ARCADIS

Appendix B

Previous Site Investigation
Supporting Information – Box
Sewer/WPSA/Building 14

ARCADIS

Attachment B-1

Box Sewer Investigation Summary Report

May 3, 2002

DRAFT

Box Sewer Investigation Summary Report

General Motors Corporation
Moraine, Ohio

May 3, 2002

PREPARED FOR

General Motors Corporation/
Remediation and Liability
Management Company, Inc.

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1. Introduction

The Moraine, Ohio facilities owned by the General Motors Corporation (GM) are under an Administrative Order with the United States Environmental Protection Agency (U.S. EPA) Region V, to conduct Resource Conservation and Recovery Act (RCRA) Corrective Action. The Moraine, Ohio facilities include the leased Delphi Harrison Thermal Systems Moraine Plant (Delphi Thermal Moraine), GM Powertrain Group, former Moraine Engine Plant (former Moraine Engine), and GM Truck Group, Moraine Assembly Plant (Moraine Assembly) (Figure 1). The Corrective Action is being conducted by the Remediation and Liability Management Company, Inc. (REALM), a wholly owned subsidiary of GM.

In correspondence dated March 15, 2001 and May 18, 2001, GM informed the U.S. EPA that a box sewer located along the east side of the former Moraine Engine plant had been identified as an area that required investigation. At that time, GM was implementing decommissioning activities at the former Moraine Engine plant as part of the plant demolition process. Results of an assessment conducted on sediments (now removed and disposed of off-site) within the box sewer indicated the detection of polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs). GM proposed a limited subsurface soil investigation to determine if a release from the box sewer had occurred in areas where toxicity characteristic leaching procedure (TCLP) levels were exceeded in analysis of sediments within the sewer, elevated PCB levels in sediment were present, and/or the structural integrity of the box sewer was compromised (GM correspondence to U.S. EPA, dated May 18, 2001). The box sewer was cleaned out in June and July 2001.

GM received a letter from the U.S. EPA in correspondence dated July 23, 2001, providing conditional approval to conduct the box sewer inspection plan. An inspection of the box sewer was conducted on August 9, 2001. GM submitted a summary of the box sewer inspection and the proposed box sewer investigation scope of work to the U.S. EPA on September 10, 2001. GM received a letter from the U.S. EPA in correspondence dated October 9, 2001, providing conditional approval to conduct the sewer investigation. This box sewer investigation was conducted by ARCADIS in November 2001. In correspondence to the U.S. EPA dated December 18, 2001, REALM addressed the conditions in the U.S. EPA letter dated October 9, 2001 by providing more details on the box sewer cleaning and drainage lines to the box sewer. GM received correspondence from the U.S. EPA on February 15, 2002 (correspondence dated February 1, 2002) regarding U.S. EPA's request for characterization of sediment from segment 15 of the box sewer. GM responded to the

U.S. EPA, in a telephone conversation on March 15, 2002 and in correspondence dated March 22, 2002, by providing additional information to support the decision that further characterization was not necessary.

1.1 Box Sewer Description

Frigidaire previously owned by GM, conducted operations at the Moraine Facilities until 1979. The box sewer was used by Frigidaire to convey process water before GM converted Plants 2 and 3 into the Moraine Engine and Moraine Assembly facilities in 1979-80. Prior to and as part of the conversion, all process waste connections to the box sewer were terminated. Subsequently, only stormwater runoff from paved areas and roof drains and non-contact cooling water entered the sewer. Flow exiting the box sewer entered a 54-inch diameter storm sewer that flowed west to a stormwater retention basin at the Delphi Thermal Moraine facility, which was part of the Stormwater Management System for the site. The box sewer runs parallel to the east wall of the former Plants 2 and 3 and is approximately 2,300 linear feet (ft) in length, 9 ft in width, and 10 ft high (Figure 2). The top of the box sewer is at grade and the bottom of the box sewer is 10 ft below grade. Operation of the Moraine Engine plant ceased in the fall of 2000. Plant decommissioning and demolition was completed in early summer of 2001.

In December 2000 and February 2001, prior to sediment removal, the sediment in the box sewer was assessed as part of the site decommissioning activities performed by REALM. The box sewer was sectioned into 27 quadrants and a sediment sample was collected from each quadrant (Figure 2). Sediment samples were analyzed for TCLP and PCBs in order to characterize the sediment for disposal purposes. Results of this characterization indicated that 3 quadrants exceeded 50 parts per million (ppm) PCBs, 21 quadrants were between 1 and 50 ppm PCBs, and 3 quadrants were below 1 ppm or were non-detect. All sediment sample results for metals were below TCLP levels. All sediment sample results for VOCs were below TCLP levels, with the exception of two quadrants where TCLP levels were exceeded for trichloroethene (TCE) and vinyl chloride.

REALM conducted the box sewer cleaning between June and July 2001. The average depth of sediment in the box sewer prior to cleaning was 2 ft. Sediments were removed from the box sewer and placed in lined roll-off containers for proper off-site management and disposal. After cleaning, the box sewer was inspected on August 9, 2001. As a result of the inspection, several areas were identified as potential locations where historic releases from the box sewer may have occurred.

1.2 Investigation Objectives and Technical Approach

The specific objectives of the box sewer subsurface investigation were to:

- Determine if a significant release of hazardous constituents (VOCs and PCBs) to soils in the immediate vicinity of the box sewer had occurred.

- Evaluate the nature and extent of the release (if a release had occurred) to support an evaluation of potential risks using procedures detailed in the approved RFI Baseline Risk Assessment (ENVIRON Corporation 2000).

The evaluation of subsurface soil was completed through the installation and judgemental sampling of six soil borings. Boring locations are shown on Figures 1 and 2.

Boring locations were determined based on sediment results and the results of the interior inspection of the box sewer. Descriptions and photographs of these locations were presented in the Box Sewer Inspection Summary and Proposed Investigation Work Plan (ARCADIS G&M, 2001). For the majority of the areas within the box sewer where sediment TCLP levels were exceeded or elevated levels of PCBs were present in the sediment, the structural integrity of the box sewer was not in question; therefore, additional soil borings adjacent to those quadrants were not necessary. The six soil borings that were installed provided coverage of the areas where potential releases may have occurred, are in proximity to the quadrants where TCLP levels for VOCs were exceeded and/or elevated PCB levels in sediment were present. The borings were advanced adjacent to the western side of the box sewer where potential releases may have occurred as identified during the box sewer interior inspection.

Soil samples were collected from each boring at a depth of 10 to 12 ft below land surface (bls) to correspond with the interval immediately beneath the box sewer, and above the water table (which is located approximately 22 to 28 ft bls). There was one exception to this sampling strategy at boring BS-BH01, where there was poor recovery and the 10 to 12 ft interval could not be sampled; therefore, the 12 to 14 ft interval was sampled. In boring BS-BH04, an additional sampling interval was selected from the sample with the highest photoionization detector (PID) headspace reading and/or visual evidence of contamination and submitted to the laboratory. All other PID readings were background and there was no visual evidence of contamination, therefore, only two samples were collected from the each of the remaining borings. Samples were analyzed by Severn Trent Laboratories of North Canton, Ohio (STL North Canton) for

Target Compound List (TCL) VOCs and TCL PCBs. The box sewer investigation sample analytical results and quality assurance/quality control (QA/QC) sample results are included in Appendix A. Soil borings were also sampled continuously for lithologic description. The boring logs are presented in Appendix B.

The analytical data were independently validated by ARCADIS personnel in accordance with the approved RFI Quality Assurance Project Plan (Geraghty & Miller, Inc., 1997). The data validation was performed at Level III (based on quality control criteria from the U.S. EPA document Data Quality Objectives for Remedial Response Activities [U.S. EPA 1987] and on quality control criteria from the U.S. EPA document Test Methods for Examining Solid Waste, SW 846 [U.S. EPA 1986 with revision updates]). In addition, the two U.S. EPA Contract Laboratory Program documents National Functional Guidelines for Inorganic Data Review (U.S. EPA 1994a) and National Functional Guidelines for Organic Data Review (U.S. EPA 1994b) were used as guidance for validating and assigning qualifier codes to the analytical results.

The majority of the box sewer data was determined to be quantitative and acceptable for use. However, data validation qualifiers were assigned to the sample data, as appropriate, to address identified quality control deficiencies. The affected data were either qualified as estimated and flagged with a "J" if detected or a "UJ" if nondetect. In two instances, sample data for cyclohexane were qualified as unusable and flagged with an "R" (rejected). These rejected data are unusable in the risk evaluation, but do not affect the overall assessment of the results. The 90% completeness goal, as defined in the RFI Quality Assurance Project Plan, was achieved for the sample parameters analyzed and included in these sample delivery groups.

1.3 Field Investigation Methodologies

During the box sewer investigation, soil samples were collected using hollow-stem auger drilling (BS-BH01 through BS-BH06). Wright's Drilling Company, Inc. performed the drilling with oversight provided by ARCADIS. All soil sampling was conducted in accordance with the approved Supplemental RFI Work Plan (Geraghty & Miller, Inc., 1997). The methodologies used to obtain soil samples are discussed below.

Subsurface soil samples were collected using a drilling rig and conventional 4 ¼- inch inner diameter hollow-stem augers. Prior to drilling at each location, drilling equipment (including augers, plugs, and split-spoon samplers) was decontaminated

using a high-pressure steam cleaner. Following the collection of each sample, split-spoon samplers were decontaminated in accordance with the approved Supplemental RFI Work Plan. Disposable personal protection equipment (PPE) and sampling equipment were collected and disposed off-site. Pertinent information was recorded on a soil sampling log for the sampling intervals submitted to the laboratory for analysis (Appendix B). Chain-of-custody forms were completed prior to submitting the samples to the laboratory.

When the designated boring location was reached, the ARCADIS and drilling personnel donned the appropriate PPE and established the exclusion zone. Plastic sheeting was placed near the work area. The appropriate sample containers were selected and labeled. During drilling, the hollow-stem augers were advanced to the designated sampling depth where the drill bit was removed from inside the augers and replaced with a decontaminated split-spoon sampler. As drilling commenced, the split spoon sampler was driven 2 ft below the bottom of the augers. Samples were collected using a decontaminated 24-inch long, 3-inch diameter, stainless-steel, split-spoon sampler. When the split-spoon sampler was removed, the soil was placed in the appropriate containers, scanned with a PID, and described on a boring log by an ARCADIS geologist (Appendix B). The samples were submitted for analysis of TCL VOCs and TCL PCBs. The En Core® Sampler was used to collect samples for VOC analysis. Upon completion of each borehole, the borehole was grouted using the tremie method. All water and soil generated during drilling and decontamination were contained in labeled drums and disposed of appropriately by GM.

2. Box Sewer Investigation Results

The box sewer investigation was conducted following the scope of work in the Box Sewer Inspection Summary and Proposed Investigation Work Plan (ARCADIS G&M, 2001). The summary presented below includes a discussion of the lithology in the vicinity of the box sewer and the soil analytical results. A complete set of analytical results (including QA/QC samples) is presented in Appendix A.

2.1 Lithologic Characterization

Boring logs for the six soil borings drilled during this investigation were used to determine the subsurface lithology at the box sewer. The borings ranged in depth from 26 to 30 ft bls, depending on the depth that groundwater was encountered. The first 2 ft in each boring was composed of a gravel fill. A shallow clay layer is present in BS-BH01, BS-BH02 and BS-BH04 at 2 ft bls. Thickness of this clay layer ranged from 1 ft to 5 ft. This shallow clay layer was not observed in borings BS-BH03, BS-BH05, and BS-BH06. Below the clay layer, the lithology consisted primarily of well graded gravelly sands with a lense of poorly graded medium-coarse sand. This sand lense was observed in all borings and ranged in depth from 6 ft bls in BS-BH05 to16 ft bls in BS-BH01. Thickness of the sand lense was greatest to the north in BS-BH06 (12 ft thick) and thinned to the south in BS-BH01 (2 ft thick). Fine to coarse sand and fine to coarse gravel was observed beneath the sand lense and above the groundwater. Groundwater was encountered in all borings at depths from 25.5 ft bls in BS-BH06 to 29 ft bls in BS-BH01.

2.2 Box Sewer Soil Results

Borings BS-BH01 through BS-BH06 were advanced to the water table, with total depths of the borings ranging from 26 ft bls to 30 ft bls. The locations of these borings and the analytical data for VOCs and PCBs are depicted on Figure 2. PID readings from these borings ranged from 0 ppm to 4.5 ppm. Table 1 provides a summary of constituents detected in soil from this investigation.

In soil boring BS-BH01, 1,1,1-trichloroethane (1,1,1-TCA) was detected in the 12 to 14 ft interval at a concentration of 280 micrograms per kilogram (ug/kg). No other VOCs were detected in this interval and VOCs were not detected in the 26 to 28 ft interval. Aroclor 1254 was detected in the 12 to 14 ft interval at a concentration of 250 ug/kg. No other PCBs were detected in this interval and PCBs were not detected in the 26 to 28 ft interval.

In soil boring BS-BH02, tetrachloroethene (PCE) was the only VOC detected in the 10 to 12 ft interval at a concentration of 8.9 ug/kg. In the 24 to 26 ft interval, cis-1,2-dichloroethene (cis-1,2-DCE), PCE, and TCE were detected at concentrations of 17 ug/kg, 6.6 ug/kg, and 6.1 ug/kg, respectively. PCBs were not detected in boring BS-BH02. DUP-113 was taken as a duplicate of the 24 to 26 ft sample interval from soil boring BS-BH02.

In soil boring BS-BH03, VOCs were not detected in the 10 to 12 ft interval. PCE was the only VOC detected in the 26 to 28 ft interval at a concentration of 15 ug/kg. PCBs were not detected in boring BS-BH03.

In soil boring BS-BH04, PCE was detected in the 10 to 12 ft, 14 to 16 ft, and 24 to 26 ft intervals at concentrations of 280 ug/kg, 2,400 ug/kg, and 610 ug/kg, respectively. TCE was detected in the 14 to 16 ft interval at a concentration of 400 ug/kg. All other VOCs were below detection. PCBs were not detected in boring BS-BH04.

In soil boring BS-BH05, cis-1,2-DCE and TCE were detected in the 10 to 12 ft interval at concentrations of 2.8 ug/kg and 10 ug/kg, respectively. No other VOCs were detected in this interval and VOCs were not detected in the 24 to 26 ft interval. PCBs were not detected in boring BS-BH05.

In soil boring BS-BH06, PCE was detected in the 10 to 12 ft and 22 to 24 ft intervals at concentrations of 9.4 ug/kg and 530 ug/kg, respectively. No other VOCs were detected in this boring. PCBs were not detected in boring BS-BH06.

The VOC chloroform was detected in rinseate blank RB-90 at a concentration of 17 micrograms per liter (ug/l). No other VOCs and no PCBs were detected in rinseate blank sample RB-90. Chloroform was not detected in any analytical samples; therefore, there is no indication of possible cross contamination due to decontamination or sampling procedures. No VOCs were detected in trip blanks TB-137, TB-138, TB-139, and TB-140, indicating no cross contamination by VOCs occurred during sample collection and handling.

3. Box Sewer Investigation Risk Evaluation and Conclusions

The approved RFI Baseline Risk Assessment was prepared by ENVIRON and was used to perform the risk-based evaluation presented in Section 3.0. ENVIRON served as the contributing author to this section.

As stated in the Work Plan, the purpose of the box sewer investigation is to determine whether potential risk to human health and the environment associated with hazardous waste or constituents released at the box sewer warrants interim or corrective measures. Therefore, the data collected during this investigation are being used to:

- Determine if there is evidence of a significant release of hazardous constituents from the box sewer; and
- Support an evaluation of risk under current and reasonably expected future conditions.

To identify potentially significant concentrations that warrant an evaluation of risk, the data were compared to conservative human health risk-based screening levels. These risk-based criteria are based on methodologies published by U.S. EPA and procedures developed in the Supplemental RFI Baseline Risk Assessment, as described below. For those exposure pathways where this conservative screening identified concentrations warranting further evaluation, these pathways were assessed using procedures presented in the approved Supplemental RFI Baseline Risk Assessment (ENVIRON 2000).

3.1 Direct Contact Pathway

3.1.1 Summary of Exposure Scenario

As discussed in the baseline risk assessment (ENVIRON 2000), a comprehensive review of information pertinent to future land use patterns surrounding the Facility confirms that the assumption of continued industrial land use at the Facility is appropriate. Therefore, the potential for human exposure to the constituents present in soils at the areas of investigation (AOIs) characterized during the RFI was evaluated in the baseline risk assessment for the following current and reasonably anticipated future land uses:

- Industrial land use at the Facility; and

- Industrial/commercial, residential, and recreational land uses surrounding the Facility.

As described in Section 1, the box sewer is a subsurface utility such that any release of hazardous constituents would affect subsurface soils only. Therefore, exposure pathways associated with any releases are limited to incidental ingestion and dermal contact with these soils and inhalation of vapor and particulates emitted from the soil during activities that would expose these deeper soils (e.g., construction activities). Direct contact and airborne transport of any waste constituents in underlying soil would be precluded under routine conditions. If excavation to depths beneath the invert of the box sewer were to occur, waste constituents in the soil might volatilize into the air or become airborne. Therefore, consistent with the supplemental baseline risk assessment, the potential direct exposure pathways associated with soils at the box sewer under current and reasonably anticipated future land uses are as follows:

- Potential exposure of workers via incidental ingestion and dermal contact with the underlying soil, and inhalation of vapor and particulate emitted from the subsurface soil during excavation activities.

- Potential exposure of off-facility workers and residents via inhalation of vapor and particulates emitted from the soil during excavation activities.

3.1.2 Data Evaluation

To identify potentially significant concentrations associated with the exposure pathways summarized above, the soil data were compared to conservative risk-based screening levels. Specifically, the soil data were compared to screening levels calculated using the methodology developed by U.S. EPA Region 9 for risk-based Preliminary Remediation Goals (PRGs) for industrial land use (set at a target cancer risk level (TCRL) of 10^{-5} for carcinogenic constituents and a target hazard quotient (THQ) of 1 for noncarcinogenic constituents).

The results of the screening of soils data for the direct contact exposures are provided in Tables C-1and C-2 in Appendix C. Table C-1 provides the results of screening the maximum detected concentrations among the soil data collected. Table C-2 provides the results of screening of individual samples having detected concentrations. Each table provides the screening criteria and the ratio of the concentration to the screening criteria (i.e., a ratio greater than 1 would indicate that the detected concentration exceeds the screening criteria).

As indicated on Tables C-1 and C-2, no detected concentrations exceeded the conservative risk-based screening direct contact screening criteria. Based on these results, no further evaluation of this pathway is necessary for soils underlying the box sewer.

3.2 Leaching to Groundwater Pathway

3.2.1 Summary of Exposure Scenario

As discussed in the Supplemental Baseline Risk Assessment (ENVIRON 2000) consideration of factors pertinent to potential regional groundwater use indicates that the use of the lower aquifer as a drinking water source is reasonably expected, but the use of the upper aquifer as a drinking water source is not reasonably expected. Given the regional availability of alternative sources of drinking water that are more dependable and of higher quality, and local laws governing groundwater use, human exposure to upper aquifer groundwater is not reasonably expected. However, because the upper aquifer is a medium for potential transport of constituents from SWMUs/AOIs to the lower aquifer and the Great Miami River, the baseline risk assessment included an assessment of the extent to which the hydraulic interconnections could result in migration of constituents to the lower aquifer or to the River in concentrations of significance to human health.

The potential for human exposure to groundwater was evaluated in the baseline risk assessment for current and potential drinking water use of groundwater extracted from the following municipal well fields:

- West Carrollton: as West Carrollton's drinking water supply
- Miami Shores: as a primary emergency drinking water supply
- Dryden Road South: as a secondary emergency drinking water supply

Although the Dryden Road North well field is not expected to serve as a drinking water supply or as an emergency drinking water supply, the groundwater quality at this well field was also evaluated in the baseline risk assessments. The risk assessment also evaluated the potential for exposures that may occur through current and potential industrial use of groundwater extracted from the following industrial wells:

- Delphi Thermal Moraine production wells: as a potential industrial water supply

- Moraine Assembly production wells: as an industrial water supply
- Former Moraine Engine production well: as an industrial water supply

Based on the available information on current and potential future uses of these supply wells, potential exposures via the groundwater pathway to these wells were evaluated for 10 different groundwater use scenarios, each involving a different combinations of wells. The significance of soil/waste constituents potentially transported to the Great Miami River via groundwater flow from the upper aquifer was also evaluated.

In assessing the potential contribution of constituents to groundwater from soils at the SWMUs/AOIs investigated, the groundwater concentration under a unit being investigated was conservatively estimated as the concentration in the soil moisture that is calculated by equilibrium-partitioning of any residual constituents measured in the soil to the soil moisture in the vadose zone. Using the constituent concentration in soil moisture as an approximation of the concentration in groundwater under the SWMUs/AOIs is conservative since this ignores attenuation of the constituent concentration in the vadose zone and dilution at the water table.

Using the source concentration estimated for each SWMU, groundwater modeling was conducted to estimate source reduction factors that approximate the transport of waste constituents from the SWMUs and AOIs to potential points of groundwater use. The source reduction factors were computed for steady-state transport (without dispersion) with the following conservative assumptions:

- The contaminant source provides a continuous, steady-state flux of constituents into the upper aquifer.
- No degradation of constituents occurs during transport.
- No dispersion of constituents occurs during transport.

The estimated exposure concentration of a constituent at an exposure point (i.e., an active supply well or the Great Miami River) resulting from a specific source was then obtained by multiplying the measured groundwater concentration at the source with the source reduction factor.

3.2.2 Data Evaluation

To identify potentially significant concentrations in soils beneath the box sewer associated with the groundwater pathway, the subsurface soil data were compared to conservative risk-based screening levels. Specifically, the soil data were compared to screening levels calculated using the U.S. EPA's Soil Screening Guidance values for soil leaching to groundwater with a dilution-attenuation factor (DAF) of 20 (derived by U.S. EPA under the assumption that groundwater is a drinking water source).

The results of the screening of the subsurface soil data for the groundwater pathway exposures are provided in Tables C-1 and C-2 in Appendix C. Table C-1 provides the results of screening the maximum detected concentrations in subsurface soil. Table C-2 provides a listing of the individual samples having concentrations exceeding the screening criteria. Each table provides the screening criteria and the ratio of the concentration to the screening criteria (i.e., a ratio greater than 1 indicates that the detected concentration exceeds the screening criteria).

As indicated on Tables C-2, constituent concentrations were detected at the following locations at concentrations exceeding the conservative screening criteria:

BS-BH04: tetrachloroethene, trichloroethene

BS-BH06: tetrachloroethene

Based on these results, a site-specific evaluation of the significance of these concentrations was conducted using the methodology developed for the supplemental baseline risk assessment. In order to conduct this evaluation, source reduction factors were computed for a source area corresponding to the area represented by these two sample locations. Assuming that each sample characterizes a segment of the box sewer one-half the distance to the next sample location with a width of 20 feet (the box sewer is 9 feet wide), then the area associated with these two samples is approximately 17,200 square feet (260 ft x 20 ft and 600 ft x 20 ft). The representation of the source area is shown in Appendix C. However, due to grid discretization limitations in this portion of the model domain, the source area was conservatively represented in the model as being approximately 475 feet long and 75 feet wide, or approximately 2 times larger than the actual area associated with these two samples. The calculated source reduction factors for the box sewer for each of the 10 groundwater use scenarios are presented on Table C-3.

Consistent with the general approach utilized in the Supplemental Baseline Risk Assessment for assessing the potential contribution of constituents to groundwater from SWMU/AOI soils, the maximum concentration detected in soils beneath the box sewer were conservatively used to calculate the groundwater source terms for the box sewer. The groundwater source concentrations beneath the box sewer are then estimated from the soil data using both an equilibrium partitioning and worst-case leach test estimate (ENVIRON 2000). For each constituent, the estimate source term corresponding to the more realistic of the two estimation methods is used. The resulting source terms estimated for the box sewer are presented on Table C-4.

Using the source term estimates presented on Table C-4 combined with the source reduction factors presented on Table C-3, the constituent contribution to each receptor well under the 10 groundwater use scenarios was calculated. This contribution was then added to the contributions from each SWMU and AOI calculated in the supplemental baseline risk assessment to estimate the aggregate effect of all the SWMUs and AOIs on the groundwater concentration at each potential exposure point pumping well. The resulting cumulative concentrations at each point of potential groundwater use under each of the 10 modeling scenarios are presented on Tables C-5 through C-14.

The results presented on Tables C-5 through C-14 were compared to the results presented in the Supplemental Baseline Risk Assessment (i.e., Tables 3-5 through 3-14) to determine if the addition of the box sewer as a contributing source area has a significant effect on the aggregate concentrations at the receptor locations. This comparison identified one scenario in which the resulting concentration of one chemical is predicted to exceed its acceptable concentration if the groundwater were to be used as a drinking water source (i.e., maximum contaminant levels or drinking water equivalent levels). Specifically, with the addition of the box sewer source area, TCE is predicted to slightly exceed its MCL of 0.005 mg/L at the Dryden Road North well field under Scenario 7[1] (the predicted concentration increased from 0.0049 mg/L to 0.0051 mg/L with the addition of the box sewer source contribution).

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[1] The use of the Dryden Road North well field as a potable water supply, as evaluated under Scenario 7, represents the unlikely scenario in which the Dryden Road North well field is used to supplement the Miami Shores well field as an emergency water supply. Concentrations from the Dryden Road North represent a bounding estimate of exposure, which U.S. EPA defines as beyond a high-end estimate (i.e., greater than the 99.9th percentile of potential exposures in a population. 57 FR 22888, May 29, 1992).

As discussed above, this marginal exceedance of the MCL at the Dryden North Road well field under Scenario 7 results from the conservative estimate of the source contribution from the box sewer, including (1) the use of a modeled source area that is 2 times larger than the actual source area defined based on the characterization data, and (2) the use of the maximum detected concentration to represent the entire source area. If a more representative source concentration (e.g., the vertically averaged TCE concentration for BS-BH04 of 0.197 mg/kg) and source size were used, the resulting concentration at the Dryden Road North well field under Scenario 7 would not exceed the MCL.

Based on this site-specific assessment of the box sewer, the box sewer is not considered a significant source of hazardous constituents to groundwater, and therefore, no further evaluation of this pathway is necessary for soils underlying the box sewer.

3.3 Recommendations

Based on the review and evaluation of results from soil sampling conducted in the box sewer area, the presence of hazardous constituents in soils underlying the box sewer does not present a significant risk via the pathways identified under current and likely future land and groundwater use conditions. Therefore, GM is proposing no further action for the box sewer.

4. References

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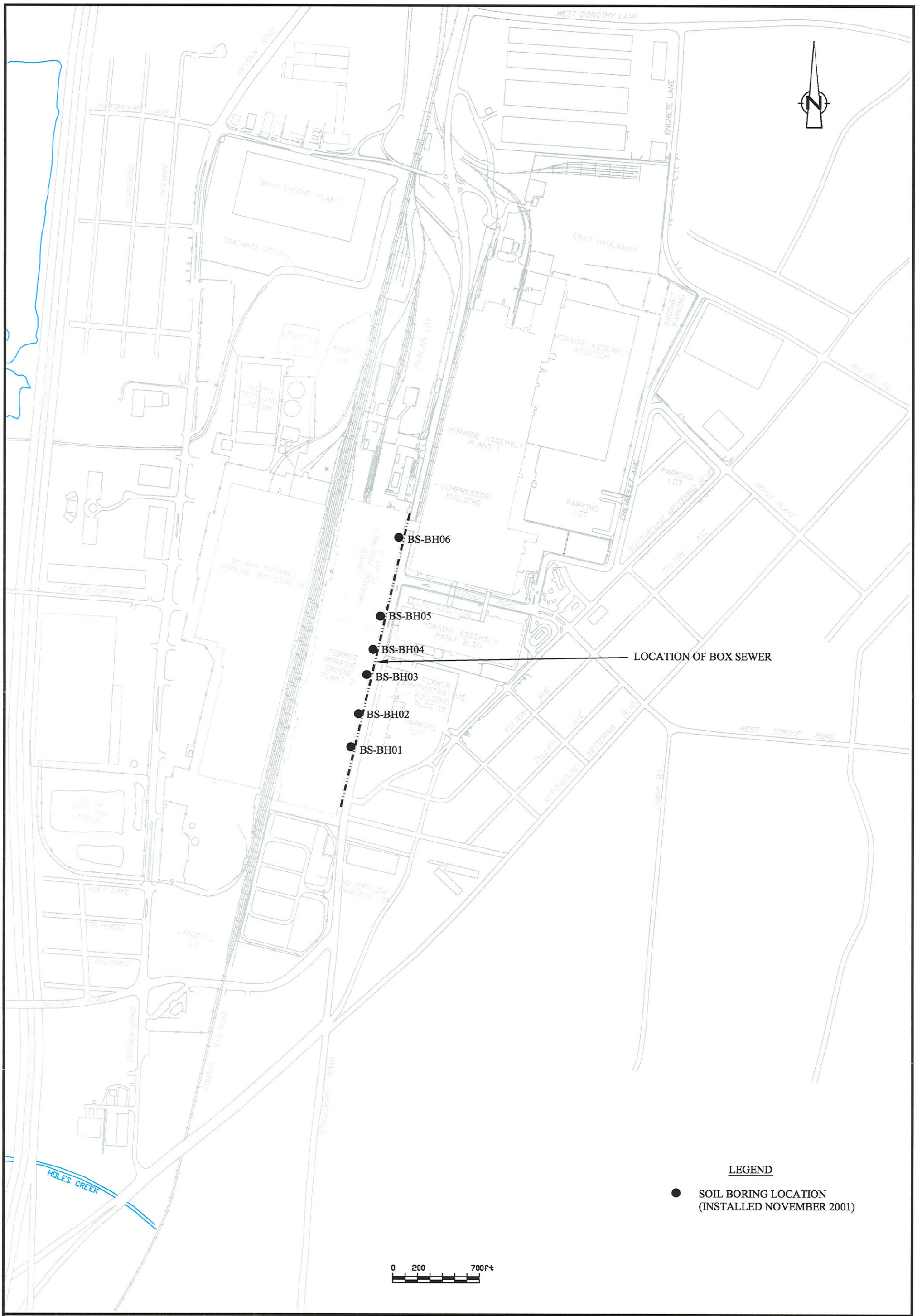
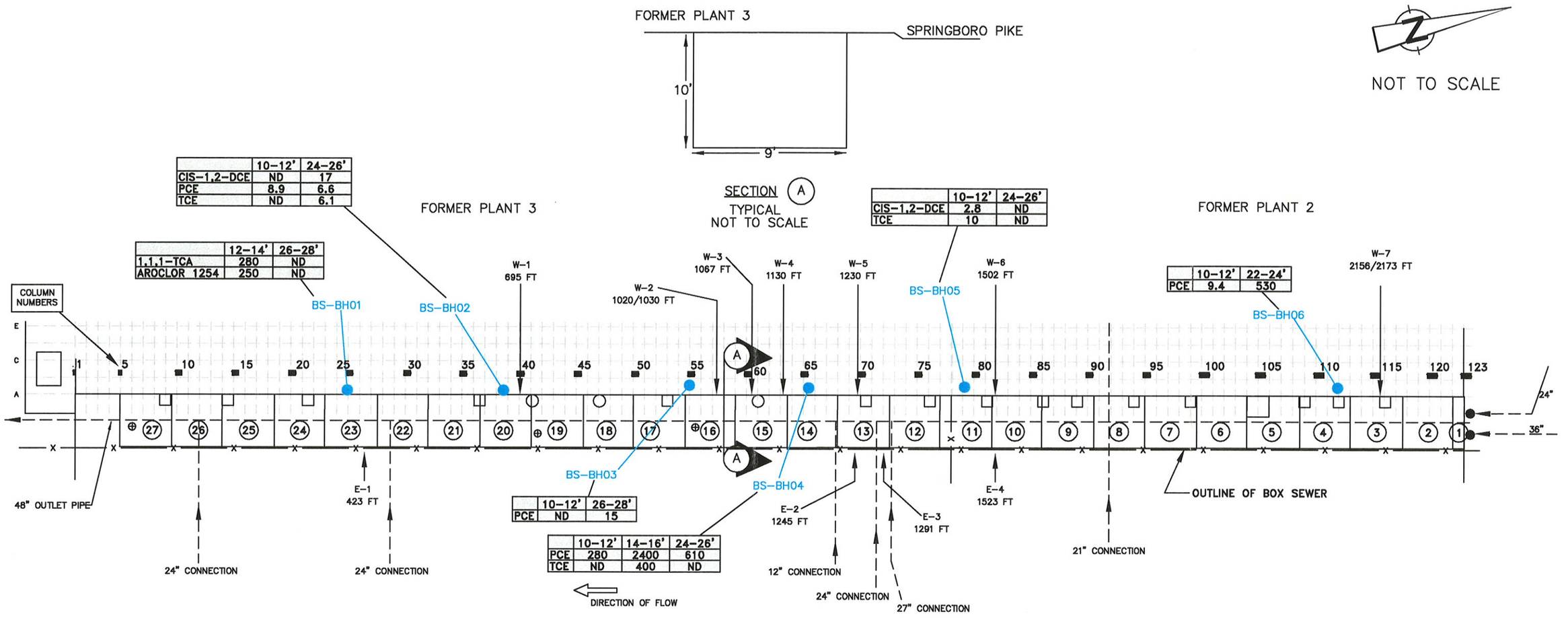


ARCADIS GERAGHTY&MILLER
6397 Emerald Parkway
Suite 150, Dublin, OH 43016
Tel: 614/764-2310 Fax: 614/764-1270

LOCATION OF BOX SEWER
GENERAL MOTORS CORPORATION,
MORAINE, OHIO

DATE	PROJECT MANAGER	DRAWING NAME
8/30/2001	N. GILLOTTI	\CRA\BOX\BOXSEW01
DRAWN	LEAD DESIGN PROF.	CHECKED
R. SMITH	J. REID	N. GILLOTTI
PROJECT NUMBER		FIGURE NUMBER
OH000294.0004.0010		1



	10-12'	24-26'
CIS-1,2-DCE	ND	17
PCE	8.9	6.6
TCE	ND	6.1

	12-14'	26-28'
1,1,1-TCA	280	ND
AROCLOR 1254	250	ND

	10-12'	24-26'
CIS-1,2-DCE	2.8	ND
TCE	10	ND

	10-12'	22-24'
PCE	9.4	530

	10-12'	26-28'
PCE	ND	15

	10-12'	14-16'	24-26'
PCE	280	2400	610
TCE	ND	400	ND

LEGEND

—— x ——	FENCING
⊕	CATCH BASIN
○ & □	SEWER ACCESS
———	OUTLINE OF BOX SEWER
W-1 695 FT	AREA IN BOX SEWER WHERE RELEASE MAY HAVE OCCURRED; LINEAR DISTANCE FROM SOUTHERN TERMINUS OF BOX SEWER
●	SOIL BORING LOCATION
BS	BOX SEWER
BH	BOREHOLE
(2)	SEWER QUADRANT NUMBER

CIS-1,2-DCE	CIS-1,2-DICHLOROETHENE
PCE	TETRACHLOROETHENE
1,1,1-TCA	1,1,1-TRICHLOROETHANE
TCE	TRICHLOROETHENE
ND	CONSTITUENT WAS NOT DETECTED

ANALYTICAL RESULTS PRESENTED IN MICROGRAMS PER KILOGRAM (ug/kg)

ARCADIS G&M

DETECTED ANALYTICAL RESULTS
BOX SEWER INVESTIGATION
GENERAL MOTORS CORPORATION, MORAINE, OHIO

DRAWN R. SMITH	DATE 8/29/2001	PROJECT MANAGER N. GILLOTTI	DRAWING NAME \CRA\BOX\BOXSEWER
		LEAD DESIGN PROF. J. REID	CHECKED D. DAVIS
		PROJECT NUMBER OH000294.0004.010	FIGURE NUMBER 2

Table 1. Soil Analytical Results, November 2001, Box Sewer Investigation, General Motors Corporation, Moraine, Ohio.

Draft

Constituents	Units	BS-BH01 11/26/01 (12-14)	BS-BH01 11/26/01 (26-28)	BS-BH02 11/27/01 (10-12)	BS-BH02 11/27/01 (24-26)	BS-BH02 11/27/01 DUP-113	BS-BH03 11/29/01 (10-12)	BS-BH03 11/29/01 (26-28)	BS-BH04 11/28/01 (10-12)	BS-BH04 11/28/01 (14-16)	BS-BH04 11/28/01 (24-26)	BS-BH05 11/28/01 (10-12)	BS-BH05 11/28/01 (24-26)	BS-BH06 11/28/01 (10-12)	BS-BH06 11/28/01 (22-24)
Volatile Organic Compounds															
cis-1,2-Dichloroethene	ug/kg	<110	<2.3	<2.3	17	23	<2.2	<2.4	<120	<110	<110	2.8	<2.3	<2.5	<110
Tetrachloroethene	ug/kg	<230	<4.7	8.9	6.6	21	<4.4	15	280	2400	610	<4.8	<4.7	9.4	530
1,1,1-Trichloroethane	ug/kg	280	<4.7	<4.7	<5.2	<4.7	<4.4	<4.9	<240	<220	<220	<4.8	<4.7	<4.9	<220
Trichloroethene	ug/kg	<230	<4.7	<4.7	6.1	12	<4.4	<4.9	<240	400	<220	10	<4.7	<4.9	<220
Polychlorinated Biphenyls															
Aroclor 1254	ug/kg	250	<34	<38	<34	<34	<35	<34	<35	<35	<35	<34	<35	<35	<35

ug/kg - micrograms per kilogram.
DUP-113 - Duplicate of BS-BH02(24-26).
BS - Box Sewer.

DRAFT

Appendix A

Box Sewer Laboratory Analytical Results

Table A-1. VOCs and PCBs Analytical Results for Soil, Box Sewer Investigation, General Motors Corporation, Moraine, Ohio.

Compound	Unit	BS/BH-01(12-14)SL 11/26/2001	BS/BH-01(26-28)SL 11/26/2001	BS/BH-02(10-12)SL 11/27/2001	BS/BH-02(24-26)SL 11/27/2001	DUP-113(112701)SL 11/27/2001
VOCs						
1,1,1-Trichloroethane	ug/kg	280	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,1,2,2-Tetrachloroethane	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,1,2-Trichloroethane	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,1-Dichloroethane	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,1-Dichloroethene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,2,4-Trichlorobenzene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 450 U	< 9.3 U	< 9.3 U	< 10 U	< 9.5 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,2-Dichlorobenzene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,2-Dichloroethane	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,2-Dichloropropane	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,3-Dichlorobenzene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
1,4-Dichlorobenzene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
2-Butanone	ug/kg	< 910 U	< 19 U	< 19 U	< 21 U	< 19 U
2-Hexanone	ug/kg	< 910 U	< 19 U	< 19 U	< 21 U	< 19 U
4-Methyl-2-pentanone	ug/kg	< 910 U	< 19 U	< 19 U	< 21 U	< 19 U
Acetone	ug/kg	< 910 UJ	< 19 U	< 19 U	< 21 U	< 19 U
Benzene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Benzene, isopropyl	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Bromodichloromethane	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Bromoform	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Bromomethane	ug/kg	< 230 U	< 4.7 UJ	< 4.7 U	< 5.2 U	< 4.7 U
Carbon disulfide	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Carbon tetrachloride	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Chlorobenzene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Chloroethane	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Chloroform (Trichloromethane)	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Chloromethane	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
cis-1,2-Dichloroethene	ug/kg	< 110 U	< 2.3 U	< 2.3 U	17	23
cis-1,3-Dichloropropene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Cyclohexane	ug/kg	R	< 9.3 U	< 9.3 U	< 10 U	< 9.5 U
Dibromochloromethane	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Dichlorodifluoromethane (CFC-12)	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Ethylbenzene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U

Table A-1. VOCs and PCBs Analytical Results for Soil, Box Sewer Investigation, General Motors Corporation, Moraine, Ohio.

Compound	Unit	BS/BH-01(12-14)SL 11/26/2001	BS/BH-01(26-28)SL 11/26/2001	BS/BH-02(10-12)SL 11/27/2001	BS/BH-02(24-26)SL 11/27/2001	DUP-113(112701)SL 11/27/2001
Methyl acetate	ug/kg	< 450 U	< 9.3 U	< 9.3 U	< 10 U	< 9.5 U
Methyl cyclohexane	ug/kg	< 450 U	< 9.3 U	< 9.3 U	< 10 U	< 9.5 U
Methyl Tert Butyl Ether	ug/kg	< 910 U	< 19 U	< 19 U	< 21 U	< 19 U
Methylene chloride	ug/kg	< 230 UJ	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Styrene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Tetrachloroethene	ug/kg	< 230 U	< 4.7 U	8.9	6.6 J	21 J
Toluene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
trans-1,2-Dichloroethene	ug/kg	< 110 U	< 2.3 U	< 2.3 U	< 2.6 U	< 2.4 U
trans-1,3-Dichloropropene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Trichloroethene	ug/kg	< 230 U	< 4.7 U	< 4.7 U	6.1	12
Trichlorofluoromethane (CFC-11)	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Trifluorotrichloroethane (Freon 113)	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Vinyl chloride	ug/kg	< 230 U	< 4.7 U	< 4.7 U	< 5.2 U	< 4.7 U
Xylene (total)	ug/kg	< 450 U	< 9.3 U	< 9.3 U	< 10 U	< 9.5 U
PCBs						
Aroclor-1016	ug/kg	< 36 U	< 34 U	< 38 U	< 34 U	< 34 U
Aroclor-1221	ug/kg	< 36 U	< 34 U	< 38 U	< 34 U	< 34 U
Aroclor-1232	ug/kg	< 36 U	< 34 U	< 38 U	< 34 U	< 34 U
Aroclor-1242	ug/kg	< 36 U	< 34 U	< 38 U	< 34 U	< 34 U
Aroclor-1248	ug/kg	< 36 U	< 34 U	< 38 U	< 34 U	< 34 U
Aroclor-1254	ug/kg	250	< 34 U	< 38 U	< 34 U	< 34 U
Aroclor-1260	ug/kg	< 36 U	< 34 U	< 38 U	< 34 U	< 34 U

Table A-1. VOCs and PCBs Analytical Results for Soil, Box Sewer Investigation, General Motors Corporation, Moraine, Ohio.

Compound	Unit	BS/BH-03(10-12)SL 11/29/2001	BS/BH-03(26-28)SL 11/29/2001	BS/BH-04(10-12)SL 11/28/2001	BS/BH-04(14-16)SL 11/28/2001	BS/BH-04(24-26)SL 11/28/2001
VOCs						
1,1,1-Trichloroethane	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,1,2,2-Tetrachloroethane	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,1,2-Trichloroethane	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,1-Dichloroethane	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,1-Dichloroethene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,2,4-Trichlorobenzene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 8.7 U	< 9.8 U	< 480 U	< 440 U	< 430 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,2-Dichlorobenzene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,2-Dichloroethane	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,2-Dichloropropane	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,3-Dichlorobenzene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
1,4-Dichlorobenzene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
2-Butanone	ug/kg	< 17 U	< 20 U	< 970 U	< 880 U	< 870 U
2-Hexanone	ug/kg	< 17 U	< 20 U	< 970 U	< 880 U	< 870 U
4-Methyl-2-pentanone	ug/kg	< 17 U	< 20 U	< 970 U	< 880 U	< 870 U
Acetone	ug/kg	< 17 U	< 20 U	< 970 U	< 880 U	< 870 U
Benzene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Benzene, isopropyl	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Bromodichloromethane	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Bromoform	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Bromomethane	ug/kg	< 4.4 UJ	< 4.9 UJ	< 240 UJ	< 220 UJ	< 220 UJ
Carbon disulfide	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Carbon tetrachloride	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Chlorobenzene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Chloroethane	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Chloroform (Trichloromethane)	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Chloromethane	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
cis-1,2-Dichloroethene	ug/kg	< 2.2 U	< 2.4 U	< 120 U	< 110 U	< 110 U
cis-1,3-Dichloropropene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Cyclohexane	ug/kg	< 8.7 U	< 9.8 U	< 480 U	< 440 U	< 430 U
Dibromochloromethane	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Dichlorodifluoromethane (CFC-12)	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Ethylbenzene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U

Table A-1. VOCs and PCBs Analytical Results for Soil, Box Sewer Investigation, General Motors Corporation, Moraine, Ohio.

Compound	Unit	BS/BH-03(10-12)SL 11/29/2001	BS/BH-03(26-28)SL 11/29/2001	BS/BH-04(10-12)SL 11/28/2001	BS/BH-04(14-16)SL 11/28/2001	BS/BH-04(24-26)SL 11/28/2001
Methyl acetate	ug/kg	< 8.7 U	< 9.8 U	< 480 U	< 440 U	< 430 U
Methyl cyclohexane	ug/kg	< 8.7 U	< 9.8 U	< 480 U	< 440 U	< 430 U
Methyl Tert Butyl Ether	ug/kg	< 17 U	< 20 U	< 970 U	< 880 U	< 870 U
Methylene chloride	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Styrene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Tetrachloroethene	ug/kg	< 4.4 U	15	280	2400	610
Toluene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
trans-1,2-Dichloroethene	ug/kg	< 2.2 U	< 2.4 U	< 120 U	< 110 U	< 110 U
trans-1,3-Dichloropropene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Trichloroethene	ug/kg	< 4.4 U	< 4.9 U	< 240 U	400	< 220 U
Trichlorofluoromethane (CFC-11)	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Trifluorotrichloroethane (Freon 113)	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Vinyl chloride	ug/kg	< 4.4 U	< 4.9 U	< 240 U	< 220 U	< 220 U
Xylene (total)	ug/kg	< 8.7 U	< 9.8 U	< 480 U	< 440 U	< 430 U
PCBs						
Aroclor-1016	ug/kg	< 35 U	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1221	ug/kg	< 35 U	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1232	ug/kg	< 35 U	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1242	ug/kg	< 35 U	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1248	ug/kg	< 35 U	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1254	ug/kg	< 35 U	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1260	ug/kg	< 35 U	< 34 U	< 35 U	< 35 U	< 35 U

Table A-1. VOCs and PCBs Analytical Results for Soil, Box Sewer Investigation, General Motors Corporation, Moraine, Ohio.

Compound	Unit	BS/BH-05(10-12)SL 11/28/2001	BS/BH-05(24-26)SL 11/28/2001	BS/BH-06(10-12)SL 11/28/2001	BS/BH-06(22-24)SL 11/28/2001
VOCs					
1,1,1-Trichloroethane	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,1,2,2-Tetrachloroethane	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,1,2-Trichloroethane	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,1-Dichloroethane	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,1-Dichloroethene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,2,4-Trichlorobenzene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 9.6 U	< 9.4 U	< 9.9 U	< 430 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,2-Dichlorobenzene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,2-Dichloroethane	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,2-Dichloropropane	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,3-Dichlorobenzene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
1,4-Dichlorobenzene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
2-Butanone	ug/kg	< 19 U	< 19 U	< 20 U	< 860 U
2-Hexanone	ug/kg	< 19 U	< 19 U	< 20 U	< 860 U
4-Methyl-2-pentanone	ug/kg	< 19 U	< 19 U	< 20 U	< 860 U
Acetone	ug/kg	< 19 U	< 19 U	< 20 U	< 860 U
Benzene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Benzene, isopropyl	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Bromodichloromethane	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Bromoform	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Bromomethane	ug/kg	< 4.8 U	< 4.7 UJ	< 4.9 UJ	< 220 UJ
Carbon disulfide	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Carbon tetrachloride	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Chlorobenzene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Chloroethane	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Chloroform (Trichloromethane)	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Chloromethane	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
cis-1,2-Dichloroethene	ug/kg	2.8	< 2.3 U	< 2.5 U	< 110 U
cis-1,3-Dichloropropene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Cyclohexane	ug/kg	< 9.6 U	< 9.4 U	< 9.9 U	< 430 U
Dibromochloromethane	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Dichlorodifluoromethane (CFC-12)	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Ethylbenzene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U

Table A-1. VOCs and PCBs Analytical Results for Soil, Box Sewer Investigation, General Motors Corporation, Moraine, Ohio.

Compound	Unit	BS/BH-05(10-12)SL 11/28/2001	BS/BH-05(24-26)SL 11/28/2001	BS/BH-06(10-12)SL 11/28/2001	BS/BH-06(22-24)SL 11/28/2001
Methyl acetate	ug/kg	< 9.6 U	< 9.4 U	< 9.9 U	< 430 U
Methyl cyclohexane	ug/kg	< 9.6 U	< 9.4 U	< 9.9 U	< 430 U
Methyl Tert Butyl Ether	ug/kg	< 19 U	< 19 U	< 20 U	< 860 U
Methylene chloride	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Styrene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Tetrachloroethene	ug/kg	< 4.8 U	< 4.7 U	9.4	530
Toluene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
trans-1,2-Dichloroethene	ug/kg	< 2.4 U	< 2.3 U	< 2.5 U	< 110 U
trans-1,3-Dichloropropene	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Trichloroethene	ug/kg	10	< 4.7 U	< 4.9 U	< 220 U
Trichlorofluoromethane (CFC-11)	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Trifluorotrichloroethane (Freon 113)	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Vinyl chloride	ug/kg	< 4.8 U	< 4.7 U	< 4.9 U	< 220 U
Xylene (total)	ug/kg	< 9.6 U	< 9.4 U	< 9.9 U	< 430 U
PCBs					
Aroclor-1016	ug/kg	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1221	ug/kg	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1232	ug/kg	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1242	ug/kg	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1248	ug/kg	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1254	ug/kg	< 34 U	< 35 U	< 35 U	< 35 U
Aroclor-1260	ug/kg	< 34 U	< 35 U	< 35 U	< 35 U

ug/kg - Micrograms per kilogram.
J - Value is estimated.
R - Value is rejected.
UJ - Constituent was not detected above the reporting limit. Detection limit is estimated.
U - Constituent was not detected above the reporting limit.
DUP-113 - Duplicate of BS/BH-02(24-26)SL
< - Constituent not detected above laboratory detection limit shown.
VOC - Volatile organic compound.
PCBs - Polychlorinated biphenyls.
BH - Borehole.
BS - Box Sewer
SL - Soil

Table A-2. VOCs and PCBs Analytical Results for QA/QC Samples, Box Sewer Investigation, General Motors Corporation, Moraine, Ohio.

Compound	Units	RB-90 11/27/2001	TB-137 11/26/2001	TB-138 11/27/2001	TB-139 11/28/2001	TB-140 11/29/2001
VOCs						
1,1,1-Trichloroethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,2,2-Tetrachloroethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1,2-Trichloroethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2,4-Trichlorobenzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichlorobenzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichloroethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichloropropane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,3-Dichlorobenzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
1,4-Dichlorobenzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Butanone	ug/L	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Hexanone	ug/L	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
4-Methyl-2-pentanone	ug/L	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acetone	ug/L	< 10 UJ	< 10 UJ	< 10 UJ	< 10 U	< 10 U
Benzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Benzene, isopropyl	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromodichloromethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromoform	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Bromomethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Carbon disulfide	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Carbon tetrachloride	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chlorobenzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloroethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloroform (Trichloromethane)	ug/L	17	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Chloromethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
cis-1,3-Dichloropropene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Cyclohexane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	R	< 1.0 U
Dibromochloromethane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Dichlorodifluoromethane (CFC-12)	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U

Table A-2. VOCs and PCBs Analytical Results for QA/QC Samples, Box Sewer Investigation, General Motors Corporation, Moraine, Ohio.

Compound	Units	RB-90 11/27/2001	TB-137 11/26/2001	TB-138 11/27/2001	TB-139 11/28/2001	TB-140 11/29/2001
Ethylbenzene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Methyl acetate	ug/L	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Methyl cyclohexane	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Methyl Tert Butyl Ether	ug/L	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U	< 5.0 U
Methylene chloride	ug/L	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 UJ
Styrene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Tetrachloroethene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Toluene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
trans-1,2-Dichloroethene	ug/L	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
trans-1,3-Dichloropropene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trichlorofluoromethane (CFC-11)	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Trifluorotrichloroethane (Freon 113)	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Xylene (total)	ug/L	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
PCBs						
Aroclor-1016	ug/L	< 1.0 U	NA	NA	NA	NA
Aroclor-1221	ug/L	< 1.0 U	NA	NA	NA	NA
Aroclor-1232	ug/L	< 1.0 U	NA	NA	NA	NA
Aroclor-1242	ug/L	< 1.0 U	NA	NA	NA	NA
Aroclor-1248	ug/L	< 1.0 U	NA	NA	NA	NA
Aroclor-1254	ug/L	< 1.0 U	NA	NA	NA	NA
Aroclor-1260	ug/L	< 1.0 U	NA	NA	NA	NA

ug/L - Micrograms per liter.
R - Value is rejected.
UJ - Constituent was not detected above the reporting limit. Value is estimated.
U - Constituent was not detected above the reporting limit.
< - Constituent not detected above laboratory detection limit shown.
VOC - Volatile organic compound.
PCBs - Polychlorinated biphenyls.
NA - Not analyzed.
RB - Rinseate Blank.
TB - Trip Blank.

DRAFT

Appendix B

Box Sewer Soil Boring and Sampling Logs

ARCADIS G&M

Log of Boring: BS/BH01

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	-	-	-					FILL 18' of concrete; 6" of gravel fill	
2	-,4,4,6	18	0.0				CL	CLAY soft; medium plasticity; moist; brown-reddish brown; clay (70%)	
4	4,6,9,9	18	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (75%); medium gravel (20%); silt (<5%)	
6	8,14,11,11	14	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (75%); medium gravel (20%); silt (<5%)	
8	-,9,14,20	12	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (75%); medium gravel (20%); silt (<5%)	
10	21,50/5	12	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (75%); medium gravel (20%); silt (<5%)	
12									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 30
Surface Elev.: 732.27
Datum: Ground Level

Begin Drilling: 11/26/01 @ 13:44
End Drilling: 11/26/01 @ 15:59
North Coor.: 3136.943
East Coor.: 6451.992

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH01

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	17,45,40,17	18	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (75%); medium gravel (20%); silt (<5%)	
14	15,50/3	10	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium sand (85%); fine-medium gravel (10%); silt (<5%)	
16	15,21,19,21	19	0.0				SP	SAND medium dense; moist; light brown; poorly graded; fine-medium sand (95%); silt (<5%)	
18	30,30,16,20	22	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); small-medium gravel (15%); silt (<5%)	
20	16,12,40,16	18	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); medium-coarse gravel (15%); silt (<5%)	
22	26,40,40,40	20	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); medium-large gravel (15%); silt (<5%)	
24									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 30
Surface Elev.: 732.27
Datum: Ground Level

Begin Drilling: 11/26/01 @ 13:44
End Drilling: 11/26/01 @ 15:59
North Coor.: 3136.943
East Coor.: 6451.992

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH01

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	25,48,35,28	18	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); medium-coarse gravel (15%); silt (<5%)	
26	40,46,50/6	12	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); medium-large gravel (15%); silt (<5%)	
28	21,50/5	10	0.0				SW	SAND & GRAVEL medium dense; wet; light brown; well graded; medium-coarse sand (80%); medium-coarse gravel (15%); silt (<5%)	▼
30								Bottom of boring	
32									
34									
36									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 30
Surface Elev.: 732.27
Datum: Ground Level

Begin Drilling: 11/26/01 @ 13:44
End Drilling: 11/26/01 @ 15:59
North Coor.: 3136.943
East Coor.: 6451.992

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Box Sewer Investigation	Date	11/26/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00010
Sample No.	BS/BH-01(12-14)SL, BS/BH-01(26-28)SL	Coded Replicate No.	
Time Sampling Began	13:44	Time Sampling Ended	15:59

Sampling Method and Material: Split spoon sampler (2" x 2')

From	To	Soil/Sediment/Sludge Description
12	14	Sand & Gravel: medium dense; moist; light brown; well graded; medium coarse sand (75%); medium gravel (20%); silt (<5%)
26	28	Sand & Gravel: medium dense; moist; light brown; well graded; medium-coarse sand (80%); medium-coarse gravel (15%); silt (<5%)

OTHER (OVA; HNu; etc.) (12-14)=0.0 ppm @ 14:35; (26-28)=0.0 ppm @ 15:45

Constituents Sampled	Container Description	Preservative
TCL-VOCs SW 846 Method 5035/8260	3- En Core® Samplers	Cool
TCL-PCBs SW 846 Method 8082	1- 4 ounce glass jar	Cool

Remarks

Sample Personnel H.Stamm/C.Capell

ARCADIS G&M

Log of Boring: BS/BH02

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	-	-	-					FILL 4" of asphalt; 14" of concrete; 6" of gravel fill	
2	-,3,4,6	18	0.0					6" of concrete	
							CL	CLAY sandy soft; medium plasticity moist; brown-red brown; clay (70%); coarse sand (25%); silt (5%)	
4	4,6,4,4	18	0.0				CL	CLAY soft; medium plasticity moist; brown-red brown; clay (70%); coarse sand (25%); silt (5%)	
6	7,4,6,5	16	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium coarse sand (75%); gravel (20%); silt (5%)	
8	4,3,3,4	12	0.0				CL	CLAY sandy; soft; medium plasticity; moist; light brown; clay (70%); medium-coarse sand (25%); silt (5%)	
10	4,6,8,14	12	0.0				CL	CLAY sandy; soft; medium plasticity; moist; light brown; clay (70%); medium-coarse sand (25%); silt (5%)	
12									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 28
Surface Elev.: 732.31
Datum: Ground Level

Begin Drilling: 11/27/01 @ 7:45
End Drilling: 11/27/01 @ 9:34
North Coor.: 3411.014
East Coor.: 6452.948

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH02

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	13,17,17,25	12	0.0				SP	SAND medium dense; moist; light brown; poorly graded; medium-coarse sand (90%); fine gravel (5%); silt (5%)	
14	32,32,25,15	18	0.0				SP	SAND medium dense; moist; light brown; poorly graded; medium-coarse sand (90%); fine gravel (5%); silt (5%)	
16	13,14,14,14	18	0.0				SP	SAND medium dense; moist; light brown; poorly graded; medium-coarse sand (90%); fine gravel (5%); silt (5%)	
18	10,20,25,25	14	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); fine-medium gravel (15%); silt (5%)	
20	20,12,50/5	10	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (85%); fine -medium gravel (10%); silt (5%)	
22	21,30,50/5	12	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (85%); fine -medium gravel (10%); silt (5%)	
24									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 28
Surface Elev.: 732.31
Datum: Ground Level

Begin Drilling: 11/27/01 @ 7:45
End Drilling: 11/27/01 @ 9:34
North Coor.: 3411.014
East Coor.: 6452.948

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH02

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	14,25,38,32	20	0.0	■	■	▒	SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (85%); fine-medium gravel (10%); silt (5%)	
26	7,32,35,38	19	0.0	▯	■	▒	SP	SAND medium dense; wet; light brown; poorly graded; medium-coarse sand (90%); fine gravel (5%); silt (5%)	▼
28								Bottom of boring	
30									
32									
34									
36									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: Cindy Capell
Begin Drilling: 11/27/01 @ 7:45

Driller: Darrell
Total Depth: 28
End Drilling: 11/27/01 @ 9:34

Drilling Method: Hollow stem auger
Surface Elev.: 732.31
North Coor.: 3411.014

Drilling Fluid: None
Datum: Ground Level
East Coor.: 6452.948

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs.
Converted to Well: N
Well I.D.:

Project No.: OH000294.0004.00010
Filename: Nov 2001 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Box Sewer Investigation	Date	11/27/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00010
Sample No.	BS/BH-02(10-12)SL, BS/BH-02(24-26)SL	Coded Replicate No.	DUP-113 @ 9:40
Time Sampling Began	7:34	Time Sampling Ended	9:40

Sampling Method and Material: Split spoon sampler (2" x 2')

From	To	Soil/Sediment/Sludge Description
10	12	Clay: sandy; soft; medium plasticity; moist; light brown; clay (70%); medium-coarse sand (25%); silt (5%)
24	26	Sand & Gravel: medium dense; moist; light brown; well-graded; medium-coarse sand (85%); fine-medium gravel (10%); silt (5%)

OTHER (OVA; HNu; etc.) (10-12)=0.0 ppm @ 8:30; (24-26)=0.0 ppm @ 9:21

Constituents Sampled	Container Description	Preservative
TCL-VOCs SW 846 Method 5035/8260	3- En Core® Samplers	Cool
TCL-PCBs SW 846 Method 8082	1- 4 ounce glass jar	Cool

Remarks DUP-113 is a duplicate of BS/BH-02 (24-26)SL. RB-90 was collected with BS/BH-02 (24-26)SL.

