Final Report

AREA B – SOIL VAPOR EXTRACTION PILOT TEST

SAIC Project 01-1633-00-9823-000

Prepared for

Harley-Davidson Motor Company Operations, Inc.

York, PA

July 2007

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1.0 EXECUTIVE SUMMARY

Science Applications International Corporation (SAIC) conducted a soil vapor extraction (SVE) pilot study from April 23 to April 28, 2007, at the Harley-Davidson Motor Company Operations, Inc. (Harley-Davidson) York Vehicle Operations Plant, York, Pennsylvania. The purpose of the SVE pilot study was to evaluate the feasibility of using a full-scale SVE system to remediate volatile organic compounds (VOCs) in the subsurface soils discovered during the Eden Road relocation investigation. The specific area is designated Area B, and its location with respect to the Harley-Davidson facility is shown on Figure 1. Area B encompasses a 9,100-square-foot area along the western property boundary of Harley-Davidson, as shown on Figure 2.

The SVE pilot study for the subsurface soils in Area B has shown that this vacuum extraction system can successfully and efficiently remove VOCs from the subsurface soils. The system consisted of a five-horsepower (Hp) blower connected to two-inch-diameter screened polyvinyl chloride (PVC) pipes in two depth zones beneath a synthetic liner.

The shallow zone tested consists of yellowish-brown silt from approximately 2 to 12 feet deep. This zone was tested at 68 inches water column (WC) and 350 standard cubic feet per minute (SCFM) during the 48-hour continuous test. Significant concentrations of trichloroethene (TCE) and tetrachloroethene (PCE) were removed from the shallow zone during this test. TCE concentrations in the extracted soil gas started at 79 parts per million (ppm) and were reduced to 71 ppm at the end of the test for a 9.6 percent drop in concentration. PCE concentrations started at 49 ppm and were reduced to 41 ppm at the end of the test for a 15 percent drop in concentration. An average of 24 pounds of VOCs per day was removed from the shallow zone during the test period. Based on stabilized vacuum readings in the nearby monitoring wells, the effective radius of influence for the shallow zone is 21 feet.

The deep zone tested consists of gravelly, silty sand from a depth of 12 to approximately 20 feet. This deep zone was tested at 70 inches WC and 176 SCFM during the 48-hour continuous test. Slightly lower concentrations of TCE and PCE were removed from the deep zone during this test. TCE concentrations in the extracted soil gas started at 41 ppm and were reduced to 19 ppm

at the end of the test for a 52 percent drop in concentration. PCE concentrations started at 33 ppm and were reduced to 18 ppm at the end of the test for 44 percent drop in concentration. An average of 5.8 pounds of VOCs per day was removed from the deep zone during the test period. Based on stabilized vacuum readings in the nearby monitoring wells, the effective radius of influence for the deep zone is 16.5 feet.

The consistent vacuum readings achieved in adjacent monitoring wells throughout the testing of the shallow and deep zones were attributed, in part, to the cap over the test area. This cap prevented short-circuiting of vapors from the surface and likely increased the effective radius of the system.

Based on the results of the SVE pilot study, SAIC has determined that soil gas extraction is a viable remedial option that should be considered for Area B and similar areas of VOC-impacted soils in the West Parking Lot (WPL) area. The results of this test are suitable to be used for estimating costs, effectiveness, and designing a full-scale system.

2.0 INTRODUCTION AND BACKGROUND

On August 1, 2006, SAIC prepared a draft work plan for the completion of an SVE pilot test in Area B. That work plan was sent for review to Harley-Davidson, AMO Environmental Decisions, United States Environmental Protection Agency (EPA), United States Army Corps of Engineers (USACE), and the Pennsylvania Department of Environmental Protection (PADEP). Some of the comments on that work plan involved the location of the extraction well, monitoring in a shallow fill layer, and drilling separate boreholes for the various zones. Final revisions to the work plan were agreed upon on December 1, 2006. The start of site work was delayed for some time due to weather and other unforeseen conditions at the plant. Soil sampling was initiated in March 2007, and the drilling was initiated in the beginning of April 2007. The Area B SVE pilot study was conducted between April 23 and April 28, 2007.

2.1 Area B Background

According to historic results of soil borings and sampling conducted within Area B (SAIC, May 2004), TCE and PCE are the two primary VOCs detected in these soils. Concentrations of these VOCs ranged up to 110 and 4,100 milligrams per kilogram (mg/kg) for TCE and PCE, respectively. The highest concentrations were generally found near the surface; however, elevated concentrations of these VOCs were also found to depths of 12 feet below ground surface (bgs). The observed soil properties within Area B consisted of surficial/shallow fill and clayey silt to depths of up to five feet bgs. Most of the observed soil textures consisted of yellowish-brown (10YR 5/6) silt (ML), ranging in depth from 2 to 12 feet bgs. Elevated photoionization detector (PID) readings were generally highest within this region. Below this depth, an abrupt change to more sandy, gravelly-textured soil (gravelly, silty sand) was observed in each soil boring. The depth to this texture change ranged from south to north from 11 to 13 feet bgs. PID readings and concentrations of VOCs within this zone were generally lower than in the upper silt. Groundwater is present within this portion of the site at the depth of approximately 20 feet bgs.

A cap was installed over the contaminated soils in Area B during the fall of 2005. This cap consists of a 40-mil geomembrane liner over the contaminated soils of Area B, overlain by 18 inches of clean soil and followed by 6 inches of seeded topsoil. The extent and design of this cap can be seen on Figure 2. The cap provides for reduced infiltration of surface water into the contaminated media, and it prevents physical contact of these soils by other receptors. In addition, this cap provides a significant surface seal which will enable SVE to be more effective. As part of the Area B cap construction project, the general vicinity was cleared of vegetation and a gravel drive was constructed as an entryway into Area B.

2.2 SVE Background

SVE, also known as "soil venting" or "vacuum extraction," is an in-situ remedial technology that reduces concentrations of volatile constituents adsorbed to soils in the unsaturated (vadose) zone. In this technology, a vacuum is applied to the subsurface through wells or trenches within the contaminated soil area. Volatile constituents of the contaminant mass "evaporate," and the vapors are drawn toward the extraction wells. Extracted vapor is then treated, as necessary (commonly with carbon adsorption), before being released to the atmosphere. Wells may be either vertical or horizontal. In shallow groundwater areas, water table depression pumps are often used to offset the effect of groundwater upwelling induced by the vacuum.

According to EPA documents ("How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites: A Guide for Corrective Action Plan Reviewers" [EPA 510-B-95-007] and USACE Engineering Manual [EM 1110-1-4001] "Soil Vapor Extraction and Bioventing"), this technology has been proven effective in reducing concentrations of VOCs. SVE is generally more successful when applied to lighter (more volatile) organic compounds. SVE has also been used successfully to remove VOCs from soil at two other locations at Harley-Davidson's York facility.

In this technology, a vacuum is applied to the contaminated soil matrix through extraction wells which creates a negative pressure gradient that causes movement of vapors toward these wells. Volatile constituents in the vapor phase are removed from the subsurface through the extraction

wells. The extracted vapors are then treated or discharged directly to the atmosphere (as permitted by applicable state laws).

Some of the factors that will be determined to evaluate the effectiveness of SVE are:

- Volatility and solubility of contaminants,
- Soil gas permeability of the soil,
- Soil structure and stratification,
- Soil moisture, and
- Depth to groundwater.

The soil gas permeability of the soil affects the rate of air and vapor movement through the soil. Higher permeability soils permit faster movement of vapors and a greater volume of vapors that can be extracted.

Soil structure and stratification are important to SVE effectiveness because they can affect how and where soil vapors will flow within the soil matrix under extraction conditions. Structural characteristics (e.g., layering and fractures) can result in preferential flow behavior that can lead to ineffective remediation or significantly extended remediation times.

High moisture content in the soil reduces the soil air permeability and, consequently, the effectiveness of SVE by restricting the flow of air through soil pores. Fine-grained soils create a thicker capillary fringe than coarse-grained soils, making proximity to the water table a larger concern in fine-grained soils.

SVE is generally not effective in treating soils below the top of the capillary fringe unless water table depression pumps are used to draw down the water table. In the vicinity of the extraction wells, the water table responds to the vacuum by rising, or "upwelling," which can cause the soils around the well screen to become saturated, thereby reducing airflow.

Pilot studies are an important part of the design phase, necessary to properly design the full-scale SVE system based on site-specific parameters such as soil gas permeability and pore gas velocity. Pilot studies also provide information on the concentrations of VOCs that are likely to be extracted during the early stages of operation of the SVE system. Fluctuations in the groundwater table should also be considered when designing an SVE system. Significant seasonal or daily (tidal or precipitation-related) fluctuations may, at times, submerge some of the contaminated soil or a portion of the extraction well screen, making it unavailable for airflow. This is most important for horizontal extraction wells, where the screen is parallel to the water table surface.

Design radius of influence (ROI) is defined as the greatest distance from an extraction well at which the induced vacuum causes a sufficient soil pore gas velocity to adequately volatilize and extract the contaminants from the soil. Based on published research (DiGiulio and Ravi, 1999), a soil pore velocity of 0.01 to 0.001 centimeters per second (cm/s) will define the ROI. An effective design requires that extraction wells be placed so that the overlap in their radii of influence completely covers the area of contamination. Surface seals are considered in an SVE system design to prevent surface water infiltration that can reduce airflow rates, prevent vertical short-circuiting of airflow, or increase the design ROI.

Based on the physical properties of the soils, the depth to water table, and the chemical constituents to be remediated in Area B, SVE appears to be an effective remedial method. The purpose of the pilot test is to generate specific design data, such as extraction airflow capacity, vacuum ROI, soil gas permeability, applied wellhead vacuum, blower capacity, extraction well spacing, and off-gas treatment capacity. According to the results of three previous SVE pilot tests (conducted beneath the north end of Building 4, near a former degreaser within Building 2, and west of Building 45), an effective ROI is anticipated to be within a range of approximately 15 to 25 feet.

3.0 AIR PERMIT

As part of the project initiation procedures, SAIC applied to the PADEP for a Request for Determination (RFD) for air permit. This was required because the project was discharging the off-gas from the blower to the atmosphere after treatment through granular activated carbon (GAC). The RFD package was submitted to the PADEP on March 20, 2007. PADEP signed the RFD on March 27, 2007, indicating that no plan approval and no operating permit were required for this project. A copy of the signed RFD data package is presented in Appendix A.

4.0 SOIL SAMPLE RESULTS

Prior to drilling the SVE extraction and monitoring wells, SAIC collected additional subsurface soil samples from each of the five well locations to better define the extent of VOCs in the soil. This information was more important for the deeper zone (12 to 22 feet), where previous soil sampling was limited. This subsurface soil sampling was completed on March 8, 2007, using a Geoprobe® at each of the five vapor extraction and monitoring well locations. Logs from these borings are included in Appendix B. Soil samples were selected from three depths in each boring, based on highest PID readings. One sample was collected from the upper zone (0 to 12 feet), and two samples were collected from the lower zone. Each soil sample was submitted to Severn Trent Laboratories under written chain-of-custody and analyzed for VOCs under SW-846 Methods 5035/8260. The soil sample results are shown on Table 1. VOCs detected at highest concentrations were PCE and TCE. Minor concentrations of cis-1,2-dichloroethylene and methylene chloride were detected in some of the soil samples. The highest PCE concentrations were found in PZ-S5 (9.5 to 10 feet) at 790 micrograms per kilogram (µg/kg), PZ-S15 (11.5 to 12 feet) at 690 µg/kg, and in VEW-1 (6.5 to 7 feet) at 580 µg/kg. The highest TCE concentrations were found in PZ-S15 (11.5 to 12 feet) at 1,300 µg/kg, PZ-S5 (9.5 to 10 feet) at 1,200 µg/kg, and in PZ-S5 (14 to 14.5 feet) at 750 µg/kg. Soil samples taken from borings located south of the extraction well had much higher concentrations of TCE and PCE than soil samples taken from borings east of the extraction well.

SAIC also constructed one temporary well using the Geoprobe® on March 8, 2007. The location of the temporary well is shown on Figure 2 and can be seen in photograph no. 1 in Appendix C. The temporary well was used to evaluate the depth to groundwater during the construction of the SVE wells and during the pilot study testing. One-inch PVC screen and riser were installed to a depth of 21 feet bgs. PVC riser from this well extends approximately two feet above ground surface and is completed with a locking compression cap.

5.0 SVE WELL CONSTRUCTION

SAIC subcontracted the services of Eichelbergers Well Drilling to construct one multilevel SVE extraction well and four multilevel SVE monitoring points in accordance with the well construction details shown in Figure 3 and Figure 4. These wells were constructed on April 2 and April 3, 2007. Monitoring point placement was designed to be at distances of 5 and 15 feet from the extraction well, as shown on Figure 2. The SVE wells were designed to be installed to a maximum depth of up to 22 feet bgs.

Prior to the drilling and construction of the SVE wells, the depth to groundwater was determined within Area B. The depth to groundwater in the temporary well on April 2, 2007, was 19.63 feet bgs. In addition, groundwater was encountered in the first well at 21 feet bgs. Consequently, the bottoms of the monitoring and extraction wells were constructed approximately two feet above the water-bearing zone.

Air-rotary well drilling techniques were implemented using a 10-inch-diameter hammer bit to minimize the smearing of the walls (see photograph no. 2 of Appendix C). Two-inch-diameter PVC well screens and casing were installed in the SVE extraction well, and one-inch PVC screen and casing were installed in the SVE monitoring points. Two screened sections were installed in the SVE extraction well (from 3 to 13 feet and from 16 to 19 feet below the liner). Three screened sections were installed in each of the four SVE monitoring wells (from 2.5 to 3.0 feet, from 7 to 11 feet, and from 16 to 190 feet bgs). A summary of well construction details is shown on Table 2, while the completed well construction logs are provided in Appendix B.

6.0 SVE PILOT STUDY SETUP

The purpose of the pilot test was to generate specific design data, such as extraction airflow capacity, vacuum ROI, soil gas permeability, applied wellhead vacuum, blower capacity, extraction well spacing, and off-gas treatment capacity. The following subsections describe how the pilot test was set up and operated in order to obtain this information.

6.1 SVE Pilot Test Process and Instrument Setup

The pilot study equipment included the use of a single dual-level SVE extraction well which was designed to pull vapors from a shallow (1 to 11 feet deep) silt layer, as well as from a deeper (12 to 20 feet deep) gravelly, silty sand layer. Vacuum was generated using a single 5 Hp regenerative blower (see photograph no. 3 in Appendix C) which was powered by a 25-kilowatt trailer-mounted generator (see photograph no. 4 in Appendix C). The extracted vapors were pulled through a moisture knockout tank (see photograph no. 5 in Appendix C) to remove the condensate generated from the subsurface. The exhaust was directed through a series of vapor-phase carbon canisters for removal of extracted VOCs (see photograph no. 6 in Appendix C). The pilot study vapor extraction well was connected to the SVE pilot test system, as depicted on Figure 5 and as seen in photograph no. 7 in Appendix C.

A series of four multilevel SVE monitoring wells was installed along two perpendicular lines at distances of approximately 5 and 15 feet from the pilot study vapor extraction well. Each of the vapor monitoring wells was constructed with three sets of screens: one in the upper 2 feet of fill, one in the fill from 7 to 11 feet deep, and a third in the sandy/gravelly zone from 16 to 19 feet deep (as depicted in Figure 4).

6.2 SVE Step-Tests

The SVE step-test for the shallow extraction well was started on April 23, 2007, at 3:45 p.m. and was completed on April 23, 2007, at 9:15 p.m. The SVE step test for the deep extraction well was started on April 24, 2007, at 8:00 a.m. and was completed on April 24, 2007, at 1:15 p.m.

The SVE step-test was performed on both screened intervals of the extraction well (shallow and deep), with three vacuum flow rates (50 percent, 75 percent, and 100 percent blower capacity) to determine the efficiency of each extraction well zone at the various flow rates. Each step-test was run for a period of 2 hours, for a total of 12 hours for the 6 step-tests. The step-tests from the shallow zone were completed before switching to the deeper zone. Step-test data collection included measuring induced subsurface vacuum at each monitoring point, along with measuring applied vacuum, VOCs, and air velocity from the extraction well. Photograph nos. 8 and 9 in Appendix C show the vacuum and velocity measurement ports used for the project. In addition, the depth to water was monitored at the temporary monitoring well installed at a horizontal distance of 47 feet from the extraction well. Data readings were collected approximately every 15 to 30 minutes during each step-test. Following the step-tests, collected data were analyzed to determine the optimum applied vacuum and flow rate for each zone during the longer pilot test.

6.3 SVE 48-Hour Continuous Tests

The pilot study step-test results were used to select an optimum vacuum and extraction flow rate for each zone during the longer pilot study test. Using these optimum parameters, a 48-hour SVE pilot test was conducted for each of the two depth zones identified. The upper silt zone test was completed first, followed by the lower gravel/sand zone. The 48-hour test for the shallow zone was started on April 24, 2007, at 3:20 p.m. and completed on April 26, 2007, at 3:50 p.m. The 48-hour test for the deep zone was started on April 26, 2007, at 4:00 p.m. and was completed on April 28, 2007, at 4:00 p.m. Data collection included measuring induced subsurface vacuum at each vapor point, along with measuring applied vacuum, VOCs, and air velocity from the extraction well. The monitoring parameters were measured at 15- to 30-minute intervals until stabilization of trends occurred, after which the interval was increased to 1 hour.

Two vapor samples were collected during each pilot test. One vapor sample was collected at the beginning (after approximately 1 hour of operation) of the 48-hour test, and one was collected at the end of the test. All four vapor samples were collected in evacuated vials using a syringe from the top of the extraction well (see port and evacuated vial in photograph nos. 10 and 11 of Appendix C). The vapor samples in the evacuated vials were submitted to VaporTech of

Valencia, Pennsylvania, and analyzed for halogenated organic compounds by gas chromatography (GC) methods.

Following the completion of the pilot tests, the extraction system equipment was disassembled and removed from the site. A sample of the vapor-phase carbon was collected and analyzed for Toxicity Characteristic Leaching Procedure (TCLP)-VOCs to determine the appropriate disposal method. Upon receipt of laboratory analysis of the soil (drill cuttings) and carbon, these materials were shipped off-site for disposal at a properly permitted facility. Seven drums of soil cuttings were disposed off-site as nonhazardous waste by Harley-Davidson. The carbon material exceeded the TCLP limit for TCE of 0.5 milligrams per liter (mg/L), and these two drums of GAC were disposed off-site at a properly permitted facility as a hazardous waste by Harley-Davidson.

Following the completion of the project, the extraction well and monitoring well PVC stick-up casings were cut to just below the ground surface. Each of these well locations was then completed with a flush-mount drive-over lid cemented into place. The completed casings can be seen in photograph no. 12 of Appendix C.

7.0 PILOT STUDY RESULTS

Field data from the pilot tests described above were used to evaluate the effectiveness of an SVE system at Area B. The results from the step-tests and the 48-hour continuous pilot tests are described in the following subsections.

7.1 Shallow Extraction Well Step-Test Results

The field data results from the shallow SVE extraction well (VEW-1 S) step-test are presented in Table 3. The applied vacuum on the wellhead for each of the 3 (2-hour) steps was 49 inches of WC, 59 inches WC, and 66 inches WC, respectively. With each step, as the applied vacuum on the wellhead increased, there was a corresponding increase in the extraction flow rate, which ranged from 302 to 455 SCFM. The stabilized average extraction flow rates for each step were approximately 320 SCFM, 390 SCFM, and 455 SCFM, respectively.

The concentrations of VOCs in the extracted air were measured with a PID in the untreated influent stream and at the influent and effluent locations to each GAC treatment. The wellhead influent VOC concentrations during this test increased with each step and ranged from 214 parts per million by volume (ppmv) to 488 ppmv. From Table 3, it can be seen that the GAC canisters were able to capture all of the VOCs during the shallow step-test. No VOCs were detected with the PID at the discharge of the second GAC unit during this step-test. In addition, no influence was observed on the water table during this shallow step-test. The water level in the nearby temporary well remained at 22.80 feet below top of casing during this step-test. In addition, the water level measured in the adjacent deep extraction well did not rise above 19.7 feet below top of casing during this step-test.

The optimal applied vacuum and flow rate were determined in the field by plotting the step-test data on a linear graph. Figure 6 presents a plot of the applied vacuum measured on the shallow extraction wellhead (VEW-1 S) versus the vapor extraction flow rate. Since no negative inflection is shown on that graph, the optimum vacuum and flow rate would be the maximum shown for the third step (66 inches WC and 455 SCFM).

7.2 Deep Extraction Well Step-Test Results

The field data results from the deep SVE extraction well (VEW-1 D) step-test are presented in Table 4. The applied vacuum on the wellhead for each of the 3 (2-hour) steps was 55 inches WC, 70 inches WC, and 80 inches WC, respectively. With each step, as the applied vacuum on the wellhead increased, there was a corresponding increase in the extraction flow rate, which ranged from 181 to 301 SCFM. The stabilized average extraction flow rates for each step were approximately 190 SCFM, 230 SCFM, and 280 SCFM, respectively.

The concentrations of VOCs in the extracted air were measured with a PID in the untreated influent stream and at the influent and effluent locations to each GAC treatment. The wellhead VOC concentrations during this test ranged from 312 ppmv to 415 ppmv. PID wellhead concentrations were similar for the first two steps of this test but were slightly less during the third step. From Table 4, it can be seen that the GAC canisters were able to capture all of the VOCs during the deep step-test. No VOCs were detected with the PID at the discharge of the second GAC unit during this step-test. In addition, no influence was observed on the water table during this deep step-test. The water level in the nearby temporary well did not rise above 22.90 feet below top of casing during this step-test.

The optimal applied vacuum and flow rate were determined in the field by plotting the step-test data on a linear graph. Figure 7 presents a plot of the applied vacuum measured on the deep extraction wellhead (VEW-1 D) versus the vapor extraction flow rate. Since no negative inflection is shown on that graph, the optimum vacuum and flow rate would be the maximum shown for the third step (80 inches WC and 280 SCFM).

7.3 Shallow Extraction Well 48-Hour Continuous Pilot Test Results

The results for the shallow extraction well (VEW-1 S) 48-hour continuous pilot test are presented in Tables 5A and 5B. Based on the shallow step-test results, the optimal applied vacuum and flow rate for the shallow 48-hour continuous pilot test were to be 68 inches WC and

350 SCFM. The actual applied vacuum as shown on Table 5A ranged between 66 and 68 inches WC.

The stabilized subsurface vacuum readings at each screened interval (shallow, intermediate, and deep zones) and at each monitoring point (PZ-S 5, PZ-S 15, PZ-E 5, and PZ-S 15) for the shallow zone test are shown on Table 5B. These data were plotted versus the distance from the extraction well on Figure 8 to determine the effective ROI for the shallow extraction well. The effective ROI is shown as the distance from the extraction well, where the induced subsurface vacuum is greater than 0.05 inches of water column. The effective ROI for the shallow extraction well is shown to be between 19 feet and 23 feet, with an average of 21 feet.

The concentrations of VOCs in the extracted air were measured with a PID in the contaminated influent air and at the influent and effluent locations to each GAC treatment, as shown in Table 5A. The wellhead VOC concentration ranged from a high of 497 ppmv at the beginning of 48-hour test to a low of 99 ppmv at the end of the 48-hour test. It can also be seen on Table 5A that the effluent air concentration from the final GAC drum remained undetected throughout the duration of the test.

For the shallow zone, one vapor sample was collected at the beginning (after approximately one hour of operation) of the 48-hour test, and one was collected at the end of the test. Both vapor samples were collected in evacuated vials using a syringe from the top of the extraction well (see photograph nos. 10 and 11 in Appendix C). Both vapor samples were submitted to VaporTech laboratory and analyzed for halogenated organics by GC methods. The analytical results for these vapor samples are presented in Appendix D and summarized in Table 6. There were seven chlorinated compounds detected in the extracted vapors; however, the vast majority of this was TCE and PCE. Table 6 shows that during the 48-hour pilot study for the shallow zone, TCE concentration dropped by 9.59 percent and PCE dropped by 14.92 percent.

The analytical results for these samples were used in conjunction with the extraction flow rates to calculate VOC loading rates for TCE and PCE. The formulas and calculations for the pilot

study airflow and VOC loading rates are presented in Appendix E. The shallow zone loading rates are found in Tables E-1 through E-4 of Appendix E.

The average VOC loading rate calculated from the shallow extraction well during the pilot test was 24.2 pounds per day as shown in Table 7.

7.4 Deep Extraction Well 48-Hour Continuous Pilot Test Results

The results from the deep extraction well (VEW-1 D) for the 48-hour continuous pilot test are presented in Tables 8A and 8B. Based on the step-test results, the optimal vacuum and flow rate applied to the wellhead during the 48-hour pilot test were 70 inches WC and 176 SCFM. The actual blower vacuum used during the 48-hour pilot test ranged from 68 to 71 inches WC as shown on Table 8A.

The stabilized subsurface vacuum readings at each screened interval (shallow, intermediate, and deep zones) and at each monitoring point (PZ-S 5, PZ-S 15, PZ-E 5, and PZ-S 15) for the deep zone test are shown on Table 8B. These data were plotted versus the distance from the extraction well on Figure 9 to determine the effective ROI for the deep extraction well. The effective ROI is shown as the distance from the extraction well, where the induced subsurface vacuum is greater than 0.05 inches of water column. The effective ROI for the deep extraction well is shown to be between 16 feet and 17 feet, with an average of 16.5 feet.

The concentrations of VOCs in the extracted air were measured with a PID in the contaminated influent air and at the influent and effluent locations to each GAC treatment, as shown in Table 7A. The wellhead VOC concentration ranged from a high of 497 ppmv at the beginning of 48-hour test to a low of 143 ppmv at the end of the 48-hour test. It can also be seen on Table 7A that the effluent air concentration from the final GAC drum remained undetected throughout the duration of the test.

For the deep zone, one vapor sample was collected at the beginning (after approximately one hour of operation) of the 48-hour test, and one was collected at the end of the test. Both vapor

samples were collected in evacuated vials using a syringe from the top of the extraction well (see photographs 10 and 11 in Appendix C). Both vapor samples were submitted to VaporTech laboratory and analyzed for halogenated organics by GC methods. The analytical results for these vapor samples are presented in Appendix D and summarized in Table 6. There were five chlorinated compounds detected in the extracted vapors; however, the vast majority of this was TCE and PCE. Table 6 shows that during the 48-hour pilot study for the shallow zone, TCE concentrations dropped by 52.11 percent and PCE dropped by 43.75 percent.

The analytical results for these samples were used in conjunction with the extraction flow rates to calculate VOC loading rates for TCE and PCE in the deep zone. The formulas and calculations for the pilot study airflow and VOC loading rates are presented in Appendix E. The deep zone loading rates are found in Tables E-5 through E-8 of Appendix E.

The average VOC loading rate calculated from the deep extraction well during the pilot test was 5.8 pounds per day as shown in Table 7.

7.5 Water Level Results

SAIC measured the depth to water in the temporary well during the SVE step-tests, and during the 48-hour continuous tests. This was done to determine if the water table was being influenced by the induced vacuums. The depths to water in the temporary well were recorded on Tables 3 and 4 for step-tests in the shallow and deep zones. In addition, the depths to water in the temporary well were recorded in Tables 5A and 8A for the 48-hour tests in the shallow and deep zones. Each of these water level data was plotted versus time on Figure 10. From this figure, it can be seen that the water levels did not appear to be influenced by the vacuums on the shallow or deep step-test on April 24, 2007. There did appear to be an increase in the water level elevation during the middle of the shallow zone 48-hour continuous test. In addition, there appeared to be an increase in the water level elevation during the end of the deep zone 48-hour continuous test. This increase in water level did not seem to be significant because very little water was trapped in the knockout drum during the pilot study. A total of approximately 10 gallons of water was found in the knockout drum at the end of all the SVE testing. This water

was noticed mainly during the final 48-hour continuous test of the deep zone. The water trapped in the knockout drum was transferred to the groundwater treatment system after the SVE system was dismantled.

