applications International Corp

Job Number: 180-13083-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
180-13083-1	HD-MW-125-01-0	Water	08/01/2012 0906	08/03/2012 0930
180-13083-2	HD-MW-120-01-0	Water	08/01/2012 1024	08/03/2012 0930
180-13083-3	HD-MW-121-01-0	Water	08/01/2012 1135	08/03/2012 0930
180-13083-4	HD-MW-77-01-0	Water	08/01/2012 1247	08/03/2012 0930
180-13083-5	HD-MW-123-01-0	Water	08/02/2012 0813	08/03/2012 0930
180-13083-6	HD-MW-122-01-0	Water	08/02/2012 0919	08/03/2012 0930
180-13083-7	HD-MW-118-01-0	Water	08/02/2012 1010	08/03/2012 0930
180-13083-8	HD-MW-124-01-0	Water	08/02/2012 1127	08/03/2012 0930
180-13083-9	TRIP BLANK 1	Water	08/02/2012 1200	08/03/2012 0930

EXECUTIVE SUMMARY - Detections

Client: Science Applications International Corp	Job Number: 180-13083-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
180-13083-2	**HD-MW-120-01-0**					
Benzene		7.0		5.0	ug/L	8260B
Methyl tert-butyl ether		6.8		5.0	ug/L	8260B
180-13083-3	**HD-MW-121-01-0**					
Benzene		480	J	500	ug/L	8260B
Toluene		6900		500	ug/L	8260B
Ethylbenzene		1900		500	ug/L	8260B
Xylenes, Total		7600		1500	ug/L	8260B
Cumene		89		5.0	ug/L	8260B
Methyl tert-butyl ether		35		5.0	ug/L	8260B
1,2,4-Trimethylbenzene		980		500	ug/L	8260B
1,3,5-Trimethylbenzene		230		5.0	ug/L	8260B
180-13083-4	**HD-MW-77-01-0**					
Benzene		2000		50	ug/L	8260B
Toluene		110		50	ug/L	8260B
Ethylbenzene		140		50	ug/L	8260B
Xylenes, Total		130	J	150	ug/L	8260B
Cumene		24	J	50	ug/L	8260B
Methyl tert-butyl ether		540		50	ug/L	8260B
1,2,4-Trimethylbenzene		33	J	50	ug/L	8260B
1,3,5-Trimethylbenzene		13	J	50	ug/L	8260B
Naphthalene		41	J	50	ug/L	8260B
180-13083-5	**HD-MW-123-01-0**					
Naphthalene		2.8	J B *	5.0	ug/L	8260B
180-13083-6	**HD-MW-122-01-0**					
Naphthalene		1.1	J B *	5.0	ug/L	8260B
180-13083-7	**HD-MW-118-01-0**					
Benzene		39	J	50	ug/L	8260B
Toluene		110		50	ug/L	8260B
Ethylbenzene		600		50	ug/L	8260B
Xylenes, Total		1400		150	ug/L	8260B
Cumene		78		50	ug/L	8260B
1,2,4-Trimethylbenzene		600		50	ug/L	8260B
1,3,5-Trimethylbenzene		210		50	ug/L	8260B
Naphthalene		22	J B *	50	ug/L	8260B

EXECUTIVE SUMMARY - Detections

Client: Science Applications International Corp   Job Number: 180-13083-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
180-13083-8	**HD-MW-124-01-0**					
Benzene		2300		200	ug/L	8260B
Toluene		8400		200	ug/L	8260B
Ethylbenzene		960		200	ug/L	8260B
Xylenes, Total		9500		600	ug/L	8260B
Cumene		36	J	200	ug/L	8260B
Methyl tert-butyl ether		44	J *	200	ug/L	8260B
1,2,4-Trimethylbenzene		1200		200	ug/L	8260B
1,3,5-Trimethylbenzene		490		200	ug/L	8260B
Naphthalene		540	B *	200	ug/L	8260B

METHOD SUMMARY

Client: Science Applications International Corp — Job Number: 180-13083-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL PIT	SW846 8260B	
Purge and Trap	TAL PIT		SW846 5030B

Lab References:

TAL PIT = TestAmerica Pittsburgh

Method References:

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

METHOD / ANALYST SUMMARY

Client: Science Applications International Corp | Job Number: 180-13083-1

Method	Analyst	Analyst ID
SW846 8260B	Journet, Patrick	PJ

Client: Science Applications International Corp | Job Number: 180-13083-1

Client Sample ID: **HD-MW-125-01-0**

Lab Sample ID:	180-13083-1	Date Sampled:	08/01/2012 0906
Client Matrix:	Water	Date Received:	08/03/2012 0930

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-43981	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4080622.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/06/2012 1705			Final Weight/Volume:	5 mL
Prep Date:	08/06/2012 1705				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	112		62 - 123
Toluene-d8 (Surr)	97		80 - 120
4-Bromofluorobenzene (Surr)	102		75 - 120
Dibromofluoromethane (Surr)	114		80 - 120

Client: Science Applications International Corp | Job Number: 180-13083-1

Client Sample ID: **HD-MW-120-01-0**

Lab Sample ID: 180-13083-2 | Date Sampled: 08/01/2012 1024
Client Matrix: Water | Date Received: 08/03/2012 0930

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-43981	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4080623.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/06/2012 1729			Final Weight/Volume:	5 mL
Prep Date:	08/06/2012 1729				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	7.0		0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	6.8		1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	119		62 - 123
Toluene-d8 (Surr)	95		80 - 120
4-Bromofluorobenzene (Surr)	104		75 - 120
Dibromofluoromethane (Surr)	116		80 - 120

Client: Science Applications International Corp | Job Number: 180-13083-1

Client Sample ID: HD-MW-121-01-0

Lab Sample ID:	180-13083-3	Date Sampled: 08/01/2012 1135
Client Matrix:	Water	Date Received: 08/03/2012 0930

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-43981	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4080624.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/06/2012 1753			Final Weight/Volume:	5 mL
Prep Date:	08/06/2012 1753				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	440	E	0.99	5.0
Toluene	1300	E	0.85	5.0
Ethylbenzene	1600	E	0.62	5.0
Xylenes, Total	3700		2.0	15
Cumene	89		0.53	5.0
Methyl tert-butyl ether	35		1.0	5.0
1,2,4-Trimethylbenzene	580	E	0.52	5.0
1,3,5-Trimethylbenzene	230		0.59	5.0
Naphthalene	330	E	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	103		62 - 123
Toluene-d8 (Surr)	101		80 - 120
4-Bromofluorobenzene (Surr)	111		75 - 120
Dibromofluoromethane (Surr)	96		80 - 120

Client: Science Applications International Corp Job Number: 180-13083-1

Client Sample ID: **HD-MW-121-01-0**

Lab Sample ID:	180-13083-3	Date Sampled:	08/01/2012 1135
Client Matrix:	Water	Date Received:	08/03/2012 0930

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-44255	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4080713.D
Dilution:	100			Initial Weight/Volume:	5 mL
Analysis Date:	08/07/2012 1441	Run Type:	DL	Final Weight/Volume:	5 mL
Prep Date:	08/07/2012 1441				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	480	J	99	500
Toluene	6900		85	500
Ethylbenzene	1900		62	500
Xylenes, Total	7600		200	1500
Cumene	71	J	53	500
Methyl tert-butyl ether	500	U	100	500
1,2,4-Trimethylbenzene	980		52	500
1,3,5-Trimethylbenzene	330	J	59	500
Naphthalene	500	U	47	500

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	94		62 - 123
Toluene-d8 (Surr)	101		80 - 120
4-Bromofluorobenzene (Surr)	98		75 - 120
Dibromofluoromethane (Surr)	102		80 - 120

Client: Science Applications International Corp | Job Number: 180-13083-1

Client Sample ID: **HD-MW-77-01-0**

Lab Sample ID:	180-13083-4	Date Sampled: 08/01/2012 1247
Client Matrix:	Water	Date Received: 08/03/2012 0930

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-44255	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4080714.D
Dilution:	10			Initial Weight/Volume:	5 mL
Analysis Date:	08/07/2012 1505			Final Weight/Volume:	5 mL
Prep Date:	08/07/2012 1505				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	2000		9.9	50
Toluene	110		8.5	50
Ethylbenzene	140		6.2	50
Xylenes, Total	130	J	20	150
Cumene	24	J	5.3	50
Methyl tert-butyl ether	540		10	50
1,2,4-Trimethylbenzene	33	J	5.2	50
1,3,5-Trimethylbenzene	13	J	5.9	50
Naphthalene	41	J	4.7	50

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	90		62 - 123
Toluene-d8 (Surr)	103		80 - 120
4-Bromofluorobenzene (Surr)	96		75 - 120
Dibromofluoromethane (Surr)	101		80 - 120

Client: Science Applications International Corp | Job Number: 180-13083-1

Client Sample ID: **HD-MW-123-01-0**

Lab Sample ID:	180-13083-5	Date Sampled:	08/02/2012 0813
Client Matrix:	Water	Date Received:	08/03/2012 0930

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-45069	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4081513.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/15/2012 1454			Final Weight/Volume:	5 mL
Prep Date:	08/15/2012 1454				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U *	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	2.8	J B *	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	72		62 - 123
Toluene-d8 (Surr)	110		80 - 120
4-Bromofluorobenzene (Surr)	96		75 - 120
Dibromofluoromethane (Surr)	89		80 - 120

Client: Science Applications International Corp | Job Number: 180-13083-1

Client Sample ID: **HD-MW-122-01-0**

Lab Sample ID:	180-13083-6	Date Sampled:	08/02/2012 0919
Client Matrix:	Water	Date Received:	08/03/2012 0930

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-45069	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4081514.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/15/2012 1519			Final Weight/Volume:	5 mL
Prep Date:	08/15/2012 1519				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U *	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	1.1	J B *	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	76		62 - 123
Toluene-d8 (Surr)	110		80 - 120
4-Bromofluorobenzene (Surr)	87		75 - 120
Dibromofluoromethane (Surr)	89		80 - 120

Client: Science Applications International Corp | Job Number: 180-13083-1

Client Sample ID: **HD-MW-118-01-0**

Lab Sample ID:	180-13083-7	Date Sampled:	08/02/2012 1010
Client Matrix:	Water	Date Received:	08/03/2012 0930

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-45069	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4081515.D
Dilution:	10			Initial Weight/Volume:	5 mL
Analysis Date:	08/15/2012 1543			Final Weight/Volume:	5 mL
Prep Date:	08/15/2012 1543				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	39	J	9.9	50
Toluene	110		8.5	50
Ethylbenzene	600		6.2	50
Xylenes, Total	1400		20	150
Cumene	78		5.3	50
Methyl tert-butyl ether	50	U *	10	50
1,2,4-Trimethylbenzene	600		5.2	50
1,3,5-Trimethylbenzene	210		5.9	50
Naphthalene	22	J B *	4.7	50

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	76		62 - 123
Toluene-d8 (Surr)	111		80 - 120
4-Bromofluorobenzene (Surr)	94		75 - 120
Dibromofluoromethane (Surr)	86		80 - 120

Client: Science Applications International Corp | Job Number: 180-13083-1

Client Sample ID: **HD-MW-124-01-0**

Lab Sample ID: 180-13083-8 | Date Sampled: 08/02/2012 1127
Client Matrix: Water | Date Received: 08/03/2012 0930

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-45069	Instrument ID:	HP4
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	4081516.D
Dilution:	40			Initial Weight/Volume:	5 mL
Analysis Date:	08/15/2012 1607			Final Weight/Volume:	5 mL
Prep Date:	08/15/2012 1607				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	2300		40	200
Toluene	8400		34	200
Ethylbenzene	960		25	200
Xylenes, Total	9500		79	600
Cumene	36	J	21	200
Methyl tert-butyl ether	44	J *	41	200
1,2,4-Trimethylbenzene	1200		21	200
1,3,5-Trimethylbenzene	490		24	200
Naphthalene	540	B *	19	200

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	70		62 - 123
Toluene-d8 (Surr)	113		80 - 120
4-Bromofluorobenzene (Surr)	91		75 - 120
Dibromofluoromethane (Surr)	86		80 - 120

Client: Science Applications International Corp | Job Number: 180-13083-1

Client Sample ID: **TRIP BLANK 1**

Lab Sample ID:	180-13083-9	Date Sampled:	08/02/2012 1200
Client Matrix:	Water	Date Received:	08/03/2012 0930

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-44461	Instrument ID:	HP7
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	7080918.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	08/09/2012 1544			Final Weight/Volume:	5 mL
Prep Date:	08/09/2012 1544				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	80		62 - 123
Toluene-d8 (Surr)	87		80 - 120
4-Bromofluorobenzene (Surr)	88		75 - 120
Dibromofluoromethane (Surr)	92		80 - 120

Client: Science Applications International Corp　　Job Number: 180-13083-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
180-13083-1	HD-MW-125-01-0	114	112	97	102
180-13083-2	HD-MW-120-01-0	116	119	95	104
180-13083-3	HD-MW-121-01-0	96	103	101	111
180-13083-3 DL	HD-MW-121-01-0 DL	102	94	101	98
180-13083-4	HD-MW-77-01-0	101	90	103	96
180-13083-5	HD-MW-123-01-0	89	72	110	96
180-13083-6	HD-MW-122-01-0	89	76	110	87
180-13083-7	HD-MW-118-01-0	86	76	111	94
180-13083-8	HD-MW-124-01-0	86	70	113	91
180-13083-9	TRIP BLANK 1	92	80	87	88
MB 180-43981/3		92	105	106	110
MB 180-44255/3		91	106	108	103
MB 180-44461/4		103	85	81	91
MB 180-45069/3		98	93	109	93
LCS 180-43981/4		103	108	100	101
LCS 180-44255/4		103	103	103	98
LCS 180-44461/6		93	81	84	89
LCS 180-45069/6		96	91	104	95
LCSD 180-44461/7		98	81	88	92
LCSD 180-45069/7		101	106	98	101
180-12974-A-9 MS		103	93	102	101
180-13069-M-9 MS		101	108	99	96
180-12974-B-9 MSD		102	92	101	100
180-13069-M-9 MSD		98	102	99	97

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	80-120
DCA = 1,2-Dichloroethane-d4 (Surr)	62-123
TOL = Toluene-d8 (Surr)	80-120
BFB = 4-Bromofluorobenzene (Surr)	75-120

Client: Science Applications International Corp Job Number: 180-13083-1

Method Blank - Batch: 180-43981

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 180-43981/3	Analysis Batch:	180-43981	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	4080603.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/06/2012 0903	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	08/06/2012 0903				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	5.0	U	0.47	5.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	105	62 - 123
Toluene-d8 (Surr)	106	80 - 120
4-Bromofluorobenzene (Surr)	110	75 - 120
Dibromofluoromethane (Surr)	92	80 - 120

Lab Control Sample - Batch: 180-43981

Method: 8260B
Preparation: 5030B

Lab Sample ID:	LCS 180-43981/4	Analysis Batch:	180-43981	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	4080604.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/06/2012 0937	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	08/06/2012 0937				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Benzene	40.0	40.1	100	80 - 120	
Toluene	40.0	40.2	100	80 - 124	
Ethylbenzene	40.0	40.5	101	79 - 124	
Xylenes, Total	120	124	104	81 - 121	
Cumene	40.0	42.6	106	73 - 130	
Methyl tert-butyl ether	40.0	39.7	99	53 - 122	
1,2,4-Trimethylbenzene	40.0	40.2	101	71 - 132	
1,3,5-Trimethylbenzene	40.0	41.0	102	75 - 135	
Naphthalene	40.0	40.6	101	10 - 144	

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	108	62 - 123
Toluene-d8 (Surr)	100	80 - 120
4-Bromofluorobenzene (Surr)	101	75 - 120
Dibromofluoromethane (Surr)	103	80 - 120

Client: Science Applications International Corp Job Number: 180-13083-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 180-43981

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	180-12974-A-9 MS	Analysis Batch:	180-43981	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	4080605.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/06/2012 1004			Final Weight/Volume:	5 mL
Prep Date:	08/06/2012 1004				5 mL
Leach Date:	N/A				

MSD Lab Sample ID:	180-12974-B-9 MSD	Analysis Batch:	180-43981	Instrument ID:	HP4
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	4080606.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/06/2012 1027			Final Weight/Volume:	5 mL
Prep Date:	08/06/2012 1027				5 mL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Benzene	101	100	80 - 120	1	20		
Toluene	101	101	80 - 124	1	20		
Ethylbenzene	102	101	79 - 124	1	25		
Xylenes, Total	107		81 - 121				
Cumene	110	105	73 - 130	5	20		
Methyl tert-butyl ether	93	92	53 - 122	1	20		
1,2,4-Trimethylbenzene	102	104	71 - 132	2	35		
1,3,5-Trimethylbenzene	103	104	75 - 135	1	20		
Naphthalene	102	116	10 - 144	13	35		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	93	92	62 - 123
Toluene-d8 (Surr)	102	101	80 - 120
4-Bromofluorobenzene (Surr)	101	100	75 - 120
Dibromofluoromethane (Surr)	103	102	80 - 120

Quality Control Results

Client: Science Applications International Corp | Job Number: 180-13083-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 180-43981

Method: 8260B
Preparation: 5030B

MS Lab Sample ID:	180-12974-A-9 MS	Units:	ug/L
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	08/06/2012 1004		
Prep Date:	08/06/2012 1004		
Leach Date:	N/A		

MSD Lab Sample ID:	180-12974-B-9 MSD
Client Matrix:	Water
Dilution:	1.0
Analysis Date:	08/06/2012 1027
Prep Date:	08/06/2012 1027
Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Benzene	5.0	U	40.0	40.0	40.3	40.0
Toluene	5.0	U	40.0	40.0	40.5	40.3
Ethylbenzene	5.0	U	40.0	40.0	40.8	40.3
Xylenes, Total	15	U	120	120	128	125
Cumene	5.0	U	40.0	40.0	44.2	42.1
Methyl tert-butyl ether	5.0	U	40.0	40.0	37.1	36.8
1,2,4-Trimethylbenzene	5.0	U	40.0	40.0	40.9	41.7
1,3,5-Trimethylbenzene	5.0	U	40.0	40.0	41.3	41.8
Naphthalene	5.0	U	40.0	40.0	40.9	46.5

Shipping and Receiving Documents

FedEx Express US Airbill 8709 1952 2569 0200 Form ID No.

FedEx Retrie

fedex.com 1.800.GoFedEx 1.800.463.3339

1 From
Date 8-2-18 Sender's FedEx Account Number

Sender's Name Emily Wade Phone 717 425-8894

Company SAIC

Address 6310 Allentown Blvd Dept./Floor/Suite/Room

City Harrisburg State PA ZIP 17112

2 Your Internal Billing Reference

3 To
Recipient's Name Sample Receiving Phone 412 963-2444

Company Test America-Pittsburgh

1 ☐ HOLD Weekday Print FedEx location address below. NOT available for FedEx First Overnight.

31 ☐ HOLD Saturday Print FedEx location address below. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Address 301 Alpha Drive Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address
Print FedEx location address here if a HOLD option is selected.

City Pittsburgh State PA ZIP 15238

8709 1952 2569

4a Express Package Service * To most locations. *Packag*

1 ☒ FedEx Priority Overnight Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

5 ☐ FedEx Standard Overnight Next business afternoon.* Saturday Delivery NOT available.

6 ☐ FedEx [...] Earliest ne[...] delivery to[...] Saturday [...]

3 ☐ FedEx 2Day Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

20 ☐ FedEx Express Saver Third business day.* Saturday Delivery NOT available.

4b Express Freight Service ** To most locations. *Packa*

7 ☐ FedEx 1Day Freight Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

FedEx 1Day Freight Booking No.

8 ☐ FedEx 2Day Freight Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

83 ☐ FedEx 3Day Freight Third business day.** Saturday Del[...]

5 Packaging * Declared value limit $500.

6 ☐ FedEx Envelope*

2 ☐ FedEx Pak* Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.

3 ☐ FedEx Box

4 ☐ FedEx [...]

6 Special Handling and Delivery Signature Options

3 ☐ **SATURDAY DELIVERY**

☐ No Signature Required Package may be left without obtaining a signature for delivery.

10 ☐ Direct Signature Someone at recipient's address may sign for delivery. Fee applies.

34 ☐ Indirect Signatu[...] If no one is available at[...] address, someone at a[...] address may sign for d[...] residential deliveries o[...]

Does this shipment contain dangerous goods?
One box must be checked.

☒ No

4 ☐ Yes As per attached Shipper's Declaration.

☐ Yes Shipper's Declaration not required.

6 ☐ Dry Ice Dry Ice, 9, UN 1845 ____

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

☐ Cargo Aircr[...]

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

1 ☐ Sender Acct. No. in Section 1 will be billed.

2 ☒ Recipient

3 ☐ Third Party

4 ☐ Credit Card

5 [...]

[redacted]

Total Packages 1

Total Weight 70 lbs.