Sample Personnel H.Stamm/C.Capell

ARCADIS G&M

Log of Boring: BS/BH03

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	-	-	-					FILL 4" asphalt; 14" concrete; 6" gravel fill	
2	5,9,12,16	12	0.1				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); fine-medium gravel (15%); silt (5%)	
4	28,17,28,23	16	0.1				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); fine-coarse gravel (15%); silt (5%)	
6	12,10,8,10	12	0.1				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); coarse gravel (15%); silt (5%)	
8	50/5,-,-	7	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); fine-medium gravel (15%); silt (5%)	
10	21,50/5	12	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); fine-medium gravel (15%); silt (5%)	
12									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: C. Capell/S. Brown
Total Depth: 30
Surface Elev.: 732.28
Datum: Ground Level

Begin Drilling: 11/27/01 @ 11:04
End Drilling: 11/29/01 @ 10:05
North Coor.: 3738.272
East Coor.: 6444.663

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH03

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	18,23,50/5	12	0.0				SW	SAND & GRAVEL medium dense; moist; light brown; well graded; medium-coarse sand (80%); fine-medium gravel (15%); silt (5%)	
14	20,19,17,23	18	0.0				SP	SAND brown; fine-coarse sand; fine gravel (5%); moist; poorly graded; loose	
16	14,18,19,20	20	0.0				SP	SAND brown; fine-coarse sand; fine gravel (5%); moist; poorly graded; loose	
18	14,50/4	12	0.0				SP	SAND brown; fine-coarse sand; fine gravel (5%); moist; poorly graded; loose	
20	16,25,30,30	18	0.0				SW	SAND & GRAVEL fine-coarse sand (50%); fine-coarse gravel (50%); well graded; loose; light brown; moist	
22	13,15,50/5	12	0.0				SW	SAND & GRAVEL fine-coarse sand (50%); fine-coarse gravel (50%); well graded; loose; light brown; moist	
24									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▥ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: C. Capell/S. Brown
Begin Drilling: 11/27/01 @ 11:04

Driller: Darrell
Total Depth: 30
End Drilling: 11/29/01 @ 10:05

Drilling Method: Hollow stem auger
Surface Elev.: 732.28
North Coor.: 3738.272

Drilling Fluid: None
Datum: Ground Level
East Coor.: 6444.663

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs.
Converted to Well: N
Well I.D.:

Project No.: OH000294.0004.00010
Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH03

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	11,27,28,50/4	10	0.0				SW	SAND & GRAVEL fine-coarse sand (50%); fine-coarse gravel (50%); well graded; loose; light brown; moist	
26	25,50/4	10	2.0				SW	SAND & GRAVEL fine-coarse sand (50%); fine-coarse gravel (50%); well graded; loose; light brown; moist	
28	16,18,22,22	18	0.0				SW	SAND & GRAVEL fine-coarse sand (80%); coarse-fine gravel (20%); well graded; loose; light brown; wet	▼
30								Bottom of boring	
32									
34									
36									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: C. Capell/S. Brown
Begin Drilling: 11/27/01 @ 11:04

Driller: Darrell
Total Depth: 30
End Drilling: 11/29/01 @ 10:05

Drilling Method: Hollow stem auger
Surface Elev.: 732.28
North Coor.: 3738.272

Drilling Fluid: None
Datum: Ground Level
East Coor.: 6444.663

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs.
Converted to Well: N
Well I.D.:

Project No.: OH000294.0004.00010
Filename: Nov 2001 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Box Sewer Investigation	Date	11/29/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00010
Sample No.	BS/BH-03(10-12)SL, BS/BH-03(26-28)SL	Coded Replicate No.	
Time Sampling Began	11:00	Time Sampling Ended	10:05

Sampling Method and Material: Split spoon sampler (2" x 2')

From	To	Soil/Sediment/Sludge Description
10	12	Sand & Gravel: medium dense; moist; light brown; well graded; medium-coarse sand (80%); fine-medium gravel (15%); silt (5%)
26	28	Sand & Gravel: fine-coarse sand (50%); fine-coarse gravel (50%); well graded; loose; light brown; moist

OTHER (OVA; HNu; etc.) (10-12)=0.0 ppm @ 8:45; (26-28)=2.0 ppm @ 9:48

Constituents Sampled	Container Description	Preservative
TCL-VOCs SW 846 Method 5035/8260	3- En Core® Samplers	Cool
TCL-PCBs SW 846 Method 8082	1- 4 ounce glass jar	Cool

Remarks

Sample Personnel H.Stamm/S. Brown

ARCADIS G&M

Log of Boring: BS/BH04

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	-	-	-					FILL 4" asphalt; 14" concrete; 6" gravel fill	
2	20,10,13,14	20	0.0				CL	CLAY-FILL fill (pieces of brick present); sandy; soft; medium plasticity; moist; brown-red brown; clay (70%); medium-coarse sand (25%); silt (<5%)	
4	6,50/0	6	0.4				SC	SAND-FILL medium dense; moist; brown; well graded; medium-coarse sand (70%); clay (20%); small gravel (5%); silt (5%)	
6	-	-	-				SC	SAND-FILL medium dense; moist; brown; well graded; medium-coarse sand (70%); clay (20%); small gravel (5%); silt (5%)	
							SW	SAND & GRAVEL fill; fine-coarse sand (80%); fine-coarse gravel (20%); moist; brown; well graded; loose	
8	-	-	-					SAND & GRAVEL fill; fine-coarse sand (80%); fine-coarse gravel (20%); moist; brown; well graded; loose	
10	50/5	12	0.1					SAND & GRAVEL fill; fine-coarse sand (80%); fine-coarse gravel (20%); moist; brown; well graded; loose	
12									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: C. Capell/S. Brown
Total Depth: 28
Surface Elev.: 732.26
Datum: Ground Level

Begin Drilling: 11/27/01 @ 15:18
End Drilling: 11/28/01 @ 9:30
North Coor.: 3947.641
East Coor.: 6449.843

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH04

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	50/3	0	NR				SW	SAND & GRAVEL fill; fine-coarse sand (80%); fine-coarse gravel (20%); moist; brown; well graded; loose	
14	22,21,19,23	14	3.8				SP	SAND fine-coarse sand (90%); fine gravel (10%); moist; brown; poorly graded; loose	
16	15,19,19,23	10	1.2				SP	SAND fine-coarse sand; fine gravel (10%); moist; brown; poorly graded; angular; loose	
18	10,15,13,13	12	2.0				SW	SAND & GRAVEL fine-coarse sand (70%); fine-coarse gravel (20%); moist; brown; well graded; loose	
20	50/4	-	NR				SW	SAND & GRAVEL fine-coarse sand (70%); fine-coarse gravel (20%); moist; brown; well graded; loose	
22	15,43,50/3	12	1.1				SW	SAND & GRAVEL fine-coarse sand (70%); fine-coarse gravel (20%); moist; brown; well graded; loose	
24									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: C. Capell/S. Brown
Total Depth: 28
Surface Elev.: 732.26
Datum: Ground Level

Begin Drilling: 11/27/01 @ 15:18
End Drilling: 11/28/01 @ 9:30
North Coor.: 3947.641
East Coor.: 6449.843

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH04

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	25,35,55	14	1.0				SW	SAND & GRAVEL fine-coarse sand (70%); fine-coarse gravel (20%); moist; brown; well graded; loose	
26	28,35,48,30	24	0.2				SW	SAND & GRAVEL fine-coarse sand (70%); fine-coarse gravel (20%); moist; brown; well graded; loose	
28								Bottom of boring	
30									
32									
34									
36									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: C. Capell/S. Brown
Total Depth: 28
Surface Elev.: 732.26
Datum: Ground Level

Begin Drilling: 11/27/01 @ 15:18
End Drilling: 11/28/01 @ 9:30
North Coor.: 3947.641
East Coor.: 6449.843

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Box Sewer Investigation	Date	11/28/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00010
Sample No.	BS/BH-04(10-12)SL, BS/BH-04(14-16)SL; BS/BH-04(24-26)SL	Coded Replicate No.	
Time Sampling Began	7:30	Time Sampling Ended	9:50

Sampling Method and Material: Split spoon sampler (2" x 2')

From	To	Soil/Sediment/Sludge Description
10	12	Sand & Gravel: fill; fine-coarse sand (10%); fine fine-coarse gravel (20%); moist; brown; well graded; loose
14	16	Sand: fine-coarse sand; fine gravel (10%); moist; brown; poorly graded; angular; loose
24	26	Sand & Gravel: fine-coarse sand (70%) fine-coarse gravel (20%); moist; brown; well graded; loose

OTHER (OVA; HNu; etc.) (10-12)=0.1 ppm @ 7:53; (14-16)=3.8 ppm @ 8:41; (24-26)=1.0 ppm @ 9:23

Constituents Sampled	Container Description	Preservative
TCL-VOCs SW 846 Method 5035/8260	3- En Core® Samplers	Cool
TCL-PCBs SW 846 Method 8082	1- 4 ounce glass jar	Cool

Remarks

Sample Personnel H.Stamm/S. Brown

ARCADIS G&M

Log of Boring: BS/BH05

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	-	-	-					FILL 7" asphalt; 15" concrete; 4" fill	
2	24,50/5	14	0.0				SW	SAND & GRAVEL-FILL fine-coarse sand (50%); fine-coarse gravel (50%)	
4	50/1	-	-					No recovery	
6	4,7,10,17	16	0.0				SP	SAND-FILL fine-coarse sand; fine gravel (5%); dry; brown; poorly graded	
8	22,19,22,22	24	0.0				SW	SAND & GRAVEL fine-coarse sand (70%); coarse-fine gravel (30%); well graded; brown; dry; loose	
10	8,17,28,38	18	0.0				SW	SAND & GRAVEL fine-coarse sand (70%); coarse-fine gravel (30%); well graded; brown; dry; loose	
12									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: Sean Brown
Total Depth: 28
Surface Elev.: 732.31
Datum: Ground Level

Begin Drilling: 11/28/01 @ 10:19
End Drilling: 11/28/01 @ 11:59
North Coor.: 4222.098
East Coor.: 6448.600

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH05

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	28,50/5	12	0.0				SW	SAND & GRAVEL fine-coarse sand (70%); coarse-fine gravel (30%); well graded; brown; dry; loose	
14	50/3	-						No recovery	
16	20,25,20,25	18	0.0				SW	SAND & GRAVEL coarse sand (70%); coarse-fine gravel (30%); well graded; brown; dry; loose; clay (5%)	
18	14,22,21,28	20	0.0				SW	SAND & GRAVEL coarse sand (70%); coarse-fine gravel (30%); well graded; brown; dry; loose; trace clay	
20	18,20,22,22	20	0.0				SW	SAND & GRAVEL fine-coarse sand (80%); coarse-fine gravel (20%); well graded; gray-brown; moist; loose	
22	18,20,24,22	20	0.0				SW	SAND & GRAVEL fine-coarse sand (80%); coarse-fine gravel (20%); well graded; gray-brown; moist; loose	
24									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: Sean Brown
Total Depth: 28
Surface Elev.: 732.31
Datum: Ground Level

Begin Drilling: 11/28/01 @ 10:19
End Drilling: 11/28/01 @ 11:59
North Coor.: 4222.098
East Coor.: 6448.600

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH05

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	10,20,25,35	10	0.0	■	■	▒	SW	SAND & GRAVEL fine-coarse sand (80%); coarse-fine gravel (20%); well graded; gray-brown; moist; loose	
26	25,23,16,16	24	0.0	▯	■	▒	SW	SAND & GRAVEL fine-coarse sand (80%); coarse-fine gravel (20%); well graded; gray-brown; moist; loose	▼
28								Bottom of boring	
30									
32									
34									
36									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: Sean Brown
Begin Drilling: 11/28/01 @ 10:19
Driller: Darrell
Total Depth: 28
End Drilling: 11/28/01 @ 11:59
Drilling Method: Hollow stem auger
Surface Elev.: 732.31
North Coor.: 4222.098
Drilling Fluid: None
Datum: Ground Level
East Coor.: 6448.600
Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs.
Converted to Well: N
Well I.D.:
Project No.: OH000294.0004.00010
Filename: Nov 2001 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Box Sewer Investigation	Date	11/28/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00010
Sample No.	BS/BH-05(10-12)SL, BS/BH-05(24-26)SL	Coded Replicate No.	
Time Sampling Began	10:30	Time Sampling Ended	12:00

Sampling Method and Material: Split spoon sampler (2" x 2')

From	To	Soil/Sediment/Sludge Description
10	12	Sand & Gravel: fine-coarse sand (70%); coarse-fine gravel (30%); well graded; brown; dry; loose
24	26	Sand & Gravel: fine-coarse sand (80%); coarse-fine gravel (20%); well graded; gray brown; moist; loose

OTHER (OVA; HNu; etc.) (10-12)=0.0 ppm @ 11:09; (24-26)=0.0 ppm @ 11:53

Constituents Sampled	Container Description	Preservative
TCL-VOCs SW 846 Method 5035/8260	3- En Core® Samplers	Cool
TCL-PCBs SW 846 Method 8082	1- 4 ounce glass jar	Cool

Remarks

Sample Personnel H.Stamm/S. Brown

ARCADIS G&M

Log of Boring: BS/BH06

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Soil Class.	Description	Depth to Water
0	2,4,4	20	0.0		6" asphalt; 12" concrete; 6" sand and gravel fill	
2	12,50/2	8	0.0	SW	SAND & GRAVEL-FILL coarse-fine sand (75%); fine gravel (20%); moist; brown; well sorted; loose; silt (<5%)	
4	10,15,15,23	8	0.0	SW	SAND & GRAVEL-FILL coarse-fine sand (75%); fine gravel (20%); moist; brown; well sorted; loose; silt (5%)	
6	16,35,50/5	0	0.0		No recovery	
8	7,7,19,21	20	0.0	SP	SAND fine-coarse sand (90%); fine gravel (10%); brown; moist; poorly graded; loose	
10	12,16,16,22	14	0.0	SP	SAND fine-coarse sand (90%); fine gravel (10%); brown; moist; poorly graded; loose	
12						

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: Sean Brown
Begin Drilling: 11/28/01 @ 13:50
Driller: Darrell
Total Depth: 26
End Drilling: 11/28/01 @ 15:14
Drilling Method: Hollow stem auger
Surface Elev.: 732.25
North Coor.: 4876.839
Drilling Fluid: None
Datum: Ground Level
East Coor.: 6451.453
Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs.
Converted to Well: N
Well I.D.:

Project No.: OH000294.0004.00010
Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH06

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	12,18,38,38,	14	0.0				SP	SAND fine-coarse sand (90%); fine gravel (10%); brown; moist; poorly graded; loose	
14	16,28,33,30	18	0.0				SP	SAND fine-coarse sand (90%); fine gravel (10%); brown; moist; poorly graded; loose	
16	16,25,35,25	18	0.0				SP	SAND fine-coarse sand (90%); fine gravel (10%); brown; moist; poorly graded; loose	
18	18,20,28,41	15	0.0				SP	SAND fine-coarse sand (90%); fine gravel (10%); brown; moist; poorly graded; loose	
20	14,25,25,35	20	0.5				SW	SAND & GRAVEL fine-coarse sand (70%); fine-coarse gravel (25%); well sorted; brown; moist; loose; silt (5%)	
22	10,14,20,26	16	0.8				SW	SAND & GRAVEL fine-coarse sand (70%); fine-coarse gravel (25%); well sorted; brown; moist; loose; silt (5%)	
24									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: Sean Brown
Total Depth: 26
Surface Elev.: 732.25
Datum: Ground Level

Begin Drilling: 11/28/01 @ 13:50
End Drilling: 11/28/01 @ 15:14
North Coor.: 4876.839
East Coor.: 6451.453

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS G&M

Log of Boring: BS/BH06

Box Sewer Investigation

General Motors, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	14,20,24,48	20	4.5				SW	SAND & GRAVEL fine-coarse sand (75%); fine-coarse gravel (20%); well graded; brown; moist; loose; silt (5%) Wet at 25.5'	▼
26								Bottom of boring	
28									
30									
32									
34									
36									

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Darrell
Drilling Method: Hollow stem auger
Drilling Fluid: None

Geologist: Sean Brown
Total Depth: 26
Surface Elev.: 732.25
Datum: Ground Level

Begin Drilling: 11/28/01 @ 13:50
End Drilling: 11/28/01 @ 15:14
North Coor.: 4876.839
East Coor.: 6451.453

Remarks: Samples sent to STL for analysis of TCL VOCs and TCL PCBs. Converted to Well: N Well I.D.:

Project No.: OH000294.0004.00010 Filename: Nov 2001 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Box Sewer Investigation	Date	11/28/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00010
Sample No.	BS/BH-06(10-12)SL, BS/BH-06(22-24)SL	Coded Replicate No.	
Time Sampling Began	13:45	Time Sampling Ended	15:20

Sampling Method and Material: Split spoon sampler (2" x 2')

From	To	Soil/Sediment/Sludge Description
10	12	Sand: fine-coarse sand (90%); fine gravel (10%); brown; moist; poorly graded; loose
22	24	Sand & Gravel: fine-coarse sand (70%); fine-coarse gravel (25%); well sorted; brown; moist; loose; silt (5%)

OTHER (OVA; HNu; etc.) (10-12)= 0.0 ppm @ 14:25; (22-24)=0.8 ppm @ 15:06

Constituents Sampled	Container Description	Preservative
TCL-VOCs SW 846 Method 5035/8260	3- En Core® Samplers	Cool
TCL-PCBs SW 846 Method 8082	1- 4 ounce glass jar	Cool

Remarks

Sample Personnel H.Stamm/S. Brown

DRAFT

Appendix C

Box Sewer Supporting Data
for Risk Evaluation

Table C-1: GM: Moraine-Box Sewer
Soil Screening Summary Results

Chem Group	Detected Chemical	CASRN	Carc Grp	TCL/ TAL	APP IX	Analyzed	Detected	Detected in GW	Detected in Soil	Min Detected (mg/kg)	Mean Detected (mg/kg)	Max Detected (mg/kg)	Min QL (mg/kg)	Mean QL (mg/kg)	Max QL (mg/kg)	Industrial PRG[1] (mg/kg)		Ratio of Max Detect Concentration to Industrial PRG	SSL[2] (mg/kg)	Ratio of Max Detect Concentration to SSL
																				2
VOC	cis-1,2-Dichloroethene	156-59-2	D	Y	N	13	2	NA	Y	0.0028	0.011	0.02	0.0022	0.052	0.12	1.47E+02	nc	1E-04	4.00E-01	5E-02
VOC	Tetrachloroethene	127-18-4	C-B2	Y	Y	13	8	NA	Y	0.0089	0.48	2.4	0.0044	0.05	0.23	1.87E+01	c	1E-01	6.00E-02	**4E+01**
VOC	1,1,1-Trichloroethane	71-55-6	D	Y	Y	13	1	NA	Y	0.28	0.28	0.28	0.0044	0.078	0.24	3.22E+03	nc	9E-05	2.00E+00	1E-01
VOC	Trichloroethene	79-01-6	C-B2	Y	Y	13	3	NA	Y	0.00905	0.14	0.4	0.0044	0.094	0.24	6.12E+00	c	7E-02	6.00E-02	**7E+00**
P/PCB	Aroclor-1254	11097-69-1	B2	Y	Y	13	1	NA	Y	0.25	0.25	0.25	0.034	0.035	0.038	1.00E+00	c	2E-01		

Notes:

1 - c - The Screening Criteria is based on cancer risk; CRL = 10^{-5}

nc - The Screening Criteria is based on noncancer effects; HI=1

2 - SSL - Soil Screening Level calculated using USEPA's Soil Screening Levels for migrating to ground water pathway, with a dillution attenuation factor (DAF) of 20.
(USEPA 1996. Soil Screening Guidance, Technical Background Document. May.)

Table C-2: GM Moraine - Box Sewer
Soil Screening Results - Sample Specific

Element	Location	Sample ID	Top Depth	Bottom Depth	Sample Date	Chem Group	Detected Chemical	CASRN	Conc	Units	Qual	MDL	MRL	Industrial PRG[1] (mg/kg)	Ratio of Detected Conc to PRG	SSL[2] (mg/kg)	Ratio of Conc to SSL
Soil	BS/BH-01	BS/BH-01(12-14)SL	12	14	37221	VOC	1,1,1-Trichloroethane	71-55-6	0.28	MG/KG		9.00E-03	2.30E-01	3.20E+03	8.70E-05	2.00E+00	1.40E-01
Soil	BS/BH-01	BS/BH-01(12-14)SL	12	14	37221	P/PCB	Aroclor-1254	11097-69-1	0.25	MG/KG		2.20E-02	3.60E-02	1.00E+01	2.50E-02		
Soil	BS/BH-02	BS/BH-02(10-12)SL	10	12	37222	VOC	Tetrachloroethene	127-18-4	0.0089	MG/KG		1.10E-03	4.70E-03	1.90E+02	4.80E-05	6.00E-02	1.50E-01
Soil	BS/BH-02	BS/BH-02(24-26)SL	24	26	37222	VOC	cis-1,2-Dichloroethene	156-59-2	0.02	MG/KG		8.80E-04	2.50E-03	1.50E+02	1.40E-04	4.00E-01	5.00E-02
Soil	BS/BH-02	BS/BH-02(24-26)SL	24	26	37222	VOC	Tetrachloroethene	127-18-4	0.0138	MG/KG	J	1.30E-03	4.95E-03	1.90E+02	7.40E-05	6.00E-02	2.30E-01
Soil	BS/BH-02	BS/BH-02(24-26)SL	24	26	37222	VOC	Trichloroethene	79-01-6	0.00905	MG/KG		7.90E-04	4.95E-03	6.10E+01	1.50E-04	6.00E-02	1.50E-01
Soil	BS/BH-03	BS/BH-03(26-28)SL	26	28	37224	VOC	Tetrachloroethene	127-18-4	0.015	MG/KG		1.20E-03	4.90E-03	1.90E+02	8.00E-05	6.00E-02	2.50E-01
Soil	BS/BH-04	BS/BH-04(10-12)SL	10	12	37223	VOC	Tetrachloroethene	127-18-4	0.28	MG/KG		1.50E-02	2.40E-01	1.90E+02	1.50E-03	6.00E-02	4.70E+00
Soil	BS/BH-04	BS/BH-04(14-16)SL	14	16	37223	VOC	Tetrachloroethene	127-18-4	2.4	MG/KG		1.30E-02	2.20E-01	1.90E+02	1.30E-02	6.00E-02	4.00E+01
Soil	BS/BH-04	BS/BH-04(14-16)SL	14	16	37223	VOC	Trichloroethene	79-01-6	0.4	MG/KG		1.50E-02	2.20E-01	6.10E+01	6.50E-03	6.00E-02	6.70E+00
Soil	BS/BH-04	BS/BH-04(24-26)SL	24	26	37223	VOC	Tetrachloroethene	127-18-4	0.61	MG/KG		1.30E-02	2.20E-01	1.90E+02	3.30E-03	6.00E-02	1.00E+01
Soil	BS/BH-05	BS/BH-05(10-12)SL	10	12	37223	VOC	cis-1,2-Dichloroethene	156-59-2	0.0028	MG/KG		8.00E-04	2.40E-03	1.50E+02	1.90E-05	4.00E-01	7.00E-03
Soil	BS/BH-05	BS/BH-05(10-12)SL	10	12	37223	VOC	Trichloroethene	79-01-6	0.01	MG/KG		7.30E-04	4.80E-03	6.10E+01	1.60E-04	6.00E-02	1.70E-01
Soil	BS/BH-06	BS/BH-06(10-12)SL	10	12	37223	VOC	Tetrachloroethene	127-18-4	0.0094	MG/KG		1.20E-03	4.90E-03	1.90E+02	5.00E-05	6.00E-02	1.60E-01
Soil	BS/BH-06	BS/BH-06(22-24)SL	22	24	37223	VOC	Tetrachloroethene	127-18-4	0.53	MG/KG		1.30E-02	2.20E-01	1.90E+02	2.80E-03	6.00E-02	8.80E+00

Notes:

1 - c - The Screening Criteria is based on cancer risk; CRL = 10^{-5}

nc - The Screening Criteria is based on noncancer effects; HI=1

2 - SSL - Soil Screening Level calculated using USEPA's Soil Screening Levels for migrating to ground water pathway, with a dilution attenuation factor (DAF) of 20.
(USEPA 1996. Soil Screening Guidance, Technical Background Document. May.)

Table C-3. Source Reduction Factors at Potential Receptor Points from the Box Sewer Potential Source Area BS-BH04 and BS-BH06.

Potential Receptor Points	Well ID	Pumping Rate (if in use) (gpm)	Model Location (row, column, layer)	Scenario[4] 1	2	3	4	5	6	7	8	9	10
Proposed Shallow Well	TW-2	166	(82,55,1)	3.01E-04	1.42E-04	9.67E-06	7.44E-05	5.52E-06	**3.15E-02**	**1.83E-02**	**1.49E-02**	**1.33E-02**	**1.03E-02**
Dryden North Well	DN-13	1850	(89,46,3)	2.72E-06	5.01E-07	2.70E-09	5.87E-08	1.00E-10	**5.72E-03**	**7.66E-03**	**1.23E-02**	**6.11E-03**	**1.10E-02**
Dryden South Well	DS-7	463	(98,43,3)	1.41E-06	1.88E-04	3.13E-05	**1.43E-03**	**8.09E-04**	0.00E+00	1.14E-04	0.00E+00	**6.11E-03**	**1.12E-02**
Miami Shores Well Field	MS-14	257	(98,38,3)	3.06E-07	**2.98E-05**	**4.67E-06**	**9.05E-05**	**2.85E-05**	0.00E+00	**2.08E-05**	**5.87E-07**	**3.68E-05**	**2.85E-05**
	MS-15	257											
	MS-16	257	(98,35,3)	2.27E-07	**3.06E-06**	**1.56E-07**	**6.38E-06**	**2.22E-06**	0.00E+00	**3.75E-07**	**2.80E-09**	**0.00E+00**	**0.00E+00**
	MS-17	257											
	MS-18	257	(100,37,3)	4.69E-07	**3.62E-04**	**9.64E-05**	**1.60E-03**	**8.06E-04**	0.00E+00	**2.42E-04**	**6.56E-05**	**3.93E-04**	**3.08E-04**
	MS-19	257											
	MS-21	257	(100,34,3)	3.07E-07	**9.29E-08**	**0.00E+00**	**0.00E+00**	**0.00E+00**	0.00E+00	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	MS-22	257	(101,33,3)	3.78E-07	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	0.00E+00	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Truck and Bus	11B	353	(50,94,3)	**1.17E-03**	**1.99E-04**	**1.01E-04**	**1.19E-04**	**6.65E-05**	**7.75E-06**	**1.56E-06**	**2.82E-06**	**9.94E-07**	**1.94E-06**
Production Wells[1]	12A	117	(46,93,3)	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Moraine Engine	31	35	(37,82,3)	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	28	235	(58,80,3)	1.90E-02	8.67E-03	**5.51E-02**	7.30E-03	**4.44E-02**	1.78E-03	9.97E-04	**1.29E-02**	9.01E-04	**1.18E-02**
Plant[2]	39	154	(40,81,3)	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Harrison Production Wells	44	176	(29,70,3)	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	**0.00E+00**
	42	176	(54,59,3)	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	**0.00E+00**
	45	176	(74,56,3)	1.33E-04	1.53E-05	**1.95E-03**	3.04E-06	**1.08E-04**	7.29E-06	2.64E-06	**2.44E-04**	1.02E-06	**1.47E-04**
West Carrollton Well Field	MI-41AP	347.3	(111,21,3)	**2.94E-060**	**1.56E-06**	**7.86E-08**	**1.25E-06**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	MI-41CP	347.3	(111,20,3)	**1.40E-06**	**6.89E-07**	**1.7E-080**	**5.43E-07**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
	MI-41DP	347.3	(112,19,3)	**2.37E-06**	**1.18E-06**	**0.00E+00**	**9.14E-07**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Miami River[3]	*****	*****	*****	1.18E-07	6.66E-11	0.00E+00	2.54E-12	0.00E+00	2.21E-16	5.73E-15	0.00E+00	3.05E-22	0.00E+00

[1] Well 12 is not in use; pumping that had occurred at Well 12 occurs at Well 12A.

[2] The rate previously attributed to Well 31 is split evenly between Wells 31 and 39. The combined rate for these wells is 200 gpm.

[3] Dilution factors reported for the Miami River are mass loading factors to the river [$\frac{lb}{day}/\frac{mg}{L}$].

[4] Dilution factors in bold indicate that well is pumping under the given scenario.

Table C-4: Estimation of Ground Water Source Concentrations for the Box Sewer
Former Moraine Engine Plant - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
Box Sewer	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0.28	0.24		0.2191	0.0140	0.0140			**0.014**
Box Sewer	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00		0.24		0.5436	0.0120	0.0120			**0.012**
Box Sewer	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00		0.24		0.2972	0.0120	0.0120			**0.012**
Box Sewer	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00						0.0000			**0.**
Box Sewer	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00		0.97		8.1368	0.0485	0.0485			**0.0485**
Box Sewer	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00		0.97		9.1573	0.0485	0.0485			**0.0485**
Box Sewer	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00		0.24		0.3360	0.0120	0.0120			**0.012**
Box Sewer	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00		0.24		0.3456	0.0120	0.0120			**0.012**
Box Sewer	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01		0.24		0.1040	0.0120	0.0120			**0.012**
Box Sewer	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00		0.24		0.8558	0.0120	0.0120			**0.012**
Box Sewer	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00		0.24		0.4664	0.0120	0.0120			**0.012**
Box Sewer	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00	0.02	0.12		0.0422	0.0010	0.0010			**0.001**
Box Sewer	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01		0.24		0.0637	0.0120	0.0120			**0.012**
Box Sewer	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01		0.24		0.0305	0.0120	0.0120			**0.012**
Box Sewer	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	2.4	0.23		1.3844	0.1200	0.1200			**0.12**
Box Sewer	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01		0.24		0.1231	0.0120	0.0120			**0.012**
Box Sewer	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00		0.12		0.1797	0.0060	0.0060			**0.006**
Box Sewer	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0.4	0.24		0.2214	0.0200	0.0200			**0.02**
Box Sewer	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01		0.24		0.0693	0.0120	0.0120			**0.012**
Box Sewer	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00		0.24		0.5867	0.0120	0.0120			**0.012**
Box Sewer	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02		0.48		0.0366	0.0240	0.0240			**0.024**
Box Sewer	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01		0.24		0.0382	0.0120	0.0120			**0.012**
Box Sewer	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02						0.0000			**0.**
Box Sewer	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04						0.0000			**0.**
Box Sewer	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05						0.0000			**0.**
Box Sewer	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05						0.0000			**0.**
Box Sewer	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06						0.0000			**0.**
Box Sewer	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03						0.0000			**0.**
Box Sewer	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04						0.0000			**0.**
Box Sewer	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000			**0.**
Box Sewer	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04						0.0000			**0.**
Box Sewer	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000			**0.**
Box Sewer	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02						0.0000			**0.**
Box Sewer	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03						0.0000			**0.**
Box Sewer	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04						0.0000			**0.**
Box Sewer	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04		0.038		0.0000	0.0019	0.0000			**0.**
Box Sewer	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0.25	0.038		0.0000	0.0125	0.0000			**0.**
Box Sewer	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06		0.038		0.0000	0.0019	0.0000			**0.**
Box Sewer	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02			221.7			0.0000			**0.**
Box Sewer	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02			24.5			0.0000			**0.**
Box Sewer	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02			428.6			0.0000			**0.**
Box Sewer	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03			1.8			0.0000			**0.**
Box Sewer	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02			16.4			0.0000			**0.**
Box Sewer	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02			43.1			0.0000			**0.**
Box Sewer	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02			49.6			0.0000			**0.**
Box Sewer	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05			36.8			0.0000			**0.**
Box Sewer	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01			0.5			0.0000			**0.**
Box Sewer	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03			77.6			0.0000			**0.**
Box Sewer	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02			0			0.0000			**0.**
Box Sewer	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02			0.7			0.0000			**0.**
Box Sewer	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02			34.6			0.0000			**0.**
Box Sewer	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01			1.5			0.0000			**0.**
Box Sewer	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01			1.1			0.0000			**0.**
Box Sewer	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02			2.3			0.0000			**0.**
Box Sewer	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03			85.1			0.0000			**0.**
Box Sewer	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02			169.9			0.0000			**0.**
Note:																	
Shaded data are provided for informational purposes only and are not considered in developing the ground water source concentration.																	

Table C-5: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 1
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0001	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0001	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0001	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.	0.	0.	3.65	
VOC	Benzene	71-43-2	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0014	0.0003	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0256	0.0053	0.	0.005	OVER
VOC	Toluene	108-88-3	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0001	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0034	0.0007	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.	0.	0.0001	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0001	0.	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0009	0.0002	0.	1.095	
SVOC	Pyrene	129-00-0	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.	0.	0.	0.05	
INORG	Barium	7440-39-3	0.0006	0.0005	0.0009	2.	
INORG	Beryllium	7440-41-7	0.	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.	0.	0.0004	0.1	
INORG	Cobalt	7440-48-4	0.0001	0.0001	0.	2.19	
INORG	Copper	7440-50-8	0.	0.	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.	0.	0.0001	0.015	
INORG	Manganese	7439-96-5	0.2167	0.0369	0.0007	5.11	
INORG	Mercury	7439-97-6	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.	0.	0.0002	0.1	
INORG	Selenium	7782-49-2	0.0036	0.0006	0.	0.05	
INORG	Silver	7440-22-4	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.1256	0.0259	0.0002	10.95	

Table C-6: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 2 Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio								
TCL/TAL Group	Constituent	CASRN	Miami Shores	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0007	0.0001	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0013	0.0001	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.	0.0001	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0005	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.0007	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.0005	0.0001	0.	0.	3.65	
VOC	Benzene	71-43-2	0.0001	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0001	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0002	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0012	0.001	0.0003	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0009	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0013	0.0187	0.0061	0.	0.005	OVER
VOC	Toluene	108-88-3	0.0023	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0001	0.0001	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0013	0.0025	0.0008	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0001	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.003	0.	0.	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0001	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0001	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0002	0.0001	0.	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0002	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0017	0.0007	0.0002	0.	1.095	
SVOC	Pyrene	129-00-0	0.0002	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0001	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0017	0.	0.	0.	0.05	
INORG	Barium	7440-39-3	0.0166	0.	0.	0.0007	2.	
INORG	Beryllium	7440-41-7	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0003	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.017	0.	0.	0.0001	0.1	
INORG	Cobalt	7440-48-4	0.0005	0.	0.	0.	2.19	
INORG	Copper	7440-50-8	0.0011	0.	0.	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0018	0.	0.	0.	0.015	
INORG	Manganese	7439-96-5	0.0298	0.3213	0.0705	0.0003	5.11	
INORG	Mercury	7439-97-6	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0086	0.	0.	0.	0.1	
INORG	Selenium	7782-49-2	0.0001	0.004	0.0009	0.	0.05	
INORG	Silver	7440-22-4	0.0001	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.0117	0.0919	0.0299	0.	10.95	

Table C-7: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 3
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Miami Shores	Moraine Assembly	Moraine Engine	Well 28	Delphi Thermal	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0003	0.	0.	0.0008	0.0003	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0005	0.	0.	0.0007	0.0004	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.	0.	0.	0.0007	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0001	0.	0.	0.	0.0004	0.	0.07	
VOC	2-Butanone	78-93-3	0.0002	0.	0.	0.0022	0.0013	0.	21.9	
VOC	Acetone	67-64-1	0.0002	0.0001	0.	0.0023	0.0008	0.	3.65	
VOC	Benzene	71-43-2	0.	0.	0.	0.0006	0.0001	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.	0.	0.	0.0006	0.0001	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.	0.	0.	0.0006	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0001	0.0001	0.	0.0008	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.	0.	0.	0.0006	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0004	0.0006	0.0002	0.0093	0.0058	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0003	0.	0.	0.0006	0.0003	0.	0.7	
VOC	Styrene	100-42-5	0.	0.	0.	0.0005	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0005	0.0098	0.0035	0.0495	0.0007	0.	0.005	OVER
VOC	Toluene	108-88-3	0.0007	0.	0.	0.0006	0.0015	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.	0.0001	0.	0.0006	0.0001	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0006	0.0013	0.0005	0.0071	0.0004	0.	0.005	OVER
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.0005	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.	0.	0.	0.0011	0.0004	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.001	0.	0.	0.0011	0.0018	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.	0.	0.	0.0005	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.	0.	0.	0.	0.0001	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.	0.	0.	0.	0.0001	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0001	0.0001	0.	0.0003	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0001	0.	0.	0.	0.0005	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0005	0.0004	0.0001	0.0016	0.0011	0.	1.095	
SVOC	Pyrene	129-00-0	0.0001	0.	0.	0.	0.0001	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.	0.	0.	0.0013	0.0012	0.	0.006	
INORG	Arsenic	7440-38-2	0.0006	0.	0.	0.	0.0008	0.	0.05	
INORG	Barium	7440-39-3	0.0045	0.0004	0.0005	0.0144	0.0237	0.0002	2.	
INORG	Beryllium	7440-41-7	0.	0.0001	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0001	0.	0.	0.	0.0002	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0054	0.	0.	0.	0.0107	0.	0.1	
INORG	Cobalt	7440-48-4	0.0001	0.0001	0.0001	0.0027	0.0006	0.	2.19	
INORG	Copper	7440-50-8	0.0003	0.	0.	0.	0.0007	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.	0.	0.	0.	0.0001	0.	0.2	
INORG	Lead	7439-92-1	0.0007	0.	0.	0.0003	0.0013	0.	0.015	
INORG	Manganese	7439-96-5	0.0111	0.2873	0.0734	0.5786	0.1743	0.0001	5.11	
INORG	Mercury	7439-97-6	0.	0.	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0027	0.	0.	0.0003	0.0057	0.	0.1	
INORG	Selenium	7782-49-2	0.	0.0033	0.0008	0.007	0.0002	0.	0.05	
INORG	Silver	7440-22-4	0.	0.	0.	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.0036	0.0484	0.017	0.2164	0.0079	0.	10.95	

Table C-8: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 4 Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio									
TCL/TAL Group	Constituent	CASRN	Dryden Road South	Miami Shores	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0087	0.0005	0.0001	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0152	0.0009	0.0001	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0001	0.	0.0001	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0057	0.0003	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.0084	0.0005	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.007	0.0005	0.0001	0.	0.	3.65	
VOC	Benzene	71-43-2	0.001	0.0001	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0007	0.	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.002	0.0001	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0136	0.0009	0.0009	0.0004	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.01	0.0006	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0149	0.0008	0.0162	0.006	0.	0.005	OVER
VOC	Toluene	108-88-3	0.029	0.0018	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0013	0.0001	0.0001	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0154	0.0008	0.0022	0.0008	0.	0.005	OVER
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0015	0.0001	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0373	0.0023	0.	0.	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.	0.	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0008	0.0001	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.0002	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.0003	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0015	0.0001	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.0004	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0029	0.0002	0.0001	0.	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.003	0.0002	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0214	0.0014	0.0006	0.0002	0.	1.095	
SVOC	Pyrene	129-00-0	0.0028	0.0002	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0008	0.0001	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0234	0.0019	0.	0.	0.	0.05	
INORG	Barium	7440-39-3	0.152	0.0165	0.0004	0.0006	0.0006	2.	
INORG	Beryllium	7440-41-7	0.	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0042	0.0003	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.2164	0.0136	0.	0.	0.	0.1	OVER
INORG	Cobalt	7440-48-4	0.0034	0.0004	0.0001	0.0001	0.	2.19	
INORG	Copper	7440-50-8	0.0136	0.0009	0.	0.	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.0003	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0177	0.0009	0.	0.	0.	0.015	OVER
INORG	Manganese	7439-96-5	0.3955	0.0461	0.3896	0.0953	0.0002	5.11	
INORG	Mercury	7439-97-6	0.0002	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.1097	0.0069	0.	0.	0.	0.1	OVER
INORG	Selenium	7782-49-2	0.0018	0.0002	0.0039	0.0011	0.	0.05	
INORG	Silver	7440-22-4	0.0006	0.	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.151	0.0107	0.0798	0.0293	0.	10.95	

Table C-9: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 5
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road South	Miami Shores	Moraine Assembly	Moraine Engine	Well 28	Delphi Thermal	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0057	0.0004	0.	0.	0.0006	0.0002	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0101	0.0006	0.	0.	0.0006	0.0003	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0001	0.	0.	0.	0.0006	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0034	0.0002	0.	0.	0.	0.0004	0.	0.07	
VOC	2-Butanone	78-93-3	0.0048	0.0004	0.	0.	0.0018	0.0011	0.	21.9	
VOC	Acetone	67-64-1	0.0042	0.0004	0.0001	0.	0.0019	0.0006	0.	3.65	
VOC	Benzene	71-43-2	0.0006	0.	0.	0.	0.0005	0.0001	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0005	0.	0.	0.	0.0005	0.0001	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.	0.	0.	0.	0.0005	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0014	0.0001	0.0001	0.	0.0007	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.	0.	0.	0.	0.0005	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0083	0.0006	0.0005	0.0002	0.0084	0.0041	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0068	0.0004	0.	0.	0.0005	0.0002	0.	0.7	
VOC	Styrene	100-42-5	0.	0.	0.	0.	0.0004	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0096	0.0006	0.0086	0.0022	0.0461	0.0006	0.	0.005	OVER
VOC	Toluene	108-88-3	0.017	0.0012	0.	0.	0.0005	0.0012	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0009	0.0001	0.	0.	0.0005	0.0001	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0108	0.0006	0.0012	0.0003	0.0066	0.0003	0.	0.005	OVER
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	0.0004	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.001	0.0001	0.	0.	0.0009	0.0003	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0222	0.0016	0.	0.	0.0009	0.0014	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.	0.	0.	0.	0.0004	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0005	0.	0.	0.	0.	0.0001	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.0001	0.	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.0002	0.	0.	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.	0.	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0009	0.0001	0.	0.	0.	0.0001	0.	7.3	
SVOC	Chrysene	218-01-9	0.0002	0.	0.	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0017	0.0001	0.	0.	0.0002	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0018	0.0002	0.	0.	0.	0.0004	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0125	0.0009	0.0003	0.0001	0.0015	0.0008	0.	1.095	
SVOC	Pyrene	129-00-0	0.0016	0.0001	0.	0.	0.	0.0001	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0003	0.	0.	0.	0.0011	0.0008	0.	0.006	
INORG	Arsenic	7440-38-2	0.014	0.0012	0.	0.	0.	0.0006	0.	0.05	
INORG	Barium	7440-39-3	0.0938	0.0088	0.0003	0.0005	0.0136	0.0226	0.0002	2.	
INORG	Beryllium	7440-41-7	0.	0.	0.0001	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0024	0.0002	0.	0.	0.	0.0002	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.1265	0.0092	0.	0.	0.	0.0086	0.	0.1	OVER
INORG	Cobalt	7440-48-4	0.0023	0.0002	0.0001	0.0001	0.0026	0.0006	0.	2.19	
INORG	Copper	7440-50-8	0.0079	0.0006	0.	0.	0.	0.0005	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.0002	0.	0.	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0117	0.0006	0.	0.	0.0003	0.001	0.	0.015	
INORG	Manganese	7439-96-5	0.3397	0.0378	0.2737	0.065	0.59	0.1062	0.0001	5.11	
INORG	Mercury	7439-97-6	0.0001	0.	0.	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.064	0.0047	0.	0.	0.0003	0.0045	0.	0.1	
INORG	Selenium	7782-49-2	0.001	0.0001	0.0031	0.0006	0.007	0.0002	0.	0.05	
INORG	Silver	7440-22-4	0.0004	0.	0.	0.	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.0854	0.0064	0.0424	0.0109	0.2051	0.0063	0.	10.95	

Table C-10: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 6
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road North	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0009	0.	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0016	0.	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0001	0.	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0003	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.0009	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.0009	0.0001	0.	0.	3.65	
VOC	Benzene	71-43-2	0.0002	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0001	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.0001	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0004	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.0001	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0048	0.0003	0.0003	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0011	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.0001	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0126	0.0056	0.0053	0.	0.005	OVER
VOC	Toluene	108-88-3	0.0017	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0003	0.	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0035	0.0008	0.0007	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.0001	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0004	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0024	0.	0.	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0001	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0001	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0001	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0002	0.	0.	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0003	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0015	0.0002	0.0002	0.	1.095	
SVOC	Pyrene	129-00-0	0.0002	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0006	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0078	0.	0.	0.	0.05	
INORG	Barium	7440-39-3	0.0371	0.0001	0.0005	0.	2.	
INORG	Beryllium	7440-41-7	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0002	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0116	0.	0.	0.	0.1	
INORG	Cobalt	7440-48-4	0.0015	0.	0.0001	0.	2.19	
INORG	Copper	7440-50-8	0.0007	0.	0.	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0025	0.	0.	0.	0.015	
INORG	Manganese	7439-96-5	0.5807	0.266	0.0882	0.	5.11	
INORG	Mercury	7439-97-6	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.006	0.	0.	0.	0.1	
INORG	Selenium	7782-49-2	0.0015	0.0028	0.001	0.	0.05	
INORG	Silver	7440-22-4	0.0001	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.0586	0.0277	0.026	0.	10.95	

Table C-11: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 7
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road North	Miami Shores	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0016	0.	0.	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0028	0.	0.	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0002	0.	0.	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0006	0.	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.0013	0.	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.0016	0.	0.0001	0.	0.	3.65	
VOC	Benzene	71-43-2	0.0003	0.	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0002	0.	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.0001	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0006	0.	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.0001	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0072	0.	0.0002	0.0003	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0018	0.	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.0001	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0149	0.0001	0.003	0.0051	0.	0.005	OVER
VOC	Toluene	108-88-3	0.0029	0.	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0004	0.	0.	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0051	0.	0.0004	0.0007	0.	0.005	OVER
VOC	Trichlorofluoromethane	75-69-4	0.0001	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0007	0.	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0042	0.	0.	0.	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0001	0.	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0002	0.	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0001	0.	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0003	0.	0.	0.	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0007	0.	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0024	0.	0.0001	0.0002	0.	1.095	
SVOC	Pyrene	129-00-0	0.0003	0.	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.0001	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0009	0.	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0132	0.	0.	0.	0.	0.05	
INORG	Barium	7440-39-3	0.056	0.0003	0.	0.0005	0.	2.	
INORG	Beryllium	7440-41-7	0.	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0004	0.	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0207	0.	0.	0.	0.	0.1	
INORG	Cobalt	7440-48-4	0.0021	0.	0.	0.0001	0.	2.19	
INORG	Copper	7440-50-8	0.0013	0.	0.	0.	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.0001	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0033	0.	0.	0.	0.	0.015	
INORG	Manganese	7439-96-5	0.8159	0.0022	0.2097	0.0882	0.	5.11	
INORG	Mercury	7439-97-6	0.	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0107	0.	0.	0.	0.	0.1	
INORG	Selenium	7782-49-2	0.0017	0.	0.0023	0.001	0.	0.05	
INORG	Silver	7440-22-4	0.0001	0.	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.0679	0.0003	0.0148	0.0253	0.	10.95	

Table C-12: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 8
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road North	Miami Shores	Moraine Assembly	Moraine Engine	Well 28	Delphi Thermal	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0012	0.	0.	0.	0.0003	0.0001	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.002	0.	0.	0.	0.0003	0.0002	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0002	0.	0.	0.	0.0003	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0004	0.	0.	0.	0.	0.0002	0.	0.07	
VOC	2-Butanone	78-93-3	0.0012	0.	0.	0.	0.0005	0.0008	0.	21.9	
VOC	Acetone	67-64-1	0.0014	0.	0.	0.	0.0007	0.0003	0.	3.65	
VOC	Benzene	71-43-2	0.0002	0.	0.	0.	0.0002	0.0001	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0002	0.	0.	0.	0.0002	0.0001	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.0001	0.	0.	0.	0.0002	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0005	0.	0.0001	0.	0.0004	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.0001	0.	0.	0.	0.0002	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0066	0.	0.0001	0.0004	0.0036	0.0037	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0013	0.	0.	0.	0.0002	0.0001	0.	0.7	
VOC	Styrene	100-42-5	0.0001	0.	0.	0.	0.0001	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0093	0.	0.0019	0.0063	0.0351	0.0004	0.	0.005	OVER
VOC	Toluene	108-88-3	0.0021	0.	0.	0.	0.0002	0.0006	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0003	0.	0.	0.	0.0003	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0035	0.	0.0003	0.0009	0.0048	0.0002	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.0001	0.	0.	0.	0.0001	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0007	0.	0.	0.	0.0003	0.0003	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0031	0.	0.	0.	0.0003	0.0007	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0001	0.	0.	0.	0.0001	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0001	0.	0.	0.	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.	0.	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0001	0.	0.	0.	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0002	0.	0.	0.	0.0002	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0005	0.	0.	0.	0.	0.0002	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0017	0.	0.0001	0.0002	0.0012	0.0004	0.	1.095	
SVOC	Pyrene	129-00-0	0.0002	0.	0.	0.	0.	0.0001	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.0001	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.001	0.	0.	0.	0.0003	0.0007	0.	0.006	
INORG	Arsenic	7440-38-2	0.0097	0.	0.	0.	0.	0.0003	0.	0.05	
INORG	Barium	7440-39-3	0.0496	0.	0.0001	0.0004	0.0063	0.0118	0.	2.	
INORG	Beryllium	7440-41-7	0.	0.	0.	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0003	0.	0.	0.	0.	0.0001	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0147	0.	0.	0.	0.	0.0044	0.	0.1	
INORG	Cobalt	7440-48-4	0.0019	0.	0.	0.0001	0.0013	0.0004	0.	2.19	
INORG	Copper	7440-50-8	0.0009	0.	0.	0.	0.	0.0003	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.0001	0.	0.	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0026	0.	0.	0.	0.0002	0.0005	0.	0.015	
INORG	Manganese	7439-96-5	0.6958	0.0002	0.1396	0.0854	0.6896	0.0228	0.	5.11	
INORG	Mercury	7439-97-6	0.	0.	0.	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0077	0.	0.	0.	0.0001	0.0024	0.	0.1	
INORG	Selenium	7782-49-2	0.0009	0.	0.0018	0.001	0.0073	0.0001	0.	0.05	
INORG	Silver	7440-22-4	0.	0.	0.	0.	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.0395	0.	0.0093	0.0312	0.166	0.0032	0.	10.95	

Table C-13: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 9
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road North	Dryden Road South	Miami Shores	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0017	0.0008	0.	0.	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0031	0.0014	0.	0.	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0001	0.0002	0.	0.	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0007	0.0002	0.	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.0013	0.0008	0.	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.0017	0.0011	0.	0.0001	0.	0.	3.65	
VOC	Benzene	71-43-2	0.0002	0.0002	0.	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0002	0.0002	0.	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.0001	0.0001	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0006	0.0004	0.	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.0001	0.0001	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0074	0.0039	0.	0.0001	0.0003	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0019	0.0008	0.	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.0001	0.0001	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0116	0.0153	0.0001	0.0026	0.0051	0.	0.005	OVER
VOC	Toluene	108-88-3	0.0034	0.0012	0.	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0004	0.0003	0.	0.	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0049	0.0035	0.	0.0003	0.0007	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.0001	0.0001	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0007	0.0004	0.	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0048	0.0019	0.	0.	0.	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0001	0.0001	0.	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0002	0.0001	0.	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0002	0.0001	0.	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0004	0.0002	0.	0.	0.	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0008	0.0003	0.	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0027	0.0013	0.	0.0001	0.0002	0.	1.095	
SVOC	Pyrene	129-00-0	0.0003	0.0001	0.	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.0001	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0009	0.0004	0.	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0135	0.0097	0.	0.	0.	0.	0.05	
INORG	Barium	7440-39-3	0.0624	0.0182	0.0003	0.	0.0005	0.	2.	
INORG	Beryllium	7440-41-7	0.	0.	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0005	0.0002	0.	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0249	0.0083	0.	0.	0.	0.	0.1	
INORG	Cobalt	7440-48-4	0.0022	0.0008	0.	0.	0.0001	0.	2.19	
INORG	Copper	7440-50-8	0.0016	0.0005	0.	0.	0.	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.0001	0.	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0034	0.0007	0.	0.	0.	0.	0.015	
INORG	Manganese	7439-96-5	0.7698	0.6737	0.0037	0.198	0.0881	0.	5.11	
INORG	Mercury	7439-97-6	0.	0.	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0128	0.0043	0.	0.	0.	0.	0.1	
INORG	Selenium	7782-49-2	0.0014	0.0018	0.	0.0022	0.001	0.	0.05	
INORG	Silver	7440-22-4	0.0001	0.	0.	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.0546	0.0684	0.0006	0.0126	0.0251	0.	10.95	

Table C-14: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 10
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road North	Dryden Road South	Miami Shores	Moraine Assembly	Moraine Engine	Well 28	Delphi Thermal	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0013	0.0003	0.	0.	0.	0.0002	0.0001	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0024	0.0005	0.	0.	0.	0.0002	0.0001	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0002	0.0001	0.	0.	0.	0.0002	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0005	0.0001	0.	0.	0.	0.	0.0002	0.	0.07	
VOC	2-Butanone	78-93-3	0.0012	0.0006	0.	0.	0.	0.0005	0.0007	0.	21.9	
VOC	Acetone	67-64-1	0.0008	0.0005	0.	0.	0.	0.0007	0.0001	0.	3.65	
VOC	Benzene	71-43-2	0.0002	0.0001	0.	0.	0.	0.0001	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0002	0.0001	0.	0.	0.	0.0001	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.0001	0.0001	0.	0.	0.	0.0001	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0005	0.0002	0.	0.0001	0.	0.0003	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.0001	0.0001	0.	0.	0.	0.0001	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0079	0.0023	0.	0.0001	0.0004	0.0034	0.0035	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0015	0.0003	0.	0.	0.	0.0001	0.0001	0.	0.7	
VOC	Styrene	100-42-5	0.0001	0.0001	0.	0.	0.	0.0001	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0091	0.0078	0.0001	0.0016	0.0062	0.0332	0.0003	0.	0.005	OVER
VOC	Toluene	108-88-3	0.0027	0.0004	0.	0.	0.	0.0001	0.0005	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0004	0.0001	0.	0.	0.	0.0002	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0039	0.0016	0.	0.0002	0.0008	0.0046	0.0002	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.0001	0.0001	0.	0.	0.	0.0001	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0008	0.0003	0.	0.	0.	0.0003	0.0002	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0038	0.0007	0.	0.	0.	0.0003	0.0006	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0001	0.0001	0.	0.	0.	0.0001	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.	0.	0.	0.	0.	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.	0.	0.	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0001	0.	0.	0.	0.	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	0.	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0003	0.0001	0.	0.	0.	0.0002	0.	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.	0.	0.	0.	0.	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0021	0.0004	0.	0.0001	0.0002	0.0012	0.0004	0.	1.095	
SVOC	Pyrene	129-00-0	0.0002	0.	0.	0.	0.	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.0001	0.	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0012	0.0003	0.	0.	0.	0.0003	0.0007	0.	0.006	
INORG	Arsenic	7440-38-2	0.0114	0.0037	0.	0.	0.	0.	0.0002	0.	0.05	
INORG	Barium	7440-39-3	0.0329	0.0029	0.	0.	0.0004	0.006	0.0059	0.	2.	
INORG	Beryllium	7440-41-7	0.	0.	0.	0.	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0004	0.	0.	0.	0.	0.	0.0001	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0189	0.0022	0.	0.	0.	0.	0.0036	0.	0.1	
INORG	Cobalt	7440-48-4	0.0021	0.0004	0.	0.	0.0001	0.0012	0.0004	0.	2.19	
INORG	Copper	7440-50-8	0.0012	0.0001	0.	0.	0.	0.	0.0002	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.	0.	0.	0.	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0027	0.0002	0.	0.	0.	0.0002	0.0005	0.	0.015	
INORG	Manganese	7439-96-5	0.7455	0.2933	0.0009	0.134	0.0777	0.5995	0.0161	0.	5.11	
INORG	Mercury	7439-97-6	0.	0.	0.	0.	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0099	0.0012	0.	0.	0.	0.0001	0.002	0.	0.1	
INORG	Selenium	7782-49-2	0.0007	0.0007	0.	0.0017	0.001	0.0065	0.	0.	0.05	
INORG	Silver	7440-22-4	0.	0.	0.	0.	0.	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.0397	0.0322	0.0002	0.0079	0.0308	0.1572	0.0026	0.	10.95	

Ground Water Model
Box Sewer Source
Area Representation

ENVIRON

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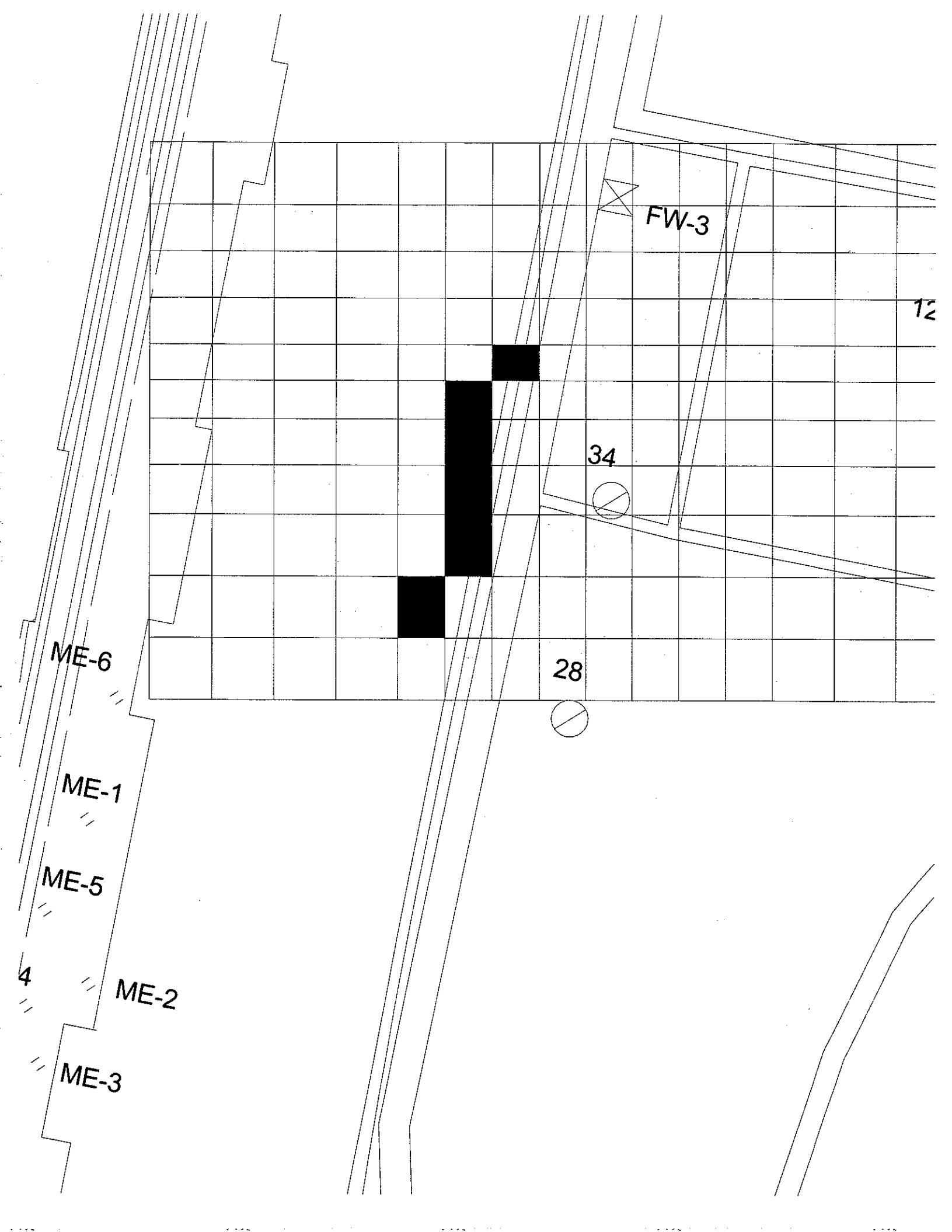
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ARCADIS

Attachment B-2

Waste Pile/Staging Area Investigation
Summary Report

July 9, 2004

DRAFT

Waste Pile/Staging Area Investigation Summary Report

General Motors Corporation
Moraine, Ohio

July 9, 2004

ARCADIS

Infrastructure, buildings, environment, communications

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1. Introduction

The General Motors Corporation (GM) Moraine, Ohio facilities are under an Administrative Order with the United States Environmental Protection Agency (U.S. EPA) Region V, to conduct Resource Conservation and Recovery Act (RCRA) Corrective Action. The Moraine, Ohio facilities include former Delphi Harrison Thermal Systems Moraine Plant (former Delphi Thermal Moraine [leased to Delphi Corporation between 1999 and September 2003]), the former General Motors Powertrain Group Moraine Engine Plant (former Moraine Engine), and General Motors Truck Group Moraine Assembly Plant (Moraine Assembly) (Figure 1). One of the requirements of the Administrative Order is to evaluate the need for interim measures that can address potential environmental problems. As part of the final remedy, GM has implemented two interim measures at the Moraine facilities referred to as (1) the capture zone interim measures and (2) the Area of Interest (AOI) 7 interim measures. The capture zone interim measures addresses operation of upper and lower aquifer recovery wells and the treatment and off-site discharge of upper aquifer groundwater through an on-site air stripper tower. The AOI 7 – Former Oil House Area interim measures addresses in-situ treatment of groundwater in the AOI 7 area and in-situ treatment of the groundwater plume, downgradient of the AOI 7 area.