8.0 CONCLUSIONS

The SVE pilot study for the subsurface soils in Area B has shown that this vacuum extraction system can successfully and efficiently remove VOCs from the subsurface soils. The system consisted of a five Hp blower connected to two-inch-diameter screened PVC pipe systems in two depth zones beneath a synthetic liner.

The shallow zone tested consists of yellowish-brown silt from approximately 2 to 12 feet deep. This zone was tested at 68 inches WC and 350 SCFM during the 48-hour continuous test. Significant concentrations of TCE and PCE were removed from the shallow zone during this test. TCE concentrations started at 79 ppm and were reduced to 71 ppm at the end of the test for a 9.6 percent removal rate. PCE concentrations started at 49 ppm and were reduced to 41 ppm at the end of the test for a 15 percent removal rate. An average of 24 pounds of VOCs per day was removed from the shallow zone during the test period. Based on stabilized vacuum readings in the nearby monitoring wells, the effective ROI for the shallow zone is 21 feet.

The deep zone tested consists of a gravelly, silty sand from a depth of 12 to approximately 20 feet. This deep zone was tested at 70 inches WC and 176 SCFM during the 48-hour continuous test. Slightly lower concentrations of TCE and PCE were removed from the deep zone during this test. TCE concentrations started at 41 ppm and were reduced to 19 ppm at the end of the test for a 52 percent removal rate. PCE concentrations started at 33 ppm and were reduced to 18 ppm at the end of the test for 44 percent removal rate. An average of 5.8 pounds of VOCs per day was removed from the shallow zone during the test period. Based on stabilized vacuum readings in the nearby monitoring wells, the effective ROI for the deep zone is 16.5 feet.

The highest concentrations of the chlorinated compounds are found in the shallow silt zone, with slightly less concentrations in the deep zone. The concentrations of TCE were shown to be about twice as high as the PCE concentrations in the soil and in the vapor. The SVE system was able to remove approximately six times more VOCs from the shallow zone as compared to the deep zone. However, the deep zone concentrations of the VOCs during the test period dropped more

rapidly as compared to the shallow zone. This may be due to the contaminant's ability to be retained more tightly in the shallow silt zone.

The consistent vacuum readings achieved in adjacent monitoring wells throughout the testing of the shallow and deep zones are attributed to the cap over the test area. This cap prevents short-circuiting of vapors from the surface and likely increases the effective radius of the system.

Based on the results of the SVE pilot study, SAIC has determined that soil gas extraction is a viable remedial option that should be considered for Area B and similar areas of VOC-impacted soils in the West Parking Lot (WPL) area. The results of this test are suitable to be used for estimating costs, effectiveness, and designing a full-scale system.

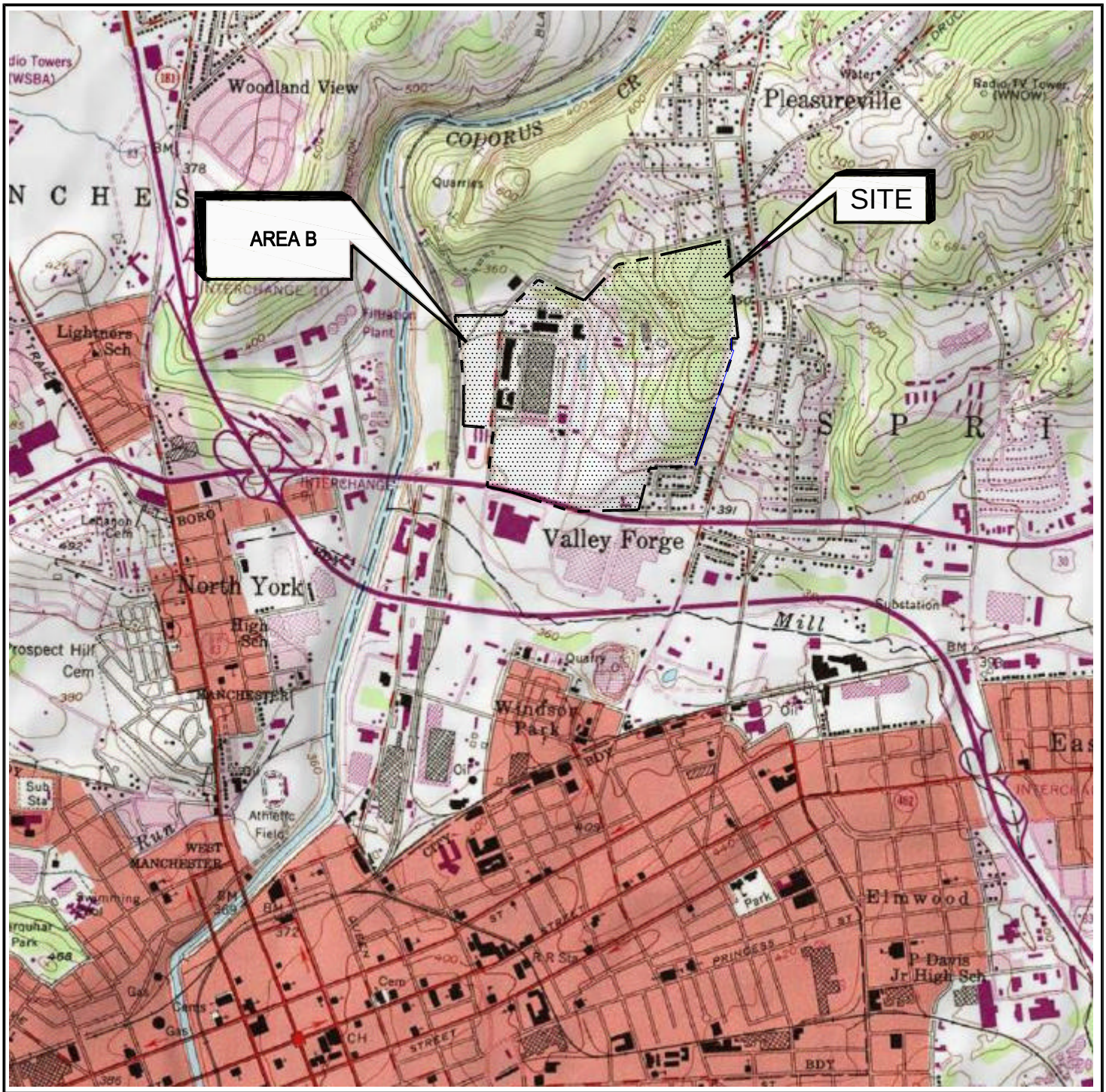
9.0 REFERENCES

EPA, 1995. How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites: A Guide for Corrective Action Plan Reviewers. (EPA 510-B-95-007.

USACE, 2001. USACE Engineering Manual (EM 1110-1-4001) Soil Vapor Extraction and Bioventing.

Kearney, A. T., 1989. Phase II RCRA Facility Assessment of the Harley-Davidson York, Inc. Facility, York, Pennsylvania, EPA ID No. PAD 001 643 691, EPA Contract No. 68-01-7038, January.

FIGURES



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

2000' 0 2000'

SCALE IN FEET

N

QUADRANGLE LOCATION

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

SITE LOCATION MAP

drawn RAM	checked PAE	approved	figure no. 1
date 03/09/06	date 03/09/06	date	
job no. 01-1633-00-6220-007		file no. 6220-004.dwg	

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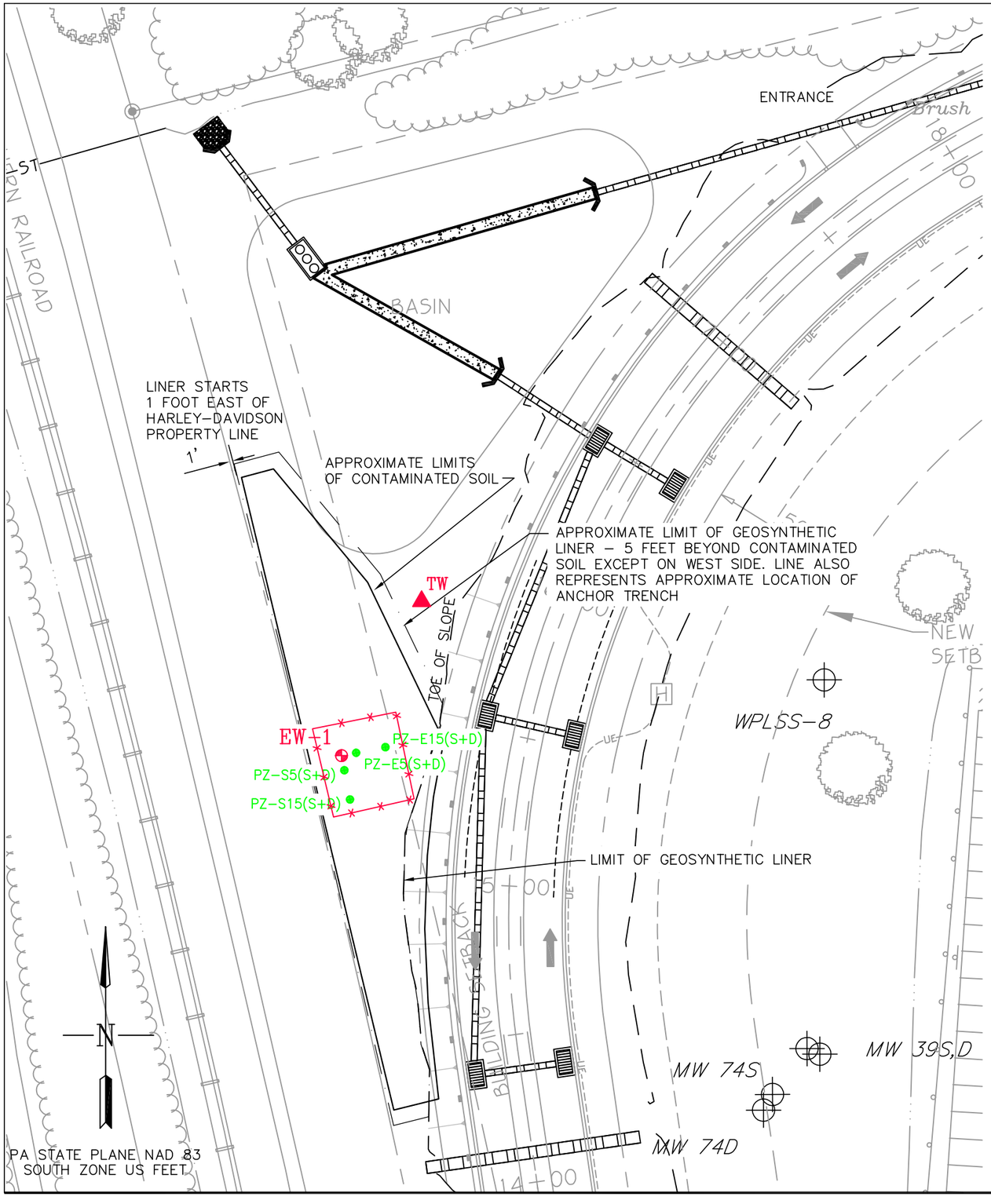

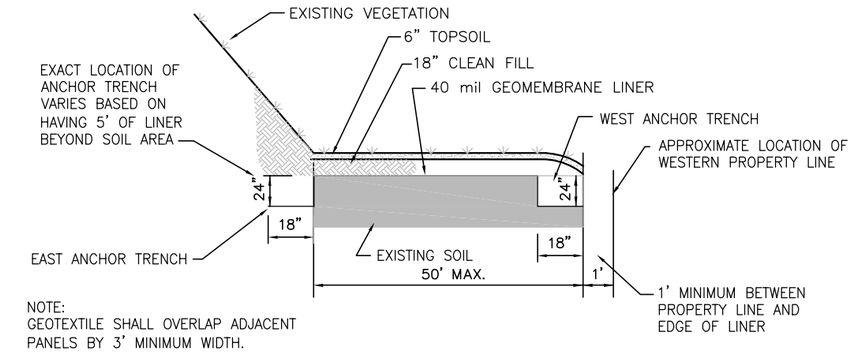

NOTE:
GEOTEXTILE SHALL OVERLAP ADJACENT PANELS BY 3' MINIMUM WIDTH.

AREA B SOILS
GEOSYNTHETIC LINING DETAIL

NO SCALE

LEGEND

- EW-1 — PROPOSED SVE EXTRACTION WELL LOCATION
- PZ-E5(S+D) — PROPOSED SVE MONITORING POINT LOCATION
- TW — PROPOSED TEMPORARY GEOPROBE WELL POINT LOCATION
- APPROXIMATE LOCATION OF SAFETY FENCING AROUND WELL SITE

40' 0 40'

SCALE IN FEET

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

AREA B PROPOSED SVE PILOT TEST LAYOUT

drawn RAM		approved	figure no.
date 04/27/06		date	2
job no. 01-1633-00-6220-007		file no. 6220-001.dwg	

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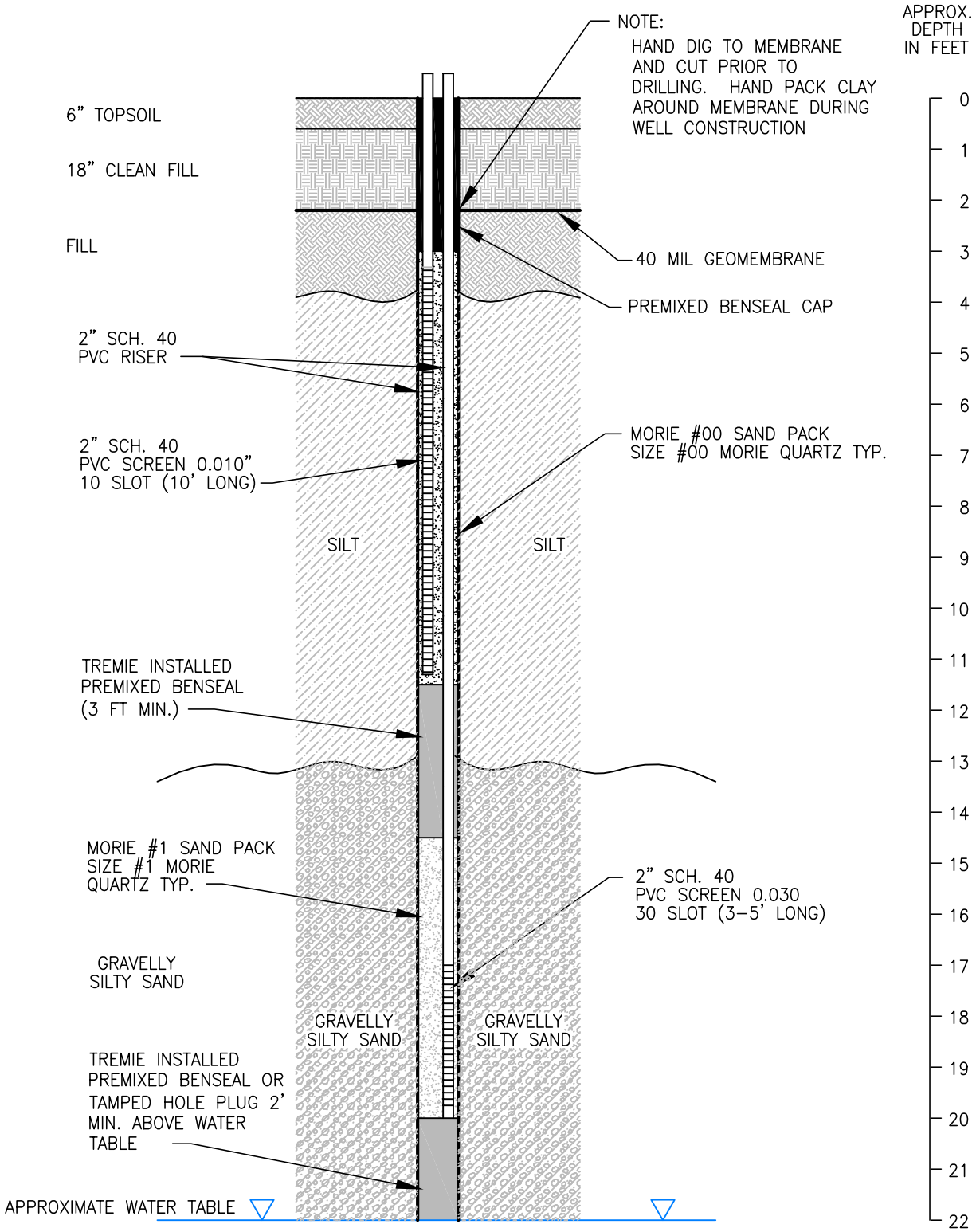
SVE EXTRACTION WELL



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

SVE EXTRACTION WELL CONSTRUCTION DIAGRAM

drawn RAM	checked	approved	figure no. 3
date 04/27/06	date	date	
job no. 01-1633-00-6220-007		file no. 6220-005.dwg	

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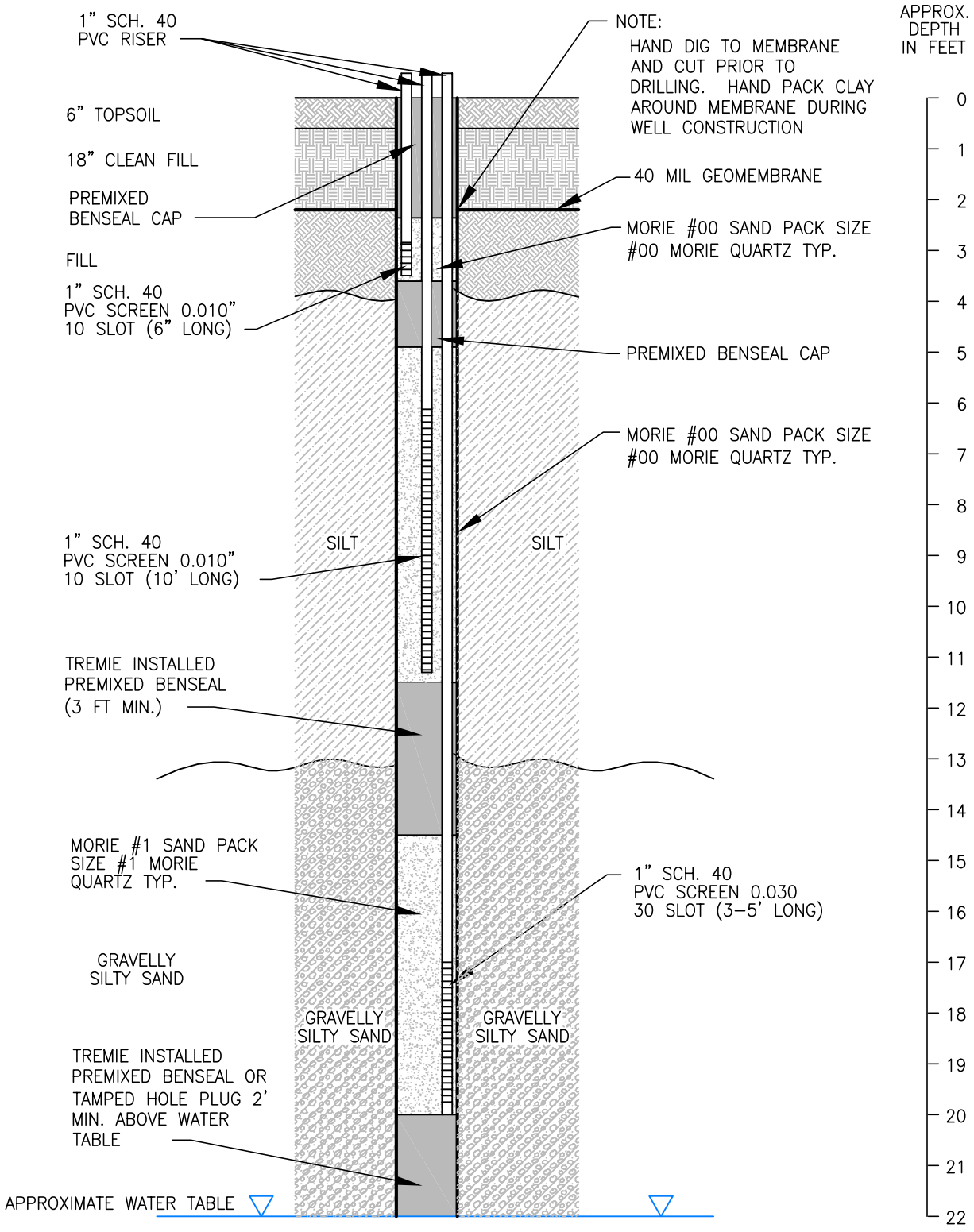
SVE MONITORING WELL



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

SVE MONITORING WELL CONSTRUCTION DIAGRAM

drawn RAM	checked	approved	figure no. 4
date 10/05/06	date	date	
job no. 01-1633-00-6220-007		file no. 6220-005.dwg	

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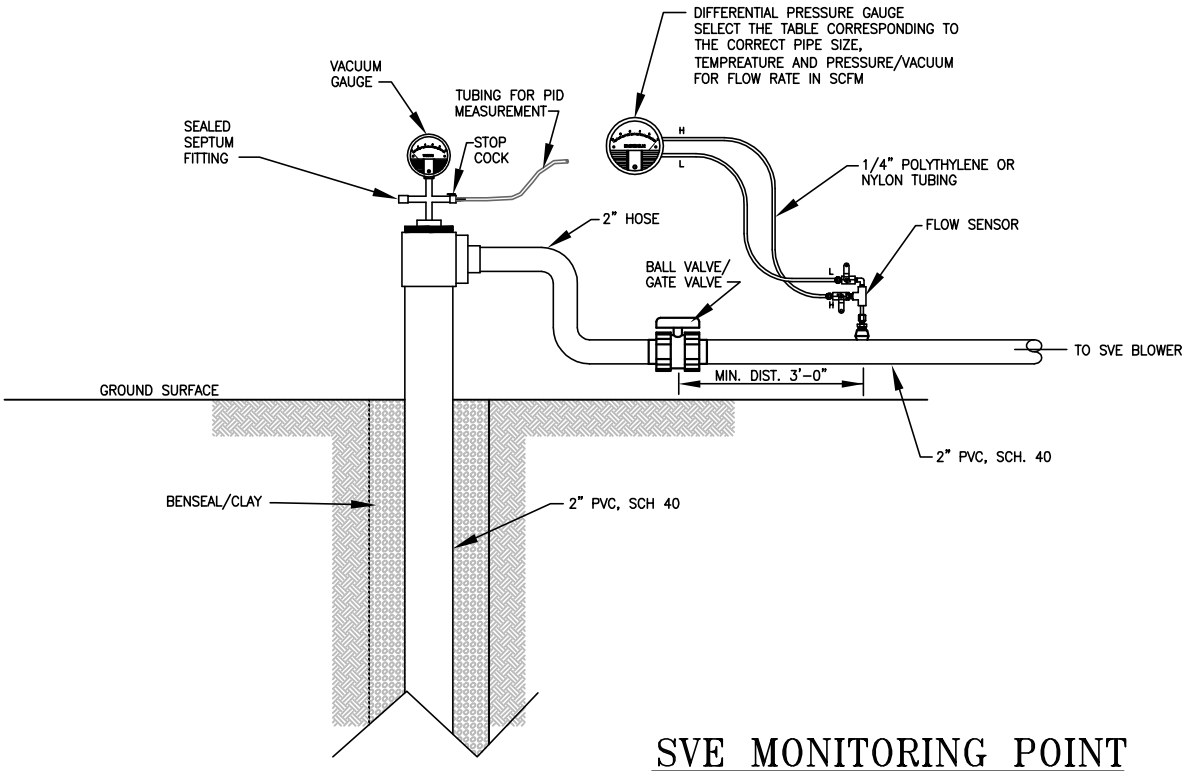
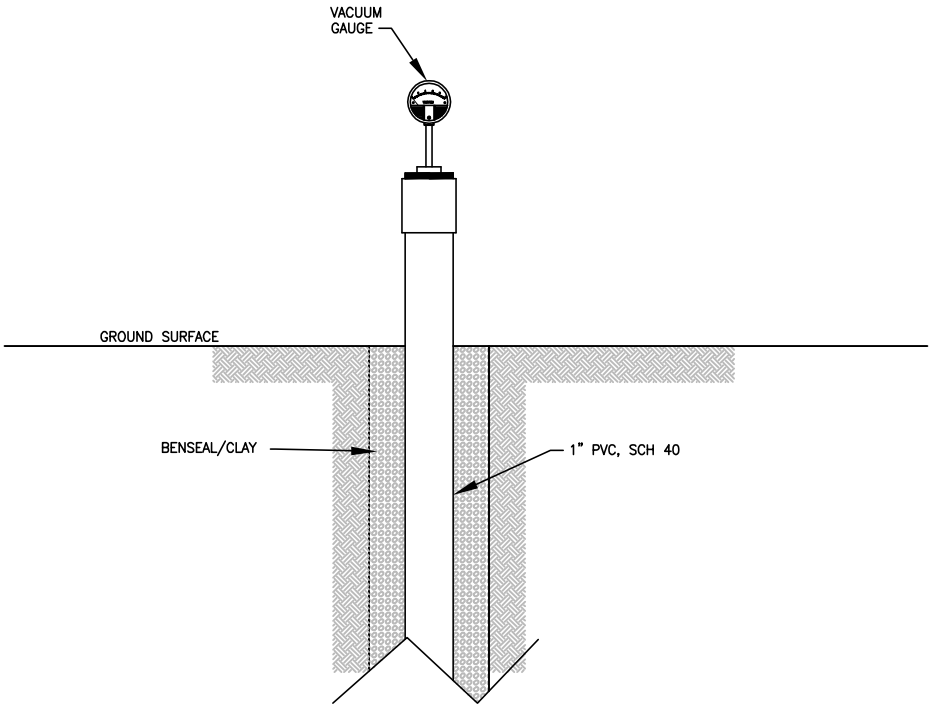
SVE EXTRACTION WELL



SVE MONITORING POINT



NOTE:

FOLLOWING THE PILOT STUDY, WELL CASINGS WILL BE CUT TO JUST BELOW THE GROUND SURFACE AND CAPPED. THEN 8-INCH FLUSH MOUNT CASINGS WILL BE COMPLETED AT EACH EXTRACTION WELL AND MONITORING POINT LOCATION.