[redacted]

Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

Rev. Date 2/08•Part #158281•©1994–2008 FedEx•PRINTED IN U.S.A. SRY

TestAmerica Pittsburgh
301 Alpha Drive

Pittsburgh, PA 15238
phone 412.963.7058 fax 412.963.2470

180 - 13083

Chain of Custody Record

4 t/2

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Rodney Myers	Site Contact: Emily Wade	Date Submitted: 8/2/2012	COC No: TAP080220121
Science Applications International Corp. (SAIC)	Tel/Fax: 717-468-1439 / 717-901-8102	Lab Contact: Carrie Gamber	Carrier:	1 of 1 COCs
6310 Allentown Blvd.	Analysis Turnaround Time			Job No.
Harrisburg, PA 17112	Calendar (C) or Work Days (W)			
(717) 901 - 8100 Phone	TAT if different from Below: Standard			
(717) 901-8102 FAX	☐ 2 weeks			Container No. 1
Project Name: HD Bldg 45 UST Characterization	☐ 1 week			SDG No.
Site: York PA	☐ 2 days			
Quote # 18009897-0	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	PADEP UST Shortlist Unleaded (8260B)	Sample Specific Notes:
HD-MW-125-01-0	8/1/2012	9:06	Groundwater	Water	3	X	
HD-MW-120-01-0	8/1/2012	10:24	Groundwater	Water	3	X	
HD-MW-121-01-0	8/1/2012	11:35	Groundwater	Water	3	X	
HD-MW-77-01-0	8/1/2012	12:47	Groundwater	Water	3	X	
HD-MW-123-01-0	8/2/2012	8:13	Groundwater	Water	3	X	
HD-MW-122-01-0	8/2/2012	9:19	Groundwater	Water	3	X	
HD-MW-118-01-0	8/2/2012	10:10	Groundwater	Water	3	X	
HD-MW-124-01-0	8/2/2012	11:27	Groundwater	Water	3	X	
Trip Blank 1	7/27/2012	12:00	Trip Blank	Water	2	X	
Temp Blank 1	8/2/2012	12:00	Temp Blank	Water	1		

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Unpreserved 7=Na2S2O3	2	6	4	6	6	5	5	6	4	4	4	4	4	4	4	4	4	4
Field Filter	N	N	Y	N	Y	N	N	N	Y	N	Y	N	Y	N	Y	N	Y	N

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☒ *Disposal By Lab* ☐ *Archive For ____ Months*

Special Instructions/QC Requirements & Comments: **CLP Like Deliverables, Project Specific Analyte Lists**

Relinquished by: Matthew J. Logan	Company: SAIC	Date/Time: 08/02/2012/ 1300	Received by: Fed-Ex	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company: TA Pitt	Date/Time: 8-3-12 1930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: Science Applications International Corp

Job Number: 180-13083-1

Login Number: 13083

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: O'Donnell, Brandon R

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 180-14382-1

Job Description: Harley Davidson

For:
Science Applications International Corp
6310 Allentown Boulevard
Harrisburg, PA 17112

Attention: Mr. Rodney Myers

Approved for release.
Jill L Colussy
Project Manager I
9/29/2012 8:54 AM

Jill L Colussy
Project Manager I
jill.colussy@testamericainc.com
09/29/2012

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238
Tel (412) 963-7058 Fax (412) 963-2468 www.testamericainc.com

Table of Contents

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CASE NARRATIVE

Client: Science Applications International Corp

Project: Harley Davidson

Report Number: 180-14382-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 09/13/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.8 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Naphthalene was detectedin the method blankd for batch 180-49307 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

SAMPLE SUMMARY

Client: Science Applications International Corp

Job Number: 180-14382-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
180-14382-1	HD-MW-160-01-0	Water	09/12/2012 1138	09/13/2012 0900
180-14382-2	TRIP BLANK 1	Water	09/12/2012 0800	09/13/2012 0900

EXECUTIVE SUMMARY - Detections

Client: Science Applications International Corp		Job Number: 180-14382-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
180-14382-1	**HD-MW-160-01-0**					
Benzene		180		5.0	ug/L	8260B
Toluene		17		5.0	ug/L	8260B
Ethylbenzene		12		5.0	ug/L	8260B
Xylenes, Total		20		15	ug/L	8260B
Cumene		1.2	J	5.0	ug/L	8260B
1,2,4-Trimethylbenzene		3.4	J	5.0	ug/L	8260B
Naphthalene		4.3	J B	5.0	ug/L	8260B
180-14382-2	**TRIP BLANK 1**					
Naphthalene		1.8	J B	5.0	ug/L	8260B

METHOD SUMMARY

Client: Science Applications International Corp | Job Number: 180-14382-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Volatile Organic Compounds (GC/MS)	TAL PIT	SW846 8260B	
Purge and Trap	TAL PIT		SW846 5030B

Lab References:

TAL PIT = TestAmerica Pittsburgh

Method References:

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

METHOD / ANALYST SUMMARY

Client: Science Applications International Corp

Job Number: 180-14382-1

Method	Analyst	Analyst ID
SW846 8260B	Journet, Patrick	PJ

Client: Science Applications International Corp   Job Number: 180-14382-1

Client Sample ID: **HD-MW-160-01-0**

Lab Sample ID:	180-14382-1	Date Sampled:	09/12/2012 1138
Client Matrix:	Water	Date Received:	09/13/2012 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-49307	Instrument ID:	HP7
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	70921N13.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	09/21/2012 1906			Final Weight/Volume:	5 mL
Prep Date:	09/21/2012 1906				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	180		0.99	5.0
Toluene	17		0.85	5.0
Ethylbenzene	12		0.62	5.0
Xylenes, Total	20		2.0	15
Cumene	1.2	J	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	3.4	J	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	4.3	J B	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	99		62 - 123
Toluene-d8 (Surr)	90		80 - 120
4-Bromofluorobenzene (Surr)	86		75 - 120
Dibromofluoromethane (Surr)	103		80 - 120

Client: Science Applications International Corp | Job Number: 180-14382-1

Client Sample ID: **TRIP BLANK 1**

Lab Sample ID:	180-14382-2	Date Sampled:	09/12/2012 0800
Client Matrix:	Water	Date Received:	09/13/2012 0900

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	180-49307	Instrument ID:	HP7
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	70921N14.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	09/21/2012 1931			Final Weight/Volume:	5 mL
Prep Date:	09/21/2012 1931				

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	1.8	J B	0.47	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	111		62 - 123
Toluene-d8 (Surr)	93		80 - 120
4-Bromofluorobenzene (Surr)	90		75 - 120
Dibromofluoromethane (Surr)	110		80 - 120

Client: Science Applications International Corp Job Number: 180-14382-1

Surrogate Recovery Report

8260B Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	DCA %Rec	TOL %Rec	BFB %Rec
180-14382-1	HD-MW-160-01-0	103	99	90	86
180-14382-2	TRIP BLANK 1	110	111	93	90
MB 180-49307/4		96	100	92	86
LCS 180-49307/6		85	91	94	90
LCSD 180-49307/7		84	90	94	90

Surrogate	Acceptance Limits
DBFM = Dibromofluoromethane (Surr)	80-120
DCA = 1,2-Dichloroethane-d4 (Surr)	62-123
TOL = Toluene-d8 (Surr)	80-120
BFB = 4-Bromofluorobenzene (Surr)	75-120

Client: Science Applications International Corp | Job Number: 180-14382-1

Method Blank - Batch: 180-49307

Method: 8260B
Preparation: 5030B

Lab Sample ID:	MB 180-49307/4	Analysis Batch:	180-49307	Instrument ID:	HP7
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	70921N05.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	09/21/2012 1511	Units:	ug/L	Final Weight/Volume:	5 mL
Prep Date:	09/21/2012 1511				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Benzene	5.0	U	0.99	5.0
Toluene	5.0	U	0.85	5.0
Ethylbenzene	5.0	U	0.62	5.0
Xylenes, Total	15	U	2.0	15
Cumene	5.0	U	0.53	5.0
Methyl tert-butyl ether	5.0	U	1.0	5.0
1,2,4-Trimethylbenzene	5.0	U	0.52	5.0
1,3,5-Trimethylbenzene	5.0	U	0.59	5.0
Naphthalene	3.02	J	0.47	5.0

Surrogate	% Rec	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	100	62 - 123
Toluene-d8 (Surr)	92	80 - 120
4-Bromofluorobenzene (Surr)	86	75 - 120
Dibromofluoromethane (Surr)	96	80 - 120

Shipping and Receiving Documents

FedEx Express US Airbill 8709 1952 2580 0200 Form ID No.

Fe

1 From
Date 9-12-12 Sender's FedEx Account Number
Sender's Name Emily Wade Phone 717 425-8894
Company SAIC
Address 6310 Allentown Blvd Dept./Floor/Suite/Room
City Harrisburg State PA ZIP 17112

2 Your Internal Billing Reference

3 To
Recipient's Name Sample Receiving Phone 412 963-2444
Company Test America-Pittsburgh
1 ☐ HOLD Weekday Print FedEx location address below. NOT available for FedEx First Overnight.
31 ☐ HOLD Saturday Print FedEx location address below. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.
Address 301 Alpha Drive
We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room
Address
Print FedEx location address here if a HOLD option is selected.
City Pittsburgh State PA ZIP 15238

4a Express Package Service *To most locations.
1 ☒ FedEx Priority Overnight Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
5 ☐ FedEx Standard Overnig Next business afternoon.* Saturday Delivery NOT available.
3 ☐ FedEx 2Day Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
20 ☐ FedEx Express Saver Third business day.* Saturday Delivery NOT available.

4b Express Freight Service **To most locations.
7 ☐ FedEx 1Day Freight Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected
FedEx 1Day Freight Booking No.
8 ☐ FedEx 2Day Freight Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
83 ☐ FedE Third bu

5 Packaging *Declared value limit $500.
6 ☐ FedEx Envelope*
2 ☐ FedEx Pak* Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
3 ☐ FedE

6 Special Handling and Delivery Signature Optio
3 ☐ SATURDAY DELIVERY
☐ No Signature Required Package may be left without obtaining a signature for delivery.
10 ☐ Direct Signature Someone at recipient's address may sign for delivery. Fee applies.
34 ☐

Does this shipment contain dangerous goods?
One box must be checked.
☒ No
4 ☐ Yes As per attached Shipper's Declaration.
☐ Yes Shipper's Declaration not required.
6 ☐ D Dr
Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No.
☐ Sender ☒

fedex.com 1.800.GoFedEx 1.800.463.3339

14382

TestAmerica Pittsburgh
301 Alpha Drive

Pittsburgh, PA 15238
phone 412.963.7058 fax 412.963.2470

3.9 ~~3~~

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Rodney Myers	Site Contact: Emily Wade	Date Submitted: 9/12/2012	COC No: TAP091220121
Science Applications International Corp. (SAIC)	Tel/Fax: 717-468-1439 / 717-901-8102	Lab Contact: Jill Colussy	Carrier:	1 of 1 COCs
6310 Allentown Blvd.	Analysis Turnaround Time			Job No.
Harrisburg, PA 17112	Calendar (C) or Work Days (W) ____			
(717) 901 - 8100 Phone	TAT if different from Below: Standard			
(717) 901-8102 FAX	☐ 2 weeks			Container No. 1
Project Name: HD Bldg 45 UST Characterization	☐ 1 week			SDG No.
Site: York PA	☐ 2 days			
Quote # 18009897-0	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	PADEP UST Shortlist Unleaded (8260B)	Sample Specific Notes:
HD-MW-160-01-0	9/12/2012	11:38	Groundwater	Water	3	X	
Trip Blank 1	9/12/2012	8:00	Trip Blank	Water	2	X	
Temp Blank 1	9/12/2012	12:00	Temp Blank	Water	1		

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Unpreserved 7=Na2S2O3	2	6	4	6	6	5	5	6	4	4	4	4	4	4	4	4	4	4
Field Filter	N	N	Y	N	Y	N	N	N	Y	N	Y	N	Y	N	Y	N	Y	N

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☒ *Disposal By Lab* ☐ *Archive For ______ Months*

Special Instructions/QC Requirements & Comments: **CLP Like Deliverables, Project Specific Analyte Lists Bill to SAIC: PO 450MR00464**

Relinquished by: Matthew J. Logan [signature]	Company: SAIC	Date/Time: 09/12/2012/14:00	Received by: Fed-Ex	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by: [signature]	Company: TA PITT	Date/Time: 9-13-12 0900
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Login Container Summary Report

Temperature readings: ______

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
HD-MW-160-01-0	180-14382-A-1	Voa Vial 40ml - Hydrochloric Acid	[illegible]		
HD-MW-160-01-0	180-14382-B-1	Voa Vial 40ml - Hydrochloric Acid			
HD-MW-160-01-0	180-14382-C-1	Voa Vial 40ml - Hydrochloric Acid			
TRIP BLANK 1	180-14382-A-2	Voa Vial 40ml - Hydrochloric Acid			
TRIP BLANK 1	180-14382-B-2	Voa Vial 40ml - Hydrochloric Acid			

Login Sample Receipt Checklist

Client: Science Applications International Corp

Job Number: 180-14382-1

Login Number: 14382

List Source: TestAmerica Pittsburgh

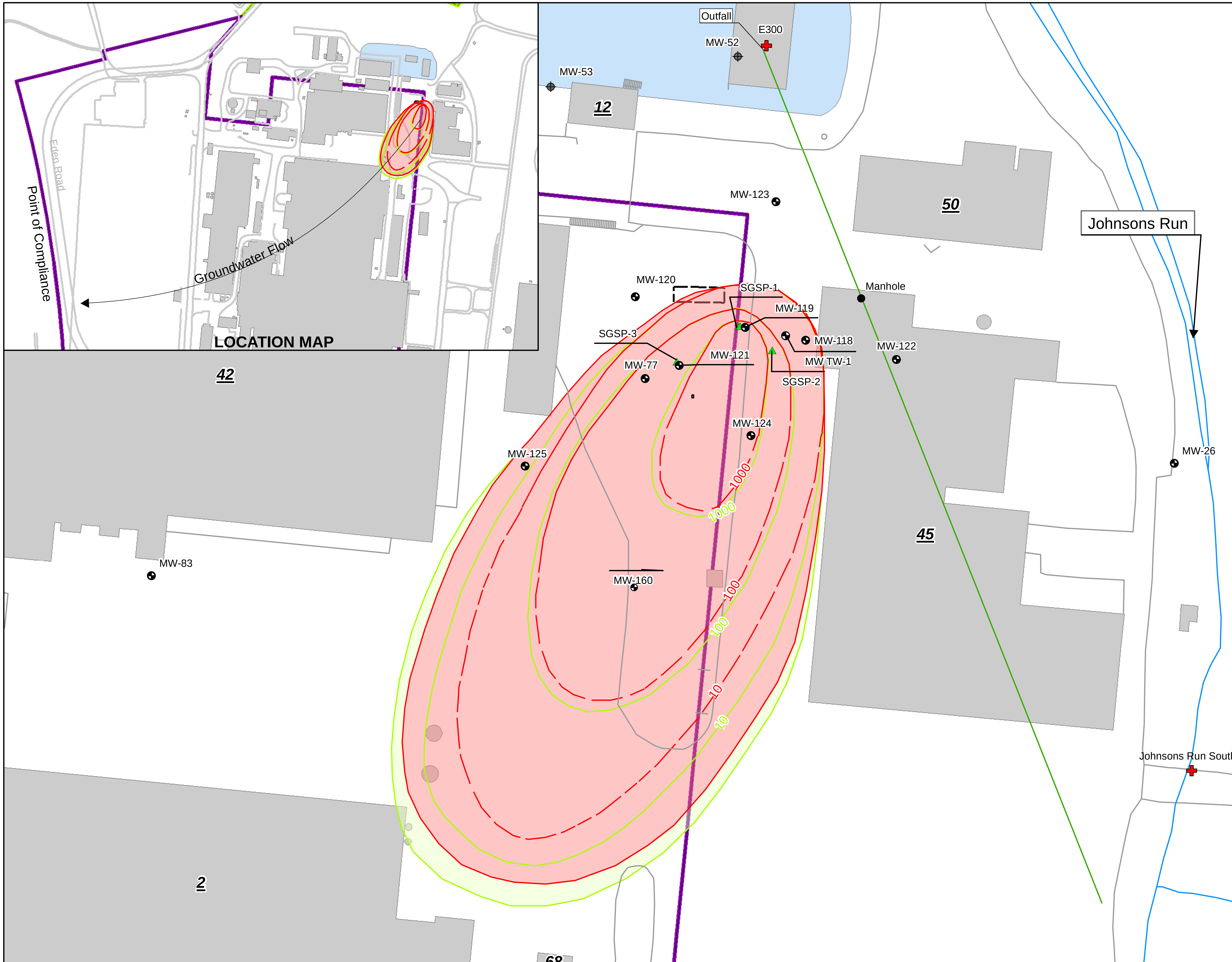
List Number: 1

Creator: Ras, Erin F

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX E

Dissolved-Phase Plume Schematics



Legend

- Tank 009 (Removed July 2010)
- Demolished Buildings
- Storm Water Detention Basin
- Roads and Curbs
- East/West Campus Boundary
- Approximate Stormwater Line
- Monitoring Well
- Abandoned Well
- Location ofSurface Water Elevation Monitoring Point
- Location of Soil Gas Sample Point
- Current Isoconcentration Contour (dashed where inferred)
- 30 Year Isoconcentration Contour
- 30 Year Plume Concentration Exceeds MSC.
- Current Plume Concentration Exceeds MSC.

MSC: Medium Specific Concentration

All results reported in micrograms per liter (µg/L)

SOURCE:
1. *Base data (Buildings, Building Boundaries, Roads and Curbs, underground utilities and Contour Lines, from NuTec Survey conducted in 2006).*
2. *Monitoring Wells, Soil Borings, and Underground Storage Tank Features from SAIC site measurements.*

N

0 25 50 100 Feet

Harley-Davidson Motor Company Operations, Inc.
1425 Eden Rd York, Pa 17402

Isoconcentration Contour Map
Benzene

drawn JEB	checked	approved	figure no.
date 12/05/2012	date	date	E-1
job no. 2603100044/3000/100		file no. GWEIsoMap_20121204	

initials	date	revision

SAIC

Path: O:\CAD\HBG\ENV\GIS_Data\Harley\Projects\2012_Bldg45\GWEIsoMap_20121204.mxd

Legend

- Tank 009 (Removed July 2010)
- Demolished Buildings
- Storm Water Detention Basin
- Roads and Curbs
- East/West Campus Boundary
- Approximate Stormwater Line
- Monitoring Well
- Abandoned Well
- Location ofSurface Water Elevation Monitoring Point
- Location of Soil Gas Sample Point
- Current Isoconcentration Contour (dashed where inferred)
- 30 Year Isoconcentration Contour
- Current Plume Concentration Exceeds MSC.
- 30 Year Plume Concentration Exceeds MSC

MSC: Medium Specific Concentration

All results reported in micrograms per liter (µg/L)

SOURCE:
1. *Base data (Buildings, Building Boundaries, Roads and Curbs, underground utilities and Contour Lines, from NuTec Survey conducted in 2006).*
2. *Monitoring Wells, Soil Borings, and Underground Storage Tank Features from SAIC site measurements.*

N

0 25 50 100 Feet

Harley-Davidson Motor Company Operations, Inc.
1425 Eden Rd York, Pa 17402

Isoconcentration Contour Map MTBE

drawn JEB	checked	approved	figure no.
date 12/07/2012	date	date	E-2
job no. 2603100044/3000/100		file no. GWEIsoMap_MTBE_30yr_20121207	

initials	date	revision

SAIC

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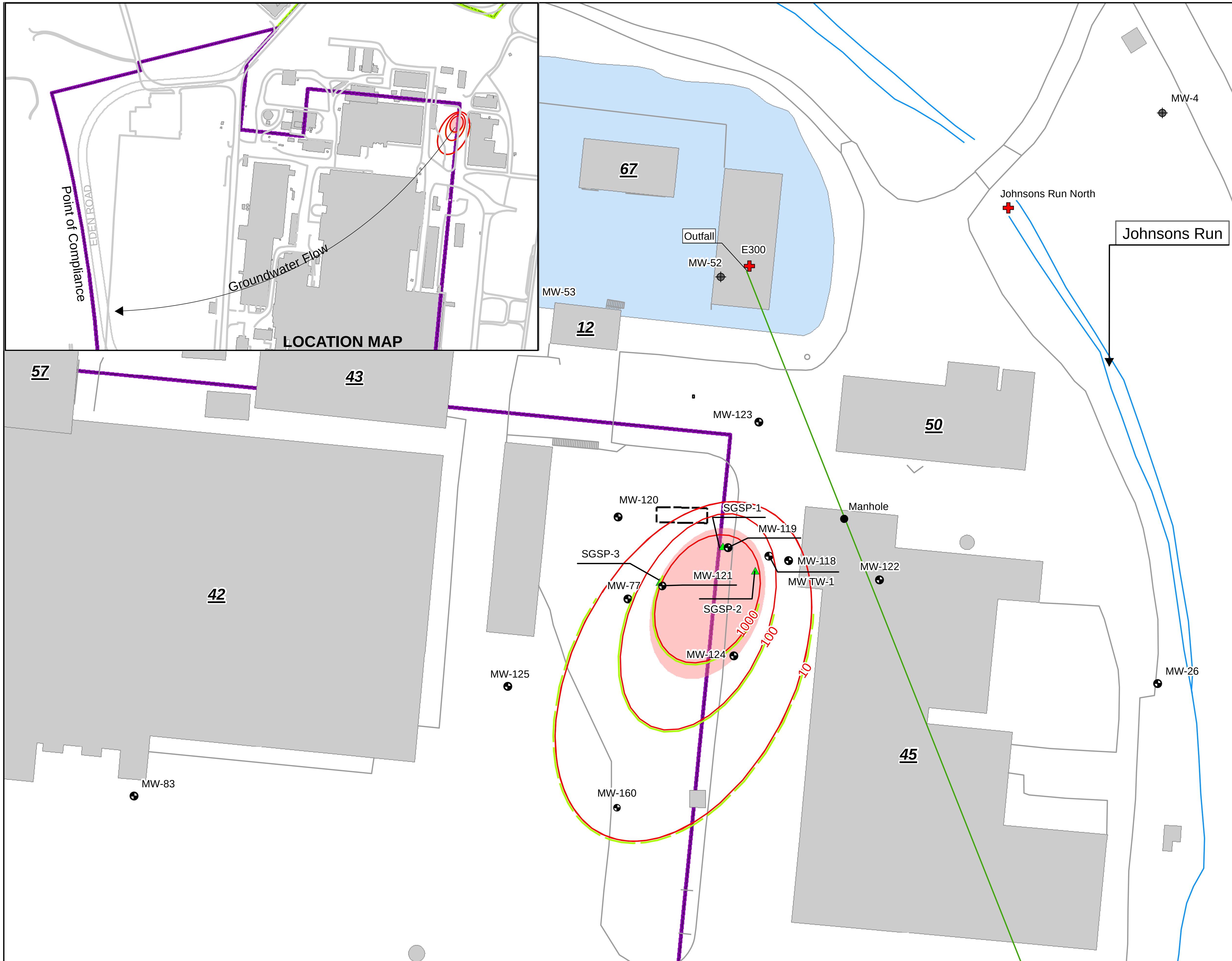

Legend

- Tank 009 (Removed July 2010)
- Demolished Buildings
- Storm Water Detention Basin
- Roads and Curbs
- East/West Campus Boundary
- Approximate Stormwater Line
- Monitoring Well
- Abandoned Well
- Location ofSurface Water Elevation Monitoring Point
- Location of Soil Gas Sample Point
- Approximate Isoconcentration Contour (dashed where inferred)
- 30 Year Isoconcentration Contour (dashed where inferred)
- Current Plume Concentration Exceeds MSC

fbg: Feet Below Grade
MSC: Medium Specific Concentration
All results reported in micrograms per liter (µg/L)

SOURCE:
1. *Base data (Buildings, Building Boundaries, Roads and Curbs, underground utilities and Contour Lines, from NuTec Survey conducted in 2006).*
2. *Monitoring Wells, Soil Borings, and Underground Storage Tank Features from SAIC site measurements.*