An investigation was conducted at the Waste Pile/Staging Area (WPSA) located south of the former Delphi Thermal Moraine Building 14 in April 2001, to assess the potential for site-related constituents to have been released to soil or groundwater. The WPSA investigation addressed comments by the U.S. EPA on the Supplemental RFI dated April 2000 (ARCADIS Geraghty & Miller, Inc. 2000a) and the draft Site-Wide Groundwater Monitoring Plan dated March 2000 (ARCADIS Geraghty & Miller, Inc. 2002a). The investigations were also conducted to address continued use of the WPSA. Currently the WPSA is inactive and GM is implementing decommissioning and demolition of Building 14.

The WPSA was identified as a solid waste management unit (SMWU) and was previously investigated during the RFI in 1992 and 1994, as reported in the final RFI Report for formal Delphi Thermal Moraine (ARCADIS Geraghty & Miller, Inc. 2000c, ENVIRON Corporation 2000a) (Figure 2). The RFI Report concluded that no additional investigation was necessary and the estimates of risk were within the U.S. EPA's acceptable risk range considered protective of human health. The WPSA was operated in the same manner until 2000 (Section 1.1). This report presents a brief summary of the former investigation of the WPSA during the RFI, as well as a summary of the WPSA interim measures investigation completed between 2001 and

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2003. This investigation summary report includes a discussion of the technical approach, methodologies, investigation results, data evaluation using the baseline risk assessment, conclusions, and recommendations.

1.1 WPSA Description

The WPSA is located south of the former Delphi Thermal Moraine Building 14 and north of Landfill L1 (Figure 1). The WPSA consists of a paved area, approximately 2 acres in size, a concrete pad with a drainage system and a three-sided sludge bunker (Figure 2). The sludge bunker and staging area concrete pad were originally constructed in 1976. The staging area was later expanded. Materials managed at the WPSA were aluminum, steel, and cast iron shavings, residual oils, and residual sludges. Shavings and sludges were removed from the surface of the WPSA for off-site disposal or recycling. The residual liquids entered an oily water sewer system which, along with the sludge bunker liquid, drained into a 38,000 gallon concrete underground holding tank (T11). From this holding tank the fluid was pumped to the on-site wastewater treatment facility, located north of Building 14. The WPSA operated in this manner from 1976 until 2000. The concrete surface in the WPSA has been found to contain cracks in areas of visible oil staining. As of 2000, operations at the WPSA were modified such that the chips drained within a rolloff box equipped with a drainage tray instead of draining directly on the concrete pad. The WPSA was taken out of service in 2003 as Delphi Thermal Moraine ceased their operations and the WPSA was cleaned via materials removal and hydroblasting at that time. Currently, the sewer system and T11 manage stormwater from the 2-acre WPSA.

1.2 WPSA Previous RFI Investigations

The WPSA was investigated as a SWMU during the former Delphi Thermal Moraine RFI. The RFI objective for this unit was release determination and characterization, and groundwater quality characterization. A total of seven borings (WPSA-BH01 through WPSA-BH07) were installed to collect subsurface soil samples. Samples were collected and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides/herbicides, and Target Analyte List (TAL) metals.

VOCs were detected in all of the borings with the exception of borehole WPSA-BH05. Detected VOCs included: 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethene (1,2-DCE), 2-butanone, acetone, benzene, carbon disulfide, ethylbenzene, tetrachloroethene (PCE), toluene, trichloroethene (TCE), and xylenes.

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SVOCs were detected in all boreholes with the exception of boreholes WPSA-BH04 and WPSA-BH07. PCB analyses detected Aroclor 1242 and Aroclor 1260 at concentrations of 2.5 milligrams per kilogram (mg/kg) and 0.6 mg/kg, respectively, in borehole WPSA-BH03 at a depth of 0 to 2 feet below land surface (ft bls). No other PCBs were detected. No pesticides or herbicides were detected. Metals were detected in all of the WPSA borings. Detected VOCs, SVOCs, PCBs, and metals results are provided in the Delphi Thermal Moraine RFI Report (ARCADIS Geraghty & Miller, Inc. 2000c). RFI boring locations are shown on Figure 2.

The RFI Report concluded that investigative activities conducted at the WPSA provided sufficient detail to meet the RFI objectives, as presented below for soil.

1. The RFI soil samples were collected from areas which, based on professional judgment, would likely identify potential releases, as well as represent the nature and extent of a potential release, from this SWMU. A review of the analytical results indicated that the range of constituents and areas of elevated concentrations associated with a potential release from this SWMU were identified. Therefore, the sampling results provided adequate characterization of this SWMU to support the Baseline Risk Assessment.

2. The Baseline Risk Assessment concluded that no further action was warranted for soil at the WPSA, but additional groundwater monitoring will be conducted per the Site-Wide Groundwater Monitoring Plan.

1.3 WPSA Investigations 2001 through 2003

In order to address U. S. EPA comments on the Supplemental RFI dated April 2000 (ARCADIS Geraghty & Miller, Inc. 2000a) and the draft Site-Wide Groundwater Monitoring Plan dated March 2000 (ARCADIS Geraghty & Miller, Inc. 2002a), and to address continued usage of the unit after the RFI for Delphi Thermal Moraine was completed, GM agreed to conduct an additional investigation at the WPSA. GM submitted a work plan for this additional investigation dated November 30, 2000. The U.S. EPA approved this work plan in correspondence dated January 3, 2001. The additional investigation was conducted in April 2001, after a U.S. EPA requested laboratory performance evaluation was completed and approved. The evaluation of soil was completed through the installation of thirteen soil borings (WPSA-BH08 through WPSA-BH20). The evaluation of groundwater was completed through the installation of six new monitoring wells upgradient and downgradient of the WPSA, screened in the upper or lower portions of the upper aquifer (GM-33 through GM-38),

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and the collection of groundwater samples from twelve temporary well points from the borings installed within the WPSA (WPSA-BH08 through WPSA-BH19). The April 2001 investigation was summarized and presented to the U.S. EPA in the Waste Pile/Staging Area Investigation Interim Report (ARCADIS G&M, Inc. 2002b). As presented in this report it was concluded that additional characterization of constituent concentrations in soil was needed along the western, southern, and eastern portions of the WPSA. The report also concluded that an additional groundwater sampling event was needed to further characterize the nature and extent of constituents detected in the initial phase.

The recommended further characterization was completed in 2002 and 2003. This additional investigation was completed through the installation of fourteen soil borings (WPSA-BH21 through WPSA-BH34) in August 2002, November 2002, and March 2003. Soil samples from these borings were collected from targeted depths and analyzed for targeted constituents. Re-sampling of groundwater from monitoring wells GM-33 through GM-38 was also completed in August 2002.

Based on GM's review and evaluation of the soil sampling conducted in August 2002, November 2002, and March 2003, and the groundwater sampling conducted in August 2002, GM proposed an additional investigation of the WPSA to complete the characterization necessary to determine the nature and extent of constituents in soil (correspondence from GM to U.S. EPA, dated October 3, 2003). The data was needed to support an evaluation of risk under current and reasonably expected future conditions, and to support an evaluation of interim or corrective measures alternatives for this SWMU, if such measures were determined to be warranted. In October 2003, three additional borings (WPSA-BH35 through WPSA-BH37) were installed and soil samples collected for targeted constituents.

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2. WPSA Investigation Objectives and Technical Approach

The specific objectives of this WPSA investigation of soil and groundwater were as follows:

- Determine if a release of hazardous constituents to soils has occurred from the WPSA since the RFI was completed and, if a release has occurred, evaluate the nature and extent of the release(s) to support an evaluation of potential risks using procedures detailed in the RFI Baseline Risk Assessment (ENVIRON 2000a) and Supplemental RFI Baseline Risk Assessment (ENVIRON 2000b).

- Collect groundwater quality data upgradient and downgradient of the WPSA to characterize groundwater with respect to flow direction and quality to support an evaluation of potential risks using procedures detailed in the RFI Baseline Risk Assessment (ENVIRON 2000a) and Supplemental RFI Baseline Risk Assessment (ENVIRON 2000b).

The evaluation of soil was completed through the installation of 36 soil borings (WPSA-BH08 to WPSA-BH37 and GM-33 to GM-38) and collection of soil samples. The evaluation of groundwater was completed through the installation and sampling of 6 monitoring wells (GM-33 to GM-38) and the collection of 12 groundwater samples from 12 temporary well points (WPSA-BH08 to WPSA-BH19) within the WPSA. Additionally, suspected light non-aqueous phase liquid (LNAPL) identified in WPSA-BH10 and WPSA-BH11 (converted to RW-10 and RW-11, respectively) was to be characterized by collecting samples of the LNAPL and the groundwater beneath the LNAPL; however, during the field activities, LNAPL was not observed in RW-10 and RW-11. Therefore, only groundwater samples were collected in recovery wells RW-10 and RW-11. Borings and well locations are shown on Figure 2. The technical approach for this investigation is presented below.

2.1 Soil

During the WPSA investigation, a rotary-type drilling rig equipped with hollow-stem augers was utilized to advance the soil borings and split-spoon sampling equipment for the collection of soil samples. Soil borings were also sampled continuously during all phases of the investigation for lithologic description. Wright's Drilling Company, Inc. performed the drilling while ARCADIS personnel completed oversight and soil sampling activities. All soil-sampling activities were completed in accordance with the WPSA Investigation Interim Report (ARCADIS G&M, Inc. 2002b). The

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methodologies used to obtain soil samples are also described in this report. All soil and water generated during drilling and decontamination were contained in labeled drums and disposed of appropriately by GM. During soil sampling, samples were collected for Quality Assurance/Quality Control (QA/QC) purposes. All sampling results, including QA/QC samples are presented in tables in Appendix A. Associated boring logs are provided in Appendix B.

2.1.1 WPSA Investigation-April 2001

Soil borings WPSA-BH08 to WPSA-BH19 and GM-33 to GM-38 were advanced during this phase of investigation. Boring locations for the initial investigation were determined based on activities within the area and an understanding of plant operations. Professional judgment was used to select locations for the collection of soil samples from the WPSA to evaluate the existence of potential releases associated with sewer lines, cracks in the concrete, and oil staining. Soil samples were submitted for analysis from each boring at depths of 0 to 2 ft bls, from a sampling interval within 2 to 10 ft bls (selected based on field screening or visual observations), and above the water table (approximately 30 to 36 ft bls). There was one exception to this sampling strategy at boring WPSA-BH14, the 0 to 2 ft interval could not be sampled due to poor recovery. In most borings, one additional sampling interval was selected from the sample with the highest photoionization detector (PID) headspace reading and/or visual evidence of contamination and submitted to the laboratory if the sampling interval was below 10 ft, but above the water table. If all PID readings were background levels and there was no visual evidence of contamination, then only three soil samples per boring were submitted to the laboratory.

The WPSA Work Plan proposed installation of ten soil borings within the boundary of the WPSA. Once mobilized in the field, GM determined that three additional borings should be installed due to conditions noted at WPSA-BH15 in the sludge bunker. Soil less than 10 ft deep in this boring contained a black oily substance. As this boring was installed, additional casing was used so the oily material would not be advanced with the augers down to the water table. The three additional borings, WPSA-BH18, WPSA-BH19, and WPSA-BH20 were installed to further delineate the presence of this oily soil in the vadose zone near the sludge bunker. Borings WPSA-BH18 (southern delineation) and WPSA-BH19 (northern delineation) were advanced to the water table and samples were collected per the sampling strategy previously described. The black material was present at the same intervals in borings WPSA-BH18 and WPSA-BH19. Boring WPSA-BH20 was terminated at a depth of 6 ft bls and samples were not collected because this material was not present in this boring and the extent was

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delineated to the east. Because there was no recovery in the split spoon in the 4 to 6 ft interval in boring WPSA-BH15, borings WPSA-BH15A and WPSA-BH15B were installed adjacent to WPSA-BH15 in order to collect data from the 4 to 6 ft interval to further characterize the extent of the SVOCs in soil. These boring locations are shown on Figure 2.

2.1.2 WPSA Investigation-August 2002, November 2002, and March 2003

A total of fourteen soil borings (WPSA-BH21 through WPSA-BH34) were installed at the WPSA during this second-phase investigation. Boring locations during the second phase of investigation were determined based on the constituent concentrations encountered during the first-phase investigation completed at the WPSA in April 2001. Target constituents (constituents concentrations that were greater than screening levels) were identified during the first-phase investigation (ARCADIS G&M, Inc. 2002b, Table 5). At locations in which target constituents were identified and it was determined that additional characterization would be needed for risk evaluation purposes, one or more borings were installed and soil samples analyzed for the target constituent(s). Soil samples were collected from each boring at depths of: 0-2 ft bls; a 2 ft interval ranging from 2-10 ft bls (based on field screening readings or visual observations); and the 2 ft soil sample interval from immediately above the water table (approximately 24-28 ft bls). Two soil borings were planned with pre-determined sampling intervals that deviated from the other borings. At WPSA-BH21, samples were collected from 8-10 ft bls and 10-12 ft bls. At WPSA-BH22 and WPSA-BH23 samples were collected from 0-2 and 2-4 ft bls. These boring locations are shown on Figure 2.

Two notable deviations from the scope of work occurred due to physical constraints restricting the use of engine-powered drilling equipment along the eastern side of the WPSA, between the railroad tracks and the wall of the sludge bunker. Soil boring WPSA-BH24 was advanced using a hand auger to retrieve the 0-2 ft bls and 2-4 ft bls samples. The sample interval immediately above the water table was not collected at WPSA-BH24.

2.1.3 WPSA Investigation-October 2003

Three soil borings (WPSA-BH35 through WPSA-BH37) were installed at the WPSA to characterize target constituent concentrations detected in soils along the western and southeastern sides of the WPSA. Soil samples were collected from each boring at depths of: 0-2 ft bls; a 2 ft interval ranging from 2-10 ft bls (based on field screening

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readings or visual observations); and the 2 ft soil sample interval from immediately above the water table (approximately 23-25 ft bls). Soil samples were analyzed for target constituents. These boring locations are shown on Figure 2.

2.2 Groundwater

All groundwater sampling activities were completed in accordance with the WPSA Investigation Interim Report (ARCADIS G&M, Inc. 2002b). The methodologies used to obtain groundwater samples are also described in this report. During groundwater sampling, samples were collected for QA/QC purposes. All water generated during sampling activities was contained in labeled drums and disposed of appropriately by GM. All sampling results, including QA/QC samples are presented in tables in Appendix A. Associated sampling and well construction logs are provided in Appendix D.

2.2.1 WPSA Groundwater Sampling-April 2001

Groundwater sampling was conducted to define the potential upgradient contribution of site-related constituents to groundwater beneath the WPSA, as well as evaluate whether the WPSA may have impacted downgradient groundwater quality. To evaluate groundwater conditions immediately upgradient of the WPSA, a pair of monitoring wells (GM-33 and GM-34) were installed immediately north of the WPSA and south of Building 14 (Figure 2). Upgradient monitor well GM-33 was installed to a depth of 58 ft bls, with a 10 ft-long screen set immediately above the regional confining till that separates the upper and lower aquifers. The second upgradient monitor well (GM-34), paired with the first well, was installed at the water table at a depth of 36 ft bls, to evaluate the potential presence of constituents associated with LNAPL. GM-34 was installed with its 10 ft-long screened section straddling the water table. To evaluate downgradient groundwater conditions, two additional upper aquifer monitor well pairs (GM-35/GM-36 and GM-37/GM-38) were installed at the southern boundary of the WPSA (Figure 2). Downgradient monitor wells GM-35 and GM-37 were installed to depths of 67 ft bls and 56 ft bls, respectively, with a 10 ft-long screen set immediately above the regional confining till that separates the upper and lower aquifers, similar to GM-33. The downgradient monitor wells GM-36 and GM-38, paired with the downgradient wells GM-35 and GM-37, respectively, were both installed at the water table at depths of 35 ft bls and 34 ft bls, respectively, to evaluate the potential presence of constituents associated with LNAPLs, similar to GM-34.

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To obtain additional groundwater data and assess the presence of LNAPL, a groundwater sample was collected at each boring location at the top of the water table. If an LNAPL layer was noted at a boring location, that borehole was over drilled to allow installation of a larger diameter well to be used for possible LNAPL recovery. Each groundwater sample was analyzed for Appendix IX VOCs and cis-1,2-DCE, SVOCs, PCBs, total and dissolved metals.

2.2.2 WPSA Groundwater Sampling-August 2002

An additional groundwater-sampling event was conducted in August 2002 to confirm the results obtained during the April 2001 investigation. Groundwater samples were collected from each of the six monitoring wells (GM-33 through GM-38). In addition, groundwater samples were also collected from recovery wells RW-10 and RW-11 to evaluate whether or not constituents detected in the LNAPL, encountered during the April 2001 investigation, were present in groundwater at these locations. During the field activities, LNAPL was not observed in wells RW-10 and RW-11; therefore, only groundwater samples were collected from these wells. Each groundwater sample was analyzed for Appendix IX VOCs and cis-1,2-DCE, SVOCs, PCBs, total and dissolved metals, except for samples collected from RW-10 and RW-11, which were not analyzed for metals.

2.3 Laboratory Analytical Methods

In accordance with the approved Supplemental RFI Work Plan (Geraghty & Miller, Inc, 1997), TestAmerica, Inc. of Dayton, Ohio analyzed all soil and groundwater samples collected in the initial investigation for the parameters specified, using the appropriate analytical methods (refer to Table 1) and data quality objectives for the April 2001 investigation. With approval from U.S. EPA, Severn Trent Laboratories of North Canton, Ohio (STL North Canton) analyzed all samples collected subsequently. The WPSA investigation sample analytical results and QA/QC sample results are included in Appendix A. A list of duplicate samples and their associated primary sample are presented in Table A-1 in Appendix A.

ARCADIS personnel independently validated the analytical data in accordance with the approved RFI Quality Assurance Project Plan (Geraghty & Miller, Inc., 1997). The data validation was performed at Level III (based on quality control criteria from the U.S. EPA document Data Quality Objectives for Remedial Response Activities [U.S. EPA 1987] and on quality control criteria from the U.S. EPA document Test Methods for Examining Solid Waste, SW 846 [U.S. EPA 1986 with revision updates]). In

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addition, the two U.S. EPA Contract Laboratory Program documents National Functional Guidelines for Inorganic Data Review (U.S. EPA 1994a) and National Functional Guidelines for Organic Data Review (U.S. EPA 1994b) were used as guidance for validating and assigning qualifier codes to the analytical results.

The majority of the WPSA data was determined to be quantitative and acceptable for use. However, data validation qualifiers were assigned to the sample data, as appropriate, to address identified quality control deficiencies. The affected data were either qualified as estimated and flagged with a "J" if detected or a "UJ" if nondetect. In certain instances, sample data were qualified as unusable and flagged with an "R" (rejected). These rejected data are unusable in the risk evaluation, but do not affect the overall assessment of the results. The 90% completeness goal, as defined in the RFI Quality Assurance Project Plan, was achieved for the sample parameters analyzed and included in these sample delivery groups.

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3. Field Investigation Methodologies

The following sections describe the methodologies used to collect and evaluate soil and groundwater samples during the WPSA investigation.

3.1 Soil Methodology

During the WPSA investigation, soil samples were collected using hollow-stem auger drilling. Wright's Drilling Company, Inc. performed the drilling with oversight provided by ARCADIS. All soil sampling was conducted in accordance with the approved Supplemental RFI Work Plan (Geraghty & Miller, Inc., 1997). The methodologies used to obtain soil samples are discussed below.

Surface and subsurface soil samples were collected using a drilling rig and conventional 4 ¼- inch inner diameter hollow-stem augers. Prior to drilling at each location, drilling equipment (including augers, plugs, and split-spoon samplers) was decontaminated using a high-pressure steam cleaner. Following the collection of each sample, split-spoon samplers were decontaminated in accordance with the approved Supplemental RFI Work Plan. Disposable personal protection equipment (PPE) and sampling equipment were collected and disposed off-site. Pertinent information was recorded on a soil-sampling log for the sampling intervals submitted to the laboratory for analysis. Chain-of-custody forms were completed prior to submitting the samples to the laboratory (Appendix B).

When the designated sampling location was reached, the ARCADIS personnel donned the appropriate PPE and established the exclusion zone. Plastic sheeting was placed beneath the work area for soil description and sampling activities. The appropriate sample containers were selected and labeled. During drilling activities, the hollow-stem augers were advanced to the designated sampling depth and at this point the drill bit was removed from inside the augers and replaced with a decontaminated split-spoon sampler. The first split spoon sample (0 to 2 ft bls interval) was obtained prior to hollow-stem auger drilling from beneath the concrete or asphalt surface to 2 ft bls. As drilling commenced, the split spoon sampler was then driven 2 ft below the lead auger. Samples were collected using a decontaminated 24-inch long, 2-inch diameter, stainless-steel, split-spoon sampler. When the split-spoon sampler was removed, the soil was scanned with a PID, placed in the appropriate containers, and described on a boring log by an ARCADIS geologist (Appendix B). The samples were submitted for analysis of some or all of the following constituents: TCL VOCs, TCL SVOCs, TCL PCBs, and TAL metals, excluding aluminum, calcium, iron, magnesium, potassium,

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and sodium. The En Core® Sampler was used to collect samples for VOC analysis. The standard operating procedure (SOP) associated with soil sampling is included as Appendix C. Upon completion of each borehole (i.e., after the temporary well was installed, sampled, and the potential presence of LNAPL evaluated), the borehole was grouted using the tremie method. As discussed in Section 3.2, borings WPSA-BH10 and WPSA-BH11 were not abandoned but rather converted to recovery wells (RW) to evaluate the potential presence of LNAPL. All water and soil generated during drilling and decontamination were contained in labeled drums and disposed of appropriately by GM.

3.2 Groundwater Methodology

During the April 2001 WPSA investigation, shallow monitor wells (GM-33 through GM-38) and temporary wells (WPSA-BH08 through WPSA-BH19) were installed and sampled. Wright's Drilling Company, Inc. performed the well installation with oversight provided by ARCADIS. An additional groundwater sampling event of existing monitoring wells was completed in August 2002. All groundwater samples were collected in accordance with the approved Supplemental RFI Work Plan (Geraghty & Miller, Inc., 1997). The methodologies used to obtain groundwater samples are discussed below.

Borings for the upgradient and downgradient wells were advanced using hollow-stem auger drilling techniques to the target depth (to immediately below the water table or immediately above the regional clay till). During drilling, continuous headspace readings were collected from the boring and visual screening of the boring was conducted. Soil samples were collected using procedures described in Section 2.1 and Section 3.1. Soil boring and sampling logs are presented in Appendix B. The wells were constructed with 2-inch diameter polyvinyl chloride (PVC) casing and a 10-ft long PVC screen with 0.01 slot size. The well construction consisted of installing the screen centered on the water table or immediately above the regional clay till. Well construction logs are presented in Appendix D. The wells were developed by pumping groundwater until pH, specific conductivity, and temperature data stabilized.

Groundwater samples were collected from the newly installed monitoring wells in April 2001 and August 2002 to characterize groundwater quality. Prior to sampling each well, monitoring equipment was decontaminated and field parameter measuring equipment was calibrated. A 2-inch submersible pump or a disposable Teflon bailer was used to evacuate three well volumes. Field parameters (pH, specific conductance, and temperature) were measured from each water sample, and analytical samples were

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analyzed for Appendix IX VOCs and cis-1,2-DCE, SVOCs, PCBs, and metals. Chain-of-custody forms were completed prior to submitting the samples to the laboratory. Water sampling logs are provided in Appendix D.

A groundwater sample was also collected at each boring location (WPSA-BH08 to WPSA-BH19) through the installation of a temporary well, consisting of a 2-inch diameter PVC casing with 5-feet long slotted screen. A sand pack was placed around the screen and a bentonite seal was placed above the screen. The groundwater sample was collected using a disposable Teflon bailer. Field parameters (pH, specific conductance, and temperature) were measured from each water sample, and analytical samples were collected for Appendix IX VOCs and cis-1,2-DCE, SVOCs, PCBs, and metals. Chain-of-custody forms were completed prior to submitting the samples to the laboratory. Water sampling logs are provided in Appendix D. Once the sample was collected, the PVC casing was removed, and the borehole was appropriately abandoned. An LNAPL layer was noted at boreholesWPSA-BH10 and WPSA-BH11; therefore, the temporary wells were overdrilled and then removed, and 4-inch diameter PVC wells were installed to be used for possible LNAPL recovery, if necessary. Oil thickness was 1/8 inch in WPSA-BH10 and was approximately 1/4 to 3/8 inch in WPSA-BH11. Well construction logs for recovery wells RW-10 (formerly WPSA-BH10) and RW-11 (formerly WPSA-BH11) are presented in Appendix D.

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4. WPSA Investigation Results

The WPSA investigation was conducted following the scope of work in the WPSA Work Plan (ARCADIS Geraghty & Miller, Inc. 2000), the WPSA Investigation Interim Report (ARCADIS G&M, Inc. 2002b), and correspondence from GM to U.S. EPA (October 3, 2003). This summary includes a discussion of the WPSA lithology, soil analytical results, groundwater analytical results, and the conclusions regarding whether the investigation objectives were met. A complete set of analytical results (including QA/QC samples) is presented in the tables in Appendix A.

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4.1 WPSA Lithologic Characterization

Boring logs for the RFI soil borings drilled at the WPSA in 1992 and 1994 were used in conjunction with the 13 soil borings and 6 monitoring wells drilled in April 2001, the 14 soil borings drilled in August 2002, and the 3 soil borings drilled in October 2003 to determine the subsurface lithology at the WPSA. Using these soil boring logs, three geologic cross-sections were updated. The locations of the cross-sections are presented on Figure 3. Cross-section A-A' extends from north to south, and is presented on Figure 4. Cross-sections B-B' and C-C' extend from west to east, and are presented on Figures 5 and 6, respectively.

The lithologic data indicated the subsurface soil composition at the WPSA is primarily sand and gravel. This sand and gravel is separated by a layer of clay in many of the borings advanced at the WPSA. This clay layer is evidenced at depths ranging from 2 to 14 ft bls and in thickness from 1 to 6 ft in the borings in which the clay layer was observed. This shallow clay layer was not observed in borings WPSA-BH13, WPSA-BH15, WPSA-BH18, WPSA-BH25, WPSA-BH26, WPSA-BH29, WPSA-BH30, WPSA BH32 and WPSA-BH34. Soil borings WPSA-BH20, WPSA-BH23, and WPSA-BH24 were not advanced deep enough to observe if this clay layer was present at these locations.

Soils above this clay layer are generally composed of sandy silts and gravelly sands. Below this clay layer, the lithology consists primarily of well graded gravelly sands with interbedded lenses of gravel and poorly graded gravelly sands. The regional clay till layer, observed at the site during previous investigations was present at depths ranging from 55-68 ft bls.

4.2 WPSA Soil Results

4.2.1 WPSA Soil Investigation-April 2001

Borings WPSA-BH08 through WPSA-BH19 were advanced to the water table, with total depths ranging from 30 ft bls to 36 ft bls. Borings GM-33 through GM-38 were advanced to total depths ranging from 34 ft bls to 68 ft bls. Headspace readings from these borings ranged from 0 parts per million (ppm) to 283 ppm. Table 2 provides a summary of constituents detected in soil from this investigation and Table A-2 in Appendix A lists results associated with all constituents analyzed. The locations of these borings and analytical data for organic constituents are depicted on Figure 7 and inorganic constituents are depicted on Figure 8.

In soil boring WPSA-BH08, benzene, 1,1-DCA, cis-1,2-DCE, ethylbenzene, PCE, toluene, 1,1,1-TCA, TCE, and xylenes were detected in one or more of the soil sample intervals with concentrations typically decreasing with depth. The following SVOCs were detected in boring WPSA-BH08 in the 0 to 4 ft bls interval: benzo(a)pyrene, benzo(ghi)perylene, bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, naphthalene, and pyrene. No SVOCs were detected at depth. PCBs were not detected in WPSA-BH08. Of the TAL metals analyzed, arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, mercury, nickel, vanadium, and zinc were detected in one or more sampling intervals in this boring.

In soil boring WPSA-BH09, acetone, chloroethane, 1,1-DCA, 1,1-dichloroethene (1,1-DCE), cis-1,2-DCE, trans-1,2-DCE, ethylbenzene, methylene chloride, PCE, toluene, 1,1,1-TCA,TCE, and vinyl chloride were detected in one or more of the soil sample intervals with concentrations typically decreasing with depth. The following SVOCs were detected in boring WPSA-BH09: benzo(a)pyrene, meta&para-methlyphenol, phenanthrene, and pyrene. PCBs were not detected in WPSA-BH09. Of the TAL metals analyzed, antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, mercury, nickel, vanadium, and zinc were detected in one or more sampling intervals in this boring. DUP-100 was taken as a duplicate of the 2 to 4 ft sample from soil boring WPSA-BH09.

In soil boring WPSA-BH10, acetone, benzene, chloroethane, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, ethylbenzene, methylene chloride, PCE, toluene, 1,1,1-TCA,TCE, vinyl chloride, and xylenes were detected in one or more of the soil sample intervals. The following SVOCs were detected in boring WPSA-BH10: bis(2-ethylhexyl)phthalate, meta&para-methlyphenol, and phenanthrene. PCBs were not

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detected in WPSA-BH10. Of the TAL metals analyzed, antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, mercury, nickel, thallium, vanadium, and zinc were detected in one or more sampling intervals in this boring.

In soil boring WPSA-BH11, benzene, chloroethane, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, ethylbenzene, methylene chloride, styrene, PCE, toluene, 1,1,1-TCA, TCE, vinyl chloride, and xylenes were detected in one or more of the soil sample intervals with concentrations typically decreasing with depth. A notable exception to this statement is the 16 to 18 ft interval where the highest concentration of 1,1,1-TCA occurred. The following SVOCs were detected in boring WPSA-BH11: anthracene, bis(2-ethylhexyl)phthalate, chrysene, o-dichlorobenzene, fluorene, 2-methylnaphthalene, n-nitrosodiphenylamine, and phenanthrene. Aroclor 1254 was detected in several sampling intervals in WPSA-BH11. Of the TAL metals analyzed, antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, mercury, nickel, vanadium, and zinc were detected in one or more sampling intervals in this boring.

In soil boring WPSA-BH12, benzene, chloroethane, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, ethylbenzene, methylene chloride, PCE, toluene, TCE, vinyl chloride, and xylenes were detected in one or more of the soil sample intervals with concentrations typically decreasing with depth. The following SVOCs were detected in boring WPSA-BH12 at the 0 to 2 ft bls interval: benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene. No SVOCs were detected at depth. PCBs were not detected in WPSA-BH12. Of the TAL metals analyzed, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, thallium, vanadium, and zinc were detected in one or more sampling intervals in this boring. DUP-101 was taken as a duplicate of the 26 to 28 ft sample from soil boring WPSA-BH12.

In soil boring WPSA-BH13, benzene, chloroethane, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, ethylbenzene, methylene chloride, PCE, toluene, TCE, vinyl chloride, and xylenes were detected in one or more of the soil sample intervals with concentrations typically decreasing with depth. The following SVOCs were detected in boring WPSA-BH13: acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, carbazole, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnapthalene, meta&para-methylphenol, naphthalene, phenanthrene, and pyrene. PCBs were not detected in WPSA-BH13. Of the TAL metals analyzed, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese,

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mercury, nickel, silver, thallium, vanadium, and zinc were detected in one or more sampling intervals in this boring.

In soil boring WPSA-BH14, PCE was detected in both of the soil sample intervals, no other VOCs were detected. The SVOC meta&para-methylphenol was detected in soil, no other SVOCs were detected. PCBs were not detected in WPSA-BH14. Of the TAL metals analyzed, antimony, arsenic, barium, chromium, cobalt, copper, lead, manganese, mercury, nickel, thallium, vanadium, and zinc were detected in one or more sampling intervals in this boring.

In soil boring WPSA-BH15, acetone, benzene, 1,1-DCA, cis-1,2-DCE, ethylbenzene, PCE, toluene, TCE, vinyl chloride, and xylenes were detected in one or more of the soil sample intervals. The following SVOCs were detected in WPSA-BH15 in the 0 to 10 ft intervals where the black soils were present (oily material present in the 6 to 8 ft interval): benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, meta&para-methylphenol, naphthalene, phenanthrene, and pyrene. Adjacent borings WPSA-BH15A and WPSA-BH15B were installed to further delineate the presence of the black oily soil in the 4 to 6 ft bls interval. Samples from these borings were analyzed for SVOCs only and no SVOCs were detected. No SVOCs were detected at depth in boring WPSA-BH15. PCBs were not detected in WPSA-BH15. Of the TAL metals analyzed, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, silver, thallium, vanadium, and zinc were detected in one or more sampling intervals in this boring. DUP-99 and DUP-103 were taken as duplicates of the 2 to 4 ft sample and the 26 to 26 ft sample from soil boring WPSA-BH15, respectively.

In soil boring WPSA-BH16, acetone, benzene, 1,1-DCA, ethylbenzene, PCE, toluene, TCE, and xylenes were detected in one or more of the soil sample intervals with concentrations typically decreasing with depth. The following SVOCs were detected in WPSA-BH16 at the 0 to 4 ft interval: acenaphthene, dibenzofuran, fluorene, 2-methylnaphthalene, meta&para-methylphenol, naphthalene, phenanthrene, and pyrene. No SVOCs were detected at depth. PCBs were not detected in WPSA-BH16. Of the TAL metals analyzed, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, vanadium, and zinc were detected in one or more sampling intervals in this boring with concentrations decreasing with depth.

In soil boring WPSA-BH17, 1,1-DCA, PCE, and TCE were detected in one or more of the soil sample intervals. VOCs were not detected in the 4 to 6 ft bls sampling interval.

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SVOCs were not detected in boring WPSA-BH17. Aroclor 1254 was detected in WPSA-BH17. Of the TAL metals analyzed, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, silver, vanadium, and zinc were detected in one or more sampling intervals in this boring. DUP-98 was taken as a duplicate of the 0 to 2 ft sample from soil boring WPSA-BH17.

In soil boring WPSA-BH18, installed to delineate the black oily soils observed at WPSA-BH15, cis-1,2-DCE, PCE, and TCE were detected in one or more of the soil sample intervals. VOCs were not detected in the 2 to 4 ft bls sampling interval. SVOCs and PCBs were not detected in WPSA-BH18. Of the TAL metals analyzed, arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, thallium, vanadium, and zinc were detected in one or more sampling intervals in this boring.

In soil boring WPSA-BH19, installed to delineate the oily soils observed at WPSA-BH15, 1,1-DCA, cis-1,2-DCE, 4-methyl-2-pentanone, PCE, toluene, TCE, and xylenes were detected in one or more of the soil sample intervals with concentrations decreasing with depth. The following SVOCs were detected in boring WPSA-BH19 in the 0 to 2 ft interval: benzo(a)anthracene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, dibenzofuran, fluoranthene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, and phenanthrene. SVOCs were not detected at depth. Aroclor 1254 was detected in WPSA-BH19. Of the TAL metals analyzed, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, thallium, vanadium, and zinc were detected in one or more sampling intervals in this boring.

In soil boring GM-33, 1,1-DCA, ethylbenzene, PCE, toluene, and xylenes were detected in the 12 to 14 ft bls sampling interval. VOCs were not detected in the 0 to 2 ft bls and the 26 to 28 ft bls sampling intervals. The following SVOCs were detected in boring GM-33: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, carbazole, chrysene, o-dichlorobenzene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene. PCBs were not detected in soil boring GM-33. Of the TAL metals analyzed, antimony, arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, vanadium, and zinc were detected in one or more sampling intervals in this boring.

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In soil boring GM-34, PCE was detected in the 16 to 18 ft bls and the 26 to 28 ft bls sampling intervals. VOCs were not detected in the 0 to 2 ft bls sampling interval. The following SVOCs were detected in boring GM-34 in the 0 to 2 ft interval: anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene. No SVOCs were detected at depth. PCBs were not detected in soil boring GM-34. Of the TAL metals analyzed, arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, vanadium, and zinc were detected in one or more sampling intervals in this boring decreasing with depth.

In soil boring GM-35, cis-1,2-DCE, trans-1,2-DCE, PCE, and TCE were detected in one or more of the sampling intervals. However, VOCs were not detected in the 0 to 2 ft bls sampling intervals. The following SVOCs were detected in boring GM-35 in the 8 to 10 ft interval only: acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, carbazole, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene. Aroclor 1254 was detected in soil boring GM-35. Of the TAL metals analyzed, antimony, arsenic, barium, chromium, cobalt, copper, lead, manganese, mercury, nickel, silver, vanadium, and zinc were detected in one or more sampling intervals in this boring.

In soil boring GM-36, cis-1,2-DCE, PCE, and TCE were detected in one or more of the sampling intervals., However, VOCs were not detected in the 0 to 2 ft bls sampling interval. The following SVOCs were detected in boring GM-36 in the 6 to 8 ft interval only: acenaphthene, anthracene, benzo(a)anthracene, benzo(ghi)perylene, benzo(k)fluoranthene, carbazole, dibenzo(a,h)anthracene, dibenzofuran, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene. PCBs were not detected in soil boring GM-36. Of the TAL metals analyzed, antimony, arsenic, barium, chromium, cobalt, copper, lead, manganese, mercury, nickel, silver, vanadium, and zinc were detected in one or more sampling intervals in this boring. DUP-97 was taken as a duplicate of the 28 to 30 ft sample from soil boring GM-36.

In soil boring GM-37, 1,1-DCA, ethylbenzene, PCE, toluene, 1,1,1-TCA, and xylenes were detected in one or more of the sampling intervals. However, VOCs were not detected in the 4 to 6 ft bls sampling interval. The following SVOCs were detected in boring GM-37 in the 0 to 2 ft interval only: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and fluoranthene. PCBs were not detected in soil boring GM-37. Of the TAL metals analyzed, antimony, arsenic, barium, cadmium,

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chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, vanadium, and zinc were detected in one or more sampling intervals in this boring.

In soil boring GM-38, only PCE was detected and only in the 26 to 28 ft bls sampling interval. VOCs were not detected in the 0 to 2 ft bls and the 8 to 10 ft bls sampling intervals. The following SVOCs were detected in boring GM-38 in the 0 to 2 ft interval only: bis(2-ethylhexyl)phthalate, di-n-octyl phthalate, and pyrene. PCBs were not detected in soil boring GM-38. Of the TAL metals analyzed, antimony, arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, vanadium, and zinc were detected in one or more sampling intervals in this boring.

No VOCs, SVOCs, PCBs, or metals were detected in rinseate blank samples RB-74, RB-75, RB-76, RB-77, RB-78, and RB-80. Therefore there is no indication of possible cross contamination due to decontamination or sampling procedures. No VOCs were detected in trip blanksTB-112 through TB-117, TB-119, TB-121, TB-122, TB-124, TB-125, TB-128, and TB-129, indicating no cross contamination of VOCs occurred during sample collection and handling.

4.2.2 WPSA Soil Investigation-August 2002, November 2002, and March 2003

Soil borings WPSA-BH25 through WPSA-BH34 were advanced to the water table at total depths ranging from 24-28 ft bls. Soil borings WPSA-BH21, WPSA-BH22 and WPSA-BH24 were advanced to 12 ft bls, 4 ft bls, and 3 ft bls, respectively. WPSA-BH23 was advanced to 4 ft bls. The locations of these borings are shown on Figure 2. Headspace readings from the field screening samples collected from these borings ranged from 0 ppm to 35.1 ppm. Samples from each boring were submitted for laboratory analysis of specific constituents of interest based on previous WPSA data. Table 3 provides a summary of constituents detected in soil from this investigation and Table A-3 in Appendix A lists results associated with all constituents analyzed. The locations of these borings and analytical data for organic constituents are depicted on Figure 7 and inorganic constituents are depicted on Figure 8. A summary of the constituents detected in each boring is presented as follows.

In soil boring WPSA-BH21, samples were analyzed for antimony in the 8-10 ft bls and 10-12 ft bls sampling intervals. Antimony was detected in both soil samples from this boring.

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In soil boring WPSA-BH22, samples were analyzed for Aroclor-1254 in the 0-2 ft bls and 2-4 ft bls sampling intervals. Aroclor-1254 was detected in both samples from this boring.

In soil boring WPSA-BH23, samples were analyzed for VOCs and Aroclor-1254 in the 0-2 ft bls and 2-4 ft bls sampling intervals. The VOC, methylcyclohexane, was detected in the 0-2 ft bls interval and the duplicate of this sample, DUP-125. VOCs were not detected in the 2-4 ft bls interval. Aroclor-1254 was detected in the 0-2 ft bls interval and the duplicate of this sample, DUP-125. Aroclor-1254 was not detected in the 2-4 ft bls interval.

In soil boring WPSA-BH24, samples were analyzed for VOCs and barium in the 0-2 ft bls and 2-3 ft bls sampling intervals. The following VOCs were detected: 1,1-DCE (2-3 ft bls interval only), 1,4-dichlorobenzene, 2-butanone, 2-hexanone (0-2 ft bls interval only), acetone, benzene, carbon disulfide (2-3 ft bls interval only), cyclohexane, methyl acetate, methyl cyclohexane, PCE, and toluene. Barium was detected in both soil samples from this boring. DUP-124 was taken as a duplicate from the 0-2 ft sample from this boring. All constituents in WPSA-BH24(0-2 ft) were also detected in DUP-124 with the exception of 1,4-dichlorobenzene, 2-hexanone, benzene, cyclohexane, and PCE. These VOCs were not detected in DUP-124.

In soil boring WPSA-BH25, samples were analyzed for VOCs, cadmium and chromium in the 0-2 ft bls, 6-8 ft bls, and 22-24 ft bls sampling intervals. The following VOCs were detected: 2-butanone (6-8 ft bls interval only), benzene (0-2 ft bls and 6-8 ft bls intervals only), isopropyl benzene (6-8 ft bls interval only), cis-1,2-dichloroethene (cis-1,2 DCE) (0-2 ft bls interval only), ethylbenzene (6-8 ft bls interval only), methyl cyclohexane (6-8 ft bls interval only), toluene, TCE (0-2 ft bls and 22-24 ft bls intervals only), PCE (22-24 ft bls interval only), and xylene (0-2 ft bls and 6-8 ft bls intervals only). Cadmium and chromium were detected in all samples from this boring.

In soil boring WPSA-BH26, samples were analyzed for VOCs, cadmium, and chromium in the 0-2 ft bls, 2-4 ft bls, and 22-24 ft bls sampling intervals. The following VOCs were detected: PCE (0-2 ft bls and 22-24 ft bls intervals only), toluene, and TCE (0-2 ft bls and 22-24 ft bls intervals only). Cadmium and chromium were detected in all samples from this boring.

In soil boring WPSA-BH27, samples were analyzed for VOCs in the 0-2 ft bls, 6-8 ft bls, and 20-22 ft bls sampling intervals. The following VOCs were detected: 1,1,1-

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TCA (20-22 ft bls interval only), 1,1-DCA (20-22 ft bls interval only), 2-butanone (20-22 ft bls interval only), benzene (20-22 ft bls interval only), cis-1,2-DCE (6-8 ft bls and 20-22 ft bls intervals only), cyclohexane (20-22 ft bls interval only), ethylbenzene (20-22 ft bls interval only), methyl cyclohexane (20-22 ft bls interval only), PCE (6-8 ft bls and 20-22 ft bls intervals only), toluene (20-22 ft bls interval only), TCE (6-8 ft bls and 20-22 ft bls intervals only), trichlorotrifluorethane (Freon-113) (20-22 ft bls interval only), and xylene (20-22 ft bls interval only). DUP-121 was taken as a duplicate from the 0-2 ft sample for this boring. VOCs were not detected in WPSA-BH27(0-2) or DUP-121.

In soil boring WPSA-BH28, samples were analyzed for VOCs in the 0-2 ft bls, 4-6 ft bls, and 22-24 ft bls sampling intervals. The following VOCs were detected: 1,1,1-TCA, 1,1-DCA, 2-butanone (4-6 ft bls interval only), benzene (0-2 ft bls interval only), cis-1,2-DCE (4-6 ft bls and 22-24 ft bls intervals only), cyclohexane (0-2 ft bls interval only), ethylbenzene (0-2 ft bls interval only), methyl cyclohexane (0-2 ft bls interval only), PCE, toluene (0-2 ft bls and 22-24 ft bls intervals only), TCE, and xylene (0-2 ft bls interval only).

In soil boring WPSA-BH29, samples were analyzed for VOCs and arsenic in the 0-2 ft bls, 8-10 ft bls, and 22-24 ft bls sampling intervals. The following VOCs were detected: 1,1-DCA (0-2 ft bls and 8-10 ft bls intervals only), 1,1-DCE (0-2 ft interval only), 1,2-dichlorobenzene (8-10 ft bls and 22-24 ft bls intervals only), benzene (0-2 ft bls and 8-10 ft bls intervals only), isopropyl benzene (8-10 ft bls interval only), chloroethane (0-2 ft bls and 8-10 ft bls intervals only), cis-1,2-DCE, cyclohexane (0-2 ft bls interval only), dichlorodifluoromethane (CFC-12) (0-2 ft bls interval only), ethylbenzene, methyl acetate (0-2 ft bls and 22-24 ft bls intervals only), methyl cyclohexane (0-2 ft bls and 8-10 ft bls intervals only), methylene chloride (8-10 ft bls interval only), PCE (0-2 ft bls interval only), toluene, trans-1,2 DCE (0-2 ft bls interval only), TCE (0-2 ft bls and 8-10 ft bls intervals only), vinyl chloride (0-2 ft bls interval only), and xylene. Arsenic was detected in all soil samples from this boring.

In soil boring WPSA-BH30, samples were analyzed for VOCs and arsenic in the 0-2 ft bls, 4-6 ft bls, and 24-26 ft bls sampling intervals. The following VOCs were detected: 1,1-DCA, 1,2-dichlorobenzene (24-26 ft bls interval only), 1,4-dichlorobenzene (24-26 ft bls interval only), 2-butanone (24-26 ft bls interval only), benzene, isopropyl benzene (0-2 ft bls and 4-6 ft bls intervals only), chloroethane, cyclohexane, cis-1,2-DCE (0-2 ft bls and 4-6 ft bls intervals only), ethylbenzene, methyl acetate (0-2 ft bls and 4-6 ft bls intervals only), methyl cyclohexane, methylene chloride, PCE (24-26 ft

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bls interval only), toluene, TCE, vinyl chloride (0-2 ft bls and 4-6 ft bls intervals only), and xylene. Arsenic was detected in all soil samples from this boring.

In soil boring WPSA-BH31, samples were analyzed for VOCs, SVOCs, lead, and zinc in the 0-2 ft bls, 8-10 ft bls, and 24-26 ft bls sampling intervals. The following VOCs were detected: 1,1-DCA, 1,1-DCE (0-2 ft bls interval only), benzene (0-2 ft bls and 8-10 ft bls intervals only), chloroethane (8-10 ft bls interval only), cis-1,2-DCE (0-2 ft bls interval only), cyclohexane (0-2 ft bls interval only), ethylbenzene (0-2 ft bls interval only), methyl acetate (0-2 ft bls interval only), methyl cyclohexane (0-2 ft bls interval only), PCE (24-26 ft bls interval only), toluene, trans-1,2 DCE (0-2 ft bls interval only), TCE (0-2 ft bls and 24-26 ft bls intervals only), vinyl chloride (0-2 ft bls interval only), and xylene (0-2 ft bls interval only). The following SVOCs were detected in the 0-2 ft bls interval: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene. Lead and zinc were detected in all samples from this boring. DUP-120 was taken as a duplicate from the 0-2 ft sample for VOCs, lead, and zinc. The same VOCs and lead and zinc were detected in WPSA-BH31(0-2) and DUP-120, with the exceptions of 1,1-DCE (WPSA-BH31(0-2) only) and benzene (WPSA-BH31(0-2) only). DUP-122 was taken as a duplicate from the 0-2 ft sample for SVOCs. The same SVOCs were detected in WPSA-BH31(0-2) and DUP-122, with the exceptions of anthracene (DUP-122 only) and bis(2-ethylhexyl)phthalate (WPSA-BH31(0-2) only).

In soil boring WPSA-BH32, samples were analyzed for VOCs, SVOCs, lead, and zinc in the 0-2 ft bls, 4-6 ft bls, and 24-26 ft bls sampling intervals. The following VOCs were detected: 1,1,1-TCA (24-26 ft bls interval only), 1,1-DCA, 1,4-dichlorobenzene (4-6 ft bls and 24-26 ft bls intervals only), 2-butanone (4-6 ft bls and 24-26 ft bls intervals only), benzene, carbon disulfide (24-26 ft bls interval only), chloroethane (24-26 ft bls interval only), cis-1,2-DCE (0-2 ft bls and 4-6 ft bls intervals only), cyclohexane (24-26 ft bls interval only), ethylbenzene (0-2 ft bls and 24-26 ft bls intervals only), methyl acetate (0-2 ft bls interval only), methyl cyclohexane (0-2 ft bls and 24-26 ft bls intervals only), PCE (24-26 ft bls interval only), toluene, TCE, and xylene (0-2 ft bls and 24-26 ft bls intervals only). The following SVOCs were detected in the 0-2 ft bls and 4-6 ft bls intervals: 2-methyl naphthalene, acenapthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, biphenyl, carbazol, chrysene, dibenzo(a,h)anthracene, dibenzofuran, di-n-butylphthalate (0-2 ft bls interval only), fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene and pyrene.

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SVOCs were not detected in the 24-26 ft bls interval. Lead and zinc were detected in all soil samples from this boring.

In soil boring WPSA-BH33, samples were analyzed for VOCs and SVOCs in the 0-2 ft bls, 6-8 ft bls, and 24-26 ft bls sampling intervals. The following VOCs were detected: 1,1-DCA (24-26 ft bls interval only), benzene (24-26 ft bls interval only), cis-1,2-DCE, cyclohexane (24-26 ft bls interval only), ethylbenzene (24-26 ft bls interval only), methyl cyclohexane (24-26 ft bls interval only), PCE (24-26 ft bls interval only), toluene (24-26 ft bls interval only), trans-1,2-DCE (6-8 ft bls interval only), TCE, and xylene (24-26 ft bls interval only). The following SVOCs were detected in the 0-2 ft bls and 6-8 ft bls intervals: benzo(a)anthracene (0-2 ft bls interval only), benzo(a)pyrene (0-2 ft bls interval only), benzo(b)fluoranthene, benzo(g,h,i)perylene (0-2 ft bls interval only), benzo(k)fluoranthene (0-2 ft bls interval only), bis(2-ethylhexyl)phthalate (0-2 ft bls interval only), chrysene, fluoranthene, indeno(1,2,3-cd)pyrene (0-2 ft bls interval only), phenanthrene, and pyrene. SVOCs were not detected in the 24-26 ft bls interval. DUP-118 was taken as a duplicate from the 0-2 ft sample from this boring. The same VOCs were detected in both WPSA-BH33(0-2) and DUP-118, with the exception of toluene (detected in DUP-118 only). The only SVOC detected in both WPSA-BH33(0-2) and DUP-118 was bis(2-ethylhexyl)phthalate.

In soil boring WPSA-BH34, samples were analyzed for VOCs and silver in the 0-2 ft bls, 6-8 ft bls, and 24-26 ft bls sampling intervals. The following VOCs were detected: cis-1,2-DCE (6-8 ft bls interval only), PCE (24-26 ft bls interval only), toluene, trans-1,2 DCE (6-8 ft bls interval only), and TCE. Silver was detected in all soil samples from this boring.

No constituents were detected in rinseate blank samples RB-95, RB-96, RB-98 or RB-101, with the exception of acetone (a common laboratory contaminant) in RB-98 and RB-101, lead (an estimated, trace concentration, well below the detection limit) in RB-96, and toluene (result was at the reporting limit) in RB-102. Based on the concentrations of these constituents, there is little indication of possible cross-contamination due to decontamination or sampling procedures. Trace concentrations of acetone, methylene chloride, ethylbenzene, styrene, and xylene were detected in trip blank sample TB-155. Trace concentrations of acetone were detected in TB-146 and TB-151. Methylene chloride was detected in TB-156. Acetone and methylene chloride can be attributable to laboratory contamination. Additionally, ethylbenzene, styrene, and xylene were not detected in the associated sample group. The presence of

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these constituents do not indicate cross contamination of VOCs during sample handling and shipment.

4.2.3 WPSA Soil Investigation-October 2003

Soil borings WPSA-BH35, WPSA-BH36, and WPSA-BH37 were advanced to the water table at total depths ranging from 24-26 ft bls. The locations of these borings are shown on Figure 2. Headspace readings from the field screening samples collected from these borings ranged from 0 ppm to 19.4 ppm. Table 4 provides a summary of constituents detected in soil from this investigation and Table A-4 in Appendix A lists results associated with all constituents analyzed. The locations of these borings and analytical data for organic constituents are depicted on Figure 7 and inorganic constituents are depicted on Figure 8. A summary of the constituents detected in each boring is presented as follows.