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

TYPICAL SVE WELL
SURFACE CONNECTIONS

drawn RAM	checked	approved	figure no. 5
date 05/01/06	date	date	
job no. 01-1633-00-6220-007		file no. 6220-006.dwg	

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Figure 6
Vapor Extraction Flow Rate vs. Applied Vacuum
Shallow Extraction Well Step Test
Harley-Davidson Motor Company Operations, Inc.
Area B - SVE Pilot Study

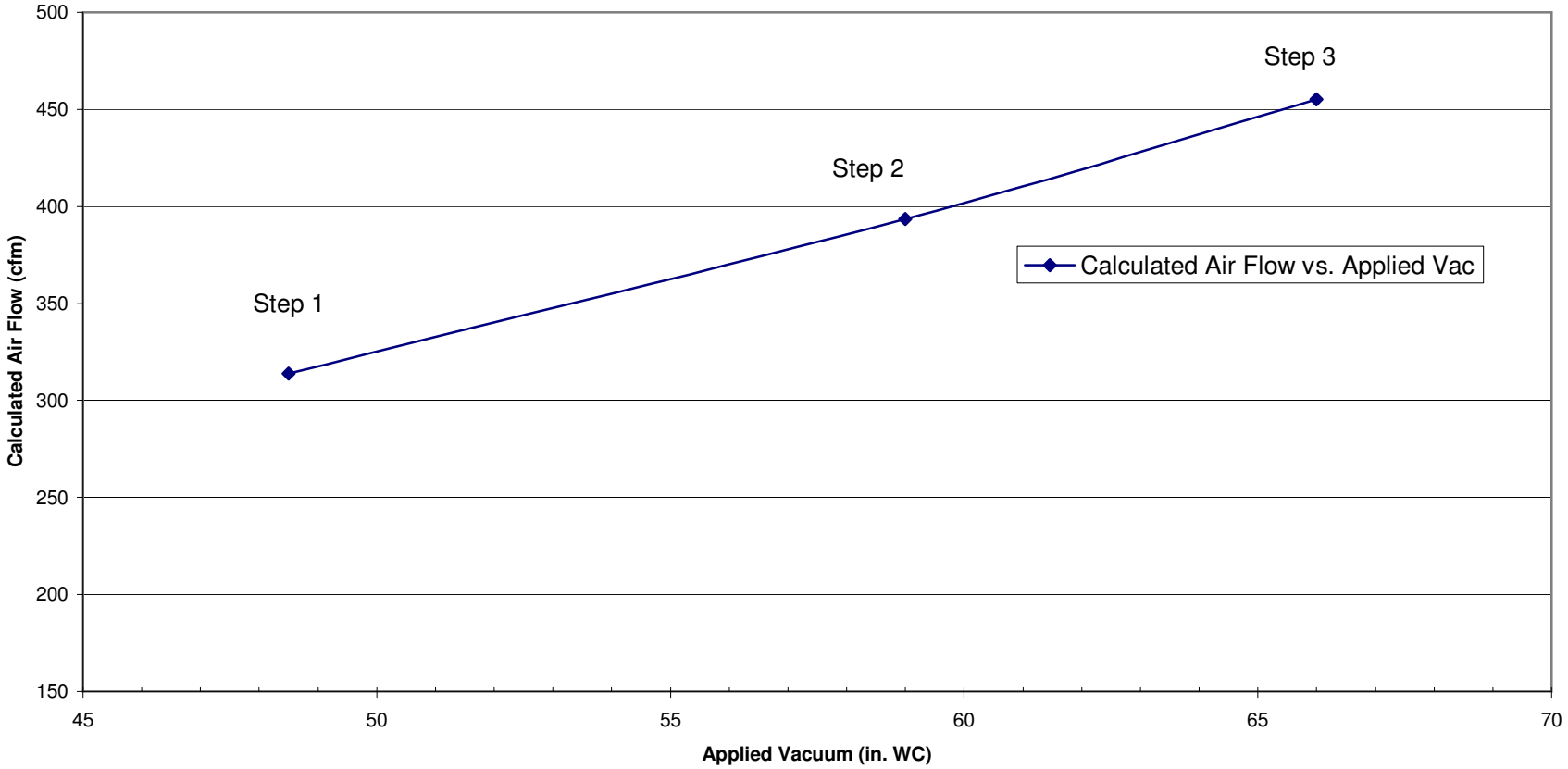


Figure 7
Vapor Extraction Flow Rate vs. Applied Vacuum
Deep Extraction Well Step Test
Harley-Davidson Motor Company Operations, Inc.
Area B - SVE Pilot Study

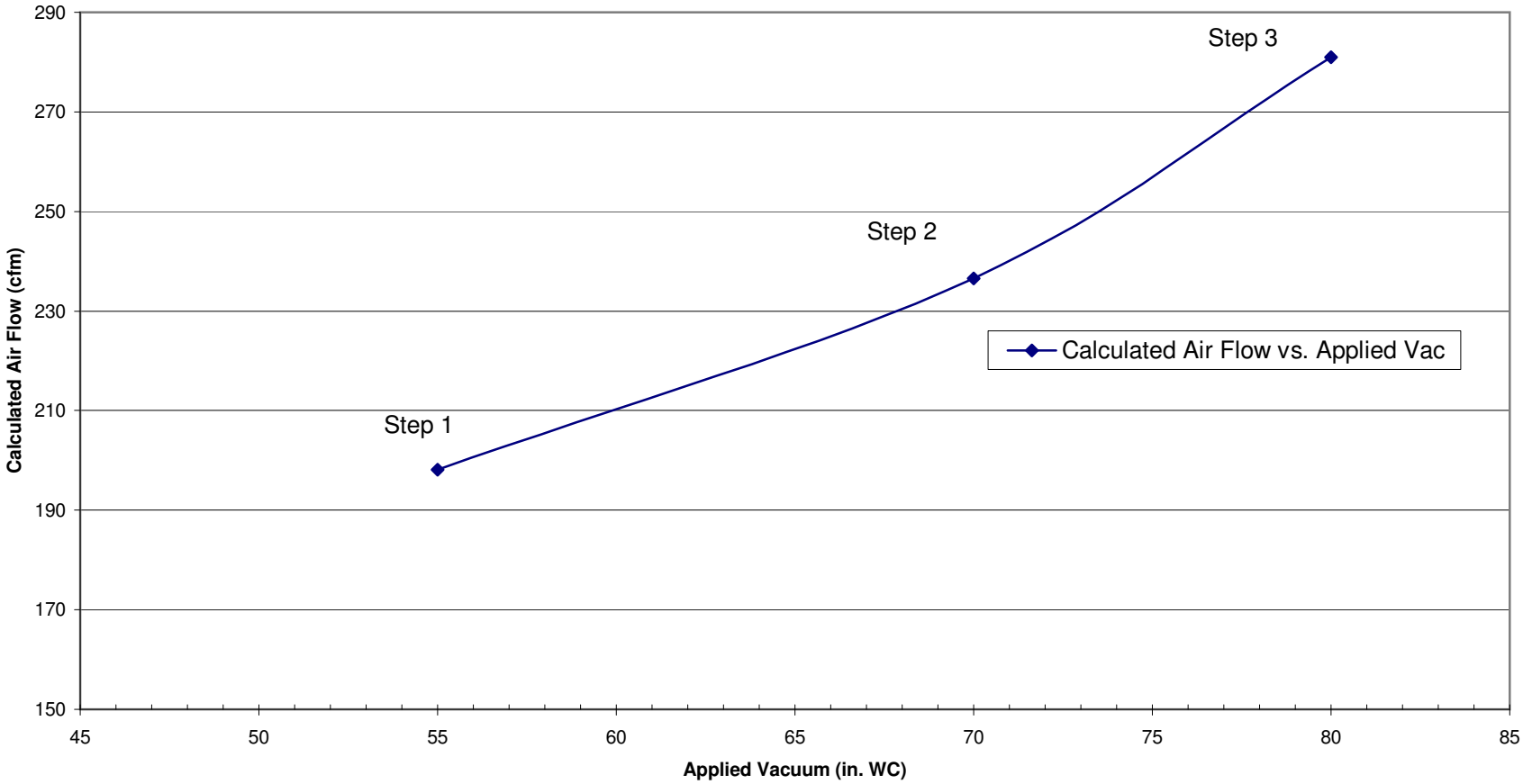


Figure 8
Shallow Extraction Well - Radius of Influence
Harley-Davidson Motor Company Operations, Inc.
Area B - SVE Pilot Study

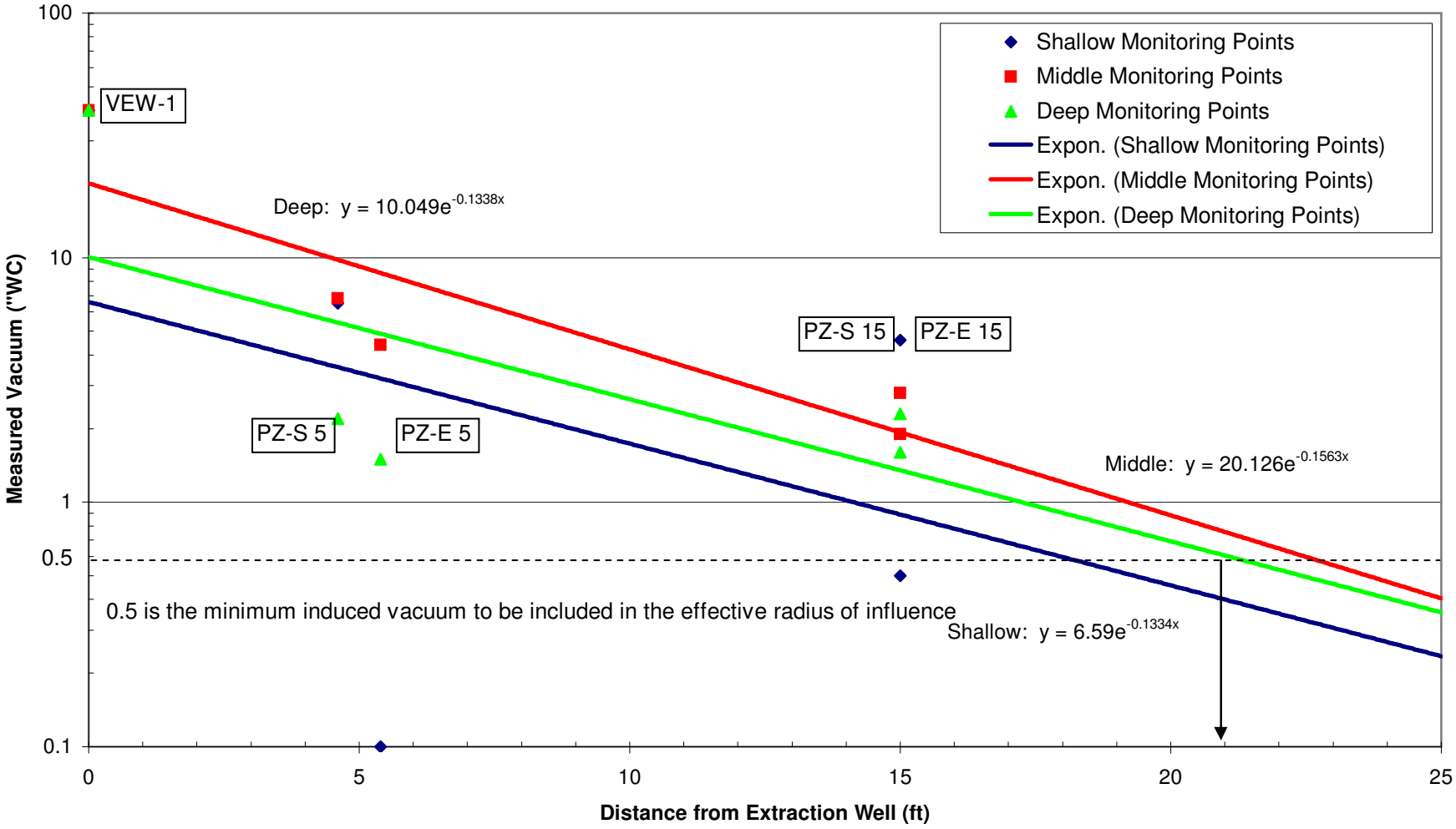


Figure 9
Deep Extraction Well - Radius of Influence
Harley-Davidson Motor Company Operations, Inc.
Area B - SVE Pilot Study

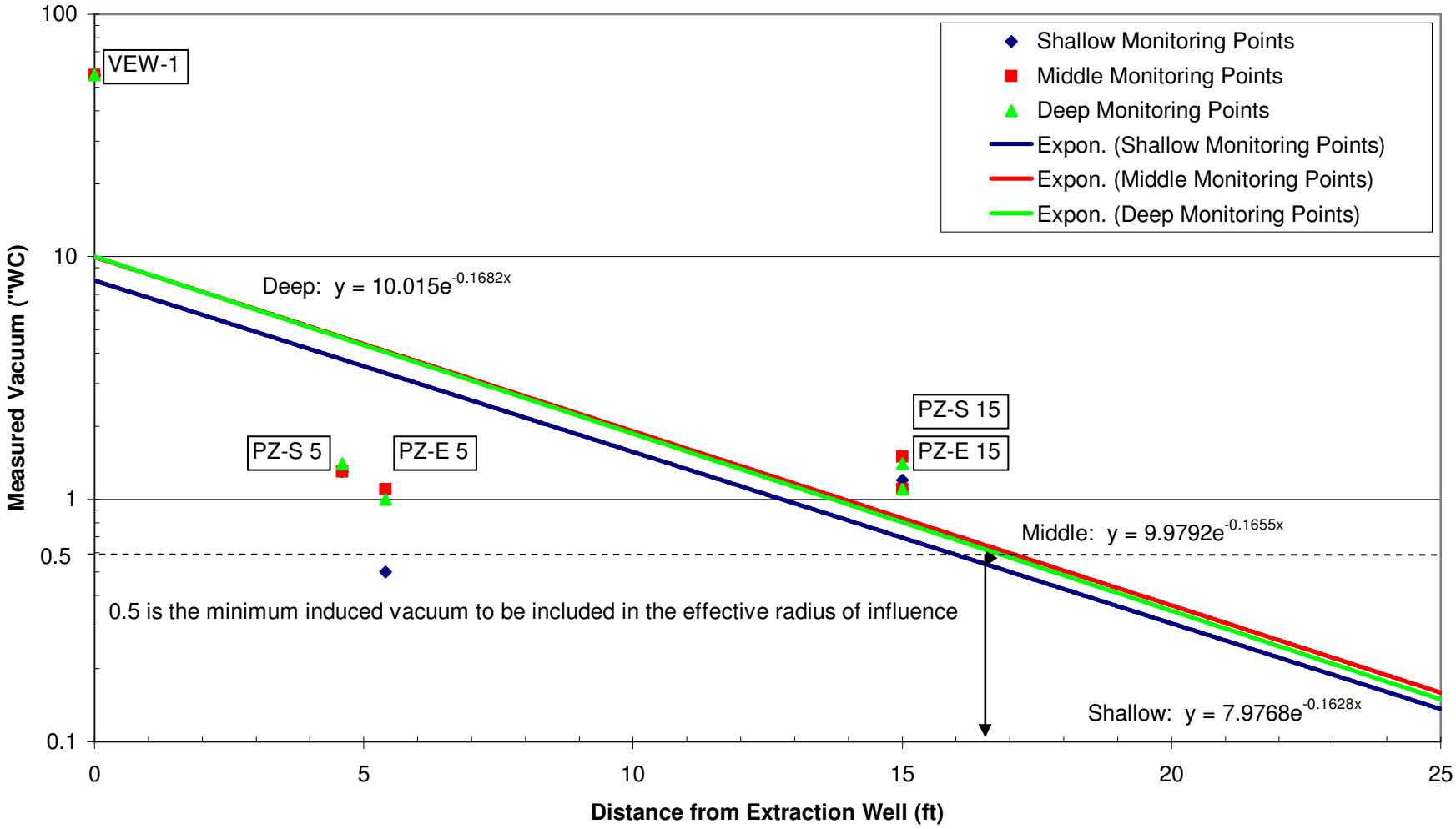
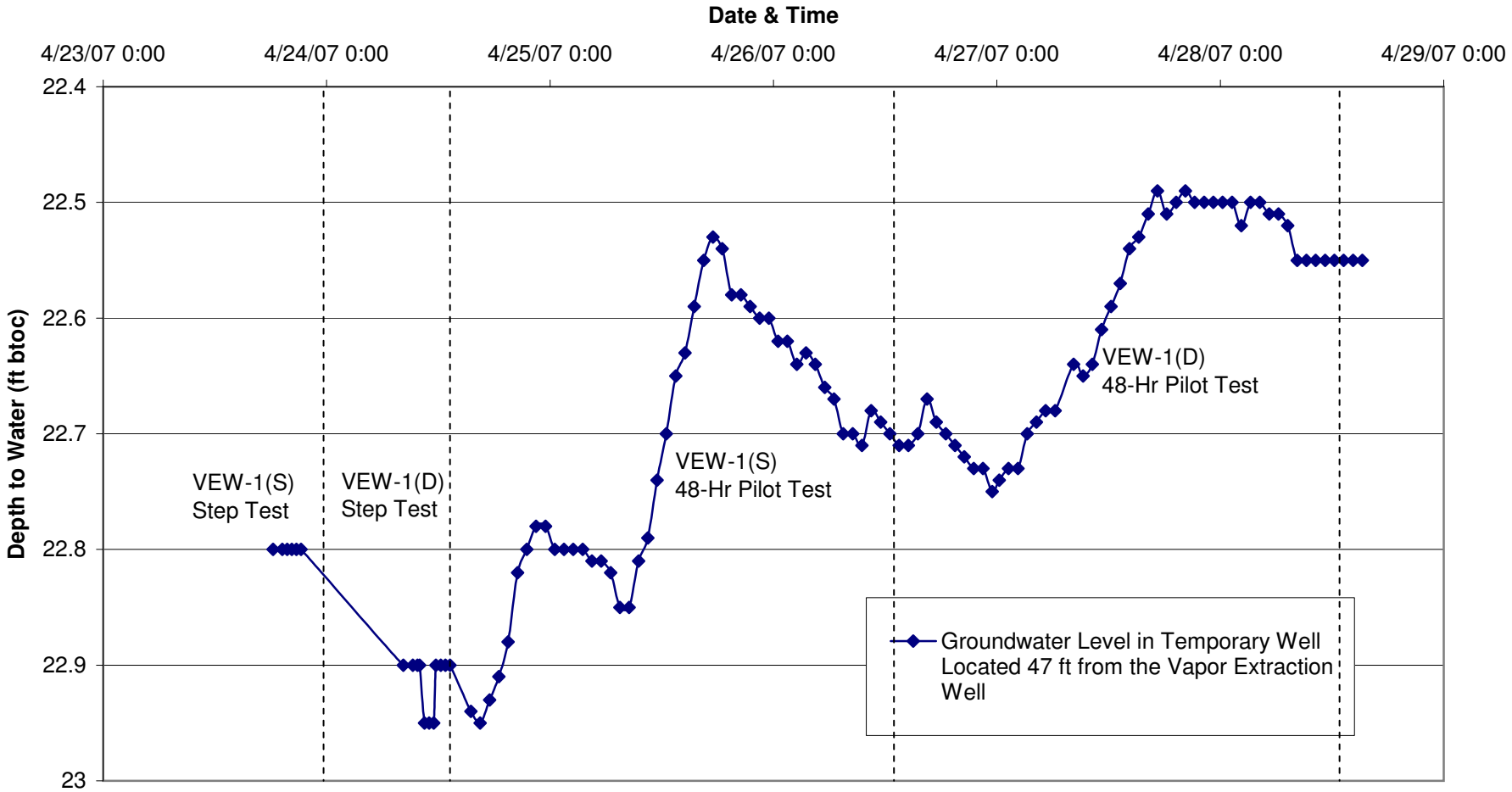


Figure 10
Depth to Water in the Temporary Well Througout the SVE Pilot Study
Harely-Davidson Motor Company Operations, Inc.
Area B - SVE Pilot Study



TABLES

Table 1
Initial Detected VOCs in Soil
Area B Soil Vapor Extraction Pilot Study
Harley-Davidson Motor Company Operations, Inc.

Boring Identification	Depth (feet)	PCE ug/kg	TCE ug/kg	cis 1,2-DCE ug/kg	Methylene Chloride ug/kg
PZ-S15	11.5 - 12	690	1300	37 J	63 J
PZ-S15	18 - 18.5	41	130	6 J	2.2 J
PZ-S15	19.5 - 20	20	60	1.2 J	3.5 J
PZ-S5	9.5 - 10	790	1200	ND	61 J
PZ-S5	13 - 13.5	18	42	0.66 J	ND
PZ-S5	14 - 14.5	360	750	ND	37 J
EW-1	6.5 - 7	580	610	150 J	42 J
EW-1	14 - 14.5	390	730	ND	45 J
EW-1	15.5 - 16	62	150	3.2 J	1.5 J
PZ-E5	9 - 9.5	40	48	2.6 J	ND
PZ-E5	14 - 14.5	46	100	3.3 J	1.9 J
PZ-E5	19.5 - 20	2.5 J	4.2 J	ND	ND
PZ-E15	9 - 9.5	58	59	3.1 J	4.9 J
PZ-E15	15 - 15.5	41	76	3.6 J	2.3 J
PZ-E15	19.5 - 20	4.9 J	3.5 J	ND	ND

ND = not detected above the method detection limit.
J = estimated quantitation. Result is above method detection, but below reporting limit.
ug/kg = microgram per kilogram (parts per billion)
PCE = tetrachloroethylene
TCE = trichloroethylene
cis 1,2-DCE = cis 1,2-dichloroethylene

Table 2
Summary of Well Construction Details

Harley-Davidson Motor Company Operations, Inc.
Area B - SVE Pilot Study

Well	Shallow, Middle, Deep	Borehole Diameter (inches)	Well Diameter (inches)	Borehole TD (ft bls)	Well Screen Interval (ft bls)		Filter Pack Interval (ft bls)	
					Top	Bottom	Top	Bottom
VEW-1	S	10	2.0	22	3	13	2	13.5
	D			22	16	19	15	19.5
PZ-S 5	S	10	1.0	22	2.5	3	2	4
	M			22	7	11	6	12
	D			22	16	19	15	19.5
PZ-S 15	S	10	1.0	22	2.5	3	2	4
	M			22	7	11	6	12
	D			22	16	19	15	19.5
PZ-E 5	S	10	1.0	22	2.5	3	2	4
	M			22	7	11	6	12
	D			22	16	19	15	19.5
PZ-E 15	S	10	1.0	21	2.5	3	2	4
	M			21	7	11	6	12
	D			21	16	19	15	20

ft bls = feet below land surface
TD = total depth

Table 3
Shallow Extraction Well - SVE Step Test Results
Harley-Davidson Motor Company Operations, Inc.
Area B - SVE Pilot Study

VEW-1(S) Wellhead Parameters		Units	**Step 1** (Start Date & Time - 4/23/07 15:45)				**Step 2** (Start Date & Time - 4/23/07 17:30)				**Step 3** (Start Date & Time - 4/23/07 19:15)			
			Time											
			16:00	**16:30**	**17:00**	**17:30**	**17:45**	**18:15**	**18:45**	**19:15**	**19:45**	**20:15**	**20:45**	**21:15**
			Elapsed Time (minutes)											
			15	45	75	105	15	45	75	105	30	60	90	120
Applied Vacuum	Blower	in. WC	49	49	48.5	48.5	59	59	59	59	64	66	66	66
	VEW-1(S)	in. WC	25.0	25.0	25.0	25.0	34.0	35.0	34.0	34.0	41.0	41.0	41.0	41.0
Induced Vac VEW-1(D)		in. WC	10	11	11	11	15	17	16.5	16.5	20	20	20	20
VEW-1(D) DTW		ft btoc	>19.7	>19.7	>19.7	>19.7	>19.7	>19.7	>19.7	>19.7	>19.7	>19.7	>19.7	>19.7
Blower Discharge Temp		°F	172	165	171	172	182	180	178	176	190	192	190	190
Air Velocity		fpm	4010	3530	3464	3595	4920	4696	4613	4510	5177	5168	5086	5214
Air Flow		cfm	350	308	302	314	429	410	403	394	452	451	444	455
Extraction Air Temp		°F	87.2	88.6	78.9	81.4	78	72.8	72.8	69	68.3	67.6	66.3	66.9
Wellhead VOCs		ppmv	214	258	275	304	339	370	409	422	437	451	486	488
GAC 1 Influent VOCs		ppmv	107	99.8	112	116	180	195	197	214	338	321	362	372
GAC 2 Influent VOCs		ppmv	0.2	2.1	2.9	3.6	18.5	27.5	14.2	34.7	49.1	45.3	54.3	90.5
GAC 2 Effluent VOCs		ppmv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Well DTW		ft btoc	NM	NM	NM	NM	NM	22.80	NM	22.80	22.80	22.80	22.80	22.80

Monitoring Point		Units	Dist. From VEW-1 (ft)	Subsurface Vacuum (in. WC)											
				Step 1				**Step 2**				**Step 3**			
				15 min.	45 min.	75 min.	105 min.	15 min.	45 min.	75 min.	105 min.	30 min.	60 min.	90 min.	120 min.
PZ-S 5	(S)	in. WC	4.6	3.7	3.6	3.9	3.9	5.1	5.2	NM	5.1	6.1	6.1	6.1	6.2
	(M)	in. WC	4.6	4	3.9	4.2	4.2	5.4	5.5	NM	5.5	6.5	6.5	6.5	6.7
	(D)	in. WC	4.6	1.2	1.2	1.6	1.4	1.8	2	NM	1.8	2.2	2.3	2.3	2.3
PZ-S 15	(S)	in. WC	15	0	0	0.3	0.2	0.1	0.1	NM	0	0	0.1	0.1	0.1
	(M)	in. WC	15	2.4	2.5	2.7	2.7	3.4	3.5	NM	3.4	4.1	4.2	4.2	4.2
	(D)	in. WC	15	0.9	0.9	1.2	1.1	1.4	1.4	NM	1.3	1.5	1.6	1.6	1.7
PZ-E 5	(S)	in. WC	5.4	0.3	0.3	0.5	0.5	0.4	0.4	NM	0.4	0.5	0.5	0.5	0.5
	(M)	in. WC	5.4	1.6	1.6	1.9	1.9	2.4	2.4	NM	2.3	2.7	2.9	2.9	2.9
	(D)	in. WC	5.4	1.4	1.4	1.6	1.6	2	2	NM	2	2.3	2.5	2.4	2.4
PZ-E15	(S)	in. WC	15	2.8	2.8	3	3.1	3.8	3.9	NM	3.8	4.5	4.6	4.6	4.6
	(M)	in. WC	15	1.1	1.1	1.3	1.3	1.6	1.6	NM	1.4	1.8	2	1.9	2
	(D)	in. WC	15	1.1	0.9	1.2	1.1	1.4	1.4	NM	1.3	1.6	1.7	1.6	1.7

fpm = feet per minute
NM = Not Measured
°F = Degrees Fahrenheit
ppmv = parts per million volum VOCs = Volatile Organic Compounds
VEW = Vacuum Extraction We WC = inches of water column
(S),(M),(D) = Shallow, Medium, Deep
ft btoc = feet below top of casing
cfm = cubic feet per minute

Table 4
Deep Extraction Well - SVE Step Test Results
Harley-Davidson Motor Company Operations, Inc.
Area B - SVE Pilot Study

VEW-1(D) Wellhead Parameters		Units	**Step 1** (Start Date & Time - 4/24/07 08:00)				**Step 2** (Start Date & Time - 4/24/07 09:45)				**Step 3** (Start Date & Time - 4/24/07 11:30)			
			Time											
			8:15	**8:45**	**9:15**	**9:45**	**10:00**	**10:30**	**11:00**	**11:30**	**11:45**	**12:15**	**12:45**	**13:15**
			Elapsed Time (minutes)											
			15	45	75	105	15	45	75	105	15	45	75	105
Applied Vacuum	Blower	in. WC	55	55	55	55	70	70	70	70	82	80	80	80
	VEW-1(D)	in. WC	40.0	40.0	40.0	40.0	53.0	54.0	54.0	54.0	63.0	62.0	62.0	62.0
Induced Vac VEW-1(S)		in. WC	7	7	7	7	9	9	9	9	10	10	10	10
Blower Discharge Temp		°F	170	172	172	179	202	201	200	202	220	230	240	242
Air Velocity		fpm	2115	2070	2205	2270	2670	2580	2521	2710	3193	3030	3450	3220
Air Flow		cfm	185	181	192	198	233	225	220	236	279	264	301	281
Extraction Air Temp		°F	80.2	76.6	81.8	89.2	83.4	75.7	75	79.3	83.8	79.8	87	88.2
Wellhead VOCs		ppmv	383	388	393	415	387	372	380	392	321	312	368	359
GAC 1 Influent VOCs		ppmv	128	122	129	118	206	200	210	212	310	318	320	312
GAC 2 Influent VOCs		ppmv	12.7	13	16.3	10	19	17.5	20.1	22.1	40	40.7	42.1	40.1
GAC 2 Effluent VOCs		ppmv	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Temporary Well DTW		ft btoc	22.90	NM	22.90	22.90	22.90	22.95	22.95	22.95	22.90	22.90	22.90	22.90