N

0 25 50 100 Feet

Harley-Davidson Motor Company Operations, Inc.
1425 Eden Rd York, Pa 17402

Isoconcentration Contour Map
Ethylbenzene

drawn TAY	checked	approved	figure no.
date 12/04/2012	date	date	E-3
job no. 2603100044/3000/100		file no. GWEIsoMap_Ethylbenzene_30YR_20121204	

initials	date	revision

SAIC

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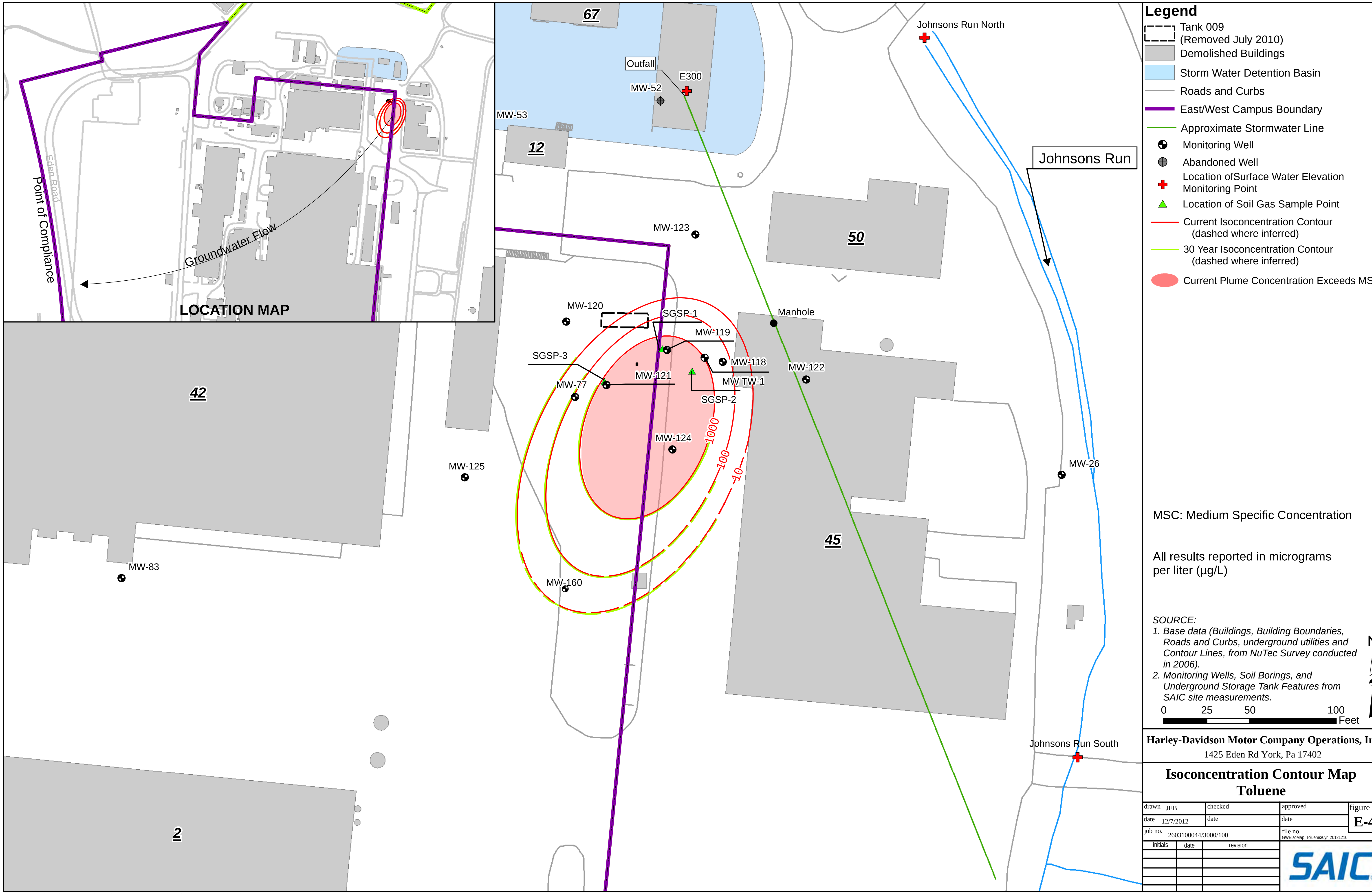

LOCATION MAP
Point of Compliance
Eden Road
Groundwater Flow
67
12
50
42
45
2
Outfall
E300
MW-52
MW-53
MW-123
MW-120
SGSP-1
MW-119
SGSP-3
MW-118
MW-121
MW TW-1
MW-77
SGSP-2
MW-122
Manhole
MW-124
MW-125
MW-83
MW-160
MW-26
1000
100
10
Johnsons Run North
Johnsons Run
Johnsons Run South
Legend
Tank 009 (Removed July 2010)
Demolished Buildings
Storm Water Detention Basin
Roads and Curbs
East/West Campus Boundary
Approximate Stormwater Line
Monitoring Well
Abandoned Well
Location ofSurface Water Elevation Monitoring Point
Location of Soil Gas Sample Point
Current Isoconcentration Contour (dashed where inferred)
30 Year Isoconcentration Contour (dashed where inferred)
Current Plume Concentration Exceeds MSC.
MSC: Medium Specific Concentration
All results reported in micrograms per liter (µg/L)
SOURCE:
1. Base data (Buildings, Building Boundaries, Roads and Curbs, underground utilities and Contour Lines, from NuTec Survey conducted in 2006).
2. Monitoring Wells, Soil Borings, and Underground Storage Tank Features from SAIC site measurements.
N
0 25 50 100 Feet
Harley-Davidson Motor Company Operations, Inc.
1425 Eden Rd York, Pa 17402
Isoconcentration Contour Map
Toluene
drawn JEB
checked
approved
figure no.
date 12/7/2012
date
date
E-4
job no. 2603100044/3000/100
file no. GWEIsoMap_Toluene30yr_20121210
initials
date
revision
SAIC
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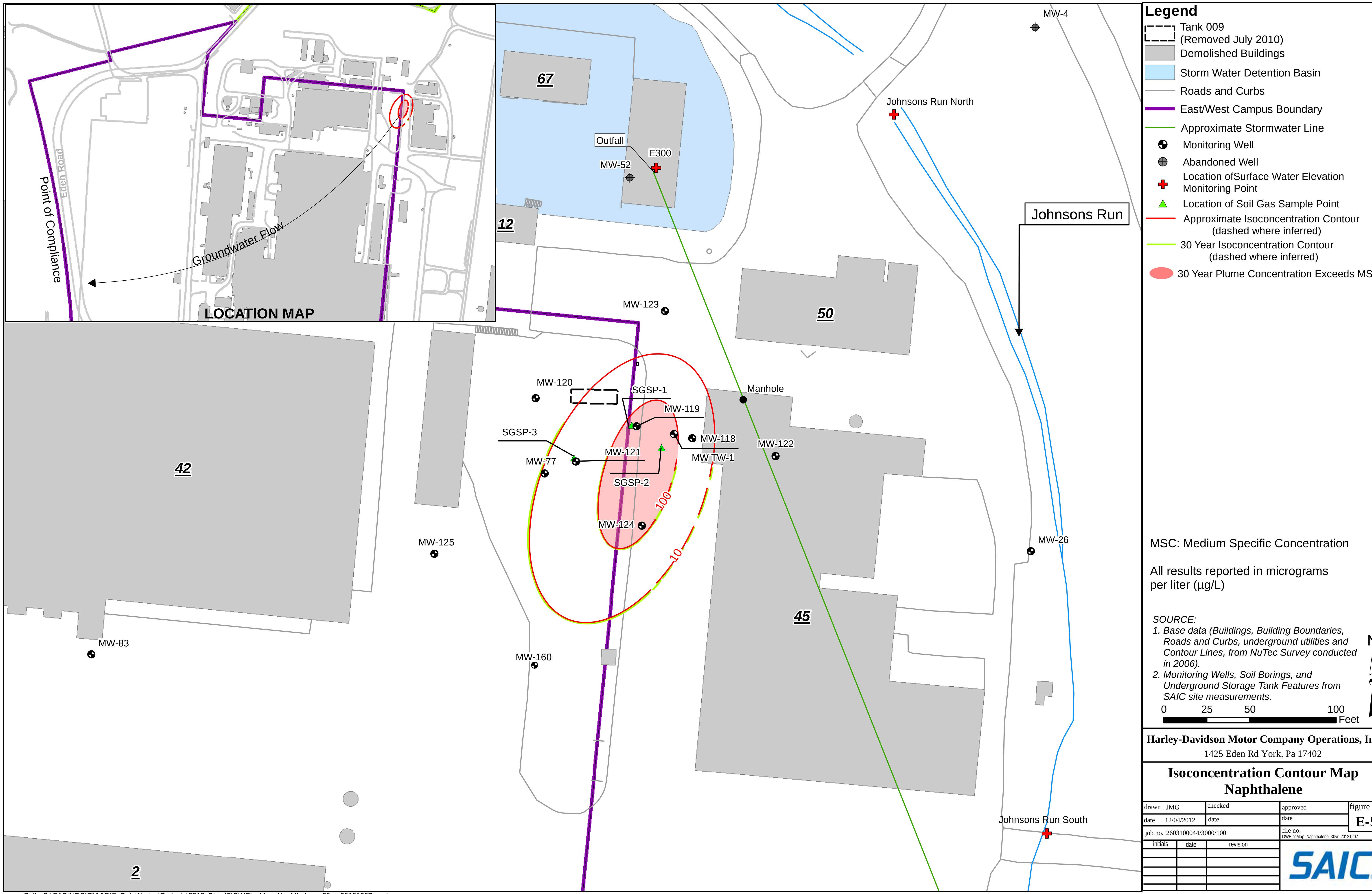

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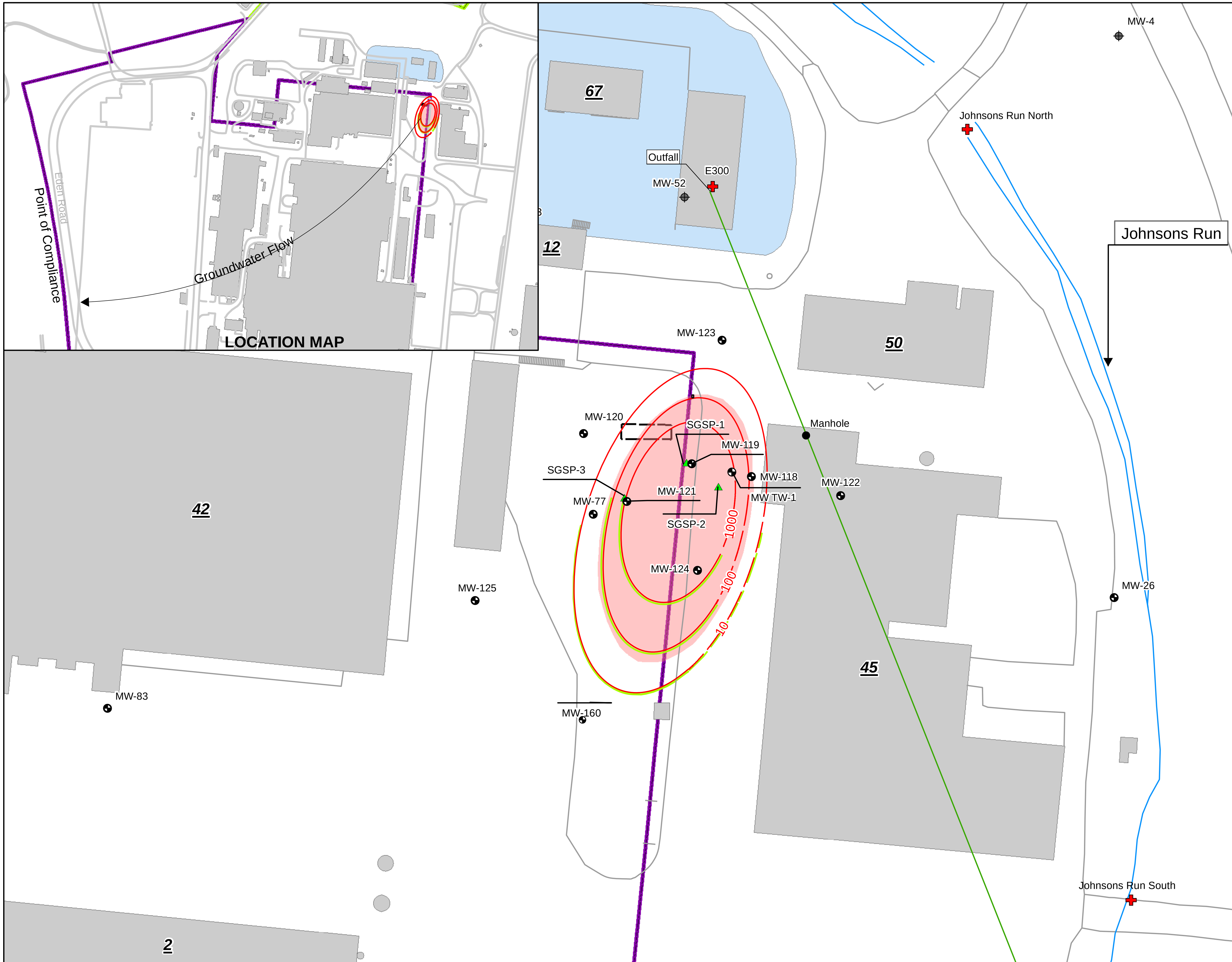

Legend

- Tank 009 (Removed July 2010)
- Demolished Buildings
- Storm Water Detention Basin
- Roads and Curbs
- East/West Campus Boundary
- Approximate Stormwater Line
- Monitoring Well
- Abandoned Well
- Location ofSurface Water Elevation Monitoring Point
- Location of Soil Gas Sample Point
- Current Isoconcentration Contour (dashed where inferred)
- 30 Year Isoconcentration Contour (dashed where inferred)
- Current Plume Concentration Exceeds MSC.

MSC: Medium Specific Concentration

All results reported in micrograms per liter (µg/L)

SOURCE:
1. Base data (Buildings, Building Boundaries, Roads and Curbs, underground utilities and Contour Lines, from NuTec Survey conducted in 2006).
2. Monitoring Wells, Soil Borings, and Underground Storage Tank Features from SAIC site measurements.

N

0 25 50 100 Feet

Harley-Davidson Motor Company Operations, Inc.
1425 Eden Rd York, Pa 17402

Isoconcentration Contour Map
1,2,4 - Trimethylbenzene

drawn JEB	checked	approved	figure no.
date 12/06/2012	date	date	E-6
job no. 2603100044/3000/100		file no. GWEIsoMap_1_2_4_TMB_30YR_20121210	

initials	date	revision

SAIC

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Path: O:\CAD\HBG\ENV\GIS_Data\Harley\Projects\2012_Bldg45\GWEIsoMap_1_3_5_TMB_30YR_20121206.mxd

APPENDIX F

Investigation Derived Waste (IDW) Disposal Documentation

10/3/12

REPUBLIC SERVICES, INC.

07 084041

NON-HAZARDOUS WASTE MANIFEST

GENERATOR INFORMATION

Generator Name: Harley-Davidson Motor Co. Ops., Inc.

Address: 1425 Eden Road

City: York County: York

State: PA Zip: 17402

Site Location (if different):

CUSTOMER/BILLING INFORMATION

Billing Name: Envirite of Pennsylvania, Inc.

Address: 730 Vogelsong Road

City: York County: York

State: PA Zip 17404

Republic Services Approval Number	Description of Waste	Volume/Weight	Expiration Date	Container Type
10 10670	Contaminated Soil-Debris/Spill Residue/			
	Drill Cuttings	8.56 tn		CY
	Please provide weight to generator			
	York Facility Remediation Trust Fund			

*Attach Additional Sheet if necessary.

I hereby certify that the above described materials are non-hazardous wastes as defined by 40 CFR 261 or any applicable state law. Further, that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Sharon R Fisher — Generator/Authorized Agent Name

X Sharon R Fisher — Signature

09-14-12 — Date Shipped

TRANSPORTER INFORMATION

Transporter Name: Envirite of PA, Inc. DOT Number: PAD010154045

Address: 730 Vogelsong Road Truck Number:

York, PA 17404 Phone Number: 717-846-1900

I certify no hazardous waste or other regulated substance was knowingly introduced to the waste while in my custody. The waste transported in this vehicle is the waste identified above, to the best of my knowledge.

Jacob Oclslingy — Name of Authorized Agent

X [signature] — Signature

9-14-12 — Date Delivered

DISPOSAL SITE INFORMATION

Site Name: Modern Landfill Phone Number: 717-246-2686

Address: 4400 Mt. Pisgah Road, York, PA 17406

I hereby acknowledge receipt of the above described materials.

Name (Print or Type)

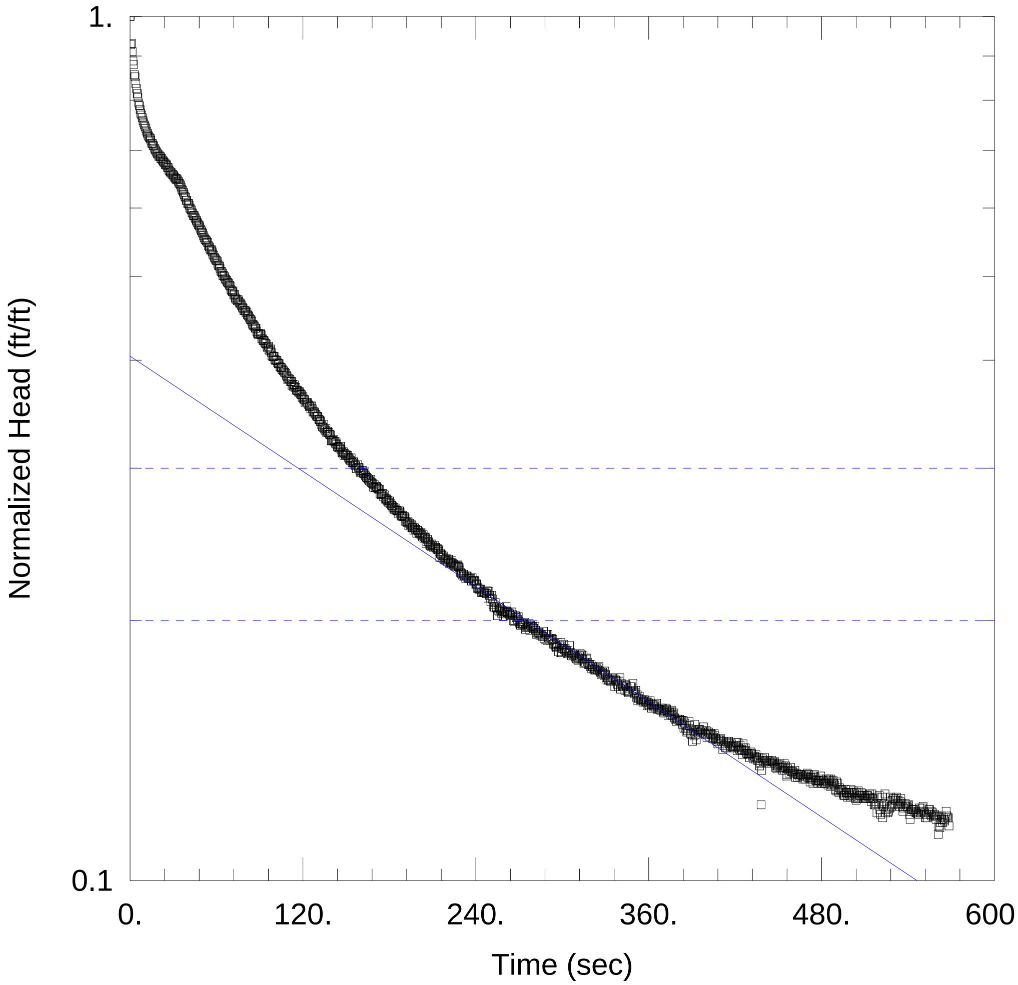
X [signature] — Signature

9/14/12 — Date Received

Form 901 3/04 (SW02 2003) White. Green. Canary - Landfill Pink - Hauler Goldenrod - Generator

APPENDIX G

Hydraulic Conductivity Test Plots



HARLEY-DAVIDSON BUILDING 45 UST RELEASE CHARACTERIZATION

Data Set: P:\...\MW-118test1rh_C.aqt
Date: 11/02/12 Time: 05:19:54

PROJECT INFORMATION

Company: SAIC
Client: Harley-Davidson
Project: 2603100044-3000-100
Location: York, PA
Test Well: MW-118
Test Date: 7/25/2012

AQUIFER DATA

Saturated Thickness: 30. ft Anisotropy Ratio (Kz/Kr): 1.

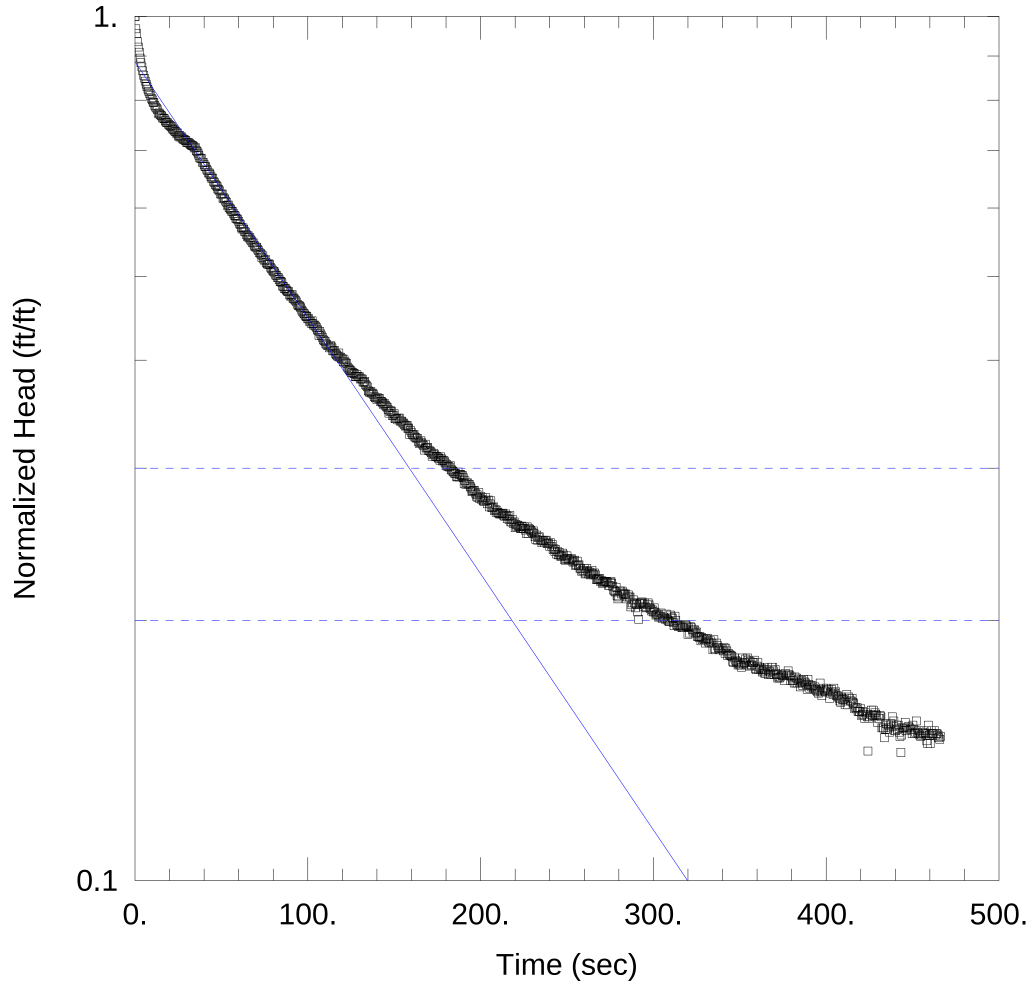
WELL DATA (MW-118)

Initial Displacement: 1.946 ft
Total Well Penetration Depth: 23.33 ft
Casing Radius: 0.083 ft
Static Water Column Height: 16.06 ft
Screen Length: 15. ft
Well Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 1.145 gal/day/ft^2 y0 = 0.787 ft



HARLEY-DAVIDSON BUILDING 45 UST RELEASE CHARACTERIZATION

Data Set: P:\...\MW-118test2rh_C.aqt
Date: 11/02/12 Time: 05:20:30

PROJECT INFORMATION

Company: SAIC
Client: Harley-Davidson
Project: 2603100044-3000-100
Location: York, PA
Test Well: MW-118
Test Date: 7/25/2012

AQUIFER DATA

Saturated Thickness: 30. ft Anisotropy Ratio (Kz/Kr): 1.