In soil boring WPSA-BH35, samples were analyzed for arsenic in the 0 to 2 ft bls, 8-10 ft bls, and in the 22-24 ft bls sampling intervals. Arsenic was detected in all samples from this boring. DUP-132 was collected as a duplicate from the 0-2 ft sample from this boring. Arsenic was also detected in DUP-132.

In soil boring WPSA-BH36, samples were analyzed for SVOCs in the 0-2 ft bls, 8-10 ft bls, and 20-22 ft bls sampling intervals. The following SVOCs were detected: 2-methyl naphthalene (0-2 ft bls interval only), acenaphthene (0-2 ft bls interval only), anthracene (0-2 ft bls interval only), benzo(a)anthracene (0-2 ft bls interval only), benzo(a)pyrene (0-2 ft bls interval only), benzo(b)fluoranthene (0-2 ft bls interval only), benzo(g,h,i)perylene (0-2 ft bls interval only), benzo(k)fluoranthene (0-2 ft bls interval only), bis(2-ethylhexyl)phthalate (20-22 ft bls interval only), carbazole (0-2 ft bls interval only), chrysene (0-2 ft bls interval only), dibenz(a,h)anthracene (0-2 ft bls interval only), dibenzofuran (0-2 ft bls interval only), fluoranthene (0-2 ft bls interval only), fluorene (0-2 ft bls interval only), indeno(1,2,3-cd)pyrene (0-2 ft bls interval only), phenanthrene (0-2 ft bls interval only), and pyrene (0-2 ft bls interval only).

In soil boring WPSA-BH37, samples were analyzed for copper and iron in the 0 to 2 ft bls, 8-10 ft bls, and in the 20-22 ft bls sampling intervals. Copper and iron were detected in all samples from this boring.

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4.3 WPSA Groundwater Results

Results of the groundwater sampling events completed in April 2001 and August 2002 are detailed below.

4.3.1 WPSA Groundwater Sampling-April 2001

Depth to water measurements were collected from the newly installed monitoring wells prior to sampling. These measurements were recorded on the groundwater sampling logs that are presented in Appendix D. Consistent with the site-wide groundwater monitoring program and the former settling lagoon groundwater monitoring program, groundwater flow direction across the WPSA is from northeast to southwest (ARCADIS G&M, Inc. 2004).

4.3.1.1 Monitoring Wells

Table 5 provides a summary of constituents detected in groundwater by laboratory analysis from the newly installed permanent monitoring wells during this sampling event and Table A-5 in Appendix A lists results associated with all constituents analyzed. Analytical data for organic constituents are depicted on Figure 7 and inorganic constituents are depicted on Figure 8. No SVOCs or PCBs were detected in monitoring wells GM-33 through GM-38 during the April 2001 sampling event.

In monitoring well GM-33, which is screened in the lower portion of the upper aquifer above the regional clay till, detected VOCs included 1,1-DCA, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,1-TCA, TCE, and vinyl chloride. Of the metals analyzed, antimony (total and dissolved), arsenic (total), barium (total and dissolved), cadmium (total), chromium (total), cobalt (total), copper (total), lead (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected.

In monitoring well GM-34, which is screened across the water table in the upper aquifer, detected VOCs included 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,1-TCA, and TCE. Of the metals analyzed, antimony (total and dissolved), arsenic (total), barium (total and dissolved), chromium (total), cobalt (total), copper (total), lead (total), nickel (total and dissolved), vanadium (total) and zinc (total) were detected.

In monitoring well GM-35, which is screened in the lower portion of the upper aquifer above the regional clay till, detected VOCs included dichlorodifluoromethane, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,1-TCA, TCE, and vinyl

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chloride. Of the metals analyzed, antimony (total), arsenic (total and dissolved), barium (total and dissolved), cadmium (total and dissolved), chromium (total and dissolved), cobalt (total and dissolved), copper (total and dissolved), lead (total), nickel (total and dissolved), silver (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected.

In monitoring well GM-36, which is screened across the water table in the upper aquifer, detected VOCs included chloroethane, dichlorodifluoromethane, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,1-TCA, TCE, and vinyl chloride. Of the metals analyzed, antimony (total and dissolved), arsenic (total), barium (total and dissolved), beryllium (total), cadmium (total), chromium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected.

In monitoring well GM-37, which is screened in the lower portion of the upper aquifer above the regional clay till, detected VOCs included dichlorodifluoromethane, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,1-TCA, TCE, and vinyl chloride. Of the metals analyzed, antimony (total and dissolved), arsenic (total), barium (total and dissolved), beryllium (total), chromium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total and dissolved), silver (total), thallium (total), vanadium (total) and zinc (total) were detected. DUP-102 was taken as a duplicate of the sample collected from GM-37.

In monitoring well GM-38, which is screened across the water table in the upper aquifer, detected VOCs included 1,1-DCA, cis-1,2-DCE, PCE, 1,1,1-TCA, and TCE. Of the metals analyzed, antimony (total and dissolved), arsenic (total), barium (total and dissolved), beryllium (total), cadmium (total), chromium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected.

No VOCs, SVOCs, PCBs, or metals were detected in rinseate blank samples RB-79 and RB-81. Therefore there is no indication of possible cross contamination due to decontamination or sampling procedures. No VOCs were detected in trip blanksTB-118, TB-127, and TB-130, indicating no cross contamination of VOCs occurred during sample collection and handling.

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4.3.1.2 Temporary Wells

Table 6 provides a summary of constituents detected in groundwater in the temporary wells by laboratory analysis and Table A-6 in Appendix A lists results associated with all constituents analyzed. As indicated in Section 2.2, these wells were installed primarily to assess the potential presence of LNAPL. Because the groundwater samples were not collected from wells designed or installed for characterizing groundwater quality, the analytical data from the temporary wells are not used quantitatively in assessing the potential risks associated with constituents detected in groundwater at the WPSA. All temporary wells were screened across the water table. No SVOCs were detected in temporary wells set in boreholes WPSA-BH08 through WPSA-BH19 during the April 2001 sampling event, although the detection limits for WPSA-BH10 and WPSA-BH11 were elevated. Once samples were collected from the temporary wells, the wells were abandoned. The exceptions were the temporary wells in boreholes WPSA-BH10 and WPSA-BH11, which were removed and replaced with 4-inch diameter wells that could possibly serve as recovery wells due to the presence of measurable LNAPL in these two temporary wells. An oil-water interface probe was used to measure the LNAPL. Samples of LNAPL could not be collected from the temporary wells because there was insufficient volume.

In temporary well WPSA-BH08, detected VOCs included chloroethane, dichlorodifluoromethane, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, PCE, 1,1,1-TCA, TCE, and vinyl chloride. PCBs were not detected in temporary well WPSA-BH08. Of the metals analyzed, antimony (total and dissolved), arsenic (total), barium (total and dissolved), chromium (total), cobalt (total), copper (total and dissolved), lead (total), mercury (total), nickel (total and dissolved), vanadium (total) and zinc (total) were detected. LNAPL was not present in this temporary well.

In temporary well WPSA-BH09, detected VOCs included chloroethane, dichlorodifluoromethane, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, ethylbenzene, PCE, toluene, 1,1,1-TCA, TCE, and vinyl chloride. PCBs were not detected in temporary well WPSA-BH09. Of the metals analyzed, antimony (total and dissolved), arsenic (total), barium (total and dissolved), chromium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected. LNAPL was not present in this temporary well.

In temporary well WPSA-BH10, detected VOCs included chloroethane, dichlorodifluoromethane, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, ethylbenzene, PCE, toluene, 1,1,1-TCA, TCE, and vinyl chloride. Aroclor 1254 was detected in temporary

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well WPSA-BH10. Of the metals analyzed, antimony (total and dissolved), arsenic (total and dissolved), barium (total and dissolved), beryllium (total), cadmium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected. Approximately 1/8 inch of LNAPL was measured in the temporary well in WPSA-BH10 on April 23, 2001.

In temporary well WPSA-BH11, detected VOCs included acetone, 2-butanone, chloroethane, dichlorodifluoromethane, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, ethylbenzene, toluene, 1,1,1-TCA, TCE, vinyl chloride, and xylenes. Aroclor 1254 was detected in temporary well WPSA-BH11. Of the metals analyzed, antimony (total and dissolved), arsenic (total and dissolved), barium (total and dissolved), beryllium (total), cadmium (total), chromium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected. Approximately 1/4 to 3/8 inch of LNAPL was measured in the temporary well in WPSA-BH11 on April 23, 2001.

In temporary well WPSA-BH12, detected VOCs included chloroethane, dichlorodifluoromethane, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, ethylbenzene, PCE, toluene, 1,1,1-TCA, TCE, and vinyl chloride. PCBs were not detected in temporary well WPSA-BH12. Of the metals analyzed, antimony (total and dissolved), arsenic (total and dissolved), barium (total and dissolved), beryllium (total), cadmium (total), chromium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total), silver (total), thallium (total), vanadium (total) and zinc (total) were detected. LNAPL was not present in this temporary well.

In temporary well WPSA-BH13, detected VOCs included benzene, chloroethane, dichlorodifluoromethane, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, ethylbenzene, PCE, toluene, TCE, vinyl chloride, and xylenes. PCBs were not detected in temporary well WPSA-BH13. Of the metals analyzed, antimony (total and dissolved), barium (total and dissolved), beryllium (total), cadmium (total), chromium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total and dissolved), silver (total), thallium (total), vanadium (total) and zinc (total) were detected. LNAPL was not present in this temporary well.

In temporary well WPSA-BH14, detected VOCs included chloroethane, dichlorodifluoromethane, 1,1-DCA, cis-1,2-DCE, PCE, toluene, 1,1,1-TCA, TCE, and vinyl chloride. PCBs were not detected in temporary well WPSA-BH14. Of the metals analyzed, antimony (total and dissolved), barium (total and dissolved),

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beryllium (total), cadmium (total), chromium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected. LNAPL was not present in this temporary well.

In temporary well WPSA-BH15, detected VOCs included 1,1-DCA, cis-1,2-DCE, PCE, toluene, 1,1,1-TCA, and TCE. PCBs were not detected in temporary well WPSA-BH15. Of the metals analyzed, antimony (total and dissolved), arsenic (total), barium (total and dissolved), cadmium (total), chromium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total and dissolved), selenium (total), silver (total), thallium (total), vanadium (total) and zinc (total) were detected. No measurable LNAPL was present in this temporary well, even though black oil was observed in the overlying soil.

In temporary well WPSA-BH16, detected VOCs included 1,1-DCA, cis-1,2-DCE, PCE, toluene, 1,1,1-TCA, and TCE. PCBs were not detected in temporary well WPSA-BH16. Of the metals analyzed, antimony (total and dissolved), arsenic (total), barium (total and dissolved), beryllium (total), cadmium (total), chromium (total), cobalt (total), copper (total and dissolved), lead (total and dissolved), mercury (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected. LNAPL was not present in this temporary well.

In temporary well WPSA-BH17, detected VOCs included chloroethane, dichlorodifluoromethane, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, PCE, toluene, 1,1,1-TCA, TCE, and vinyl chloride. PCBs were not detected in temporary well WPSA-BH17. Of the metals analyzed, antimony (total and dissolved), arsenic (total and dissolved), barium (total and dissolved), beryllium (total), cadmium (total), chromium (total), cobalt (total), copper (total and dissolved), lead (total and dissolved), mercury (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected. LNAPL was not present in this temporary well.

In temporary well WPSA-BH18, detected VOCs included 1,1-DCA, cis-1,2-DCE, PCE, 1,1,1-TCA, and TCE. PCBs were not detected in temporary well WPSA-BH18. Of the metals analyzed, antimony (total and dissolved), beryllium (total) barium (total and dissolved), cadmium (total), chromium (total), cobalt (total), copper (total and dissolved), lead (total), mercury (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected. LNAPL was not present in this temporary well.

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In temporary well WPSA-BH19, detected VOCs included 1,1-DCA, cis-1,2-DCE, PCE, 1,1,1-TCA, TCE, and vinyl chloride. Aroclor 1254 was detected in temporary well WPSA-BH19. Of the metals analyzed, antimony (total and dissolved), barium (total and dissolved), beryllium (total), cadmium (total), chromium (total), cobalt (total), copper (total), lead (total), mercury (total), nickel (total and dissolved), thallium (total), vanadium (total) and zinc (total) were detected. DUP-104 was taken as a duplicate of the sample collected from the temporary well WPSA-BH19. LNAPL was not present in this temporary well.

No VOCs, SVOCs, PCBs, or metals were detected in rinseate blank samples RB-79 and RB-81. Therefore there is no indication of possible cross contamination due to decontamination or sampling procedures. No VOCs were detected in trip blanks TB-120, TB-123, TB-127, and TB-130, indicating no cross contamination of VOCs occurred during sample collection and handling.

4.3.2 WPSA Groundwater Sampling-August 2002

Depth to water measurements were collected from monitoring wells GM-33 through GM-38, RW-10 and RW-11 prior to sampling. These measurements were recorded on the groundwater sampling logs that are presented in Appendix D. Consistent with the site-wide groundwater monitoring program and the former settling lagoon groundwater monitoring program, groundwater flow direction across the WPSA is from northeast to southwest (ARCADIS G&M, Inc. 2004).

Table 7 provides a summary of constituents detected in groundwater by laboratory analysis and Table A-7 in Appendix A lists all constituents analyzed during this sampling event. The well locations are identified on Figure 2. Analytical data for organic constituents are depicted on Figure 7 and inorganic constituents are depicted on Figure 8. A summary of the constituents detected in each well is presented as follows.

In monitoring well GM-33, which is screened in the lower portion of the upper aquifer above the regional clay till, detected VOCs included 1,1,1-TCA, 1,1-DCA, 1,1-DCE, acetone, cis-1,2-DCE, trans-1,2-DCE, PCE and TCE. Detected SVOCs were 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene and hexachlorobutadiene. PCBs were not detected. Of the metals analyzed, antimony (total and dissolved), barium (total and dissolved), chromium (total and dissolved), cobalt (total and dissolved), copper (total and dissolved), lead (total), nickel (total and dissolved), and zinc (total and dissolved) were detected.

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In monitoring well GM-34, which is screened across the water table in the upper aquifer, detected VOCs included 1,1,1-TCA, 1,1-DCA, acetone, cis-1,2-DCE, trans-1,2-DCE, PCE and TCE. SVOCs and PCBs were not detected. Of the metals analyzed, antimony (total and dissolved), barium (total and dissolved), chromium (total and dissolved), cobalt (total and dissolved), copper (total and dissolved), nickel (total and dissolved), selenium (total and dissolved) and zinc (total and dissolved) were detected.

In monitoring well GM-35, which is screened in the lower portion of the upper aquifer above the regional clay till, detected VOCs included 1,1,1-TCA, 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, and vinyl chloride. SVOCs and PCBs were not detected. Of the metals analyzed, arsenic (total and dissolved), barium (total and dissolved), cadmium (total and dissolved), chromium (total and dissolved), cobalt (total and dissolved), nickel (total and dissolved), silver (total and dissolved) and vanadium (total and dissolved) were detected.

In monitoring well GM-36, which is screened across the water table in the upper aquifer, detected VOCs included 1,1,1-TCA, 1,1-DCA, chloroethane, cis-1,2-DCE, trans-1,2-DCE, PCE and TCE. SVOCs and PCBs were not detected. Of the metals analyzed, antimony (total), arsenic (total), barium (total and dissolved), beryllium (total), cadmium (total and dissolved), chromium (total and dissolved), cobalt (total and dissolved), copper (total and dissolved), lead (total), nickel (total and dissolved), thallium (total and dissolved), vanadium (total) and zinc (total and dissolved) were detected. DUP-119 was taken as a duplicate of the sample collected from GM-36.

In monitoring well GM-37, which is screened in the lower portion of the upper aquifer above the regional clay till within the limits of the WPSA, detected VOCs included 1,1,1-TCA, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE and TCE. SVOCs and PCBs were not detected. Of the metals analyzed, barium (total and dissolved), chromium (dissolved), cobalt (total and dissolved), nickel (total and dissolved), silver (total) and vanadium (total) were detected.

In monitoring well GM-38, which is screened across the water table in the upper aquifer within the limits of the WPSA, detected VOCs included 1,1,1-TCA, 1,1-DCA, chloroethane, cis-1,2-DCE, trans-1,2-DCE, PCE and TCE. SVOCs and PCBs were not detected. Of the metals analyzed, antimony (total and dissolved), arsenic (total), barium (total and dissolved), beryllium (total), cadmium (total and dissolved), chromium (dissolved), cobalt (total and dissolved), mercury (total), nickel (total and dissolved), silver (total), and vanadium (total) were detected.

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In recovery well RW-10, which was screened across the water table in the upper aquifer to monitor for potential LNAPL, total detected VOCs were 38.7 ug/L. Detected VOCs included 1,1-DCA, carbon disulfide, cis-1,2-DCE, trans-1,2-DCE, chloroethane, dichlorodifluoromethane, TCE and vinyl chloride. The SVOC, 1,2-dichlorobenzene, was detected. Aroclor-1254 was detected. As presented in the WPSA Investigation Interim Report, the sample from RW-10 was not analyzed for metals because of its proximity to GM-33 and GM-34. Measurable oil was not present in RW-10 during this sampling event.

In recovery well RW-11, which is screened across the water table in the upper aquifer to monitor for potential LNAPL, the only VOC detected was idomethane with a concentration of 4.9 ug/L. SVOCs were not detected in RW-11. Aroclor-1254 was detected. As presented in the WPSA Investigation Interim Report, the sample from RW-11 was not analyzed for metals because of its proximity to GM-33 and GM-34. Measurable oil was not present in RW-11 during this sampling.

The VOCs acetone, benzene, ethylbenzene and toluene were detected, and the SVOC, naphthalene was detected in rinseate blank sample RB-97. With the exception of acetone, a common laboratory contaminant, these constituents were not detected in any other sample. No other VOCs, SVOCs, or PCBs were detected in rinseate blank sample RB-97. The presence of metals in RB-97 can be attributable to method blank contamination or laboratory-supplied rinseate water contamination. On this basis, there is no indication of possible cross contamination of the organic constituents detected in the monitoring wells due to decontamination or sampling procedures. No VOCs were detected in trip blanks TB-147, TB-150 and TB-152; a trace concentration of toluene was detected in trip blank sample TB-148. The toluene concentration detected in this sample does not indicate that cross contamination of VOCs occurred during sample collection and handling because toluene was not detected in any groundwater sample.

4.4 WPSA Investigation Summary

Soil and groundwater data collected from the WPSA from 2001 to 2003 was sufficient to meet the investigation objectives and support the evaluation of potential risks using procedures outlined in the RFI Baseline Risk Assessment and Supplemental RFI Baseline Risk Assessment (ENVIRON 2000a, 2000b). The data evaluation, risk assessment and conclusions are presented in Sections 5, 6, and 7, respectively.

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As previously stated, the WPSA contains areas of visible oil staining relative to the existing sewer line and the sludge bunker. The presence of oil was also noted on several of the soil boring logs. These borings were located near the sewer line and sludge bunker. These borings include WPSA-BH01, WPSA-BH07, WPSA-BH11, WPSA-BH13, WPSA-BH15, WPSA-BH21, and WPSA-BH22. As discussed in Section 7, GM recommends the removal of this oil impacted soil in order to support future development of the area. The future planned use for the WPSA is a parking lot.

The potential presence of LNAPL has been monitored during the groundwater sampling events for the site-wide groundwater monitoring program and the lagoon monitoring program in 2001 through 2003. Measurable oil was not detected during these events so the wells were never used as product recovery wells. GM recommends that these wells be abandoned during the WPSA interim measures discussed in Section 7.

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5. Evaluation of Results of WPSA Investigation

The approved RFI Baseline Risk Assessment was prepared by ENVIRON Corporation, therefore, the risk-based screening and data evaluation in Section 5.0 was also prepared by ENVIRON Corporation, who served as a contributing author to this report. This section discusses the WPSA investigation results with respect to a comparison with generic risk-based screening criteria that were used during the field investigation to guide soil and groundwater characterization efforts. The screening criteria used in the field investigation were designed to identify the presence of potentially significant releases of hazardous constituents and to guide characterization of the lateral and vertical extent of constituents in soil and groundwater. The soil and groundwater screening criteria used in the field investigation are discussed in Section 5.1 and Section 5.2, respectively. Results of the data comparison to screening criteria are discussed in Section 5.3.

5.1 Soil Screening Criteria

The soil screening criteria were derived from the risk-based preliminary remediation goals (PRGs) that USEPA Region 9 calculated for commercial/industrial settings (USEPA 2002). Use of the PRGs for commercial/industrial settings is consistent with the current and reasonably expected future land use at the Site (ENVIRON 2000a, 2000b). The soil PRGs for commercial/industrial settings were calculated by USEPA Region 9 using USEPA-recommended standard default exposure factors for workers, and a more conservative soil ingestion rate of 100 mg/day which is twice the standard default of 50 mg/day. The USEPA-recommended standard default exposure factors are conservative assumptions about the magnitude, frequency, and duration of exposures, which in combination provide exposure estimates that are expected to be higher than actual exposures to a large portion (90% to 99%) of workers (USEPA 1991a).

The USEPA Region 9 PRGs are based on a target cancer risk of 10^{-6} and a target hazard index (HI) of 1. The target cancer risk of 10^{-6} assumes exposure to a large number of carcinogenic chemicals at a site. According to USEPA, a target risk of 10^{-6} can be used to develop screening criteria (like the PRGs) to ensure that cumulative cancer risk from exposure to multiple human carcinogens at a site would not be above the acceptable cumulative risk of 10^{-4} (61 FR 19432, May 1,1996; USEPA, 1996; USEPA, 1991b). This means that as many as 100 human carcinogens can be present at a site at concentrations equal to these PRGs without being above the cumulative risk goal of 10^{-4}.

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However, at many sites, including this site, potential exposure is associated with far fewer human carcinogens (i.e., closer to 10 than 100) so that the screening criteria calculated using a target cancer risk of 10^{-6} are far more conservative than necessary to protect for simultaneous exposure to multiple carcinogens, and are not efficient for segregating concentrations that have a high potential for health significance from those that do not. For these reasons, the screening criteria used during the field investigation were adjusted to a target cancer risk of 10^{-5}. These screening criteria were not used to eliminate any constituent from risk assessment; they were used to focus site characterization efforts on the most significant concentrations.

In addition to the screening criteria based on the PRGs, screening criteria based on soil constituent migration to groundwater were also used to support the field investigation. These criteria are those published in the USEPA Soil Screening Guidance (1996), based on a generic dilution-attenuation factor of 20. In deriving these criteria, USEPA assumed that groundwater at the water table immediately downgradient of an area of soil contamination is a drinking water supply. This assumption is highly conservative for evaluating soil at the WPSA because the uppermost aquifer underlying the Site is not a current or reasonably expected future drinking water supply (ENVIRON 2000a, 2000b). These criteria were used to guide groundwater characterization efforts (e.g., placement of monitoring wells, selection of constituents for laboratory analysis).

5.2 Groundwater Screening Criteria

The groundwater screening criteria used during the field investigation were based on maximum contaminant levels (MCLs) established under the Safe Drinking Water Act, and equivalent drinking water limits for constituents without MCLs. The equivalent drinking water limits are generic risk-based drinking water concentrations calculated using conservative standard default exposure factors for estimating high-end exposure via daily drinking water consumption (USEPA 1991a), and a target cancer risk of 10^{-5} and a target hazard quotient (HQ) of 1. These groundwater screening criteria are highly conservative for evaluating groundwater at the WPSA because the groundwater in the uppermost aquifer underlying the site is not a current or reasonably expected future drinking water supply, as noted in Section 5.1.

5.3 Screening Results

Tables 8 and 9 show the comparison of the soil and groundwater data with the screening criteria discussed in Sections 5.1 and 5.2, respectively. The constituents with concentrations that are higher than the screening criteria are highlighted on these

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tables. The spatial distribution of these constituent concentrations is shown on Figure 7 and Figure 8. The soil and groundwater data shown on these tables and figures were prepared for risk-based screening and risk assessment purposes following the procedures described in Section 6.2.2.

5.3.1 Soil

Table 8 shows that the following constituents have concentrations in soil that are higher than the screening criteria based on the PRGs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCBs (total), antimony, arsenic, cadmium, chromium (total), copper and lead. VOCs were not detected at concentrations that are higher than the screening criteria. Table 10 shows additional information (e.g., sample location, sample depth) for the samples with concentrations that are higher than the soil screening criteria.

Figures 7 and 8 show the lateral and vertical distribution of the concentrations for all the constituents discussed above, and highlights the concentrations that are higher than the screening criteria. From these figures, it can be seen that the WPSA field investigation has adequately characterized the extent of the most potentially significant constituents in soil. The health significance of all the soil characterization data, including those shown on Figures 7 and 8, is evaluated with respect to the need for corrective measures in Section 6.

5.3.2 Leaching to Groundwater

Table 8 shows that several VOCs, SVOCs, and inorganics have concentrations in soil at the WPSA that are higher than the soil constituent migration to groundwater criteria. However, the following constituents are the only ones with concentrations that are greater than these criteria among the deepest soil samples collected: tetrachloroethene (PCE), antimony, toluene, 1,1,1-trichloroethane, benzo(a)pyrene, benzo(b)fluoranthene, and methylene chloride. Among these constituents, only PCE and antimony have been detected in groundwater at concentrations higher than the groundwater screening criteria. This means that the presence of toluene, 1,1,1-trichloroethane, benzo(a)pyrene, benzo(b)fluoranthene, and methylene chloride in soil at the WPSA actually has not significantly affected groundwater.

Although PCE and antimony are present in groundwater at the WPSA at concentrations higher than the ground water screening criteria, these groundwater

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conditions likely were not caused by the presence of these constituents in soil at the WPSA. As shown on Figures 7 and 8, PCE and antimony were detected in groundwater at concentrations higher than the groundwater screening criteria in both upgradient monitoring wells (i.e., GM-33 and GM-34) and downgradient monitoring wells (i.e., GM-35, GM-36, GM-37 and GM-38). In the most recent sampling event for PCE (9/25/2003), the concentrations at the upgradient well GM-34 were higher than those at the downgradient well GM-35. Similarly, in the most recent sampling event for antimony (8/7/2002), the concentration at the upgradient well GM-34 was higher than that at the downgradient well GM-38. These data suggest that soil at the WPSA has not contributed significantly to the groundwater concentrations of these two constituents. Table 10 shows additional information (e.g., sample location, sample depth) for the samples with concentrations that are higher than the soil migration to groundwater criteria.

5.3.3 Groundwater

Table 9 shows that the following constituents have concentrations in groundwater that are higher than the screening criteria: cis-1,2-dichloroethene, PCE, 1,2,4-trichlorobenzene, trichloroethene, vinyl chloride, PCBs (total), antimony, arsenic, barium, beryllium, cadmium, chromium (total), copper, lead, mercury, nickel, thallium, and vanadium. Table 11 shows additional information (e.g., well location, sample date) for the samples with concentrations that are higher than the groundwater screening criteria. Figures 7 and 8 show the spatial distribution of these constituents at locations upgradient and downgradient of the WPSA, and highlights the concentrations that are higher than the screening criteria.

As discussed in Section 5.3.2, none of the constituents with concentrations that are higher than the groundwater screening criteria have concentrations in the deepest soil samples at the WPSA that are higher than the soil leaching to groundwater criteria, except PCE and antimony. For PCE and antimony, the concentrations in groundwater at the WPSA's upgradient monitoring wells are higher than those at the downgradient monitoring wells, as discussed in Section 5.3.2. Therefore, all of the constituent concentrations in groundwater that are higher than the groundwater screening criteria appear to be unrelated to the presence of these constituents in soil at the WPSA.

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6. Human Health Risk Assessment

6.1 Introduction

The human health risk assessment discussed in this section evaluates the potential significance of reasonable maximum exposures to constituents in soil and groundwater under current and reasonably expected future land use at and around the Site to determine whether corrective measures are warranted at the WPSA. The methods used in the risk assessment are presented in the RFI Baseline Risk Assessment (ENVIRON 2000a) and Supplemental RFI Baseline Risk Assessments (ENVIRON 2000b), and are based on USEPA risk assessment guidance.

The scope of the human health risk assessment is summarized in the conceptual site model (CSM) shown in Table 12. The CSM identifies the scenarios for potential human exposure under current and reasonably expected future conditions at and around the Site in terms of the potentially exposed populations, the environmental media to which they could be exposed, and the potential routes of exposure. The CSM in Table 12 is an update of the CSM that was used in the Supplemental RFI Baseline Risk Assessment (ENVIRON 2000b). The scenarios for potential human exposure are further discussed in Section 6.3.

Discussion of the human health risk assessment is organized as follows:

- The preparation of data used in the risk assessment is discussed in Section 6.2 – Data Collection and Preparation.
- The scenarios for potential human exposure are discussed in Section 6.3 – Exposure Assessment, which also discusses the estimation of exposure concentrations and chemical intakes for each exposure scenario.
- Toxicity information for the constituents included in the risk assessment is summarized in Section 6.4 – Toxicity Assessment.
- The risk estimates associated with the potential exposures discussed in Section 6.3 are quantified and their significance is discussed in Section 6.5 – Risk Characterization. Uncertainties associated with the risk estimates are also discussed in this section.
- The findings and conclusions of the human health risk assessment are summarized in Section 7 – Summary and Conclusions.

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6.2 Data Collection and Preparation

6.2.1 Data Collection

The objectives of data collection during the WPSA investigation and strategies for determining when additional data collection is necessary were described in the Waste Pile/Staging Area Investigation Interim Report (ARCADIS G&M, Inc. 2002b). The scope of the field investigation completed to date and a summary of the data collection activities are described in Sections 2, 3, and 4 of this report.

6.2.2 Data Preparation

Validation of data collected during the investigation was performed in accordance with the QAPP in the RFI Work Plan (Geraghty & Miller, Inc. 1992, 1997a). All soil and groundwater data included in the data summary tables discussed in Section 5 were validated. In addition, the following procedures were used to prepare the data in these summary tables to support quantitative risk assessment. These procedures, which are based on USEPA guidance on human health risk assessment (USEPA 1989a), are as follows:

- Constituent concentrations qualified as not detected (i.e., U or UJ-qualified data) during data validation are evaluated as non-detects.
- Constituent concentrations qualified as not usable (i.e., R-qualified data) during data validation are not included in the risk assessment.
- Concentrations qualified as estimated (i.e., J-qualified data) are included for quantitative assessment.
- Concentrations in duplicate field samples are averaged to obtain a representative concentration for the sample location. When a constituent was detected in only one sample of a duplicate pair, the average of the detected concentration and one-half the quantitation limit is used in further calculations.
- The concentrations of 1,3-dichloropropene (total), chlordane (total), endosulfan, and methylphenol (total) in a sample are the sums of the concentrations of the detected isomers and half the quantitation limits of isomers not detected in the sample but detected in the same matrix at the Site. If no isomer is detected in a sample, the constituent is considered to be not detected in the sample.
- Similarly, the concentration of PCBs (total) in a sample is the sum of the concentrations of the detected Aroclors and half the quantitation limits of Aroclors not detected in the sample but detected in the same matrix at the Site. If no Aroclor is detected in a sample, PCBs are considered to be not detected in the sample.

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- Concentrations of metals that are lower than or equal to the background concentrations, are considered to be within background levels. Concentrations higher than the background levels are conservatively considered to be site-related, and are used in the calculation of site-related risk estimates. As a conservative assumption, all concentrations of organic constituents are assumed to be site-related.

The complete investigation data (including R-qualified data and separate results for each sample of a duplicate pair) are provided in Appendix A. The summary of the data validation results are presented in Section 2.3.

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6.3 Exposure Assessment

This section discusses the potential exposures that are relevant under current and reasonably expected future land use at and around the WPSA. The exposure setting, potentially exposed populations, and exposure pathways are discussed in the subsections below.

For the potential exposures discussed in this section, exposure is quantified as a dose, which is defined as follows:

$$\text{Dose} = \text{Concentration} \cdot \text{Intake}$$

The dose for evaluating cancer risk is averaged over a lifetime and is called a lifetime average daily dose (LADD). For evaluating long-term (or chronic) non-cancer effects, the dose is averaged over the period of exposure and is called an average daily dose (ADD).

The concentration term in the dose equation refers to the concentration in an environmental medium to which a population is exposed over a specified period. The intake term refers to the intake rate of the contaminated environmental medium, which is a function of the magnitude, frequency, and duration of exposure. The methods for estimating the concentration term are discussed in Section 6.3.4. The exposure factors that are used to quantify the magnitude, frequency, and duration of potential exposures are discussed in Section 6.3.5.

6.3.1 Exposure Setting

The environmental setting at and around the Site, including climate, geology, hydrogeology, land cover, surface water bodies, water supply, and groundwater use,

are discussed in the Description of Current Conditions (Geraghty & Miller, Inc. 1991) and Supplemental Description of Current Conditions (Geraghty & Miller, Inc. 1997b), and thus are not repeated here.

6.3.2 Potentially Exposed Populations

Based on the current Site status described above in Section 1, the former Delphi Thermal Moraine site will be decommissioned and demolished while the future plan for the WPSA is a parking lot, and the land use at and around the WPSA, the potentially exposed populations under current and reasonably expected future land use include the following:

Current	On-Site:	None
	Off-Site:	Residents and Worker
Future	On-Site:	Routine workers
		Occasional Maintenance/Construction Workers
	Off-Site:	Residents and Workers

The WPSA is currently inactive and is covered by concrete pavement. Since 2003, no industrial activities take place at the WPSA, and no workers are routinely in the area. The only workers who occasionally work at the WPSA currently are those conducting environmental investigation or maintenance. However, the activities of these workers are covered by the Site's health and safety plan which ensures that their activities in the area will not expose them to unacceptable risks.

If the concrete pavement at the WPSA were to be removed in the future and the area is redeveloped for commercial/industrial reuse, workers could be exposed during routine commercial/industrial activities at the area. Subsurface construction activities after the area is redeveloped could bring workers into contact with subsurface soil in the area. Because groundwater is at least 21 ft below ground surface at the WPSA, construction worker contact with groundwater during excavations is not expected. Potential exposure of workers via potable use of groundwater from the lower aquifer in the future is also possible, although there is currently no groundwater use at the Site.

The off-site area to the south and southeast of the Site currently includes a mix of residential and commercial/industrial land uses. Potential exposure of residents and

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workers at these locations might occur via inhalation of vapor and particulates emitted from the soil in the WPSA if pavement currently at the WPSA were to be removed. Potential exposure of residents and workers might also occur via potable use of groundwater in the lower aquifer and contact with surface water in the Great Miami River.

6.3.3 Exposure Pathways

The exposure pathways evaluated in the risk assessment are summarized in the conceptual site model shown in Table 12. Exposure pathways for on-site receptors are discussed in Section 6.3.3.1, and exposure pathways for off-site receptors are discussed in Section 6.3.3.2.

6.3.3.1 Potential On-Site Exposures

On-site receptors include routine workers and construction workers. The types of potential exposures for each receptor are discussed below.

Routine Workers

Routine workers are expected to be engaged in commercial and/or industrial activities that generally take place indoors. During limited time outdoors, workers could contact surface soil in unpaved areas. Potential routes of exposure to surface soil would include incidental ingestion, dermal contact, and inhalation of soil vapor and airborne particulates.

Exposure of workers via potable use of groundwater from the lower aquifer is possible, although groundwater is currently not used as a drinking water supply at the Site.

Construction Workers

Currently, the Site's health and safety plan addresses potential exposures to workers who are involved with construction or maintenance activities at the Site, including environmental investigation activities. After redevelopment of the area for commercial/industrial reuse, workers could conduct occasional subsurface construction or maintenance, which could put them in contact with surface and subsurface soil in the WPSA. These subsurface activities are expected to be of limited size and duration. Potential routes of exposure would include incidental ingestion, dermal contact, and inhalation of soil vapor and airborne particulates.

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Excavations are not expected to encounter groundwater, which is typically found at least 21 ft below ground surface at the WPSA.

6.3.3.2 *Potential Off-Site Exposures*

Off-site receptors include residents and workers. The types of potential exposures for these receptors are discussed below.

Soil

The residents and workers nearest to the Site are in the commercial/industrial and residential areas to the east, south, and southeast of the Site. Off-site receptors could be exposed to constituents in soil at the Site via wind erosion and transport off-site. In this risk assessment, potential airborne exposures of off-site receptors are conservatively evaluated using exposure estimates for off-site residents.

Groundwater

As summarized in the Supplemental Baseline Risk Assessment (ENVIRON 2000b), use of the lower aquifer as a drinking water source was determined to be reasonably expected, based on consideration of factors pertinent to potential regional groundwater use. However, use of the upper aquifer as a drinking water source was determined to be not reasonably expected, based on considerations of the same factors. Specifically, given the regional availability of alternative sources of drinking water that are more dependable and of higher quality, and local laws governing groundwater use, exposure to upper aquifer groundwater in the vicinity of the Site was determined to be not reasonably expected. However, because the upper aquifer is a medium for potential transport of constituents to the lower aquifer and the Great Miami River, the WPSA evaluation includes an assessment of the extent to which the hydraulic interconnections could result in migration of constituents to the lower aquifer or to the River in concentrations of significance to human health.

6.3.4 Estimation of Exposure Concentrations

6.3.4.1 *Soil*

Reasonable maximum exposures (RME) in soil are conservatively estimated in this risk assessment by using the maximum detected concentrations for most constituents and the 95% upper confidence limits (UCLs) on the mean for certain constituents

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where appropriate. In this approach, maximum concentrations are first used to calculate bounding estimates of cumulative cancer and non-cancer risks. If these bounding estimates of RME risks are not above EPA's cumulative cancer and non-cancer risk triggers for corrective measures (i.e., cumulative site-related cancer risk of 10^{-4} and non-cancer HI of 1), then further calculations are not necessary.

If a bounding estimate is above a trigger for corrective measures, then the bounding estimate is refined by replacing the maximum concentrations that contributed the most to the bounding estimate with 95% UCLs. Experience with this approach at many facilities shows that cumulative cancer and non-cancer risk estimates are often influenced by only a few constituents. This means the computation of 95% UCLs, which can be time-consuming, is usually necessary for only a few constituents. The use of maximum concentrations for many constituents introduces more conservatism than necessary for RME estimates because it assumes simultaneous worst-case exposure to many constituents constantly, when the RME generally would not have so many constituents at worst-case concentrations at all times.

The 95% UCL for a constituent is calculated using the nonparametric bootstrap method known as the bias-corrected and accelerated (BCa) method with 4,000 bootstrap replications (Efron and Tibshirani 1998). A nonparametric bootstrap confidence interval does not rely on assumptions about the data's underlying probability distribution which are often difficult to confirm, but instead are based on statistical re-sampling of the empirical distribution of the observed concentrations. For an empirical distribution that is approximately normal, the bootstrap confidence interval will be essentially the same as the normal confidence interval. For an empirical distribution that is not normal, however, the bootstrap confidence interval will be more accurate than a confidence interval calculated assuming a normal (or even lognormal) distribution (USEPA 1997c).

The constituents selected for 95% UCL calculations are those with maximum concentrations that contribute the most to the initial bounding estimates of the RME cumulative risks. Using 95% UCLs for these constituents and maximum concentrations for other constituents still overestimates the RME cumulative risks, but is an efficient approach that avoids 95% UCL calculations that would not materially affect cumulative risk estimates, and is consistent with USEPA guidance (1989a; page 6-25).

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The uncertainties associated with the use of such conservative estimates of exposure concentrations in evaluating the significance of potential exposures is discussed in Section 6.5.5.

6.3.4.2 Groundwater

The potential for drinking water exposure to groundwater extracted from the lower aquifer is evaluated using the same groundwater use scenarios and procedures described in the Supplemental Baseline Risk Assessment Report (ENVIRON 2000b). To estimate the significance of potential exposures at the identified exposure points, mathematical models are used in combination with soil and recent groundwater monitoring data collected as part of the site-wide groundwater monitoring program (ARCADIS 2004).

The same 10 groundwater modeling scenarios used in the supplemental baseline risk assessment are evaluated here to predict potential constituent migration from the WPSA and the other SWMUs and AOIs at the Site to potential points of groundwater exposure under various groundwater pumping patterns in the region. Each modeling scenario is defined by (1) a groundwater use scenario, (2) a set of wells that are expected to be pumping under the groundwater use scenario, and (3) a set of associated groundwater exposure points that are evaluated in the risk assessment.

The 10 scenarios are divided into two groups of five scenarios. One group (Scenarios 6 through 10) includes current interim measures (i.e., operation of wells TW2 and DN13 for hydraulic control) in each scenario and the other group does not include interim measures pumping (Scenarios 1 through 5). The first scenario (Scenario 1) is the baseline groundwater use scenario, which represents current groundwater use conditions. Scenario 2 is the baseline condition with the addition of the Miami Shores well field pumping as an emergency drinking water supply. Scenario 3 represents a more unlikely condition in which Miami Shores is pumping as an emergency drinking water supply and currently inactive on-site industrial production wells are placed into service as nonpotable industrial water supplies. Scenarios 4 and 5 represent even less likely conditions in which the Dryden Road South well field is added to the conditions modeled in Scenarios 2 and 3 as a secondary emergency drinking water supply to supplement Miami Shores as the primary emergency drinking water supply. Five additional groundwater modeling scenarios (Scenarios 6 through 10) are evaluated in which interim measures are implemented (i.e., with wells TW2 and DN13 acting as groundwater recovery wells). These scenarios are identical to Scenarios 1 through 5, except that the interim measures wells are assumed to be pumping.

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As discussed in the Supplemental Baseline Risk Assessment (ENVIRON 2000b), the MODFLOW model (Geraghty & Miller, Inc. 1994) developed to evaluate groundwater flow at the Site and in the region under various pumping conditions is used for approximating the transport of constituents from the WPSA and other SWMUs and AOIs to potential points of groundwater use in the 10 scenarios. The groundwater flow model facilitates the approximation of constituent transport in groundwater by allowing the calculation of source reduction factors that account for the natural dilution of constituents as they move in groundwater from under the Site to potential exposure points. The source reduction factors are calculated by using the MODFLOW model in combination with MODALL (Potter 1995), a complete-mix model designed to work with MODFLOW. The MODALL model uses the cell-by-cell flow terms computed by MODFLOW to calculate source reduction factors for a specified source within each downgradient cell or block in the finite difference domain of the MODFLOW model. The source reduction factors are computed for steady-state transport (without dispersion) with the following conservative assumptions:

- Each SWMU or AOI provides a continuous, steady-state flux of constituents into the upper aquifer.
- No degradation of constituents occurs during transport.
- No dispersion of constituents occurs during transport.

A source reduction factor is computed by setting the concentration of the groundwater beneath a source to a constant, unit concentration (or dimensionless concentration C/C_0), such that the calculated concentration at an exposure point ranges from zero to one. The concentration estimated at the potential exposure point for a unit source concentration is the source reduction factor for that source and exposure point combination. The estimated exposure concentration of a constituent at an exposure point resulting from all SWMUs and AOIs is then obtained by multiplying the groundwater concentration at the SWMU or AOI with the source reduction factor and summing all the products.

The groundwater source concentrations for the SWMUs and AOIs used in this evaluation are the same as those used in the Supplemental Baseline Risk Assessment (ENVIRON 2000b), except for the WPSA and the following land based units: Landfill L1, Landfill L2, Landfill L3, former North Settling Lagoon, former South Settling Lagoon, and AOI 7. For the three landfills, the two former lagoons, and AOI 7, the groundwater source concentrations are based on the most recent groundwater

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monitoring data for these units. Appendix B of the Supplemental Baseline Risk Assessment (ENVIRON 2000b) presents the monitoring wells assigned to these SWMUs and AOIs which used measured groundwater concentrations as source concentrations. The maximum concentrations most recently detected in the assigned wells are used as the groundwater source concentrations for these SWMU or AOI. This approach may tend to overestimate the source concentrations since they do not account for potential contributions from upgradient sources.

For the WPSA, the groundwater source concentrations are based on both the soil characterization data collected during the RFI and the more recent investigations, except data associated with soil that is expected to be removed. As discussed in Section 4.4, soil is expected to be excavated at certain locations within the WPSA to remove oil impacted soil, and as discussed in Section 6.5.2.1, additional soil is expected to be removed to reduce risk estimates to acceptable levels for potential exposure of on-site workers to soil via direct contact (i.e., incidental ingestion, dermal contact, and inhalation of vapors and particulates) and off-site workers and residents to soil via inhalation of vapors and particulates. Estimated groundwater source concentrations from each SWMU or AOI are presented in Appendix E.

The aggregate contribution from all the SWMUs and AOIs to groundwater concentrations at each potential exposure point is calculated by adding the concentration contributions from the individual SWMUs and AOIs. The resulting exposure concentrations in groundwater at the potential points of exposure are then compared to drinking water criteria, as discussed in the Supplemental Baseline Risk Assessment Report (ENVIRON 2000b).

6.3.5 Estimation of RME Intakes

The exposure factors for evaluating the exposure scenarios summarized in the CSM on Table 12 are identical to those used in the RFI Baseline Risk Assessment (ENVIRON 2000a) with the exception of the fraction contacted (FC) term. In this risk assessment, a conservative value of 1.0 was used for the FC term which assumes that workers are exposed to surface soil during the entire 8-hour work day at the WPSA. Exposure factors used in the risk assessment are summarized on Table 13, and are discussed in detail in Sections 3.3.6 and 3.6.7 of the RFI Baseline Risk Assessment (ENVIRON 2000a) and thus are not repeated here.

Uncertainties associated with the exposure factors used in estimating chemical intakes are discussed in Section 6.5.5.

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6.4 Toxicity Assessment

The purpose of a toxicity assessment is (1) to determine whether exposure to a chemical can cause an increased incidence of adverse human health effects and (2) to establish a quantitative dose-response relationship for the chemical so that a toxicity value can be derived for estimating the incidence or potential for adverse effects as a function of exposure to the chemical.

6.4.1 Toxicity Values

The toxicity values used in this risk assessment were compiled following USEPA's hierarchy of sources (USEPA 2003c):

1. Integrated Risk Information System (IRIS)
2. Provisional Peer Reviewed Toxicity Values (PPRTV)
3. Other sources

Provisional Peer Reviewed Toxicity Values from the National Center for Environmental Assessment (NCEA) are preferred over values from HEAST (1997a) when they represent more recent Agency guidance. When a toxicity value is not available from the first- and second-tier sources, other USEPA sources of toxicity values were consulted. The toxicity values used in the risk assessment and their sources are summarized on Table 14.

Inhalation cancer and non-cancer risk estimates are calculated using inhalation slope factors (SF_{inh}) and reference doses (RfD_{inh}), as was done in the Supplemental RFI Baseline Risk Assessment (ENVIRON 2000b). In this approach, inhalation unit risk factors (URFs) and reference concentrations (RfCs) from IRIS and NCEA were converted to inhalation slope factors (SF_{inh}) and inhalation reference doses (RfD_{inh}) using the equations shown in the RFI Baseline Risk Assessment (ENVIRON 2000a).

6.4.2 Constituents Without Toxicity Values

The USEPA sources of toxicity values listed above do not provide dermal toxicity values for any of the constituents. Therefore, oral toxicity values (i.e., oral SFs and RfDs) are used as dermal toxicity values in this risk assessment. No adjustment to the oral toxicity values is made in this route-to-route extrapolation for the chemicals and

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pathways evaluated in this risk assessmnt, consistent with USEPA guidance (USEPA 2001), which recognizes that there is generally insufficient scientific basis at this time to support any adjustment.

6.4.3 Lead

As explained in Section 4.2.2 of the RFI Baseline Risk Assessment (ENVIRON 2000a), USEPA evaluates the health effects of lead using blood lead level as an index of exposure rather than by comparison of lead uptake to an RfD. The estimation of blood lead distributions for potentially exposed on-site workers and off-site residents is presented in Section 6.5.3.

6.5 Risk Characterization

The health significance of the potential exposures identified in Section 6.3 is discussed in the following subsections. Section 6.5.1 describes the methods for quantifying cancer risks and non-cancer hazard indices for potential exposures to constituents (except lead) in soil via direct contact (i.e., incidental ingestion, dermal contact, and inhalation of vapors and particulates). Section 6.5.2 discusses the risk estimates and the significance of these potential exposures. The estimation of blood lead distributions for potentially exposed on-site workers and off-site residents is presented in Section 6.5.3. The significance of potential drinking water exposures, which are evaluated using drinking water criteria rather than using cancer and non-cancer risk estimates, are discussed in Section 6.5.4. Uncertainties in the risk evaluation are discussed in Section 6.5.5.

6.5.1 Cancer Risk and Non-cancer Hazard Index

The cancer risk associated with potential exposure to a carcinogenic chemical is calculated by multiplying an estimate of the lifetime average daily dose (LADD) for a particular exposure scenario by the cancer slope factor (SF) for the chemical, as follows:

$$Risk = LADD_{route} \cdot SF_{route}$$

The non-cancer hazard quotient (HQ) associated with potential exposure to a noncarcinogenic chemical is calculated by dividing an estimate of the average daily dose (ADD) for a particular exposure scenario by the reference dose (RfD) for the chemical, as follows:

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$$Hazard\ Quotient\ (HQ) = \frac{ADD_{route}}{RfD_{route}}$$

The potential cancer risk and non-cancer effects that may result from exposure to the combination of constituents at the WPSA are estimated following USEPA guidance (USEPA 1989a), as follows:

$$\text{Cumulative Risk} = \sum_i \text{Risk}_i$$

$$\text{Hazard Index} = \sum_i \text{HQ}_i$$

where:

$\text{Risk}_{cumulative}$ = estimated cumulative cancer risk from all constituents

Risk_i = estimated cancer risk for the *i*th constituent

HI = hazard index from all constituents

HQ_i = hazard quotient for the *i*th constituent

This approach may result in estimates of cumulative cancer and non-cancer risks that are more conservative than necessary. For example, different chemicals may cause different and unrelated health effects, so summing the HQs for their individual effects would overestimate the significance of their combined effects. Nonetheless, this approach is used here as a conservative assessment tool.

The cumulative cancer risk and HI estimates for each receptor population are compared with USEPA's cancer risk limit of 10^{-4} and HI limit of 1, respectively, for determining whether corrective measures are warranted at the WPSA (61 FR 19432, May 1, 1996; USEPA 1991b). The risk estimates and results of the comparison to the USEPA-established limits are discussed in Section 6.5.2.

In evaluating the significance of potential drinking water exposures, drinking water criteria are used rather than calculations of cumulative cancer and non-cancer risks, consistent with USEPA risk management policy (USEPA 1991b). Specifically, estimated groundwater concentrations at points of potential exposure are compared

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directly with drinking water criteria. The results of this comparison are discussed in Section 6.5.4.

6.5.2 Risk Estimates for Soil Exposures

6.5.2.1 Routine Workers

The significance of risks associated with potential exposure of routine workers to soil at the WPSA is discussed below.

Potential exposure of routine workers to exposed surface soil was first evaluated using bounding estimates of RME cumulative cancer and non-cancer risks to streamline the risk evaluation, as explained in Section 6.3.4.1. The initial estimates were calculated using maximum site-related concentrations for all constituents that will remain in soil at the WPSA after oil impacted soil is removed (as discussed in Section 4.4). The soil data excluded from the initial risk calculations are from the following boring locations and depth intervals:

WPSA-BH01	surface to 7 ft bgs
WPSA-BH07	surface to 2 ft bgs
WPSA-BH11	surface to 6 ft bgs
WPSA-BH13	surface to 6 ft bgs
WPSA-BH15	surface to 10 ft bgs
WPSA-BH21	surface to 12 ft bgs
WPSA-BH22	surface to 3 ft bgs

These initial estimates are considered bounding estimates because the RME risks would be lower if concentrations representative of the area were used instead of maximum concentrations, and if realistic exposure factors were used to account for the magnitude, frequency, and duration of exposures under reasonably expected future land use at the WPSA. These bounding estimates of site-related cumulative cancer and non-cancer risks are summarized on Table 15, which shows that they are above the

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cancer risk limit of 10^{-4} and the HI limit of 1. Appendix E presents the calculation details of these risk estimates.

The significance of potential exposure was then further evaluated using 95% UCLs for the constituents whose maximum concentrations contributed greatest to the bounding estimates. The constituents that were selected for calculation of 95% UCLs are shown in Appendix E. Table 16 shows the risk estimates that are based on the use of 95% UCLs, which still are above the the HI limit of 1. The constituents that contribute most significantly to the risk estimates are PCBs, antimony, and cadmium. Appendix E presents the calculation details of these risk estimates.

The highest detected concentrations of the constituents that contributed to the risk estimates on Table 16 are found at the following sampling locations:

WPSA-BH10 [Antimony = 7,740 mg/kg 0-2 ft bgs]

WPSA-BH16 [Cadmium = 2,080 mg/kg 0-2 ft bgs]

WPSA-BH19 [PCBs = 77.8 mg/kg 0-2 ft bgs]

If soil at these locations were removed, the estimates of cumulative cancer risk and HI would become 6×10^{-5} and 0.7, respectively, as shown on Table 17. Appendix E presents the calculation details of these risk estimates. This means remediation of the soil at these locations, together with removal of the oil impacted soil, would achieve acceptable levels of risks.

6.5.2.2 Construction Workers

The risk estimates for potential exposure of a constuction worker to surface and subsurfce soil at the WPSA are summarized on Table 17. They are based on soil concentrations remaining after all the soil removal discussed in Section 6.5.2.1. Construction worker risk and HI estimates were determined to be 3×10^{-6} and 0.1, respectively, indicating that with the removal of soil to reduce the potential exopsure risks for routine workers to acceptable levels, the estimates of potential risks to construction workers would also be acceptable.

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6.5.2.3 *Off-Site Residents and Workers*

Potential exposure of off-site workers to soil is evaluated indirectly using exposure estimates for off-site residents as explained in Section 6.3.3.2. The risk estimates for an off-site resident to soil at the WPSA are presented on Table 17. They are based on soil concentrations remaining after all the soil removal discussed in Section 6.5.2.1. Off-site resident risk and HI estimates were determined to be 9×10^{-7} and 4×10^{-2}, respectively, indicating that with the removal of soil to reduce the potential exposure risks for routine workers to acceptable levels, the estimates of potential risks to off-site residents and workers would also be acceptable.

6.5.3 Blood Lead Levels

Potential on-site worker and off-site resident exposure to lead in soil at the WPSA was evaluated using the same approach as presented in the RFI Baseline Risk Assessment (ENVIRON 2000a) for predicting blood lead concentrations, except the model parameters were updated to be consistant with current USEPA guidance (USEPA 2003). The calculations were based on the mean soil lead concentration after all the soil removal discussed in Section 6.5.2.1. The results of the calculations presented on Table 18 indicate that the predicted 95th percentile blood lead levels for routine workers is 7 ug/dL, which is below the acceptable limits discussed in the RFI Baseline Risk Assessment (ENVIRON 2000a).

6.5.4 Significance of Potential Groundwater Exposures

As shown on Tables 19 through 29, five scenario/constituent pairs are estimated to have groundwater concentrations that are higher than drinking water criteria. These estimates are based on using soil concentration-based source concentrations for the WPSA that do not include soil data from the locations identified for removal as discussed in Section 4.4 and Section 6.5.2. The results shown on Tables 19 through 29 are based on the maximum detected concentrations in soil remaining at the WSPA after soil removal, except the depth-averaged 95% UCLs are used for PCE, TCE, vinyl chloride, antimony, arsenic, barium, cadmium, chromium (total), nickel, and zinc, and the mean concentration is used for lead.

As shown in Table 29, the predicted chromium concentration is above the MCL in scenarios 4 and 5 due to concentrations at the WPSA. The 95% UCL for chromium is 357.4 mg/kg. The background concentration is 13.5 mg/kg. The predicted concentration of lead is above the MCL in scenario 4 due to concentrations at the

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WPSA. The mean detected concentration is 210 mg/kg. Background is 16 mg/kg. The predicted concentration of nickel is above the drinking water criterion in scenarios 4 and 5 due to concentrations at the WPSA. The 95% UCL for nickel is 356 mg/kg. The background concentration is 8 mg/kg. As explained in the in Section 5.2.1 of the Supplemental Baseline Risk Assessment (2000b), the predicted contributions from the Waste Pile Staging Area are likely overstated for the following reasons:

- The WPSA is currently paved and inactive. As such, the assumption of a constant source strength in the groundwater model for this SWMU is conservative and is expected to overestimate the leaching of constituents to groundwater.

- The predicted contributions of chromium, lead and nickel by the WPSA are not supported by actual on-site soils data as the constituents do not exceed leaching to groundwater criteria in the deepest most soil samples collected.

- Also, the predicted contributions of chromium, lead, and nickel are not supported by recent groundwater monitoring data collected at the WPSA. The groundwater model predicts that receptor well concentrations would be 6 times greater than drinking water standards under Scenario 4 and 3 times greater than drinking water standards under Scenario 5. The groundwater model also predicts source concentrations that are over 1000 times greater than the maximum measured dissolved groundwater concentrations observed at the WPSA as shown in Appendix E and Figures 7 and 8. This shows that the groundwater model is more conservative in estimating groundwater source concentrations.

For these reasons and because groundwater use from the Dryden Road South well field is expected to be temporary and infrequent, if at all, the estimated concentrations of constituents at this well field under Scenarios 4 and 5 overstate reasonable maximum exposures to constituents at the WPSA. Therefore no corrective action is warranted for soil impacts to groundwater in this area.

6.5.5 Uncertainty Analysis

6.5.5.1 Exposure Concentrations

As discussed in Section 6.3.4.1, most exposure concentrations for soil in this risk assessment are based on the highest concentrations detected in soil at the WPSA, and 95% UCLs are calculated only when a bounding estimate of the RME cumulative cancer risk or HI is greater than the cancer risk limit of 10^{-4} or the HI limit of 1,

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respectively. This approach streamlines the risk assessment by avoiding calculation of 95% UCLs that would not materially affect risk assessment conclusions regarding the need for corrective measures.

Most exposure concentrations that are based on mathematical modeling of constituent transfer from soil to air are conservative for the same reasons discussed above, since the model estimates are based on the use of maximum concentrations in soil. In addition, the model estimates are conservative because they generally do not account for the reduction of constituent concentrations in the soil as constituent volatilize. As a result, risk estimates that are based on the sum of risk estimates for multiple media are more conservative than necessary for RME estimates.