Monitoring Point		Units	Dist. From VEW-1 (ft)	**Subsurface Vacuum (in. WC)**											
				Step 1				**Step 2**				**Step 3**			
				15 min.	45 min.	75 min.	105 min.	15 min.	45 min.	75 min.	105 min.	30 min.	60 min.	90 min.	120 min.
PZ-S 5	(S)	in. WC	4.6	1.4	1.3	1.4	1.4	1.8	1.8	1.8	1.8	1.9	2.1	2.1	2.1
	(M)	in. WC	4.6	1.4	1.4	1.4	1.5	2	2	2	2	2.1	2.2	2.2	2.1
	(D)	in. WC	4.6	1.6	1.6	1.7	1.7	2.2	2.2	2.2	2.2	2.4	2.5	2.5	2.5
PZ-S 15	(S)	in. WC	15	0	0	0	0	0	0	0	0	0	0	0	0
	(M)	in. WC	15	0.9	0.9	0.8	0.9	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
	(D)	in. WC	15	0.9	0.9	0.9	0.9	1.2	1.2	1.2	1.2	1.3	1.4	1.4	1.4
PZ-E 5	(S)	in. WC	5.4	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
	(M)	in. WC	5.4	1.4	1.4	1.4	1.4	2	2	2	2.1	2	2.2	2.2	2.2
	(D)	in. WC	5.4	1.6	1.5	1.5	1.4	2	2	2	2	2.1	2.2	2.2	2.2
PZ-E15	(S)	in. WC	15	1.1	1	1	1	1.4	1.4	1.4	1.3	1.5	1.6	0.6	1.6
	(M)	in. WC	15	1.1	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.4	1.5	1.6	1.5
	(D)	in. WC	15	1	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.4	1.6	1.5	1.5

fpm = feet per minute
NM = Not Measured
°F = Degrees Fahrenheit
ppmv = parts per million volume
VEW = Vacuum Extraction Well
(S),(M),(D) = Shallow, medium, deep
VOCs = Volatile Organic Compounds
WC = inches of water column
ft btoc = feet below top of casing
cfm = cubic feet per minute

Table 5A
Shallow Extraction Well - 48 Hour SVE Pilot Test Results
Summary of Extraction Well Parameters

Harley-Davidson Motor Company Operations, Inc.
Area B - SVE Pilot Study

VEW-1 (S) — 4/24/2007

Parameters: Time	15:20	15:30	16:30	17:30	18:30	19:30	20:30	21:30	22:30	23:30
Elapsed Time (minutes)	0	10	70	130	190	250	310	370	430	490
Applied Vacuum: Blower (in. WC)	Start Test	68	66	66	67	67	67	68	68	68
Applied Vacuum: VEW-1(S) (in. WC)		41	42	41	41	41	42	42	42	42
Induced Vac VEW-1(D) (in. WC)		19	19	19	18	19	19	19	19	19
Blower Discharge Temp (° F)		192	200	200	190	188	182	180	167	180
Air Velocity (fpm)		5920	5739	5815	5330	5332	4319	4009	3482	4214
Calculated Air Flow (cfm)		516.8	501	507.6	465.3	465.5	377	350	304	367.9
Extraction Air Temp (° F)		81.4	80.5	76.2	66.5	62.5	57.5	54.3	50.8	55.5
Wellhead VOCs (ppmv)		340	409	339	202	357	336	352	433	497
GAC 1 Influent VOCs (ppmv)		294	302	208	343	360	380	391	401	404
GAC 2 Influent VOCs (ppmv)		14.4	25	33.5	25.4	31	20.3	30.1	24.3	27.3
GAC 2 Effluent VOCs (ppmv)		0	0	0	0	0	0	0	0	0
Temporary MW DTW (ft btoc)		22.94	22.95	22.93	22.91	22.88	22.82	22.8	22.78	22.78
Laboratory Sample					*	Sample ID: VEW-1(S)-A				

VEW-1 (S) — 4/25/2007

Parameters: Time	0:30	1:30	2:30	3:30	4:30	5:30	6:30	7:30	8:30	9:30	10:30	11:30	12:30	13:30	14:30	15:30	16:30	17:30	18:30	19:30	20:30	21:30	22:30	23:30
Elapsed Time (minutes)	550	610	670	730	790	850	910	970	1030	1090	1150	1210	1270	1330	1390	1450	1510	1570	1630	1690	1750	1810	1870	1930
Applied Vacuum: Blower (in. WC)	68	68	68	68	68	68	68	68	67	67	67	66	66	67	67	67	67	68	68	68	68	68	68	68
Applied Vacuum: VEW-1(S) (in. WC)	41	41	41	41	41	41	41	41	41	41	41	41	40	41	41	41	41	41	41	41	41	41	41	41
Induced Vac VEW-1(D) (in. WC)	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	20	20	20
Blower Discharge Temp (° F)	176	176	176	172	170	172	172	176	184	188	190	194	196	192	188	181	179	176	177	175	176	175	174	174
Air Velocity (fpm)	3862	3782	3271	3426	3041	3136	3407	3339	4041	4360	4450	5110	5220	4488	4588	3878	3718	3713	3606	3525	3605	3446	3446	3430
Calculated Air Flow (cfm)	337.2	330.2	285.6	299.1	265.5	273.8	297.4	291.5	352.8	380.6	388.5	446.1	455.7	391.8	400.5	338.5	324.6	324.1	314.8	307.7	314.7	300.8	300.8	299.4
Extraction Air Temp (° F)	52.8	52.5	49	49	47.1	48	49.4	52.5	64.9	68.5	68.3	72.1	72.4	69	62.7	57.3	54.6	53.2	52.5	51.4	51	50.3	50.3	50.1
Wellhead VOCs (ppmv)	490	414	492	494	502	515	523	477	450	435	368	386	345	371	398	329	368	0	0	NM	112	119	149	155
GAC 1 Influent VOCs (ppmv)	383	368	404	396	391	389	395	388	371	345	321	294	283	301	300	307	335	0	0	NM	65.7	67.4	78.6	72.6
GAC 2 Influent VOCs (ppmv)	24.6	26.9	29.9	35.3	33.9	41.4	24.7	29.4	54.1	34.1	56.8	30.7	45.5	39.7	57.6	21.1	29.8	0	0	NM	0	0	0	0
GAC 2 Effluent VOCs (ppmv)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NM	0	0	0	0
Temporary MW DTW (ft btoc)	22.8	22.8	22.8	22.8	22.81	22.81	22.82	22.85	22.85	22.81	22.79	22.74	22.7	22.65	22.63	22.59	22.55	22.53	22.54	22.58	22.58	22.59	22.6	22.6
Laboratory Sample																								

VEW-1 (S) — 4/26/2007

Parameters: Time	0:30	1:30	2:30	3:30	4:30	5:30	6:30	7:30	8:30	9:30	10:30	11:30	12:30	13:30	14:30	15:30	15:50
Elapsed Time (minutes)	1990	2050	2110	2170	2230	2290	2350	2410	2470	2530	2590	2650	2710	2770	2830	2890	2910
Applied Vacuum: Blower (in. WC)	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	Stop Test
Applied Vacuum: VEW-1(S) (in. WC)	41	41	40	40	41	40	40	40	41	41	41	40	40	40	40	40	
Induced Vac VEW-1(D) (in. WC)	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
Blower Discharge Temp (° F)	176	174	174	174	174	174	174	176	178	178	180	178	180	180	178	178	
Air Velocity (fpm)	3412	3271	3267	3303	3303	3330	3271	3545	3871	4158	4061	3872	4089	4125	3740	3998	
Calculated Air Flow (cfm)	297.9	285.6	285.2	288.4	288.4	290.7	285.6	309.5	337.9	363	354.5	338	357	360.1	326.5	349	
Extraction Air Temp (° F)	49.8	49.4	49.4	49.4	49.4	49.4	49.6	50.7	53.5	55.9	55.7	54.6	56.6	57.1	54.4	55.9	
Wellhead VOCs (ppmv)	140	162	132	159	155	140	142	99.1	108	104	100	101	115	110	98.7	357	
GAC 1 Influent VOCs (ppmv)	89.3	88.3	90.2	102	106	91.3	91.6	87.4	82.5	41.8	42.3	50.3	51.6	48.2	44.5	320	
GAC 2 Influent VOCs (ppmv)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	
GAC 2 Effluent VOCs (ppmv)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7	
Temporary MW DTW (ft btoc)	22.62	22.62	22.64	22.63	22.64	22.66	22.67	22.7	22.7	22.71	22.68	22.69	22.7	22.71	22.71	22.7	
Laboratory Sample														Sample ID: VEW-1(S)-B		*	

* Denotes time when vapor sample was collected
NA = Not Applicable
ft btoc = feet below top of pilot test casing
NM = Not measured
fpm = feet per minute
cfm = cubic feet per minute
VOCs = volatile organic compounds
ppmv = parts per million volume
in.WC = inches of water column
° F = degrees Fahrenheit

Average Airflow for VEW-1(S) 48 hr test = 347 cfm

Table 5B

Shallow Extraction Well - 48 Hour SVE Pilot Test Results

Summary of Monitoring Point Parameters

Harley-Davidson Motor Company Operations, Inc.

Area B - SVE Pilot Study

4/24/2007

Monitoring Point		Dist. From VEW-1 (feet)	15:20	15:30	16:30	17:30	18:30	19:30	20:30	21:30	22:30	23:30
Elapsed Time (minutes)			0	10	70	130	190	250	310	370	430	490
Measured Induced Subsurface Vacuum (in. WC)												
PZ-S 5	(S)	4.6	Start Test	5.9	5.9	6.1	6.2	6.2	6.3	6.3	6.4	6.4
	(M)			6.4	6.3	6.5	6.7	6.7	6.8	6.8	6.8	6.8
	(D)			2.2	2.1	2.2	2.3	2.2	2.4	2.3	2.3	2.4
PZ-S 15	(S)	15		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	(M)			4.1	4.1	4.1	4.1	4.2	4.2	4.3	4.4	4.4
	(D)			1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7
PZ-E 5	(S)	5.4		0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5
	(M)			2.7	2.9	2.8	2.8	2.9	2.9	2.9	2.9	2.9
	(D)			2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.6
PZ-E 15	(S)	15		4.4	4.5	4.4	4.5	4.6	4.6	4.6	4.7	4.7
	(M)			1.8	2	1.8	1.9	1.8	2	1.9	2	2
	(D)			1.6	1.7	1.6	1.6	1.6	1.6	1.6	1.7	1.7

4/25/2007

Monitoring Point		0:30	1:30	2:30	3:30	4:30	5:30	6:30	7:30	8:30	9:30	10:30	11:30	12:30	13:30	14:30	15:30	16:30	17:30	18:30	19:30	20:30	21:30	22:30	23:30
Elapsed Time (minutes)		550	610	670	730	790	850	910	970	1030	1090	1150	1210	1270	1330	1390	1450	1510	1570	1630	1690	1750	1810	1870	1930
PZ-S 5	(S)	6.4	6.4	6.5	6.7	6.5	6.5	6.5	6.3	6.3	6.3	6.3	6.2	6.1	6.2	6.4	6.5	6.5	6.5	6.5	6.6	6.5	6.5	6.5	6.6
	(M)	6.8	6.8	7	7	6.8	6.8	6.9	6.8	6.7	6.7	6.7	6.6	6.5	6.6	6.7	6.8	6.9	6.9	6.9	7	6.8	6.8	6.9	6.9
	(D)	2.4	2.4	2.5	2.5	2.2	2.3	2.4	2.2	2.2	2.2	2.1	2	2.1	2.1	2.2	2.4	2.4	2.4	2.3	2.4	2.3	2.2	2.4	2.4
PZ-S 15	(S)	0.1	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
	(M)	4.4	4.4	4.4	4.4	4.3	4.4	4.4	4.3	4.3	4.3	4.2	4.1	4.2	4.2	4.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
	(D)	1.7	1.8	1.8	1.8	1.6	1.7	1.6	1.6	1.6	1.7	1.5	1.4	1.4	1.5	1.6	1.8	1.7	1.7	1.8	1.7	1.6	1.8	1.7	1.7
PZ-E 5	(S)	0.5	0.5	0.7	0.7	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5
	(M)	3	3	3.1	3.1	2.9	2.9	2.9	2.8	2.8	2.9	2.7	2.7	2.7	2.8	2.9	3.1	3	3	3	3.1	2.9	3	3	3
	(D)	2.5	2.5	2.6	2.7	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.3	2.4	2.6	2.5	2.5	2.5	2.6	2.5	2.5	2.5	2.6
PZ-E 15	(S)	4.8	4.8	5	5	4.8	4.8	4.8	4.7	4.7	4.8	4.6	4.6	4.5	4.6	4.6	4.9	4.8	4.8	4.9	4.8	4.8	4.8	4.8	4.8
	(M)	2.1	2.1	2.2	2.2	2.2	2	2	1.9	1.9	2	1.8	1.8	1.8	1.8	1.9	2.2	2	2.1	2.1	2.1	2	2	2	2.1
	(D)	1.8	1.8	1.8	1.9	1.7	1.7	1.7	1.6	1.6	1.7	1.7	1.5	1.5	1.6	1.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.8

4/26/2007

Monitoring Point		0:30	1:30	2:30	3:30	4:30	5:30	6:30	7:30	8:30	9:30	10:30	11:30	12:30	13:30	14:30	15:30	15:50
Elapsed Time (minutes)		1990	2050	2110	2170	2230	2290	2350	2410	2470	2530	2590	2650	2710	2770	2830	2890	2910
PZ-S 5	(S)	6.7	6.6	6.6	6.6	6.5	6.5	6.6	6.6	6.5	6.6	6.5	6.4	6.5	6.5	6.4	6.5	Stop Test
	(M)	7	7	7	7	6.8	6.9	7	6.9	6.8	7	6.9	6.8	6.8	6.8	6.7	6.8	
	(D)	2.4	2.4	2.4	2.4	2.2	2.3	2.3	2.3	2.2	2.4	2.4	2.1	2.2	2.3	2.1	2.2	
PZ-S 15	(S)	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	
	(M)	4.4	4.4	4.4	4.4	4.2	4.4	4.4	4.4	4.3	4.5	4.4	4.3	4.4	4.4	4.3	4.4	
	(D)	1.8	1.7	1.8	1.6	1.6	1.7	1.7	1.6	1.6	1.7	1.7	1.4	1.6	1.6	1.5	1.5	
PZ-E 5	(S)	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.4	0.5	
	(M)	3	3	3	3.4	2.9	3	3	2.9	2.9	3	3	2.7	2.9	2.9	2.7	2.8	
	(D)	2.6	2.6	2.6	2.5	2.4	2.5	2.5	2.4	2.4	2.5	2.6	2.2	2.4	2.4	2.3	2.3	
PZ-E 15	(S)	5	4.9	5	5	4.8	4.9	4.9	4.8	4.8	4.9	5	4.6	4.8	4.8	4.7	4.6	
	(M)	2.1	2	2.1	2.2	2	2	2.1	2	2	2.1	2.1	1.8	2	2	1.9	1.9	
	(D)	1.8	1.8	1.8	1.8	1.7	1.7	1.8	1.7	1.7	1.8	1.8	1.4	1.7	1.6	1.6	1.6	

NM = Not measured
in.WC = inches of water column

Table 6
Laboratory Reported Chlorinated VOC Concentrations from Air Samples

Harley-Davidson Motor Company Operations, Inc.
Area B - Soil Vapor Extraction Pilot Test

Compound	Sample ID	Shallow 48-hr SVE Pilot Test			Deep 48-hr SVE Pilot Test			PQL
		VEW-1(S)A[1]	VEW-1(S)B[2]	Reduction (%)	VEW-1(D)A[1]	VEW-1(D)B[2]	Reduction (%)	
	Date/Time	4/24/07 18:15	4/26/07 15:30		4/26/07 16:30	4/28/07 15:30		
	Time Elapsed (min)	150	2880		15	2835		
1,1 Dichloroethylene	ppmv	0.05	<0.01	80.00	<0.01	<0.01	NA	0.01
Methylene Chloride	ppmv	<0.1	<0.1	NA	<0.1	<0.1	NA	0.1
Trans-1,2 dichloroethylene	ppmv	0.06	0.06	83.33	0.03	<0.01	66.67	0.01
1,1 Dichloroethane	ppmv	<0.05	<0.05	NA	<0.05	<0.05	NA	0.05
Cis-1,2 dichloroethylene	ppmv	12.04	8.3	31.06	4.66	2.74	41.20	0.01
Chloroform	ppmv	0.005	<0.005	0.00	<0.005	<0.005	NA	0.005
1,1,1 Trichloroethane	ppmv	0.399	0.326	18.30	0.28	0.124	55.71	0.005
Carbon Tetrachloride	ppmv	<0.005	<0.005	NA	<0.005	<0.005	NA	0.005
Trichloroethylene	ppmv	79.454	71.837	9.59	40.631	19.46	52.11	0.005
Tetrachloroethylene	ppmv	48.656	41.398	14.92	32.877	18.493	43.75	0.005

Note:

Laboratory results were provided by VaporTech Services, Inc.

1. Sampling Events A were taken at the beginning of their respective 48 hour pilot tests.
2. Sampling Events B were taken at the end of their respective 48 hour pilot tests

PQL = denotes lower "Practical Quantitation Limit"

VOC = Volatile Organice Compound

NA = Not Applicable

Table 7
Calculation of Total VOC Loading Rates

Harley-Davidson Motor Company Operations, Inc.
Area B - Soil Vapor Extraction Pilot Test

	Units	Sampling Event			
		Shallow Zone		Deep Zone	
		Initial Sample	Final Sample	Initial Sample	Final Sample
TCE Loading	lbs/day	14.504	13.113	3.764	1.803
PCE Loading	lbs/day	11.207	9.535	3.843	2.162
Total VOC Loading Rate	lbs/day	**25.711**	**22.648**	**7.607**	**3.964**

TCE - Trichloroethylene

PCE - Tetrachloroethylene

Shallow Zone:

Average Total VOC Loading =	24.179 lbs/d
Time of test =	2 days
Total shallow zone removal =	48.36 pounds

Deep Zone:

Average Total VOC Loading =	5.786 lbs/d
Time of test =	2 days
Total deep zone removal =	11.57 pounds

Combined VOC Removal During Pilot Test: **59.93 pounds**

Table 8A
Deep Extraction Well - 48 Hour SVE Pilot Test Results
Summary of Extraction Well Parameters
Harley-Davidson Motor Company Operations, Inc.
Area B - SVE Pilot Study

VEW-1 (D) — 4/26/2007

Parameters (Time / Elapsed Time (minutes))	16:00 / 0	16:15 / 15	17:15 / 75	18:15 / 135	19:15 / 195	20:15 / 255	21:15 / 315	22:15 / 375	23:15 / 435
Applied Vacuum Blower (in. WC)	Start Test	68	68	70	70	70	71	71	71
Applied Vacuum VEW-1(D) (in. WC)		53	54	56	56	56	56	57	57
Induced Vac VEW-1(S) (in. WC)		7	7	6	6	6	6	6	6
Blower Discharge Temp (° F)		178	180	182	182	182	182	169	172
Air Velocity (fpm)		2121	1978	1815	1820	1722	1724	1771	1722
Calculated Air Flow (cfm)		185.2	172.7	158.4	158.9	150.3	150.5	154.6	150.3
Extraction Air Temp (° F)		59.5	57.5	56.1	54.8	53.2	52.8	49.4	49.2
Wellhead VOCs (ppmv)		189	149	212	210	497	362	238	235
GAC 1 Influent VOCs (ppmv)		120	110	98.6	108	122	115	117	122
GAC 2 Influent VOCs (ppmv)		95.4	145	179	203	229	185	198	204
GAC 2 Effluent VOCs (ppmv)		0	0	0	15.7	17.6	19.3	0.6	0
Temporary MW DTW (ft btoc)		22.67	22.69	22.7	22.71	22.72	22.73	22.73	22.75
Laboratory Sample		*	Sample ID: VEW-1 (D)-A						

VEW-1 (D) — 4/27/2007

Parameters (Time / Elapsed Time (minutes))	0:15 / 495	1:15 / 555	2:15 / 615	3:15 / 675	4:15 / 735	5:15 / 795	6:15 / 855	7:15 / 915	8:15 / 975	9:15 / 1035	10:15 / 1095	11:15 / 1155	12:15 / 1215	13:15 / 1275	14:15 / 1335	15:15 / 1395	16:15 / 1455	17:15 / 1515	18:15 / 1575	19:15 / 1635	20:15 / 1695	21:15 / 1755	22:15 / 1815	23:15 / 1875
Applied Vacuum Blower (in. WC)	70	71	70	70	70	70	70	70	70	69	70	69	70	70	70	70	70	70	70	70	70	70	70	70
Applied Vacuum VEW-1(D) (in. WC)	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	57	56	56	56
Induced Vac VEW-1(S) (in. WC)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Blower Discharge Temp (° F)	172	172	176	174	176	178	176	178	180	180	182	184	184	188	190	189	192	192	193	191	187	185	182	182
Air Velocity (fpm)	1718	1706	1689	1704	1640	1706	1690	1686	1748	1832	1927	1983	1976	2018	2040	1949	2133	2019	1946	1890	1767	1722	1771	2214
Calculated Air Flow (cfm)	150	148.9	147.4	148.8	143.2	148.9	147.5	147.2	152.6	159.9	168.2	173.1	172.5	176.2	178.1	170.1	186.2	176.3	169.9	165	154.3	150.3	154.6	193.3
Extraction Air Temp (° F)	49.2	49.2	48.9	48.9	49	49.2	49.4	49.8	50.8	52.8	56.4	58.2	58.2	60.6	61.5	59.5	64.3	61.6	61.6	28.6	54.1	53.5	53.5	59.5
Wellhead VOCs (ppmv)	212	164	249	188	237	231	240	233	213	117	224	137	185	193	141	156	178	172	159	198	215	207	159	198
GAC 1 Influent VOCs (ppmv)	108	104	94.3	96.7	93.1	100	112	98.1	92.5	100	100	94.8	95.1	95.2	88.3	91.2	86.5	97.2	93.6	89.9	101	95.1	86.7	86.7
GAC 2 Influent VOCs (ppmv)	152	141	147	154	213	222	243	229	258	240	259	264	276	260	294	279	283	268	258	261	227	198	129	136
GAC 2 Effluent VOCs (ppmv)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Temporary MW DTW (ft btoc)	22.74	22.73	22.73	22.7	22.69	22.68	22.68	NM	22.64	22.65	22.64	22.61	22.59	22.57	22.54	22.53	22.51	22.49	22.51	22.5	22.49	22.5	22.5	22.5
Laboratory Sample																								

VEW-1 (D) — 4/28/2007

Parameters (Time / Elapsed Time (minutes))	0:15 / 1935	1:15 / 1995	2:15 / 2055	3:15 / 2115	4:15 / 2175	5:15 / 2235	6:15 / 2295	7:15 / 2355	8:15 / 2415	9:15 / 2475	10:15 / 2535	11:15 / 2595	12:15 / 2655	13:15 / 2715	14:15 / 2775	15:15 / 2835	16:00 / 2880
Applied Vacuum Blower (in. WC)	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	Stop Test
Applied Vacuum VEW-1(D) (in. WC)	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	
Induced Vac VEW-1(S) (in. WC)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
Blower Discharge Temp (° F)	184	184	182	184	186	182	180	182	191	195	199	200	200	200	200	195	
Air Velocity (fpm)	2843	2826	3133	2709	1959	2468	1854	1793	2183	2225	2271	2287	2259	2268	2288	2293	
Calculated Air Flow (cfm)	248.2	246.7	273.5	236.5	171	215.5	161.9	156.5	190.6	194.2	198.3	199.7	197.2	198	199.7	200.2	
Extraction Air Temp (° F)	62.5	61.6	62.9	61.5	60.6	56.8	51	55.2	64.8	67.2	73.1	75	72	72.6	71.5	62.9	
Wellhead VOCs (ppmv)	216	221	221	213	223	225	227	207	189	177	171	167	172	168	156	143	
GAC 1 Influent VOCs (ppmv)	86.5	88.3	83.4	88.3	85.3	86.4	84.3	94.8	92.1	93.8	85.2	80.7	72.1	70	71.2	68.3	
GAC 2 Influent VOCs (ppmv)	145	163	136	145	143	122	134	126	115	178	152	162	151	143	152	140	
GAC 2 Effluent VOCs (ppmv)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Temporary MW DTW (ft btoc)	22.5	22.5	22.52	22.5	22.5	22.51	22.51	22.52	22.55	22.55	22.55	22.55	22.55	22.55	22.55	22.55	
Laboratory Sample													VEW-1 (D)-B			*	

* Denotes time when vapor sample was collected
NA = Not Applicable
ft btoc = feet below top of pilot test casing

NM = Not measured
fpm = feet per minute
cfm = cubic feet per minute

VOCs = volatile organic compounds
ppmv = parts per million volume
in.WC = inches of water column

° F = degrees Fahrenheit

Average Airflow for VEW-1(D) Test = 176.1 **cfm**

Table 8B
Deep Extraction Well - 48 Hour SVE Pilot Test Results
Summary of Monitoring Point Parameters

Harley-Davidson Motor Company Operations, Inc.