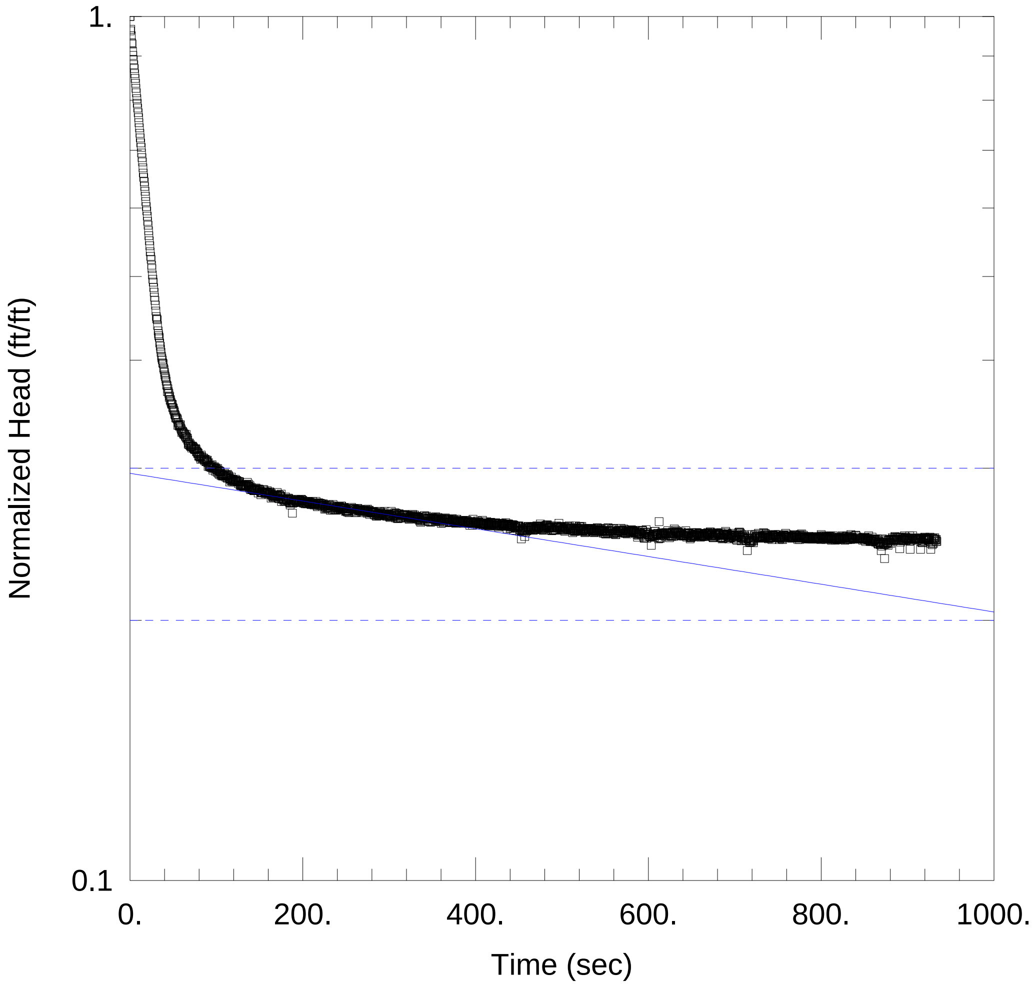
WELL DATA (MW-118)

Initial Displacement: 1.785 ft
Total Well Penetration Depth: 23.33 ft
Casing Radius: 0.083 ft
Static Water Column Height: 16.03 ft
Screen Length: 15. ft
Well Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 3.053 gal/day/ft^2 y0 = 1.582 ft



HARLEY-DAVIDSON BUILDING 45 UST RELEASE CHARACTERIZATION

Data Set: P:\...\MW-121test1rh_C.aqt
Date: 11/02/12 Time: 05:21:17

PROJECT INFORMATION

Company: SAIC
Client: Harley-Davidson
Project: 2603100044-3000-100
Location: York, PA
Test Well: MW-121
Test Date: 7/25/2012

AQUIFER DATA

Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

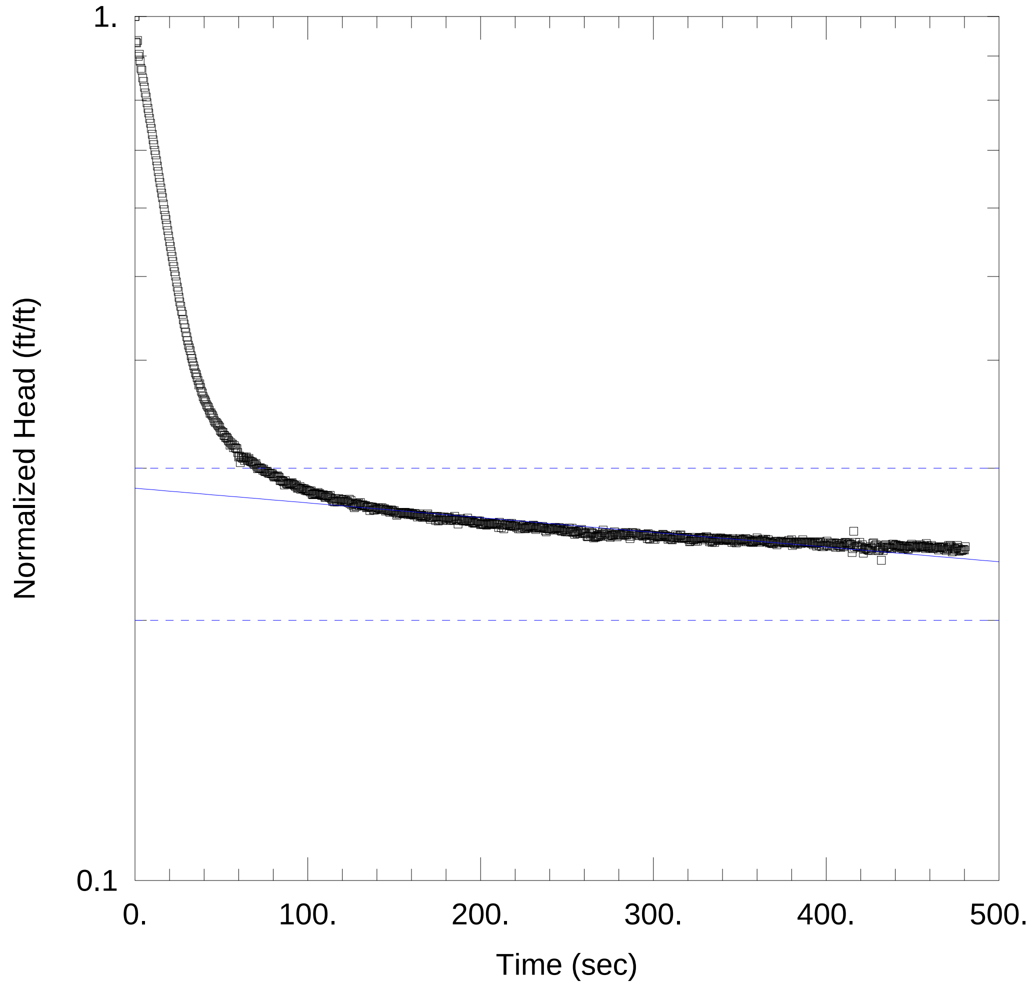
WELL DATA (MW-121)

Initial Displacement: 2.379 ft
Total Well Penetration Depth: 35.23 ft
Casing Radius: 0.083 ft
Static Water Column Height: 18.29 ft
Screen Length: 28. ft
Well Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.1024 gal/day/ft^2 y0 = 0.7041 ft



HARLEY-DAVIDSON BUILDING 45 UST RELEASE CHARACTERIZATION

Data Set: P:\...\MW-121test2rh_C.aqt
Date: 11/02/12 Time: 05:21:40

PROJECT INFORMATION

Company: SAIC
Client: Harley-Davidson
Project: 2603100044-3000-100
Location: York, PA
Test Well: MW-121
Test Date: 7/25/2012

AQUIFER DATA

Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

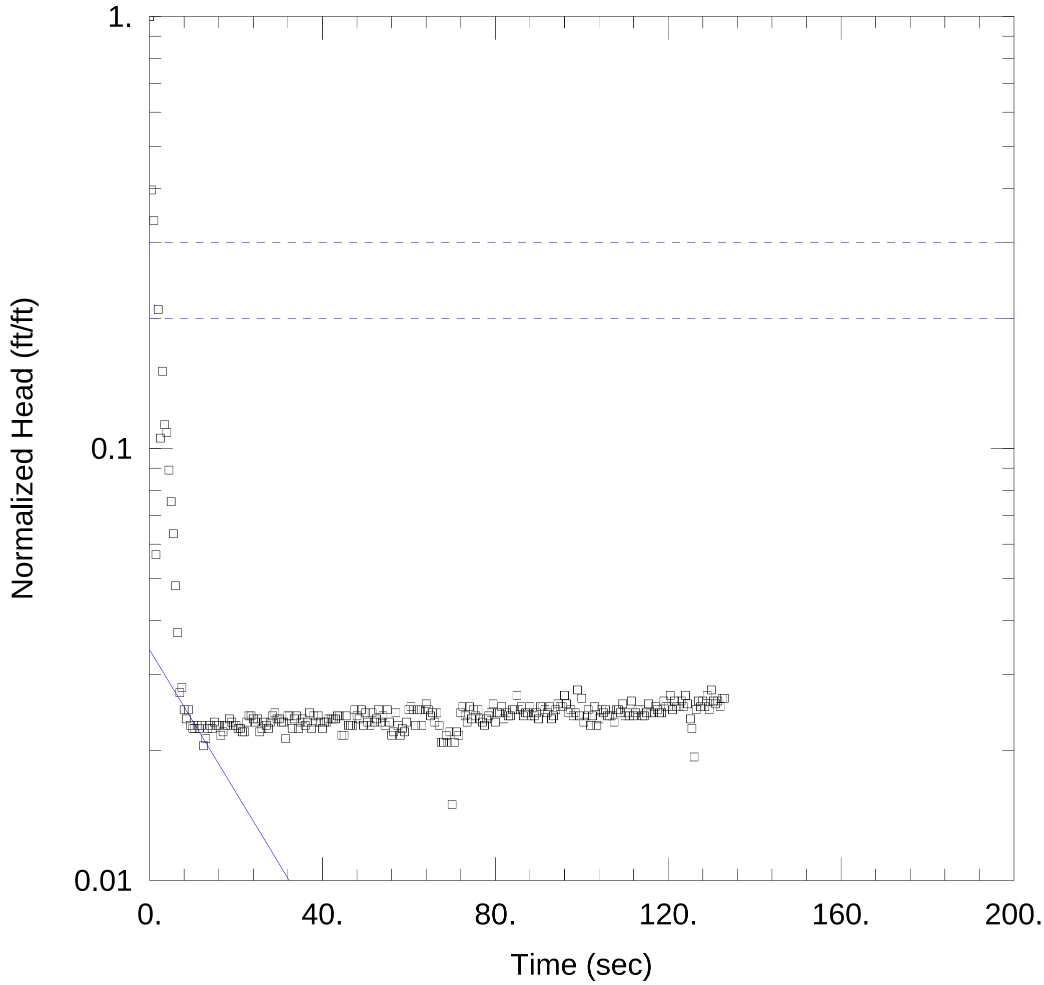
WELL DATA (MW-121)

Initial Displacement: 2.433 ft
Total Well Penetration Depth: 35.23 ft
Casing Radius: 0.083 ft
Static Water Column Height: 18.24 ft
Screen Length: 28. ft
Well Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.1086 gal/day/ft^2 y0 = 0.692 ft



HARLEY-DAVIDSON BUILDING 45 UST RELEASE CHARACTERIZATION

Data Set: P:\...\MW-122test1rh_C.aqt
Date: 11/02/12 Time: 05:22:20

PROJECT INFORMATION

Company: SAIC
Client: Harley-Davidson
Project: 2603100044-3000-100
Location: York, PA
Test Well: MW-122
Test Date: 7/25/2012

AQUIFER DATA

Saturated Thickness: 35. ft Anisotropy Ratio (Kz/Kr): 1.

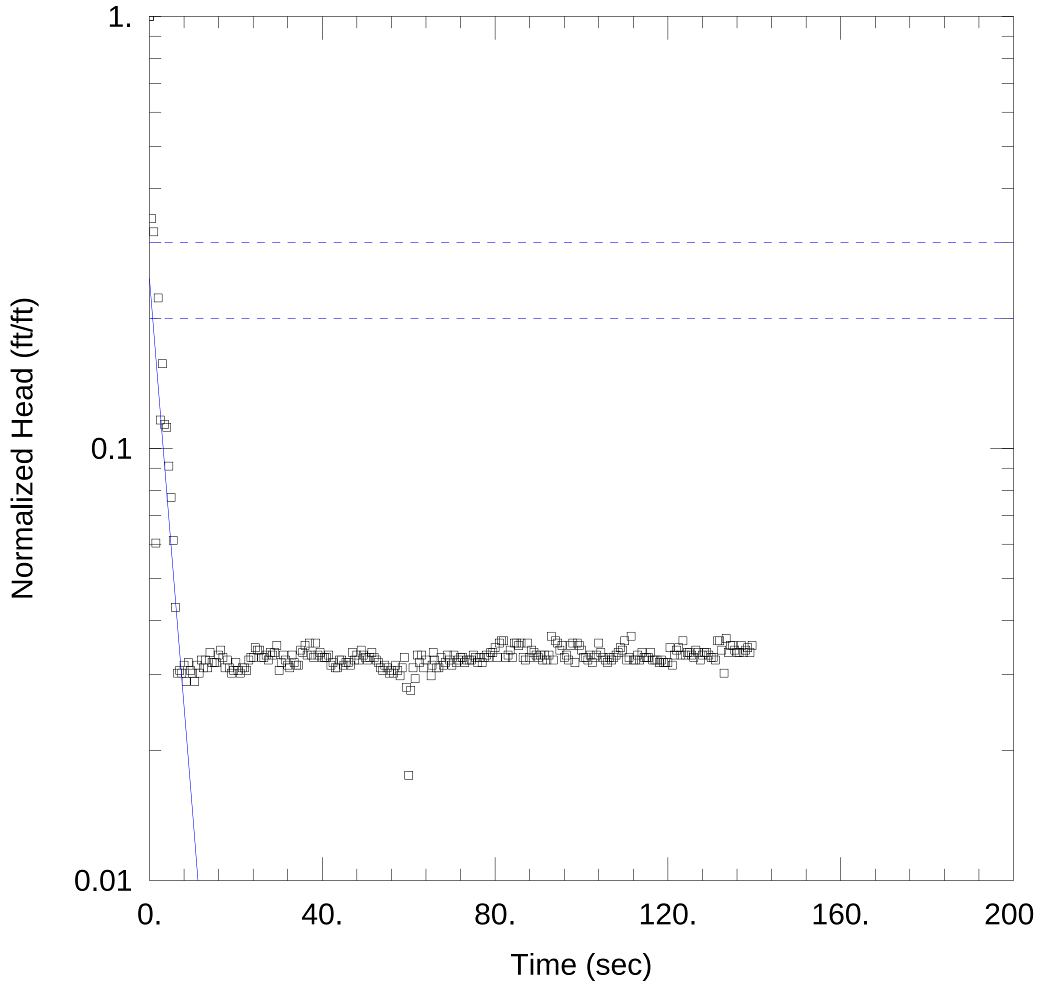
WELL DATA (MW-122)

Initial Displacement: 2.537 ft
Total Well Penetration Depth: 30. ft
Casing Radius: 0.083 ft
Static Water Column Height: 21.63 ft
Screen Length: 23. ft
Well Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 12.24 gal/day/ft^2 y0 = 0.08672 ft



HARLEY-DAVIDSON BUILDING 45 UST RELEASE CHARACTERIZATION

Data Set: P:\...\MW-122test2rh_C.aqt
Date: 11/02/12 Time: 05:22:45

PROJECT INFORMATION

Company: SAIC
Client: Harley-Davidson
Project: 2603100044-3000-100
Location: York, PA
Test Well: MW-122
Test Date: 7/25/2012

AQUIFER DATA

Saturated Thickness: 35. ft
Anisotropy Ratio (Kz/Kr): 1.

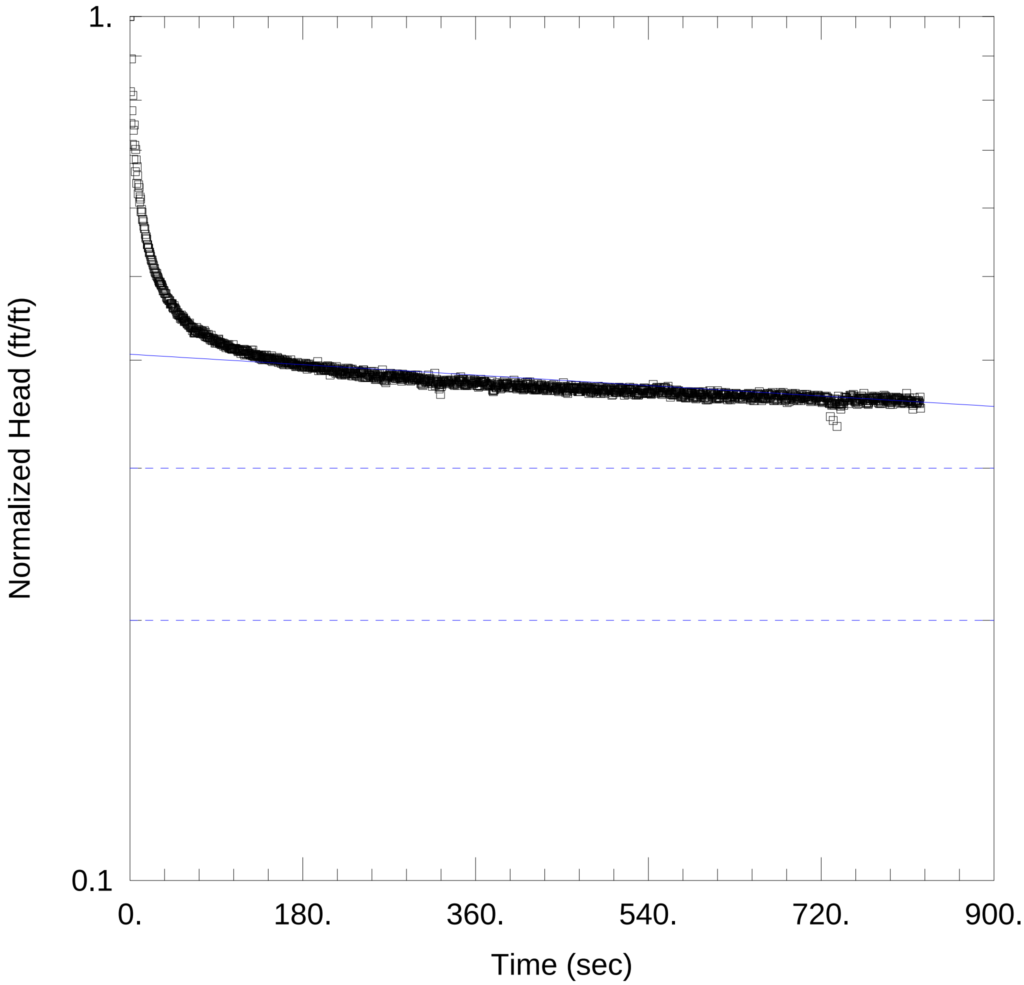
WELL DATA (MW-122)

Initial Displacement: 2.286 ft
Total Well Penetration Depth: 30. ft
Casing Radius: 0.083 ft
Static Water Column Height: 21.66 ft
Screen Length: 23. ft
Well Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice

K = 91.7 gal/day/ft^2
y0 = 0.5649 ft



HARLEY-DAVIDSON BUILDING 45 UST RELEASE CHARACTERIZATION

Data Set: P:\...\MW-124test1rh_C.aqt
Date: 11/02/12 Time: 05:23:36

PROJECT INFORMATION

Company: SAIC
Client: Harley-Davidson
Project: 2603100044-3000-100
Location: York, PA
Test Well: MW-124
Test Date: 7/25/2012