Similarly, the exposure concentrations in groundwater are based on mathematical modeling of constituent transport from soil and/or groundwater that incorporate several conservative assumptions. As noted in Section 6.3.4.2, the modeling approach assumed that all sources of groundwater contaminants have infinite contaminant mass and no degradation or dispersion occurs during transport from a source to an exposure point. These assumptions are believed to result in overestimated exposure concentrations.

6.5.5.2 Risk Characterization

The summation of cancer risks and HQs for multiple constituents, as described in Section 6.5.1, is based on USEPA guidance (1989a) to assume dose additivity, which means that constituents in a mixture are assumed to have no synergistic or antagonistic interactions and each constituent has the same mode of action and elicits the same health effects. In general, this approach can introduce significant uncertainty. However, the majority of the cumulative cancer risk and HI estimates in this risk assessment are dominated by contributions from no more than a few constituents, so that the cumulative risk estimates are nearly the same as those for the few key constituents.

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7. Summary and Conclusions

The field investigation and risk assessment described in this report evaluated the presence of site-related constituents in soil and groundwater at the WPSA to determine whether conditions at the WPSA pose a significant risk that warrant corrective measures. The conclusions of the field investigation and risk assessment are as follows:

1. No significant current human exposure to constituents in soil at the WPSA is occurring because the WPSA is inactive, covered by concrete pavement, and any subsurface activities are governed by the Site's health and safety requirements which ensure protection of workers during such activities.

2. Potentially significant human exposure to constituents in soil at some parts of the WPSA may occur if pavement were to be removed and the area were to be redeveloped for commercial/industrial use.

3. With the removal of oil impacted soil (as described in Section 4.4) and soil identified as containing significant constituent concentrations (as described in Sections 6.5.2.1), soil at the WPSA would not pose a significant risk if the area were to be redeveloped for commercial/industrial use.

4. Constituents in soil at the WPSA do not appear to have significantly affected groundwater underlying the unit. With the removal of soil to address potential exposure of workers to soil via direct contact during future commercial/industrial reuse of the area, constituents in soil remaining at the WPSA are not expected to significantly affect future groundwater quality. Existing impacts to groundwater observed at the WPSA, but attributed to other sources at the Site, are being addressed as part of a site-wide corrective action & monitoring program (ARCADIS 2004), and targeted action for groundwater at the WPSA is not warranted.

Based on these findings, GM plans to implement interim measures to remediate soil in certain areas at the WPSA. The details of these measures are presented in the WPSA Interim Measures Work Plan, submitted under separate cover.

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Table 1. Summary of Waste Pile/Staging Area Investigation, General Motors Corporation, Moraine, Ohio.

Waste Pile/Staging Area	Soil Samples	# of Soil Samples[1]	Soil Analyses	Groundwater Samples	# of Groundwater Samples[1]	Groundwater Analyses
April 2001	WPSA-BH08 through WPSA-BH20	41[2]	TCL VOC 5035/8260B TCL SVOC 8270C TCL PCB 8082 TAL Metals[4]	Well Pairs GM-33/GM-34 GM-35/GM-36 GM-37/GM-38	6	App. IX VOC 8260B and cis-1,2-DCE App. IX SVOC 8270C App. IX PCB 8082 App. IX Total Metals 6020[5] App. IX Dissolved Metals 6020[5]
	GM-33 through GM-38	18[3]		WPSA-BH08 through WPSA-BH19	12	
August 2002, November 2002, and March 2003	WPSA-BH21	2[2]	Antimony	Well Pairs GM-33/GM-34 GM-35/GM-36 GM-37/GM-38	6	App. IX VOC 8260B and cis-1,2-DCE App. IX SVOC 8270C App. IX PCB 8082 App. IX Total Metals 6020[5] App. IX Dissolved Metals 6020[5]
	WPSA-BH22	2[3]	Aroclor-1254			
	WPSA-BH23	2	TCL VOC 5035/8260B and Aroclor- 1254			
	WPSA-BH24	2	TCL VOC 5035/8260B and Barium[5]			
	WPSA-BH25 and WPSA-BH26	3[4]	TCL VOC 5035/8260B, Cadmium and Chromium[5]			
	WPSA-BH27 and WPSA-BH28	3[4]	TCL VOC 5035/8260B			
	WPSA-BH29 and WPSA-BH30	3[4]	TCL VOC 5035/8260B and Arsenic[5]			
	WPSA-BH31 and WPSA-BH32	3[4]	TCL VOC 5035/8260B, TCL SVOC 8270C, Lead and Zinc[5]	RW-10 and RW-11	2	App. IX VOC 8260B and cis-1,2-DCE App. IX SVOC 8270C App. IX PCB 8082
	WPSA-BH33	3[4]	TCL VOC 5035/8260B, TCL SVOC 8270C			
	WPSA-BH34	3[4]	TCL VOC 5035/8260B and Silver[5]			
October 2003	WPSA-BH35	3	Arsenic			
	WPSA-BH36	3	SVOCs			
	WPSA-BH37	3	Copper and Iron			

Table 1. Summary of Waste Pile/Staging Area Investigation, General Motors Corporation, Moraine, Ohio.

[1]QA/QC samples were collected per the following: 1 per 10 for duplicates and blanks; 1 per cooler for trip blanks; 1 per 20 for MS/MSD.
[2]Samples were collected at depths of 0-2 feet, 8-10 feet (interval selected based on field screening), and above the water table.
A fourth sample may have been collected from each boring based on field screening.
[3]Samples were collected at depths of 0-2 feet and above the water table. A third sample may have been collected from each boring based on field screening.
[4]Method numbers included 6010B for antimony, barium, beryllium, cadium, chromium, cobalt, manganese, nickel, silver, vanadium and zinc;
Method 7060A for arsenic; Method 7421 for lead; Method 7471A for mercury; Method 7740 for selenium; Method 7841 for thallium.
List excludes aluminium, calcium, iron, magnesium, potassium, and sodium.
[5]Appendix IX metals were analyzed using Method 6020, including Method 7470A for mercury; Method 7741A for selenium; Method 6010A for tin; and Method 200.8 for vanadium.
WPSA - Waste Pile/Staging Area.
VOC - Volatile Organic Compound.
SVOC - Semi-volatile Organic Compound.
SWMU - Solid Waste Management Unit.
PCB - Polychlorinated Biphenyl.
TCL - Target Compound List.
TAL - Target Analyte List.
cis-1,2-DCE - cis-1,2-Dichloroethene.
Method - SW-846.
QA/QC - Quality Assurance/Quality Control.
MS - Matrix Spike.
MSD - Matrix Spike Duplicate.

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Table 2. Soil Analytical Results, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Constituents	Units	WPSA-BH08 4/12/2001 (0-2)	(2-4)	(24-26)	(26-28)	WPSA-BH09 4/17/2001 (0-2)	(2-4)	DUP-100	(24-26)	WPSA-BH10 4/17/2001 (0-2)	(2-4)	4/18/2001 (16-18)	(26-28)	WPSA-BH11 4/16/01 (0-2)	(2-4)	4/17/01 (8-10)	4/20/01 (16-18)	(26-28)	WPSA-BH12 4/18/01 (0-2)	(8-10)	(26-28)	DUP-101	WPSA-BH13 4/12/2001 (0-2)	(4-6)	(22-24)	(24-26)	WPSA-BH14 4/19/2001 (10-12)	(24-26)
Volatile Organic Compounds																												
Acetone	ug/kg	<5.6J	<881	<106J	<104J	<903	239	318	<185	416	636	<104	<890	<104J	<1170	<1180	<887	<105J	<167	<106	<104	<103	<932	<145J	<104J	<105J	<111	<105
Benzene	ug/kg	<5.6J	91.8	<5.3J	<5.2J	<45.0	<5.90	<5.7	<9.3	7.80	<5.9	<5.2	<44.0	<5.2	60.2	<59.0	<44.0	<5.3	9.10	<5.3	<5.2	<5.2	118	26.7J	<5.2J	<5.2J	<5.5	<5.2
Chloroethane	ug/kg	<11.2J	<88.0	<10.6J	<10.4J	<90.0	29.9J	73.3J	<18.5	409	113	38.4J	<89.0	<10.4	<120	<120	<89.0	49.1	4290	<10.6	<10.4J	<10.3J	1730	3240	<10.4J	<10.5J	<11.1	<10.5
1,1-Dichloroethane	ug/kg	<5.6J	50.8	30.9J	21.4J	5450	1510J	3770J	46.5	1510	576	33.6J	<44.0	2540	36400	10700	7400	57.3	6330	44.1J	12.1J	25.3J	5120	14600	<5.2J	5.80J	<5.5	<5.2
1,1-Dichloroethene	ug/kg	<5.6J	<44.0	<5.3J	<5.2J	<45.0	9.90	<5.7	<9.3	19.3	9.40	<5.2	<44.0	<5.2	<58.0	<59.0	<44.0	<5.3	15.9	<5.3	<5.2	<5.2	<47.0	<7.2J	<5.2J	<5.2J	<5.5	<5.2
cis-1,2-Dichloroethene	ug/kg	<5.6J	201	95.7J	6.10J	2540	107J	812J	10.0	2680	548	<5.2	<44.0	5610	72800	20600	21300	<5.3	18000	6.80J	<5.0	6.50	1340	87.3J	<5.2J	<5.2J	<5.5	<5.2
trans-1,2-Dichloroethene	ug/kg	<5.6J	<44.0	<5.3J	<5.2J	91.2	12.3J	21.2J	<9.3	7.80	<5.9	<5.2	<44.0	9.80J	900	202	120	<5.3	64.0	<5.3	<5.2	<5.2	615	15.6J	<5.2J	<5.2J	<5.5	<5.2
Ethylbenzene	ug/kg	<5.6J	47.0	<4.3J	<5.2J	<45.0	6.60J	20.7J	<9.3	18.9	23.6	73.1J	175	14.2J	107000	5990	8800	1270	2040	<5.3	<5.2	<5.2	19000	12100	<5.2J	<5.2J	<5.5	<5.2
4-Methyl-2-pentanone	ug/kg	<55.9J	<440	<52.9J	<52.2J	<452	<58.7	<56.6	<92.5	<58.8	<58.8	<52.2	<445	<52.0J	<584	<588	<444	<52.6	<83.4	<52.8	<52.0	<51.5	<466	<72.3J	<51.8J	<52.4J	<55.4	<52.3
Methylene Chloride	ug/kg	<11.2J	<88.0	<10.6J	<10.4J	<90.0	<11.7	<11.3	24.2	<11.8	17.9	<10.4J	<89.0	<10.4J	627	567	<89.0	<10.5J	60.4	<10.6J	<10.4	<10.3	<93.0	31.8J	<10.4J	<10.5J	<11.1J	<10.5J
Styrene	ug/kg	<5.6J	<44.0	<5.3J	<5.2J	<45.0	<5.9	<5.7	<9.3	<5.9	<5.9	<5.2	<44.0	<5.2J	<58.0	59.0	<44.0	<5.3	<8.3	<5.3	<5.2	<5.2	<47.0	<7.2J	<5.2J	<5.2J	<5.5	<5.2
Tetrachloroethene	ug/kg	138J	1360	20.5J	18.4J	477	22.3J	49.4J	18.8	11.0	9.60	38.0J	<44.0	2530	2370	534	204	<5.3J	12200	6.40J	20.0J	48.7J	<47.0	<7.2J	8.20J	5.40J	8.10	9.0
Toluene	ug/kg	<5.6J	48.2	<5.3J	<5.2J	82.9	14.2J	48.4J	<9.3	38.4	24.8	84.2J	106	50.7J	28600	5010	4690	79.5	105	<5.3	<5.2	<5.2	9310	11200	<5.2J	<5.2J	<5.5	<5.2
1,1,1-Trichloroethane	ug/kg	<5.6J	<44.0	25.4J	19.3J	77.4	30.9J	146J	<9.3	<5.9	<5.9	11.0J	<44.0	<5.2J	2210	13100	23200	5.90	<8.3	<5.3	<5.2	<5.2	<47.0	<7.2J	<5.2J	<5.2J	<5.5	<5.2
Trichloroethene	ug/kg	37.6J	4450	17.5J	16.4J	414	10.0J	33.0J	<9.3	64.4	38.5	<5.2	<44.0	51.6J	6110	2020	315	<5.3	17600	8.80J	8.70	16.6	111	7.50J	<5.2J	<5.2J	<5.5	<5.2
Vinyl Chloride	ug/kg	<2.2J	<18.0	<2.1J	<2.1J	1450	709J	1140J	<3.7	339	32.0	<2.1	<18.0	<2.1J	371	108	323	<2.1	232	<2.1	<2.1	<2.1	346	87.4J	<2.1J	<2.1J	<2.2	<2.1
Xylenes	ug/kg	6.0J	296	<5.3J	<5.2J	<45.0	<5.9	<5.7	<9.3	<5.9	<5.9	33.0J	<44.0	8.10J	5340	398	517	30.5	27.5	<5.3	<5.2	<5.2	77900	48000	<5.2J	<5.2J	<5.5	<5.2
Semi-Volatile Organic Compounds																												
Acenaphthene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340	1320J	1170J	<342	<346	<365	<437
Anthracene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ	<344	<350UJ	<686	<78700UJ	6230J	835J	484J	<759	<348	<343	<340	2400J	1370J	<342	<346	<365UJ	<437
Benzo (a) anthracene	ug/kg	<369UJ	<6920UJ	<349	<344	<710	<387UJ	<374UJ	<343	<69300UJ	<388UJ	<344UJ	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	<759	<348	<343	<340	4200J	2280J	<342	<346	<365UJ	<437
Benzo (b) fluoranthene	ug/kg	<369UJ	<69200UJ	<349	<344	<710UJ	<387UJ	<374UJ	<343UJ	<69300UJ	<3880UJ	<344UJ	R	<686UJ	<78700UJ	<924	R	R	1610J	<348	<343	<340	4960J	2990J	<342	<346	<365UJ	<437
Benzo (k) fluoranthene	ug/kg	<369UJ	<69200UJ	<349	<344	<710UJ	<387UJ	<374UJ	<343UJ	<69300UJ	<3880UJ	<344UJ	R	<686UJ	<78700UJ	<924	R	R	807	<348	<343UJ	<340	1190J	925J	<342	<346	<365UJ	<437
Benzo (g,h,i) perylene	ug/kg	<369UJ	21300J	<349	<344	<710UJ	<387UJ	<374UJ	<343UJ	<69300UJ	<3880UJ	<344UJ	R	<686UJ	<78700UJ	<924	R	R	<759	<348	<343UJ	<340	1540J	675J	<342	<346	<365UJ	<437
Benzo (a) pyrene	ug/kg	<185UJ	11900J	<175	<172	431J	<194UJ	<187UJ	<172UJ	<69300UJ	<1880UJ	<172UJ	R	<343UJ	<39300UJ	<462	R	R	567J	<174	<172	<170	2950J	<238UJ	208J	<173	<183UJ	<219UJ
Bis (2-ethylhexyl) phthalate	ug/kg	487J	<6920UJ	<349	<344	<710	<387UJ	<374UJ	<343	8550J	<388UJ	<344UJ	<350UJ	<686	<78700UJ	<924	399J	<347UJ	<759	<348	<343	<340	<366UJ	<477	<342	<346	<365UJ	<437
Carbazole	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ	<344	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	<759	<348	<343	<340	700J	608J	<342	<346	<365UJ	<437
Chrysene	ug/kg	<369UJ	<6920UJ	<349	<344	<710	<387UJ	<374UJ	<343	<69300UJ	<388UJ	<344UJ	<350UJ	<686	<78700UJ	<924	584J	<347UJ	961	<348	<343	<340	4560J	2380J	<342	<346	<365UJ	<437
Dibenzo (a,h) anthracene	ug/kg	<185UJ	<34600UJ	<175	<172	<355UJ	<194UJ	<187UJ	<172UJ	<34600UJ	<1880UJ	<172UJ	R	<343UJ	<39300UJ	<462	R	R	<380UJ	<174	<172UJ	<170	795J	<238UJ	<171	<173	<365UJ	<437
Dibenzofuran	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340	2240J	1000J	<342	<346	<365	<437
o-Dichlorobenzene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388	<344	<350	<686	12800J	1360	444J	<347	<759	<348	<343	<340	<366	<477	<342	<346	<365	<437
Di-n-octyl phthalate	ug/kg	<369UJ	<69200UJ	<349	<344	<710UJ	<387	<374	<343	<69300UJ	<3880UJ	<344UJ	R	<686UJ	<78700UJ	<924	R	R	<759UJ	<348	<343UJ	<340	<366UJ	<477UJ	<342	<346	<365UJ	<437UJ
Fluoranthene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ	<344	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	1,240	<348	<343	<340	9990J	6160J	559J	<346	<365UJ	<437
Fluorene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388	<344	<350	<686	<78700UJ	<924	465J	345J	<759	<348	<343	<340	1510J	1030J	<342	<346	<365	<437
Indeno (1,2,3-cd) pyrene	ug/kg	<369UJ	<69200UJ	<349	<344	<710UJ	<387UJ	<374UJ	<343UJ	<69300UJ	<3880UJ	<344UJ	<350	<686UJ	<78700UJ	<924	R	R	<759UJ	<348	<343UJ	<340	1190J	529J	<342	<346	<365UJ	<437UJ
2-Methylnaphthalene	ug/kg	522	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388	<344	<350	<686	11500J	1610	869J	<347	<759	<348	<343	<340	2340J	1,840	<342	<346	<365	<437
Naphthalene	ug/kg	404	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340	8700J	3380J	<342	<346	<365	<437
N-Nitrosodiphenylamine	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388	<344	<350	<686	<78700UJ	<924	355J	<347	<759	<348	<343	<340	<340	<477	<342	<346	<365	<437
Phenanthrene	ug/kg	<369	<6920UJ	<349	<344	<710	602	906J	<343	<69300UJ	787J	1030J	701J	<686	<78700UJ	<924	2980J	1770J	808	<348	<343	<340	20500J	7950J	534J	<346	<365UJ	<437
Pyrene	ug/kg	<369UJ	53600J	<349	<344	3,950	<387UJ	<374UJ	<343	<69300UJ	<388UJ	<344UJ	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	1,930	<348	<343	<340	13700J	6560J	464J	<346	<365UJ	<437
meta & para-Methylphenol	ug/kg	<369	<6920UJ	<349	<344	<710	439	<374	<343	<69300UJ	435J	<344	<350	<6860UJ	<78700UJ	<924	<348	<347	<759	<348	<343	<340	<340	617J	<342	<346	<365	453J
Polychlorinated Biphenyls																												
Aroclor 1254	mg/kg	<0.56	<0.52	<0.53	<0.52	<5.4J	<0.59	<0.57	<0.52	<0.52J	<0.59	<0.52	<0.53	2.93J	10.9J	1.72J	<1.1J	1.06	<0.58	<0.53	<0.52	<0.52	<0.55	<0.72	<0.52	<0.52	<0.55	<0.52
Metals																												
Antimony	mg/kg	<7.40	<6.80	<10.0	<10.0	86.7	<7.60	7.80	<10.0	7740	241	17.2	21.0	<14.0	50.8	9020	64.8	56.5	47.8	<6.80	<14.0	<13.0	<344	223	<10.0	<10.0	22.8	<14.0
Arsenic	mg/kg	6.78	3.13	2.08	3.30	3.05	2.05	7.54J	3.17	1.52	6.49	3.73	5.13	2.94	4.70	1.62	2.58	3.28	138	11.6	4.68	4.25	17.1	2.02	2.33	3.16	6.88	4.62
Barium	mg/kg	183	86.2	13.4	11.6	32.5	79.0	60.7	12.3	127	44.5	9.65	16.0	46.9	173	100	12.4	21.2	1200	32.8	44.4J	25.7J	1840	2070	63.1	20.3	151	28.2
Beryllium	mg/kg	1.20	<0.300	<0.500	<0.500	<0.300	0.600	0.600	<0.500	0.700	0.500	<0.700	<0.700	<0.600	1.00	<0.460	<0.350	<0.800	1.33	<0.300	<0.700	<0.700	<22.0	<0.400	<0.500	<0.500	<0.350	<0.70
Cadmium	mg/kg	<2.20	<2.00	<3.10	<3.00	<2.20	<2.20	<2.30	<3.10	<2.90	<2.40	<4.10	<4.20	<4.10	<2.40	<2.80	<2.07	<5.20	20.4	<2.00	<4.20	<4.10	<100	35.7	<3.10	<3.00	<2.16	<4.10
Chromium	mg/kg	13.9	8.20	4.80	<4.10	6.10	11.0	10.0	<4.20	19.0	8.90	<5.40	6.90	<5.40	44.1	23.1	5.50	<6.90	47.5	<348	<5.50	<5.50	<144	217	29.6	6.20	21.6	5.40
Cobalt	mg/kg	3.00	2.20	<2.00	<2.00	3.10	7.70	6.80	<2.10	2.50	7.30	<2.70	3.00	<2.70	3.30	3.20	3.40	<3.50	35.2	3.20	<2.70	<2.70	178	63.7	2.40	2.10	15.5	3.20
Copper	mg/kg	34.6	126	8.80	6.20	28.4	14.8	18.2	6.00	37.4	31.0	7.90	9.30	8.50	237	275	12.8	7.50	4990	43.0	15.9	11.0	2050	16600	473	13.8	293	26.2
Lead	mg/kg	45.0	947	19.4	22.7	16.0J	13.6J	12.5J	5.15	0.222J	13.7J	4.29	4.51	32.2	55.1	69.3J	4.76	6.93	325	17.0	7.87	6.80	391	3920	40.9	7.08	40.2	11.5
Manganese	mg/kg	157	215	176	217	518	250	309	252	204	376	213	285	213	55.0	203	260	399	549	216	167	165	910	863	164	226	358	189
Mercury	mg/kg	0.292	0.730	0.011	<0.010	0.035	0.038	0.039	0.012	8.48	0.165	0.011	0.010	<0.010	0.180	3.00	0.088	0.013	0.333	0.051	0.012	0.010	0.142	0.818	0.051	0.017	0.032	<0.007
Nickel	mg/kg	9.26	26.9	5.00	4.90	33.2	14.6	15.7	4.50	8.60	18.0	5.90	9.30	3.70	17.8	26.5	10.8	5.55	175	7.81	5.10	5.10	289	426	14.0	5.90	26.1	7.10
Selenium	mg/kg	<0.183UJ	<0.174UJ	<0.171UJ	<0.170UJ	<0.506	<0.567	<0.537	<0.170	<0.507	<0.557	<0.172	<0.172	<0.170	<0.197	<0.672	<0.173	<0.173	<0.184	<0.171	<0.172	<0.170	<0.180UJ	<0.231UJ	<0.170UJ	<0.170UJ	<0.184	<0.170
Silver	mg/kg	<3.00	<2.70	<4.00	<4.10	<2.90	<3.10	<2.90	<4.20	<4.00	<3.10	<5.40	<5.60	<5.40	<3.10	<3.60	<2.77	<6.90	<7.30	<2.70	<5.50	<5.50	<144	19.1	<4.10	<4.10	<2.88	<5.40
Thallium	mg/kg	<0.367	<0.348	<0.347	<0.327	<0.338UJ	<0.379UJ	<0.359UJ	<0.337	<0.338UJ	<0.373UJ	<0.343	0.595	<0.341	<0.393	<0.448UJ	<0.345	<0.346	2.08	0.431	0.378	0.411	<0.361	<0.464	<0.341	0.422J	<0.367	0.442
Vanadium	mg/kg	9.60	9.10	5.50	<5.10	11.7	22.5	18.9	<5.20	<4.90	15.7	<6.80	<7.00	<6.80	6.70	19.9	6.20	<8.60	12.9	7.34	<6.90	<6.80	<178	14.0	<5.20	5.90	7.55	7.00
Zinc	mg/kg	72.3	295	24.1	29.1	44.1	48.5	54.4	20.0	143	56.1	17.4	21.5	19.8	290	112	35.5	28.4	2430	52.1	39.3J	25.7J	1690	24400	182	34.7	419	39.5

mg/kg - milligrams per kilogram.
ug/kg - micrograms per kilogram.
DUP-97 - Duplicate of GM-36(28-30)SL.
DUP-98 - Duplicate of WPSA-BH17(0-2)SL.
DUP-99 - Duplicate of WPSA-BH15(2-4)SL.
DUP-100 - Duplicate of WPSA-BH09(2-4)SL.
DUP-101 - Duplicate of WPSA-BH12(26-28)SL.
DUP-103 - Duplicate of WPSA-BH15(26-28)SL.
NA - Not Analyzed.
R - Value was rejected.
J - Value was estimated.
UJ - Constituent was not detected. Detection limit was estimated.
Soil results, including QA/QC samples, are presented in Appendix A.

ARCADIS

Table 2. Soil Analytical Results, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Constituents	Units	WPSA-BH15 4/12/01 (0-2)	WPSA-BH15 4/12/01 (2-4)	WPSA-BH15 4/16/01 DUP-99	WPSA-BH15 4/16/01 (8-10)	WPSA-BH15 4/16/01 (10-12)	WPSA-BH15 4/20/01 (26-28)	WPSA-BH15 4/20/01 DUP-103	WPSA-BH15A 5/1/01 (4-6)	WPSA-BH15B 5/1/01 (4-6)	WPSA-BH16 4/11/2001 (0-2)	WPSA-BH16 4/11/2001 (2-4)	WPSA-BH16 4/11/2001 (26-28)	WPSA-BH17 4/10/2001 (0-2)	WPSA-BH17 4/10/2001 DUP-98	WPSA-BH17 4/10/2001 (4-6)	WPSA-BH17 4/11/2001 (28-30)	WPSA-BH18 4/18/2001 (0-2)	WPSA-BH18 4/18/2001 (2-4)	WPSA-BH18 4/18/2001 (26-28)	WPSA-BH19 4/19/01 (0-2)	WPSA-BH19 4/19/01 (6-8)	WPSA-BH19 4/19/01 (26-28)	GM-33 4/2/2001 (0-2)	GM-33 4/2/2001 (12-14)	GM-33 4/2/2001 (26-28)
Volatile Organic Compounds																										
Acetone	ug/kg	600	1390	2430	453	<111	<110	<104	NA	NA	6390	5960	<105J	<101	<106J	<111J	<113	<106	<129	<103	<1610	<122	<106	<113J	<104J	<104J
Benzene	ug/kg	11.0J	17.5J	16.2J	24.0	<5.6	<5.5	<5.2	NA	NA	20.0J	<6.6	<5.2	<5J	<5.3J	<5.6	<5.7	<5.3	<6.4	<5.2	<80	<6.1	<5.3	<5.7	<5.2	<5.2
Chloroethane	ug/kg	<13.2J	<12.6J	<13.0J	<12.2	<11.1	<11.0	<10.4	NA	NA	<12.3J	<13.2	<10.5	<10.1J	<10.6J	<11.1	<11.3	<10.6J	<12.9	<10.3J	<161	<12.2	<10.6	<11.3	<10.4	<10.4
1,1-Dichloroethane	ug/kg	<6.6J	6.40J	6.8J	<6.1	<5.6	<5.5	<5.2	NA	NA	51.4J	11.0	<5.2	<5J	<5.3J	<5.6	16.9	<5.3	<6.4	<5.2	120	17.7	<5.3	<5.7	9.8	<5.2
1,1-Dichloroethene	ug/kg	<6.6J	<6.3J	<6.5J	<6.1	<5.6	<5.5	<5.2	NA	NA	<6.1J	<6.6	<5.2	<5J	<5.3J	<5.6	<5.7	<5.3	<6.4	<5.2	<80	<6.1	<5.3	<5.7	<5.2	<5.2
cis-1,2-Dichloroethene	ug/kg	88.2J	81.8J	85.1J	119	<5.6	<5.5	<5.2	NA	NA	<6.1	<6.6	<5.2	<5J	<5.3J	<5.6	<5.7	19.2	<6.4	<5.2	212	<6.1	<5.3	<5.7	<5.2	<5.2
trans-1,2-Dichloroethene	ug/kg	<6.6J	<6.3J	<6.5J	<6.1	<5.6	<5.5	<5.2	NA	NA	<6.1	<6.6	<5.2	<5J	<5.3J	<5.6	<5.7	<5.3	<6.4	<5.2	<80	<6.1	<5.3	<5.7	<5.2	<5.2
Ethylbenzene	ug/kg	6.40J	<6.3J	<6.5J	13.6	<5.6	<5.5	<5.2	NA	NA	11.0J	<6.6	<5.2	<5J	<5.3J	<5.6	<5.7	<5.3	<6.4	<5.2	<80	<6.1	<5.3	<5.7	880	<5.2
4-Methyl-2-pentanone	ug/kg	<66.2J	<63.1J	<64.9J	<60.9	<55.7	<55.1	<52.2	NA	NA	<61.4	<65.8	<52.5	<50.3J	<52.9J	<55.7	<56.6	<52.8	<64.3	<51.5	6820	<61	<53.2	<56.7	<51.8	<51.8
Methylene Chloride	ug/kg	<13.2J	<12.6J	<13J	<12.2J	<11.1J	<11.0J	<10.4J	NA	NA	<12.3J	<13.2J	<10.5J	<10.1J	<10.6J	<11.1J	<11.3J	<10.6	<12.9	<10.3	<161	<12.2J	<10.6J	<11.3	<10.4	<10.4
Styrene	ug/kg	<6.6J	<6.3J	<6.5J	<6.1	<5.6	<5.5	<5.2	NA	NA	<6.1	<6.6	<5.2	<5J	<5.3J	<5.6	<5.7	<5.3	<6.4	<5.2	<80	<6.1	<5.3	<5.7	<5.2	<5.2
Tetrachloroethene	ug/kg	20.4J	17.8J	10.0J	164	10.0	14.6	13.8	NA	NA	<6.1	<6.6	53.4	<5J	8.2J	<5.6	36.2	8.8	<6.4	23.7	118	<6.1	<5.3	<5.7	7.3	<5.2
Toluene	ug/kg	16.4J	84.0J	87.5J	5210	6.6	<5.5	<5.2	NA	NA	28.7J	11.0	<5.2	<5J	<5.3	<5.6	<5.7	<5.3	<6.4	<5.2	85.0	<6.1	8.3	<5.7	36.6	<5.2
1,1,1-Trichloroethane	ug/kg	<6.6J	<6.3J	<6.5J	<6.1	<5.6	<5.5	<5.2	NA	NA	<6.1	<6.6	<5.2	<5J	<5.3	<5.6	<5.7	<5.3	<6.4	<5.2	<80	<6.1	<5.3	<5.7	<5.2	<5.2
Trichloroethene	ug/kg	<6.6J	<6.3J	<6.5J	<6.1	5.8	<5.5	<5.2	NA	NA	<6.1	<6.6	11.3	<5J	<5.3	<5.6	14.9	<5.3	<6.4	6.5	148	<6.1	<5.3	<5.7	<5.2	<5.2
Vinyl Chloride	ug/kg	10.0J	21.4J	20.5J	20.0	<2.2	<2.2	<2.1	NA	NA	<2.5	<2.6	<2.1	<2J	<2.1	<2.2	<2.3	<2.1	<2.6	<2.1	<33	<2.4	<2.1	<2.3	<2.1	<2.1
Xylenes	ug/kg	51.3J	31.5J	24.4J	81.5	<5.6	<5.5	<5.2	NA	NA	71.4J	29.2	<5.2	<5J	<5.3	<5.6	<5.7	<5.3	<6.4	<5.2	237	<6.1	<5.3	<5.7	27.8	<5.2
Semi-Volatile Organic Compounds																										
Acenaphthene	ug/kg	<437	<416	<429	<402	<367UJ	<363	<345	<404UJ	<411UJ	421	<434	<346	<346	<349	<367	<373	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Anthracene	ug/kg	<437	<416	<429	<402	<367UJ	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373	<348	<424	<340	<1800UJ	<402	<351	502	474J	<342
Benzo (a) anthracene	ug/kg	<437	<416UJ	<429UJ	<402UJ	<367UJ	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<346UJ	<349UJ	<367UJ	<373	<348UJ	<424	<340	4,820J	<402	<351	1,850	<3420UJ	<342
Benzo (b) fluoranthene	ug/kg	<437UJ	709J	<429UJ	<402UJ	<367UJ	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<3460UJ	<3490UJ	<3670UJ	<373	<348UJ	<424	<340	11,300J	<402	<351	3240J	<3420UJ	<342UJ
Benzo (k) fluoranthene	ug/kg	<437UJ	<416UJ	<429UJ	<402UJ	<367UJ	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<3460UJ	<3490UJ	<3670UJ	<373	<348UJ	<424	<340	4,220J	<402	<351	593J	<3420UJ	<342UJ
Benzo (g,h,i) perylene	ug/kg	<437UJ	<416UJ	<429UJ	<402UJ	<367UJ	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<3460UJ	<3490UJ	<3670UJ	<373	<348UJ	<424	<340	5,880J	<402	<351	423J	<3420UJ	<342UJ
Benzo (a) pyrene	ug/kg	<219UJ	212J	<2080UJ	<201UJ	<184UJ	<182	<172	<202UJ	<205UJ	<203UJ	<217UJ	<173	<1680UJ	<1690UJ	<1780UJ	<187	<174UJ	<212	<170	R	<402	<176	1520J	<1660UJ	<171UJ
Bis (2-ethylhexyl) phthalate	ug/kg	<437	643J	806J	<402UJ	<367UJ	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<346UJ	<349UJ	<367UJ	<373	<348UJ	<424	<340	R	<402	<351	<374	1530J	458J
Carbazole	ug/kg	<437	<416	<429	<402	<367UJ	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373	<348	<424	<340	<1800UJ	<402	<351	407	<342UJ	<342
Chrysene	ug/kg	<437	419J	<429UJ	<402UJ	<367UJ	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<346UJ	<349UJ	<367UJ	<373	<348UJ	<424	<340	10,700J	<402	<351	1,710	428J	<342UJ
Dibenzo (a,h) anthracene	ug/kg	<219UJ	<208UJ	<2080UJ	<201UJ	<184UJ	<182	<172	<202UJ	<205UJ	<203UJ	<217UJ	<173	<346	<1690UJ	<1780UJ	<373	<174UJ	<212	<170	R	<402	<176	<187UJ	<1660UJ	<342
Dibenzofuran	ug/kg	<437	<416	<429	<402	<367UJ	<363	<345	<404UJ	<411UJ	1,300	<434	<346	<1680UJ	<349	<367	<373	<348	<424	<340	3,030J	<402	<351	<374	<342	<342
o-Dichlorobenzene	ug/kg	<437	<416	<429	<402	<367UJ	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373	<348	<424	<340	<1800UJ	<402	<351	<374	906	<342
Di-n-octyl phthalate	ug/kg	<437	<416UJ	<4290UJ	<402UJ	<367UJ	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<3460UJ	<3490UJ	<3670UJ	<373	<348UJ	<424	<340	R	<402	<351	<374UJ	<3420UJ	<342UJ
Fluoranthene	ug/kg	<437	<416	<429	<402	<367UJ	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373	<348	<424	<340	4,610J	<402	<351	4500J	<342UJ	<342
Fluorene	ug/kg	<437	<416	<429	<402	<367UJ	<363	<345	<404UJ	<411UJ	575	<434	<346	<346	<349	<367	<373	<348	<424	<340	<1800UJ	<402	<351	<374	419	<342
Indeno (1,2,3-cd) pyrene	ug/kg	<437UJ	<416UJ	<4290UJ	<402UJ	<367UJ	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<3460UJ	<3490UJ	<3670UJ	<373	<348UJ	<424	<340	6,100J	<402	<351	440J	<3420UJ	<342UJ
2-Methylnaphthalene	ug/kg	<437	<416	<429	<402	<367UJ	<363	<345	<404UJ	<411UJ	1,340	<434	<346	<346	<349	<367	<373	<348	<424	<340	6,650J	<402	<351	435	818	<342
Naphthalene	ug/kg	<437	869J	581J	<402	<367UJ	<363	<345	<404UJ	<411UJ	877	<434	<346	<346	<349	<367	<373	<348	<424	<340	4,900J	<402	<351	398	<342	<342
N-Nitrosodiphenylamine	ug/kg	<437	<416	<429	<402	<367UJ	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Phenanthrene	ug/kg	<437	628J	<429	<402	<367UJ	<363	<345	<404UJ	<411UJ	1,180	1,160	<346	<346	<349	<367	<373	<348	<424	<340	9,400J	<402	<351	2,650	1980J	<342
Pyrene	ug/kg	<437	1,440J	797J	518J	<367UJ	<363	<345	<404UJ	<411UJ	<405UJ	709J	<346	<346UJ	<349UJ	<367UJ	<373	<348UJ	<424	<340	18,000J	<402	<351	3870J	<342UJ	<342UJ
meta & para-Methylphenol	ug/kg	453J	827	526	<402	<367UJ	<363	<345	<404UJ	<411UJ	2,690	<434	<346	<346	<349	<367	<373	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Polychlorinated Biphenyls																										
Aroclor 1254	mg/kg	<0.66	<0.63	<0.65	<0.61	<0.56	<0.55	<0.52	NA	NA	<0.61	<0.66	<0.52	0.81	<0.53	<0.56	<0.57	<0.53	<0.64	<0.52	71.0J	<0.61	<0.53	<0.57	<0.52	<0.52
Metals																										
Antimony	mg/kg	38.0	330	247	29.4	23.9	<14.0	<14.0	NA	NA	34.0	232	<6.80	<13.0	<14.0	22.0	<7.40	<14.0	<35.0	<9.90	26.1	<7.65	<17.0	6.50J	<6.70UJ	<13.0UJ
Arsenic	mg/kg	6.82	7.33	9.38	7.54	4.45	4.41J	1.26J	NA	NA	7.94	10.4	6.04	5.75J	5.20J	4.77J	5.90	6.42	16.5	4.37	14.8	7.12	4.40	6.24	5.58	4.99
Barium	mg/kg	497	2840	2250	804	331	13.3	13.6	NA	NA	1150	174	10.5	111J	106J	256J	11.0	40.3	279	11.9	188	95.6	228	145	9.10	10.0
Beryllium	mg/kg	<1.00	<1.00	<1.00	0.400	<0.300	<0.700	<0.600	NA	NA	<1.00	<4.00	<0.300	<0.600	<0.700	<0.800	<0.300	<0.700	<1.00	<0.500	0.940	0.570	<0.900	0.500	<0.300	<0.600
Cadmium	mg/kg	32.8	60.4	58.6	11.0	5.50	<4.20	<4.00	NA	NA	2080	<26.0	<2.00	<3.80	<4.10	8.20	<2.10	29.6	98.6	<3.00	4.00	<2.29	<5.10	<1.10	<2.00	<4.00
Chromium	mg/kg	123	106	79.1	41.4	18.6	<5.60	10.0	NA	NA	4890	3410	6.30	10.0J	15.6J	434J	4.30	21.5	4340	6.50	18.8	10.7	<6.80	13.5	3.20	<5.40
Cobalt	mg/kg	20.0	247	218	32.3	13.0	<2.90	2.70	NA	NA	43.5	55.0	1.50	4.80	5.00	9.10	<1.50	4.20	41.0	2.00	16.7	8.34	<3.40	11.7	2.00	<2.70
Copper	mg/kg	2210	2900	2860	766	375	10.2	9.20	NA	NA	34500	1470	23.1	57.0J	63.0J	720J	13.6	47.0	5720	11.3	260	11.9	6.80	55.1J	6.30J	4.60J
Lead	mg/kg	583	1790	2120	449	392	5.43	4.31	NA	NA	557	3810	10.6	26.8	27.6	2240	8.48	111	1360	5.30	309	19.8	5.86	55.8	4.53	9.35
Manganese	mg/kg	1590	1230	1310	463	331	229	243	NA	NA	974	2990	137	231	204	278	140	284	1580	215	117	254	283	518	284	284
Mercury	mg/kg	0.291	0.429J	0.630J	0.128	0.062	0.009	0.008	NA	NA	0.100	0.063	0.010	0.055J	0.072J	0.067J	0.010	0.039	0.093	<0.008	<0.010	0.021	0.011	0.078	<0.010	<0.010
Nickel	mg/kg	328	492	381	83.4	34.5	5.50	7.50	NA	NA	869	1910	4.20	11.0J	14.0J	312J	4.30	41.6	1360	5.63	45.3	11.7	3.90	26.0J	6.00J	3.60J
Selenium	mg/kg	<0.209UJ	<0.204UJ	<0.213UJ	<0.195	<0.185	<0.174	<0.173	NA	NA	0.822	<0.213	<0.676	<0.635UJ	<0.698UJ	<0.176UJ	<0.369	<0.173	<0.207	<0.170	0.448	0.322	<0.170	0.253	<0.684	<0.170
Silver	mg/kg	<8.50	8.80	<8.30	<3.30	<3.00	<5.60	<5.20	NA	NA	24.6	<34.0	<2.70	<5.00	<5.50	8.00	<2.90	<5.60	<14.0	<3.90	<3.55	<3.06	<6.80	<1.50	<2.70	<5.40
Thallium	mg/kg	<0.417	<0.409	<0.427	<0.390	<0.370	0.491	<0.347	NA	NA	<0.403	<0.425	<0.337	<0.318	<0.370	<0.353	<0.369	0.498	<0.415	<0.328	0.754	<0.404	<0.335	<0.361	<0.342	<0.340
Vanadium	mg/kg	26.0	11.0	<10.0	12.0	7.10	<7.00	7.60	NA	NA	69.3	<43.0	4.30	<6.30	7.60	<7.30	4.30	<7.10	175	5.03	8.22	19.8	<8.50	16.9	5.60	<6.70
Zinc	mg/kg	9210	10900	9260	1660	1160	20.7	20.8	NA	NA	1830	387	17.4	96.4J	114J	178J	23.2	63.3	1200	24.6	467	36.0	19.0	214	16.7	14.1

mg/kg - milligrams per kilogram.
ug/kg - micrograms per kilogram.
DUP-97 - Duplicate of GM-36(28-30)SL.
DUP-98 - Duplicate of WPSA-BH17(0-2)SL.
DUP-99 - Duplicate of WPSA-BH15(2-4)SL.
DUP-100 - Duplicate of WPSA-BH09(2-4)SL.
DUP-101 - Duplicate of WPSA-BH12(26-28)SL.
DUP-103 - Duplicate of WPSA-BH15(26-28)SL.
NA - Not Analyzed.
R - Value was rejected.
J - Value was estimated.
UJ - Constituent was not detected. Detection limit was estimated.
Soil results, including QA/QC samples, are presented in Appendix A.

ARCADIS

Table 2. Soil Analytical Results, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Constituents	Units	GM-34 4/3/2001 (0-2)	GM-34 4/3/2001 (16-18)	GM-34 4/3/2001 (26-28)	GM-35 4/4/2001 (0-2)	GM-35 4/4/2001 (8-10)	GM-35 4/4/2001 (30-32)	GM-36 4/3/2001 (0-2)	GM-36 4/3/2001 (6-8)	GM-36 4/3/2001 (28-30)	GM-36 4/3/2001 DUP-97	GM-37 4/9/2001 (0-2)	GM-37 4/9/2001 (4-6)	GM-37 4/9/2001 (24-26)	GM-38 4/10/2001 (0-2)	GM-38 4/10/2001 (8-10)	GM-38 4/10/2001 (26-28)
Volatile Organic Compounds																	
Acetone	ug/kg	<113J	R	<103J	<104J	<118J	<109J	<104J	<116J	<105J	<106J	<116J	<123J	<128J	<103J	<116J	<104J
Benzene	ug/kg	<5.7	<44	<5.1	<5.2J	<5.9	<5.4	<5.2	<5.8	<5.3	<5.3	<5.8J	<6.2	<6.4	<5.2	<5.8	<5.2
Chloroethane	ug/kg	<11.3	<88	<10.3	<10.4J	<11.8	<10.9	<10.4	<11.6	<10.5	<10.6	<11.6	<12.3	<12.8	<10.3	<11.6	<10.4
1,1-Dichloroethane	ug/kg	<5.7	<44	<5.1	<5.2J	<5.9	<5.4	<5.2	<5.8	<5.3	<5.3	6.7J	<6.2	<6.4	<5.2	<5.8	<5.2
1,1-Dichloroethene	ug/kg	<5.7	<44	<5.1	<5.2J	<5.9	<5.4	<5.2	<5.8	<5.3	<5.3	<5.8	<6.2	<6.4	<5.2	<5.8	<5.2
cis-1,2-Dichloroethene	ug/kg	<5.7	<44	<5.1	<5.2J	55.4	<5.4	<5.2	14.6	<5.3	<5.3	<5.8	<6.2	<6.4	<5.2	<5.8	<5.2
trans-1,2-Dichloroethene	ug/kg	<5.7	<44	<5.1	<5.2J	11.0	<5.4	<5.2	<5.8	<5.3	<5.3	<5.8	<6.2	<6.4	<5.2	<5.8	<5.2
Ethylbenzene	ug/kg	<5.7	<44	<5.1J	<5.2J	<5.9	<5.4	<5.2	<5.8	<5.3	<5.3	7.4J	<6.2	<6.4	<5.2J	<5.8	<5.2
4-Methyl-2-pentanone	ug/kg	<56.7	<440	<51.3	<52J	<58.8	<54.3	<52.1	<57.8	<52.7	<53	<57.9J	<61.6	<64.2	<51.5	<58.1	<52.2
Methylene Chloride	ug/kg	<11.3	<220	<10.3	<10.4J	<11.8	<10.9	<10.4	<11.6	<10.5	<10.6	<11.6J	<12.3J	<12.8J	<10.3J	<11.6	<10.4
Styrene	ug/kg	<5.7	<44	<5.1J	<5.2J	<5.9	<5.4	<5.2	<5.8	<5.3	<5.3	<5.8J	<6.2	<6.4	<5.2J	<5.8	<5.2
Tetrachloroethene	ug/kg	<5.7	84.8	69.3J	<5.2J	<5.9	23.0	<5.2	67.7	73.4	76.7	6.4J	<6.2	13.1	<5.2J	<5.8	19.1
Toluene	ug/kg	<5.7	<44	<5.1	<5.2J	<5.9	<5.4	<5.2	<5.8	<5.3	<5.3	7.4J	<6.2	7.9	<5.2J	<5.8	<5.2
1,1,1-Trichloroethane	ug/kg	<5.7	<44	<5.1	<5.2J	<5.9	<5.4	<5.2	<5.8	<5.3	<5.3	<5.8J	<6.2	<6.4	<5.2	<5.8	<5.2
Trichloroethene	ug/kg	<5.7	<44	<5.1	<5.2J	<5.9	8.5	<5.2	20.9	14.8	16.2	<5.8J	<6.2	<6.4	<5.2	<5.8	<5.2
Vinyl Chloride	ug/kg	<2.3	<44	<2.1	<2.1J	<2.4	<2.2	<2.1	<2.3	<2.1	<2.1	<2.3	<2.5	<2.5	<2.1	<2.3	<2.1
Xylenes	ug/kg	<5.7	<44	<5.1J	<5.2J	<5.9	<5.4	<5.2	<5.8	<5.3	<5.3	34.1J	<6.2	9.6	<5.2J	<5.8	<5.2
Semi-Volatile Organic Compounds																	
Acenaphthene	ug/kg	<374	<346	<339	<343	1530J	<359	<344	434	<348	<350	<382UJ	<406	<335	<680	<383	<345
Anthracene	ug/kg	441J	<346UJ	<339	<343	2930J	<359	<344	834	<348	<350	<382UJ	<406	<335	<680UJ	<383UJ	<345
Benzo (a) anthracene	ug/kg	1940J	<346UJ	<339UJ	<343	11100J	<359	<344	2380J	<348	<350	465J	<406	<335	<6800UJ	<383UJ	<345
Benzo (b) fluoranthene	ug/kg	3300J	<346UJ	<339UJ	<343	17200J	<359	<344	5090J	<348	<350	1040J	<406	<335	<6800UJ	<383UJ	<345
Benzo (k) fluoranthene	ug/kg	<374UJ	<346UJ	<339UJ	<343	5390J	<359	<344	1060J	<348	<350	<3820UJ	<406	<335	<6800UJ	<383UJ	<345
Benzo (g,h,i) perylene	ug/kg	449J	<346UJ	<339UJ	<343	1690J	<359	<344	1360J	<348	<350	<3820UJ	<406	<335	<6800UJ	<383UJ	<345
Benzo (a) pyrene	ug/kg	1430J	<173UJ	<169UJ	<172	8930J	<179	<172	3840J	<174	<175	525J	<203	<168	<3400UJ	<192UJ	<172
Bis (2-ethylhexyl) phthalate	ug/kg	<374UJ	<346UJ	<339UJ	<343	388UJ	<359	<344	<367UJ	<348	<350	<3820UJ	<406	<335	1680J	<383UJ	<345
Carbazole	ug/kg	<374	<346	<339	<343	1,910	<359	<344	527	<348	<350	<382UJ	<406	<335	<680UJ	<383UJ	<345
Chrysene	ug/kg	1470J	<346UJ	<339UJ	<343	11300J	<359	<344	<367UJ	<348	<350	760J	<406	<335	<6800UJ	<383UJ	<345
Dibenzo (a,h) anthracene	ug/kg	<374	<173UJ	<169UJ	<172	840J	<179	<172	341J	<174	<175	<1850UJ	<203	<168	<3400UJ	<192UJ	<172
Dibenzofuran	ug/kg	<187UJ	<346	<339	<343	1,310	<359	<344	437	<348	<350	<382UJ	<406	<335	<680	<383	<345
o-Dichlorobenzene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350	<382	<406	<335	<680	<383	<345
Di-n-octyl phthalate	ug/kg	<374	<346UJ	<339	<343	<388UJ	<359	<344	<367UJ	<348	<350	<3820UJ	<406	<335	748J	<383UJ	<345
Fluoranthene	ug/kg	3,270	<346	<339	<343	21500J	<359	<344	5840J	<348	<350	454J	<406	<335	<680UJ	<383UJ	<345
Fluorene	ug/kg	<374	<346	<339	<343	2,090	<359	<344	389	<348	<350	<382UJ	<406	<335	<680	<383	<345
Indeno (1,2,3-cd) pyrene	ug/kg	467J	<346	<339UJ	<343	1850J	<359	<344	1200J	<348	<350	<3820UJ	<406	<335	<6800UJ	<383UJ	<345
2-Methylnaphthalene	ug/kg	<374	<346	<339	<343	495	<359	<344	404	<348	<350	<382	<406	<335	<680	<383	<345
Naphthalene	ug/kg	<374	<346	<339	<343	1,050	<359	<344	1,090	<348	<350	<382	<406	<335	<680	<383	<345
N-Nitrosodiphenylamine	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350	<382UJ	<406	<335	<680	<383	<345
Phenanthrene	ug/kg	2,340	<346	<339	<343	22800J	<359	<344	4360J	<348	<350	<382UJ	<406	<335	<680UJ	<383UJ	<345
Pyrene	ug/kg	3880J	<346UJ	<339UJ	<343	20700J	<359	<344	6210J	<348	<350	>3,300 *	<406	<335	2120J	<383UJ	<345
meta & para-Methylphenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350	<382	<406	<335	<680	<383	<345
Polychlorinated Biphenyls																	
Aroclor 1254	mg/kg	<0.57	<0.52	<0.51	<0.52	4.6J	<0.54	<0.52	<0.56	<0.53	<0.53	<0.58	<0.62	<0.51	<0.52	<0.58	<0.52
Metals																	
Antimony	mg/kg	<7.50	<6.90	<13.0	<17.0	16.1	<17.0	<14.0	27.7	<14.0	<7.00	35.0	62.0	<13.0	<6.80	33.0	<6.90
Arsenic	mg/kg	5.10	4.19	4.28	5.73	7.54	4.93	2.38	3.73	4.69	5.68	10.8	13.1	1.99	3.49J	11.0J	1.30J
Barium	mg/kg	84.7	8.00	13.8	4.30	966	18.7	4.80	596	11.0	15.3	613	1070	11.0	36.8J	520J	20.9J
Beryllium	mg/kg	0.500	<0.300	<0.700	<0.800	<38.6	<0.900	<0.700	<33.0	<0.700	<0.300	<0.900	<2.00	<0.700	<0.300	<0.800	<0.300
Cadmium	mg/kg	<2.30	<2.10	<4.00	<5.10	<2.40	<5.30	<4.10	<2.10	<4.20	<2.10	14.0	<12.0	<4.10	<2.10	9.30	<2.10
Chromium	mg/kg	9.20	3.70	<5.30	<6.80	66.9	<7.20	<5.50	45.4	<5.60	6.20	1160	2000	<5.40	13.4J	557J	8.30J
Cobalt	mg/kg	8.50	1.90	<2.70	<3.40	248	<3.60	<2.70	86.9	<2.80	2.00	28.4	53.3	<2.70	3.00	38.4	6.40
Copper	mg/kg	12.0	7.40	5.00	<3.40	1410	12.0	<2.70	210	5.50	6.90	3200	2040	7.70	39.7J	5260J	28.3J
Lead	mg/kg	22.7	3.47	4.29	4.46	488	6.99	2.08	150	4.32	4.33	929	1490	5.05	40.9	538	14.2
Manganese	mg/kg	876	182	195	126	553	228	116	187	216	186	920	1600	157	290	1240	177
Mercury	mg/kg	0.034	<0.010	0.015	0.011	2.58	<0.010	<0.010	0.301	<0.008	0.011	0.433J	0.034J	0.026J	0.027J	0.034J	<0.010
Nickel	mg/kg	11.0	5.30	5.00	<1.70	368	8.00	<1.40	119	6.70	5.00	1020	3350	4.20	14.8J	1630J	10.0J
Selenium	mg/kg	0.338	<0.338	<0.332	<0.339	<0.193	<0.352	<0.344	<0.044	<0.335	<0.349	0.423	0.608	<0.663	<0.660UJ	0.374J	<0.692UJ
Silver	mg/kg	<2.90	<2.70	<5.30	<6.80	31.9	<7.20	<5.50	82.6	<5.60	<2.80	24.4	<16.0	<5.40	<2.70	8.90	<2.80
Thallium	mg/kg	<0.359	<0.338	<0.332	<0.339	<0.385	<0.352	<0.344	<0.358	<0.335	<0.349	<0.378	<0.398	<0.331	<0.330	<0.377	<0.346
Vanadium	mg/kg	18.3	6.80	<6.80	<8.50	13.1	<8.90	<6.90	10.0	<7.00UJ	5.60J	18.9	<20.0	<6.80	6.10	15.0	12.3
Zinc	mg/kg	47.1	18.4	17.9	<8.50	4810	39.8	<6.90	7760	15.9	33.1	950	20600	22.9	54.5J	1460J	29.4J

mg/kg - milligrams per kilogram.
ug/kg - micrograms per kilogram.
DUP-97 - Duplicate of GM-36(28-30)SL.
DUP-98 - Duplicate of WPSA-BH17(0-2)SL.
DUP-99 - Duplicate of WPSA-BH15(2-4)SL.
DUP-100 - Duplicate of WPSA-BH09(2-4)SL.
DUP-101 - Duplicate of WPSA-BH12(26-28)SL.
DUP-103 - Duplicate of WPSA-BH15(26-28)SL.
NA - Not Analyzed.
R - Value was rejected.
J - Value was estimated.
UJ - Constituent was not detected. Detection limit was estimated.
Soil results, including QA/QC samples, are presented in Appendix A.