Area B - SVE Pilot Study

Measured Induced Subsurface Vacuum (in. WC)

Monitoring Point		Dist. From VEW-1 (feet)	4/26/2007								
		Time	16:00	16:15	17:15	18:15	19:15	20:15	21:15	22:15	23:15
		Elapsed Time (minutes)	0	15	75	135	195	255	315	375	435
PZ-S 5	(S)	4.6	Start Test	1.6	1.6	1.4	1.3	1.3	1.3	1.6	1.5
	(M)			1.7	1.6	1.5	1.4	1.4	1.4	1.8	1.8
	(D)			2	1.9	1.8	1.6	1.7	1.7	2.2	2.2
PZ-S 15	(S)	15		0	0	0	0	0	0	0.1	0.1
	(M)			1.1	1.1	1	0.8	0.9	0.9	1.1	1.2
	(D)			1.1	1.1	1	1	0.9	1	1.3	1.3
PZ-E 5	(S)	5.4		0	0.1	0.1	0	0	0.1	0	0.1
	(M)			1.7	1.6	1.5	1.4	1.4	1.4	1.4	1.6
	(D)			1.8	1.6	1.5	1.4	1.4	1.4	1.5	1.9
PZ-E 15	(S)	15		1.3	1.1	1.1	1	1	1.1	1.1	1.2
	(M)			1.1	1.1	1	1	1	1.1	1.1	1.2
	(D)			1.2	1.1	1.1	1	1	1.1	1.1	1.1

Monitoring Point		4/27/2007																							
	Time	0:15	1:15	2:15	3:15	4:15	5:15	6:15	7:15	8:15	9:15	10:15	11:15	12:15	13:15	14:15	15:15	16:15	17:15	18:15	19:15	20:15	21:15	22:15	23:15
	Elapsed Time (minutes)	495	555	615	675	735	795	855	915	975	1035	1095	1155	1215	1275	1335	1395	1455	1515	1575	1635	1695	1755	1815	1875
PZ-S 5	(S)	1.4	1.3	1.2	1.3	1.5	1.6	1.5	1.6	1.6	1.7	1.7	1.6	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.6	1.6	1.6	1.3
	(M)	1.5	1.7	1.6	1.7	1.7	1.7	1.8	1.6	1.7	1.8	1.8	1.7	1.6	1.7	1.6	1.6	1.8	1.6	1.6	1.6	1.7	1.7	1.5	1.6
	(D)	1.7	1.9	1.8	1.8	1.8	1.9	2	1.8	1.8	1.9	2	1.9	1.8	1.8	1.8	1.8	2.1	1.9	1.8	1.8	1.9	2	1.9	1.9
PZ-S 15	(S)	0.1	0	0.3	0.3	0.3	0.3	0.5	0.5	0.4	0.5	0.6	0.5	0.4	0.4	0.4	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.2	0.9
	(M)	1	1.2	1.2	1.1	1.3	1.2	1.1	1.3	1.1	1.3	1.3	1.2	1.2	1.2	1.1	1.3	1.3	1.1	1.1	1.1	1.1	1.2	1.1	1.3
	(D)	1.1	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1	1.2	1.2	1.1	1.1	1.1	1.1	1.3	1.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1
PZ-E 5	(S)	0	0.8	1.1	1.4	1.4	1.5	1.6	1.6	1.5	1.6	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.1	1.4
	(M)	1.5	1.7	1.8	1.8	1.7	1.8	1.8	1.7	1.6	1.8	1.8	1.7	1.7	1.7	1.6	1.8	1.8	1.6	1.6	1.6	1.7	1.7	1.6	1.6
	(D)	1.6	1.7	1.8	1.8	1.7	1.8	1.7	1.8	1.6	1.9	1.8	1.7	1.7	1.7	1.6	1.8	2	1.7	1.6	1.6	1.7	1.8	1.6	1.7
PZ-E 15	(S)	1.3	1.3	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.5	1.5	1.4	1.4	1.4	1.3	1.4	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.4
	(M)	1.1	1.2	1.3	1.3	1.2	1.3	1.3	1.2	1.2	1.4	1.3	1.3	1.2	1.2	1.1	1.3	1.4	1.2	1.3	1.2	1.2	1.3	1.3	1.2
	(D)	1.1	1.2	1.1	1.1	1.3	1.3	1.3	1.2	1.2	1.4	1.3	1.2	1.2	1.2	1.1	1.3	1.4	1.2	1.1	1.2	1.2	1.3	1.2	1.2

Monitoring Point		4/28/2007																
	Time	0:15	1:15	2:15	3:15	4:15	5:15	6:15	7:15	8:15	9:15	10:15	11:15	12:15	13:15	14:15	15:15	16:00
	Elapsed Time (minutes)	1935	1995	2055	2115	2175	2235	2295	2355	2415	2475	2535	2595	2655	2715	2775	2835	2880
PZ-S 5	(S)	1.3	1.5	1.4	1.4	1.5	1.4	1.6	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	Stop Test
	(M)	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.6	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.3	
	(D)	1.8	1.7	1.7	1.8	1.8	1.8	2	1.9	1.8	1.7	1.6	1.6	1.4	1.4	1.4	1.4	
PZ-S 15	(S)	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.4	0.4	0.4	0.5	
	(M)	1.2	1.3	1.2	1.1	1.2	1.3	1.3	1.3	1.2	1.1	1.1	1.1	1	1.1	1.1	1.1	
	(D)	1.1	1.8	1.1	1.1	1.1	1.2	1.2	1.1	1	0.9	1	1	1	1	1	1	
PZ-E 5	(S)	1.4	1.4	1.4	1.4	1.3	1.4	1.5	1.5	1.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
	(M)	1.6	1.6	1.6	1.6	1.6	1.8	1.8	1.7	1.7	1.6	1.5	1.4	1.4	1.4	1.5	1.5	
	(D)	1.6	1.7	1.6	1.6	1.6	1.8	1.8	1.8	1.7	1.6	1.4	1.4	1.4	1.4	1.4	1.4	
PZ-E 15	(S)	1.3	1.3	1.3	1.3	1.3	1.4	1.5	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2	
	(M)	1.2	1.2	1.1	1.1	1.1	1.3	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	
	(D)	1.2	1.2	1.1	1.1	1.1	1.3	1.3	1.2	1.2	1.2	1.1	1	1.1	1.1	1.1	1.1	

NM = Not measured

in.WC = inches of water column

APPENDIX A

Request for Determination (RFD)

2700-PM-AQ0017 7/2001

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

07 MAR 25 PM 12:25
AIR QUALITY

Request for Determination of Requirement for Plan Approval/Operating Permit (RFD)

(Submit in Triplicate)

A. Application is being made for: *[please mark the appropriate case(s)]*

☒ Exemption from Plan Approval ☒ Exemption from Operating Permit

Physical Changes of Minor Significance

☐ Changes Do Not Add New Equipment (See 25 Pa. Code § 127.14(c)(1)). Physical changes of minor significance must not violate the terms of an operating permit, the Pennsylvania Air Pollution Control Act (APCA), the Clean Air Act or regulations adopted thereunder. In addition, these changes can not result in emission increases above the emissions allowable in the operating permit or result in an increased ambient air quality impact for an air contaminant. Changes may be made within seven (7) days after the Department's receipt of a written request unless the Department requests additional information or objects to the changes.

☒ Changes Add New Equipment (See 25 Pa. Code § 127.14(c)(2)). Physical changes of minor significance must not violate the terms of an operating permit, the APCA, the Clean Air Act or regulations thereunder. In addition, these changes, which add new equipment, can not result in emission increases above the emissions allowable in the operating permit or result in an increased ambient air quality impact for an air contaminant. Changes can be made within 15 days after the Department's receipt of a written unless the Department requests additional information or objects to the changes.

B. Narrative Source Description (Include: process description, control device, exhaust volume, stack data, schematic flow diagram, material data safety sheet and any other pertinent information - attach additional sheets as needed):

This RFD covers a 5-day soil vapor extraction pilot test from one (2-inch diameter) vapor extraction well with 15 feet of screen at the Harley-Davidson plant in York, PA. It will use a 5 HP blower and capture VOCs using vapor phase carbon (in several drums) prior to discharge. See attached project description and associated figures.

C. Facility Name
Harley-Davidson Motor Company Operations, Inc.

Plant Name:
Harley-Davidson Motor Company Operations, Inc.

D. Mailing Address: 1425 Eden Road, York, PA 17402

E. Contact Person:
Sharon Fisher

Title:
Environmental Manager

F. Telephone Number:
717-852-6544

G. Federal ID #
39-1972792-1

H. Current Operating Permit No., if any:
67-05032

I. Date of Installation:
April 16, 2007

J. Location of Source(s):
Mobile soil vapor extraction pilot test in the northwest corner of the west parking lot (Area B).

K. Municipality/Township:
Springettsbury Township

County
York

I,_____, certify under penalty of law as provided in 18 Pa. C. S.A. § 4904 and 35 P.S. § 4009(b)(2), that based on information and belief formed after reasonable inquiry, the statements and information contained in this form are true, accurate and complete.

(Signed) Sharon R Fisher Date: 03-20-07

Name (typed) Sharon Fisher Title: Environmental Manager

RECEIVED
MAR 30 2007

L. Estimated Emissions *(Attach calculations and basis for estimated emissions):*

Pollutant(s)	Emissions (lbs/hr)	Emissions (tons/year)
Trichloroethylene (TCE)	0.0796 lbs/hr	0.0043 tons/year
Tetrachloroethylene (PCE)	0.159 lbs/hr	0.0086 tons/year

M. List all source(s) exempted from permitting within last five years. This listing should include sources that were exempted under a Request for Determination for Plan Approval/Operating Permit (RFD).

Source	Date Installed	Department Determination, if any
Nickel/Chrome Plating - change in the nickel plating process to include an added nickel plating bath.	2005	Exempt from Plan Approval and Operating Permit Requirements
Portable air cleaners installation in the Paint Finesse Area (silk screen).	2004	Exempt from Plan Approval and Operating Permit Requirements
Groundwater Treatment System - use of granular activated carbon (GAC) filter system along with PTAS as primary control devices.	2004	Exempt from Plan Approval and Operating Permit Requirements
Bldg. 4 Five Stage Phosphatizer - The washing system emissions from the unit exhaust to the building exterior.	to be installed 2006	Exempt from Plan Approval and Operating Permit Requirements
Bldg. 3 Powder Paint System - Color powder paint system for upcoming bike models.	to be installed 2007	Exempt from Plan Approval and Operating Permit Requirements
Bldg. 3 Dylan Project - Adhesive Heat Cure Operation	to be installed 2007	Exempt from Plan Approval and Operating Permit Requirements

N. Will the construction or modification of the source covered under this RFD increase emissions from other sources at the facility? ☐ Yes ☒ No

If yes, describe and quantify emission increases on separate sheet(s).

Will the construction or modification of the source be subject to 25 Pa. Code, Subchapter E, New Source Review (NSR) requirements or Prevention of Significant Deterioration (PSD) of Air Quality regulations?

☐ Yes ☒ No

OFFICIAL USE ONLY

Date Received: 3/26/07 Reviewed By: Gary Lentz

☑ A plan approval is not required for this source. (See 25 Pa. Code § 127.14(a)(1)-(9)).

☑ An operating permit is not required for this source. (See 25 Pa. Code § 127.443 (a)).

☐ The source(s) do(es) not qualify for exemption. Applicant is required to submit a plan approval and/or operating permit application.

Yasmin Neidlinger
Signature

Yasmin Neidlinger
Name and Title

3/27/07
Date

Chief, Fac. Permitting

HARLEY-DAVIDSON SVE PILOT STUDY

The soil vapor extraction (SVE) pilot study in Area B will include use of a single, dual-level SVE extraction well, which will pull vapors from a shallow (2-11 feet deep) silt layer as well as from a deeper (12-20 feet deep) gravelly silty sand layer. Vacuum will be generated using a single 5 horsepower (Hp) regenerative blower. The exhaust will be directed through a series of vapor-phase carbon canisters for removal of extracted VOCs. A series of four dual level SVE monitoring locations will be installed with sensor depths similar to the depths of the screens in the multi-level pilot vapor extraction well. The monitoring will be conducted along two perpendicular lines at distances of 5 and 15 feet from the pilot vapor extraction well. A step-test will be performed on both zones of the extraction well, with three vacuum flow rates (50 percent, 75 percent, and 100 percent blower capacity) to determine the efficiency of each extraction well zone at the various gas flow rates. The pilot study step test is designed to run for 2 hours at each flow rate and from each of the two extraction well zones, for a total of 12 hours. The pilot study step test results will be used to select an optimum flow rate for each zone for a longer pilot study test. A continuous SVE pilot study test run will be implemented for each zone of 48 hours each. Vacuum readings from each of the soil vapor monitoring points, along with air velocity and PID readings from the discharge lines will be used to evaluate the effectiveness of the pilot study and make recommendations for full scale implementation.

Prior to the drilling and construction of the SVE wells, the depth to groundwater will be determined within Area B. One temporary groundwater piezometer will be installed just outside the capped part of Area B. This temporary well will be installed using a Geoprobe® and will consist of a temporary polyvinyl chloride (PVC) screen and riser installed at least 3 feet into saturated materials. This temporary well will be left in place throughout the construction of the SVE wells and throughout the duration of the SVE pilot study in order to monitor the depth to groundwater.

Figure 1 shows the location of the site, while Figure 2 shows the configuration of the proposed SVE extraction and monitoring wells on the property. Figure 3 shows the construction details of the proposed SVE extraction wells and Figure 4 shows the construction details of monitoring wells. Figure 5 shows the SVE connection details.

Harley-Davidson Motor Company Operations, Inc.
Area B SVE Pilot Test
Projected Recoverable Trichloroethylene (TCE)

Assumptions:
1. Average concentration of TCE in the soil is 40 mg/kg.
2. Pilot test duration is 96 hours + 12 hour step-test.
3. Radius of influence from the extraction well is estimated to be 15 feet.
4. Total screen length is 15 feet (10 feet in silt section and 5 feet in silty sand section).

1. Calculate the total volume of treatable impacted soil based on estimated ROI (as a cylinder):

$(\pi r^2)(L)$ = soil volume (cu ft)

Estimated ROI =	15	ft
πr2 =	706.5	ft^2
L (screen length) =	15	ft
Vol of soil =	**10598**	**ft^3**

2. Assume 1 cubic foot of soil = 90lbs. Convert soil volume (cubic feet) to mass (kilograms):

(Vol of soil)(90lbs)(0.45 kg) = soil mass (kilograms)

Vol of soil =	1.06E+04	ft^3
1 cu ft of soil =	90	lbs
1 lb =	0.45	kg
soil mass =	**4.29E+05**	**kg**

3. Calculate mass (mg/kg) of TCE based on soil mass and average concentration:

(soil mass)(ave. TCE concentration)(0.001g) = TCE mass (grams)

soil mass =	4.29E+05	kg
ave. TCE Concentration =	40	mg/kg
1 mg =	0.001	g
TCE mass =	**1.72E+04**	**g**

4. Assume best case scenario of 25% recovery over 96 hour pilot test + 12 hour step test:

TCE Recoverable Mass =	**4.29E+03**	**g**
TCE Recoverable Mass =	**8.6**	**lbs**

Notes:

Harley-Davidson Motor Company, 1425 Eden Road, York, PA 17402 717/848-1177

March 20, 2007 **CERTIFIED MAIL NO. 7004 2510 0002 4456 7209**

Mr. Gary Lenz
Air Pollution Control Engineer
Pennsylvania Department of Environmental Protection
South Central Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200

Re: RFD – Harley-Davidson Motor Company Operations, Inc.
Title V Permit No. 67-05032
Area B Soil Vapor Extraction Pilot Study

Dear Mr. Lenz:

Harley-Davidson Motor Company Operations, Inc. (Harley-Davidson) is submitting the enclosed Request for Determination of Requirement for Plan Approval/Operating Permit (RFD) associated with a soil vapor extraction (SVE) pilot study. The area of study is located along Harley-Davidson's western property boundary, in an area identified as Area B. This work is being done as part of ongoing Remedial Investigation efforts under the One Cleanup program facilitated by PADEP and EPA. The enclosed RFD includes capture of VOCs using vapor phase carbon adsorbers.

We trust you will find everything in order and completed to the satisfaction of the requirements of the Department. If you have any questions or require additional information, please contact me at 852-6544, at your convenience.

Sincerely yours,
HARLEY-DAVIDSON MOTOR COMPANY OPERATIONS, INC.

Sharon R. Fisher
Environmental Manager
Plant Engineering Department

Enclosures
cc: Mr. Jay Peterson – PADEP York District Office
Mr. Roger Myers – SAIC

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APPENDIX B

Soil Boring and Well Construction Logs

Science Applications International Corporation
From Science to Solutions™

LOG OF BORING EW-1

Harley Davidson
Area B Soil Vapor Pilot Study

Drilling Company	: Environmental Equipment and Supply	Date Started	: 3/8/07
Drilled By	: Andrew Haselhoff	Date Completed	: 3/8/07
Logged By	: Emily Wade	Well Construction	: Not Applicable
Drilling Method	: Geoprobe	Well Development	: Not Applicable
Drilling Bit Diameter	: 2 1/4"	Blown/Bailed Yield	: Not Applicable

Depth in Feet	DESCRIPTION	% Recovery	PID (ppm)	GRAPHIC	Soil Sample I.D.
0	Yellowish Brown Silt, 10YR 5/6, fine grained, dense, damp	75			
2					
4	Black, 10YR 2/1, fine grained, dense, damp				
6	Yellowish Brown, 10YR 5/6, silt, fine grain, dense, damp	75	6.7		
8			15.1		PZ-S 5 smd
10		100	15.7		9.5-10
12			10.7		
14		100	1.6		
16	Silty Sand, moist small angular gravel, low density		8.1		PZ-S 5 smd
18		75	6.9		13-13.5
20	<15% angular gravel		3.5		PZ-S 5 smd
	End of Boring		1.5		14-14.5
22			4.1		

Notes

BACKFILL (DRILL CUTTINGS)
From : 0' to 20.0' BGS

PID readings taken every foot.
The reading was zero if the left blank.

PPM-parts per million
BGS-below grade surface

06-12-2007 H:\Jobs\Harley\Eden Road\Area B - SVE Pilot Test\Area B SVE SOW\Area B Soil Vapor-Soil Borning Logs\EW-1.bor

Science Applications International Corporation
From Science to Solutions™

Boring and Construction Logs EW-1 (S and D)

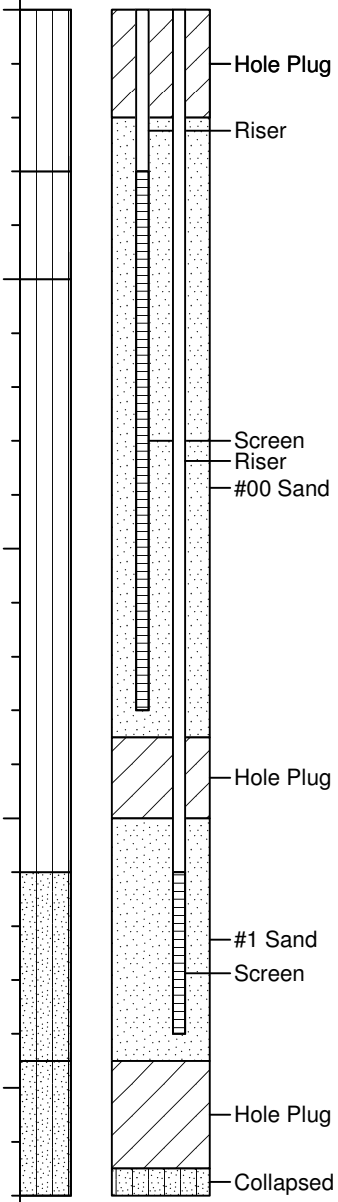
Harley Davidson
York Vehicle Operations
1425 Eden Road, York PA
Area B Soil Vapor Pilot Study

SAIC Project # 01-1633-00-9823-000

Driller	: Eichelberger's Inc.	Drilling Started	: 04/02/07
Logged By	: Matthew J Logan	Drilling Completed	: 04/02/07
Drilling Method	: Air Rotary	Well Constructed	: 04/02/07
Drilling Diameter	: 10" Air-hammer (0'-22')		

Depth in Feet	DESCRIPTION	USCS	PID Bkgd= 0.0 ppm
0	SILT: Yellowish brown (10YR 5/6), fine grained, dense, damp.	ML	
	SILT: black (10YR 2/1), fine grained, dense, damp.	ML	
5	SILT: Yellowish brown (10YR 5/6), fine grain, dense, damp.	ML	6.7
			15.1
10			15.7
			10.7
			1.6
			8.1
			6.9
15			3.5
	SILTY SAND: moist, small angular gravel, low density.	SM	1.5
20	<15% angular gravel.	SM	4.1
25	End of Boring		

Well1: EW-1 S
Well2: EW-1 D
Elev.:



Well Construction Information

WELL CONSTRUCTION

Completed	: 04/02/07
Borehole Dia.	: 10"
Drill Method	: Air Rotary
Driller	: Eichelberger's Inc.

WELL CASING EW-1 S

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0.0'-3.0'
Joints	: Flush-Threaded

WELL SCREEN EW-1 S

Material	: Sch 40 PVC
Diameter	: 2"
From	: 3.0'-13.0'
Joints	: Flush-Threaded
Opening	: 0.010 slot

WELL CASING EW-1 D

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0.0'-16.0'
Joints	: Flush-Threaded

WELL SCREEN EW-1 D

Material	: Sch 40 PVC
Diameter	: 2"
From	: 16.0'-19.0'
Joints	: Flush-Threaded
Opening	: 0.030 slot

NOTES:
Soil description based on visual examination of Geoprobe cores collected by SAIC on 03/08/07.

Water encountered in boring at ~22' below ground surface.

Science Applications International Corporation
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LOG OF BORING VEW-1

Harley Davidson
Area B Soil Vapor Pilot Study

Drilling Company	: Environmental Equipment and Supply	Date Started	: 3/8/07
Drilled By	: Andrew Haselhoff	Date Completed	: 3/8/07
Logged By	: Emily Wade	Well Construction	: Not Applicable
Drilling Method	: Geoprobe	Well Development	: Not Applicable
Drilling Bit Diameter	: 2 1/4"	Blown/Bailed Yield	: Not Applicable

Depth in Feet	DESCRIPTION	% Recovery	PID (ppm)	GRAPHIC	Soil Sample I.D.
0	Yellowish Brown Silt, 10YR 5/6, fine grained, dense, damp				
2		75			
	Black, 10YR 2/1, fine grained, dense, damp				
4					
	Yellowish Brown, 10YR 5/6, silt, fine grain, dense, damp				
6		75	6.7		
8			15.1		PZ-S 5 smd
10		100	15.7		9.5-10
			10.7		
12			1.6		
			8.1		PZ-S 5 smd
14		100	6.9		13-13.5
			3.5		PZ-S 5 smd
16	Silty Sand, moist small angular gravel, low density		1.5		14-14.5
18		75			
	<15% angular gravel				
20	End of Boring		4.1		
22					

Notes

BACKFILL (DRILL CUTTINGS)
From : 0' to 20.0' BGS

PID readings taken every foot.
The reading was zero if the left blank.

PPM-parts per million
BGS-below grade surface

Science Applications International Corporation
From Science to Solutions™

LOG OF BORING Temporary Well

Harley Davidson
Area B Soil Vapor Pilot Study

Drilling Company	: Environmental Equipment and Supply	Date Started	: 3/8/07
Drilled By	: Andrew Haselhoff	Date Completed	: 3/8/07
Logged By	: Emily Wade	Well Construction	: Not Applicable
Drilling Method	: Geoprobe	Well Development	: Not Applicable
Drilling Bit Diameter	: 2 1/4"	Blown/Bailed Yield	: Not Applicable

Depth in Feet	DESCRIPTION	% Recovery	PID (ppm)	GRAPHIC	Soil Sample I.D.
0	Yellowish Brown Silt, 10YR 5/6, fine grained, dense, damp	95	1.3		
2	Black, 10YR 2/1, fine grained, dense, damp				
	Yellowish Brown, 10YR 5/6, silt, fine grain, dense, damp				
4	Yellowish Brown, 10YR 5/8, clayey silt, dense, moist	100			
6					
8		100			
10	Yellowish Brown Silty Sand, low density	100	0.9		
12					
14		100			
16			1.2		
18		60			
	Light gray, dry, fine grained, low density		2.4		
20	Dark Yellowish Brown, moist, <15% angular gravel	15	0.6		
22					
	Refusal @ 22.6 feet				
24					

Notes

BACKFILL (DRILL CUTTINGS)
From : 0' to 22.6' BGS

PID readings taken every foot.
The reading was zero if the left blank.

PPM-parts per million
BGS-below grade surface

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Science Applications International Corporation
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LOG OF BORING PZ-E 15 SMD

Harley Davidson
Area B Soil Vapor Pilot Study

Drilling Company	: Environmental Equipment and Supply	Date Started	: 3/8/07
Drilled By	: Andrew Haselhoff	Date Completed	: 3/8/07
Logged By	: Emily Wade	Well Construction	: Not Applicable
Drilling Method	: Geoprobe	Well Development	: Not Applicable
Drilling Bit Diameter	: 2 1/4"	Blown/Bailed Yield	: Not Applicable

Depth in Feet	DESCRIPTION	% Recovery	PID (ppm)	GRAPHIC	Soil Sample I.D.
0	Yellowish Brown Silt, 10YR 5/6				
2		88			
	Black, 10YR 2/1, fine grained				
4			0.2		
	Yellowish Brown Silt, fine grained with <2% small angular gravel		0.3		
6		100	0.2		
8			0.1		PZ-E 15 smd
10		100	0.4		9-9.5
			0.2		
	Silty Sand, moist, 10YR 5/8		0.1		
12			0.2		
14		75	0.2		
			0.3		PZ-E 15 smd
	Sandy silt with <10% angular gravel				
16			0.2		15-15.5
			0.2		
18		63	0.2		
			0.2		PZ-E 15 smd
20			0.3		19.5-20
	End of Boring				
22					

Notes

BACKFILL (DRILL CUTTINGS)
From : 0' to 20.0' BGS

PID readings taken every foot.
The reading was zero if the left blank.

PPM-parts per million
BGS-below grade surface

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Science Applications International Corporation
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LOG OF BORING PZ-E 5 SMD

Harley Davidson
Area B Soil Vapor Pilot Study

Drilling Company	: Environmental Equipment and Supply	Date Started	: 3/8/07
Drilled By	: Andrew Haselhoff	Date Completed	: 3/8/07
Logged By	: Emily Wade	Well Construction	: Not Applicable
Drilling Method	: Geoprobe	Well Development	: Not Applicable
Drilling Bit Diameter	: 2 1/4"	Blown/Bailed Yield	: Not Applicable

Depth in Feet	DESCRIPTION	% Recovery	PID (ppm)	GRAPHIC	Soil Sample I.D.
0	Yellowish Brown Silt, 10YR 5/6, fine grained, dense, damp				
2		88			
	Black, 10YR 2/1, fine grained, dense, damp				
4					
	Yellowish Brown, 10YR 5/6, silt, fine grain, dense, damp				
6		100			
8			1.0		
			13.3		PZ-E 5 smd
10		100	0.4		9-9.5
			1.0		
	Silty Sand, moist, fine grained, low density				
12			1.3		
			0.4		
14		25	0.6		PZ-E 5 smd
			0.4		14-14.5
	Sandy silt with <5% angular gravel				
16			0.4		
18		25			
					PZ-E 5 smd
20			2.4		19.5-20
	End of Boring				
22					

Notes

BACKFILL (DRILL CUTTINGS)
From : 0' to 20.0' BGS

PID readings taken every foot.
The reading was zero if the left blank.

PPM-parts per million
BGS-below grade surface

Science Applications International Corporation
From Science to Solutions™

LOG OF BORING PZ S-15 SMD

Harley Davidson
Area B Soil Vapor Pilot Study

Drilling Company	: Environmental Equipment and Supply	Date Started	: 3/8/07
Drilled By	: Andrew Haselhoff	Date Completed	: 3/8/07
Logged By	: Emily Wade	Well Construction	: Not Applicable
Drilling Method	: Geoprobe	Well Development	: Not Applicable
Drilling Bit Diameter	: 2 1/4"	Blown/Bailed Yield	: Not Applicable

Depth in Feet	DESCRIPTION	% Recovery	PID (ppm)	GRAPHIC	Soil Sample I.D.
0	Yellowish Brown Silt, 10YR 5/6, fine grained, dense				
2		88			
	Black, 10YR 2/1, fine grained, dense, damp				
4					
6	SILTY CLAY, Yellowish Brown Silty Sand, dense, fine grains	75			
8			4.2		
10		100	9.7		
			12.7		PZ-S 15 smd
12					11.5-12
			9.0		
14		100			
			5.4		
16			3.9		
			4.7		PZ-S 15 smd
18	Silty Sand, moist small angular gravel, low density	75	12.4		18-18.5
			7.0		PZ-S 15 smd
20	End of Boring		14.6		19.5-20
22					

Notes

BACKFILL (DRILL CUTTINGS)
From : 0' to 20.0' BGS

PID readings taken every foot.
The reading was zero if the left blank.