AQUIFER DATA

Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

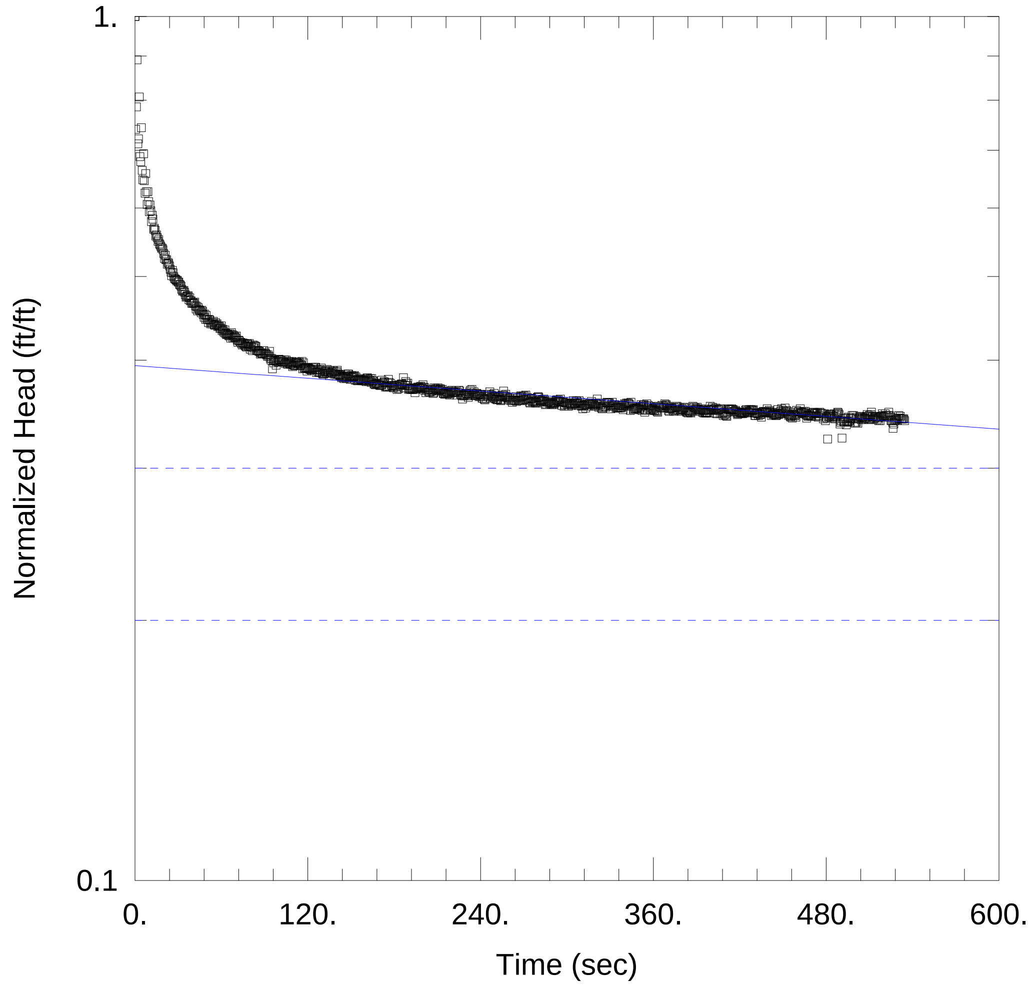
WELL DATA (MW-124)

Initial Displacement: 1.139 ft
Total Well Penetration Depth: 34. ft
Casing Radius: 0.083 ft
Static Water Column Height: 18.71 ft
Screen Length: 26. ft
Well Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.04521 gal/day/ft^2 y0 = 0.4629 ft



HARLEY_DAVIDSON BUILDING 45 UST RELEASE CHARACTERIZATION

Data Set: P:\...\MW-124test2rh_C.aqt
Date: 11/02/12 Time: 05:24:09

PROJECT INFORMATION

Company: SAIC
Client: Harley-Davidson
Project: 2603100044-3000-100
Location: York, PA
Test Well: MW-124
Test Date: 7/25/2012

AQUIFER DATA

Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-124)

Initial Displacement: 1.289 ft
Total Well Penetration Depth: 34. ft
Casing Radius: 0.083 ft
Static Water Column Height: 18.71 ft
Screen Length: 26. ft
Well Radius: 0.26 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.08256 gal/day/ft^2 y0 = 0.5083 ft

APPENDIX H

Fate-and-Transport Modeling Results

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

Project: Harley-Davisdon Motor Company, Inc.
Date: 10/23/2012 Prepared by: EMW
Contaminant: Benzene - 20 Years

NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation

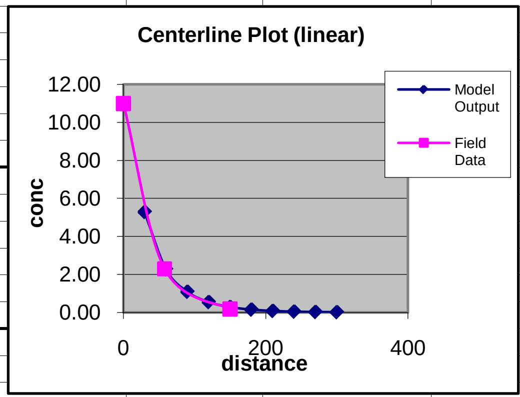
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
15	5.00E+01	5.00E+00	1.00E-03	0.00096	30	10	7,300

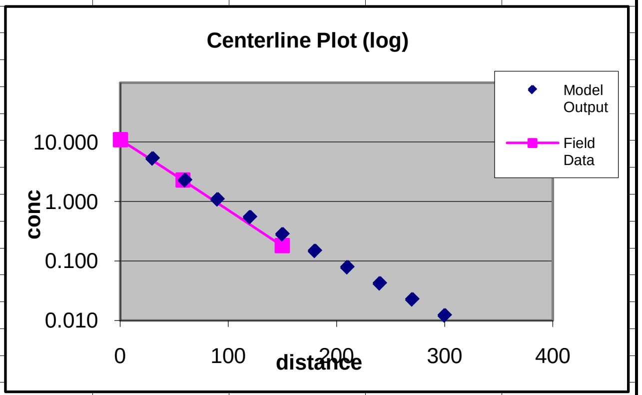
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm^3)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.2	1.85	58	1.60E-03	1.8584	0.026904864

Point Concentration

x(ft)	y(ft)	z(ft)
1,650	0	0

	x(ft)	y(ft)	z(ft)
Conc. At	1650	0	0
at	7300	days =	0.000 mg/l





AREAL MODEL CALCULATION DOMAIN
Length (ft) 300
Width (ft) 100

	30	60	90	120	150	180	210	240	270	300
100	0.000	0.001	0.006	0.011	0.012	0.010	0.008	0.006	0.004	0.002
50	0.186	0.358	0.302	0.204	0.127	0.076	0.044	0.025	0.014	0.008
0	5.279	2.269	1.084	0.544	0.280	0.147	0.078	0.042	0.022	0.012
-50	0.186	0.358	0.302	0.204	0.127	0.076	0.044	0.025	0.014	0.008
-100	0.000	0.001	0.006	0.011	0.012	0.010	0.008	0.006	0.004	0.002

Field Data:							
Centerline C Concentration	11	2.3	0.18				
Distance from Source	0.1	58	150				

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

Project: Harley-Davisdon Motor Company, Inc.
Date: 10/23/2012 Prepared by: EMW
Contaminant: **Benzene - 50 Years**

NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation

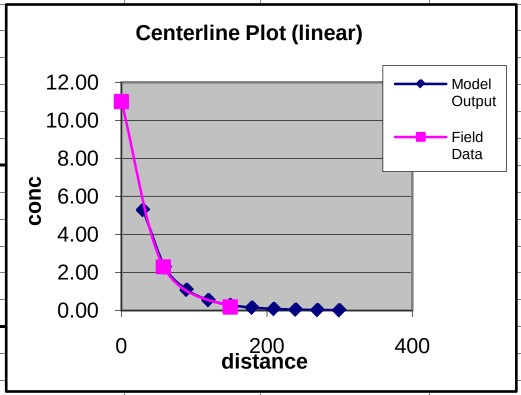
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
15	5.00E+01	5.00E+00	1.00E-03	0.00096	30	10	18,250

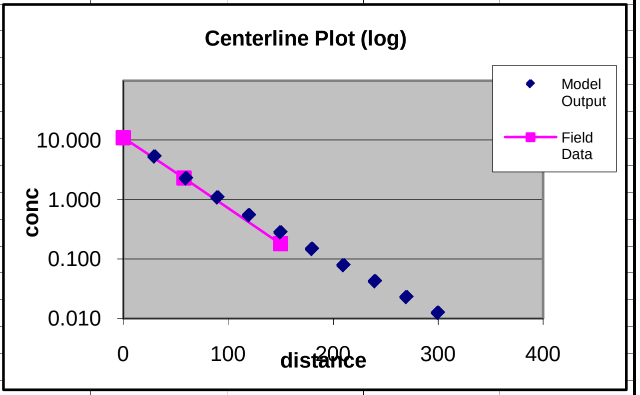
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm^3)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.20	1.85	58	1.60E-03	1.8584	0.026904864

Point Concentration

x(ft)	y(ft)	z(ft)
1,650	0	0

	x(ft)	y(ft)	z(ft)
Conc. At	1650	0	0
at	18250	days =	**0.000** mg/l





AREAL CALCULATION
MODEL DOMAIN
Length (ft) 300
Width (ft) 100

	30	60	90	120	150	180	210	240	270	300
100	0.000	0.001	0.006	0.011	0.012	0.010	0.008	0.006	0.004	0.002
50	0.186	0.358	0.302	0.204	0.127	0.076	0.044	0.026	0.015	0.008
0	5.279	2.269	1.084	0.544	0.281	0.148	0.079	0.042	0.023	0.012
-50	0.186	0.358	0.302	0.204	0.127	0.076	0.044	0.026	0.015	0.008
-100	0.000	0.001	0.006	0.011	0.012	0.010	0.008	0.006	0.004	0.002

Field Data:						
Centerline C Concentration	11	2.3	0.18			
Distance from Source	0.1	58	150			

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

Project:	Harley-Davidson Motor Company, Inc.		
Date:	10/23/2012	Prepared by:	EMW
		Contaminant:	Toluene - 20 Years

NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation

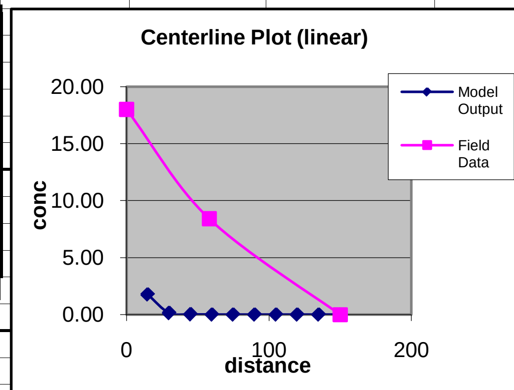
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
25	5.00E+01	5.00E+00	1.00E-03	0.0247	30	10	7,300

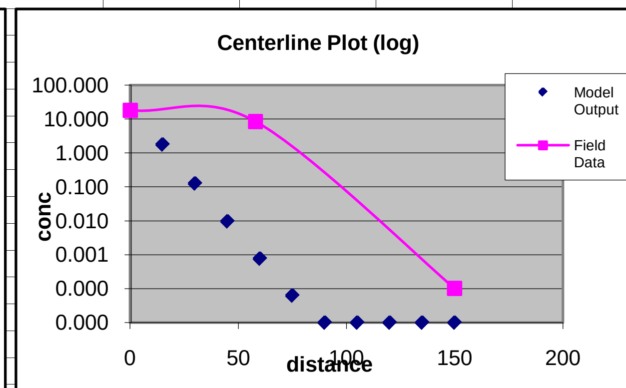
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm^3)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.2	1.85	130	1.60E-03	2.924	0.017099863

Point Concentration

x(ft)	y(ft)	z(ft)
1,650	0	0

	x(ft)	y(ft)	z(ft)
Conc. At	1650	0	0
at	7300	days =	**0.000** mg/l





AREAL MODEL	CALCULATION DOMAIN
Length (ft)	150
Width (ft)	100

	15	30	45	60	75	90	105	120	135	150
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.005	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	1.761	0.125	0.010	0.001	0.000	0.000	0.000	0.000	0.000	0.000
-50	0.005	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:				
Centerline C Concentration	18	8.4	0.0001	
Distance from Source	0.1	58	150	

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL							
Project:	Harley-Davidson Motor Company, Inc.						
Date:	10/23/2012	Prepared by:	EMW				
		Contaminant:	Toluene - 50 Years				
SOURCE CONC (MG/L)	**Ax (ft)**	**Ay (ft)**	**Az (ft) >=.001**	**LAMBDA day-1**	**SOURCE WIDTH (ft)**	**SOURCE THICKNESS (ft)**	**Time (days) (days)**
25	5.00E+01	5.00E+00	1.00E-03	0.0247	30	10	18,250
Hydraulic Cond (ft/day)	**Hydraulic Gradient (ft/ft)**	**Porosity (dec. frac.)**	**Soil Bulk Density (g/cm^3)**	**KOC**	**Frac. Org. Carb.**	**Retard-ation (R)**	**V (=K*i/n*R) (ft/day)**
2.00E-01	0.05	0.20	1.85	130	1.60E-03	2.924	0.017099863

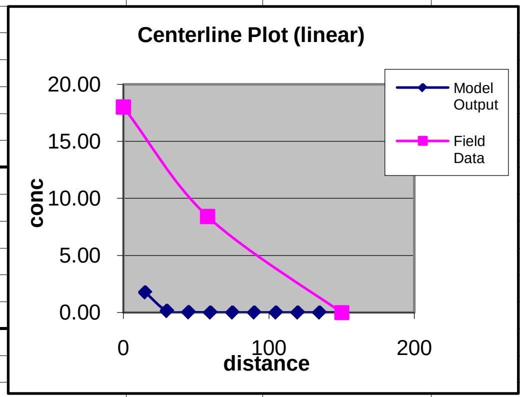
NEW QUICK_DOMENICO.XLS

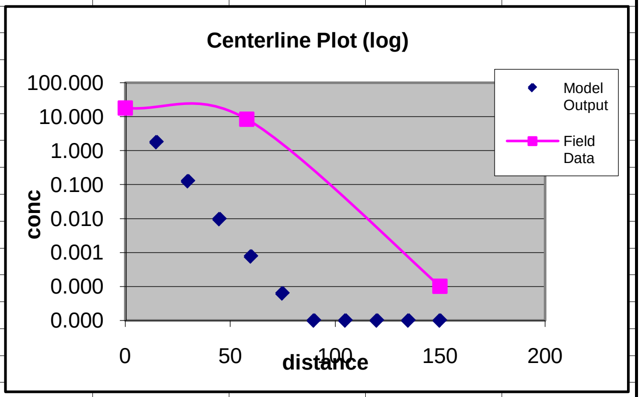
SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Point Concentration

x(ft)	y(ft)	z(ft)
1,650	0	0

	x(ft)	y(ft)	z(ft)
Conc. At	1650	0	0
at	18250	days =	**0.000** mg/l





	AREAL MODEL	CALCULATION DOMAIN								
	Length (ft)	150								
	Width (ft)	100								
	15	*30*	*45*	*60*	*75*	*90*	*105*	*120*	*135*	*150*
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.005	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	1.761	0.125	0.010	0.001	0.000	0.000	0.000	0.000	0.000	0.000
-50	0.005	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data:	**Centerline C Concentration**			18	8.4	0.0001				
	Distance from Source			0.1	58	150				

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

Project:	Harley-Davidson Motor Company, Inc.		
Date:	10/23/2012	Prepared by:	EMW
		Contaminant:	Ethylbenzene - 20 Years

NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation

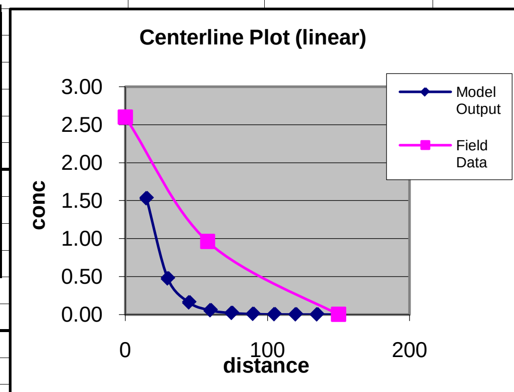
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
5	5.00E+01	5.00E+00	1.00E-03	0.003	30	10	7,300

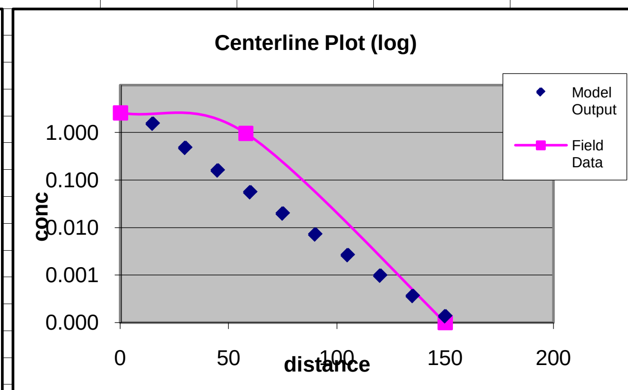
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm³)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.2	1.85	220	1.60E-03	4.256	0.01174812

Point Concentration

x(ft)	y(ft)	z(ft)
58	0	0

	x(ft)	y(ft)	z(ft)
Conc. At	58	0	0
at	7300	days =	**0.063** mg/l





	AREAL	CALCULATION
	MODEL	DOMAIN
	Length (ft)	150
	Width (ft)	100

	15	30	45	60	75	90	105	120	135	150
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.004	0.017	0.015	0.009	0.004	0.002	0.001	0.000	0.000	0.000
0	1.534	0.475	0.159	0.055	0.020	0.007	0.003	0.001	0.000	0.000
-50	0.004	0.017	0.015	0.009	0.004	0.002	0.001	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:	**Centerline C Concentration**	2.6	0.96	0.0001
	Distance from Source	0.1	58	150

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

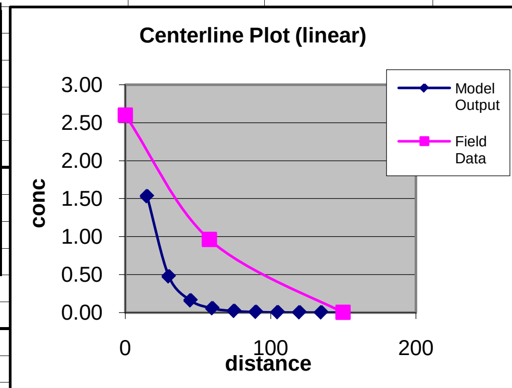
Project:	Harley-Davidson Motor Company, Inc.						
Date:	10/23/2012	Prepared by:	EMW				
		Contaminant:	Ethylbenzene - 50 Years				
SOURCE CONC (MG/L)	**Ax (ft)**	**Ay (ft)**	**Az (ft) >=.001**	**LAMBDA day-1**	**SOURCE WIDTH (ft)**	**SOURCE THICKNESS (ft)**	**Time (days) (days)**
5	5.00E+01	5.00E+00	1.00E-03	0.003	30	10	18,250
Hydraulic Cond (ft/day)	**Hydraulic Gradient (ft/ft)**	**Porosity (dec. frac.)**	**Soil Bulk Density (g/cm^3)**	**KOC**	**Frac. Org. Carb.**	**Retard-ation (R)**	**V (=K*i/n*R) (ft/day)**
2.00E-01	0.05	0.20	1.85	220	1.60E-03	4.256	0.01174812

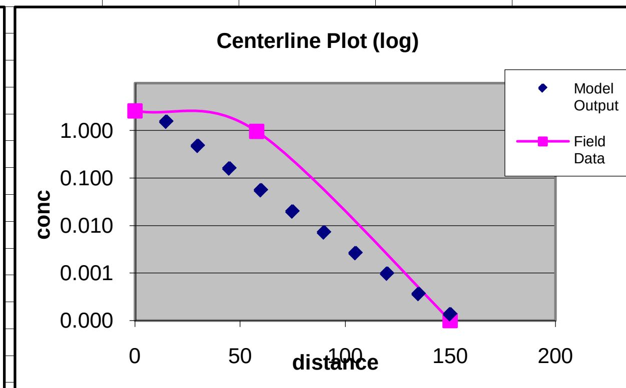
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation

Point Concentration

x(ft)	y(ft)	z(ft)	
1,650	0	0	
	x(ft)	**y(ft)**	**z(ft)**
Conc. At	1650	0	0
at	18250	days =	**0.000**
			mg/l





AREAL MODEL **CALCULATION DOMAIN**

Length (ft) 150

Width (ft) 100

	15	30	45	60	75	90	105	120	135	150
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.004	0.017	0.015	0.009	0.004	0.002	0.001	0.000	0.000	0.000
0	1.534	0.475	0.159	0.055	0.020	0.007	0.003	0.001	0.000	0.000
-50	0.004	0.017	0.015	0.009	0.004	0.002	0.001	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:	**Centerline C Concentration**	2.6	0.96	0.0001				
	Distance from Source	0.1	58	150				

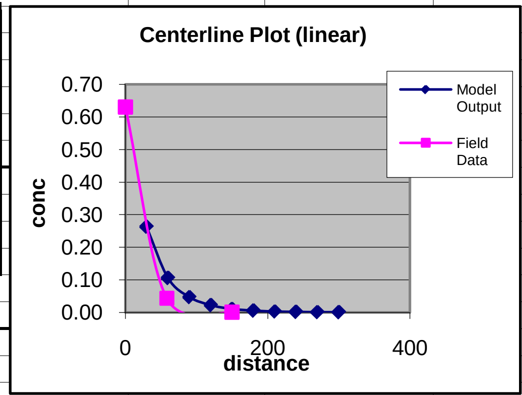
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL							
Project:	Harley-Davidson Motor Company, Inc.						
Date:	10/23/2012	Prepared by:	EMW				
		Contaminant:	MTBE - 20 Years				
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
0.8	5.00E+01	5.00E+00	1.00E-03	0.0018	30	10	7,300
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm3)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.2	1.85	12	1.60E-03	1.1776	0.042459239

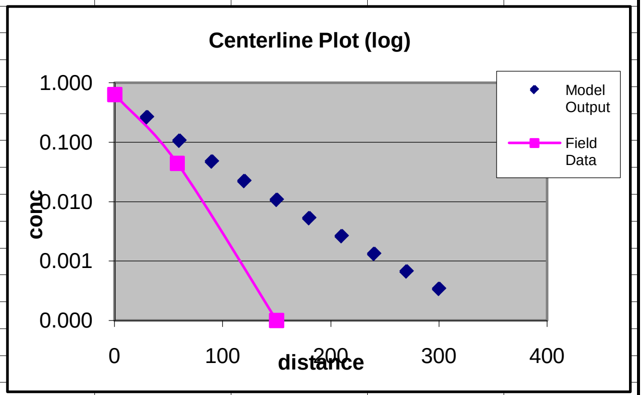
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Point Concentration

x(ft)	y(ft)	z(ft)	
1,650	0	0	
	x(ft)	y(ft)	z(ft)
Conc. At	1650	0	0
at	7300	days =	0.000 mg/l





AREAL MODEL	CALCULATION DOMAIN
Length (ft)	300
Width (ft)	100

	30	60	90	120	150	180	210	240	270	300
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.009	0.017	0.013	0.008	0.005	0.003	0.001	0.001	0.000	0.000
0	0.263	0.106	0.047	0.022	0.011	0.005	0.003	0.001	0.001	0.000
-50	0.009	0.017	0.013	0.008	0.005	0.003	0.001	0.001	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:							
Centerline C Concentration	0.63	0.044	0.0001				
Distance from Source	0.1	58	150				

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

Project:	Harley-Davidson Motor Company, Inc.		
Date:	10/23/2012	Prepared by:	EMW
		Contaminant:	MTBE - 50 Years

NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

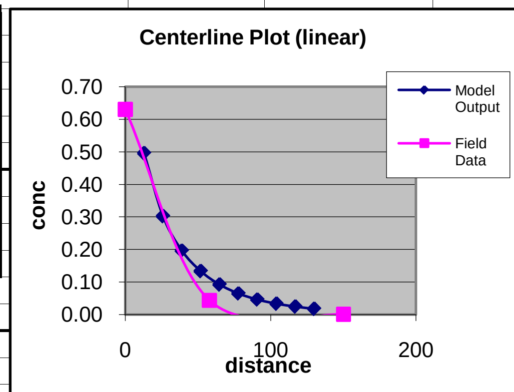
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
0.8	5.00E+01	5.00E+00	1.00E-03	0.0018	30	10	18,250

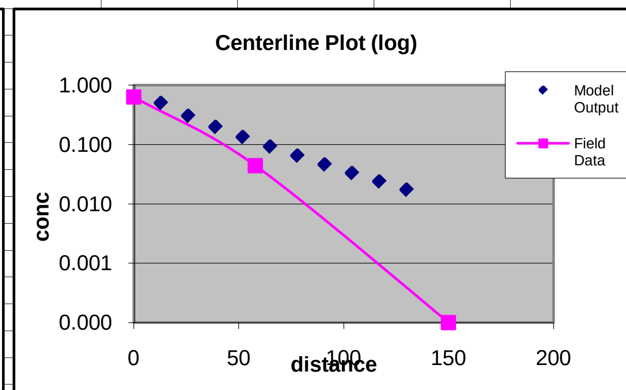
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm³)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.20	1.85	12	1.60E-03	1.1776	0.042459239

Point Concentration

x(ft)	y(ft)	z(ft)
1,650	0	0

	x(ft)	y(ft)	z(ft)
Conc. At	1650	0	0
at	18250	days =	**0.000** mg/l





AREAL MODEL	CALCULATION DOMAIN
Length (ft)	130
Width (ft)	100

	13	26	39	52	65	78	91	104	117	130
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.001	0.007	0.013	0.016	0.016	0.015	0.013	0.011	0.009	0.007
0	0.496	0.302	0.196	0.133	0.092	0.065	0.046	0.033	0.024	0.017
-50	0.001	0.007	0.013	0.016	0.016	0.015	0.013	0.011	0.009	0.007
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:								
Centerline C Concentration	0.63	0.044	0.0001					
Distance from Source	0.1	58	150					

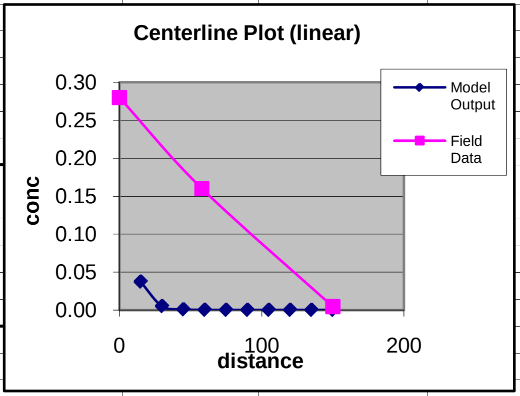
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL							
Project:	Harley-Davidson Motor Company, Inc.						
Date:	10/23/2012	Prepared by:	EMW				
		Contaminant:	Naphthalene - 20 Years				
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
0.28	5.00E+01	5.00E+00	1.00E-03	0.0027	30	10	7,300
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm^3)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.2	1.85	950	1.60E-03	15.06	0.003320053

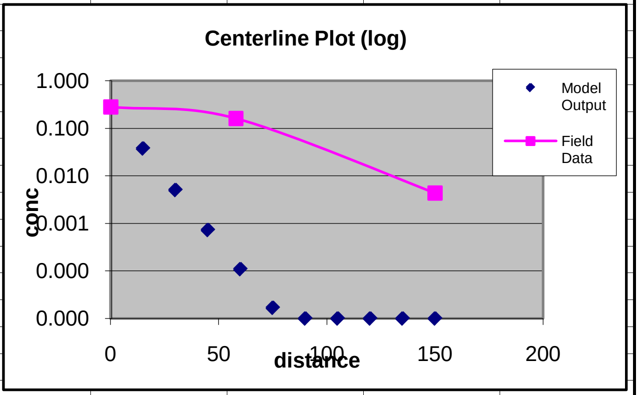
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Point Concentration

x(ft)	y(ft)	z(ft)	
1,650	0	0	
	x(ft)	y(ft)	z(ft)
Conc. At	1650	0	0
at	7300	days =	0.000 mg/l





AREAL CALCULATION
MODEL DOMAIN
Length (ft) 150
Width (ft) 100

	15	30	45	60	75	90	105	120	135	150
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.037	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:					
Centerline C Concentration	0.28	0.16	0.0043		
Distance from Source	0.1	58	150		

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

Project:	Harley-Davidson Motor Company, Inc.			
Date:	10/23/2012	Prepared by:	EMW	
		Contaminant:	Naphthalene - 50 Years	

NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation

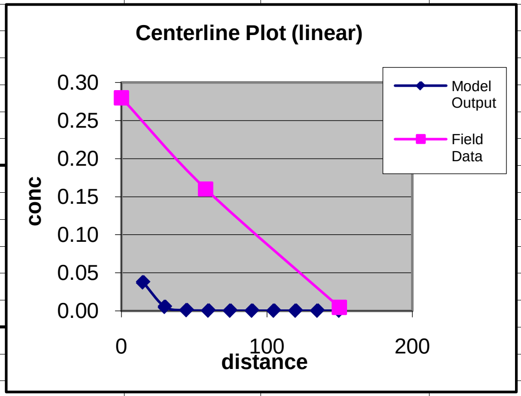
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
0.28	5.00E+01	5.00E+00	1.00E-03	0.0027	30	10	18,250

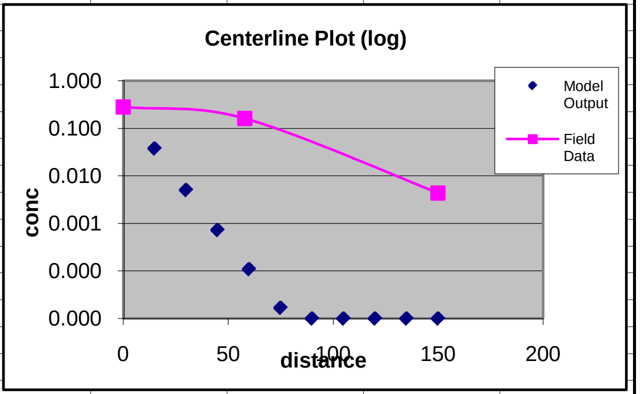
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm³)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.20	1.85	950	1.60E-03	15.06	0.003320053

Point Concentration

x(ft)	y(ft)	z(ft)
1,650	0	0

	x(ft)	y(ft)	z(ft)
Conc. At	1650	0	0
at	18250	days =	0.000 mg/l





AREAL MODEL	CALCULATION DOMAIN
Length (ft)	150
Width (ft)	100

	15	*30*	*45*	*60*	*75*	*90*	*105*	*120*	*135*	*150*
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.037	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:								
Centerline C Concentration	0.28	0.16	0.0043					
Distance from Source	0.1	58	150					

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

Project:	Harley-Davidson Motor Company, Inc.		
Date:	10/23/2012	Prepared by:	EMW
		Contaminant:	1,2,4-trimethylbenzene - 20 Years

NEW QUICK_DOMENICO.XLS

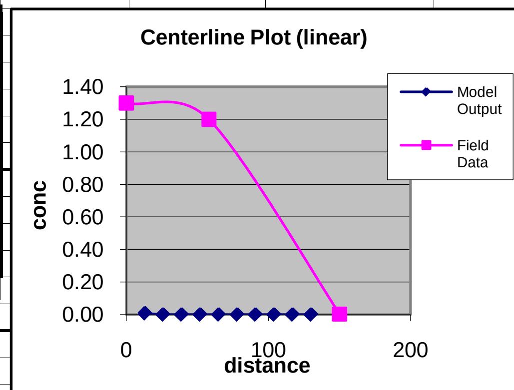
SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation

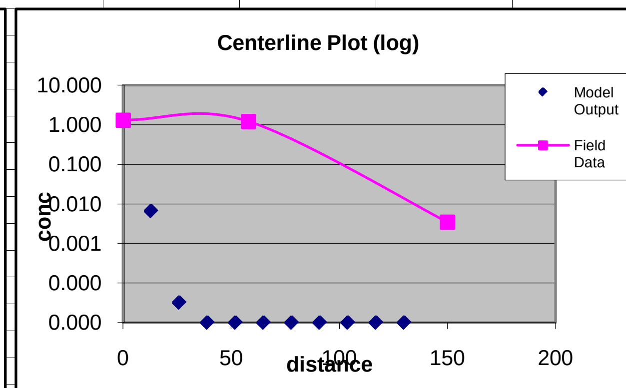
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
1.3	5.00E+01	5.00E+00	1.00E-03	0.012	30	10	7,300

Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm^3)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.2	1.85	2200	1.60E-03	33.56	0.001489869

Point Concentration

x(ft)	y(ft)	z(ft)	
1,650	0	0	
	x(ft)	y(ft)	z(ft)
Conc. At	1650	0	0
at	7300	days =	**0.000** mg/l





AREAL MODEL	CALCULATION DOMAIN
Length (ft)	130
Width (ft)	100

	13	26	39	52	65	78	91	104	117	130
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:							
Centerline C Concentration	1.3	1.2	0.0034				
Distance from Source	0.1	58	150				

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

Project:	Harley-Davidson Motor Company, Inc.			
Date:	10/23/2012	Prepared by:	EMW	
		Contaminant:	**1,2,4-trimethylbenzene - 50 Years**	

NEW QUICK_DOMENICO.XLS

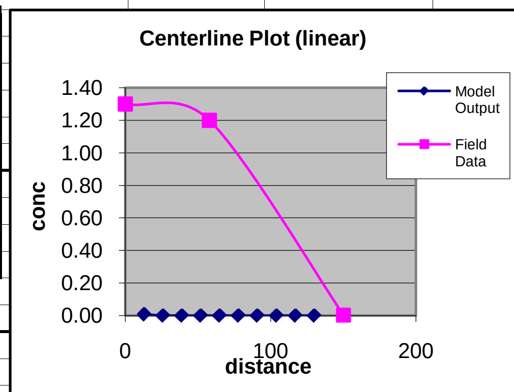
SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

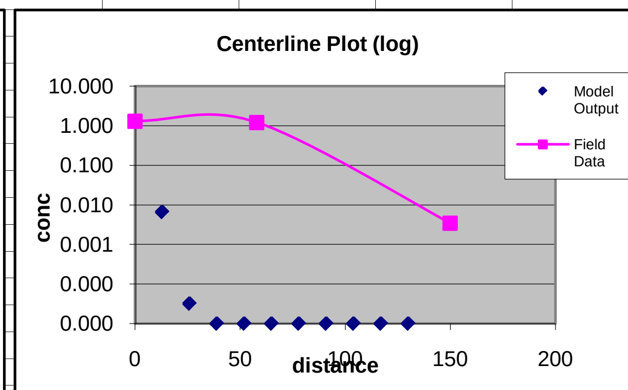
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
1.3	5.00E+01	5.00E+00	1.00E-03	0.012	30	10	18,250

Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm^3)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.20	1.85	2200	1.60E-03	33.56	0.001489869

Point Concentration

x(ft)	y(ft)	z(ft)	
1,650	0	0	
	x(ft)	**y(ft)**	**z(ft)**
Conc. At	1650	0	0
at	18250	**days =**	**0.000**
			mg/l





	AREAL MODEL	**CALCULATION DOMAIN**
	Length (ft)	130
	Width (ft)	100

	13	26	39	52	65	78	91	104	117	130
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:	**Centerline C Concentration**	1.3	1.2	0.0034			
	Distance from Source	0.1	58	150			

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

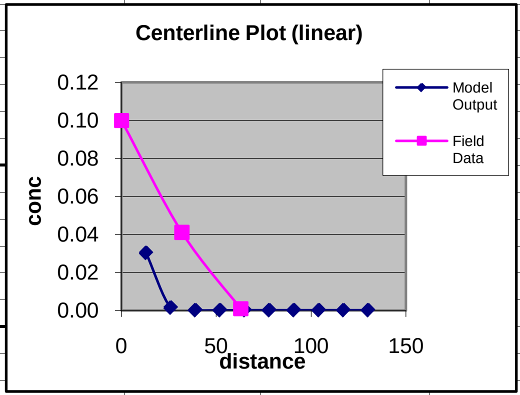
Project:	Harley-Davidson Motor Company, Inc.						
Date:	10/23/2012	Prepared by:	EMW				
		Contaminant:	1,3,5-trimethylbenzene - 20 Years				
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
0.63	5.00E+01	5.00E+00	1.00E-03	0.012	30	10	7,300
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm³)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.2	1.85	660	1.60E-03	10.768	0.004643388

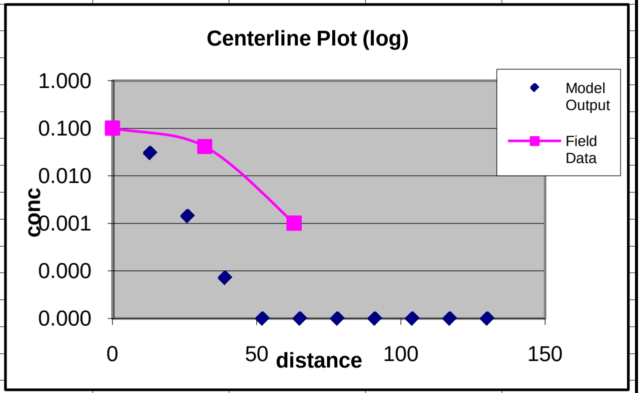
NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation

Point Concentration

x(ft)	y(ft)	z(ft)	
1,650	0	0	
	x(ft)	y(ft)	z(ft)
Conc. At	1650	0	0
at	7300	days =	0.000 mg/l





AREAL MODEL	CALCULATION DOMAIN
Length (ft)	130
Width (ft)	100

	13	26	39	52	65	78	91	104	117	130
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.030	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:	**Centerline C Concentration**	0.1	0.041	0.001			
	Distance from Source	0	32	63			

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL

Project:	Harley-Davidson Motor Company, Inc.						
Date:	10/23/2012	Prepared by:	EMW				
		Contaminant:	1,3,5-trimethylbenzene - 50 Years				

NEW QUICK_DOMENICO.XLS

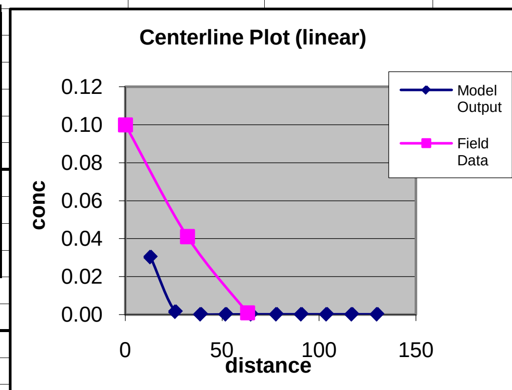
SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

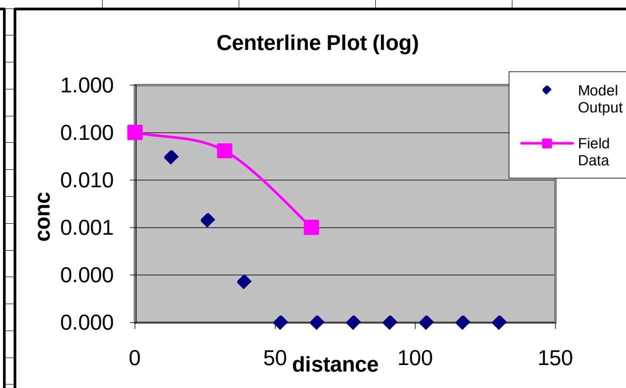
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft) >=.001	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days) (days)
0.63	5.00E+01	5.00E+00	1.00E-03	0.012	30	10	18,250

Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm^3)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)
2.00E-01	0.05	0.20	1.85	660	1.60E-03	10.768	0.004643388

Point Concentration

x(ft)	y(ft)	z(ft)	
1,650	0	0	
	x(ft)	**y(ft)**	**z(ft)**
Conc. At	1650	0	0
at	18250	days =	**0.000**
			mg/l





AREAL MODEL	CALCULATION DOMAIN
Length (ft)	130
Width (ft)	100

	13	26	39	52	65	78	91	104	117	130
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.030	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Field Data:	**Centerline C Concentration**	0.1	0.041	0.001			
	Distance from Source	0	32	63			

APPENDIX I

Soil Gas Sample Point Construction Logs

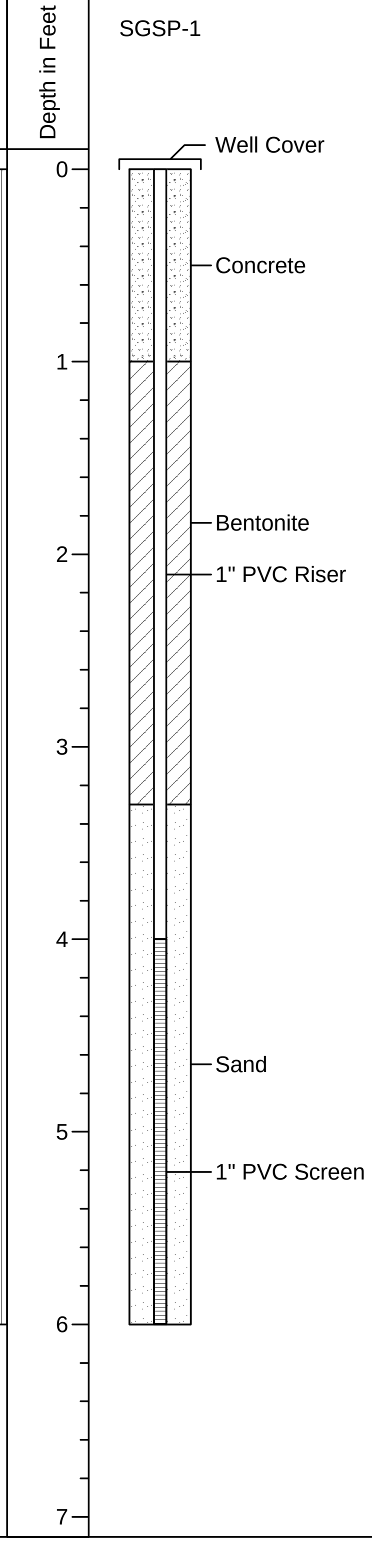
SOIL VAPOR CONSTRUCTION LOG FOR POINT SGSP-1

Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

Project # 2603100044/3000/100

Driller	: SAIC	Drilling Started	: 6/21/2012
Logged By	: Matthew J. Logan	Drilling Completed	: 6/21/2012
Drilling Method	: Geoprobe	Point Constructed	: 6/21/2012
Drilling Diameter	: 3 1/4"		

Depth in Feet	DESCRIPTION	GRAPHIC
0	Unconsolidated materials consisting of silt and clay.	
6	END OF BORING AT 6' BGS.	



Well Construction Information

Well Construction

Date Compl.	: 6/21/2012
Total Depth	: 6.0' BGS

Well Casing

Material	: Sch 40 PVC
Diameter	: 1"
From	: 0.0'-4.0'

Well Screen

Material	: Sch 40 PVC
Slot Size	: 0.010"
Diameter	: 1"
From	: 4.0'-6.0'

Sand

Type	: #1 Morie Sand
From	: 3.3'-6.0'

Seal

Type	: Granular Bentonite
From	: 1.0'-3.3'

Well Cover

Type	: Flush-mount

BGS-below ground surface.

SOIL VAPOR CONSTRUCTION LOG FOR POINT SGSP-2

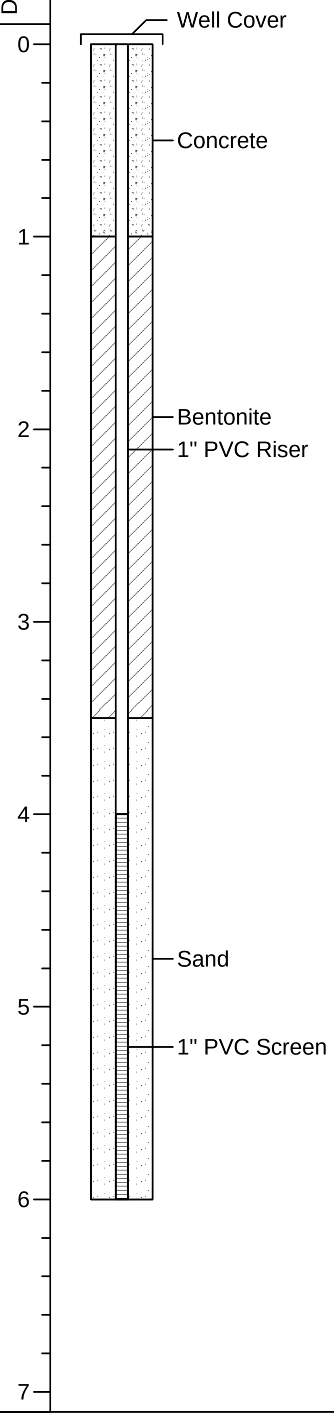
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

Project # 2603100044/3000/100

Driller	: SAIC	Drilling Started	: 6/21/2012
Logged By	: Matthew J. Logan	Drilling Completed	: 6/21/2012
Drilling Method	: Geoprobe	Point Constructed	: 6/21/2012
Drilling Diameter	: 3 1/4"		

Depth in Feet	DESCRIPTION	GRAPHIC
0–6	Unconsolidated materials consisting of silt and clay.	
6	END OF BORING AT 6' BGS.	

SGSP-2



Well Construction Information

Well Construction

Date Compl.	: 6/21/2012
Total Depth	: 6.0' BGS

Well Casing

Material	: Sch 40 PVC
Diameter	: 1"
From	: 0.0'-4.0'

Well Screen

Material	: Sch 40 PVC
Slot Size	: 0.010"
Diameter	: 1"
From	: 4.0'-6.0'

Sand

Type	: #1 Morie Sand
From	: 3.5'-6.0'

Seal

Type	: Granular Bentonite
From	: 1.0'-3.5'

Well Cover

Type	: Flush-mount

BGS-below ground surface.