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Table 3. Soil Analytical Results, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH21 8/8/02 (8-10)	WPSA-BH21 8/8/02 (10-12)	WPSA-BH22 8/8/02 (0-2)	WPSA-BH22 8/8/02 (2-4)	WPSA-BH23 3/20/2003 (0-2)	WPSA-BH23 3/20/2003 DUP-125	WPSA-BH23 3/20/2003 (2-4)	WPSA-BH24 11/1/02 (0-2)	WPSA-BH24 11/1/02 DUP-124	WPSA-BH24 11/1/02 (2-3)	WPSA-BH25 8/9/02 (0-2)	WPSA-BH25 8/9/02 (6-8)	WPSA-BH25 8/9/02 (22-24)	WPSA-BH26 8/7/02 (0-2)	WPSA-BH26 8/7/02 (2-4)	WPSA-BH26 8/7/02 (22-24)	WPSA-BH27 8/7/02 (0-2)	WPSA-BH27 8/7/02 DUP-121	WPSA-BH27 8/7/02 (6-8)	WPSA-BH27 8/7/02 (20-22)	WPSA-BH28 8/7/02 (0-2)	WPSA-BH28 8/7/02 (4-6)	WPSA-BH28 8/7/02 (22-24)
Volatile Organic Compounds																								
1,1,1-Trichloroethane	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	6.2	79 J	21	5.5
1,1-Dichloroethane	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	5.5	92 J	43	5
1,1-Dichloroethene	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	0.52 J	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U	< 450 U	< 4.5 U	< 4.3 U
1,2-Dichlorobenzene	ug/kg	--	--	--	--	<9.5UJ	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U	< 450 U	< 4.5 U	< 4.3 U
1,4-Dichlorobenzene	ug/kg	--	--	--	--	<9.5UJ	<7.7U	<5.1U	2.6 J	< 5.1 UJ	1.3 J	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U	< 450 U	< 4.5 U	< 4.3 U
2-Butanone	ug/kg	--	--	--	--	<38U	<31U	<5.1U	20 J	14 J	16 J	< 880 U	4.8 J	< 20 U	< 18 U	< 32 U	< 19 U	< 20 U	< 23 U	< 1100 U	2.4 J	< 1800 U	2.5 J	< 17 U
2-Hexanone	ug/kg	--	--	--	--	<38U	<31U	<21U	3.1 J	< 21 UJ	< 20 UJ	< 880 UJ	< 20 U	< 20 U	< 18 U	< 32 U	< 19 U	< 20 U	< 23 U	< 1100 U	< 16 U	< 1800 U	< 18 U	< 17 U
Acetone	ug/kg	--	--	--	--	<38U	<31U	<21U	82 J	59 J	90 J	< 750 U	< 23 U	< 3.9 U	< 18 U	< 32 U	< 19 U	< 20 U	< 23 U	< 1100 U	< 16 U	< 1800 U	< 18 U	< 17 U
Benzene	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	0.64 J	< 5.1 UJ	0.49 J	43 J	2.2 J	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	0.98 J	350 J	< 4.5 U	< 4.3 U
Benzene, isopropyl	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ	< 220 U	3.1 J	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U	< 450 U	< 4.5 U	< 4.3 U
Bromomethane	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	R	R	R	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U	< 450 U	< 4.5 U	< 4.3 U
Carbon disulfide	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	1 J	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U	< 450 U	< 4.5 U	< 4.3 U
Chloroethane	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U	< 450 U	< 4.5 U	< 4.3 U
cis-1,2-Dichloroethene	ug/kg	--	--	--	--	<4.8U	<3.8U	<2.6U	< 2.6 UJ	< 2.6 UJ	< 2.5 UJ	74 J	< 2.6 U	< 2.4 U	< 2.3 U	< 4 U	< 2.4 U	< 2.5 U	< 2.9 U	65 J	0.89 J	< 220 U	18	1.4 J
Cyclohexane	ug/kg	--	--	--	--	<19U	<15U	<10U	1.7 J	< 10 UJ	1.1 J	< 440 U	< 10 U	< 9.8 U	< 9.2 U	< 16 U	< 9.5 U	< 10 U	< 11 U	< 530 U	1.5 J	990	< 8.9 U	< 8.6 U
Dichlorodifluoromethane (CFC-12)	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U	< 450 U	< 4.5 U	< 4.3 U
Ethylbenzene	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ	< 220 U	2.4 J	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	2.1 J	180 J	< 4.5 U	< 4.3 U
Methyl acetate	ug/kg	--	--	--	--	<19U	<15U	<10U	24 J	7.4 J	20 J	< 440 U	< 10 U	< 9.8 U	< 9.2 U	< 16 U	< 9.5 U	< 10 U	< 11 U	< 530 U	< 7.9 U	< 900 U	< 8.9 U	< 8.6 U
Methyl cyclohexane	ug/kg	--	--	--	--	1.1J	1.0J	<10U	2.1 J	0.51 J	1.8 J	< 440 U	2.5 J	< 9.8 U	< 9.2 U	< 16 U	< 9.5 U	< 10 U	< 11 U	< 530 U	2.4 J	2700	< 8.9 U	< 8.6 U
Methylene chloride	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 2.5 UJ	< 2 UJ	< 2.8 UJ	< 75 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U	< 450 U	< 4.5 U	< 4.3 U
Tetrachloroethene	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	1.3 J	< 5.1 UJ	0.86 J	< 220 U	< 5.1 U	5.8	2.7 J	< 8 U	13	< 5.1 U	< 5.7 U	1400	32	2100	130	15
Toluene	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	1.5 J	0.42 J	1.2 J	40 J	2.6 J	0.59 J	0.63 J	1.3 J	0.8 J	< 5.1 U	< 5.7 U	< 260 U	4.3	2100	< 4.5 U	0.8 J
trans-1,2-Dichloroethene	ug/kg	--	--	--	--	<4.8U	<3.8U	<2.6U	< 2.6 UJ	< 2.6 UJ	< 2.5 UJ	< 110 U	< 2.6 U	< 2.4 U	< 2.3 U	< 4 U	< 2.4 U	< 2.5 U	< 2.9 U	< 130 U	< 2 U	< 220 U	< 2.2 U	< 2.2 U
Trichloroethene	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ	360	< 5.1 U	1.3 J	1.6 J	< 8 U	2.7 J	< 5.1 U	< 5.7 U	300	5.2	1500	17	4.6
Trifluorotrichloroethane (Freon 113)	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	3.4 J	< 450 U	< 4.5 U	< 4.3 U
Vinyl chloride	ug/kg	--	--	--	--	<9.5U	<7.7U	<5.1U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U	< 450 U	< 4.5 U	< 4.3 U
Xylene (total)	ug/kg	--	--	--	--	<19U	<15U	<10U	< 1.7 UJ	< 10 UJ	< 1.5 UJ	170 J	22	< 9.8 U	< 9.2 U	< 16 U	< 9.5 U	< 10 U	< 11 U	< 530 U	4 J	2700	< 8.9 U	< 8.6 U
Semi-Volatile Organic Compounds																								
2-Methyl naphthalene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Biphenyl	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbazole	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Di-n-butylphthalate	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Polychlorinated Biphenyls																								
Aroclor-1254	ug/kg	--	--	130000 J	80000 J	120	150	<39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																								
Antimony	mg/kg	22.8	14.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	38.8 J	45.8 J	28.6 J	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	35.9	0.24	0.054 B	6.2	5.7	0.058 B	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	79.6 J	13.9 J	2.3 J	43.1 J	1300 J	2.9 J	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 3. Soil Analytical Results, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH29 8/6/02 (0-2)	WPSA-BH29 8/6/02 (8-10)	WPSA-BH29 8/6/02 (22-24)	WPSA-BH30 8/6/02 (0-2)	WPSA-BH30 8/6/02 (4-6)	WPSA-BH30 8/6/02 (24-26)	WPSA-BH31 8/6/02 (0-2)	WPSA-BH31 8/6/02 DUP-120	WPSA-BH31 8/6/02 DUP-122	WPSA-BH31 8/6/02 (8-10)	WPSA-BH31 8/6/02 (24-26)	WPSA-BH32 8/6/02 (0-2)	WPSA-BH32 8/6/02 (4-6)	WPSA-BH32 8/6/02 (24-26)	WPSA-BH33 8/5/02 (0-2)	WPSA-BH33 8/5/02 DUP-118	WPSA-BH33 8/5/02 (6-8)	WPSA-BH33 8/5/02 (24-26)	WPSA-BH34 8/5/02 (0-2)	WPSA-BH34 8/5/02 (6-8)	WPSA-BH34 8/5/02 (24-26)
Volatile Organic Compounds																						
1,1,1-Trichloroethane	ug/kg	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	1.3 J	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U
1,1-Dichloroethane	ug/kg	310	2.5 J	< 230 U	2700	2400	2.5 J	240 J	100 J	--	48	1.4 J	170 J	13	8.5	< 4.5 U	< 4.5 UJ	< 5.5 U	3.4 J	< 4.7 U	< 7.3 U	< 6.7 U
1,1-Dichloroethene	ug/kg	51 J	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U	24 J	< 240 UJ	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U
1,2-Dichlorobenzene	ug/kg	< 270 U	3.2 J	43 J	< 270 U	< 260 U	0.92 J	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U
1,4-Dichlorobenzene	ug/kg	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	0.57 J	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	0.69 J	0.63 J	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U
2-Butanone	ug/kg	< 1100 U	< 18 U	< 940 U	< 1100 U	< 1000 U	4.5 J	< 1200 U	< 950 U	--	< 20 U	< 18 U	< 1000 U	5.5 J	5.8 J	< 18 U	< 18 UJ	< 22 U	< 19 U	< 19 U	< 29 U	< 27 U
2-Hexanone	ug/kg	< 1100 U	< 18 U	< 940 U	< 1100 U	< 1000 U	< 16 U	< 1200 U	< 950 U	--	< 20 U	< 18 U	< 1000 U	< 20 U	< 17 U	< 18 UJ	< 18 UJ	< 22 UJ	< 19 UJ	< 19 U	< 29 U	< 27 U
Acetone	ug/kg	< 1100 U	< 18 U	< 940 U	< 1100 UJ	< 1000 UJ	< 16 U	< 1200 UJ	< 950 U	--	< 20 U	< 18 U	< 1000 UJ	< 20 U	< 17 U	< 18 U	< 18 U	< 22 U	< 19 U	< 19 U	< 29 U	< 27 U
Benzene	ug/kg	54 J	0.72 J	< 230 U	190 J	200 J	0.56 J	32 J	< 240 UJ	--	0.83 J	< 4.5 U	24 J	1.1 J	0.65 J	< 4.5 U	< 4.5 UJ	< 5.5 U	0.79 J	< 4.7 U	< 7.3 U	< 6.7 U
Benzene, isopropyl	ug/kg	< 270 U	1.2 J	< 230 U	490	640	< 3.9 U	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U
Bromomethane	ug/kg	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 UJ	< 7.3 UJ	< 6.7 UJ
Carbon disulfide	ug/kg	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	0.75 J	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U
Chloroethane	ug/kg	180 J	2.6 J	< 230 U	1300	1500	1.7 J	< 290 U	< 240 U	--	3.7 J	< 4.5 U	< 250 U	< 5.1 U	2.6 J	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 UJ	< 7.3 UJ	< 6.7 UJ
cis-1,2-Dichloroethene	ug/kg	6700	9.1	37 J	430	650	< 2 U	470 J	140 J	--	< 2.5 U	< 2.2 U	35 J	2 J	< 2.1 U	1.1 J	2.4 J	22	1.8 J	< 2.4 U	39	< 3.3 U
Cyclohexane	ug/kg	31 J	< 8.8 U	< 470 U	130 J	100 J	1.7 J	50 J	40 J	--	< 10 U	< 8.9 U	< 500 U	< 10 U	1.2 J	< 9.1 U	< 9.1 UJ	< 11 U	1 J	< 9.4 U	< 15 U	< 13 U
Dichlorodifluoromethane (CFC-12)	ug/kg	47 J	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U
Ethylbenzene	ug/kg	220 J	31	200 J	420	660	1 J	100 J	32 J	--	< 5.1 U	< 4.5 U	55 J	< 5.1 U	1.3 J	< 4.5 U	< 4.5 UJ	< 5.5 U	1.3 J	< 4.7 U	< 7.3 U	< 6.7 U
Methyl acetate	ug/kg	83 J	< 8.8 U	51 J	150 J	260 J	< 7.9 U	130 J	110 J	--	< 10 U	< 8.9 U	70 J	< 10 U	< 8.5 U	< 9.1 U	< 9.1 UJ	< 11 U	< 9.5 U	< 9.4 U	< 15 U	< 13 U
Methyl cyclohexane	ug/kg	88 J	0.96 J	< 470 U	520 J	390 J	3.1 J	56 J	44 J	--	< 10 U	< 8.9 U	26 J	< 10 U	1.9 J	< 9.1 U	< 9.1 UJ	< 11 U	1.6 J	< 9.4 U	< 15 U	< 13 U
Methylene chloride	ug/kg	< 270 U	1.6 J	< 230 U	55 J	100 J	1.3 J	< 290 UJ	< 240 U	--	< 5.1 UJ	< 4.5 UJ	< 250 UJ	< 5.1 UJ	< 4.3 UJ	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U
Tetrachloroethene	ug/kg	1200	< 4.4 U	< 230 U	< 270 U	< 260 U	2.7 J	< 290 U	< 240 U	--	< 5.1 U	3.5 J	< 250 U	< 5.1 U	6	< 4.5 U	< 4.5 UJ	< 5.5 U	30	< 4.7 U	< 7.3 U	2.7 J
Toluene	ug/kg	460	6.4	28 J	3900	5300	2.2 J	1400 J	420 J	--	1.6 J	1.2 J	75 J	1.5 J	3 J	< 4.5 UJ	0.79 J	< 5.5 U	3 J	0.9 J	2.1 J	1.5 J
trans-1,2-Dichloroethene	ug/kg	100 J	< 2.2 U	< 120 U	< 130 U	< 130 U	< 2 U	120 J	37 J	--	< 2.5 U	< 2.2 U	< 130 U	< 2.6 U	< 2.1 U	< 2.3 U	< 2.3 UJ	1.4 J	< 2.4 U	< 2.4 U	6.1	< 3.3 U
Trichloroethene	ug/kg	1100	0.7 J	< 230 U	260 J	220 J	1 J	2000 J	570 J	--	< 5.1 U	0.75 J	36 J	0.87 J	2.9 J	0.81 J	1.9 J	6.3	13	1.3 J	76	1.9 J
Trifluorotrichloroethane (Freon 113)	ug/kg	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U
Vinyl chloride	ug/kg	350	< 4.4 U	< 230 U	130 J	86 J	< 3.9 U	220 J	78 J	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U
Xylene (total)	ug/kg	190 J	13	130 J	3900	5900	2.1 J	430 J	210 J	--	< 10 U	< 8.9 U	84 J	< 10 U	3.4 J	< 9.1 U	< 9.1 UJ	< 11 U	2.8 J	< 9.4 U	< 15 U	< 13 U
Semi-Volatile Organic Compounds																						
2-Methyl naphthalene	ug/kg	--	--	--	--	--	--	< 350 U	--	< 350 U	< 410 U	< 360 U	290 J	83000 J	< 340 U	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--
Acenaphthene	ug/kg	--	--	--	--	--	--	< 350 U	--	< 350 U	< 410 U	< 360 U	600 J	300000 J	< 340 U	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--
Anthracene	ug/kg	--	--	--	--	--	--	< 350 UJ	--	93 J	< 410 U	< 360 U	1200	600000 J	< 340 U	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--
Benzo(a)anthracene	ug/kg	--	--	--	--	--	--	150 J	--	550 J	< 410 U	< 360 U	2900	520000 J	< 340 U	50 J	< 340 U	< 390 U	< 350 U	--	--	--
Benzo(a)pyrene	ug/kg	--	--	--	--	--	--	270 J	--	1500 J	< 410 U	< 360 U	3600	380000 J	< 340 U	54 J	< 340 U	< 390 U	< 350 U	--	--	--
Benzo(b)fluoranthene	ug/kg	--	--	--	--	--	--	360 J	--	2100 J	< 410 U	< 360 U	5100	580000 J	< 340 U	84 J	< 340 U	58 J	< 350 U	--	--	--
Benzo(g,h,i)perylene	ug/kg	--	--	--	--	--	--	150 J	--	810 J	< 410 U	< 360 U	2100	150000 J	< 340 U	53 J	< 340 U	< 390 U	< 350 U	--	--	--
Benzo(k)fluoranthene	ug/kg	--	--	--	--	--	--	170 J	--	890 J	< 410 U	< 360 U	2300	260000 J	< 340 U	48 J	< 340 U	< 390 U	< 350 U	--	--	--
Biphenyl	ug/kg	--	--	--	--	--	--	< 350 U	--	< 350 U	< 410 U	< 360 U	110 J	26000 J	< 340 U	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--
bis(2-Ethylhexyl)phthalate	ug/kg	--	--	--	--	--	--	53 J	--	< 350 UJ	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U	91 J	50 J	< 390 U	< 350 U	--	--	--
Carbazole	ug/kg	--	--	--	--	--	--	< 350 U	--	< 350 U	< 410 U	< 360 U	630 J	270000 J	< 340 U	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--
Chrysene	ug/kg	--	--	--	--	--	--	220 J	--	1100 J	< 410 U	< 360 U	3200	650000 J	< 340 U	56 J	< 340 U	58 J	< 350 U	--	--	--
Dibenz(a,h)anthracene	ug/kg	--	--	--	--	--	--	43 J	--	280 J	< 410 U	< 360 U	550 J	56000 J	< 340 U	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--
Dibenzofuran	ug/kg	--	--	--	--	--	--	< 350 U	--	< 350 U	< 410 U	< 360 U	710 J	270000 J	< 340 U	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--
Di-n-butylphthalate	ug/kg	--	--	--	--	--	--	< 350 U	--	< 350 U	< 410 U	< 360 U	98 J	< 150000 U	< 340 U	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--
Fluoranthene	ug/kg	--	--	--	--	--	--	250 J	--	430 J	< 410 U	< 360 U	7900	1800000 J	< 340 U	98 J	< 340 U	69 J	< 350 U	--	--	--
Fluorene	ug/kg	--	--	--	--	--	--	< 350 U	--	< 350 U	< 410 U	< 360 U	960	500000 J	< 340 U	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	--	--	130 J	--	720 J	< 410 U	< 360 U	1800	130000 J	< 340 U	45 J	< 340 U	< 390 U	< 350 U	--	--	--
Naphthalene	ug/kg	--	--	--	--	--	--	< 350 U	--	< 350 U	< 410 U	< 360 U	800 J	100000 J	< 340 U	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--
Phenanthrene	ug/kg	--	--	--	--	--	--	93 J	--	150 J	< 410 U	< 360 U	5900	3000000 J	< 340 U	53 J	< 340 U	71 J	< 350 U	--	--	--
Pyrene	ug/kg	--	--	--	--	--	--	200 J	--	600 J	< 410 U	< 360 U	5500	1100000 J	< 340 U	90 J	< 340 U	42 J	< 350 U	--	--	--
Polychlorinated Biphenyls																						
Aroclor-1254	ug/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																						
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	8.2	4.1	1.8	223	18	3.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	155 J	72	--	16.5 J	1.4 J	152 J	47.4 J	2.4 J	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.032 B	87.2	0.19
Zinc	mg/kg	--	--	--	--	--	--	1210 J	651 J	--	61.8	12.3	106	89.4	8.9	--	--	--	--	--	--	--

ug/kg - Micrograms per kilogram.
mg/kg - Milligrams per kilogram.
WPSA - Waste Pile Staging Area.
BH - Borehole.
R - Value is rejected.
(1) SVOCs were collected on August 9, 2002.
-- - Not Analyzed.

Organic Compounds: B - Analyte was also detected in the associated method blank.
Inorganic Compounds: B - Result is above the method detection limit but below the reporting limit.
U - Constituent was not detected above the reporting limit.
UJ - Constituent was not detected above the reporting limit. Reporting limit is estimated.
< - Constituent not detected above laboratory reporting limit.
Organic Compounds: J - Result is above the method detection limit but below the reporting limit.
Soil results, including QA/QC samples, are presented in Appendix A.

Inorganic Compounds: J - Analyte was also detected in the associated method blank.
DUP-118 - Duplicate of WPSA-BH33/0-2/SL.
DUP-120 - Duplicate of WPSA-BH31/0-2/SL (VOCs, lead, zinc).
DUP-121 - Duplicate of WPSA-BH27/0-2/SL.
DUP-122 - Duplicate of WPSA-BH31/0-2/SL (SVOCs).
DUP-124 - Duplicate of WPSA-BH24/0-2/SL.
DUP-125 - Duplicate of WPSA-BH23/0-2SL

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Table 4. Soil Analytical Results, October 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

Constituents	Units	WPSA-BH35 10/23/2003 (0-2)	WPSA-BH35 10/23/2003 DUP-132	WPSA-BH35 10/23/2003 (8-10)	WPSA-BH35 10/23/2003 (22-24)	WPSA-BH36 10/23/2003 (0-2)	WPSA-BH36 10/23/2003 (8-10)	WPSA-BH36 10/23/2003 (20-22)	WPSA-BH37 10/23/2003 (0-2)	WPSA-BH37 10/23/2003 (8-10)	WPSA-BH37 10/23/2003 (20-22)
Semi-Volatile Organic Compounds											
2-Methyl naphthalene	ug/kg	--	--	--	--	20J	< 390U	< 360U	--	--	--
Acenaphthene	ug/kg	--	--	--	--	31J	< 390U	< 360U	--	--	--
Anthracene	ug/kg	--	--	--	--	98J	< 390U	< 360U	--	--	--
Benzo(a)anthracene	ug/kg	--	--	--	--	480	< 390U	< 360U	--	--	--
Benzo(a)pyrene	ug/kg	--	--	--	--	560	< 390U	< 360U	--	--	--
Benzo(b)fluoranthene	ug/kg	--	--	--	--	750	< 390U	< 360U	--	--	--
Benzo(g,h,i)perylene	ug/kg	--	--	--	--	340J	< 390U	< 360U	--	--	--
Benzo(k)fluoranthene	ug/kg	--	--	--	--	380	< 390U	< 360U	--	--	--
bis(2-Ethylhexyl)phthalate	ug/kg	--	--	--	--	< 370U	< 390U	27J	--	--	--
Carbazole	ug/kg	--	--	--	--	42J	< 390U	< 360U	--	--	--
Chrysene	ug/kg	--	--	--	--	630	< 390U	< 360U	--	--	--
Dibenz(a,h)anthracene	ug/kg	--	--	--	--	130J	< 390U	< 360U	--	--	--
Dibenzofuran	ug/kg	--	--	--	--	24J	< 390U	< 360U	--	--	--
Fluoranthene	ug/kg	--	--	--	--	1300	< 390U	< 360U	--	--	--
Fluorene	ug/kg	--	--	--	--	29J	< 390U	< 360U	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	350J	< 390U	< 360U	--	--	--
Phenanthrene	ug/kg	--	--	--	--	540	< 390U	< 360U	--	--	--
Pyrene	ug/kg	--	--	--	--	920	< 390U	< 360U	--	--	--
Metals											
Arsenic	mg/kg	7.8	10.1	16.1	2.0	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	10.2	26.3	7.3
Iron	mg/kg	--	--	--	--	--	--	--	6550J	15400J	4720J

ug/kg - micrograms per kilogram.
mg/kg - milligrams per kilogram.
-- - Not analyzed.
J - Value was estimated.
Soil results, including QA/QC samples, are presented in Appendix A.

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Table 5. Groundwater Analytical Results, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

Constituents	Units	GM-33 4/23/2001	GM-34 4/10/2001	GM-35 4/19/2001	GM-36 4/11/2001	GM-37 4/19/2001	DUP-102 4/19/2001	GM-38 4/19/2001
Volatile Organic Compounds								
Chloroethane	ug/l	<5.0	<5.0	<5.0	64.8	<5.0	<5.0	<5.0
Dichlorodifluoromethane	ug/l	<1.0	<1.0	45.4	64.5	24.8	26.6	<1.0
1,1-Dichloroethane	ug/l	7.4	4.3	44.2	85.4	9.0	9.4	7.9
1,1-Dichloroethene	ug/l	1.2	<1.0	3.4	<1.0	1.1	1.1	<1.0
cis-1,2-Dichloroethene	ug/l	99.0	31.9	238	60.7	118	120	15.8
trans-1,2-Dichloroethene	ug/l	3.4	1.3	9.5	1.8	3.4	3.4	<1.0
Tetrachloroethene	ug/l	23.6	18.6	41.5	94.2	57.4	56.4	66.5
1,1,1-Trichloroethane	ug/l	14.6	7.9	24.6	3.8	16.8	17.4	6.9
Trichloroethene	ug/l	141	72.0	284	51.1	87.8	89.7	42.7
Vinyl Chloride	ug/l	1.9	<1.0	87.6	8.9	4.4	4.6	<1.0
Semi-Volatile Organic Compounds	ug/l	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls	ug/l	ND	ND	ND	ND	ND	ND	ND
Metals								
Antimony	mg/l	0.0059J	0.0388	0.0023	0.0193	0.0037	0.0034	0.0179
Antimony, Dissolved	mg/l	0.0023	0.0117	<0.001	0.0019	0.0024	0.0028	0.0077
Arsenic	mg/l	0.0733J	0.110	0.0545	0.0735	0.0854	0.076	0.257
Arsenic, Dissolved	mg/l	<0.005	<0.005	0.0112	<0.01	<0.005	<0.005	<0.005
Barium	mg/l	0.707	0.647	0.457	1.19	1.67J	0.133J	10.2
Barium, Dissolved	mg/l	0.0734	0.149	0.128	0.187	0.0864	0.0938	0.141
Beryllium	mg/l	<0.002	<0.005	<0.005	0.0056	0.0031	0.0025	0.0205
Beryllium, Dissolved	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/l	0.0013	<0.005	0.0056	0.0553	<0.002	<0.002	0.0180
Cadmium, Dissolved	mg/l	<0.001	<0.001	0.0021	<0.001	<0.001	<0.001	<0.001
Chromium	mg/l	0.0534J	0.056	0.0649	0.205	0.119	0.0953	0.731
Chromium, Dissolved	mg/l	<0.002	<0.002	0.0030	<0.002	<0.002	<0.002	<0.002
Cobalt	mg/l	0.0585	0.0545	0.0594	0.139	0.0743	0.061	0.497
Cobalt, Dissolved	mg/l	<0.0050	<0.005	0.0337	<0.005	<0.005	<0.005	<0.005
Copper	mg/l	0.135J	0.184	0.108	0.666	0.260	0.214	1.99
Copper, Dissolved	mg/l	<0.005	<0.005	0.0128	<0.01	<0.005	<0.005	<0.005
Lead	mg/l	0.0808	0.114	0.0476	0.345	0.136	0.108	1.23

Table 5. Groundwater Analytical Results, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

Constituents	Units	GM-33 4/23/2001	GM-34 4/10/2001	GM-35 4/19/2001	GM-36 4/11/2001	GM-37 4/19/2001	DUP-102 4/19/2001	GM-38 4/19/2001
Metals, continued								
Lead, Dissolved	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Mercury	mg/l	<0.0002	<0.0002	<0.0002	0.0008	0.0004	0.0004	0.0030
Mercury, Dissolved	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.148	0.134	0.095	0.455	0.204	0.168	1.37
Nickel, Dissolved	mg/l	0.0090J	0.0069	0.0233	0.0205	0.0086	0.0095	0.0107
Selenium	mg/l	<0.005	<0.005	<0.04	<0.005	<0.005	0.0253	<0.005
Selenium, Dissolved	mg/l	<0.005	<0.005	<0.01	<0.005J	<0.005	<0.005	<0.005
Silver	mg/l	<0.001	<0.005	0.0012	0.0085	<0.001	<0.001	<0.005
Silver, Dissolved	mg/l	<0.005	<0.0005	0.0008	<0.0005	<0.0005	<0.0005	<0.0005
Thallium	mg/l	0.0025	<0.005	0.0015	0.0084	0.0041	0.0031	0.0204
Thallium, Dissolved	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tin	mg/l	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0
Tin, Dissolved	mg/l	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Vanadium	mg/l	0.0691	0.0799	0.0619	0.159	0.118	0.0993	0.572
Vanadium, Dissolved	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/l	0.480J	0.683	0.258	3.29	0.756	0.641	4.95
Zinc, Dissolved	mg/l	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

ND - Nondetect.
mg/l - Milligrams per liter.
ug/l - Micrograms per liter.
J - Value is estimated.
DUP-102 is a duplicate of GM-37.
< - Constituent not detected above laboratory detection limit shown.
Groundwater analytical results, including QA/QC samples, are presented in Appendix A.

Table 6. Temporary Well Analytical Results, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Constituents	Units	WPSA-BH08 4/16/2001	WPSA-BH09 4/19/2001	WPSA-BH10 4/23/2001	WPSA-BH11 4/23/2001	WPSA-BH12 4/23/2001	WPSA-BH13 4/16/2001	WPSA-BH14 4/23/2001	WPSA-BH15 4/23/2001	WPSA-BH16 4/12/2001	WPSA-BH17 4/12/2001	WPSA-BH18 4/23/2001	WPSA-BH19 4/23/2001	DUP-104 4/23/2001
Volatile Organic Compounds														
Acetone	ug/l	<20.0	<20.0J	<20.0	81.7	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Benzene	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Butanone (MEK)	ug/l	R	R	R	19.4J	R	R	R	R	R	R	R	R	<12.5
Chloroethane	ug/l	20.3	8.9	117	257	43.8	130	29.5	<5.0	<5.0	58.6	<5.0	<5.0	<5.0
Dichlorodifluoromethane	ug/l	1.5	1.7	3.1	3.2	1.0	2.6	1.5	<1.0	<1.0	44.4	<1.0	<1.0	<1.0
1,1-Dichloroethane	ug/l	30.8	110	23.6	152	249	198	33.1	8.0	9.4	105	5.6	18.8	17.9
cis-1,2-Dichloroethene	ug/l	53.3	74.5	141	55.4	23.9	12.9	32.2	26.4	26.8	59.1	14.0	53.6	52.3
trans-1,2-Dichloroethene	ug/l	2.5	1.9	4.8	3.7	1.9	1.3	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	<1.0
Ethylbenzene	ug/l	<1.0	1.7	5.9	70.3	1.4	4.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	ug/l	41.1	55.5	1.3	<1.0	1.9	48.4	9.4	42.2	84.1	32.3	51.8	27.2	28.0
Toluene	ug/l	<1.0	2.4	8.2	28.2	1.2	6.7	1.4	3.0	1.5	1.9	<1.0	<1.0	1.0
1,1,1-Trichloroethane	ug/l	18.2	22.2	6.2	18.5	1.4	<1.0	1.2	4.5	7.0	3.0	5.3	5.5	5.8
Trichloroethene	ug/l	187	57.2	10.0	5.7	10.0	11.1	16.0	19.4	29.3	46.7	29.7	26.4	26.6
Vinyl Chloride	ug/l	1.3	5.3	12.5	10.4	4.1	4.0	7.3	<1.0	<1.0	8.2	<1.0	3.5	3.3
Xylenes	ug/l	<1.0	<1.0	<1.0	4.8	<1.0	18.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Semi-Volatile Organic Compounds	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls														
Aroclor 1254	ug/l	<0.2	<0.2	52.2J	149J	<0.2J	<0.2	<0.2J	<0.2J	<0.2J	<0.2	<0.2J	59.8	38.2J
Metals														
Antimony	mg/l	0.0335	0.322	0.693J	1.85J	0.203J	0.0719	0.0239J	0.0609J	0.0398	0.0151	0.0142J	0.0607J	0.124J
Antimony, Dissolved	mg/l	0.0176	0.0542	0.130	0.327	0.0236	0.0060	0.0082	0.0218	0.0189	0.0029	0.0114	0.0108	0.0110
Arsenic	mg/l	0.104	0.112	0.314J	0.718J	0.0931J	<0.05	<0.05J	0.110J	0.0995	0.0878	<0.05J	<0.025J	0.0678J
Arsenic, Dissolved	mg/l	<0.005	<0.005	0.0117	0.0184	0.0056	<0.01	<0.005	<0.005	<0.005	0.0078	<0.005	<0.005	<0.005
Barium	mg/l	0.524	2.38	0.905	0.799	3.26	9.53	5.32	1.31	1.78	21.7	12.3	2.99J	1.95J
Barium, Dissolved	mg/l	0.117	0.120	0.237	0.398	0.704	0.501	0.413	0.198	0.268	0.476	0.130	0.230	0.228
Beryllium	mg/l	<0.005	<0.01	0.0033	0.0015	0.0038	0.0130	0.0152	<0.01	0.0062	0.0075	0.019	0.0107J	0.0068J
Beryllium, Dissolved	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/l	<0.005	<0.01	0.0046	0.0023	0.0069	0.0959	0.0137	0.0054	0.0276	0.012	0.112	0.0154J	0.0105J
Cadmium, Dissolved	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	mg/l	0.0764	0.216	<0.150J	0.0133J	0.135J	1.07	0.416J	0.144J	0.331	0.380	0.583J	0.0663J	0.176J
Chromium, Dissolved	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	mg/l	0.0594	0.208	0.0908	0.0364	0.058	0.347	0.349	0.0863	0.178	0.148	0.575	0.225J	0.146J
Cobalt, Dissolved	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	mg/l	0.266	0.639	0.387J	0.200J	0.731J	11.7	1.76J	0.464J	0.690	0.869	1.43J	0.612J	0.415J
Copper, Dissolved	mg/l	0.0063	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0361	0.0074	0.0054	<0.005	<0.005
Lead	mg/l	0.144	0.371	0.229	0.126	0.402	5.58	0.755	0.222	0.380	0.770	1.27	0.526J	0.326J
Lead, Dissolved	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.001	<0.001	0.0097	0.0035	<0.001	<0.001	<0.001
Mercury	mg/l	0.0003	0.0012	0.0003	0.0003	0.0006	0.0032	0.0016	0.0003	0.0007	0.0010	0.0020	0.0009	0.0006
Mercury, Dissolved	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Nickel	mg/l	0.184	0.645	0.416J	0.233J	0.194J	1.52	0.977J	0.0244J	0.489	0.471	1.12J	0.575J	0.372J
Nickel, Dissolved	mg/l	0.0081	0.0128	0.0190	0.0149	<0.0146	0.0183	0.0214	0.0152	0.0136	0.0162	0.0118	0.0128	0.0124
Selenium	mg/l	<0.005	<0.02	<0.005	<0.005	<0.005	<0.01	<0.05	0.0319	<0.005	<0.005	<0.05	<0.005J	0.0413J
Selenium, Dissolved	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	mg/l	<0.005	<0.005	<0.001	<0.001	0.0013	0.0436	<0.005	0.0012	<0.005	<0.005	<0.005	<0.002	<0.001
Silver, Dissolved	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Thallium	mg/l	<0.005	0.0103	0.008	0.0025	0.0065	0.0167	0.0171	0.0045	0.0069	0.0076	0.0168	0.0115J	0.0078J
Thallium, Dissolved	mg/l	<0.001	<0.0010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.001	<0.001	<0.001
Tin	mg/l	<2.0	<2.0	<4.0	<4.0	<4.0	<10.0	<4.0	<4.0	<2.0	<2.0	<10.0	<4.0	<4.0
Tin, Dissolved	mg/l	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Vanadium	mg/l	0.144	0.192	0.192	0.131	0.142	0.285	0.337	0.136	0.158	0.186	0.355	0.192	0.189
Vanadium, Dissolved	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	mg/l	0.891	1.90	0.864J	0.327J	1.43J	15.4	3.66J	1.25J	1.75	1.96	3.52J	1.73J	1.25J
Zinc, Dissolved	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05J	0.175J

R Value is rejected.
ND Nondetect.
mg/l Milligrams per liter.
ug/l Micrograms per liter.

J Value is estimated.
DUP-104 is a duplicate of WPSA-BH19.
< Constituent not detected above laboratory detection limit shown.
Temporary well analytical results, including QA/QC samples, are presented in Appendix A.

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Table 7. Groundwater Analytical Results, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	GM-33 8/7/02	GM-34 8/7/02	GM-35 8/6/02	GM-36 8/5/02	DUP-119 8/5/02	GM-37 8/6/02	GM-38 8/6/02	RW-10 8/8/02	RW-11 8/8/02
Volatile Organic Compounds										
Acetone	ug/l	5.3 J	3.2 J	< 140 UJ	< 20 UJ	< 20 UJ	< 25 UJ	< 20 UJ	< 10 U	< 65 U
Carbon disulfide	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	0.32 J	< 12 U
Chloroethane	ug/l	< 2 U	< 1 U	< 14 U	5.3	5.1	< 2.5 U	0.73 J	6.9	< 12 U
1,1-Dichloroethane	ug/l	9.4	2.7	42	21	20	7.1	6.5	17	< 12 U
1,1-Dichloroethene	ug/l	0.99 J	< 1 U	< 14 U	< 2 U	< 2 U	0.98 J	< 2 U	< 1 U	< 12 U
cis-1,2-Dichloroethene	ug/l	24	3	350	55	54	41	22	6.6	< 6.2 U
trans-1,2-Dichloroethene	ug/l	1.3	0.4 J	11	1.6 J	0.86 J	1.6	1	1.6	< 6.2 U
Dichlorodifluoromethane (CFC-12)	ug/l	< 2 UJ	< 1 UJ	< 14 U	< 2 UJ	< 2 UJ	< 2.5 U	< 2 U	1.5	< 12 U
Iodomethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 UJ	4.9 J
Tetrachloroethene	ug/l	37	20	24	54	53	58	50	< 1 U	< 12 U
1,1,1-Trichloroethane	ug/l	20	4.8	19	5.5	5.3	17	6	< 1 U	< 12 U
Trichloroethene	ug/l	71	11	320	50	50	84	25	2	< 12 U
Vinyl chloride	ug/l	< 2 U	< 1 U	110	< 2 U	< 2 U	< 2.5 U	< 2 U	2.8	< 12 U
Semi-Volatile Organic Compounds										
1,2,4-Trichlorobenzene	ug/l	89	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 50 U
1,2-Dichlorobenzene	ug/l	7.9 J	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	1.1 J	< 50 U
1,3-Dichlorobenzene	ug/l	5 J	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 50 U
1,4-Dichlorobenzene	ug/l	7 J	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 50 U
Hexachlorobutadiene	ug/l	3.7 J	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 50 U
Polychlorinated Biphenyls										
Aroclor-1254	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.27 J	2.7
Metals										
Antimony	mg/l	0.0033	0.01	< 0.002 U	0.004 J	< 0.002 UJ	< 0.0029 U	0.0063	--	--
Antimony (Dissolved)	mg/l	0.0032	0.01	< 0.002 U	< 0.002 U	< 0.002 U	< 0.003 U	0.0046	--	--
Arsenic	mg/l	< 0.0021 U	< 0.002 U	0.013	0.012 J	< 0.0055 UJ	< 0.005 U	0.0099	--	--
Arsenic (Dissolved)	mg/l	< 0.0016 U	< 0.0019 U	0.012	< 0.005 UJ	< 0.005 UJ	< 0.005 U	< 0.005 U	--	--
Barium	mg/l	0.099 J	0.12 J	0.17 J	0.24 J	0.26 J	0.11 J	0.22 J	--	--
Barium (Dissolved)	mg/l	0.092 J	0.12 J	0.17 J	0.27 J	0.26 J	0.11 J	0.21 J	--	--
Beryllium	mg/l	< 0.001 U	< 0.001 U	< 0.001 U	0.00017 J	< 0.001 UJ	< 0.001 U	0.00022 B	--	--
Beryllium (Dissolved)	mg/l	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	--	--
Cadmium	mg/l	< 0.001 U	< 0.001 U	0.00076 B	0.00041 J	0.00026 J	< 0.001 U	0.00017 B	--	--
Cadmium (Dissolved)	mg/l	< 0.001 U	< 0.001 U	0.00071 B	0.00015 B	0.00013 B	< 0.001 U	0.000098 B	--	--
Chromium	mg/l	0.0021	0.0011 B	0.0093	0.021 J	0.0086 J	< 0.006 U	< 0.0082 U	--	--
Chromium (Dissolved)	mg/l	0.00065 B	0.00048 B	0.0052	0.0015 B	0.0013 B	0.001 B	0.00094 B	--	--
Cobalt	mg/l	0.0031	0.0027	0.029	0.0072	0.0058	0.0028	0.0095	--	--
Cobalt (Dissolved)	mg/l	0.0026	0.0028	0.03	0.0047	0.0043	0.0025	0.007	--	--
Copper	mg/l	0.0049 J	0.0026 J	< 0.02 U	0.03 J	0.012 J	< 0.0045 U	< 0.018 U	--	--

Table 7. Groundwater Analytical Results, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

COMPOUND	UNITS	GM-33 8/7/02	GM-34 8/7/02	GM-35 8/6/02	GM-36 8/5/02	DUP-119 8/5/02	GM-37 8/6/02	GM-38 8/6/02	RW-10 8/8/02	RW-11 8/8/02
Metals (continued)										
Copper (Dissolved)	mg/l	0.0039 J	0.0025 J	< 0.0025 U	0.0045 J	0.0043 J	< 0.0035 U	< 0.0041 U	--	--
Lead	mg/l	0.00075 BJ	< 0.00022 U	< 0.0021 U	0.0079 J	0.0024 J	< 0.001 U	< 0.0073 U	--	--
Lead (Dissolved)	mg/l	< 0.0002 U	< 0.00015 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	--	--
Mercury	mg/l	< 0.0002 U	< 0.0002 U	< 0.0002 U	0.00018 B	< 0.0002 U	< 0.0002 U	0.00011 B	--	--
Mercury (Dissolved)	mg/l	< 0.0002 U	< 0.0002 U	< 0.0002 U	< 0.0002 U	< 0.0002 U	< 0.0002 U	< 0.0002 U	--	--
Nickel	mg/l	0.016 J	0.016 J	0.026 J	0.04 J	0.029 J	0.018 J	0.022 J	--	--
Nickel (Dissolved)	mg/l	0.015 J	0.016 J	0.023 J	0.024 J	0.022 J	0.014 J	0.016 J	--	--
Selenium	mg/l	< 0.00044 U	0.0017 BJ	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	--	--
Selenium (Dissolved)	mg/l	< 0.005 U	0.0021 BJ	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	--	--
Silver	mg/l	< 0.001 UJ	< 0.001 UJ	0.00059 J	< 0.001 UJ	< 0.001 UJ	0.00013 J	0.00013 J	--	--
Silver (Dissolved)	mg/l	< 0.001 UJ	< 0.001 UJ	0.00045 J	< 0.001 U	< 0.001 U	< 0.001 UJ	< 0.001 UJ	--	--
Thallium	mg/l	< 0.000063 U	< 0.001 U	< 0.001 U	0.00049 B	0.00038 B	< 0.001 U	< 0.001 U	--	--
Thallium (Dissolved)	mg/l	< 0.000049 U	< 0.001 U	< 0.001 U	0.00032 B	0.00029 B	< 0.001 U	< 0.001 U	--	--
Tin	mg/l	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--
Tin, Dissolved	mg/l	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--	--
Vanadium	mg/l	< 0.00083 U	< 0.005 U	0.0039 B	0.0074 J	0.0021 J	0.00052 B	0.0099	--	--
Vanadium (Dissolved)	mg/l	< 0.005 U	< 0.005 U	0.0026 B	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	--	--
Zinc	mg/l	0.011	0.0088 B	< 0.022 U	0.088 J	0.041 J	<0.014 U	< 0.052 U	--	--
Zinc (Dissolved)	mg/l	0.0081 B	0.0075 B	< 0.01 U	0.018	0.015	<0.011 U	< 0.01 U	--	--

ug/l - Micrograms per liter.
mg/l - Milligrams per liter.
-- Not analyzed.
DUP-119 - Duplicate of GM-36.
R - Value is rejected.
J - Value is estimated.
U - Constituent was not detected above the reporting limit.
UJ - Constituent was not detected above the reporting limit. Reporting limit is estimated.
< - Constituent not detected above laboratory reporting limit.
Organic Compounds: J - Result is above the method detection limit but below the reporting limit.
Organic Compounds: B - Analyte was also detected in the associated method blank.
Inorganic Compounds: B - Result is above the method detection limit but below the reporting limit.
Inorganic Compounds: J - Analyte was also detected in the associated method blank.
The complete set of groundwater results, including QA/QC samples, is presented in Appendix A.

Table 8: Soil Screening Results
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Mean Detected (mg/kg)	Max Detected (mg/kg)	Site Specific BG (mg/kg)	Ind Soil Screening Criteria (mg/kg)		SSL MTGW DAF 20 (mg/kg)	Ratio of Max Detect to Ind Soil Screening Criteria	Ratio of Max Detect to MtGW
VOC	Acetone	67-64-1	ID	110	15	7.05E-02	2.50E+00	1.20E+01		6.0E+03	nc	1.6E+01	2.0E-03	7.5E-01
VOC	Benzene	71-43-2	A	111	29	4.05E-04	4.50E-02	3.50E-01		1.3E+01	c	3.0E-02	2.7E-02	**1.2E+01**
VOC	Bromodichloromethane	75-27-4	B2	111						1.8E+01	c	6.0E-01		
VOC	Bromoform	75-25-2	B2	111						2.2E+03	c	8.0E-01		
VOC	Bromomethane	74-83-9	D	109						1.3E+01	nc	2.0E-01		
VOC	2-Butanone	78-93-3	ID	59	9	2.40E-03	3.30E-01	2.95E+00		2.7E+04	nc		1.1E-04	
VOC	Carbon Disulfide	75-15-0		111	3	7.50E-04	9.80E-03	2.77E-02		1.2E+03	nc	3.2E+01	2.3E-05	8.7E-04
VOC	Carbon Tetrachloride	56-23-5	B2	111	1	1.25E-02	1.30E-02	1.25E-02		5.5E+00	c	7.0E-02	2.3E-03	1.8E-01
VOC	Chlorobenzene	108-90-7	D	111						5.3E+02	nc	1.0E+00		
VOC	Chloroethane	75-00-3		111	15	1.70E-03	8.60E-01	4.29E+00		6.5E+01	c		6.6E-02	
VOC	Chloroform	67-66-3	B2	111						1.2E+01	nc	6.0E-01		
VOC	Chloromethane	74-87-3	D	111						2.7E+01	c			
VOC	Cumene	98-82-8	D	34	4	1.20E-03	2.80E-01	6.40E-01		2.0E+03	nc		3.2E-04	
VOC	Cyclohexane	110-82-7	ID	34	11	9.65E-04	1.20E-01	9.90E-01		3.2E+04	nc		3.1E-05	
VOC	1,2-Dibromo-3-chloropropane	96-12-8	B2	34						6.5E+00	nc			
VOC	Dibromochloromethane	124-48-1	C	111						2.6E+01	c	4.0E-01		
VOC	1,2-Dibromoethane	106-93-4	B2	34						2.8E-01	c			
VOC	1,2-Dichlorobenzene	95-50-1	D	112	7	9.20E-04	2.20E+00	1.28E+01		4.1E+03	nc	1.7E+01	3.1E-03	7.5E-01
VOC	1,3-Dichlorobenzene	541-73-1	D	112						6.3E+01	nc			
VOC	1,4-Dichlorobenzene	106-46-7	C	112	5	5.70E-04	9.20E-04	1.42E-03		7.9E+01	c	2.0E+00	1.8E-05	7.1E-04
VOC	Dichlorodifluoromethane	75-71-8		34	1	4.70E-02	4.70E-02	4.70E-02		3.1E+02	nc		1.5E-04	
VOC	1,1-Dichloroethane	75-34-3	C	111	47	1.40E-03	2.20E+00	3.64E+01		1.7E+03	nc	2.3E+01	2.1E-02	**1.6E+00**
VOC	1,2-Dichloroethane	107-06-2	B2	111						6.0E+00	c	2.0E-02		
VOC	1,1-Dichloroethene	75-35-4	C	111	7	5.20E-04	1.70E-02	5.10E-02		4.1E+02	nc	6.0E-02	1.2E-04	8.5E-01
VOC	1,2-Dichloroethene (total)	540-59-0		17	2	1.06E+00	1.90E+00	2.67E+00		1.5E+02	nc	4.0E-01	1.8E-02	**6.7E+00**
VOC	cis-1,2-Dichloroethene	156-59-2	D	94	41	8.90E-04	3.80E+00	7.28E+01		1.5E+02	nc	4.0E-01	4.9E-01	**1.8E+02**
VOC	trans-1,2-Dichloroethene	156-60-5		94	15	1.40E-03	1.50E-01	9.00E-01		2.3E+02	nc	7.0E-01	3.9E-03	**1.3E+00**
VOC	1,2-Dichloropropane	78-87-5	B2	111						7.4E+00	c	3.0E-02		
VOC	1,3-Dichloropropene (total)	542-75-6	B2	111						1.8E+01	c	4.0E-03		
VOC	Ethyl Benzene	100-41-4	D	111	37	1.00E-03	4.40E+00	1.07E+02		2.0E+02	c	1.3E+01	5.4E-01	**8.2E+00**
VOC	2-Hexanone	591-78-6		111	1	1.88E-03	1.90E-03	1.88E-03		9.2E+04	nc		2.8E-06	
VOC	Methyl Acetate	79-20-9		34	8	1.57E-02	9.60E-02	2.60E-01		1.6E+03	c			
VOC	Methyl tert-butyl ether	1634-04-4		34						2.8E+03	nc		2.4E-03	
VOC	4-Methyl-2-pentanone	108-10-1	ID	111	1	6.82E+00	6.80E+00	6.82E+00		8.7E+03	nc		3.1E-04	
VOC	Methylcyclohexane	108-87-2		34	15	9.60E-04	2.50E-01	2.70E+00		2.1E+02	c	2.0E-02	3.0E-03	**3.1E+01**
VOC	Methylene Chloride	75-09-2	B2	111	10	1.30E-03	1.50E-01	6.27E-01		1.8E+04	nc	4.0E+00	3.3E-06	1.5E-02
VOC	Styrene	100-42-5		111	1	5.90E-02	5.90E-02	5.90E-02		9.3E+00	c	3.0E-03	1.9E-03	**5.8E+00**
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	111	1	1.73E-02	1.70E-02	1.73E-02		3.4E+01	c	6.0E-02	3.6E-01	**2.0E+02**
VOC	Tetrachloroethene	127-18-4	C-B2	111	65	7.80E-04	4.10E-01	1.22E+01		2.2E+03	nc	1.2E+01	1.3E-02	**2.4E+00**
VOC	Toluene	108-88-3	D	111	62	5.15E-04	1.50E+00	2.86E+01		5.6E+03	nc	5.0E+00		
VOC	1,2,4-Trichlorobenzene	120-82-1	D	112						6.9E+03	nc	2.0E+00	3.4E-03	**1.2E+01**
VOC	1,1,1-Trichloroethane	71-55-6	D	111	19	1.30E-03	2.20E+00	2.32E+01		1.6E+01	c	2.0E-02		
VOC	1,1,2-Trichloroethane	79-00-5	C	111						6.1E+01	c	6.0E-02	2.9E-01	**2.9E+02**
VOC	Trichloroethene	79-01-6	C-B2	111	52	7.00E-04	7.10E-01	1.76E+01		1.3E+03	nc			
VOC	Trichlorofluoromethane	75-69-4		34						6.9E+04	nc		4.9E-08	
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		34	1	3.40E-03	3.40E-03	3.40E-03		7.5E+00	c	1.0E-02	1.9E-01	**1.5E+02**
VOC	Vinyl Chloride	75-01-4	A	111	17	1.00E-02	3.00E-01	1.45E+00		9.0E+02	nc	2.1E+02	8.7E-02	3.7E-01
VOC	Xylenes (total)	1330-20-7	ID	111	39	2.10E-03	4.30E+00	7.79E+01		2.9E+04	nc	5.7E+02	1.0E-02	5.3E-01
SVOC	Acenaphthene	83-32-9		91	8	3.10E-02	3.80E+01	3.00E+02		2.9E+04	nc	4.2E+03		
SVOC	Acenaphthylene	208-96-8	D	91						2.4E+05	nc	1.2E+04	2.5E-03	5.0E-02
SVOC	Acetophenone	98-86-2	D	13						7.8E+01	c			
SVOC	Anthracene	120-12-7	D	91	14	9.30E-02	4.40E+01	6.00E+02		6.2E+04	nc			
SVOC	Atrazine	1912-24-9	C	13						2.1E+01	c	2.0E+00	**2.5E+01**	**2.6E+02**
SVOC	Benzaldehyde	100-52-7		13						2.1E+00	c	8.0E+00	**1.8E+02**	**4.8E+01**
SVOC	Benzo(a)anthracene	56-55-3	B2	91	14	3.10E-02	4.00E+01	5.20E+02		2.1E+01	c	5.0E+00	**2.8E+01**	**1.2E+02**
SVOC	Benzo(a)pyrene	50-32-8	B2	91	18	3.08E-02	2.60E+01	3.80E+02		2.9E+04	nc	4.2E+03	5.2E-03	3.6E-02
SVOC	Benzo(b)fluoranthene	205-99-2	B2	91	19	4.73E-02	3.90E+01	5.80E+02		2.1E+02	c	4.9E+01	**1.2E+00**	**5.3E+00**
SVOC	Benzo(g,h,i)perylene	191-24-2	D	91	14	3.05E-02	1.30E+01	1.50E+02		2.3E+04	nc		1.1E-03	
SVOC	Benzo(k)fluoranthene	207-08-9	B2	91	13	2.80E-02	2.10E+01	2.60E+02						
SVOC	Biphenyl	92-52-4	D	13	2	1.10E-01	1.30E+01	2.60E+01						
SVOC	bis(2-Chloroethoxy)methane	111-91-1	D	91						5.5E+00	c	4.0E-04		
SVOC	bis(2-Chloroethyl) ether	111-44-4	B2	91										

Table 8: Soil Screening Results
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Mean Detected (mg/kg)	Max Detected (mg/kg)	Site Specific BG (mg/kg)	Ind Soil Screening Criteria (mg/kg)		SSL MTGW DAF 20 (mg/kg)	Ratio of Max Detect to Ind Soil Screening Criteria	Ratio of Max Detect to MtGW
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	91	14	2.70E-02	1.20E+00	8.55E+00		1.2E+03	c		7.1E-03	
SVOC	4-Bromophenyl-phenyl ether	101-55-3	D	91										
SVOC	Butylbenzylphthalate	85-68-7	C	91	1	2.50E+01	2.50E+01	2.50E+01		1.2E+05	nc	9.3E+02	2.1E-04	2.7E-02
SVOC	Caprolactam	105-60-2		13						3.1E+05	nc			
SVOC	Carbazole	86-74-8	B2	91	8	4.20E-02	3.40E+01	2.70E+02		8.6E+02	c	6.0E-01	3.1E-01	**4.5E+02**
SVOC	4-Chloro-3-methylphenol	59-50-7		91										
SVOC	4-Chloroaniline	106-47-8		91						2.5E+03	nc	7.0E-01		
SVOC	2-Chloronaphthalene	91-58-7		91						2.3E+04	nc			
SVOC	2-Chlorophenol	95-57-8		91						2.4E+02	nc	4.0E+00		
SVOC	4-Chlorophenyl-phenyl ether	7005-72-3		91										
SVOC	Chrysene	218-01-9	B2	91	19	3.38E-02	3.90E+01	6.50E+02		2.1E+03	c	1.6E+02	3.1E-01	**4.1E+00**
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	91	8	4.30E-02	7.40E+00	5.60E+01		2.1E+00	c	2.0E+00	**2.7E+01**	**2.8E+01**
SVOC	Dibenzofuran	132-64-9	D	91	9	2.40E-02	3.10E+01	2.70E+02		3.1E+03	nc		8.7E-02	
SVOC	3,3'-Dichlorobenzidine	91-94-1	B2	91						3.8E+01	c	7.0E-03		
SVOC	2,4-Dichlorophenol	120-83-2		91						1.8E+03	nc	1.0E+00		
SVOC	Diethylphthalate	84-66-2	D	91						4.9E+05	nc			
SVOC	2,4-Dimethylphenol	105-67-9		91						1.2E+04	nc	9.0E+00		
SVOC	Dimethylphthalate	131-11-3	D	91						6.2E+06	nc			
SVOC	Di-n-butylphthalate	84-74-2	D	91	1	9.80E-02	9.80E-02	9.80E-02		6.2E+04	nc	2.3E+03	1.6E-06	4.3E-05
SVOC	4,6-Dinitro-2-methylphenol	534-52-1		91										
SVOC	2,4-Dinitrophenol	51-28-5		91						1.2E+03	nc	3.0E-01		
SVOC	2,4-Dinitrotoluene	121-14-2	B2	91						1.2E+03	nc	8.0E-04		
SVOC	2,6-Dinitrotoluene	606-20-2	B2	91						6.2E+02	nc	7.0E-04		
SVOC	Di-n-octylphthalate	117-84-0		91	1	7.48E-01	7.50E-01	7.48E-01		2.5E+04	nc	1.0E+04	3.0E-05	7.5E-05
SVOC	Fluoranthene	206-44-0	D	91	19	5.30E-02	1.00E+02	1.80E+03		2.2E+04	nc	4.3E+03	8.2E-02	4.2E-01
SVOC	Fluorene	86-73-7	D	91	11	2.90E-02	4.60E+01	5.00E+02		2.6E+04	nc	5.6E+02	1.9E-02	8.9E-01
SVOC	Hexachlorobenzene	118-74-1	B2	91						1.1E+01	c	2.0E+00		
SVOC	Hexachlorobutadiene	87-68-3	C	91						1.8E+02	nc	2.0E+00		
SVOC	Hexachlorocyclopentadiene	77-47-4	E	91						3.7E+03	nc	4.0E+02		
SVOC	Hexachloroethane	67-72-1	C	91						6.2E+02	nc	5.0E-01		
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	91	13	2.75E-02	1.10E+01	1.30E+02		2.1E+01	c	1.4E+01	**6.2E+00**	**9.3E+00**
SVOC	Isophorone	78-59-1	C	90						1.8E+04	c	5.0E-01		
SVOC	2-Methylnaphthalene	91-57-6	ID	91	15	2.00E-02	7.50E+00	8.30E+01		1.9E+02	nc	8.4E+01	4.4E-01	9.9E-01
SVOC	Methylphenol (total)	1319-77-3		91	6	3.13E-01	8.60E-01	2.69E+00		3.1E+03	nc		8.7E-04	
SVOC	Naphthalene	91-20-3	C	91	11	3.98E-01	1.10E+01	1.00E+02		1.9E+02	nc	8.4E+01	5.3E-01	**1.2E+00**
SVOC	2-Nitroaniline	88-74-4		91						1.8E+01	nc			
SVOC	3-Nitroaniline	99-09-2	C	91										
SVOC	4-Nitroaniline	100-01-6	C	91										
SVOC	Nitrobenzene	98-95-3	D	91						1.0E+02	nc	1.0E-01		
SVOC	2-Nitrophenol	88-75-5		91										
SVOC	4-Nitrophenol	100-02-7		91										
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	91	1	3.55E-01	3.60E-01	3.55E-01		3.5E+03	c	1.0E+00	1.0E-04	3.6E-01
SVOC	N-Nitroso-di-n-propylamine	621-64-7	B2	91						2.5E+00	c	5.0E-05		
SVOC	2,2'-oxybis(1-Chloropropane)	108-60-1	C	85						7.4E+01	c			
SVOC	Pentachlorophenol	87-86-5	B2	91						9.0E+01	c	3.0E-02		
SVOC	Phenanthrene	85-01-8	D	91	29	3.20E-02	1.10E+02	3.00E+03		2.9E+04	nc	4.2E+03	1.0E-01	7.1E-01
SVOC	Phenol	108-95-2	ID	91						3.7E+05	nc	1.0E+02		
SVOC	Pyrene	129-00-0	D	91	25	4.20E-02	5.40E+01	1.10E+03		2.9E+04	nc	4.2E+03	3.8E-02	2.6E-01
SVOC	2,4,5-Trichlorophenol	95-95-4		91						6.2E+04	nc	2.7E+02		
SVOC	2,4,6-Trichlorophenol	88-06-2	B2	91						6.2E+01	nc	2.0E-01		
P/PCB	PCBs (total)	1336-36-3	B2	81	11	1.35E-01	2.90E+01	1.30E+02		7.4E+00	c		**1.8E+01**	
P/PCB	Aldrin	309-00-2	B2	11						1.0E+00	c	5.0E-01		
P/PCB	alpha-BHC	319-84-6	B2	11						3.6E+00	c	5.0E-04		
P/PCB	beta-BHC	319-85-7	C	11						1.3E+01	c	3.0E-03		
P/PCB	delta-BHC	319-86-8	D	11										
P/PCB	gamma-BHC	58-89-9	B2-C	11						1.7E+01	c	9.0E-03		
P/PCB	Chlordane (total)	57-74-9	B2	11										
P/PCB	4,4'-DDD	72-54-8	B2	11						1.0E+02	c	1.6E+01		
P/PCB	4,4'-DDE	72-55-9	B2	11						7.0E+01	c	5.4E+01		
P/PCB	4,4'-DDT	50-29-3	B2	11						7.0E+01	c	3.2E+01		
P/PCB	Dieldrin	60-57-1	B2	11						1.1E+00	c	4.0E-03		
P/PCB	Endosulfan	115-29-7		11						3.7E+03	nc	1.8E+01		

Table 8: Soil Screening Results
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Mean Detected (mg/kg)	Max Detected (mg/kg)	Site Specific BG (mg/kg)	Ind Soil Screening Criteria (mg/kg)		SSL MTGW DAF 20 (mg/kg)	Ratio of Max Detect to Ind Soil Screening Criteria	Ratio of Max Detect to MtGW
P/PCB	Endosulfan sulfate	1031-07-8		11						3.7E+03	nc	1.8E+01		
P/PCB	Endrin	72-20-8	D	11						1.8E+02	nc	1.0E+00		
P/PCB	Endrin aldehyde	7421-93-4		11						1.8E+02	nc	1.0E+00		
P/PCB	Endrin ketone	53494-70-5		11						1.8E+02	nc	1.0E+00		
P/PCB	Heptachlor	76-44-8	B2	11						3.8E+00	c	2.3E+01		
P/PCB	Heptachlor epoxide	1024-57-3	B2	11						1.9E+00	c	7.0E-01		
P/PCB	Methoxychlor	72-43-5	D	11						3.1E+03	nc	1.6E+02		
P/PCB	Toxaphene	8001-35-2	B2	11						1.6E+01	c	3.1E+01		
INORG	Aluminum	7429-90-5	D	17	17	1.68E+03	9.20E+03	4.14E+04	1.6E+04	9.2E+05	nc		2.8E-02	
INORG	Antimony	7440-36-0		79	36	5.80E+00	5.30E+02	9.02E+03	4.4E+00	4.1E+02	nc	5.0E+00	**2.2E+01**	**1.8E+03**
INORG	Arsenic	7440-38-2	A	86	81	1.30E+00	1.00E+01	2.23E+02	1.1E+01	1.6E+01	c	2.9E+01	**1.3E+01**	**7.3E+00**
INORG	Barium	7440-39-3	D	79	79	4.30E+00	2.90E+02	2.62E+03	9.9E+01	6.7E+04	nc	1.6E+03	3.8E-02	**1.6E+00**
INORG	Beryllium	7440-41-7	B1	77	26	1.20E-01	5.60E-01	1.33E+00	9.6E-01	1.9E+03	nc	6.3E+01	1.9E-04	5.9E-03
INORG	Cadmium	7440-43-9	B1	83	31	5.40E-02	8.40E+01	2.08E+03	5.3E+00	4.5E+02	nc	8.0E+00	**4.6E+00**	**2.6E+02**
INORG	Calcium	7440-70-2		17	17	2.08E+03	1.50E+05	6.64E+05						
INORG	Chromium (total)	7440-47-3		83	68	2.30E+00	3.10E+02	4.89E+03	2.0E+01	2.5E+03	nc	3.8E+01	**1.9E+00**	**1.3E+02**
INORG	Cobalt	7440-48-4	B1	77	62	1.50E+00	2.50E+01	2.48E+02	1.2E+01	1.3E+04	nc		1.8E-02	
INORG	Copper	7440-50-8	D	80	75	4.60E+00	2.00E+03	6.27E+04	1.9E+01	4.1E+04	nc		**1.5E+00**	
INORG	Lead	7439-92-1	B2	83	83	2.22E-01	3.20E+02	3.92E+03	2.2E+01	7.5E+02	nc		**5.2E+00**	
INORG	Manganese	7439-96-5	D	77	77	5.50E+01	4.60E+02	2.99E+03	7.2E+02	1.9E+04	nc		1.2E-01	
INORG	Mercury	7439-97-6	D	77	55	7.50E-03	3.70E-01	8.48E+00	6.9E-01	1.4E+01	nc		5.7E-01	
INORG	Nickel	7440-02-0	A	77	75	3.60E+00	2.20E+02	3.35E+03	2.0E+01	2.0E+04	nc	1.3E+02	1.7E-01	**2.6E+01**
INORG	Selenium	7782-49-2	D	77	13	1.70E-01	3.70E-01	8.22E-01	1.4E+00	5.1E+03	nc	5.0E+00		
INORG	Silver	7440-22-4	D	80	11	3.20E-02	2.70E+01	8.72E+01	7.6E-01	5.1E+03	nc	3.4E+01	1.7E-02	**2.5E+00**
INORG	Thallium	7440-28-0		77	10	1.88E-01	6.10E-01	2.08E+00	2.6E-01	6.8E+01	nc		2.7E-02	
INORG	Vanadium	7440-62-2		77	56	4.30E+00	1.70E+01	1.75E+02	3.4E+01	7.2E+03	nc	6.0E+03	2.0E-02	2.4E-02
INORG	Zinc	7440-66-6	D	83	79	8.90E+00	1.20E+03	2.44E+04	7.1E+01	3.1E+05	nc	1.2E+04	7.8E-02	**2.0E+00**

Notes:

The Screening Criteria for residential and industrial soil is the lower of the integrated Screening Criteria at:

target cancer risk = **1E-05**

target hazard quotient = **1**

The soil screening level for soil to ground water leaching is presented in the PRG table for migration to ground water with a **DAF =** **20**

The Screening Criteria for Pyrene were used as surrogates for Phenanthrene and Benzo(g,h,i)perylene.