PPM-parts per million
BGS-below grade surface

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Science Applications International Corporation
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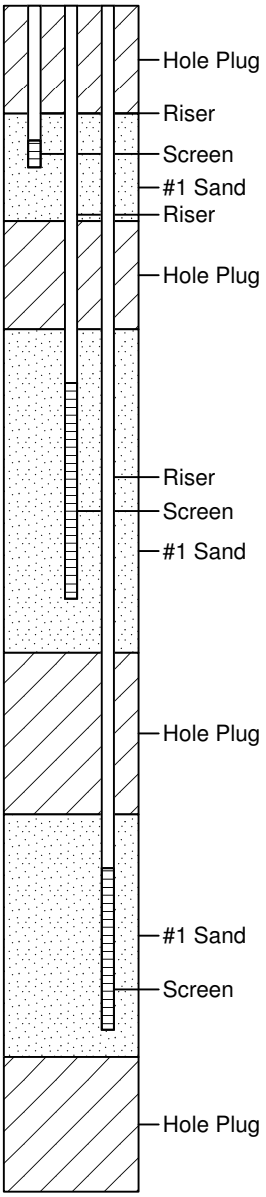
Boring and Construction Logs PZ S-15 (S, M, D)

Harley Davidson
York Vehicle Operations
1425 Eden Road, York PA
Area B Soil Vapor Pilot Study

SAIC Project # 01-1633-00-9823-000

Driller	: Eichelberger's Inc.	Drilling Started	: 04/02/07
Logged By	: Matthew J Logan	Drilling Completed	: 04/02/07
Drilling Method	: Air Rotary	Well Constructed	: 04/02/07
Drilling Diameter	: 10" Air-hammer (0'-22')		

Depth in Feet	DESCRIPTION	USCS	PID Bkgd= 0.0 ppm
0	SILT: Yellowish brown (10YR 5/6), fine grained, dense, damp.	ML	
	SILT: black (10YR 2/1), fine grained, dense, damp.	ML	
5	SILTY CLAY: Yellowish brown silty sand, dense, fine grains.		4.2
10			9.7
			12.7
		SM	9.0
15			5.4
			3.9
			4.7
	SILTY SAND, moist, small angular gravel, low density.		12.4
			7.0
20		SM	14.6
	End of Boring		
25			



Well1: PZ S-15 S
Well2: PZ S-15 M
Well3: PZ S-15 D
Elev.:

Well Construction Information

WELL CONSTRUCTION

Completed : 04/02/07
Borehole Dia. : 10"
Drill Method : Air Rotary
Driller : Eichelberger's Inc.

WELL CASING PZ S-5 S

Material : Sch 40 PVC
Diameter : 1"
From : 0.0'-2.5'
Joints : Flush-Threaded

WELL SCREEN PZ S-5 S

Material : Sch 40 PVC
Diameter : 1"
From : 2.5'-3.0'
Joints : Flush-Threaded
Opening : 0.010 slot

WELL CASING PZ S-5 M

Material : Sch 40 PVC
Diameter : 1"
From : 0.0'-7.0'
Joints : Flush-Threaded

WELL SCREEN PZ S-5 M

Material : Sch 40 PVC
Diameter : 1"
From : 7.0'-11.0'
Joints : Flush-Threaded
Opening : 0.010 slot

WELL CASING PZ S-5 D

Material : Sch 40 PVC
Diameter : 1"
From :0.0'-16.0'
Joints :Flush-Threaded

WELL SCREEN PZ S-5 D

Material :Sch 40 PVC
Diameter :1"
From :16.0'-19.0'
Joints :Flush-Threaded
Opening :0.030 slot

NOTES:
Soil description based on visual examination of Geoprobe cores collected by SAIC on 03/08/07.

Water encountered in boring at ~ 21' below ground surface.

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LOG OF BORING PZ S-5 SMD

Harley Davidson
Area B Soil Vapor Pilot Study

Drilling Company	: Environmental Equipment and Supply	Date Started	: 3/8/07
Drilled By	: Andrew Haselhoff	Date Completed	: 3/8/07
Logged By	: Emily Wade	Well Construction	: Not Applicable
Drilling Method	: Geoprobe	Well Development	: Not Applicable
Drilling Bit Diameter	: 2 1/4"	Blown/Bailed Yield	: Not Applicable

Depth in Feet	DESCRIPTION	% Recovery	PID (ppm)	GRAPHIC	Soil Sample I.D.
0	Yellowish Brown Silt, 10YR 4/6, fine grained, dense, damp				
2		75			
4	Black, 10YR 2/1, fine grained, dense, damp				
6	Yellowish Brown, 10YR 5/6, silt, fine grained, dense, damp	75	6.7		
8			15.1		PZ-S 5 smd
10		100	15.7		9.5-10
12			10.7		
14		100	1.6		
16	Silty Sand, moist, small angular gravel, <5%, low density		8.1		PZ-S 5 smd
18		75	6.9		13-13.5
20	<10% angular gravel		3.5		PZ-S 5 smd
	End of Boring		1.5		14-14.5
22			4.1		

Notes

BACKFILL (DRILL CUTTINGS)
From : 0' to 20.0' BGS

PID readings taken every foot.
The reading was zero if the left blank.

PPM-parts per million
BGS-below grade surface

Science Applications International Corporation
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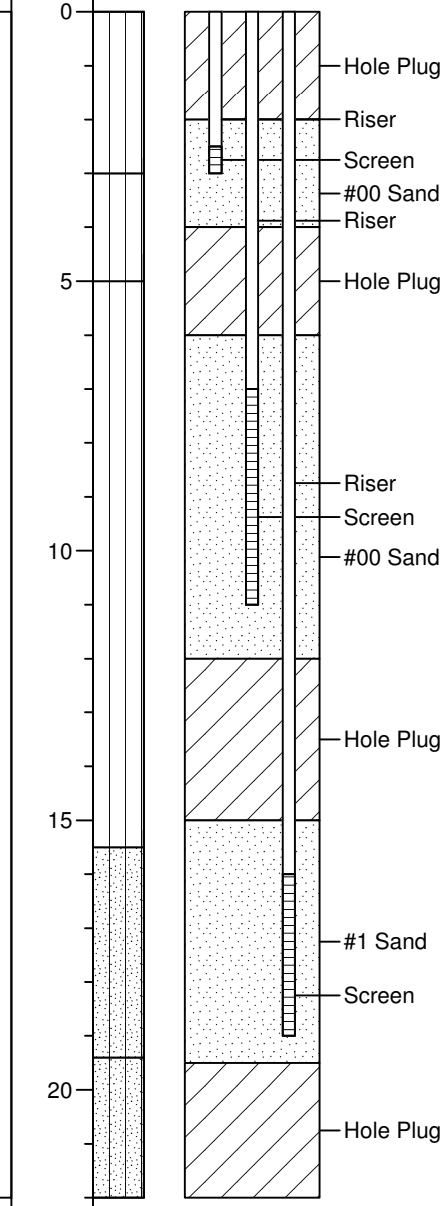
Boring and Construction Logs PZ S-5 (S, M, D)

Harley Davidson
York Vehicle Operations
1425 Eden Road, York PA
Area B Soil Vapor Pilot Study

SAIC Project # 01-1633-00-9823-000

Driller	: Eichelberger's Inc.	Drilling Started	: 04/02/07
Logged By	: Matthew J Logan	Drilling Completed	: 04/02/07
Drilling Method	: Air Rotary	Well Constructed	: 04/02/07
Drilling Diameter	: 10" Air-hammer (0'-22')		

Depth in Feet	DESCRIPTION	USCS	PID Bkgd= 0.0 ppm
0	SILT: Yellowish brown (10YR 4/6), fine grained, dense, damp.	ML	
	SILT: black (10YR 2/1), fine grained, dense, damp.	ML	
5	SILT: Yellowish brown (10YR 5/6), fine grained, dense, damp.	ML	6.7
			15.1
10			15.7
			10.7
			1.6
			8.1
			6.9
15			3.5
	SILTY SAND, moist, <5% small angular gravel, low density.	SM	1.5
	SILTY SAND, <10% angular gravel.	SM	4.1
20	End of Boring		
25			



Well Construction Information

WELL CONSTRUCTION

Completed : 04/02/07
Borehole Dia. : 10"
Drill Method : Air Rotary
Driller : Eichelberger's Inc.

WELL CASING PZ S-5 S

Material : Sch 40 PVC
Diameter : 1"
From : 0.0'-2.5'
Joints : Flush-Threaded

WELL SCREEN PZ S-5 S

Material : Sch 40 PVC
Diameter : 1"
From : 2.5'-3.0'
Joints : Flush-Threaded
Opening : 0.010 slot

WELL CASING PZ S-5 M

Material : Sch 40 PVC
Diameter : 1"
From : 0.0'-7.0'
Joints : Flush-Threaded

WELL SCREEN PZ S-5 M

Material : Sch 40 PVC
Diameter : 1"
From : 7.0'-11.0'
Joints : Flush-Threaded
Opening : 0.010 slot

WELL CASING PZ S-5 D

Material : Sch 40 PVC
Diameter : 1"
From :0.0'-16.0'
Joints :Flush-Threaded

WELL SCREEN PZ S-5 D

Material :Sch 40 PVC
Diameter :1"
From :16.0'-19.0'
Joints :Flush-Threaded
Opening :0.030 slot

NOTES:
Soil description based on visual examination of Geoprobe cores collected by SAIC on 03/08/07.

Water encountered in boring at ~ 22' below ground surface.

Boring and Construction Logs PZ E-15 (S, M, D)

Science Applications International Corporation
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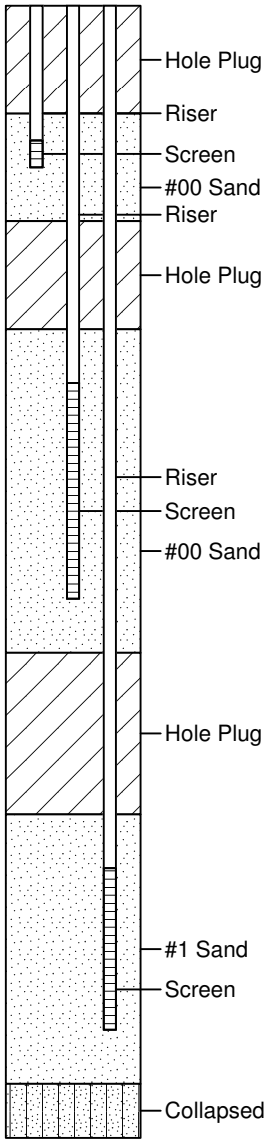
Harley Davidson
York Vehicle Operations
1425 Eden Road, York PA
Area B Soil Vapor Pilot Study

SAIC Project # 01-1633-00-9823-000

Driller	: Eichelberger's Inc.	Drilling Started	: 04/03/07
Logged By	: Matthew J Logan	Drilling Completed	: 04/03/07
Drilling Method	: Air Rotary	Well Constructed	: 04/03/07
Drilling Diameter	: 10" Air-hammer (0'-21')		

Depth in Feet	DESCRIPTION	USCS	PID Bkgd= 0.0 ppm
0	SILT: Yellowish brown (10YR 5/6).	ML	
	SILT: black (10YR 2/1), fine grained.	ML	
5	SILT: Yellowish brown, fine grained with <2% small angular gravel.	ML	0.2 0.3 0.2 0.1
10			0.4 0.2
	SILTY SAND: moist, 10YR 5/8.	SM	0.1 0.2 0.2
15	SANDY SILT with <10% angular gravel.	SM	0.3 0.2 0.2 0.2 0.2
20			0.3
	End of Boring		
25			



Well Construction Information

WELL CONSTRUCTION

Completed : 04/03/07
Borehole Dia. : 10"
Drill Method : Air Rotary
Driller : Eichelberger's Inc.

WELL CASING PZ E-15 S

Material : Sch 40 PVC
Diameter : 1"
From : 0.0'-2.5'
Joints : Flush-Threaded

WELL SCREEN PZ E-15 S

Material : Sch 40 PVC
Diameter : 1"
From : 2.5'-3.0'
Joints : Flush-Threaded
Opening : 0.010 slot

WELL CASING PZ E-15 M

Material : Sch 40 PVC
Diameter : 1"
From : 0.0'-7.0'
Joints : Flush-Threaded

WELL SCREEN PZ E-15 M

Material : Sch 40 PVC
Diameter : 1"
From : 7.0'-11.0'
Joints : Flush-Threaded
Opening : 0.010 slot

WELL CASING PZ E-15 D

Material : Sch 40 PVC
Diameter : 1"
From :0.0'-16.0'
Joints :Flush-Threaded

WELL SCREEN PZ E-15 D

Material :Sch 40 PVC
Diameter :1"
From :16.0'-19.0'
Joints :Flush-Threaded
Opening :0.030 slot

NOTES:
Soil description based on visual examination of Geoprobe cores collected by SAIC on 03/08/07.

Weathered Limestone encountered at ~ 21' below ground surface.

Science Applications International Corporation
From Science to Solutions™

Boring and Construction Logs PZ E-5 (S, M, D)

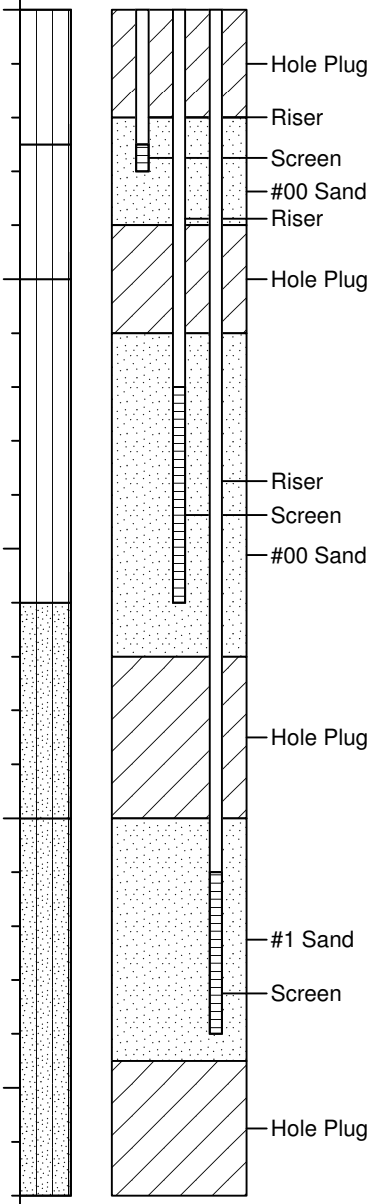
Harley Davidson
York Vehicle Operations
1425 Eden Road, York PA
Area B Soil Vapor Pilot Study

SAIC Project # 01-1633-00-9823-000

Driller	: Eichelberger's Inc.	Drilling Started	: 04/02/07
Logged By	: Matthew J Logan	Drilling Completed	: 04/02/07
Drilling Method	: Air Rotary	Well Constructed	: 04/03/07
Drilling Diameter	: 10" Air-hammer (0'-22')		

Depth in Feet	DESCRIPTION	USCS	PID Bkgd= 0.0 ppm
0	SILT: Yellowish brown (10YR 5/6), fine grained, dense, damp.	ML	
	SILT: black (10YR 2/1), fine grained, dense, damp.	ML	
5	SILT: Yellowish brown (10YR 5/6), fine grained, dense, damp.	ML	1.0
			13.3
			100
10			1.0
	SILTY SAND: moist, fine grained, low density.		1.3
		SM	0.4
			0.6
15			0.4
	SANDY SILT with <5% angular gravel.		0.4
		SM	
20			2.4
	End of Boring		
25			

Well1: PZ E-5 S
Well2: PZ E-5 M
Well3: PZ E-5 D
Elev.:



Well Construction Information

WELL CONSTRUCTION

Completed	: 04/03/07
Borehole Dia.	: 10"
Drill Method	: Air Rotary
Driller	: Eichelberger's Inc.

WELL CASING PZ E-5 S

Material	: Sch 40 PVC
Diameter	: 1"
From	: 0.0'-2.5'
Joints	: Flush-Threaded

WELL SCREEN PZ E-5 S

Material	: Sch 40 PVC
Diameter	: 1"
From	: 2.5'-3.0'
Joints	: Flush-Threaded
Opening	: 0.010 slot

WELL CASING PZ E-5 M

Material	: Sch 40 PVC
Diameter	: 1"
From	: 0.0'-7.0'
Joints	: Flush-Threaded

WELL SCREEN PZ E-5 M

Material	: Sch 40 PVC
Diameter	: 1"
From	: 7.0'-11.0'
Joints	: Flush-Threaded
Opening	: 0.010 slot

WELL CASING PZ E-5 D

Material	: Sch 40 PVC
Diameter	: 1"
From	:0.0'-16.0'
Joints	:Flush-Threaded

WELL SCREEN PZ E-5 D

Material	:Sch 40 PVC
Diameter	:1"
From	:16.0'-19.0'
Joints	:Flush-Threaded
Opening	:0.030 slot

NOTES:
Soil description based on visual examination of Geoprobe cores collected by SAIC on 03/08/07.

Water encountered in boring at ~ 22' below ground surface.

Science Applications International Corporation
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Boring and Construction Logs VEW-1 (S and D)

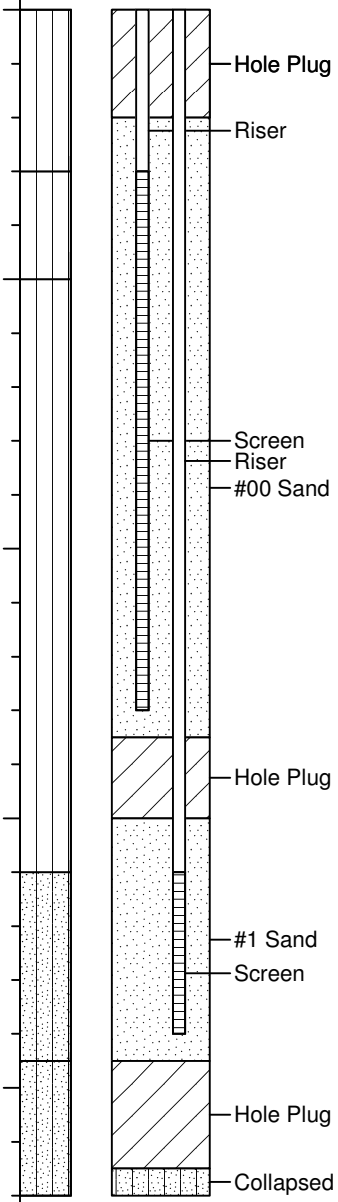
Harley Davidson
York Vehicle Operations
1425 Eden Road, York PA
Area B Soil Vapor Pilot Study

SAIC Project # 01-1633-00-9823-000

Driller	: Eichelberger's Inc.	Drilling Started	: 04/02/07
Logged By	: Matthew J Logan	Drilling Completed	: 04/02/07
Drilling Method	: Air Rotary	Well Constructed	: 04/02/07
Drilling Diameter	: 10" Air-hammer (0'-22')		

Depth in Feet	DESCRIPTION	USCS	PID Bkgd= 0.0 ppm
0	SILT: Yellowish brown (10YR 5/6), fine grained, dense, damp.	ML	
	SILT: black (10YR 2/1), fine grained, dense, damp.	ML	
5	SILT: Yellowish brown (10YR 5/6), fine grain, dense, damp.	ML	6.7
			15.1
10			15.7
			10.7
			1.6
			8.1
			6.9
15			3.5
	SILTY SAND: moist, small angular gravel, low density.	SM	1.5
20	<15% angular gravel.	SM	4.1
25	End of Boring		

Well1: EW-1 S
Well2: EW-1 D
Elev.:



Well Construction Information

WELL CONSTRUCTION

Completed	: 04/02/07
Borehole Dia.	: 10"
Drill Method	: Air Rotary
Driller	: Eichelberger's Inc.

WELL CASING EW-1 S

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0.0'-3.0'
Joints	: Flush-Threaded

WELL SCREEN EW-1 S

Material	: Sch 40 PVC
Diameter	: 2"
From	: 3.0'-13.0'
Joints	: Flush-Threaded
Opening	: 0.010 slot

WELL CASING EW-1 D

Material	: Sch 40 PVC
Diameter	: 2"
From	: 0.0'-16.0'
Joints	: Flush-Threaded

WELL SCREEN EW-1 D

Material	: Sch 40 PVC
Diameter	: 2"
From	: 16.0'-19.0'
Joints	: Flush-Threaded
Opening	: 0.030 slot

NOTES:
Soil description based on visual examination of Geoprobe cores collected by SAIC on 03/08/07.

Water encountered in boring at ~22' below ground surface.

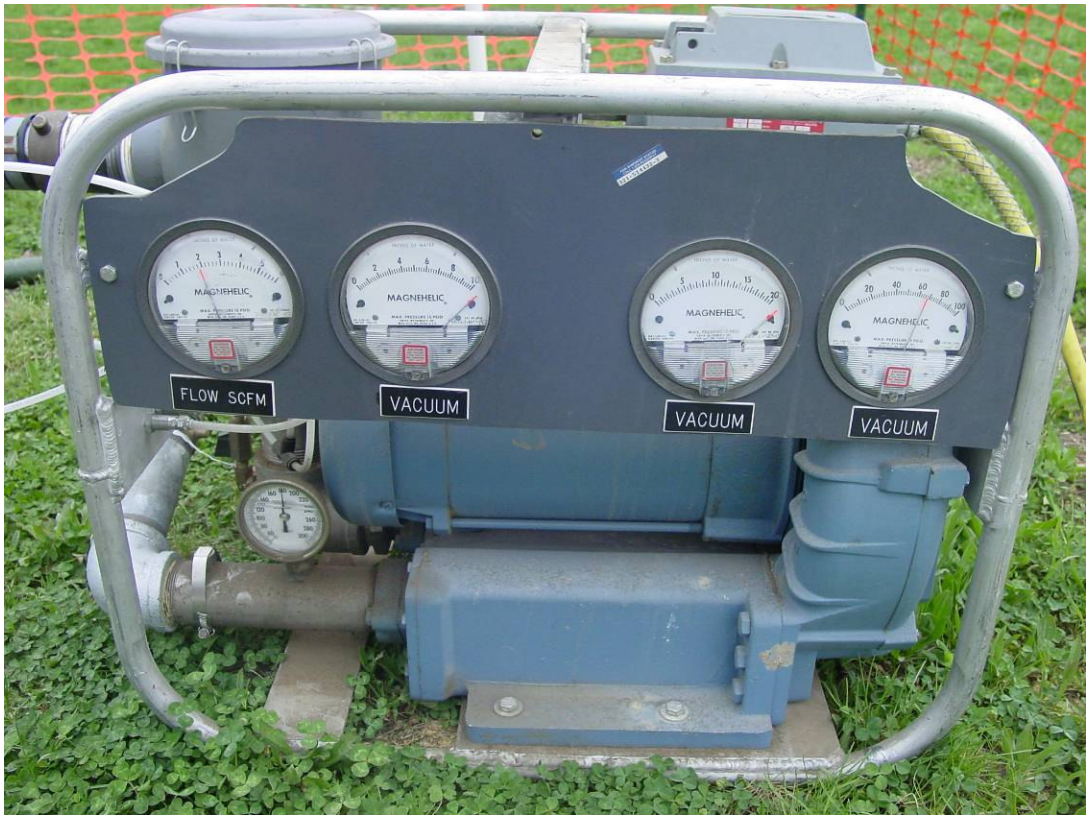
APPENDIX C

Photographic Log of Site Work

Appendix C – Photographs

Photograph 1 – Temporary well location, which remains following the project.

Photograph 2 – Air rotary drilling rig drilling monitoring well cluster PZ-E15.



Photograph 3 – 5 Horsepower blower and vacuum gauges.

Photograph 4 – 50 KW generator and light stand.

Photograph 5 – Knockout drum and connections.

Photograph 6 – Granular activated carbon drums and connections

Photograph 7 – SVE connections to blower and flow measurement port.

Photograph 8 – SVE extraction well sampling ports and vacuum flow measurement.

Photograph 9 – SVE monitoring well connections.

Photograph 10 – Extracting vapors from SVE well using a syringe.

Photograph 11 – Filling evacuated vial with SVE vapors.

Photograph 12 – Completed SVE wells with drive-over covers.