SAIC®

SOIL VAPOR CONSTRUCTION LOG FOR POINT SGSP-3

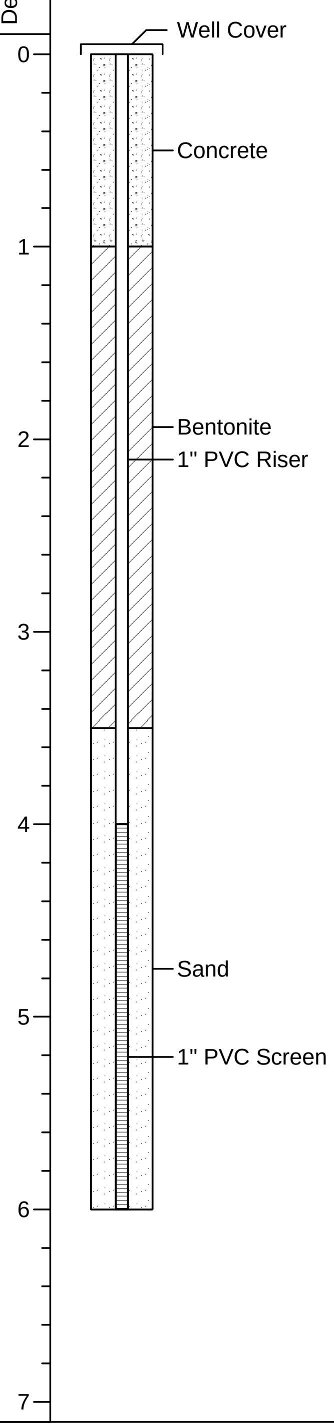
Former York Naval Ordnance Plant
Building 45 UST Release Characterization
1425 Eden Road, York, PA

Project # 2603100044/3000/100

Driller	: SAIC	Drilling Started	: 6/21/2012
Logged By	: Matthew J. Logan	Drilling Completed	: 6/21/2012
Drilling Method	: Geoprobe	Point Constructed	: 6/21/2012
Drilling Diameter	: 3 1/4"		

Depth in Feet	DESCRIPTION	GRAPHIC
0	Unconsolidated materials consisting of silt and clay.	
6	END OF BORING AT 6' BGS.	

SGSP-3



Well Construction Information

Well Construction

Date Compl.	: 6/21/2012
Total Depth	: 6.0' BGS

Well Casing

Material	: Sch 40 PVC
Diameter	: 1"
From	: 0.0'-4.0'

Well Screen

Material	: Sch 40 PVC
Slot Size	: 0.010"
Diameter	: 1"
From	: 4.0'-6.0'

Sand

Type	: #1 Morie Sand
From	: 3.5'-6.0'

Seal

Type	: Granular Bentonite
From	: 1.0'-3.5'

Well Cover

Type	: Flush-mount

BGS-below ground surface.

APPENDIX J

Soil Gas Sample Analytical Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 180-13478-1

Job Description: Harley Davidson

For:
Science Applications International Corp
6310 Allentown Boulevard
Harrisburg, PA 17112

Attention: Mr. Rodney Myers

Approved for release.
Jill L Colussy
Project Manager I
8/31/2012 11:24 AM

Jill L Colussy
Project Manager I
jill.colussy@testamericainc.com
08/31/2012

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager or designee who has signed this report.

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238
Tel (412) 963-7058 Fax (412) 963-2468 www.testamericainc.com

Table of Contents

SAMPLE SUMMARY

Client: Science Applications International Corp

Job Number: 180-13478-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
180-13478-1	HD-B45-SGSP-3-01-0	Air	08/15/2012 0920	08/16/2012 1054
180-13478-2	HD-B45-AMBIENT-01-0	Air	08/15/2012 1030	08/16/2012 1054
180-13478-3	HD-B45-SGSP-1-01-0	Air	08/15/2012 1101	08/16/2012 1054
180-13478-4	HD-B45-SGSP-2-01-0	Air	08/15/2012 1229	08/16/2012 1054

METHOD SUMMARY

Client: Science Applications International Corp　　Job Number: 180-13478-1

Description	Lab Location	Method	Preparation Method
Matrix: Air			
General Sub Contract Method	TAL KNX	Subcontract	

Lab References:

TAL KNX = TestAmerica Knoxville

Method References:

DATA REPORTING QUALIFIERS

Lab Section	Qualifier	Description

Certification Summary

Client: Science Applications International Corp	TestAmerica Job ID: 180-13478-1
Project/Site: Harley Davidson

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	Arkansas DEQ	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	L-A-B	DoD ELAP		L2311
TestAmerica Knoxville	Louisiana	NELAC	6	83979
TestAmerica Knoxville	Louisiana	NELAC	6	LA110001
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina DENR	State Program	4	64
TestAmerica Knoxville	North Carolina DHHS	State Program	4	21705
TestAmerica Knoxville	Ohio VAP	State Program	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	USDA	Federal		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	NELAC	3	165
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia	State Program	3	9955C
TestAmerica Knoxville	West Virginia DEP	State Program	3	345
TestAmerica Knoxville	Wisconsin	State Program	5	998044300

Accreditation may not be offered or required for all methods and analytes reported in this package Please contact your project manager for the laboratory's current list of certified methods and analytes.

Subcontract Data

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 180-13478-1

Harley Davidson (PADEP)

Lot #: H2H170401

Jill Colussy

TestAmerica Pittsburgh
301 Alpha Drive
Pittsburgh, PA 15238

TESTAMERICA LABORATORIES, INC.

Ryan Henry

Ryan Henry
Project Manager

August 27, 2012

ANALYTICAL METHODS SUMMARY

H2H170401

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

SAMPLE SUMMARY

H2H170401

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MV6WF	001	HD-B45-SGSP-3-01-0	08/15/12	10:20
MV6WG	002	HD-B45-AMBIENT-01-0	08/15/12	10:30
MV6WH	003	HD-B45-SGSP-1-01-0	08/15/12	11:01
MV6WJ	004	HD-B45-SGSP-2-01-0	08/15/12	12:29

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PROJECT NARRATIVE
H2H170401

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

The original chain of custody documentation is included with this report.

Sample Receipt

There were no problems with the condition of the samples received.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

The EPA method requires that all target analytes in the continuing calibration verification standard be within 30% difference from the initial calibration. According to the laboratory standard operating procedure, the continuing calibration is acceptable if it meets the laboratory control sample acceptance criteria. Even though the calibration verification analyzed on 8/17/12 exhibited a % difference of > 30% for napthalene, the results were within the LCS acceptance limits.

CERTIFICATION SUMMARY

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	ACLASS	DoD ELAP		ADE-1434
TestAmerica Knoxville	Arkansas	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	Louisiana	NELAC	6	LA110001
TestAmerica Knoxville	Louisiana	NELAC	6	83979
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Minnesota	NELAC	5	047-999-429
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina	North Carolina DENR	4	64
TestAmerica Knoxville	North Carolina	North Carolina PHL	4	21705
TestAmerica Knoxville	Ohio	OVAP	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	USDA	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia	West Virginia DEP	3	345
TestAmerica Knoxville	West Virginia	West Virginia DHHR (DW)	3	9955C
TestAmerica Knoxville	Wisconsin	State Program	5	998044300

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Data Summary

TestAmerica Pittsburgh

Client Sample ID: HD-B45-SGSP-3-01-0

GC/MS Volatiles

Lot-Sample #	H2H170401 - 001	**Work Order #**	MV6WF1AD	**Matrix.........:**	AIR
Date Sampled...:	08/15/2012	**Date Received..:**	08/16/2012		
Prep Date.........:	08/17/2012	**Analysis Time....:**	08/17/2012		
Prep Batch #.....:	2233050	**Analysis Time....:**	21:11		
Dilution Factor.:	10	**Method..............:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
m-Xylene & p-Xylene	ND	0.80	0.50	ND	3.5	2.2
1,3,5-Trimethylbenzene	ND	0.80	0.26	ND	3.9	1.3
Ethylbenzene	ND	0.80	0.27	ND	3.5	1.2
Cumene	ND	1.6	0.24	ND	7.9	1.2
Benzene	ND	0.80	0.23	ND	2.6	0.73
o-Xylene	ND	0.80	0.24	ND	3.5	1.0
1,2,4-Trimethylbenzene	ND	0.80	0.25	ND	3.9	1.2
Naphthalene	ND	2.0	0.36	ND	10	1.9
Methyl tert-butyl ether	ND	4.0	0.68	ND	14	2.5
Toluene	**0.26 J**	**0.80**	**0.21**	**0.97 J**	**3.0**	**0.79**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	110	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Pittsburgh

Client Sample ID: HD-B45-AMBIENT-01-0

GC/MS Volatiles

Lot-Sample #	H2H170401 - 002	**Work Order #**	MV6WG1AD	**Matrix.........:**	AIR
Date Sampled...:	08/15/2012	**Date Received..:**	08/16/2012		
Prep Date.........:	08/17/2012	**Analysis Time....:**	08/17/2012		
Prep Batch #.....:	2233050	**Analysis Time....:**	22:04		
Dilution Factor.:	1	**Method.............:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Toluene	**0.17**	**0.080**	**0.021**	**0.63**	**0.30**	**0.079**
Methyl tert-butyl ether	ND	0.40	0.068	ND	1.4	0.25
1,2,4-Trimethylbenzene	**0.076 J**	**0.080**	**0.025**	**0.37 J**	**0.39**	**0.12**
Naphthalene	**0.050 J**	**0.20**	**0.036**	**0.26 J**	**1.0**	**0.19**
o-Xylene	**0.062 J**	**0.080**	**0.024**	**0.27 J**	**0.35**	**0.10**
Cumene	ND	0.16	0.024	ND	0.79	0.12
Benzene	**0.087**	**0.080**	**0.023**	**0.28**	**0.26**	**0.073**
Ethylbenzene	**0.033 J**	**0.080**	**0.027**	**0.14 J**	**0.35**	**0.12**
1,3,5-Trimethylbenzene	ND	0.080	0.026	ND	0.39	0.13
m-Xylene & p-Xylene	**0.16**	**0.080**	**0.050**	**0.69**	**0.35**	**0.22**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	110	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Pittsburgh

Client Sample ID: HD-B45-SGSP-1-01-0

GC/MS Volatiles

Lot-Sample #	H2H170401 - 003	**Work Order #**	MV6WH1AD	**Matrix.........:**	AIR
Date Sampled...:	08/15/2012	**Date Received..:**	08/16/2012		
Prep Date.........:	08/17/2012	**Analysis Time....:**	08/17/2012		
Prep Batch #.....:	2233050	**Analysis Time....:**	22:56		
Dilution Factor.:	10	**Method..............:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
m-Xylene & p-Xylene	8.6	0.80	0.50	37	3.5	2.2
1,3,5-Trimethylbenzene	1.6	0.80	0.26	7.9	3.9	1.3
Ethylbenzene	1.7	0.80	0.27	7.5	3.5	1.2
Cumene	0.32 J	1.6	0.24	1.6 J	7.9	1.2
Benzene	0.24 J	0.80	0.23	0.76 J	2.6	0.73
o-Xylene	3.8	0.80	0.24	17	3.5	1.0
Naphthalene	1.4 J	2.0	0.36	7.3 J	10	1.9
1,2,4-Trimethylbenzene	7.6	0.80	0.25	37	3.9	1.2
Methyl tert-butyl ether	ND	4.0	0.68	ND	14	2.5
Toluene	3.3	0.80	0.21	13	3.0	0.79

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	115	60 - 140

Qualifiers

J	Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Pittsburgh

Client Sample ID: HD-B45-SGSP-2-01-0

GC/MS Volatiles

Lot-Sample #	H2H170401 - 004	**Work Order #**	MV6WJ1AD	**Matrix.........:**	AIR
Date Sampled...:	08/15/2012	**Date Received..:**	08/16/2012		
Prep Date.........:	08/17/2012	**Analysis Time....:**	08/17/2012		
Prep Batch #.....:	2233050	**Analysis Time....:**	23:50		
Dilution Factor.:	10	**Method.............:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
Toluene	**0.57 J**	**0.80**	**0.21**	**2.1 J**	**3.0**	**0.79**
Methyl tert-butyl ether	ND	4.0	0.68	ND	14	2.5
1,2,4-Trimethylbenzene	ND	0.80	0.25	ND	3.9	1.2
Naphthalene	ND	2.0	0.36	ND	10	1.9
o-Xylene	ND	0.80	0.24	ND	3.5	1.0
Benzene	**0.26 J**	**0.80**	**0.23**	**0.84 J**	**2.6**	**0.73**
Cumene	ND	1.6	0.24	ND	7.9	1.2
Ethylbenzene	ND	0.80	0.27	ND	3.5	1.2
1,3,5-Trimethylbenzene	ND	0.80	0.26	ND	3.9	1.3
m-Xylene & p-Xylene	ND	0.80	0.50	ND	3.5	2.2

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	107	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Pittsburgh

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H2H200000 - 050B	**Work Order #**	MV7M41AA	**Matrix.........:**	AIR
	08/15/2012	**Date Received..:**	08/16/2012		
Prep Date.........:	08/17/2012	**Analysis Time....:**	08/17/2012		
Prep Batch #.....:	2233050	**Analysis Time....:**	14:41		
Dilution Factor.:	1	**Method..............:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
m-Xylene & p-Xylene	ND	0.080	0.050	ND	0.35	0.22
1,3,5-Trimethylbenzene	ND	0.080	0.026	ND	0.39	0.13
Ethylbenzene	ND	0.080	0.027	ND	0.35	0.12
Benzene	ND	0.080	0.023	ND	0.26	0.073
Cumene	ND	0.16	0.024	ND	0.79	0.12
o-Xylene	ND	0.080	0.024	ND	0.35	0.10
Naphthalene	ND	0.20	0.036	ND	1.0	0.19
1,2,4-Trimethylbenzene	ND	0.080	0.025	ND	0.39	0.12
Methyl tert-butyl ether	ND	0.40	0.068	ND	1.4	0.25
Toluene	ND	0.080	0.021	ND	0.30	0.079

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	103	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Pittsburgh

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample #	H2H200000 - 050C	**Work Order #**	MV7M41AC	**Matrix.........:**	AIR
	08/15/2012	**Date Received..:**	08/16/2012		
Prep Date.........:	08/17/2012	**Analysis Time....:**	08/17/2012		
Prep Batch #.....:	2233050	**Analysis Time....:**	12:25		
Dilution Factor.:	1	**Method..............:**	TO-15		

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
Toluene	5.00	4.50	18.8	16.9	90	70 - 130
Methyl tert-butyl ether	5.00	5.49	18.0	19.8	110	60 - 140
Naphthalene	5.00	3.25	26.2	17.1	65	40 - 140
1,2,4-Trimethylbenzene	5.00	4.62	24.6	22.7	92	70 - 130
o-Xylene	5.00	4.78	21.7	20.7	96	70 - 130
Benzene	5.00	4.54	16.0	14.5	91	70 - 130
Cumene	5.00	4.63	24.6	22.8	93	70 - 130
Ethylbenzene	5.00	4.75	21.7	20.6	95	70 - 130
1,3,5-Trimethylbenzene	5.00	4.42	24.6	21.7	88	70 - 130
m-Xylene & p-Xylene	10.0	9.76	43.4	42.4	98	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	112	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

EPA-2 TO-15 SURROGATE RECOVERY

Lab Name: TestAmerica Laboratories, Inc. Client: TestAmerica Pittsburgh

Lab Code: TALKNX SDG No:

Lot #: H2H170401

Extraction: XXS887M01

	CLIENT ID.	SRG01	TOT OUT
01	HD-B45-SGSP-3-01-0	110	00
02	HD-B45-AMBIENT-01-0	110	00
03	HD-B45-SGSP-1-01-0	115	00
04	HD-B45-SGSP-2-01-0	107	00
05	METHOD BLK. MV7M41AA	103	00
06	LCS MV7M41AC	112	00

SURROGATES		QC LIMITS
SRG01	= 4-Bromofluorobenzene	(60-140)

Column to be used to flag recovery values
* Values outside of required QC Limits
D System monitoring Compound diluted out

FORM II

EPA-2 TO-15 CHECK SAMPLE RECOVERY

Lab Name: TestAmerica Laboratories, Inc.   Client: TestAmerica Pittsburgh

Lab Code: TALKNX   SDG No:

Lot #: H2H200000   WO #: MV7M41AC
BATCH: 2233050

COMPOUND	SPIKE ADDED (ppb(v)	SAMPLE CONCENT. (ppb(v)	% REC	QC LIMITS REC	QUAL
Methyl tert-butyl ether	5.00	5.49	110	60- 140	
Benzene	5.00	4.54	91	70- 130	
Toluene	5.00	4.50	90	70- 130	
Ethylbenzene	5.00	4.75	95	70- 130	
m-Xylene & p-Xylene	10.0	9.76	98	70- 130	
o-Xylene	5.00	4.78	96	70- 130	
Cumene	5.00	4.63	93	70- 130	
1,3,5-Trimethylbenzene	5.00	4.42	88	70- 130	
1,2,4-Trimethylbenzene	5.00	4.62	92	70- 130	
Naphthalene	5.00	3.25	65	40- 140	

NOTES(S):

* Values outside of QC limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

FORM III

Sample Receipt Documentation

TAL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

H21170401

Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

COC# TAK0815 20121

Client Contact Information
Company: SAIC
Address: 6310 Allentown Blvd
City/State/Zip: Harrisburg PA 17112
Phone: 717 901-8100
FAX: 717 901-8102
Project Name: HD Bldg 45 UST Characterization
Site/location: York PA
PO # 18009897-0

Project Manager: Rodney Myers
Phone: 717 468-1439
Site Contact: Matthew J Logan
TAL Contact: Jamie McKinney

Analysis Turnaround Time
Standard (Specify) X
Rush (Specify)

Sampled By: Matthew J Logan

1 of 1 COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
HD-B45-SGSP-3-01-0	8-15-12	0920	1020	28	6	12	11152	X									X		
HD-B45-Ambient-01-0	↓	0930	1030	30	7	99	0063	X								X			
HD-B45-SGSP-1-01-0	↓	1001	1101	30	14	47	6615	X									X		
HD-B45-SGSP-2-01-0	↓	1129	1229	30	11.5	126	11407	X									X		

Sampled by :

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

1 Box Rec'd @ Ambient Temp with custody seal intact
GGH 8/16/12
1 Box FedX # 8000 5166 7786

4 CANS / 4 Flows (R)

Special Instructions/QC Requirements & Comments: Analyze for: benzene, ethylbenzene, cumene, naphthalene, toluene, total xylenes, 1,2,4-TMB, 1,3,5-TMB, MTBE.

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: [signature]	Date/Time: 8-15-12 / 1330	Received by: Fed-Ex
Relinquished by:	Date/Time:	Received by: [signature] 8/16/12 730

Lab Use Only Shipper Name: Opened by: Condition:

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H2H170401

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ **1a** Do not match COC ☐ **1b** Incomplete information ☐ **1c** Marking smeared ☐ **1d** Label torn ☐ **1e** No label ☐ **1f** COC not received ☐ **1g** Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)	✓			☐ **2a** Temp Blank = ____ ☐ **2b** Cooler Temp = ____ ☐ **2c** Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ **3a** Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			☐ **4a** Not present ☐ **4b** Not intact ☐ **4c** Other:	
5. Were all of the samples listed on the COC received?	✓			☐ **5a** Samples received-not on COC ☐ **5b** Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ **6a** Leaking ☐ **6b** Broken	
7. Were VOA samples received without headspace?			✓	☐ **7a** Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ **8a** Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ **9a** Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ **10a** Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? ____	
13. Are the shipping containers intact?	✓			☐ **13a** Leaking ☐ **13b** Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ **14a** Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ **15a** Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ **15a** Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ **15a** Incomplete information	
18. Is the client and project name/# identified?	✓			☐ **15a** Incomplete information	
19. Was the sampler identified on the COC?	✓			☐ **19a** Other	

Quote #: 90655 PM Instructions: NA

Sample Receiving Associate: [signature] Date: 9/16/12

QA026R23.doc, 022812

Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: *H2H170401*

Initial Can Pressure							Subsequent Dilutions												
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
8/17/12	MA	28.81	MV6WF	11152 ✓	-6.0	–												10026
			MV6WG	0063 ✓	-6.5	–												
			MV6WH	6615 ✓	-12.7	+0.8												
			MV6WJ	11407 ✓	-10.3	+2.4												

MS038 Revision 8

Shipping and Receiving Documents

Ref: CAN ORDER 12038 Date: 10Aug12 SHIPPING: 21.56
Dep: 140320 Wgt: 31.25 LBS SPECIAL: 2.16
HANDLING: 0.00
DV: 0.00 TOTAL: 23.72

Svcs ** 2DAY **
TRCK: 5369 6774 7866

Test America — BOTTLE ORDER

07-Aug-12

Order Number 12038
Matthew J. Logan
SAIC
6310 Allentown Boulevard

Harrisburg PA 17112-

Company Name
Quote Number TA P
Project Manager Jamie McKinney

Date Entered 07-Aug-12
Arrive By 14-Aug-12
SHIPPING METHOD FEDEX

Labels	Yes	**Custody Seals**	Yes
COC/RFA Forms	Yes	**Coolers**	No

PARAMETER	BOTTLE TYPE	AMOUNT	LOT NUMBER	PRESERVATIVE	LOT NUMBER	COMMENTS
	1Hr Soil Gas Restrictor (<=100ml/min)	4				
	Summa Canister	4				200ml; benzene, ethylbenzene, cumene, MTBE, naphthalene, toluene, 1,2,4-TMB and 1,3,5-TMB

Relinquished by: [signature] **Date Time:** 8/10/12

Attention Samplers:
Please fill **soil sample containers 1/2 to 2/3 full.** This Does **not** apply to encore(tm) soil samplers or water sample containers.

Equipment Rental Charges - Rental charges for canisters, flow controllers and other ambient air sampling supplies are for a 2 week rental period. Supplies kept by the client longer than 2 weeks will be invoiced additional weekly charges. Unused supplies will also be charged the full rental charge.

100ml/min Restrictor	CAN#	LOT #
KE-126	6615	10026
-12	0063	
-47	11407	
-99	11157	

Checked 8/13/12

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: ____________

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ 1a Do not match COC ☐ 1b Incomplete information ☐ 1c Marking smeared ☐ 1d Label torn ☐ 1e No label ☐ 1f COC not received ☐ 1g Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)	✓			☐ 2a Temp Blank = ____ ☐ 2b Cooler Temp = ____ ☐ 2c Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ 3a Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			☐ 4a Not present ☐ 4b Not intact ☐ 4c Other:	
5. Were all of the samples listed on the COC received?	✓			☐ 5a Samples received-not on COC ☐ 5b Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ 6a Leaking ☐ 6b Broken	
7. Were VOA samples received without headspace?			✓	☐ 7a Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ 8a Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ 9a Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ 10a Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? ____	
13. Are the shipping containers intact?	✓			☐ 13a Leaking ☐ 13b Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ 14a Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ 15a Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ 15a Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ 15a Incomplete information	
18. Is the client and project name/# identified?	✓			☐ 15a Incomplete information	
19. Was the sampler identified on the COC?	✓			☐ 19a Other	

Quote #: ____________ PM Instructions: ____________

Sample Receiving Associate: [signature] Date: 4/16/12

TAL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

COC# TAK0815 20121

Client Contact Information
Company: SAIC
Address: 6310 Allentown Blvd
City/State/Zip: Harrisburg PA 17112
Phone: 717 901-8100
FAX: 717 901-8103
Project Name: HD Bldg 45 UST Characterization
Site/location: York PA
PO # 1800989?.0

Project Manager: Rodney Myers
Phone: 717 468-1439
Site Contact: Matthew J Logan
TAL Contact: Jamie McKinney

Analysis Turnaround Time
Standard (Specify) X
Rush (Specify)

Sampled By: Matthew J Logan

1 of 1 COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	*Sample Type*	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
HD-B45-SGSP-3-01-0	8-15-12	0920	1020	28	6	12	11152	X									X		
HD-B45-Ambient-01-0	↓	0930	1030	30	7	99	0063	X								X			
HD-B45-SGSP-1-01-0	↓	1001	1101	30	14	47	6615	X									X		
HD-B45-SGSP-2-01-0	↓	1129	1229	30	11.5	126	11407	X									X		

Sampled by :

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

1 Box Rec'd @ ambient Temp with custody seal intact
??? 8/16/12
1 Box FedEx # 0000 5166 7786
4 CANS / 4 Flows (R)

Special Instructions/QC Requirements & Comments: Analyze for: benzene, ethylbenzene, cumene, naphthalene, toluene, total xylenes, 1,2,4-TMB, 1,3,5-TMB, MTBE.