The Screening Criteria for Phenol were used as surrogates for Phenols (total).

The Screening Criteria for Naphthalene were used as surrogates for 2-Methylnaphthalene.

The Screening Criteria for cis-1,2-Dichloroethene were used as surrogates for 1,2-Dichloroethene (total).

The Screening Criteria for Chromium VI was used as a surrogate for Chromium (total).

The concentrations for the Methylphenol (2, 3, & 4) were summed before comparing to the Screening Criteria for 4-Methylphenol.

The concentrations for all PCB isomers were summed before comparing to Polychlorinated biphenyls (PCBs) for cancer effects and Aroclor 1254 for noncancer effects.

The concentrations for the Chlordane isomers (alpha and beta) were summed before comparing to the Screening Criteria.

The concentrations for the 1,3-Dichloropropene isomers (cis and trans) were summed before comparing to the Screening Criteria.

The concentrations for Endosulfan (I and II) were summed before comparing to the Screening Criteria.

The Screening Criteria for Mercury was calculated by ENVIRON to account for the vapor inhalation pathway using: EPA Region 9 equations, RfC from IRIS, and chemical properties from EPA's Soil Screening Guidance.

c - The Screening Criterion is based on cancer risk.

nc - The Screening Criterion is based on noncancer effects.

Chem Group - Chemical Group

Carc Class - EPA Weight-of-Evidence Cancer Classification

Table 9: Groundwater Screening Results
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Mean Detected (mg/L)	Max Detected (mg/L)	Drinking Water Screening Criteria (mg/L)		Ratio of Max Detect to Drinking Water Screening Criteria
VOC	Acetone	67-64-1	T	ID	19	2	3.20E-03	4.30E-03	5.30E-03	3.7E+00	nc	1.4E-03
VOC	Acetonitrile	75-05-8	T	D	7					6.2E-01	nc	
VOC	Acrolein	107-02-8	T	ID	6					7.3E-01	nc	
VOC	Acrylonitrile	107-13-1	T	B1	11					1.3E-03	c	
VOC	Benzene	71-43-2	T	A	28					5.0E-03	sm	
VOC	Bromodichloromethane	75-27-4	T	B2	19					8.0E-02	fm	
VOC	Bromoform	75-25-2	T	B2	19					8.0E-02	fm	
VOC	Bromomethane	74-83-9	T	D	19					5.1E-02	nc	
VOC	2-Butanone	78-93-3	T	ID	11					2.2E+01	nc	
VOC	Carbon Disulfide	75-15-0	T		19	1	3.20E-04	3.20E-04	3.20E-04	3.7E+00	nc	8.6E-05
VOC	Carbon Tetrachloride	56-23-5	T	B2	19					5.0E-03	sm	
VOC	2-Chloro-1,3-butadiene	126-99-8	T		19					7.3E-01	nc	
VOC	3-Chloro-1-propene	107-05-1	T		19					1.8E+00	nc	
VOC	Chlorobenzene	108-90-7	T	D	19					1.0E-01	sm	
VOC	Chloroethane	75-00-3	T		19	4	7.30E-04	1.90E-02	6.48E-02	1.5E+01	nc	4.3E-03
VOC	Chloroform	67-66-3	T	B2	19					8.0E-02	fm	
VOC	Chloromethane	74-87-3	T	D	19					5.2E-02	c	
VOC	1,2-Dibromo-3-chloropropane	96-12-8	T	B2	19					2.0E-04	sm	
VOC	Dibromochloromethane	124-48-1	T	C	19					8.0E-02	fm	
VOC	1,2-Dibromoethane	106-93-4	T	B2	19					5.0E-05	sm	
VOC	Dibromomethane	74-95-3	T		19					3.7E-01	nc	
VOC	trans-1,4-Dichloro-2-butene	110-57-6	T		19							
VOC	1,2-Dichlorobenzene	95-50-1	T	D	16	2	1.10E-03	4.50E-03	7.90E-03	6.0E-01	sm	1.3E-02
VOC	1,3-Dichlorobenzene	541-73-1	T	D	16	1	5.00E-03	5.00E-03	5.00E-03	3.3E-02	nc	1.5E-01
VOC	1,4-Dichlorobenzene	106-46-7	T	C	16	1	7.00E-03	7.00E-03	7.00E-03	7.5E-02	sm	9.3E-02
VOC	Dichlorodifluoromethane	75-71-8	T		19	4	1.50E-03	3.40E-02	6.45E-02	7.3E+00	nc	8.8E-03
VOC	1,1-Dichloroethane	75-34-3	T	C	28	27	1.90E-03	1.40E-02	8.54E-02	3.7E+00	nc	2.3E-02
VOC	1,2-Dichloroethane	107-06-2	T	B2	19					5.0E-03	sm	
VOC	1,1-Dichloroethene	75-35-4	T	C	28	12	7.30E-04	1.50E-03	4.00E-03	7.0E-03	sm	5.7E-01
VOC	cis-1,2-Dichloroethene	156-59-2	T	D	26	25	3.00E-03	7.30E-02	3.50E-01	7.0E-02	sm	**5.0E+00**
VOC	trans-1,2-Dichloroethene	156-60-5	T		28	20	4.00E-04	3.40E-03	1.20E-02	1.0E-01	sm	1.2E-01
VOC	1,2-Dichloropropane	78-87-5	T	B2	19					5.0E-03	sm	
VOC	1,3-Dichloropropene (total)	542-75-6	T	B2	19					6.7E-03	c	
VOC	1,4-Dioxane	123-91-1	T	B2	1					6.1E-02	c	
VOC	Ethyl Benzene	100-41-4	T	D	28					7.0E-01	sm	
VOC	Ethyl Methacrylate	97-63-2	T		19					3.3E+00	nc	
VOC	2-Hexanone	591-78-6	T		19							
VOC	Iodomethane	74-88-4	T		19	1	4.90E-03	4.90E-03	4.90E-03			
VOC	Isobutyl Alcohol	78-83-1	T		2					1.1E+01	nc	
VOC	Methacrylonitrile	126-98-7	T		19					3.7E-03	nc	
VOC	4-Methyl-2-pentanone	108-10-1	T	ID	19					2.9E+00	nc	
VOC	Methylene Chloride	75-09-2	T	B2	19					5.0E-03	sm	
VOC	Methylmethacrylate	80-62-6	T	E	19					5.1E+01	nc	
VOC	Pentachloroethane	76-01-7	T		19							
VOC	Propionitrile	107-12-0	T		10							
VOC	Styrene	100-42-5	T		19					1.0E-01	sm	
VOC	1,1,1,2-Tetrachloroethane	630-20-6	T		19					2.6E-02	c	
VOC	1,1,2,2-Tetrachloroethane	79-34-5	T	C	19					3.4E-03	c	
VOC	Tetrachloroethene	127-18-4	T	C-B2	28	26	1.86E-02	4.80E-02	9.42E-02	5.0E-03	sm	**1.9E+01**
VOC	Toluene	108-88-3	T	D	28					1.0E+00	sm	
VOC	1,2,4-Trichlorobenzene	120-82-1	T	D	16	1	8.90E-02	8.90E-02	8.90E-02	7.0E-02	sm	**1.3E+00**
VOC	1,1,1-Trichloroethane	71-55-6	T	D	28	26	3.80E-03	1.40E-02	2.46E-02	2.0E-01	sm	1.2E-01
VOC	1,1,2-Trichloroethane	79-00-5	T	C	19					5.0E-03	sm	

Table 9: Groundwater Screening Results
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Mean Detected (mg/L)	Max Detected (mg/L)	Drinking Water Screening Criteria (mg/L)		Ratio of Max Detect to Drinking Water Screening Criteria
VOC	Trichloroethene	79-01-6	T	C-B2	28	27	2.00E-03	9.20E-02	3.20E-01	5.0E-03	sm	6.4E+01
VOC	Trichlorofluoromethane	75-69-4	T		19					1.1E+01	nc	
VOC	1,2,3-Trichloropropane	96-18-4	T	B2	19					3.4E-04	c	
VOC	Vinyl Acetate	108-05-4	T		19					3.7E+01	nc	
VOC	Vinyl Chloride	75-01-4	T	A	28	12	4.80E-04	2.40E-02	1.10E-01	2.0E-03	sm	5.5E+01
VOC	Xylenes (total)	1330-20-7	T	ID	28					1.0E+01	sm	
SVOC	Acenaphthene	83-32-9	T		16					2.2E+00	nc	
SVOC	Acenaphthylene	208-96-8	T	D	16					1.1E+00	nc	
SVOC	Acetophenone	98-86-2	T	D	16							
SVOC	2-Acetylaminofluorene	53-96-3	T		16							
SVOC	4-Aminobiphenyl	92-67-1	T		16							
SVOC	Aniline	62-53-3	T	B2	16					1.2E-01	c	
SVOC	Anthracene	120-12-7	T	D	16					1.1E+01	nc	
SVOC	Aramite (total)	140-57-8	T		16					2.7E-02	c	
SVOC	Benzo(a)anthracene	56-55-3	T	B2	16					9.2E-04	c	
SVOC	Benzo(a)pyrene	50-32-8	T	B2	16					2.0E-04	sm	
SVOC	Benzo(b)fluoranthene	205-99-2	T	B2	16					9.2E-04	c	
SVOC	Benzo(g,h,i)perylene	191-24-2	T	D	16					1.1E+00	nc	
SVOC	Benzo(k)fluoranthene	207-08-9	T	B2	16					9.2E-03	c	
SVOC	Benzyl Alcohol	100-51-6	T		16					1.1E+01	nc	
SVOC	bis(2-Chloroethoxy)methane	111-91-1	T	D	16							
SVOC	bis(2-Chloroethyl) ether	111-44-4	T	B2	16					6.1E-04	c	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	T	B2	16					6.0E-03	sm	
SVOC	4-Bromophenyl-phenyl ether	101-55-3	T	D	16							
SVOC	2,sec-Butyl-4,6-dinitrophenol	88-85-7	T		9					7.0E-03	sm	
SVOC	Butylbenzylphthalate	85-68-7	T	C	16					7.3E+00	nc	
SVOC	4-Chloro-3-methylphenol	59-50-7	T		16							
SVOC	4-Chloroaniline	106-47-8	T		16					1.5E-01	nc	
SVOC	p-Chlorobenzilate	510-15-6	T		16					2.5E-03	c	
SVOC	2-Chloronaphthalene	91-58-7	T		16					2.9E+00	nc	
SVOC	2-Chlorophenol	95-57-8	T		16					1.8E-01	nc	
SVOC	4-Chlorophenyl-phenyl ether	7005-72-3	T		16							
SVOC	Chrysene	218-01-9	T	B2	16					9.2E-02	c	
SVOC	Diallate (total)	2303-16-4	T		16					1.1E-02	c	
SVOC	Dibenz(a,h)anthracene	53-70-3	T	B2	16					9.2E-05	c	
SVOC	Dibenzofuran	132-64-9	T	D	16					1.5E-01	nc	
SVOC	3,3'-Dichlorobenzidine	91-94-1	T	B2	16					1.5E-03	c	
SVOC	2,4-Dichlorophenol	120-83-2	T		16					1.1E-01	nc	
SVOC	2,6-Dichlorophenol	87-65-0	T		16							
SVOC	Diethylphthalate	84-66-2	T	D	16					2.9E+01	nc	
SVOC	Dimethoate	60-51-5	T		16					7.3E-03	nc	
SVOC	p-(Dimethylamino)azobenzene	60-11-7	T		16							
SVOC	7,12-Dimethylbenz(a)anthracene	57-97-6	T		16							
SVOC	3,3'-Dimethylbenzidine	119-93-7	T		13					7.3E-05	c	
SVOC	a,a-Dimethylphenethylamine	122-09-8	T		16					3.7E-02	nc	
SVOC	2,4-Dimethylphenol	105-67-9	T		16					7.3E-01	nc	
SVOC	Dimethylphthalate	131-11-3	T	D	16					3.7E+02	nc	
SVOC	Di-n-butylphthalate	84-74-2	T	D	16					3.7E+00	nc	
SVOC	4,6-Dinitro-2-methylphenol	534-52-1	T		16							
SVOC	1,3-Dinitrobenzene	99-65-0	T		16					3.7E-03	nc	
SVOC	2,4-Dinitrophenol	51-28-5	T		16					7.3E-02	nc	
SVOC	2,4-Dinitrotoluene	121-14-2	T	B2	16					7.3E-02	nc	
SVOC	2,6-Dinitrotoluene	606-20-2	T	B2	16					3.7E-02	nc	

Table 9: Groundwater Screening Results
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Mean Detected (mg/L)	Max Detected (mg/L)	Drinking Water Screening Criteria (mg/L)		Ratio of Max Detect to Drinking Water Screening Criteria
SVOC	Di-n-octylphthalate	117-84-0	T		16					1.5E+00	nc	
SVOC	Diphenylamine	122-39-4	T		16					9.1E-01	nc	
SVOC	Disulfoton	298-04-4	T		16					1.5E-03	nc	
SVOC	Ethylmethanesulfonate	62-50-0	T		16							
SVOC	Famphur	52-85-7	T		16							
SVOC	Fluoranthene	206-44-0	T	D	16					1.5E+00	nc	
SVOC	Fluorene	86-73-7	T	D	16					1.5E+00	nc	
SVOC	Hexachlorobenzene	118-74-1	T	B2	16					1.0E-03	sm	
SVOC	Hexachlorobutadiene	87-68-3	T	C	16	1	3.70E-03	3.70E-03	3.70E-03	8.6E-03	c	4.3E-01
SVOC	Hexachlorocyclopentadiene	77-47-4	T	E	16					5.0E-02	sm	
SVOC	Hexachloroethane	67-72-1	T	C	16					3.7E-02	nc	
SVOC	Hexachlorophene	70-30-4	T		8					1.1E-02	nc	
SVOC	Hexachloropropene	1888-71-7	T		16							
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	T	B2	16					9.2E-04	c	
SVOC	Isodrin	465-73-6	T		8							
SVOC	Isophorone	78-59-1	T	C	16					7.1E-01	c	
SVOC	Isosafrole (total)	120-58-1	T		16							
SVOC	Kepone	143-50-0	T	B2	8					8.4E-05	c	
SVOC	Methapyrilene	91-80-5	T		16							
SVOC	Methyl parathion	298-00-0	T		8					9.1E-03	nc	
SVOC	3-Methylcholanthrene	56-49-5	T		16							
SVOC	Methylmethanesulfonate	66-27-3	T		16							
SVOC	2-Methylnaphthalene	91-57-6	T	ID	16					7.3E-01	nc	
SVOC	Methylphenol (total)	1319-77-3	T		16					1.8E-01	nc	
SVOC	Naphthalene	91-20-3	T	C	16					7.3E-01	nc	
SVOC	1,4-Naphthoquinone	130-15-4	T		16							
SVOC	1-Naphthylamine	134-32-7	T		16							
SVOC	2-Naphthylamine	91-59-8	T		16							
SVOC	5-Nitro-o-toluidine	99-55-8	T		16					2.0E-02	c	
SVOC	2-Nitroaniline	88-74-4	T		16					1.0E-03	nc	
SVOC	3-Nitroaniline	99-09-2	T	C	16							
SVOC	4-Nitroaniline	100-01-6	T	C	16							
SVOC	Nitrobenzene	98-95-3	T	D	16					1.8E-02	nc	
SVOC	2-Nitrophenol	88-75-5	T		16							
SVOC	4-Nitrophenol	100-02-7	T		16							
SVOC	4-Nitroquinoline-1-oxide	56-57-5	T		16							
SVOC	N-Nitrosodi-n-butylamine	924-16-3	T		16					1.3E-04	c	
SVOC	N-Nitrosodiethylamine	55-18-5	T		16					4.5E-06	c	
SVOC	N-Nitrosodimethylamine	62-75-9	T	B2	16					1.3E-05	c	
SVOC	N-Nitrosodiphenylamine	86-30-6	T	B2	10					1.4E-01	c	
SVOC	N-Nitroso-di-n-propylamine	621-64-7	T	B2	16					9.6E-05	c	
SVOC	N-Nitrosomethylethylamine	10595-95-6	T		16					3.1E-05	c	
SVOC	N-Nitrosopiperidine	100-75-4	T		16							
SVOC	N-Nitrosopyrrolidine	930-55-2	T		16					3.2E-04	c	
SVOC	N-Nitrosomorpholine	59-89-2	T		16							
SVOC	2,2'-oxybis(1-Chloropropane)	108-60-1	T	C	16					9.6E-03	c	
SVOC	Parathion	56-38-2	T		8					2.2E-01	nc	
SVOC	Pentachlorobenzene	608-93-5	T		16					2.9E-02	nc	
SVOC	Pentachloronitrobenzene	82-68-8	T		16					2.6E-03	c	
SVOC	Pentachlorophenol	87-86-5	T	B2	16					1.0E-03	sm	
SVOC	Phenacetin	62-44-2	T		16							
SVOC	Phenanthrene	85-01-8	T	D	16					1.1E+00	nc	
SVOC	Phenol	108-95-2	T	ID	16					2.2E+01	nc	

Table 9: Groundwater Screening Results
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Mean Detected (mg/L)	Max Detected (mg/L)	Drinking Water Screening Criteria (mg/L)		Ratio of Max Detect to Drinking Water Screening Criteria
SVOC	p-Phenylene diamine	106-50-3	T		8					6.9E+00	nc	
SVOC	Phorate	298-02-2	T		16					7.3E-03	nc	
SVOC	2-Picoline	109-06-8	T		16							
SVOC	Pronamide	23950-58-5	T		16					2.7E+00	nc	
SVOC	Pyrene	129-00-0	T	D	16					1.1E+00	nc	
SVOC	Pyridine	110-86-1	T		16					3.7E-02	nc	
SVOC	Safrole (total)	94-59-7	T		16							
SVOC	Sulfotepp	3689-24-5	T		16					1.8E-02	nc	
SVOC	1,2,4,5-Tetrachlorobenzene	95-94-3	T		16					1.1E-02	nc	
SVOC	2,3,4,6-Tetrachlorophenol	58-90-2	T		16					1.1E+00	nc	
SVOC	Thionazin	297-97-2	T		16							
SVOC	o-Toluidine	95-53-4	T		16					2.8E-03	c	
SVOC	2,4,5-Trichlorophenol	95-95-4	T		16					3.7E+00	nc	
SVOC	2,4,6-Trichlorophenol	88-06-2	T	B2	16					3.7E-03	nc	
SVOC	O,O,O-Triethyl phosphorothioate	126-68-1	T		16							
SVOC	1,3,5-Trinitrobenzene	99-35-4	T		16					1.1E+00	nc	
P/PCB	PCBs (total)	1336-36-3	T	B2	15	2	2.70E-04	1.50E-03	2.70E-03	5.0E-04	sm	5.4E+00
P/PCB	Aldrin	309-00-2	T	B2	1					4.0E-05	c	
P/PCB	alpha-BHC	319-84-6	T	B2	1					1.1E-04	c	
P/PCB	beta-BHC	319-85-7	T	C	1					3.7E-04	c	
P/PCB	delta-BHC	319-86-8	T	D	1							
P/PCB	gamma-BHC	58-89-9	T	B2-C	1					2.0E-04	sm	
P/PCB	Chlordane (total)	57-74-9	T	B2	1					2.0E-03	sm	
P/PCB	4,4'-DDD	72-54-8	T	B2	1					2.8E-03	c	
P/PCB	4,4'-DDE	72-55-9	T	B2	1					2.0E-03	c	
P/PCB	4,4'-DDT	50-29-3	T	B2	1					2.0E-03	c	
P/PCB	Dieldrin	60-57-1	T	B2	1					4.2E-05	c	
P/PCB	Endosulfan	115-29-7	T		1					2.2E-01	nc	
P/PCB	Endosulfan sulfate	1031-07-8	T		1					2.2E-01	nc	
P/PCB	Endrin	72-20-8	T	D	1					2.0E-03	sm	
P/PCB	Endrin aldehyde	7421-93-4	T		1					1.1E-02	nc	
P/PCB	Heptachlor	76-44-8	T	B2	1					4.0E-04	sm	
P/PCB	Heptachlor epoxide	1024-57-3	T	B2	1					2.0E-04	sm	
P/PCB	Methoxychlor	72-43-5	T	D	1					4.0E-02	sm	
P/PCB	Toxaphene	8001-35-2	T	B2	1					3.0E-03	sm	
INORG	Antimony	7440-36-0	D		15	11	1.90E-03	1.00E-02	5.62E-02	6.0E-03	sm	9.4E+00
INORG	Antimony	7440-36-0	T		14	12	2.03E-03	2.60E-02	1.92E-01	6.0E-03	sm	3.2E+01
INORG	Arsenic	7440-38-2	D	A	15	2	1.12E-02	1.20E-02	1.20E-02	5.0E-02	sm	2.4E-01
INORG	Arsenic	7440-38-2	T	A	14	10	6.05E-03	6.90E-02	2.57E-01	5.0E-02	sm	5.1E+00
INORG	Barium	7440-39-3	D	D	15	15	7.34E-02	1.30E-01	2.65E-01	2.0E+00	sm	1.3E-01
INORG	Barium	7440-39-3	T	D	14	14	9.82E-02	1.10E+00	1.02E+01	2.0E+00	sm	5.1E+00
INORG	Beryllium	7440-41-7	D	B1	15					4.0E-03	sm	
INORG	Beryllium	7440-41-7	T	B1	14	6	1.25E-04	5.40E-03	2.05E-02	4.0E-03	sm	5.1E+00
INORG	Cadmium	7440-43-9	D	B1	15	4	9.80E-05	7.60E-04	2.10E-03	5.0E-03	sm	4.2E-01
INORG	Cadmium	7440-43-9	T	B1	14	8	1.70E-04	1.30E-02	5.53E-02	5.0E-03	sm	1.1E+01
INORG	Chromium (total)	7440-47-3	D		15	7	4.80E-04	1.80E-03	5.20E-03	1.0E-01	sm	5.2E-02
INORG	Chromium (total)	7440-47-3	T		14	12	1.10E-03	1.10E-01	7.31E-01	1.0E-01	sm	7.3E+00
INORG	Cobalt	7440-48-4	D	B1	15	8	2.50E-03	1.20E-02	3.37E-02	7.3E-01	nc	4.6E-02
INORG	Cobalt	7440-48-4	T	B1	14	13	2.70E-03	7.90E-02	4.97E-01	7.3E-01	nc	6.8E-01
INORG	Copper	7440-50-8	D	D	15	5	2.50E-03	6.60E-03	1.28E-02	1.3E+00	sm	9.8E-03
INORG	Copper	7440-50-8	T	D	14	11	2.60E-03	3.10E-01	1.99E+00	1.3E+00	sm	1.5E+00
INORG	Cyanide (total)	57-12-5	T	D	1	1	8.00E-03	8.00E-03	8.00E-03	2.0E-01	sm	4.0E-02
INORG	Lead	7439-92-1	D	B2	15					1.5E-02	sm	

Table 9: Groundwater Screening Results
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Mean Detected (mg/L)	Max Detected (mg/L)	Drinking Water Screening Criteria (mg/L)		Ratio of Max Detect to Drinking Water Screening Criteria
INORG	Lead	7439-92-1	T	B2	14	10	7.50E-04	2.00E-01	1.23E+00	1.5E-02	sm	**8.2E+01**
INORG	Manganese	7439-96-5	D	D	6	6	4.10E-02	1.10E-01	1.45E-01	8.8E-01	nc	1.6E-01
INORG	Manganese	7439-96-5	T	D	6	6	1.20E-01	2.60E-01	6.27E-01	8.8E-01	nc	7.1E-01
INORG	Mercury	7439-97-6	D	D	15					2.0E-03	sm	
INORG	Mercury	7439-97-6	T	D	14	6	1.10E-04	8.10E-04	3.00E-03	2.0E-03	sm	**1.5E+00**
INORG	Nickel	7440-02-0	D	A	15	15	6.90E-03	1.50E-02	2.33E-02	1.0E-01	sm	2.3E-01
INORG	Nickel	7440-02-0	T	A	14	14	1.19E-02	1.90E-01	1.37E+00	1.0E-01	sm	**1.4E+01**
INORG	Selenium	7782-49-2	D	D	14	1	2.10E-03	2.10E-03	2.10E-03	5.0E-02	sm	4.2E-02
INORG	Selenium	7782-49-2	T	D	14	2	1.70E-03	7.80E-03	1.39E-02	5.0E-02	sm	2.8E-01
INORG	Silver	7440-22-4	D	D	14	2	4.50E-04	6.30E-04	8.00E-04	1.8E-01	nc	4.4E-03
INORG	Silver	7440-22-4	T	D	14	5	1.30E-04	2.10E-03	8.50E-03	1.8E-01	nc	4.7E-02
INORG	Thallium	7440-28-0	D		14	1	3.05E-04	3.10E-04	3.05E-04	2.0E-03	sm	1.5E-01
INORG	Thallium	7440-28-0	T		14	6	4.35E-04	6.10E-03	2.04E-02	2.0E-03	sm	**1.0E+01**
INORG	Tin	7440-31-5	D		15					2.2E+01	nc	
INORG	Tin	7440-31-5	T		14	1	2.04E-01	2.00E-01	2.04E-01	2.2E+01	nc	9.3E-03
INORG	Vanadium	7440-62-2	D		15	1	2.60E-03	2.60E-03	2.60E-03	2.6E-01	nc	1.0E-02
INORG	Vanadium	7440-62-2	T		14	11	5.20E-04	1.10E-01	5.72E-01	2.6E-01	nc	**2.2E+00**
INORG	Zinc	7440-66-6	D	D	15	4	7.50E-03	1.10E-02	1.65E-02	1.1E+01	nc	1.5E-03
INORG	Zinc	7440-66-6	T	D	14	10	8.80E-03	1.10E+00	4.95E+00	1.1E+01	nc	4.5E-01
HERB	2,4-D	94-75-7	T		1					7.0E-02	sm	
HERB	2,4,5-T	93-76-5	T		1					3.7E-01	nc	
HERB	2,4,5-TP	93-72-1	T		1					5.0E-02	sm	

Notes:

The Screening Criteria hierarchy is State MCL, Fed MCL, the lower of the integrated Screening Criteria at:
- target cancer risk = **1E-05**
- target hazard quotient = **1**

The Screening Criteria for Pyrene were used as surrogates for Phenanthrene and Benzo(g,h,i)perylene.
The Screening Criteria for Phenol were used as surrogates for Phenols (total).
The Screening Criteria for Naphthalene were used as surrogates for 2-Methylnaphthalene.
The Screening Criteria for cis-1,2-Dichloroethene were used as surrogates for 1,2-Dichloroethene (total).
The Screening Criteria for Chromium VI was used as a surrogate for Chromium (total).
The concentrations for the Methylphenol (2, 3, & 4) were summed before comparing to the Screening Criteria for 4-Methylphenol.
The concentrations for Endosulfan (I and II) were summed before comparing to the Screening Criteria.
The concentrations for all PCB isomers were summed before comparing to Polychlorinated biphenyls (PCBs) for cancer effects and Aroclor 1254 for noncancer effects.
The concentrations for the Chlordane isomers (alpha and beta) were summed before comparing to the Screening Criteria.
The concentrations for the 1,3-Dichloropropene isomers (cis and trans) were summed before comparing to the Screening Criteria.

sm - The Screening Criterion is the State MCL.
fm - The Screening Criterion is the Federal MCL.
c - The Screening Criterion is based on cancer risk.
nc - The Screening Criterion is based on noncancer effects.
Chem Group - Chemical Group
Meas Basis - Measured Basis; T = Total, D = Dissolved
Carc Class - EPA Weight-of-Evidence Cancer Classification

Table 10: Soil Sample Results Greater Than Screening Criteria
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Element	Location	Sample ID	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	Conc (mg/kg)	Qual	SQL	Site Specific BG (mg/kg)	Industrial Screening Level (mg/kg)	Ratio of Conc to Industrial Screening Level	SSL MTGW DAF 20 (mg/kg)	Ratio of Conc to SSL MTGW DAF 20	Deepest Sample
Soil	GM-34	GM-34/16-18/SL	16	18	4/3/2001	VOC	Tetrachloroethene	8.48E-02				3.4E+01	2.5E-03	6.0E-02	1.4E+00	No
Soil	GM-34	GM-34/26-28/SL	26	28	4/3/2001	VOC	Tetrachloroethene	6.93E-02	J			3.4E+01	2.0E-03	6.0E-02	**1.2E+00**	Yes
Soil	GM-35	GM-35/8-10/SL	8	10	4/4/2001	SVOC	Benzo(a)anthracene	1.11E+01	J			2.1E+01	5.3E-01	2.0E+00	5.6E+00	No
Soil	GM-35	GM-35/8-10/SL	8	10	4/4/2001	SVOC	Benzo(a)pyrene	8.93E+00	J			2.1E+00	**4.3E+00**	8.0E+00	1.1E+00	No
Soil	GM-35	GM-35/8-10/SL	8	10	4/4/2001	SVOC	Benzo(b)fluoranthene	1.72E+01	J			2.1E+01	8.2E-01	5.0E+00	3.4E+00	No
Soil	GM-35	GM-35/8-10/SL	8	10	4/4/2001	SVOC	Carbazole	1.91E+00				8.6E+02	2.2E-03	6.0E-01	3.2E+00	No
Soil	GM-35	GM-35/8-10/SL	8	10	4/4/2001	INORG	Antimony	1.61E+01			4.4E+00	4.1E+02	2.9E-02	5.0E+00	2.4E+00	No
Soil	GM-35	GM-35/8-10/SL	8	10	4/4/2001	INORG	Chromium (total)	6.69E+01			2.0E+01	2.5E+03	1.9E-02	3.8E+01	1.2E+00	No
Soil	GM-35	GM-35/8-10/SL	8	10	4/4/2001	INORG	Nickel	3.68E+02			2.0E+01	2.0E+04	1.8E-02	1.3E+02	2.7E+00	No
Soil	GM-36	GM-36/28-30/SL	28	30	4/3/2001	VOC	Tetrachloroethene	7.51E-02				3.4E+01	2.2E-03	6.0E-02	**1.3E+00**	Yes
Soil	GM-36	GM-36/6-8/SL	6	8	4/3/2001	VOC	Tetrachloroethene	6.77E-02				3.4E+01	2.0E-03	6.0E-02	1.1E+00	No
Soil	GM-36	GM-36/6-8/SL	6	8	4/3/2001	SVOC	Benzo(a)anthracene	2.38E+00	J			2.1E+01	1.1E-01	2.0E+00	1.2E+00	No
Soil	GM-36	GM-36/6-8/SL	6	8	4/3/2001	SVOC	Benzo(a)pyrene	3.84E+00	J			2.1E+00	**1.8E+00**	8.0E+00	4.8E-01	No
Soil	GM-36	GM-36/6-8/SL	6	8	4/3/2001	INORG	Antimony	2.77E+01			4.4E+00	4.1E+02	5.7E-02	5.0E+00	4.7E+00	No
Soil	GM-36	GM-36/6-8/SL	6	8	4/3/2001	INORG	Silver	8.26E+01			7.6E-01	5.1E+03	1.6E-02	3.4E+01	2.4E+00	No
Soil	GM-37	GM-37/0-2	0	2	4/9/2001	VOC	1,1,2,2-Tetrachloroethane	1.73E-02	J			9.3E+00	1.9E-03	3.0E-03	5.8E+00	No
Soil	GM-37	GM-37/0-2	0	2	4/9/2001	INORG	Antimony	3.50E+01			4.4E+00	4.1E+02	7.5E-02	5.0E+00	6.1E+00	No
Soil	GM-37	GM-37/0-2	0	2	4/9/2001	INORG	Cadmium	1.40E+01			5.3E+00	4.5E+02	1.9E-02	8.0E+00	1.1E+00	No
Soil	GM-37	GM-37/0-2	0	2	4/9/2001	INORG	Chromium (total)	1.16E+03			2.0E+01	2.5E+03	4.6E-01	3.8E+01	3.0E+01	No
Soil	GM-37	GM-37/0-2	0	2	4/9/2001	INORG	Lead	9.29E+02			2.2E+01	7.5E+02	**1.2E+00**			No
Soil	GM-37	GM-37/0-2	0	2	4/9/2001	INORG	Nickel	1.02E+03			2.0E+01	2.0E+04	5.0E-02	1.3E+02	7.8E+00	No
Soil	GM-37	GM-37/4-6	4	6	4/9/2001	INORG	Antimony	6.20E+01			4.4E+00	4.1E+02	1.4E-01	5.0E+00	1.2E+01	No
Soil	GM-37	GM-37/4-6	4	6	4/9/2001	INORG	Chromium (total)	2.00E+03			2.0E+01	2.5E+03	7.9E-01	3.8E+01	5.2E+01	No
Soil	GM-37	GM-37/4-6	4	6	4/9/2001	INORG	Lead	1.49E+03			2.2E+01	7.5E+02	**2.0E+00**			No
Soil	GM-37	GM-37/4-6	4	6	4/9/2001	INORG	Nickel	3.35E+03			2.0E+01	2.0E+04	1.7E-01	1.3E+02	2.6E+01	No
Soil	GM-37	GM-37/4-6	4	6	4/9/2001	INORG	Zinc	2.06E+04			7.1E+01	3.1E+05	6.6E-02	1.2E+04	1.7E+00	No
Soil	GM-38	GM-38/8-10/SL	8	10	4/10/2001	INORG	Antimony	3.30E+01			4.4E+00	4.1E+02	7.0E-02	5.0E+00	5.7E+00	No
Soil	GM-38	GM-38/8-10/SL	8	10	4/10/2001	INORG	Chromium (total)	5.57E+02	J		2.0E+01	2.5E+03	2.1E-01	3.8E+01	1.4E+01	No
Soil	GM-38	GM-38/8-10/SL	8	10	4/10/2001	INORG	Nickel	1.63E+03	J		2.0E+01	2.0E+04	8.1E-02	1.3E+02	1.2E+01	No
Soil	WPSA-BH01	WPSA-BH01-02SL	1	3	12/2/1992	VOC	Tetrachloroethene	1.90E-01				3.4E+01	5.6E-03	6.0E-02	3.2E+00	No
Soil	WPSA-BH01	WPSA-BH01-02SL	1	3	12/2/1992	INORG	Antimony	3.32E+01			4.4E+00	4.1E+02	7.0E-02	5.0E+00	5.8E+00	No
Soil	WPSA-BH01	WPSA-BH01-08SL	7	8	12/2/1992	VOC	Tetrachloroethene	8.40E-02				3.4E+01	2.5E-03	6.0E-02	**1.4E+00**	Yes
Soil	WPSA-BH01	WPSA-BH01-08SL	7	8	12/2/1992	INORG	Antimony	2.31E+01			4.4E+00	4.1E+02	4.6E-02	5.0E+00	**3.8E+00**	Yes
Soil	WPSA-BH02	WPSA-BH02-02SL	1	3	12/2/1992	INORG	Antimony	3.80E+01			4.4E+00	4.1E+02	8.2E-02	5.0E+00	6.7E+00	No
Soil	WPSA-BH02	WPSA-BH02-08SL	6	8	12/2/1992	VOC	Tetrachloroethene	1.30E-01				3.4E+01	3.8E-03	6.0E-02	**2.2E+00**	Yes
Soil	WPSA-BH02	WPSA-BH02-08SL	6	8	12/2/1992	INORG	Antimony	2.94E+02			4.4E+00	4.1E+02	7.1E-01	5.0E+00	**5.8E+01**	Yes
Soil	WPSA-BH03	WPSA-BH03-02SL	1	3	12/2/1992	VOC	Tetrachloroethene	8.70E-02				3.4E+01	2.6E-03	6.0E-02	1.5E+00	No
Soil	WPSA-BH03	WPSA-BH03-02SL	1	3	12/2/1992	INORG	Antimony	2.18E+01			4.4E+00	4.1E+02	4.3E-02	5.0E+00	3.5E+00	No
Soil	WPSA-BH03	WPSA-BH03-02SL	1	3	12/2/1992	INORG	Barium	2.62E+03			9.9E+01	6.7E+04	3.8E-02	1.6E+03	1.6E+00	No
Soil	WPSA-BH03	WPSA-BH03-02SL	1	3	12/2/1992	INORG	Cadmium	2.19E+01			5.3E+00	4.5E+02	3.7E-02	8.0E+00	2.1E+00	No
Soil	WPSA-BH03	WPSA-BH03-02SL	1	3	12/2/1992	INORG	Chromium (total)	1.11E+02			2.0E+01	2.5E+03	3.6E-02	3.8E+01	2.4E+00	No
Soil	WPSA-BH03	WPSA-BH03-08SL	6	8	12/2/1992	VOC	Toluene	1.60E+01				2.2E+03	7.3E-03	1.2E+01	**1.3E+00**	Yes
Soil	WPSA-BH03	WPSA-BH03-08SL	6	8	12/2/1992	VOC	1,1,1-Trichloroethane	2.10E+00				6.9E+03	3.0E-04	2.0E+00	**1.1E+00**	Yes
Soil	WPSA-BH03	WPSA-BH03-08SL	6	8	12/2/1992	SVOC	Benzo(a)pyrene	4.70E+01				2.1E+00	**2.2E+01**	8.0E+00	**5.9E+00**	Yes
Soil	WPSA-BH03	WPSA-BH03-08SL	6	8	12/2/1992	SVOC	Benzo(b)fluoranthene	9.00E+01				2.1E+01	**4.3E+00**	5.0E+00	**1.8E+01**	Yes

Table 10: Soil Sample Results Greater Than Screening Criteria
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Element	Location	Sample ID	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	Conc (mg/kg)	Qual	SQL	Site Specific BG (mg/kg)	Industrial Screening Level (mg/kg)	Ratio of Conc to Industrial Screening Level	SSL MTGW DAF 20 (mg/kg)	Ratio of Conc to SSL MTGW DAF 20	Deepest Sample
Soil	WPSA-BH06	WPSA-BH06-02SL	1	3	9/21/1994	SVOC	Benzo(b)fluoranthene	6.92E+00				2.1E+01	3.3E-01	5.0E+00	1.4E+00	No
Soil	WPSA-BH06	WPSA-BH06-02SL	1	3	9/21/1994	INORG	Cadmium	1.69E+01			5.3E+00	4.5E+02	2.6E-02	8.0E+00	1.4E+00	No
Soil	WPSA-BH06	WPSA-BH06-02SL	1	3	9/21/1994	INORG	Chromium (total)	7.54E+02			2.0E+01	2.5E+03	2.9E-01	3.8E+01	1.9E+01	No
Soil	WPSA-BH06	WPSA-BH06-02SL	1	3	9/21/1994	INORG	Lead	1.09E+03			2.2E+01	7.5E+02	**1.4E+00**			No
Soil	WPSA-BH06	WPSA-BH06-02SL	1	3	9/21/1994	INORG	Nickel	4.38E+02	J		2.0E+01	2.0E+04	2.1E-02	1.3E+02	3.3E+00	No
Soil	WPSA-BH06	WPSA-BH06-06SL	5	7	9/21/1994	INORG	Cadmium	7.42E+01			5.3E+00	4.5E+02	1.5E-01	8.0E+00	8.6E+00	No
Soil	WPSA-BH06	WPSA-BH06-06SL	5	7	9/21/1994	INORG	Chromium (total)	1.01E+03			2.0E+01	2.5E+03	4.0E-01	3.8E+01	2.6E+01	No
Soil	WPSA-BH06	WPSA-BH06-06SL	5	7	9/21/1994	INORG	Copper	6.27E+04			1.9E+01	4.1E+04	**1.5E+00**			No
Soil	WPSA-BH06	WPSA-BH06-06SL	5	7	9/21/1994	INORG	Lead	2.79E+03			2.2E+01	7.5E+02	**3.7E+00**			No
Soil	WPSA-BH06	WPSA-BH06-06SL	5	7	9/21/1994	INORG	Nickel	2.60E+03	J		2.0E+01	2.0E+04	1.3E-01	1.3E+02	2.0E+01	No
Soil	WPSA-BH07	WPSA-BH07-02SL	1	3	9/23/1994	VOC	1,2-Dichloroethene (total)	1.06E+00				1.5E+02	7.1E-03	4.0E-01	2.7E+00	No
Soil	WPSA-BH07	WPSA-BH07-02SL	1	3	9/23/1994	VOC	Tetrachloroethene	2.37E-01				3.4E+01	7.0E-03	6.0E-02	4.0E+00	No
Soil	WPSA-BH07	WPSA-BH07-02SL	1	3	9/23/1994	VOC	Trichloroethene	1.20E-01				6.1E+01	2.0E-03	6.0E-02	2.0E+00	No
Soil	WPSA-BH07	WPSA-BH07-06SL	5	7	9/23/1994	VOC	1,2-Dichloroethene (total)	2.67E+00				1.5E+02	1.8E-02	4.0E-01	6.7E+00	No
Soil	WPSA-BH07	WPSA-BH07-06SL	5	7	9/23/1994	VOC	Tetrachloroethene	3.02E-01				3.4E+01	8.9E-03	6.0E-02	5.0E+00	No
Soil	WPSA-BH07	WPSA-BH07-06SL	5	7	9/23/1994	VOC	Trichloroethene	2.32E-01				6.1E+01	3.8E-03	6.0E-02	3.9E+00	No
Soil	WPSA-BH08	WPSA-BH-08/0-2/SL	0	2	4/12/2001	VOC	Tetrachloroethene	1.38E-01	J			3.4E+01	4.1E-03	6.0E-02	2.3E+00	No
Soil	WPSA-BH08	WPSA-BH-08/2-4/SL	2	4	4/12/2001	VOC	Benzene	9.18E-02				1.3E+01	7.1E-03	3.0E-02	3.1E+00	No
Soil	WPSA-BH08	WPSA-BH-08/2-4/SL	2	4	4/12/2001	VOC	Tetrachloroethene	1.36E+00				3.4E+01	4.0E-02	6.0E-02	2.3E+01	No
Soil	WPSA-BH08	WPSA-BH-08/2-4/SL	2	4	4/12/2001	VOC	Trichloroethene	4.45E+00				6.1E+01	7.3E-02	6.0E-02	7.4E+01	No
Soil	WPSA-BH08	WPSA-BH-08/2-4/SL	2	4	4/12/2001	SVOC	Benzo(a)pyrene	1.19E+01	J			2.1E+00	**5.7E+00**	8.0E+00	1.5E+00	No
Soil	WPSA-BH08	WPSA-BH-08/2-4/SL	2	4	4/12/2001	INORG	Lead	9.47E+02			2.2E+01	7.5E+02	**1.2E+00**			No
Soil	WPSA-BH09	WPSA-BH-09/0-2/SL	0	2	4/17/2001	VOC	cis-1,2-Dichloroethene	2.54E+00				1.5E+02	1.7E-02	4.0E-01	6.4E+00	No
Soil	WPSA-BH09	WPSA-BH-09/0-2/SL	0	2	4/17/2001	VOC	Tetrachloroethene	4.77E-01				3.4E+01	1.4E-02	6.0E-02	8.0E+00	No
Soil	WPSA-BH09	WPSA-BH-09/0-2/SL	0	2	4/17/2001	VOC	Trichloroethene	4.14E-01				6.1E+01	6.8E-03	6.0E-02	6.9E+00	No
Soil	WPSA-BH09	WPSA-BH-09/0-2/SL	0	2	4/17/2001	VOC	Vinyl Chloride	1.45E+00				7.5E+00	1.9E-01	1.0E-02	1.5E+02	No
Soil	WPSA-BH09	WPSA-BH-09/0-2/SL	0	2	4/17/2001	INORG	Antimony	8.67E+01			4.4E+00	4.1E+02	2.0E-01	5.0E+00	1.6E+01	No
Soil	WPSA-BH09	WPSA-BH-09/2-4/SL	2	4	4/17/2001	VOC	cis-1,2-Dichloroethene	4.60E-01	J			1.5E+02	3.1E-03	4.0E-01	1.1E+00	No
Soil	WPSA-BH09	WPSA-BH-09/2-4/SL	2	4	4/17/2001	VOC	Vinyl Chloride	1.07E+00	J			7.5E+00	1.4E-01	1.0E-02	1.1E+02	No
Soil	WPSA-BH09	WPSA-BH-09/24-26/SL	24	26	4/17/2001	VOC	Methylene Chloride	2.42E-02				2.1E+02	1.2E-04	2.0E-02	**1.2E+00**	Yes
Soil	WPSA-BH10	WPSA-BH-10/0-2/SL	0	2	4/17/2001	VOC	cis-1,2-Dichloroethene	2.68E+00				1.5E+02	1.8E-02	4.0E-01	6.7E+00	No
Soil	WPSA-BH10	WPSA-BH-10/0-2/SL	0	2	4/17/2001	VOC	Trichloroethene	6.44E-02				6.1E+01	1.1E-03	6.0E-02	1.1E+00	No
Soil	WPSA-BH10	WPSA-BH-10/0-2/SL	0	2	4/17/2001	VOC	Vinyl Chloride	3.39E-01				7.5E+00	4.5E-02	1.0E-02	3.4E+01	No
Soil	WPSA-BH10	WPSA-BH-10/0-2/SL	0	2	4/17/2001	INORG	Antimony	7.74E+03			4.4E+00	4.1E+02	**1.9E+01**	5.0E+00	1.5E+03	No
Soil	WPSA-BH10	WPSA-BH-10/16-18/SL	16	18	4/18/2001	INORG	Antimony	1.72E+01			4.4E+00	4.1E+02	3.1E-02	5.0E+00	2.6E+00	No
Soil	WPSA-BH10	WPSA-BH-10/2-4/SL	2	4	4/17/2001	VOC	cis-1,2-Dichloroethene	5.48E-01				1.5E+02	3.7E-03	4.0E-01	1.4E+00	No
Soil	WPSA-BH10	WPSA-BH-10/2-4/SL	2	4	4/17/2001	VOC	Vinyl Chloride	3.20E-02				7.5E+00	4.3E-03	1.0E-02	3.2E+00	No
Soil	WPSA-BH10	WPSA-BH-10/2-4/SL	2	4	4/17/2001	INORG	Antimony	2.41E+02			4.4E+00	4.1E+02	5.8E-01	5.0E+00	4.7E+01	No
Soil	WPSA-BH10	WPSA-BH-10/26-28/SL	26	28	4/18/2001	INORG	Antimony	2.10E+01			4.4E+00	4.1E+02	4.1E-02	5.0E+00	**3.3E+00**	Yes
Soil	WPSA-BH11	WPSA-BH-11/0-2/SL	0	2	4/16/2001	VOC	cis-1,2-Dichloroethene	5.61E+00				1.5E+02	3.7E-02	4.0E-01	1.4E+01	No
Soil	WPSA-BH11	WPSA-BH-11/0-2/SL	0	2	4/16/2001	VOC	Tetrachloroethene	2.53E+00				3.4E+01	7.4E-02	6.0E-02	4.2E+01	No
Soil	WPSA-BH11	WPSA-BH-11/16-18/SL	16	18	4/20/2001	VOC	cis-1,2-Dichloroethene	2.13E+01				1.5E+02	1.4E-01	4.0E-01	5.3E+01	No
Soil	WPSA-BH11	WPSA-BH-11/16-18/SL	16	18	4/20/2001	VOC	Tetrachloroethene	2.04E-01				3.4E+01	6.0E-03	6.0E-02	3.4E+00	No
Soil	WPSA-BH11	WPSA-BH-11/16-18/SL	16	18	4/20/2001	VOC	1,1,1-Trichloroethane	2.32E+01				6.9E+03	3.4E-03	2.0E+00	1.2E+01	No
Soil	WPSA-BH11	WPSA-BH-11/16-18/SL	16	18	4/20/2001	VOC	Trichloroethene	3.15E-01				6.1E+01	5.2E-03	6.0E-02	5.3E+00	No

Table 10: Soil Sample Results Greater Than Screening Criteria
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Element	Location	Sample ID	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	Conc (mg/kg)	Qual	SQL	Site Specific BG (mg/kg)	Industrial Screening Level (mg/kg)	Ratio of Conc to Industrial Screening Level	SSL MTGW DAF 20 (mg/kg)	Ratio of Conc to SSL MTGW DAF 20	Deepest Sample
Soil	WPSA-BH11	WPSA-BH-11/16-18/SL	16	18	4/20/2001	VOC	Vinyl Chloride	3.23E-01				7.5E+00	4.3E-02	1.0E-02	3.2E+01	No
Soil	WPSA-BH11	WPSA-BH-11/16-18/SL	16	18	4/20/2001	INORG	Antimony	6.48E+01			4.4E+00	4.1E+02	1.5E-01	5.0E+00	1.2E+01	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	Benzene	6.02E-02				1.3E+01	4.6E-03	3.0E-02	2.0E+00	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	1,1-Dichloroethane	3.64E+01				1.7E+03	2.1E-02	2.3E+01	1.6E+00	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	cis-1,2-Dichloroethene	7.28E+01				1.5E+02	4.9E-01	4.0E-01	1.8E+02	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	trans-1,2-Dichloroethene	9.00E-01				2.3E+02	3.9E-03	7.0E-01	1.3E+00	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	Ethyl Benzene	1.07E+02				2.0E+02	5.4E-01	1.3E+01	8.2E+00	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	Methylene Chloride	6.27E-01				2.1E+02	3.0E-03	2.0E-02	3.1E+01	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	Tetrachloroethene	2.37E+00				3.4E+01	7.0E-02	6.0E-02	4.0E+01	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	Toluene	2.86E+01				2.2E+03	1.3E-02	1.2E+01	2.4E+00	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	1,1,1-Trichloroethane	2.21E+00				6.9E+03	3.2E-04	2.0E+00	1.1E+00	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	Trichloroethene	6.11E+00				6.1E+01	1.0E-01	6.0E-02	1.0E+02	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	VOC	Vinyl Chloride	3.71E-01				7.5E+00	4.9E-02	1.0E-02	3.7E+01	No
Soil	WPSA-BH11	WPSA-BH-11/2-4/SL	2	4	4/16/2001	P/PCB	PCBs (total)	1.21E+01	J	1.20E+00		7.4E+00	**1.6E+00**			No
Soil	WPSA-BH11	WPSA-BH-11/26-28/SL	26	28	4/20/2001	INORG	Antimony	5.08E+01			4.4E+00	4.1E+02	1.1E-01	5.0E+00	9.3E+00	No
Soil	WPSA-BH11	WPSA-BH-11/8-10/SL	8	10	4/17/2001	INORG	Antimony	5.65E+01			4.4E+00	4.1E+02	1.3E-01	5.0E+00	**1.0E+01**	Yes
Soil	WPSA-BH11	WPSA-BH-11/8-10/SL	8	10	4/17/2001	VOC	cis-1,2-Dichloroethene	2.06E+01				1.5E+02	1.4E-01	4.0E-01	5.2E+01	No
Soil	WPSA-BH11	WPSA-BH-11/8-10/SL	8	10	4/17/2001	VOC	Methylene Chloride	5.67E-01				2.1E+02	2.7E-03	2.0E-02	2.8E+01	No
Soil	WPSA-BH11	WPSA-BH-11/8-10/SL	8	10	4/17/2001	VOC	Tetrachloroethene	5.34E-01				3.4E+01	1.6E-02	6.0E-02	8.9E+00	No
Soil	WPSA-BH11	WPSA-BH-11/8-10/SL	8	10	4/17/2001	VOC	1,1,1-Trichloroethane	1.31E+01				6.9E+03	1.9E-03	2.0E+00	6.6E+00	No
Soil	WPSA-BH11	WPSA-BH-11/8-10/SL	8	10	4/17/2001	VOC	Trichloroethene	2.02E+00				6.1E+01	3.3E-02	6.0E-02	3.4E+01	No
Soil	WPSA-BH11	WPSA-BH-11/8-10/SL	8	10	4/17/2001	VOC	Vinyl Chloride	1.08E-01				7.5E+00	1.4E-02	1.0E-02	1.1E+01	No
Soil	WPSA-BH11	WPSA-BH-11/8-10/SL	8	10	4/17/2001	INORG	Antimony	9.02E+03			4.4E+00	4.1E+02	**2.2E+01**	5.0E+00	1.8E+03	No
Soil	WPSA-BH12	WPSA-BH-12/0-2/SL	0	2	4/18/2001	VOC	cis-1,2-Dichloroethene	1.80E+01				1.5E+02	1.2E-01	4.0E-01	4.5E+01	No
Soil	WPSA-BH12	WPSA-BH-12/0-2/SL	0	2	4/18/2001	VOC	Methylene Chloride	6.04E-02				2.1E+02	2.9E-04	2.0E-02	3.0E+00	No
Soil	WPSA-BH12	WPSA-BH-12/0-2/SL	0	2	4/18/2001	VOC	Tetrachloroethene	1.22E+01				3.4E+01	3.6E-01	6.0E-02	2.0E+02	No
Soil	WPSA-BH12	WPSA-BH-12/0-2/SL	0	2	4/18/2001	VOC	Trichloroethene	1.76E+01				6.1E+01	2.9E-01	6.0E-02	2.9E+02	No
Soil	WPSA-BH12	WPSA-BH-12/0-2/SL	0	2	4/18/2001	VOC	Vinyl Chloride	2.32E-01				7.5E+00	3.1E-02	1.0E-02	2.3E+01	No
Soil	WPSA-BH12	WPSA-BH-12/0-2/SL	0	2	4/18/2001	INORG	Antimony	4.78E+01			4.4E+00	4.1E+02	1.1E-01	5.0E+00	8.7E+00	No
Soil	WPSA-BH12	WPSA-BH-12/0-2/SL	0	2	4/18/2001	INORG	Arsenic	1.38E+02			1.1E+01	1.6E+01	**7.9E+00**	2.9E+01	4.4E+00	No
Soil	WPSA-BH12	WPSA-BH-12/0-2/SL	0	2	4/18/2001	INORG	Cadmium	2.04E+01			5.3E+00	4.5E+02	3.4E-02	8.0E+00	1.9E+00	No
Soil	WPSA-BH12	WPSA-BH-12/0-2/SL	0	2	4/18/2001	INORG	Nickel	1.75E+02			2.0E+01	2.0E+04	8.2E-03	1.3E+02	1.3E+00	No
Soil	WPSA-BH13	WPSA-BH-13/0-2/SL	0	2	4/12/2001	VOC	Benzene	1.18E-01				1.3E+01	9.1E-03	3.0E-02	3.9E+00	No
Soil	WPSA-BH13	WPSA-BH-13/0-2/SL	0	2	4/12/2001	VOC	cis-1,2-Dichloroethene	1.34E+00				1.5E+02	8.9E-03	4.0E-01	3.4E+00	No
Soil	WPSA-BH13	WPSA-BH-13/0-2/SL	0	2	4/12/2001	VOC	Ethyl Benzene	1.90E+01				2.0E+02	9.5E-02	1.3E+01	1.5E+00	No
Soil	WPSA-BH13	WPSA-BH-13/0-2/SL	0	2	4/12/2001	VOC	Trichloroethene	1.11E-01				6.1E+01	1.8E-03	6.0E-02	1.9E+00	No
Soil	WPSA-BH13	WPSA-BH-13/0-2/SL	0	2	4/12/2001	VOC	Vinyl Chloride	3.46E-01				7.5E+00	4.6E-02	1.0E-02	3.5E+01	No
Soil	WPSA-BH13	WPSA-BH-13/0-2/SL	0	2	4/12/2001	SVOC	Benzo(a)anthracene	4.20E+00	J			2.1E+01	2.0E-01	2.0E+00	2.1E+00	No
Soil	WPSA-BH13	WPSA-BH-13/0-2/SL	0	2	4/12/2001	SVOC	Benzo(a)pyrene	2.95E+00	J			2.1E+00	**1.4E+00**	8.0E+00	3.7E-01	No
Soil	WPSA-BH13	WPSA-BH-13/0-2/SL	0	2	4/12/2001	SVOC	Carbazole	7.00E-01	J			8.6E+02	8.1E-04	6.0E-01	1.2E+00	No
Soil	WPSA-BH13	WPSA-BH-13/0-2/SL	0	2	4/12/2001	INORG	Barium	1.84E+03			9.9E+01	6.7E+04	2.6E-02	1.6E+03	1.1E+00	No
Soil	WPSA-BH13	WPSA-BH-13/0-2/SL	0	2	4/12/2001	INORG	Nickel	2.89E+02			2.0E+01	2.0E+04	1.4E-02	1.3E+02	2.1E+00	No
Soil	WPSA-BH13	WPSA-BH-13/4-6/SL	4	6	4/12/2001	VOC	Methylene Chloride	3.18E-02	J			2.1E+02	1.5E-04	2.0E-02	1.6E+00	No
Soil	WPSA-BH13	WPSA-BH-13/4-6/SL	4	6	4/12/2001	VOC	Vinyl Chloride	8.74E-02	J			7.5E+00	1.2E-02	1.0E-02	8.7E+00	No
Soil	WPSA-BH13	WPSA-BH-13/4-6/SL	4	6	4/12/2001	SVOC	Benzo(a)anthracene	2.28E+00	J			2.1E+01	1.1E-01	2.0E+00	1.1E+00	No