APPENDIX D

Analytical Reports

Appendix D
Analytical Report Summary

Severn Trent Laboratory Data Package – C7C090301 (soil samples):

- PZ-S15 SMD, 11.5-12'
- PZ-S15 SMD, 18-18.5'
- PZ-S15 SMD, 19.5-20'
- PZ-S5 SMD, 9.5-10'
- PZ-S5 SMD, 13-13.5'
- PZ-S5 SMD, 14-14.5'
- EW-1, 6.5-7'
- EW-1, 14-14.5'
- EW-1, 15.5-16'
- PZ-E5 SMD, 9-9.5'
- PZ-E5 SMD, 14-14.5'
- PZ-E5 SMD, 19.5-20'
- PZ-E15 SMD, 9-9.5'
- PZ-E15 SMD, 15-15.5'
- PZ-E15 SMD, 19.5-20'
- Trip Blank

VaporTech Laboratory Data Package May 1, 2007 (air samples):

- VEW-1 (S) A
- VEW-1 (S) B
- VEW-1 (D) A
- VEW-1 (D) B
- Continuing Calibration Check
- Laboratory Blank

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

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SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
Client Sample ID: PZ-S15 SMD 11.5-12				
Sample #: 001 Date Sampled: 03/08/07 09:44 Date Received: 03/09/07 Matrix: SOLID				
Volatile Organics by GC/MS				Reviewed
2-Butanone	ND	260	ug/kg	SW846 8260B
1,4-Dioxane	ND	51000	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	**37 J**	**260**	**ug/kg**	**SW846 8260B**
Acrolein	ND	5100	ug/kg	SW846 8260B
Acrylonitrile	ND	5100	ug/kg	SW846 8260B
Benzene	ND	260	ug/kg	SW846 8260B
Bromodichloromethane	ND	260	ug/kg	SW846 8260B
Bromoform	ND	260	ug/kg	SW846 8260B
Bromomethane	ND	260	ug/kg	SW846 8260B
Carbon tetrachloride	ND	260	ug/kg	SW846 8260B
Chlorobenzene	ND	260	ug/kg	SW846 8260B
Chloroethane	ND	260	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	510	ug/kg	SW846 8260B
Chloroform	ND	260	ug/kg	SW846 8260B
Chloromethane	ND	260	ug/kg	SW846 8260B
Dibromochloromethane	ND	260	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	260	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	260	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	260	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	260	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	260	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	260	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	260	ug/kg	SW846 8260B
Ethylbenzene	ND	260	ug/kg	SW846 8260B
Methylene chloride	**63 J**	**260**	**ug/kg**	**SW846 8260B**
1,1,2,2-Tetrachloroethane	ND	260	ug/kg	SW846 8260B
Tetrachloroethene	**690**	**260**	**ug/kg**	**SW846 8260B**
Toluene	ND	260	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	260	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	260	ug/kg	SW846 8260B
Trichloroethene	**1300**	**260**	**ug/kg**	**SW846 8260B**
Vinyl chloride	ND	260	ug/kg	SW846 8260B

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

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SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: PZ-S15 SMD 11.5-12					
Sample #: 001 Date Sampled: 03/08/07 09:44 Date Received: 03/09/07 Matrix: SOLID					
Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**82.8**	**1.0**	**%**	**MCAWW 160.3 MOD**	
Client Sample ID: PZ-S15 SMD 18.0-18.5					
Sample #: 002 Date Sampled: 03/08/07 10:00 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	3.9	ug/kg	SW846 8260B	
1,4-Dioxane	ND	790	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	**6.0**	**3.9**	**ug/kg**	**SW846 8260B**	
Acrolein	ND	79	ug/kg	SW846 8260B	
Acrylonitrile	ND	79	ug/kg	SW846 8260B	
Benzene	ND	3.9	ug/kg	SW846 8260B	
Bromodichloromethane	ND	3.9	ug/kg	SW846 8260B	
Bromoform	ND	3.9	ug/kg	SW846 8260B	
Bromomethane	ND	3.9	ug/kg	SW846 8260B	
Carbon tetrachloride	ND	3.9	ug/kg	SW846 8260B	
Chlorobenzene	ND	3.9	ug/kg	SW846 8260B	
Chloroethane	ND	3.9	ug/kg	SW846 8260B	
2-Chloroethyl vinyl ether	ND	7.9	ug/kg	SW846 8260B	
Chloroform	ND	3.9	ug/kg	SW846 8260B	
Chloromethane	ND	3.9	ug/kg	SW846 8260B	
Dibromochloromethane	ND	3.9	ug/kg	SW846 8260B	
1,1-Dichloroethane	ND	3.9	ug/kg	SW846 8260B	
1,2-Dichloroethane	ND	3.9	ug/kg	SW846 8260B	
1,1-Dichloroethene	ND	3.9	ug/kg	SW846 8260B	
trans-1,2-Dichloroethene	ND	3.9	ug/kg	SW846 8260B	
1,2-Dichloropropane	ND	3.9	ug/kg	SW846 8260B	
cis-1,3-Dichloropropene	ND	3.9	ug/kg	SW846 8260B	
trans-1,3-Dichloropropene	ND	3.9	ug/kg	SW846 8260B	
Ethylbenzene	ND	3.9	ug/kg	SW846 8260B	
Methylene chloride	**2.2 J**	**3.9**	**ug/kg**	**SW846 8260B**	
1,1,2,2-Tetrachloroethane	ND	3.9	ug/kg	SW846 8260B	
Tetrachloroethene	**41**	**3.9**	**ug/kg**	**SW846 8260B**	
Toluene	ND	3.9	ug/kg	SW846 8260B	
1,1,1-Trichloroethane	ND	3.9	ug/kg	SW846 8260B	

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

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SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: PZ-S15 SMD 18.0-18.5					
Sample #: 002 Date Sampled: 03/08/07 10:00 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
1,1,2-Trichloroethane	ND	3.9	ug/kg	SW846 8260B	
Trichloroethene	**130**	**3.9**	**ug/kg**	**SW846 8260B**	
Vinyl chloride	ND	3.9	ug/kg	SW846 8260B	
Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**88.8**	**1.0**	**%**	**MCAWW 160.3 MOD**	
Client Sample ID: PZ-S15 SMD 19.5-20					
Sample #: 003 Date Sampled: 03/08/07 10:05 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	4.3	ug/kg	SW846 8260B	
1,4-Dioxane	ND	860	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	**1.2 J**	**4.3**	**ug/kg**	**SW846 8260B**	
Acrolein	ND	86	ug/kg	SW846 8260B	
Acrylonitrile	ND	86	ug/kg	SW846 8260B	
Benzene	ND	4.3	ug/kg	SW846 8260B	
Bromodichloromethane	ND	4.3	ug/kg	SW846 8260B	
Bromoform	ND	4.3	ug/kg	SW846 8260B	
Bromomethane	ND	4.3	ug/kg	SW846 8260B	
Carbon tetrachloride	ND	4.3	ug/kg	SW846 8260B	
Chlorobenzene	ND	4.3	ug/kg	SW846 8260B	
Chloroethane	ND	4.3	ug/kg	SW846 8260B	
2-Chloroethyl vinyl ether	ND	8.6	ug/kg	SW846 8260B	
Chloroform	ND	4.3	ug/kg	SW846 8260B	
Chloromethane	ND	4.3	ug/kg	SW846 8260B	
Dibromochloromethane	ND	4.3	ug/kg	SW846 8260B	
1,1-Dichloroethane	ND	4.3	ug/kg	SW846 8260B	
1,2-Dichloroethane	ND	4.3	ug/kg	SW846 8260B	
1,1-Dichloroethene	ND	4.3	ug/kg	SW846 8260B	
trans-1,2-Dichloroethene	ND	4.3	ug/kg	SW846 8260B	
1,2-Dichloropropane	ND	4.3	ug/kg	SW846 8260B	

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: PZ-S15 SMD 19.5-20					
Sample #: 003 Date Sampled: 03/08/07 10:05 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
cis-1,3-Dichloropropene	ND	4.3	ug/kg	SW846 8260B	
trans-1,3-Dichloropropene	ND	4.3	ug/kg	SW846 8260B	
Ethylbenzene	ND	4.3	ug/kg	SW846 8260B	
Methylene chloride	**3.5 J**	**4.3**	**ug/kg**	**SW846 8260B**	
1,1,2,2-Tetrachloroethane	ND	4.3	ug/kg	SW846 8260B	
Tetrachloroethene	**20**	**4.3**	**ug/kg**	**SW846 8260B**	
Toluene	ND	4.3	ug/kg	SW846 8260B	
1,1,1-Trichloroethane	ND	4.3	ug/kg	SW846 8260B	
1,1,2-Trichloroethane	ND	4.3	ug/kg	SW846 8260B	
Trichloroethene	**60**	**4.3**	**ug/kg**	**SW846 8260B**	
Vinyl chloride	ND	4.3	ug/kg	SW846 8260B	

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**91.6**	**1.0**	**%**	**MCAWW 160.3 MOD**	

Client Sample ID: PZ-S5 SMD 9.5-10					
Sample #: 004 Date Sampled: 03/08/07 10:19 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	280	ug/kg	SW846 8260B	
1,4-Dioxane	ND	55000	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	ND	280	ug/kg	SW846 8260B	
Acrolein	ND	5500	ug/kg	SW846 8260B	
Acrylonitrile	ND	5500	ug/kg	SW846 8260B	
Benzene	ND	280	ug/kg	SW846 8260B	
Bromodichloromethane	ND	280	ug/kg	SW846 8260B	
Bromoform	ND	280	ug/kg	SW846 8260B	
Bromomethane	ND	280	ug/kg	SW846 8260B	
Carbon tetrachloride	ND	280	ug/kg	SW846 8260B	
Chlorobenzene	ND	280	ug/kg	SW846 8260B	
Chloroethane	ND	280	ug/kg	SW846 8260B	
2-Chloroethyl vinyl ether	ND	550	ug/kg	SW846 8260B	

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

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SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: PZ-S5 SMD 9.5-10					
Sample #: 004 Date Sampled: 03/08/07 10:19 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
Chloroform	ND	280	ug/kg	SW846 8260B	
Chloromethane	ND	280	ug/kg	SW846 8260B	
Dibromochloromethane	ND	280	ug/kg	SW846 8260B	
1,1-Dichloroethane	ND	280	ug/kg	SW846 8260B	
1,2-Dichloroethane	ND	280	ug/kg	SW846 8260B	
1,1-Dichloroethene	ND	280	ug/kg	SW846 8260B	
trans-1,2-Dichloroethene	ND	280	ug/kg	SW846 8260B	
1,2-Dichloropropane	ND	280	ug/kg	SW846 8260B	
cis-1,3-Dichloropropene	ND	280	ug/kg	SW846 8260B	
trans-1,3-Dichloropropene	ND	280	ug/kg	SW846 8260B	
Ethylbenzene	ND	280	ug/kg	SW846 8260B	
Methylene chloride	**61 J**	**280**	**ug/kg**	**SW846 8260B**	
1,1,2,2-Tetrachloroethane	ND	280	ug/kg	SW846 8260B	
Tetrachloroethene	**790**	**280**	**ug/kg**	**SW846 8260B**	
Toluene	ND	280	ug/kg	SW846 8260B	
1,1,1-Trichloroethane	ND	280	ug/kg	SW846 8260B	
1,1,2-Trichloroethane	ND	280	ug/kg	SW846 8260B	
Trichloroethene	**1200**	**280**	**ug/kg**	**SW846 8260B**	
Vinyl chloride	ND	280	ug/kg	SW846 8260B	

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**82.9**	**1.0**	**%**	**MCAWW 160.3 MOD**	

Client Sample ID: PZ-S5 SMD 13-13.5					
Sample #: 005 Date Sampled: 03/08/07 10:30 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	3.6	ug/kg	SW846 8260B	
1,4-Dioxane	ND	720	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	**0.66 J**	**3.6**	**ug/kg**	**SW846 8260B**	
Acrolein	ND	72	ug/kg	SW846 8260B	
Acrylonitrile	ND	72	ug/kg	SW846 8260B	

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

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SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
Client Sample ID: PZ-S5 SMD 13-13.5				
Sample #: 005 Date Sampled: 03/08/07 10:30 Date Received: 03/09/07 Matrix: SOLID				
Volatile Organics by GC/MS				Reviewed
Benzene	ND	3.6	ug/kg	SW846 8260B
Bromodichloromethane	ND	3.6	ug/kg	SW846 8260B
Bromoform	ND	3.6	ug/kg	SW846 8260B
Bromomethane	ND	3.6	ug/kg	SW846 8260B
Carbon tetrachloride	ND	3.6	ug/kg	SW846 8260B
Chlorobenzene	ND	3.6	ug/kg	SW846 8260B
Chloroethane	ND	3.6	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	7.2	ug/kg	SW846 8260B
Chloroform	ND	3.6	ug/kg	SW846 8260B
Chloromethane	ND	3.6	ug/kg	SW846 8260B
Dibromochloromethane	ND	3.6	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	3.6	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	3.6	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	3.6	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	3.6	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	3.6	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	3.6	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	3.6	ug/kg	SW846 8260B
Ethylbenzene	ND	3.6	ug/kg	SW846 8260B
Methylene chloride	ND	3.6	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	3.6	ug/kg	SW846 8260B
Tetrachloroethene	**18**	**3.6**	**ug/kg**	**SW846 8260B**
Toluene	ND	3.6	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	3.6	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	3.6	ug/kg	SW846 8260B
Trichloroethene	**42**	**3.6**	**ug/kg**	**SW846 8260B**
Vinyl chloride	ND	3.6	ug/kg	SW846 8260B

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Inorganic Analysis				Reviewed
Total Residue as Percent Solids	**82.9**	**1.0**	**%**	**MCAWW 160.3 MOD**

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

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SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

Client Sample ID: PZ-S5 SMD 14-14.5

Sample #: 006 Date Sampled: 03/08/07 10:35 Date Received: 03/09/07 Matrix: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	220	ug/kg	SW846 8260B	
1,4-Dioxane	ND	43000	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	ND	220	ug/kg	SW846 8260B	
Acrolein	ND	4300	ug/kg	SW846 8260B	
Acrylonitrile	ND	4300	ug/kg	SW846 8260B	
Benzene	ND	220	ug/kg	SW846 8260B	
Bromodichloromethane	ND	220	ug/kg	SW846 8260B	
Bromoform	ND	220	ug/kg	SW846 8260B	
Bromomethane	ND	220	ug/kg	SW846 8260B	
Carbon tetrachloride	ND	220	ug/kg	SW846 8260B	
Chlorobenzene	ND	220	ug/kg	SW846 8260B	
Chloroethane	ND	220	ug/kg	SW846 8260B	
2-Chloroethyl vinyl ether	ND	430	ug/kg	SW846 8260B	
Chloroform	ND	220	ug/kg	SW846 8260B	
Chloromethane	ND	220	ug/kg	SW846 8260B	
Dibromochloromethane	ND	220	ug/kg	SW846 8260B	
1,1-Dichloroethane	ND	220	ug/kg	SW846 8260B	
1,2-Dichloroethane	ND	220	ug/kg	SW846 8260B	
1,1-Dichloroethene	ND	220	ug/kg	SW846 8260B	
trans-1,2-Dichloroethene	ND	220	ug/kg	SW846 8260B	
1,2-Dichloropropane	ND	220	ug/kg	SW846 8260B	
cis-1,3-Dichloropropene	ND	220	ug/kg	SW846 8260B	
trans-1,3-Dichloropropene	ND	220	ug/kg	SW846 8260B	
Ethylbenzene	ND	220	ug/kg	SW846 8260B	
Methylene chloride	**37 J**	**220**	**ug/kg**	**SW846 8260B**	
1,1,2,2-Tetrachloroethane	ND	220	ug/kg	SW846 8260B	
Tetrachloroethene	**360**	**220**	**ug/kg**	**SW846 8260B**	
Toluene	ND	220	ug/kg	SW846 8260B	
1,1,1-Trichloroethane	ND	220	ug/kg	SW846 8260B	
1,1,2-Trichloroethane	ND	220	ug/kg	SW846 8260B	
Trichloroethene	**750**	**220**	**ug/kg**	**SW846 8260B**	
Vinyl chloride	ND	220	ug/kg	SW846 8260B	

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

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Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: PZ-S5 SMD 14-14.5					
Sample #: 006 Date Sampled: 03/08/07 10:35 Date Received: 03/09/07 Matrix: SOLID					
Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**82.5**	**1.0**	**%**	**MCAWW 160.3 MOD**	
Client Sample ID: EW-1 6.5-7					
Sample #: 007 Date Sampled: 03/08/07 10:50 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	230	ug/kg	SW846 8260B	
1,4-Dioxane	ND	46000	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	**150 J**	**230**	**ug/kg**	**SW846 8260B**	
Acrolein	ND	4600	ug/kg	SW846 8260B	
Acrylonitrile	ND	4600	ug/kg	SW846 8260B	
Benzene	ND	230	ug/kg	SW846 8260B	
Bromodichloromethane	ND	230	ug/kg	SW846 8260B	
Bromoform	ND	230	ug/kg	SW846 8260B	
Bromomethane	ND	230	ug/kg	SW846 8260B	
Carbon tetrachloride	ND	230	ug/kg	SW846 8260B	
Chlorobenzene	ND	230	ug/kg	SW846 8260B	
Chloroethane	ND	230	ug/kg	SW846 8260B	
2-Chloroethyl vinyl ether	ND	460	ug/kg	SW846 8260B	
Chloroform	ND	230	ug/kg	SW846 8260B	
Chloromethane	ND	230	ug/kg	SW846 8260B	
Dibromochloromethane	ND	230	ug/kg	SW846 8260B	
1,1-Dichloroethane	ND	230	ug/kg	SW846 8260B	
1,2-Dichloroethane	ND	230	ug/kg	SW846 8260B	
1,1-Dichloroethene	ND	230	ug/kg	SW846 8260B	
trans-1,2-Dichloroethene	ND	230	ug/kg	SW846 8260B	
1,2-Dichloropropane	ND	230	ug/kg	SW846 8260B	
cis-1,3-Dichloropropene	ND	230	ug/kg	SW846 8260B	
trans-1,3-Dichloropropene	ND	230	ug/kg	SW846 8260B	
Ethylbenzene	ND	230	ug/kg	SW846 8260B	
Methylene chloride	**42 J**	**230**	**ug/kg**	**SW846 8260B**	
1,1,2,2-Tetrachloroethane	ND	230	ug/kg	SW846 8260B	
Tetrachloroethene	**580**	**230**	**ug/kg**	**SW846 8260B**	
Toluene	ND	230	ug/kg	SW846 8260B	
1,1,1-Trichloroethane	ND	230	ug/kg	SW846 8260B	

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: EW-1 6.5-7					
Sample #: 007 Date Sampled: 03/08/07 10:50 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
1,1,2-Trichloroethane	ND	230	ug/kg	SW846 8260B	
Trichloroethene	**610**	**230**	**ug/kg**	**SW846 8260B**	
Vinyl chloride	ND	230	ug/kg	SW846 8260B	
Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**80.8**	**1.0**	**%**	**MCAWW 160.3 MOD**	

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: EW-1 14-14.5					
Sample #: 008 Date Sampled: 03/08/07 11:00 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	230	ug/kg	SW846 8260B	
1,4-Dioxane	ND	45000	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	ND	230	ug/kg	SW846 8260B	
Acrolein	ND	4500	ug/kg	SW846 8260B	
Acrylonitrile	ND	4500	ug/kg	SW846 8260B	
Benzene	ND	230	ug/kg	SW846 8260B	
Bromodichloromethane	ND	230	ug/kg	SW846 8260B	
Bromoform	ND	230	ug/kg	SW846 8260B	
Bromomethane	ND	230	ug/kg	SW846 8260B	
Carbon tetrachloride	ND	230	ug/kg	SW846 8260B	
Chlorobenzene	ND	230	ug/kg	SW846 8260B	
Chloroethane	ND	230	ug/kg	SW846 8260B	
2-Chloroethyl vinyl ether	ND	450	ug/kg	SW846 8260B	
Chloroform	ND	230	ug/kg	SW846 8260B	
Chloromethane	ND	230	ug/kg	SW846 8260B	
Dibromochloromethane	ND	230	ug/kg	SW846 8260B	
1,1-Dichloroethane	ND	230	ug/kg	SW846 8260B	
1,2-Dichloroethane	ND	230	ug/kg	SW846 8260B	
1,1-Dichloroethene	ND	230	ug/kg	SW846 8260B	
trans-1,2-Dichloroethene	ND	230	ug/kg	SW846 8260B	
1,2-Dichloropropane	ND	230	ug/kg	SW846 8260B	

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: EW-1 14-14.5					
Sample #: 008 Date Sampled: 03/08/07 11:00 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
cis-1,3-Dichloropropene	ND	230	ug/kg	SW846 8260B	
trans-1,3-Dichloropropene	ND	230	ug/kg	SW846 8260B	
Ethylbenzene	ND	230	ug/kg	SW846 8260B	
Methylene chloride	**45 J**	**230**	**ug/kg**	**SW846 8260B**	
1,1,2,2-Tetrachloroethane	ND	230	ug/kg	SW846 8260B	
Tetrachloroethene	**390**	**230**	**ug/kg**	**SW846 8260B**	
Toluene	ND	230	ug/kg	SW846 8260B	
1,1,1-Trichloroethane	ND	230	ug/kg	SW846 8260B	
1,1,2-Trichloroethane	ND	230	ug/kg	SW846 8260B	
Trichloroethene	**730**	**230**	**ug/kg**	**SW846 8260B**	
Vinyl chloride	ND	230	ug/kg	SW846 8260B	

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**81.8**	**1.0**	**%**	**MCAWW 160.3 MOD**	

Client Sample ID: EW-1 15.5-16					
Sample #: 009 Date Sampled: 03/08/07 11:05 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	5.7	ug/kg	SW846 8260B	
1,4-Dioxane	ND	1100	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	**3.2 J**	**5.7**	**ug/kg**	**SW846 8260B**	
Acrolein	ND	110	ug/kg	SW846 8260B	
Acrylonitrile	ND	110	ug/kg	SW846 8260B	
Benzene	ND	5.7	ug/kg	SW846 8260B	
Bromodichloromethane	ND	5.7	ug/kg	SW846 8260B	
Bromoform	ND	5.7	ug/kg	SW846 8260B	
Bromomethane	ND	5.7	ug/kg	SW846 8260B	
Carbon tetrachloride	ND	5.7	ug/kg	SW846 8260B	
Chlorobenzene	ND	5.7	ug/kg	SW846 8260B	
Chloroethane	ND	5.7	ug/kg	SW846 8260B	
2-Chloroethyl vinyl ether	ND	11	ug/kg	SW846 8260B	

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: EW-1 15.5-16					
Sample #: 009 Date Sampled: 03/08/07 11:05 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
Chloroform	ND	5.7	ug/kg	SW846 8260B	
Chloromethane	ND	5.7	ug/kg	SW846 8260B	
Dibromochloromethane	ND	5.7	ug/kg	SW846 8260B	
1,1-Dichloroethane	ND	5.7	ug/kg	SW846 8260B	
1,2-Dichloroethane	ND	5.7	ug/kg	SW846 8260B	
1,1-Dichloroethene	ND	5.7	ug/kg	SW846 8260B	
trans-1,2-Dichloroethene	ND	5.7	ug/kg	SW846 8260B	
1,2-Dichloropropane	ND	5.7	ug/kg	SW846 8260B	
cis-1,3-Dichloropropene	ND	5.7	ug/kg	SW846 8260B	
trans-1,3-Dichloropropene	ND	5.7	ug/kg	SW846 8260B	
Ethylbenzene	ND	5.7	ug/kg	SW846 8260B	
Methylene chloride	**1.5 J**	**5.7**	**ug/kg**	**SW846 8260B**	
1,1,2,2-Tetrachloroethane	ND	5.7	ug/kg	SW846 8260B	
Tetrachloroethene	**62**	**5.7**	**ug/kg**	**SW846 8260B**	
Toluene	ND	5.7	ug/kg	SW846 8260B	
1,1,1-Trichloroethane	ND	5.7	ug/kg	SW846 8260B	
1,1,2-Trichloroethane	ND	5.7	ug/kg	SW846 8260B	
Trichloroethene	**150**	**5.7**	**ug/kg**	**SW846 8260B**	
Vinyl chloride	ND	5.7	ug/kg	SW846 8260B	

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**83.2**	**1.0**	**%**	**MCAWW 160.3 MOD**	

Client Sample ID: PZ-E5 SMD 9-9.5					
Sample #: 010 Date Sampled: 03/08/07 11:20 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	5.7	ug/kg	SW846 8260B	
1,4-Dioxane	ND	1100	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	**2.6 J**	**5.7**	**ug/kg**	**SW846 8260B**	
Acrolein	ND	110	ug/kg	SW846 8260B	
Acrylonitrile	ND	110	ug/kg	SW846 8260B	

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
Client Sample ID: PZ-E5 SMD 9-9.5				
Sample #: 010 Date Sampled: 03/08/07 11:20 Date Received: 03/09/07 Matrix: SOLID				
Volatile Organics by GC/MS				Reviewed
Benzene	ND	5.7	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.7	ug/kg	SW846 8260B
Bromoform	ND	5.7	ug/kg	SW846 8260B
Bromomethane	ND	5.7	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.7	ug/kg	SW846 8260B
Chlorobenzene	ND	5.7	ug/kg	SW846 8260B
Chloroethane	ND	5.7	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	11	ug/kg	SW846 8260B
Chloroform	ND	5.7	ug/kg	SW846 8260B
Chloromethane	ND	5.7	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.7	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.7	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.7	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.7	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.7	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.7	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.7	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.7	ug/kg	SW846 8260B
Ethylbenzene	ND	5.7	ug/kg	SW846 8260B
Methylene chloride	ND	5.7	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.7	ug/kg	SW846 8260B
Tetrachloroethene	**40**	**5.7**	**ug/kg**	**SW846 8260B**
Toluene	ND	5.7	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.7	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.7	ug/kg	SW846 8260B
Trichloroethene	**48**	**5.7**	**ug/kg**	**SW846 8260B**
Vinyl chloride	ND	5.7	ug/kg	SW846 8260B

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Inorganic Analysis				Reviewed
Total Residue as Percent Solids	**80.9**	**1.0**	**%**	**MCAWW 160.3 MOD**

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
Client Sample ID: PZ-E5 SMD 14-14.5				
Sample #: 011 Date Sampled: 03/08/07 11:30 Date Received: 03/09/07 Matrix: SOLID				
Volatile Organics by GC/MS				Reviewed
2-Butanone	ND	5.9	ug/kg	SW846 8260B
1,4-Dioxane	ND	1200	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	**3.3 J**	**5.9**	**ug/kg**	**SW846 8260B**
Acrolein	ND	120	ug/kg	SW846 8260B
Acrylonitrile	ND	120	ug/kg	SW846 8260B
Benzene	ND	5.9	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.9	ug/kg	SW846 8260B
Bromoform	ND	5.9	ug/kg	SW846 8260B
Bromomethane	ND	5.9	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.9	ug/kg	SW846 8260B
Chlorobenzene	ND	5.9	ug/kg	SW846 8260B
Chloroethane	ND	5.9	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	12	ug/kg	SW846 8260B
Chloroform	ND	5.9	ug/kg	SW846 8260B
Chloromethane	ND	5.9	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.9	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.9	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.9	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.9	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.9	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.9	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.9	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.9	ug/kg	SW846 8260B
Ethylbenzene	ND	5.9	ug/kg	SW846 8260B
Methylene chloride	**1.9 J**	**5.9**	**ug/kg**	**SW846 8260B**
1,1,2,2-Tetrachloroethane	ND	5.9	ug/kg	SW846 8260B
Tetrachloroethene	**46**	**5.9**	**ug/kg**	**SW846 8260B**
Toluene	ND	5.9	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.9	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.9	ug/kg	SW846 8260B
Trichloroethene	**100**	**5.9**	**ug/kg**	**SW846 8260B**
Vinyl chloride	ND	5.9	ug/kg	SW846 8260B

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: PZ-E5 SMD 14-14.5					
Sample #: 011 Date Sampled: 03/08/07 11:30 Date Received: 03/09/07 Matrix: SOLID					
Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**84.5**	**1.0**	**%**	**MCAWW 160.3 MOD**	
Client Sample ID: PZ-E5 SMD 19.5-20					
Sample #: 012 Date Sampled: 03/08/07 11:35 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	4.4	ug/kg	SW846 8260B	
1,4-Dioxane	ND	880	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	ND	4.4	ug/kg	SW846 8260B	
Acrolein	ND	88	ug/kg	SW846 8260B	
Acrylonitrile	ND	88	ug/kg	SW846 8260B	
Benzene	ND	4.4	ug/kg	SW846 8260B	
Bromodichloromethane	ND	4.4	ug/kg	SW846 8260B	
Bromoform	ND	4.4	ug/kg	SW846 8260B	
Bromomethane	ND	4.4	ug/kg	SW846 8260B	
Carbon tetrachloride	ND	4.4	ug/kg	SW846 8260B	
Chlorobenzene	ND	4.4	ug/kg	SW846 8260B	
Chloroethane	ND	4.4	ug/kg	SW846 8260B	
2-Chloroethyl vinyl ether	ND	8.8	ug/kg	SW846 8260B	
Chloroform	ND	4.4	ug/kg	SW846 8260B	
Chloromethane	ND	4.4	ug/kg	SW846 8260B	
Dibromochloromethane	ND	4.4	ug/kg	SW846 8260B	
1,1-Dichloroethane	ND	4.4	ug/kg	SW846 8260B	
1,2-Dichloroethane	ND	4.4	ug/kg	SW846 8260B	
1,1-Dichloroethene	ND	4.4	ug/kg	SW846 8260B	
trans-1,2-Dichloroethene	ND	4.4	ug/kg	SW846 8260B	
1,2-Dichloropropane	ND	4.4	ug/kg	SW846 8260B	
cis-1,3-Dichloropropene	ND	4.4	ug/kg	SW846 8260B	
trans-1,3-Dichloropropene	ND	4.4	ug/kg	SW846 8260B	
Ethylbenzene	ND	4.4	ug/kg	SW846 8260B	
Methylene chloride	ND	4.4	ug/kg	SW846 8260B	
1,1,2,2-Tetrachloroethane	ND	4.4	ug/kg	SW846 8260B	
Tetrachloroethene	**2.5 J**	**4.4**	**ug/kg**	**SW846 8260B**	
Toluene	ND	4.4	ug/kg	SW846 8260B	
1,1,1-Trichloroethane	ND	4.4	ug/kg	SW846 8260B	