Canisters Shipped by:
Date/Time:
Canisters Received by:
Samples Relinquished by: [signature]
Date/Time: 8-15-12 / 1330
Received by: Fed Ex
Relinquished by:
Date/Time:
Received by: [signature] 8/16/12 730

Lab Use Only
Shipper Name:
Opened by:
Condition:

TAL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

COC# TAK0815 20121

1 of 1 COCs

Client Contact Information	
Company:	SAIC
Address:	6310 Allentown Blvd
City/State/Zip	Harrisburg PA 17112
Phone:	717 901-8100
FAX:	717 901-8102
Project Name:	HD Bldg 45 UST Characterization
Site/location:	York PA
PO #	18009897-0

Project Manager: Rodney Myers
Phone: 717 468-1439
Site Contact: Matthew J Logan
TAL Contact: Jamie McKinney

Sampled By: Matthew J Logan

Analysis Turnaround Time
Standard (Specify) X
Rush (Specify)

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
HD-B45-SGSP-3-01-0	8-15-12	0920	1020	28	6	12	11152	X									X		
HD-B45-Ambient-01-0		0930	1030	30	7	99	0063	X								X			
HD-B45-SGSP-1-01-0		1001	1101	30	14	47	6615	X									X		
HD-B45-SGSP-2-01-0		1129	1229	30	11.5	126	11407	X									X		

Sampled by :

Temperature (Fahrenheit)

	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)

	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments: Analyze for: benzene, ethylbenzene, cumene, naphthalene, toluene, total xylenes, 1,2,4-TMB, 1,3,5-TMB, MTBE.

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

Login Sample Receipt Checklist

Client: Science Applications International Corp

Job Number: 180-13478-1

Login Number: 13478

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Gamber, Tom

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Job Number: 180-14490-1

Job Description: Harley Davidson

For:
Science Applications International Corp
6310 Allentown Boulevard
Harrisburg, PA 17112

Attention: Mr. Rodney Myers

Approved for release.
Jill L Colussy
Project Manager I
9/28/2012 11:20 AM

Jill L Colussy
Project Manager I
jill.colussy@testamericainc.com
09/28/2012

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager or designee who has signed this report.

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238
Tel (412) 963-7058 Fax (412) 963-2468 www.testamericainc.com

Table of Contents

SAMPLE SUMMARY

Client: Science Applications International Corp

Job Number: 180-14490-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
180-14490-1	HD-B45-SGSP-1-01-0	Air	09/12/2012 1026	09/13/2012 0000
180-14490-2	HD-B45-SGSP-3-01-0	Air	09/12/2012 1042	09/13/2012 0000
180-14490-3	HD-B45-AMBIENT-01-0	Air	09/12/2012 1046	09/13/2012 0000
180-14490-4	HD-B45-SGSP-2-01-0	Air	09/12/2012 1331	09/13/2012 0000

METHOD SUMMARY

Client: Science Applications International Corp   Job Number: 180-14490-1

Description	Lab Location	Method	Preparation Method
Matrix: Air			
General Sub Contract Method	TAL KNX	Subcontract	

Lab References:

TAL KNX = TestAmerica Knoxville

Method References:

Subcontract Data

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 180-14490-1

Harley Davidson (PADEP)

Lot #: H2I130401

Jill Colussy

TestAmerica Pittsburgh
301 Alpha Drive
Pittsburgh, PA 15238

TESTAMERICA LABORATORIES, INC.

Ryan Henry

Ryan Henry
Project Manager

September 18, 2012

ANALYTICAL METHODS SUMMARY

H2I130401

PARAMETER	ANALYTICAL METHOD
Volatile Organics by TO15	EPA-2 TO-15

References:

EPA-2 "Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air", EPA-625/R-96/010b, January 1999.

SAMPLE SUMMARY

H2I130401

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MWJW7	001	HD-B45-SGSP-1-01-0	09/12/12	10:26
MWJW8	002	HD-B45-SGSP-3-01-0	09/12/12	10:42
MWJW9	003	HD-B45-AMBIENT-01-0	09/12/12	10:46
MWJXA	004	HD-B45-SGSP-2-01-0	09/12/12	13:31

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PROJECT NARRATIVE
H2I130401

The results reported herein are applicable to the samples submitted for analysis only. If you have any questions about this report, please call (865) 291-3000 to speak with the TestAmerica project manager listed on the cover page.

This report shall not be reproduced except in full, without the written approval of the laboratory.

The original chain of custody documentation is included with this report.

Sample Receipt

There were no problems with the condition of the samples received.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

EPA methods TO-14A and TO-15 specify the use of humidified "zero air" as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of "zero air" by TestAmerica Knoxville.

CERTIFICATION SUMMARY

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Knoxville	ACLASS	DoD ELAP		ADE-1434
TestAmerica Knoxville	Arkansas	State Program	6	88-0688
TestAmerica Knoxville	California	State Program	9	2423
TestAmerica Knoxville	Colorado	State Program	8	N/A
TestAmerica Knoxville	Connecticut	State Program	1	PH-0223
TestAmerica Knoxville	Florida	NELAC	4	E87177
TestAmerica Knoxville	Georgia	State Program	4	906
TestAmerica Knoxville	Hawaii	State Program	9	N/A
TestAmerica Knoxville	Indiana	State Program	5	C-TN-02
TestAmerica Knoxville	Iowa	State Program	7	375
TestAmerica Knoxville	Kansas	NELAC	7	E-10349
TestAmerica Knoxville	Kentucky	State Program	4	90101
TestAmerica Knoxville	Louisiana	NELAC	6	LA110001
TestAmerica Knoxville	Louisiana	NELAC	6	83979
TestAmerica Knoxville	Maryland	State Program	3	277
TestAmerica Knoxville	Michigan	State Program	5	9933
TestAmerica Knoxville	Minnesota	NELAC	5	047-999-429
TestAmerica Knoxville	Nevada	State Program	9	TN00009
TestAmerica Knoxville	New Jersey	NELAC	2	TN001
TestAmerica Knoxville	New York	NELAC	2	10781
TestAmerica Knoxville	North Carolina	North Carolina DENR	4	64
TestAmerica Knoxville	North Carolina	North Carolina PHL	4	21705
TestAmerica Knoxville	Ohio	OVAP	5	CL0059
TestAmerica Knoxville	Oklahoma	State Program	6	9415
TestAmerica Knoxville	Pennsylvania	NELAC	3	68-00576
TestAmerica Knoxville	South Carolina	State Program	4	84001
TestAmerica Knoxville	Tennessee	State Program	4	2014
TestAmerica Knoxville	Texas	NELAC	6	T104704380-TX
TestAmerica Knoxville	USDA	USDA		P330-11-00035
TestAmerica Knoxville	Utah	NELAC	8	QUAN3
TestAmerica Knoxville	Virginia	State Program	3	165
TestAmerica Knoxville	Washington	State Program	10	C593
TestAmerica Knoxville	West Virginia	West Virginia DEP	3	345
TestAmerica Knoxville	West Virginia	West Virginia DHHR (DW)	3	9955C
TestAmerica Knoxville	Wisconsin	State Program	5	998044300

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Data Summary

TestAmerica Pittsburgh

Client Sample ID: HD-B45-SGSP-1-01-0

GC/MS Volatiles

Lot-Sample #	H2I130401 - 001	**Work Order #**	MWJW71AD	**Matrix.........:**	AIR
Date Sampled...:	09/12/2012	**Date Received..:**	09/13/2012		
Prep Date.........:	09/13/2012	**Analysis Time....:**	09/13/2012		
Prep Batch #.....:	2257064	**Analysis Time....:**	22:15		
Dilution Factor.:	10	**Method..............:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
m-Xylene & p-Xylene	7.7	0.80	0.50	34	3.5	2.2
Methyl tert-butyl ether	ND	4.0	0.68	ND	14	2.5
Toluene	2.4	0.80	0.21	9.1	3.0	0.79
Naphthalene	ND	2.0	0.36	ND	10	1.9
1,2,4-Trimethylbenzene	0.57 J	0.80	0.25	2.8 J	3.9	1.2
1,3,5-Trimethylbenzene	0.28 J	0.80	0.26	1.4 J	3.9	1.3
Ethylbenzene	2.1	0.80	0.27	9.0	3.5	1.2
Cumene	0.36 J	1.6	0.24	1.8 J	7.9	1.2
o-Xylene	2.2	0.80	0.24	9.7	3.5	1.0
Benzene	0.75 J	0.80	0.23	2.4 J	2.6	0.73

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	104	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Pittsburgh

Client Sample ID: HD-B45-SGSP-3-01-0

GC/MS Volatiles

Lot-Sample #	H2I130401 - 002	**Work Order #**	MWJW81AD	**Matrix.........:**	AIR
Date Sampled...:	09/12/2012	**Date Received..:**	09/13/2012		
Prep Date.........:	09/13/2012	**Analysis Time....:**	09/13/2012		
Prep Batch #.....:	2257064	**Analysis Time....:**	23:08		
Dilution Factor.:	10	**Method..............:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
o-Xylene	ND	0.80	0.24	ND	3.5	1.0
Benzene	ND	0.80	0.23	ND	2.6	0.73
Cumene	ND	1.6	0.24	ND	7.9	1.2
Ethylbenzene	ND	0.80	0.27	ND	3.5	1.2
1,3,5-Trimethylbenzene	ND	0.80	0.26	ND	3.9	1.3
1,2,4-Trimethylbenzene	**0.38 J**	**0.80**	**0.25**	**1.9 J**	**3.9**	**1.2**
Naphthalene	ND	2.0	0.36	ND	10	1.9
Toluene	**0.26 J**	**0.80**	**0.21**	**0.98 J**	**3.0**	**0.79**
Methyl tert-butyl ether	ND	4.0	0.68	ND	14	2.5
m-Xylene & p-Xylene	ND	0.80	0.50	ND	3.5	2.2

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Pittsburgh

Client Sample ID: HD-B45-AMBIENT-01-0

GC/MS Volatiles

Lot-Sample #	H2I130401 - 003	Work Order #	MWJW91AD	Matrix.........:	AIR
Date Sampled...:	09/12/2012	Date Received..:	09/13/2012		
Prep Date.........:	09/13/2012	Analysis Time....:	09/13/2012		
Prep Batch #.....:	2257064	Analysis Time....:	21:21		
Dilution Factor.:	1	Method.............:	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
m-Xylene & p-Xylene	**0.19**	**0.080**	**0.050**	**0.84**	**0.35**	**0.22**
Methyl tert-butyl ether	ND	0.40	0.068	ND	1.4	0.25
Toluene	**0.45**	**0.080**	**0.021**	**1.7**	**0.30**	**0.079**
Naphthalene	ND	0.20	0.036	ND	1.0	0.19
1,2,4-Trimethylbenzene	**0.064 J**	**0.080**	**0.025**	**0.32 J**	**0.39**	**0.12**
1,3,5-Trimethylbenzene	ND	0.080	0.026	ND	0.39	0.13
Cumene	ND	0.16	0.024	ND	0.79	0.12
Ethylbenzene	**0.064 J**	**0.080**	**0.027**	**0.28 J**	**0.35**	**0.12**
Benzene	**0.14**	**0.080**	**0.023**	**0.45**	**0.26**	**0.073**
o-Xylene	**0.071 J**	**0.080**	**0.024**	**0.31 J**	**0.35**	**0.10**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TO-14 _rev5MDL_DOD.rpt version 5.004 09/13/2011

TestAmerica Pittsburgh

Client Sample ID: HD-B45-SGSP-2-01-0

GC/MS Volatiles

Lot-Sample #	H2I130401 - 004	**Work Order #**	MWJXA1AD	**Matrix.........:**	AIR
Date Sampled...:	09/12/2012	**Date Received..:**	09/13/2012		
Prep Date.........:	09/13/2012	**Analysis Time....:**	09/14/2012		
Prep Batch #.....:	2257064	**Analysis Time....:**	00:03		
Dilution Factor.:	10	**Method..............:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
o-Xylene	**0.39 J**	**0.80**	**0.24**	**1.7 J**	**3.5**	**1.0**
Benzene	**0.75 J**	**0.80**	**0.23**	**2.4 J**	**2.6**	**0.73**
Cumene	ND	1.6	0.24	ND	7.9	1.2
1,3,5-Trimethylbenzene	ND	0.80	0.26	ND	3.9	1.3
Ethylbenzene	**0.34 J**	**0.80**	**0.27**	**1.5 J**	**3.5**	**1.2**
Naphthalene	ND	2.0	0.36	ND	10	1.9
1,2,4-Trimethylbenzene	ND	0.80	0.25	ND	3.9	1.2
Methyl tert-butyl ether	ND	4.0	0.68	ND	14	2.5
Toluene	**1.5**	**0.80**	**0.21**	**5.7**	**3.0**	**0.79**
m-Xylene & p-Xylene	**1.1**	**0.80**	**0.50**	**4.9**	**3.5**	**2.2**

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	101	60 - 140

Qualifiers

J Estimated result. Result is less than RL.

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Pittsburgh

Client Sample ID: INTRA-LAB BLANK

GC/MS Volatiles

Lot-Sample #	H2I130000 - 064B	**Work Order #**	MWJ7D1AA	**Matrix.........:**	AIR
	09/12/2012	**Date Received..:**	09/13/2012		
Prep Date.........:	09/13/2012	**Analysis Time....:**	09/13/2012		
Prep Batch #.....:	2257064	**Analysis Time....:**	13:20		
Dilution Factor.:	1	**Method..............:**	TO-15		

PARAMETER	RESULTS (ppb(v/v))	REPORTING LIMIT (ppb(v/v))	MDL (ppb(v/v))	RESULTS (ug/m3)	REPORTING LIMIT (ug/m3)	MDL (ug/m3)
m-Xylene & p-Xylene	ND	0.080	0.050	ND	0.35	0.22
Methyl tert-butyl ether	ND	0.40	0.068	ND	1.4	0.25
Toluene	ND	0.080	0.021	ND	0.30	0.079
1,2,4-Trimethylbenzene	ND	0.080	0.025	ND	0.39	0.12
Naphthalene	ND	0.20	0.036	ND	1.0	0.19
1,3,5-Trimethylbenzene	ND	0.080	0.026	ND	0.39	0.13
Ethylbenzene	ND	0.080	0.027	ND	0.35	0.12
Cumene	ND	0.16	0.024	ND	0.79	0.12
Benzene	ND	0.080	0.023	ND	0.26	0.073
o-Xylene	ND	0.080	0.024	ND	0.35	0.10

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	99	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

TestAmerica Pittsburgh

Client Sample ID: CHECK SAMPLE

GC/MS Volatiles

Lot-Sample # H2I130000 - 064C **Work Order #** MWJ7D1AC **Matrix.........:** AIR

	09/12/2012	**Date Received..:**	09/13/2012
Prep Date.........:	09/13/2012	**Analysis Time....:**	09/13/2012
Prep Batch #.....:	2257064	**Analysis Time....:**	08:15
Dilution Factor.:	1	**Method..............:**	TO-15

PARAMETER	SPIKE AMOUNT (ppb(v/v))	MEASURED AMOUNT (ppb(v/v))	SPIKE AMOUNT (ug/m3)	MEASURED AMOUNT (ug/m3)	PERCENT RECOVERY	RECOVERY LIMITS
o-Xylene	5.00	4.86	21.7	21.1	97	70 - 130
Benzene	5.00	4.65	16.0	14.8	93	70 - 130
Cumene	5.00	4.73	24.6	23.2	95	70 - 130
Ethylbenzene	5.00	4.75	21.7	20.6	95	70 - 130
1,3,5-Trimethylbenzene	5.00	4.78	24.6	23.5	96	70 - 130
1,2,4-Trimethylbenzene	5.00	4.79	24.6	23.5	96	70 - 130
Naphthalene	5.00	4.82	26.2	25.3	96	40 - 140
Toluene	5.00	4.44	18.8	16.7	89	70 - 130
Methyl tert-butyl ether	5.00	5.14	18.0	18.5	103	60 - 140
m-Xylene & p-Xylene	10.0	9.62	43.4	41.8	96	70 - 130

SURROGATE	PERCENT RECOVERY	LABORATORY CONTROL LIMITS (%)
4-Bromofluorobenzene	108	60 - 140

Result (ug/m3) = Result (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Reporting Limit (ug/m3) = Reporting Limit (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

MDL (ug/m3) = MDL (ppb(v/v))[unrounded] * (Molecular Weight/24.45)

Sample Receipt Documentation

TAL Knoxville
5815 Middlebrook Pike
Knoxville, TN 37921
phone 865-291-3000 fax 865-584-4315

142I130401

Canister Samples Chain of Custody Record

TestAmerica assumes no liability with respect to the collection and shipment of these samples.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

COC# TAK09122012 1

Client Contact Information	Project Manager: Rodney Myers	Sampled By: Matthew J Logan
Company: SAIC	Phone: 717 468 1439	1 of 1 COCs
Address: 6310 Allentown Blvd	Site Contact: Matthew J Logan	
City/State/Zip Harrisburg PA 17112	TAL Contact: Ryan Henry	
Phone: 717 901-8100		
FAX: 717 901-8102		
Project Name: Harley Davidson	Analysis Turnaround Time	
Site/location: York PA	Standard (Specify) X	
PO # 450MR00464	Rush (Specify)	

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	*Sample Type*	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
HD-B45-SGSP-1-01-0	9-12-12	0926	1026	30	12.5	48	1456	X									X		
HD-B45-SGSP-3-01-0	9-12-12	0942	1042	30	6	121	7487	X									X		
HD-B45-Ambient-01-0	9-12-12	0946	1046	30	7	189	93287	X								X			
HD-B45-SGSP-2-01-0	9-12-12	1231	1331	29.5	12	77	7516	X									X		

Sampled by :

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

CUSTODY SEALS INTACT
RECEIVED AT AMBIENT TEMP
BTD 9-13-12

BTD 9-13-12 ~~+ COOLER~~ 1 BOX FEDX# 841835624930
4 CANS / 4 FLOW(R)

Special Instructions/QC Requirements & Comments: Bill to SAIC PO: 450MR00464

Analyze for: benzene, ethylbenzene, cumene, naphthalene, toluene, total xylenes, 1,2,4-TMB, 1,3,5-TMB, MTBE

Canisters Shipped by:	Date/Time:	Canisters Received by:
Samples Relinquished by: [signature]	Date/Time: 9-12-12 / 1400	Received by: Fed-Ex
Relinquished by:	Date/Time:	Received by: [signature] 9-13-12 06:50

90655

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST

Lot Number: H2I130401

Review Items	Yes	No	NA	If No, what was the problem?	Comments/Actions Taken
1. Do sample container labels match COC? (IDs, Dates, Times)	✓			☐ **1a** Do not match COC ☐ **1b** Incomplete information ☐ **1c** Marking smeared ☐ **1d** Label torn ☐ **1e** No label ☐ **1f** COC not received ☐ **1g** Other:	
2. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C)			✓	☐ **2a** Temp Blank = ______ ☐ **2b** Cooler Temp = ______ ☐ **2c** Cooling initiated for recently collected samples, ice present.	
3. Were samples received with correct chemical preservative (excluding Encore)?			✓	☐ **3a** Sample preservative =	
4. Were custody seals present/intact on cooler and/or containers?	✓			☐ **4a** Not present ☐ **4b** Not intact ☐ **4c** Other:	
5. Were all of the samples listed on the COC received?	✓			☐ **5a** Samples received-not on COC ☐ **5b** Samples not received-on COC	
6. Were all of the sample containers received intact?	✓			☐ **6a** Leaking ☐ **6b** Broken	
7. Were VOA samples received without headspace?			✓	☐ **7a** Headspace (VOA only)	
8. Were samples received in appropriate containers?	✓			☐ **8a** Improper container	
9. Did you check for residual chlorine, if necessary?			✓	☐ **9a** Could not be determined due to matrix interference	
10. Were samples received within holding time?	✓			☐ **10a** Holding time expired	
11. For rad samples, was sample activity info. provided?			✓	☐ Incomplete information	
12. For 1613B water samples is pH<9?			✓	If no, was pH adjusted to pH 7 - 9 with sulfuric acid? ______	
13. Are the shipping containers intact?	✓			☐ **13a** Leaking ☐ **13b** Other:	
14. Was COC relinquished? (Signed/Dated/Timed)	✓			☐ **14a** Not relinquished	
15. Are tests/parameters listed for each sample?	✓			☐ **15a** Incomplete information	
16. Is the matrix of the samples noted?	✓			☐ **15a** Incomplete information	
17. Is the date/time of sample collection noted?	✓			☐ **15a** Incomplete information	
18. Is the client and project name/# identified?	✓			☐ **15a** Incomplete information	
19. Was the sampler identified on the COC?	✓			☐ **19a** Other	

Quote #: 90655 PM Instructions: NA

Sample Receiving Associate: [signature] Date: 9-13-12

QA026R23.doc, 022812

Test America - Knoxville ---- Air Canister Dilution Log

Lot Number: *H2I130401*

Initial Can Pressure							Subsequent Dilutions											
Analyst/Date	Tedlar Bag Time	Pbarr (in)	Sample ID	Can #	Pres. upon receipt (-in or + psig)	Adj. Initial Pres. (-in or + psig)	Analyst/Date	I / S	Pbarr (in)	Initial Pres. Pi (in)	Final Pres. Pf (psig)	First InCan Final Pres. Pf (psig)	Second In-can Final Pres. Pf (psig)	Third InCan Final Pres. Pf (psig)	Serial Dilution Can #	Vol (mL)	Final Pres. Pf (psig)	Comments
DDF 9-13-12	NA	29.20	MWJW7	1456	-11.4	+0.7												10068
			MWJW8	7487	-4.9													
			MWJW9	93287	-5.9													
			MWJXA	7516	-11.9	+0.6												