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

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SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: PZ-E5 SMD 19.5-20					
Sample #: 012 Date Sampled: 03/08/07 11:35 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
1,1,2-Trichloroethane	ND	4.4	ug/kg	SW846 8260B	
Trichloroethene	**4.2 J**	**4.4**	**ug/kg**	**SW846 8260B**	
Vinyl chloride	ND	4.4	ug/kg	SW846 8260B	
Results and reporting limits have been adjusted for dry weight.					
J Estimated result. Result is less than RL.					
Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**93.8**	**1.0**	**%**	**MCAWW 160.3 MOD**	
Client Sample ID: PZ-E15 SMD 9-9.5					
Sample #: 013 Date Sampled: 03/08/07 11:50 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	6.8	ug/kg	SW846 8260B	
1,4-Dioxane	ND	1400	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	**3.1 J**	**6.8**	**ug/kg**	**SW846 8260B**	
Acrolein	ND	140	ug/kg	SW846 8260B	
Acrylonitrile	ND	140	ug/kg	SW846 8260B	
Benzene	ND	6.8	ug/kg	SW846 8260B	
Bromodichloromethane	ND	6.8	ug/kg	SW846 8260B	
Bromoform	ND	6.8	ug/kg	SW846 8260B	
Bromomethane	ND	6.8	ug/kg	SW846 8260B	
Carbon tetrachloride	ND	6.8	ug/kg	SW846 8260B	
Chlorobenzene	ND	6.8	ug/kg	SW846 8260B	
Chloroethane	ND	6.8	ug/kg	SW846 8260B	
2-Chloroethyl vinyl ether	ND	14	ug/kg	SW846 8260B	
Chloroform	ND	6.8	ug/kg	SW846 8260B	
Chloromethane	ND	6.8	ug/kg	SW846 8260B	
Dibromochloromethane	ND	6.8	ug/kg	SW846 8260B	
1,1-Dichloroethane	ND	6.8	ug/kg	SW846 8260B	
1,2-Dichloroethane	ND	6.8	ug/kg	SW846 8260B	
1,1-Dichloroethene	ND	6.8	ug/kg	SW846 8260B	
trans-1,2-Dichloroethene	ND	6.8	ug/kg	SW846 8260B	
1,2-Dichloropropane	ND	6.8	ug/kg	SW846 8260B	

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SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: PZ-E15 SMD 9-9.5					
Sample #: 013 Date Sampled: 03/08/07 11:50 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
cis-1,3-Dichloropropene	ND	6.8	ug/kg	SW846 8260B	
trans-1,3-Dichloropropene	ND	6.8	ug/kg	SW846 8260B	
Ethylbenzene	ND	6.8	ug/kg	SW846 8260B	
Methylene chloride	**4.9 J**	**6.8**	**ug/kg**	**SW846 8260B**	
1,1,2,2-Tetrachloroethane	ND	6.8	ug/kg	SW846 8260B	
Tetrachloroethene	**58**	**6.8**	**ug/kg**	**SW846 8260B**	
Toluene	ND	6.8	ug/kg	SW846 8260B	
1,1,1-Trichloroethane	ND	6.8	ug/kg	SW846 8260B	
1,1,2-Trichloroethane	ND	6.8	ug/kg	SW846 8260B	
Trichloroethene	**59**	**6.8**	**ug/kg**	**SW846 8260B**	
Vinyl chloride	ND	6.8	ug/kg	SW846 8260B	

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**81.6**	**1.0**	**%**	**MCAWW 160.3 MOD**	

Client Sample ID: PZ-E15 SMD 15-15.5					
Sample #: 014 Date Sampled: 03/08/07 12:00 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	7.4	ug/kg	SW846 8260B	
1,4-Dioxane	ND	1500	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	**3.6 J**	**7.4**	**ug/kg**	**SW846 8260B**	
Acrolein	ND	150	ug/kg	SW846 8260B	
Acrylonitrile	ND	150	ug/kg	SW846 8260B	
Benzene	ND	7.4	ug/kg	SW846 8260B	
Bromodichloromethane	ND	7.4	ug/kg	SW846 8260B	
Bromoform	ND	7.4	ug/kg	SW846 8260B	
Bromomethane	ND	7.4	ug/kg	SW846 8260B	
Carbon tetrachloride	ND	7.4	ug/kg	SW846 8260B	
Chlorobenzene	ND	7.4	ug/kg	SW846 8260B	
Chloroethane	ND	7.4	ug/kg	SW846 8260B	
2-Chloroethyl vinyl ether	ND	15	ug/kg	SW846 8260B	

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: PZ-E15 SMD 15-15.5					
Sample #: 014 Date Sampled: 03/08/07 12:00 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
Chloroform	ND	7.4	ug/kg	SW846 8260B	
Chloromethane	ND	7.4	ug/kg	SW846 8260B	
Dibromochloromethane	ND	7.4	ug/kg	SW846 8260B	
1,1-Dichloroethane	ND	7.4	ug/kg	SW846 8260B	
1,2-Dichloroethane	ND	7.4	ug/kg	SW846 8260B	
1,1-Dichloroethene	ND	7.4	ug/kg	SW846 8260B	
trans-1,2-Dichloroethene	ND	7.4	ug/kg	SW846 8260B	
1,2-Dichloropropane	ND	7.4	ug/kg	SW846 8260B	
cis-1,3-Dichloropropene	ND	7.4	ug/kg	SW846 8260B	
trans-1,3-Dichloropropene	ND	7.4	ug/kg	SW846 8260B	
Ethylbenzene	ND	7.4	ug/kg	SW846 8260B	
Methylene chloride	**2.3 J**	**7.4**	**ug/kg**	**SW846 8260B**	
1,1,2,2-Tetrachloroethane	ND	7.4	ug/kg	SW846 8260B	
Tetrachloroethene	**41**	**7.4**	**ug/kg**	**SW846 8260B**	
Toluene	ND	7.4	ug/kg	SW846 8260B	
1,1,1-Trichloroethane	ND	7.4	ug/kg	SW846 8260B	
1,1,2-Trichloroethane	ND	7.4	ug/kg	SW846 8260B	
Trichloroethene	**76**	**7.4**	**ug/kg**	**SW846 8260B**	
Vinyl chloride	ND	7.4	ug/kg	SW846 8260B	

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
Total Residue as Percent Solids	**82.1**	**1.0**	**%**	**MCAWW 160.3 MOD**	

Client Sample ID: PZ-E15 SMD 19.5-20					
Sample #: 015 Date Sampled: 03/08/07 12:05 Date Received: 03/09/07 Matrix: SOLID					
Volatile Organics by GC/MS					Reviewed
2-Butanone	ND	5.3	ug/kg	SW846 8260B	
1,4-Dioxane	ND	1100	ug/kg	SW846 8260B	
cis-1,2-Dichloroethene	ND	5.3	ug/kg	SW846 8260B	
Acrolein	ND	110	ug/kg	SW846 8260B	
Acrylonitrile	ND	110	ug/kg	SW846 8260B	

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
Client Sample ID: PZ-E15 SMD 19.5-20				
Sample #: 015 Date Sampled: 03/08/07 12:05 Date Received: 03/09/07 Matrix: SOLID				
Volatile Organics by GC/MS				Reviewed
Benzene	ND	5.3	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.3	ug/kg	SW846 8260B
Bromoform	ND	5.3	ug/kg	SW846 8260B
Bromomethane	ND	5.3	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.3	ug/kg	SW846 8260B
Chlorobenzene	ND	5.3	ug/kg	SW846 8260B
Chloroethane	ND	5.3	ug/kg	SW846 8260B
2-Chloroethyl vinyl ether	ND	11	ug/kg	SW846 8260B
Chloroform	ND	5.3	ug/kg	SW846 8260B
Chloromethane	ND	5.3	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.3	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.3	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.3	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.3	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.3	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.3	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.3	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.3	ug/kg	SW846 8260B
Ethylbenzene	ND	5.3	ug/kg	SW846 8260B
Methylene chloride	ND	5.3	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.3	ug/kg	SW846 8260B
Tetrachloroethene	**4.9 J**	**5.3**	**ug/kg**	**SW846 8260B**
Toluene	ND	5.3	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.3	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.3	ug/kg	SW846 8260B
Trichloroethene	**3.5 J**	**5.3**	**ug/kg**	**SW846 8260B**
Vinyl chloride	ND	5.3	ug/kg	SW846 8260B

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Inorganic Analysis				Reviewed
Total Residue as Percent Solids	**86.9**	**1.0**	**%**	**MCAWW 160.3 MOD**

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

SAIC

Lot #: C7C090301 SAIC Harley Davidson **Date Reported:** 3/21/07

Project Number: SAIC HD

Client Sample ID: TRIP BLANK

Sample #: 016 Date Sampled: 03/08/07 12:05 Date Received: 03/09/07 Matrix: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Volatile Organics by GC/MS					Reviewed
Acrolein	ND	20	ug/L	SW846 8260B	
Acrylonitrile	ND	20	ug/L	SW846 8260B	
Benzene	ND	1.0	ug/L	SW846 8260B	
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B	
Bromoform	ND	1.0	ug/L	SW846 8260B	
Bromomethane	ND	1.0	ug/L	SW846 8260B	
2-Butanone (MEK)	ND	5.0	ug/L	SW846 8260B	
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B	
Chlorobenzene	ND	1.0	ug/L	SW846 8260B	
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B	
Chloroethane	ND	1.0	ug/L	SW846 8260B	
2-Chloroethyl vinyl ether	ND	2.0	ug/L	SW846 8260B	
Chloroform	ND	1.0	ug/L	SW846 8260B	
Chloromethane	ND	1.0	ug/L	SW846 8260B	
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B	
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B	
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B	
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B	
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B	
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B	
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B	
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B	
1,4-Dioxane	ND	200	ug/L	SW846 8260B	
Ethylbenzene	ND	1.0	ug/L	SW846 8260B	
Methylene chloride	ND	1.0	ug/L	SW846 8260B	
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B	
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B	
Toluene	ND	1.0	ug/L	SW846 8260B	
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B	
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B	
Trichloroethene	ND	1.0	ug/L	SW846 8260B	
Vinyl chloride	ND	1.0	ug/L	SW846 8260B	

VAPORTECH Services, Inc.

Analytical Laboratory & Geoprobe Sampling

5/10/07

Mr. Roger Myers
SAIC
6310 Allentown Blvd.
Harrisburg, PA 17112

Dear Roger:

Enclosed are the sample data report, chain of custody record and quality control data for the samples received on May 1, 2007 for your project; 01-1633-00-9823-000 Harley Davidson Area B.

Please give me a call if you have questions or I can be of further assistance. Thank you for using Vaportech Services.

Sincerely,

David J. Masdea

Enclosure:

1158 Pittsburgh Road • Suite 201 • Valencia, PA 16059
Tel.: 724-898-2622 • Fax: 724-898-2633

Vaportech Services, Inc.

SAC118-70302

Science Applications International Corporation
Project: 01-1633-00-9823-000 Harley Davidson Area B

CONCENTRATIONS IN PPMV

COMPOUND	VEW-1 (S)-A	VEW-1(S)-B	VEW-1 (D)-A	VEW-1 (D)-B	PQL
1,1 DICHLOROETHYLENE	0.05	ND	ND	ND	0.01
METHYLENE CHLORIDE	ND	ND	ND	ND	0.1
TRANS-1,2 DICHLOROETHYLENE	0.06	0.06	0.03	ND	0.01
1,1 DICHLOROETHANE	ND	ND	ND	ND	0.05
CIS-1,2 DICHLOROETHYLENE	12.04	8.30	4.66	2.74	0.01
CHLOROFORM	0.005	ND	ND	ND	0.005
1,1,1 TRICHLOROETHANE	0.399	0.326	0.280	0.124	0.005
CARBON TETRACHLORIDE	ND	ND	ND	ND	0.005
TRICHLOROETHYLENE	79.454	71.837	40.631	19.460	0.005
TETRACHLOROETHYLENE	48.656	41.398	32.877	18.493	0.005
FILE NAME	V52B1.43A	V52B1.44A	V52B1.45A	V52B1.46A	
DATE SAMPLED	04/24/07	04/26/07	04/26/07	04/28/07	
DATE RECEIVED	05/01/07	05/01/07	05/01/07	05/01/07	
DATE ANALYZED	05/03/07	05/03/07	05/03/07	05/03/07	

PQL - denotes lower 'Practical Quantitation Limit'

ND - 'Not Detected' at or above the lower practical quantitation limit

10-May-07

Reviewed by:_____

Vaportech Services, Inc.

Science Applications International Corporation
Quality Control
Laboratory Project(s): 70302

CONTINUING CALIBRATION CHECK

STANDARDS: 21V-R4
FILE NAME: V52A/B1.23A
DATE ANALYZED: 05/02/07

COMPOUND	KNOWN (PPMV)	RESULT (PPMV)	PERCENT DIFFERENCE
1,1 DICHLOROETHYLENE	1.01	0.94	7.23
METHYLENE CHLORIDE	1.15	1.10	4.61
TRANS-1,2 DICHLOROETHYLENE	1.01	0.97	4.16
1,1 DICHLOROETHANE	0.99	0.96	2.63
CIS-1,2 DICHLOROETHYLENE	1.01	0.99	2.38
CHLOROFORM	0.820	0.793	3.29
1,1,1 TRICHLOROETHANE	0.730	0.707	3.15
CARBON TETRACHLORIDE	0.640	0.711	11.09
TRICHLOROETHYLENE	0.740	0.719	2.84
TETRACHLOROETHYLENE	0.590	0.575	2.54

LABORATORY BLANK RESULTS

BLANK: N2 IN VIAL
FILE NAME: V52A/B1.22A
DATE ANALYZED: 05/02/07

COMPOUND	BLANK (PPMV)	PRACTICAL QUANTITATION LIMIT (PPMV)
1,1 DICHLOROETHYLENE	ND	0.01
METHYLENE CHLORIDE	ND	0.10
TRANS-1,2 DICHLOROETHYLEN	ND	0.01
1,1 DICHLOROETHANE	ND	0.02
CIS-1,2 DICHLOROETHYLENE	ND	0.01
CHLOROFORM	ND	0.005
1,1,1 TRICHLOROETHANE	ND	0.005
CARBON TETRACHLORIDE	ND	0.005
TRICHLOROETHYLENE	ND	0.005
TETRACHLOROETHYLENE	ND	0.005

ND - 'Not Detected' at or above the lower practical quantitation limit

10-May-07

Reviewed by:_____

SAC 118-70302

CHAIN-OF-CUSTODY RECORD

VAPORTECH Services, Inc.
1158 Pittsburgh Road • Suite 201 • Valencia, PA 16059
Tel: 724-898-2622 • Fax: 724-898-2633

Company Name: SAIC
Address: 6310 ALLENTOWN BLVD.
City: HARRISBURG **State:** PA **Zip:** 17112
Proj. Manager: ROGER MYERS
Proj. Location: HARLEY-DAVIDSON AREA-B
Proj. Number: 01-1633-00-4823-000
Phone #: 717-901-8831 **Fax #:** 717-901-8103

Sampler's signature:

Analysis Options: Enter letters in Requested Analysis columns below.

A	Light Hydrocarbons	F	BTEX
B	Permanent Gases	G	BTEX & C5 - C10
C	Methane	H	TPH (C4 - C12 range)
D	Methane, Ethane, Ethylene	I	Chlorinated Hydrocarbons
E	Hydrogen	J	624 Compound List

Light Hydrocarbons: Methane, Ethane, Ethylene, Propane, Propylene, iso-Butane, n-Butane
Permanent Gases: Carbon Dioxide, Oxygen, Nitrogen, Methane, Carbon Monoxide
BTEX: Benzene, Toluene, Ethyl Benzene, m & p -Xylene, o-Xylene
C5-C10: Pentane, Hexane, Heptane, Octane, Nonane, Decane
Chlorinated HC: 1,1-DCE, 1,1-DCA, Methylene Chloride, trans-1,2-DCE, cis-1,2-DCE, Chloroform 1,1,1-TCA, Carbon Tetrachloride, Trichloroethylene (TCE), Tetrachloroethylene (PCE)

Collection Date	Time	Number of Containers	Sample Type	Sample Identification	Requested Analysis	(Other)	Remarks
4/24/07	1815	2	AIR	VEW-1(S)-A	I		* NOTICE; 1ST SAMPLE
4/26/07	1530	2	AIR	VEW-1(S)-B	I		COLLECTED ON 4/24/07
4/26/07	1630	2	AIR	VEW-1(D)-A	I		
4/28/07	1530	2	AIR	VEW-1(D)-B	I		

4/28/07

Results to : ROGER MYERS
Invoice to : SAIC

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
BROOKS ABELN	SAIC	4/30/07	1700	FEDEX	FEDEX	4/30/07	1700
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
				Maurine	VAPORTECH	5-1-07	1000
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Laboratory to return. YELLOW COPY : Laboratory PINK COPY : Submitter

APPENDIX E

Loading Calculations

Table E-1
Calculation of Initial TCE Loading Rate from Shallow Zone

Harley-Davidson Motor Company Operations, Inc.
Area B - Soil Vapor Extraction Pilot Test

Sampling Event: VEW-1(S) A Trichloroethylene (TCE)

1. Convert Laboratory TCE concentration in volume/volume basis to a mass/volume basis:

(MW/24.05 L)(ppmv) = ug/L

Est. TCE MW[1] =	131.4	g/mole
1 mole[2] =	22.41	L
Laboratory TCE Concentration =	79.454	ppmv
TCE =	465.87	ug/L

2. Convert TCE concentration in mass/volume to estimated removal rate:

(TCEs)(Flow rate)(28.32L/ft3)(60mins/hr)(1g/106ug)(1lb/454g) = lbs TCE/Hr

TCEs =	465.87	ug/L
Flow rate =	347	ft^3/min
28.32L/ft^3 =	28.32	L/ft^3
60mins/hr =	60	min/hr
1g/10^6ug =	0.000001	g/ug
1lb/454g =	0.0022	lbs/g

Output Mass Loading Rate = 0.60 lbs TCE/Hr
14.50 lbs TCE/day

Notes:

1. Estimated Molecular weight of TCEg (Trichloroethylene) = 131.4 g/mole
Taken from the NIOSH Pocket Guide to Hazardous Chemicals

2. 1 mole of gas occupies 22.41 Liters

Table E-2
Calculation of Initial PCE Loading Rate from Shallow Zone

Harley-Davidson Motor Company Operations, Inc.
Area B - Soil Vapor Extraction Pilot Test

Sampling Event: VEW-1(S) A Tetrachloroethylene (PCE)

1. Convert Laboratory PCE concentration in volume/volume basis to a mass/volume basis:

(MW/24.05 L)(ppmv) = ug/L

Est. PCE MW[1] =	165.8	g/mole
1 mole[2] =	22.41	L
Laboratory PCE Concentration =	48.656	ppmv
PCE =	359.98	ug/L

2. Convert PCE concentration in mass/volume to estimated removal rate:

(PCEs)(Flow rate)(28.32L/ft3)(60mins/hr)(1g/106ug)(1lb/454g) = lbs PCE/Hr

PCEs =	359.98	ug/L
Flow rate =	347	ft^3/min
28.32L/ft^3 =	28.32	L/ft^3
60mins/hr =	60	min/hr
1g/10^6ug =	0.000001	g/ug
1lb/454g =	0.0022	lbs/g

Output Mass Loading Rate = 0.47 lbs PCE/Hr
11.21 lbs PCE/day

Notes:

1. Estimated Molecular weight of PCEg (Tetrachloroethylene) = 165.8 g/mole
Taken from the NIOSH Pocket Guide to Hazardous Chemicals

2. 1 mole of gas occupies 22.41 Liters

Table E-3
Calculation of Final TCE Loading Rate from Shallow Zone

Harley-Davidson Motor Company Operations, Inc.
Area B - Soil Vapor Extraction Pilot Test

Sampling Event: VEW-1(S) B Trichloroethylene (TCE)

1. Convert Laboratory TCE concentration in volume/volume basis to a mass/volume basis:

(MW/24.05 L)(ppmv) = ug/L

Est. TCE MW[1] =	131.4	g/mole
1 mole[2] =	22.41	L
Laboratory TCE Concentration =	71.837	ppmv
TCE =	421.21	ug/L

2. Convert TCE concentration in mass/volume to estimated removal rate:

(TCEs)(Flow rate)(28.32L/ft3)(60mins/hr)(1g/106ug)(1lb/454g) = lbs TCE/Hr

TCEs =	421.21	ug/L
Flow rate =	347	ft^3/min
28.32L/ft^3 =	28.32	L/ft^3
60mins/hr =	60	min/hr
1g/10^6ug =	0.000001	g/ug
1lb/454g =	0.0022	lbs/g

Output Mass Loading Rate = 0.55 lbs TCE/Hr
13.11 lbs TCE/day

Notes:

1. Estimated Molecular weight of TCEg (Trichloroethylene) = 131.4 g/mole
Taken from the NIOSH Pocket Guide to Hazardous Chemicals

2. 1 mole of gas occupies 22.41 Liters

Table E-4
Calculation of Final PCE Loading Rate from Shallow Zone

Harley-Davidson Motor Company Operations, Inc.
Area B - Soil Vapor Extraction Pilot Test

Sampling Event: VEW-1(S) B Tetrachloroethylene (PCE)

1. Convert Laboratory PCE concentration in volume/volume basis to a mass/volume basis:

(MW/24.05 L)(ppmv) = ug/L

Est. PCE MW[1] =	165.8	g/mole
1 mole[2] =	22.41	L
Laboratory PCE Concentration =	41.398	ppmv
PCE =	306.28	ug/L

2. Convert PCE concentration in mass/volume to estimated removal rate:

(PCEs)(Flow rate)(28.32L/ft3)(60mins/hr)(1g/106ug)(1lb/454g) = lbs PCE/Hr

PCEs =	306.28	ug/L
Flow rate =	347	ft^3/min
28.32L/ft^3 =	28.32	L/ft^3
60mins/hr =	60	min/hr
1g/10^6ug =	0.000001	g/ug
1lb/454g =	0.0022	lbs/g

Output Mass Loading Rate = 0.40 lbs PCE/Hr
9.54 lbs PCE/day

Notes:

1. Estimated Molecular weight of PCEg (Tetrachloroethylene) = 165.8 g/mole
Taken from the NIOSH Pocket Guide to Hazardous Chemicals

2. 1 mole of gas occupies 22.41 Liters

Table E-5
Calculation of Initial TCE Loading Rate from Deep Zone

Harley-Davidson Motor Company Operations, Inc.
Area B - Soil Vapor Extraction Pilot Test

Sampling Event: VEW-1(D) A Trichloroethylene (TCE)

1. Convert Laboratory TCE concentration in volume/volume basis to a mass/volume basis:

(MW/24.05 L)(ppmv) = ug/L

Est. TCE MW[1] =	131.4	g/mole
1 mole[2] =	22.41	L
Laboratory TCE Concentration =	40.631	ppmv
TCE =	238.24	ug/L

2. Convert TCE concentration in mass/volume to estimated removal rate:

(TCEs)(Flow rate)(28.32L/ft3)(60mins/hr)(1g/106ug)(1lb/454g) = lbs TCE/Hr

TCEs =	238.24	ug/L
Flow rate =	176.1	ft^3/min
28.32L/ft^3 =	28.32	L/ft^3
60mins/hr =	60	min/hr
1g/10^6ug =	0.000001	g/ug
1lb/454g =	0.0022	lbs/g

Output Mass Loading Rate = 0.16 lbs TCE/Hr
3.76 lbs TCE/day

Notes:

1. Estimated Molecular weight of TCEg (Trichloroethylene) = 131.4 g/mole
Taken from the NIOSH Pocket Guide to Hazardous Chemicals

2. 1 mole of gas occupies 22.41 Liters

Table E-6
Calculation of Initial PCE Loading Rate from Deep Zone

Harley-Davidson Motor Company Operations, Inc.
Area B - Soil Vapor Extraction Pilot Test

Sampling Event: VEW-1(D) A Tetrachloroethylene (PCE)

1. Convert Laboratory PCE concentration in volume/volume basis to a mass/volume basis:

(MW/24.05 L)(ppmv) = ug/L

Est. PCE MW[1] =	165.8	g/mole
1 mole[2] =	22.41	L
Laboratory PCE Concentration =	32.877	ppmv
PCE =	243.24	ug/L

2. Convert PCE concentration in mass/volume to estimated removal rate:

(PCEs)(Flow rate)(28.32L/ft3)(60mins/hr)(1g/106ug)(1lb/454g) = lbs PCE/Hr

PCEs =	243.24	ug/L
Flow rate =	176.1	ft^3/min
28.32L/ft^3 =	28.32	L/ft^3
60mins/hr =	60	min/hr
1g/10^6ug =	0.000001	g/ug
1lb/454g =	0.0022	lbs/g

Output Mass Loading Rate = 0.16 lbs PCE/Hr
3.84 lbs PCE/day

Notes:

1. Estimated Molecular weight of PCEg (Tetrachloroethylene) = 165.8 g/mole
Taken from the NIOSH Pocket Guide to Hazardous Chemicals

2. 1 mole of gas occupies 22.41 Liters

Table E-7
Calculation of Final TCE Loading Rate from Deep Zone

Harley-Davidson Motor Company Operations, Inc.
Area B - Soil Vapor Extraction Pilot Test

Sampling Event: VEW-1(D) B Trichloroethylene (TCE)

1. Convert Laboratory TCE concentration in volume/volume basis to a mass/volume basis:

(MW/24.05 L)(ppmv) = ug/L

Est. TCE MW[1] =	131.4	g/mole
1 mole[2] =	22.41	L
Laboratory TCE Concentration =	19.46	ppmv
TCE =	114.10	ug/L

2. Convert TCE concentration in mass/volume to estimated removal rate:

(TCEs)(Flow rate)(28.32L/ft3)(60mins/hr)(1g/106ug)(1lb/454g) = lbs TCE/Hr

TCEs =	114.10	ug/L
Flow rate =	176.1	ft^3/min
28.32L/ft^3 =	28.32	L/ft^3
60mins/hr =	60	min/hr
1g/10^6ug =	0.000001	g/ug
1lb/454g =	0.0022	lbs/g

Output Mass Loading Rate = 0.08 lbs TCE/Hr
1.80 lbs TCE/day

Notes:

1. Estimated Molecular weight of TCEg (Trichloroethylene) = 131.4 g/mole
   Taken from the NIOSH Pocket Guide to Hazardous Chemicals
2. 1 mole of gas occupies 22.41 Liters

Table E-8
Calculation of Final PCE Loading Rate from Deep Zone

Harley-Davidson Motor Company Operations, Inc.
Area B - Soil Vapor Extraction Pilot Test

Sampling Event: VEW-1(D) B Tetrachloroethylene (PCE)

1. Convert Laboratory PCE concentration in volume/volume basis to a mass/volume basis:

(MW/24.05 L)(ppmv) = ug/L

Est. PCE MW[1] =	165.8	g/mole
1 mole[2] =	22.41	L
Laboratory PCE Concentration =	18.493	ppmv
PCE =	136.82	ug/L

2. Convert PCE concentration in mass/volume to estimated removal rate:

(PCEs)(Flow rate)(28.32L/ft3)(60mins/hr)(1g/106ug)(1lb/454g) = lbs PCE/Hr

PCEs =	136.82	ug/L
Flow rate =	176.1	ft^3/min
28.32L/ft^3 =	28.32	L/ft^3
60mins/hr =	60	min/hr
1g/10^6ug =	0.000001	g/ug
1lb/454g =	0.0022	lbs/g

Output Mass Loading Rate = 0.09 lbs PCE/Hr
2.16 lbs PCE/day

Notes:

1. Estimated Molecular weight of PCEg (Tetrachloroethylene) = 165.8 g/mole
Taken from the NIOSH Pocket Guide to Hazardous Chemicals

2. 1 mole of gas occupies 22.41 Liters