Table 10: Soil Sample Results Greater Than Screening Criteria
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Element	Location	Sample ID	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	Conc (mg/kg)	Qual	SQL	Site Specific BG (mg/kg)	Industrial Screening Level (mg/kg)	Ratio of Conc to Industrial Screening Level	SSL MTGW DAF 20 (mg/kg)	Ratio of Conc to SSL MTGW DAF 20	Deepest Sample
Soil	WPSA-BH13	WPSA-BH-13/4-6/SL	4	6	4/12/2001	INORG	Antimony	2.23E+02			4.4E+00	4.1E+02	5.3E-01	5.0E+00	4.4E+01	No
Soil	WPSA-BH13	WPSA-BH-13/4-6/SL	4	6	4/12/2001	INORG	Barium	2.07E+03			9.9E+01	6.7E+04	2.9E-02	1.6E+03	1.2E+00	No
Soil	WPSA-BH13	WPSA-BH-13/4-6/SL	4	6	4/12/2001	INORG	Cadmium	3.57E+01			5.3E+00	4.5E+02	6.8E-02	8.0E+00	3.8E+00	No
Soil	WPSA-BH13	WPSA-BH-13/4-6/SL	4	6	4/12/2001	INORG	Chromium (total)	2.17E+02			2.0E+01	2.5E+03	7.9E-02	3.8E+01	5.2E+00	No
Soil	WPSA-BH13	WPSA-BH-13/4-6/SL	4	6	4/12/2001	INORG	Lead	3.92E+03			2.2E+01	7.5E+02	**5.2E+00**			No
Soil	WPSA-BH13	WPSA-BH-13/4-6/SL	4	6	4/12/2001	INORG	Nickel	4.26E+02			2.0E+01	2.0E+04	2.1E-02	1.3E+02	3.2E+00	No
Soil	WPSA-BH13	WPSA-BH-13/4-6/SL	4	6	4/12/2001	INORG	Zinc	2.44E+04			7.1E+01	3.1E+05	7.8E-02	1.2E+04	2.0E+00	No
Soil	WPSA-BH14	WPSA-BH-14/10-12/SL	10	12	4/19/2001	INORG	Antimony	2.28E+01			4.4E+00	4.1E+02	4.5E-02	5.0E+00	3.7E+00	No
Soil	WPSA-BH15	WPSA-BH-15/0-2/SL	0	2	4/12/2001	INORG	Antimony	3.80E+01			4.4E+00	4.1E+02	8.2E-02	5.0E+00	6.7E+00	No
Soil	WPSA-BH15	WPSA-BH-15/0-2/SL	0	2	4/12/2001	INORG	Cadmium	3.28E+01			5.3E+00	4.5E+02	6.1E-02	8.0E+00	3.4E+00	No
Soil	WPSA-BH15	WPSA-BH-15/0-2/SL	0	2	4/12/2001	INORG	Chromium (total)	1.23E+02			2.0E+01	2.5E+03	4.1E-02	3.8E+01	2.7E+00	No
Soil	WPSA-BH15	WPSA-BH-15/0-2/SL	0	2	4/12/2001	INORG	Nickel	3.28E+02			2.0E+01	2.0E+04	1.6E-02	1.3E+02	2.4E+00	No
Soil	WPSA-BH15	WPSA-BH-15/10-12/SL	10	12	4/16/2001	INORG	Antimony	2.39E+01			4.4E+00	4.1E+02	4.8E-02	5.0E+00	3.9E+00	No
Soil	WPSA-BH15	WPSA-BH-15/2-4/SL	2	4	4/12/2001	VOC	Vinyl Chloride	2.10E-02	J			7.5E+00	2.8E-03	1.0E-02	2.1E+00	No
Soil	WPSA-BH15	WPSA-BH-15/2-4/SL	2	4	4/12/2001	INORG	Antimony	2.89E+02			4.4E+00	4.1E+02	6.9E-01	5.0E+00	5.7E+01	No
Soil	WPSA-BH15	WPSA-BH-15/2-4/SL	2	4	4/12/2001	INORG	Barium	2.55E+03			9.9E+01	6.7E+04	3.7E-02	1.6E+03	1.5E+00	No
Soil	WPSA-BH15	WPSA-BH-15/2-4/SL	2	4	4/12/2001	INORG	Cadmium	5.95E+01			5.3E+00	4.5E+02	1.2E-01	8.0E+00	6.8E+00	No
Soil	WPSA-BH15	WPSA-BH-15/2-4/SL	2	4	4/12/2001	INORG	Chromium (total)	9.26E+01			2.0E+01	2.5E+03	2.9E-02	3.8E+01	1.9E+00	No
Soil	WPSA-BH15	WPSA-BH-15/2-4/SL	2	4	4/12/2001	INORG	Lead	1.96E+03			2.2E+01	7.5E+02	**2.6E+00**			No
Soil	WPSA-BH15	WPSA-BH-15/2-4/SL	2	4	4/12/2001	INORG	Nickel	4.37E+02			2.0E+01	2.0E+04	2.1E-02	1.3E+02	3.3E+00	No
Soil	WPSA-BH15	WPSA-BH-15/8-10/SL	8	10	4/16/2001	VOC	Tetrachloroethene	1.64E-01				3.4E+01	4.8E-03	6.0E-02	2.7E+00	No
Soil	WPSA-BH15	WPSA-BH-15/8-10/SL	8	10	4/16/2001	VOC	Vinyl Chloride	2.00E-02				7.5E+00	2.7E-03	1.0E-02	2.0E+00	No
Soil	WPSA-BH15	WPSA-BH-15/8-10/SL	8	10	4/16/2001	INORG	Antimony	2.94E+01			4.4E+00	4.1E+02	6.1E-02	5.0E+00	5.0E+00	No
Soil	WPSA-BH16	WPSA-BH-16/0-2/SL	0	2	4/11/2001	INORG	Antimony	3.40E+01			4.4E+00	4.1E+02	7.2E-02	5.0E+00	5.9E+00	No
Soil	WPSA-BH16	WPSA-BH-16/0-2/SL	0	2	4/11/2001	INORG	Cadmium	2.08E+03			5.3E+00	4.5E+02	**4.6E+00**	8.0E+00	2.6E+02	No
Soil	WPSA-BH16	WPSA-BH-16/0-2/SL	0	2	4/11/2001	INORG	Chromium (total)	4.89E+03			2.0E+01	2.5E+03	**1.9E+00**	3.8E+01	1.3E+02	No
Soil	WPSA-BH16	WPSA-BH-16/0-2/SL	0	2	4/11/2001	INORG	Nickel	8.69E+02			2.0E+01	2.0E+04	4.3E-02	1.3E+02	6.6E+00	No
Soil	WPSA-BH16	WPSA-BH-16/2-4/SL	2	4	4/11/2001	INORG	Antimony	2.32E+02			4.4E+00	4.1E+02	5.6E-01	5.0E+00	4.6E+01	No
Soil	WPSA-BH16	WPSA-BH-16/2-4/SL	2	4	4/11/2001	INORG	Chromium (total)	3.41E+03			2.0E+01	2.5E+03	**1.4E+00**	3.8E+01	8.9E+01	No
Soil	WPSA-BH16	WPSA-BH-16/2-4/SL	2	4	4/11/2001	INORG	Lead	3.81E+03			2.2E+01	7.5E+02	**5.1E+00**			No
Soil	WPSA-BH16	WPSA-BH-16/2-4/SL	2	4	4/11/2001	INORG	Nickel	1.91E+03			2.0E+01	2.0E+04	9.5E-02	1.3E+02	1.5E+01	No
Soil	WPSA-BH17	WPSA/BH-17/4-6/SL	4	6	4/10/2001	INORG	Antimony	2.20E+01			4.4E+00	4.1E+02	4.3E-02	5.0E+00	3.5E+00	No
Soil	WPSA-BH17	WPSA/BH-17/4-6/SL	4	6	4/10/2001	INORG	Chromium (total)	4.34E+02	J		2.0E+01	2.5E+03	1.7E-01	3.8E+01	1.1E+01	No
Soil	WPSA-BH17	WPSA/BH-17/4-6/SL	4	6	4/10/2001	INORG	Lead	2.24E+03			2.2E+01	7.5E+02	**3.0E+00**			No
Soil	WPSA-BH17	WPSA/BH-17/4-6/SL	4	6	4/10/2001	INORG	Nickel	3.12E+02	J		2.0E+01	2.0E+04	1.5E-02	1.3E+02	2.3E+00	No
Soil	WPSA-BH18	WPSA-BH-18/0-2/SL	0	2	4/18/2001	INORG	Cadmium	2.96E+01			5.3E+00	4.5E+02	5.4E-02	8.0E+00	3.0E+00	No
Soil	WPSA-BH18	WPSA-BH-18/2-4/SL	2	4	4/18/2001	INORG	Cadmium	9.86E+01			5.3E+00	4.5E+02	2.1E-01	8.0E+00	1.2E+01	No
Soil	WPSA-BH18	WPSA-BH-18/2-4/SL	2	4	4/18/2001	INORG	Chromium (total)	4.34E+03			2.0E+01	2.5E+03	**1.7E+00**	3.8E+01	1.1E+02	No
Soil	WPSA-BH18	WPSA-BH-18/2-4/SL	2	4	4/18/2001	INORG	Lead	1.36E+03			2.2E+01	7.5E+02	**1.8E+00**			No
Soil	WPSA-BH18	WPSA-BH-18/2-4/SL	2	4	4/18/2001	INORG	Nickel	1.36E+03			2.0E+01	2.0E+04	6.7E-02	1.3E+02	1.0E+01	No
Soil	WPSA-BH19	WPSA-BH-19/0-2/SL	0	2	4/19/2001	VOC	Tetrachloroethene	1.18E-01				3.4E+01	3.5E-03	6.0E-02	2.0E+00	No
Soil	WPSA-BH19	WPSA-BH-19/0-2/SL	0	2	4/19/2001	VOC	Trichloroethene	1.48E-01				6.1E+01	2.4E-03	6.0E-02	2.5E+00	No
Soil	WPSA-BH19	WPSA-BH-19/0-2/SL	0	2	4/19/2001	SVOC	Benzo(a)anthracene	4.82E+00	J			2.1E+01	2.3E-01	2.0E+00	2.4E+00	No
Soil	WPSA-BH19	WPSA-BH-19/0-2/SL	0	2	4/19/2001	SVOC	Benzo(b)fluoranthene	1.13E+01	J			2.1E+01	5.4E-01	5.0E+00	2.3E+00	No
Soil	WPSA-BH19	WPSA-BH-19/0-2/SL	0	2	4/19/2001	P/PCB	PCBs (total)	7.78E+01	J	6.80E+00		7.4E+00	**1.1E+01**			No

Table 10: Soil Sample Results Greater Than Screening Criteria
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Element	Location	Sample ID	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	Conc (mg/kg)	Qual	SQL	Site Specific BG (mg/kg)	Industrial Screening Level (mg/kg)	Ratio of Conc to Industrial Screening Level	SSL MTGW DAF 20 (mg/kg)	Ratio of Conc to SSL MTGW DAF 20	Deepest Sample
Soil	WPSA-BH19	WPSA-BH-19/0-2/SL	0	2	4/19/2001	INORG	Antimony	2.61E+01			4.4E+00	4.1E+02	5.3E-02	5.0E+00	4.4E+00	No
Soil	WPSA-BH21	WPSA-BH21/10-12/SL	10	12	8/8/2002	INORG	Antimony	1.43E+01		1.30E-02	4.4E+00	4.1E+02	2.4E-02	5.0E+00	**2.0E+00**	Yes
Soil	WPSA-BH21	WPSA-BH21/8-10/SL	8	10	8/8/2002	INORG	Antimony	2.28E+01		1.40E-02	4.4E+00	4.1E+02	4.5E-02	5.0E+00	3.7E+00	No
Soil	WPSA-BH22	WPSA-BH22/0-2/SLDL	0	2	8/8/2002	P/PCB	PCBs (total)	1.30E+02	J	1.20E+01		7.4E+00	**1.8E+01**			No
Soil	WPSA-BH22	WPSA-BH22/2-4/SLDL	2	4	8/8/2002	P/PCB	PCBs (total)	8.00E+01	J	4.70E+00		7.4E+00	**1.1E+01**			Yes
Soil	WPSA-BH25	WPSA-BH25/0-2/SL	0	2	8/9/2002	INORG	Cadmium	3.59E+01		2.50E-03	5.3E+00	4.5E+02	6.8E-02	8.0E+00	3.8E+00	No
Soil	WPSA-BH25	WPSA-BH25/0-2/SL	0	2	8/9/2002	INORG	Chromium (total)	7.96E+01	J	2.70E-02	2.0E+01	2.5E+03	2.4E-02	3.8E+01	1.6E+00	No
Soil	WPSA-BH25	WPSA-BH25/0-2/SLDL	0	2	8/9/2002	VOC	Benzene	4.30E-02	J	1.50E-02		1.3E+01	3.3E-03	3.0E-02	1.4E+00	No
Soil	WPSA-BH25	WPSA-BH25/0-2/SLDL	0	2	8/9/2002	VOC	Trichloroethene	3.60E-01		1.50E-02		6.1E+01	5.9E-03	6.0E-02	6.0E+00	No
Soil	WPSA-BH26	WPSA-BH26/2-4/SLDL	2	4	8/7/2002	INORG	Chromium (total)	1.30E+03	J	1.60E-01	2.0E+01	2.5E+03	5.1E-01	3.8E+01	3.4E+01	No
Soil	WPSA-BH27	WPSA-BH27/6-8/SLDL	6	8	8/7/2002	VOC	Tetrachloroethene	1.40E+00		1.60E-02		3.4E+01	4.1E-02	6.0E-02	2.3E+01	No
Soil	WPSA-BH27	WPSA-BH27/6-8/SLDL	6	8	8/7/2002	VOC	Trichloroethene	3.00E-01		1.80E-02		6.1E+01	4.9E-03	6.0E-02	5.0E+00	No
Soil	WPSA-BH28	WPSA-BH28/0-2/SLDL	0	2	8/7/2002	VOC	Benzene	3.50E-01	J	3.00E-02		1.3E+01	2.7E-02	3.0E-02	1.2E+01	No
Soil	WPSA-BH28	WPSA-BH28/0-2/SLDL	0	2	8/7/2002	VOC	Tetrachloroethene	2.10E+00		2.70E-02		3.4E+01	6.2E-02	6.0E-02	3.5E+01	No
Soil	WPSA-BH28	WPSA-BH28/0-2/SLDL	0	2	8/7/2002	VOC	Trichloroethene	1.50E+00		3.00E-02		6.1E+01	2.5E-02	6.0E-02	2.5E+01	No
Soil	WPSA-BH28	WPSA-BH28/4-6/SLDL	4	6	8/7/2002	VOC	Tetrachloroethene	1.30E-01		1.10E-03		3.4E+01	3.8E-03	6.0E-02	2.2E+00	No
Soil	WPSA-BH29	WPSA-BH29/0-2/SLDL	0	2	8/6/2002	VOC	Benzene	5.40E-02	J	1.80E-02		1.3E+01	4.2E-03	3.0E-02	1.8E+00	No
Soil	WPSA-BH29	WPSA-BH29/0-2/SLDL	0	2	8/6/2002	VOC	cis-1,2-Dichloroethene	6.70E+00		1.70E-02		1.5E+02	4.5E-02	4.0E-01	1.7E+01	No
Soil	WPSA-BH29	WPSA-BH29/0-2/SLDL	0	2	8/6/2002	VOC	Tetrachloroethene	1.20E+00		1.60E-02		3.4E+01	3.5E-02	6.0E-02	2.0E+01	No
Soil	WPSA-BH29	WPSA-BH29/0-2/SLDL	0	2	8/6/2002	VOC	Trichloroethene	1.10E+00		1.80E-02		6.1E+01	1.8E-02	6.0E-02	1.8E+01	No
Soil	WPSA-BH29	WPSA-BH29/0-2/SLDL	0	2	8/6/2002	VOC	Vinyl Chloride	3.50E-01		1.20E-02		7.5E+00	4.7E-02	1.0E-02	3.5E+01	No
Soil	WPSA-BH30	WPSA-BH30/0-2/SL	0	2	8/6/2002	INORG	Arsenic	2.23E+02		2.30E-02	1.1E+01	1.6E+01	**1.3E+01**	2.9E+01	7.3E+00	No
Soil	WPSA-BH30	WPSA-BH30/0-2/SLDL	0	2	8/6/2002	VOC	Benzene	1.90E-01	J	1.80E-02		1.3E+01	1.5E-02	3.0E-02	6.3E+00	No
Soil	WPSA-BH30	WPSA-BH30/0-2/SLDL	0	2	8/6/2002	VOC	cis-1,2-Dichloroethene	4.30E-01		1.70E-02		1.5E+02	2.9E-03	4.0E-01	1.1E+00	No
Soil	WPSA-BH30	WPSA-BH30/0-2/SLDL	0	2	8/6/2002	VOC	Methylene Chloride	5.50E-02	J	4.40E-02		2.1E+02	2.6E-04	2.0E-02	2.8E+00	No
Soil	WPSA-BH30	WPSA-BH30/0-2/SLDL	0	2	8/6/2002	VOC	Trichloroethene	2.60E-01	J	1.80E-02		6.1E+01	4.3E-03	6.0E-02	4.3E+00	No
Soil	WPSA-BH30	WPSA-BH30/0-2/SLDL	0	2	8/6/2002	VOC	Vinyl Chloride	1.30E-01	J	1.20E-02		7.5E+00	1.7E-02	1.0E-02	1.3E+01	No
Soil	WPSA-BH30	WPSA-BH30/4-6/SLDL	4	6	8/6/2002	VOC	Benzene	2.00E-01	J	1.80E-02		1.3E+01	1.5E-02	3.0E-02	6.7E+00	No
Soil	WPSA-BH30	WPSA-BH30/4-6/SLDL	4	6	8/6/2002	VOC	cis-1,2-Dichloroethene	6.50E-01		1.70E-02		1.5E+02	4.3E-03	4.0E-01	1.6E+00	No
Soil	WPSA-BH30	WPSA-BH30/4-6/SLDL	4	6	8/6/2002	VOC	Methylene Chloride	1.00E-01	J	4.30E-02		2.1E+02	4.8E-04	2.0E-02	5.0E+00	No
Soil	WPSA-BH30	WPSA-BH30/4-6/SLDL	4	6	8/6/2002	VOC	Trichloroethene	2.20E-01	J	1.80E-02		6.1E+01	3.6E-03	6.0E-02	3.7E+00	No
Soil	WPSA-BH30	WPSA-BH30/4-6/SLDL	4	6	8/6/2002	VOC	Vinyl Chloride	8.60E-02	J	1.10E-02		7.5E+00	1.1E-02	1.0E-02	8.6E+00	No
Soil	WPSA-BH31	WPSA-BH31/0-2/SLDL	0	2	8/6/2002	VOC	Trichloroethene	1.29E+00	J	1.80E-02		6.1E+01	2.1E-02	6.0E-02	2.1E+01	No
Soil	WPSA-BH31	WPSA-BH31/0-2/SLDL	0	2	8/6/2002	VOC	Vinyl Chloride	1.49E-01	J	1.15E-02		7.5E+00	2.0E-02	1.0E-02	1.5E+01	No
Soil	WPSA-BH32	WPSA-BH32/0-2/SLDL	0	2	8/6/2002	SVOC	Benzo(a)anthracene	2.90E+00		6.50E-02		2.1E+01	1.4E-01	2.0E+00	1.5E+00	No
Soil	WPSA-BH32	WPSA-BH32/0-2/SLDL	0	2	8/6/2002	SVOC	Benzo(a)pyrene	3.60E+00		4.20E-02		2.1E+00	**1.7E+00**	8.0E+00	4.5E-01	No
Soil	WPSA-BH32	WPSA-BH32/0-2/SLDL	0	2	8/6/2002	SVOC	Carbazole	6.30E-01	J	5.40E-02		8.6E+02	7.3E-04	6.0E-01	1.1E+00	No
Soil	WPSA-BH32	WPSA-BH32/2-4/SLDL	4	6	8/6/2002	SVOC	Benzo(a)anthracene	5.20E+02	J	1.00E+01		2.1E+01	**2.5E+01**	2.0E+00	2.6E+02	No
Soil	WPSA-BH32	WPSA-BH32/2-4/SLDL	4	6	8/6/2002	SVOC	Benzo(a)pyrene	3.80E+02	J	6.70E+00		2.1E+00	**1.8E+02**	8.0E+00	4.8E+01	No
Soil	WPSA-BH32	WPSA-BH32/2-4/SLDL	4	6	8/6/2002	SVOC	Benzo(b)fluoranthene	5.80E+02	J	8.90E+00		2.1E+01	**2.8E+01**	5.0E+00	1.2E+02	No
Soil	WPSA-BH32	WPSA-BH32/2-4/SLDL	4	6	8/6/2002	SVOC	Benzo(k)fluoranthene	2.60E+02	J	7.10E+00		2.1E+02	**1.2E+00**	4.9E+01	5.3E+00	No
Soil	WPSA-BH32	WPSA-BH32/2-4/SLDL	4	6	8/6/2002	SVOC	Carbazole	2.70E+02	J	8.50E+00		8.6E+02	3.1E-01	6.0E-01	4.5E+02	No
Soil	WPSA-BH32	WPSA-BH32/2-4/SLDL	4	6	8/6/2002	SVOC	Chrysene	6.50E+02	J	9.80E+00		2.1E+03	3.1E-01	1.6E+02	4.1E+00	No
Soil	WPSA-BH32	WPSA-BH32/2-4/SLDL	4	6	8/6/2002	SVOC	Dibenz(a,h)anthracene	5.60E+01	J	8.00E+00		2.1E+00	**2.7E+01**	2.0E+00	2.8E+01	No
Soil	WPSA-BH32	WPSA-BH32/2-4/SLDL	4	6	8/6/2002	SVOC	Indeno(1,2,3-cd)pyrene	1.30E+02	J	8.50E+00		2.1E+01	**6.2E+00**	1.4E+01	9.3E+00	No

Table 10: Soil Sample Results Greater Than Screening Criteria
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Element	Location	Sample ID	Top Depth (ft)	Bottom Depth (ft)	Sample Date	Chem Group	Chemical	Conc (mg/kg)	Qual	SQL	Site Specific BG (mg/kg)	Industrial Screening Level (mg/kg)	Ratio of Conc to Industrial Screening Level	SSL MTGW DAF 20 (mg/kg)	Ratio of Conc to SSL MTGW DAF 20	Deepest Sample
Soil	WPSA-BH32	WPSA-BH32/2-4/SLDL	4	6	8/6/2002	SVOC	Naphthalene	1.00E+02	J	7.60E+00		1.9E+02	5.3E-01	8.4E+01	1.2E+00	No
Soil	WPSA-BH34	WPSA-BH34/6-8/SL	6	8	8/5/2002	INORG	Silver	8.72E+01		2.10E-02	7.6E-01	5.1E+03	1.7E-02	3.4E+01	2.5E+00	No
Soil	WPSA-BH34	WPSA-BH34/6-8/SLDL	6	8	8/5/2002	VOC	Trichloroethene	7.60E-02		1.10E-03		6.1E+01	1.2E-03	6.0E-02	1.3E+00	No

Table 11: Groundwater Sample Results Greater Than Screening Criteria
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Element	Location	Sample ID	Sample Date	Meas Basis	Chem Group	Chemical	Conc (mg/l)	Qual	SQL (mg/l)	Drinking Water Screening Criteria (mg/L)	Ratio of Conc to Drinking Water Screening Criteria
Ground water	EAST	East/031901/LF	3/19/2001	T	VOC	cis-1,2-Dichloroethene	1.17E-01			7.0E-02	1.7E+00
Ground water	EAST	East/031901/LF	3/19/2001	T	VOC	Tetrachloroethene	4.99E-02			5.0E-03	1.0E+01
Ground water	EAST	East/031901/LF	3/19/2001	T	VOC	Trichloroethene	1.05E-01			5.0E-03	2.1E+01
Ground water	EAST	East/031901/LF	3/19/2001	T	VOC	Vinyl Chloride	4.80E-03			2.0E-03	2.4E+00
Ground water	EAST	EAST/052103/LFDL	5/21/2003	T	VOC	Tetrachloroethene	4.20E-02		6.00E-04	5.0E-03	8.4E+00
Ground water	EAST	EAST/052103/LFDL	5/21/2003	T	VOC	Trichloroethene	2.90E-02		6.00E-04	5.0E-03	5.8E+00
Ground water	EAST	EAST/092302/LFDL	9/23/2002	T	VOC	Tetrachloroethene	4.90E-02		8.40E-04	5.0E-03	9.8E+00
Ground water	EAST	EAST/092302/LFDL	9/23/2002	T	VOC	Trichloroethene	4.60E-02		8.40E-04	5.0E-03	9.2E+00
Ground water	EAST	EAST/092503/LFDL	9/25/2003	T	VOC	Tetrachloroethene	4.70E-02		2.40E-04	5.0E-03	9.4E+00
Ground water	EAST	EAST/092503/LFDL	9/25/2003	T	VOC	Trichloroethene	3.50E-02		4.40E-04	5.0E-03	7.0E+00
Ground water	EAST	EAST/121101/LFDL	12/11/2001	T	VOC	Tetrachloroethene	4.90E-02		7.70E-04	5.0E-03	9.8E+00
Ground water	EAST	EAST/121101/LFDL	12/11/2001	T	VOC	Trichloroethene	9.40E-02		4.70E-04	5.0E-03	1.9E+01
Ground water	EAST	EAST-061202/LFDL	6/12/2002	T	VOC	Tetrachloroethene	3.70E-02		5.80E-04	5.0E-03	7.4E+00
Ground water	EAST	EAST-061202/LFDL	6/12/2002	T	VOC	Trichloroethene	7.50E-02		3.50E-04	5.0E-03	1.5E+01
Ground water	EAST	East-062501/LF	6/25/2001	T	VOC	cis-1,2-Dichloroethene	8.01E-02			7.0E-02	1.1E+00
Ground water	EAST	East-062501/LF	6/25/2001	T	VOC	Tetrachloroethene	5.93E-02			5.0E-03	1.2E+01
Ground water	EAST	East-062501/LF	6/25/2001	T	VOC	Trichloroethene	1.17E-01			5.0E-03	2.3E+01
Ground water	EAST	East-092199/LF	9/21/1999	T	VOC	Tetrachloroethene	6.10E-02		1.00E-03	5.0E-03	1.2E+01
Ground water	EAST	East-092199/LF	9/21/1999	T	VOC	Trichloroethene	5.61E-02		1.00E-03	5.0E-03	1.1E+01
Ground water	EAST	East-092200/LF	9/22/2000	D	INORG	Antimony	7.40E-03		1.00E-03	6.0E-03	1.2E+00
Ground water	EAST	East-092200/LF	9/22/2000	T	VOC	cis-1,2-Dichloroethene	7.73E-02		1.00E-03	7.0E-02	1.1E+00
Ground water	EAST	East-092200/LF	9/22/2000	T	VOC	Tetrachloroethene	5.58E-02		1.00E-03	5.0E-03	1.1E+01
Ground water	EAST	East-092200/LF	9/22/2000	T	VOC	Trichloroethene	9.72E-02		1.00E-03	5.0E-03	1.9E+01
Ground water	EAST	East-092200/LF	9/22/2000	T	VOC	Vinyl Chloride	3.00E-03		1.00E-03	2.0E-03	1.5E+00
Ground water	EAST	East-092200/LF	9/22/2000	T	INORG	Antimony	8.70E-03		1.00E-03	6.0E-03	1.5E+00
Ground water	EAST	East-102194-GW	10/21/1994	T	VOC	Tetrachloroethene	6.18E-02			5.0E-03	1.2E+01
Ground water	EAST	East-102194-GW	10/21/1994	T	VOC	Trichloroethene	7.13E-02			5.0E-03	1.4E+01
Ground water	EAST	EAST-111201-GWDL	11/12/2001	T	VOC	Tetrachloroethene	5.60E-02		7.70E-04	5.0E-03	1.1E+01
Ground water	EAST	EAST-111201-GWDL	11/12/2001	T	VOC	Trichloroethene	9.20E-02		4.70E-04	5.0E-03	1.8E+01
Ground water	EAST	EAST-11293-GW	1/12/1993	D	INORG	Antimony	5.62E-02			6.0E-03	9.4E+00
Ground water	EAST	EAST-11293-GW	1/12/1993	T	VOC	Tetrachloroethene	7.94E-02			5.0E-03	1.6E+01

Table 11: Groundwater Sample Results Greater Than Screening Criteria
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Element	Location	Sample ID	Sample Date	Meas Basis	Chem Group	Chemical	Conc (mg/l)	Qual	SQL (mg/l)	Drinking Water Screening Criteria (mg/L)	Ratio of Conc to Drinking Water Screening Criteria
Ground water	EAST	EAST-11293-GW	1/12/1993	T	VOC	Trichloroethene	8.34E-02			5.0E-03	1.7E+01
Ground water	EAST	EAST-11293-GW	1/12/1993	T	INORG	Antimony	1.92E-01	J		6.0E-03	3.2E+01
Ground water	EAST	EAST-11293-GW	1/12/1993	T	INORG	Cadmium	2.16E-02	J		5.0E-03	4.3E+00
Ground water	EAST	EAST-11293-GW	1/12/1993	T	INORG	Lead	7.54E-02	J		1.5E-02	5.0E+00
Ground water	EAST	EAST-11293-GW	1/12/1993	T	INORG	Nickel	1.13E-01	J		1.0E-01	1.1E+00
Ground water	GM-33	GM-33/042301/GW	4/23/2001	T	VOC	cis-1,2-Dichloroethene	9.90E-02			7.0E-02	1.4E+00
Ground water	GM-33	GM-33/042301/GW	4/23/2001	T	VOC	Tetrachloroethene	2.36E-02			5.0E-03	4.7E+00
Ground water	GM-33	GM-33/042301/GW	4/23/2001	T	VOC	Trichloroethene	1.41E-01			5.0E-03	2.8E+01
Ground water	GM-33	GM-33/042301/GW	4/23/2001	T	INORG	Arsenic	7.33E-02	J		5.0E-02	1.5E+00
Ground water	GM-33	GM-33/042301/GW	4/23/2001	T	INORG	Lead	8.08E-02			1.5E-02	5.4E+00
Ground water	GM-33	GM-33/042301/GW	4/23/2001	T	INORG	Nickel	1.48E-01			1.0E-01	1.5E+00
Ground water	GM-33	GM-33/042301/GW	4/23/2001	T	INORG	Thallium	2.50E-03			2.0E-03	1.3E+00
Ground water	GM-33	GM-33/080702/LFDL	8/7/2002	T	VOC	Tetrachloroethene	3.70E-02		8.40E-04	5.0E-03	7.4E+00
Ground water	GM-33	GM-33/080702/LFDL	8/7/2002	T	VOC	1,2,4-Trichlorobenzene	8.90E-02		2.60E-03	7.0E-02	1.3E+00
Ground water	GM-33	GM-33/080702/LFDL	8/7/2002	T	VOC	Trichloroethene	7.10E-02		8.40E-04	5.0E-03	1.4E+01
Ground water	GM-34	GM-33/092503/LFDL	9/25/2003	T	VOC	Tetrachloroethene	3.70E-02		3.00E-04	5.0E-03	7.4E+00
Ground water	GM-34	GM-33/092503/LFDL	9/25/2003	T	VOC	Trichloroethene	7.50E-02		5.50E-04	5.0E-03	1.5E+01
Ground water	GM-34	GM-34	4/10/2001	D	INORG	Antimony	1.17E-02			6.0E-03	2.0E+00
Ground water	GM-34	GM-34	4/10/2001	T	VOC	Tetrachloroethene	1.86E-02			5.0E-03	3.7E+00
Ground water	GM-34	GM-34	4/10/2001	T	VOC	Trichloroethene	7.20E-02			5.0E-03	1.4E+01
Ground water	GM-34	GM-34	4/10/2001	T	INORG	Antimony	3.88E-02			6.0E-03	6.5E+00
Ground water	GM-34	GM-34	4/10/2001	T	INORG	Arsenic	1.10E-01			5.0E-02	2.2E+00
Ground water	GM-34	GM-34	4/10/2001	T	INORG	Lead	1.14E-01			1.5E-02	7.6E+00
Ground water	GM-34	GM-34	4/10/2001	T	INORG	Nickel	1.34E-01			1.0E-01	1.3E+00
Ground water	GM-34	GM-34/080702/LF	8/7/2002	D	INORG	Antimony	1.00E-02		1.20E-04	6.0E-03	1.7E+00
Ground water	GM-34	GM-34/080702/LF	8/7/2002	T	VOC	Tetrachloroethene	2.00E-02		4.20E-04	5.0E-03	4.0E+00
Ground water	GM-34	GM-34/080702/LF	8/7/2002	T	VOC	Trichloroethene	1.10E-02		4.20E-04	5.0E-03	2.2E+00
Ground water	GM-34	GM-34/080702/LF	8/7/2002	T	INORG	Antimony	1.00E-02		1.20E-04	6.0E-03	1.7E+00
Ground water	GM-35	GM-35/041901/GW	4/19/2001	T	VOC	cis-1,2-Dichloroethene	2.38E-01			7.0E-02	3.4E+00
Ground water	GM-35	GM-35/041901/GW	4/19/2001	T	VOC	Tetrachloroethene	4.15E-02			5.0E-03	8.3E+00
Ground water	GM-35	GM-35/041901/GW	4/19/2001	T	VOC	Trichloroethene	2.84E-01			5.0E-03	5.7E+01

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Element	Location	Sample ID	Sample Date	Meas Basis	Chem Group	Chemical	Conc (mg/l)	Qual	SQL (mg/l)	Drinking Water Screening Criteria (mg/L)	Ratio of Conc to Drinking Water Screening Criteria
Ground water	GM-35	GM-35/041901/GW	4/19/2001	T	VOC	Vinyl Chloride	8.76E-02			2.0E-03	4.4E+01
Ground water	GM-35	GM-35/041901/GW	4/19/2001	T	INORG	Arsenic	5.45E-02			5.0E-02	1.1E+00
Ground water	GM-35	GM-35/041901/GW	4/19/2001	T	INORG	Cadmium	5.60E-03			5.0E-03	1.1E+00
Ground water	GM-35	GM-35/041901/GW	4/19/2001	T	INORG	Lead	4.76E-02			1.5E-02	3.2E+00
Ground water	GM-35	GM-35/080602/LFDL	8/6/2002	T	VOC	cis-1,2-Dichloroethene	3.50E-01		5.00E-03	7.0E-02	5.0E+00
Ground water	GM-35	GM-35/080602/LFDL	8/6/2002	T	VOC	Tetrachloroethene	2.40E-02		6.00E-03	5.0E-03	4.8E+00
Ground water	GM-35	GM-35/080602/LFDL	8/6/2002	T	VOC	Trichloroethene	3.20E-01		6.00E-03	5.0E-03	6.4E+01
Ground water	GM-35	GM-35/080602/LFDL	8/6/2002	T	VOC	Vinyl Chloride	1.10E-01		5.10E-03	2.0E-03	5.5E+01
Ground water	GM-35	GM-35/092503/LFDL	9/25/2003	T	VOC	cis-1,2-Dichloroethene	3.00E-01		2.00E-03	7.0E-02	4.3E+00
Ground water	GM-35	GM-35/092503/LFDL	9/25/2003	T	VOC	Tetrachloroethene	2.10E-02		9.60E-04	5.0E-03	4.2E+00
Ground water	GM-35	GM-35/092503/LFDL	9/25/2003	T	VOC	Trichloroethene	2.70E-01		1.80E-03	5.0E-03	5.4E+01
Ground water	GM-35	GM-35/092503/LFDL	9/25/2003	T	VOC	Vinyl Chloride	5.90E-02		2.10E-03	2.0E-03	3.0E+01
Ground water	GM-36	GM-36	4/11/2001	T	VOC	Tetrachloroethene	9.42E-02			5.0E-03	1.9E+01
Ground water	GM-36	GM-36	4/11/2001	T	VOC	Trichloroethene	5.11E-02			5.0E-03	1.0E+01
Ground water	GM-36	GM-36	4/11/2001	T	VOC	Vinyl Chloride	8.90E-03			2.0E-03	4.5E+00
Ground water	GM-36	GM-36	4/11/2001	T	INORG	Antimony	1.93E-02			6.0E-03	3.2E+00
Ground water	GM-36	GM-36	4/11/2001	T	INORG	Arsenic	7.35E-02			5.0E-02	1.5E+00
Ground water	GM-36	GM-36	4/11/2001	T	INORG	Beryllium	5.60E-03			4.0E-03	1.4E+00
Ground water	GM-36	GM-36	4/11/2001	T	INORG	Cadmium	5.53E-02			5.0E-03	1.1E+01
Ground water	GM-36	GM-36	4/11/2001	T	INORG	Chromium (total)	2.05E-01			1.0E-01	2.1E+00
Ground water	GM-36	GM-36	4/11/2001	T	INORG	Lead	3.45E-01			1.5E-02	2.3E+01
Ground water	GM-36	GM-36	4/11/2001	T	INORG	Nickel	4.55E-01			1.0E-01	4.6E+00
Ground water	GM-36	GM-36	4/11/2001	T	INORG	Thallium	8.40E-03			2.0E-03	4.2E+00
Ground water	GM-36	GM-36/080502/LFDL	8/5/2002	T	VOC	Tetrachloroethene	5.35E-02		8.40E-04	5.0E-03	1.1E+01
Ground water	GM-36	GM-36/080502/LFDL	8/5/2002	T	VOC	Trichloroethene	5.00E-02		8.40E-04	5.0E-03	1.0E+01
Ground water	GM-37	GM-37/041901/GW	4/19/2001	T	VOC	cis-1,2-Dichloroethene	1.19E-01			7.0E-02	1.7E+00
Ground water	GM-37	GM-37/041901/GW	4/19/2001	T	VOC	Tetrachloroethene	5.69E-02			5.0E-03	1.1E+01
Ground water	GM-37	GM-37/041901/GW	4/19/2001	T	VOC	Trichloroethene	8.88E-02			5.0E-03	1.8E+01
Ground water	GM-37	GM-37/041901/GW	4/19/2001	T	VOC	Vinyl Chloride	4.50E-03			2.0E-03	2.3E+00
Ground water	GM-37	GM-37/041901/GW	4/19/2001	T	INORG	Arsenic	8.07E-02			5.0E-02	1.6E+00
Ground water	GM-37	GM-37/041901/GW	4/19/2001	T	INORG	Chromium (total)	1.07E-01			1.0E-01	1.1E+00

Table 11: Groundwater Sample Results Greater Than Screening Criteria
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Element	Location	Sample ID	Sample Date	Meas Basis	Chem Group	Chemical	Conc (mg/l)	Qual	SQL (mg/l)	Drinking Water Screening Criteria (mg/L)	Ratio of Conc to Drinking Water Screening Criteria
Ground water	GM-37	GM-37/041901/GW	4/19/2001	T	INORG	Lead	1.22E-01			1.5E-02	8.1E+00
Ground water	GM-37	GM-37/041901/GW	4/19/2001	T	INORG	Nickel	1.86E-01			1.0E-01	1.9E+00
Ground water	GM-37	GM-37/041901/GW	4/19/2001	T	INORG	Thallium	3.60E-03			2.0E-03	1.8E+00
Ground water	GM-37	GM-37/080602/LFDL	8/6/2002	T	VOC	Tetrachloroethene	5.80E-02		1.00E-03	5.0E-03	1.2E+01
Ground water	GM-37	GM-37/080602/LFDL	8/6/2002	T	VOC	Trichloroethene	8.40E-02		1.00E-03	5.0E-03	1.7E+01
Ground water	GM-38	GM-38/041901/GW	4/19/2001	D	INORG	Antimony	7.70E-03			6.0E-03	1.3E+00
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	VOC	Tetrachloroethene	6.65E-02			5.0E-03	1.3E+01
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	VOC	Trichloroethene	4.27E-02			5.0E-03	8.5E+00
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Antimony	1.79E-02			6.0E-03	3.0E+00
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Arsenic	2.57E-01			5.0E-02	5.1E+00
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Barium	1.02E+01			2.0E+00	5.1E+00
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Beryllium	2.05E-02			4.0E-03	5.1E+00
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Cadmium	1.80E-02			5.0E-03	3.6E+00
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Chromium (total)	7.31E-01			1.0E-01	7.3E+00
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Copper	1.99E+00			1.3E+00	1.5E+00
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Lead	1.23E+00			1.5E-02	8.2E+01
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Mercury	3.00E-03			2.0E-03	1.5E+00
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Nickel	1.37E+00			1.0E-01	1.4E+01
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Thallium	2.04E-02			2.0E-03	1.0E+01
Ground water	GM-38	GM-38/041901/GW	4/19/2001	T	INORG	Vanadium	5.72E-01			2.6E-01	2.2E+00
Ground water	GM-38	GM-38/080602/LF	8/6/2002	T	INORG	Antimony	6.30E-03		1.20E-04	6.0E-03	1.1E+00
Ground water	GM-38	GM-38/080602/LFDL	8/6/2002	T	VOC	Tetrachloroethene	5.00E-02		8.40E-04	5.0E-03	1.0E+01
Ground water	GM-38	GM-38/080602/LFDL	8/6/2002	T	VOC	Trichloroethene	2.50E-02		8.40E-04	5.0E-03	5.0E+00
Ground water	RW-10	RW-10/080802/LF	8/8/2002	T	VOC	Vinyl Chloride	2.80E-03		3.60E-04	2.0E-03	1.4E+00
Ground water	RW-11	RW-11/080802/LF	8/8/2002	T	P/PCB	PCBs (total)	2.70E-03		9.60E-05	5.0E-04	5.4E+00

Note:
Meas Basis: T = Total, D = Dissolved

Table 12: Scenarios for Potential Human Exposure
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Exposure Area & Exposure Point(s)	Receptor Population	Exposure Route	Exposure Medium	Possible Currently	Possible in Future	Comments
On-Facility						
Waste Pile Staging Area	Routine Workers	ingestion and dermal contact	surface soil	No	Yes	The Waste Pile Staging Area is currently paved. There is no routine worker population currently, as the area is inactive. Any excavation activties in the area are governed by Site health and safety plan which controls any potential for significant exposure.
		inhalation	vapor and particulates in air from surface soil	No	Yes	
	Occasional Excavation/Maintenance Workers	ingestion and dermal contact	surface and subsurface soil	No	Yes	
		inhalation	vapor and particulates in air from disturbed soil	No	Yes	
Off-Facility						
Local off-Facility residences	Residents	inhalation	vapor and particulates in air	No	Yes	Potential airborne exposures may occur from the Waste Pile Staging Area, if pavement were removed from this area.
Municipal wells in the lower aquifer at West Carrollton, Miami Shores, and Dryden Rd. South	Residents	ingestion, dermal contact, and inhalation from potable use	ground water	Yes	Yes	The West Carrollton well field is a current drinking water supply. The Miami Shores well field is GMWS's primary emergency drinking water supply and the Dryden Rd. South well field is GMWS's secondary emergency supply.
Great Miami River	Swimmers	ingestion and dermal contact	surface water	Yes	Yes	Potential exposures may occur through swimming in the River. However, swimming in the River is expected to be very infrequent because of serious drowning hazards.
		inhalation	vapor from surface water	Yes	Yes	

Table 13: High-End Exposure Factors and Estimated Media Intakes
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

		On-Facility		Off-Facility	
		Routine Industrial Activities	Excavation Activities	Routine Industrial	Excavation Activities
Soil Ingestion					
Ingestion Rate (mg-soil/d)	IR	50	480		
Conversion Factor (kg/mg)	CF	1E-06	1E-06		
Fraction Contacted (unitless)	FC_f	1	1		
Exposure Frequency (d/yr)	EF	250	10		
Exposure Duration (yr)	ED	21	1		
Body Weight (kg)	BW	70	70		
Averaging Time, carc (d)	AT_c	25,550	25,550		
Averaging Time, noncarc (d)	AT_{nc}	7,665	7,665		
Intake, carc (kg-soil/kg-bw/d)		1.47E-07	2.68E-09		
Intake, noncarc (kg-soil/kg-bw/d)		4.89E-07	8.95E-09		
Soil Dermal Contact					
Adherence Factor (mg-soil/cm^2)	AD	1	1		
Conversion Factor (kg/mg)	CF	1E-06	1E-06		
Skin Surface Area (cm^2/d)	SA	3,000	3,000		
Fraction Contacted (unitless)	FC_f	1	1		
Exposure Frequency (d/yr)	EF	250	10		
Exposure Duration (yr)	ED	21	1		
Body Weight (kg)	BW	70	70		
Averaging Time, carc (d)	AT_c	25,550	25,550		
Averaging Time, noncarc (d)	AT_{nc}	7,665	7,665		
Intake, carc (kg-soil/kg-bw/d)		8.81E-06	1.68E-08		
Intake, noncarc (kg-soil/kg-bw/d)		2.94E-05	5.59E-08		
Ambient Air Inhalation					
Breathing Rate (m^3-air/d)	BR	20	20	20	20
Fraction Contacted (unitless)	FC_f	1	1	1	1
Exposure Frequency (d/yr)	EF	250	10	350	10
Exposure Duration (yr)	ED	21	1	30	1
Body Weight (kg)	BW	70	70	70	70
Averaging Time, carc (d)	AT_c	25,550	25,550	25,550	25,550
Averaging Time, noncarc (d)	AT_{nc}	7,665	7,665	10,950	10,950
Intake, carc (m^3-air/kg-bw/d)		5.87E-02	1.12E-04	1.17E-01	1.12E-04
Intake, noncarc (m^3-air/kg-bw/d)		1.96E-01	3.73E-04	2.74E-01	2.61E-04

Table 14: Toxicity Values and Mass Transport Properties of Constituents Detected in Soil
Waste Pile Staging Area, Harrison Division-GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	EPA Group	SF_{oral} $(mg/kg/d)^{-1}$	Ref	Note	SF_{inh} $(mg/kg/d)^{-1}$	Ref	Note	RfD_{oral} (mg/kg/d)	UF	Ref	Note	RfD_{inh} (mg/kg/d)	UF	Ref	Note	SF_{derm} $(mg/kg/d)^{-1}$	RfD_{derm} (mg/kg/d)
VOC	Acetone	67-64-1	ID							9.0E-01	1000	1		9.0E-01	1000	1	4		9.0E-01
VOC	Benzene	71-43-2	A	5.5E-02	1	68	**2.7E-02**	1		4.0E-03	300	1		1.7E-03		4		5.5E-02	4.0E-03
VOC	2-Butanone	78-93-3	ID							6.0E-01	1000	1		1.4E+00	300	1	63		6.0E-01
VOC	Carbon Disulfide	75-15-0								1.0E-01	100	1		2.0E-01	30	1	63		1.0E-01
VOC	Carbon Tetrachloride	56-23-5	B2	1.3E-01	1		5.3E-02	2		7.0E-04	1000	1		**7.0E-04**		1		1.3E-01	7.0E-04
VOC	Chloroethane	75-00-3								4.0E-01		3		2.9E+00	300	1	63		4.0E-01
VOC	Cumene	98-82-8	D							1.0E-01	1000	1		1.1E-01	1000	1	63		1.0E-01
VOC	Cyclohexane	110-82-7	ID											1.7E+00	300	1	63		
VOC	1,2-Dichlorobenzene	95-50-1	D							9.0E-02	1000	1		4.0E-02	1000	2	3		9.0E-02
VOC	1,3-Dichlorobenzene	541-73-1	D							9.0E-02	1000	1	10	4.0E-02	1000	2	3,10		9.0E-02
VOC	1,4-Dichlorobenzene	106-46-7	C	2.4E-02	2	6	2.2E-02	3		3.0E-02		3		2.3E-01	100	1	63	2.4E-02	3.0E-02
VOC	Dichlorodifluoromethane	75-71-8								2.0E-01	100	1		5.7E-02	10000	2	63		2.0E-01
VOC	1,1-Dichloroethane	75-34-3	C							1.0E-01	1000	2	26,6	1.0E-01	1000	2	3,6		1.0E-01
VOC	1,1-Dichloroethene	75-35-4	C							5.0E-02	100	1		5.7E-02	30	1	63		5.0E-02
VOC	1,2-Dichloroethene (total)	540-59-0								9.0E-03	1000	2		9.0E-03	1000	2	4		9.0E-03
VOC	cis-1,2-Dichloroethene	156-59-2	D							1.0E-02	3000	2	6	1.0E-02	3000	2	6,4		1.0E-02
VOC	trans-1,2-Dichloroethene	156-60-5								2.0E-02	1000	1		2.0E-02	1000	1	4		2.0E-02
VOC	Ethyl Benzene	100-41-4	D							1.0E-01	1000	1		2.9E-01	300	1	63		1.0E-01
VOC	2-Hexanone	591-78-6								4.0E-02	10000	40		1.4E-03		3			4.0E-02
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9								1.0E+00	1000	2		1.0E+00	1000	2	4		1.0E+00
VOC	4-Methyl-2-pentanone	108-10-1	ID									1	90	8.6E-01	300	1	63		
VOC	Methylcyclohexane	108-87-2												8.6E-01	100	2	63		
VOC	Methylene Chloride	75-09-2	B2	7.5E-03	1		**1.6E-03**	1		6.0E-02	100	1		8.6E-01	100	2		7.5E-03	6.0E-02
VOC	Styrene	100-42-5								2.0E-01	1000	1	6	2.9E-01	30	1	63		2.0E-01
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	2.0E-01	1		2.0E-01	2	26	6.0E-02	300	101		**6.0E-02**		88	90,63	2.0E-01	6.0E-02
VOC	Tetrachloroethene	127-18-4	C-B2	5.2E-02	77		2.0E-03	77		1.0E-02	1000	1		1.4E-01		3		5.2E-02	1.0E-02
VOC	Toluene	108-88-3	D							2.0E-01	1000	1		1.1E-01	300	1	63		2.0E-01
VOC	1,2,4-Trichlorobenzene	120-82-1	D							1.0E-02	1000	1		1.0E-03		3			1.0E-02
VOC	1,1,1-Trichloroethane	71-55-6	D							2.8E-01	90	72		6.3E-01		3			2.8E-01
VOC	Trichloroethene	79-01-6	C-B2	1.1E-02	49		6.0E-03	49		6.0E-03	3000	46	6, 97	**6.0E-03**		46		1.1E-02	6.0E-03
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1								3.0E+01	10	1		8.6E+00	100	2	63		3.0E+01
VOC	Vinyl Chloride	75-01-4	A	1.4E+00	1	78	**3.1E-02**	1		3.0E-03	30	1		2.9E-02	30	1	63	1.4E+00	3.0E-03
VOC	Xylenes (total)	1330-20-7	ID							2.0E-01	1000	1		2.9E-02	300	1	63		2.0E-01
SVOC	Acenaphthene	83-32-9								6.0E-02	3000	1		6.0E-02	3000	1	4		6.0E-02
SVOC	Anthracene	120-12-7	D							3.0E-01	3000	1		**3.0E-01**		2	90,63		3.0E-01
SVOC	Benzo(a)anthracene	56-55-3	B2	7.3E-01	10	5	7.3E-01	10	5,4									7.3E-01	
SVOC	Benzo(a)pyrene	50-32-8	B2	7.3E+00	1		3.1E+00	3										7.3E+00	
SVOC	Benzo(b)fluoranthene	205-99-2	B2	7.3E-01	10	5	7.3E-01	10	5,4									7.3E-01	
SVOC	Benzo(g,h,i)perylene	191-24-2	D							3.0E-02	3000	1	20	3.0E-02	3000	1	20,4		3.0E-02
SVOC	Benzo(k)fluoranthene	207-08-9	B2	7.3E-02	10	5	7.3E-02	10	5,4									7.3E-02	
SVOC	Biphenyl	92-52-4	D							5.0E-02	1000	1		5.0E-02	1000	1	4		5.0E-02
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	1.4E-02	1		1.4E-02	3		2.0E-02	1000	1		**2.0E-02**		1		1.4E-02	2.0E-02
SVOC	Butylbenzylphthalate	85-68-7	C							2.0E-01	1000	1		2.0E-01	1000	1	4		2.0E-01
SVOC	Carbazole	86-74-8	B2	2.0E-02	2		2.0E-02	2	4									2.0E-02	
SVOC	Chrysene	218-01-9	B2	7.3E-03	10	5	7.3E-03	10	5,4									7.3E-03	
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	7.3E+00	10	5	7.3E+00	10	5,4									7.3E+00	
SVOC	Dibenzofuran	132-64-9	D							2.0E-03		3		2.0E-03		3	4		2.0E-03
SVOC	Di-n-butylphthalate	84-74-2	D							1.0E-01	1000	1	6	**1.0E-01**		1	90,63		1.0E-01

Table 14: Toxicity Values and Mass Transport Properties of Constituents Detected in Soil
Waste Pile Staging Area, Harrison Division-GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	EPA Group	SF_{oral} $(mg/kg/d)^{-1}$	Ref	Note	SF_{inh} $(mg/kg/d)^{-1}$	Ref	Note	RfD_{oral} (mg/kg/d)	UF	Ref	Note	RfD_{inh} (mg/kg/d)	UF	Ref	Note	SF_{derm} $(mg/kg/d)^{-1}$	RfD_{derm} (mg/kg/d)
SVOC	Di-n-octylphthalate	117-84-0								2.0E-02	1000	2		2.0E-02	1000	2	4		**2.0E-02**
SVOC	Fluoranthene	206-44-0	D							4.0E-02	3000	1		4.0E-02	3000	1	4		**4.0E-02**
SVOC	Fluorene	86-73-7	D							4.0E-02	3000	1		4.0E-02	3000	1	4		**4.0E-02**
SVOC	Hexachlorobutadiene	87-68-3	C	7.8E-02	1		7.8E-02	2	26	2.0E-04	1000	2	6	**2.0E-04**		2		**7.8E-02**	**2.0E-04**
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	7.3E-01	10	5	7.3E-01	10	5,4									**7.3E-01**	
SVOC	2-Methylnaphthalene	91-57-6	ID							4.0E-03	1000	1		8.6E-04	3000	1	61,63		**4.0E-03**
SVOC	Methylphenol (total)	1319-77-3								5.0E-02		1	99	5.0E-02		1	99,4		**5.0E-02**
SVOC	Naphthalene	91-20-3	C							2.0E-02	3000	1		8.6E-04	3000	1	63		**2.0E-02**
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	4.9E-03	1		**4.9E-03**	1		2.0E-02	3000	104		**2.0E-02**		89	90,63	**4.9E-03**	**2.0E-02**
SVOC	Phenanthrene	85-01-8	D							3.0E-02	3000	1	20	3.0E-02	3000	1	20,4		**3.0E-02**
SVOC	Pyrene	129-00-0	D							3.0E-02	3000	1		3.0E-02	3000	1	4		**3.0E-02**
P/PCB	PCBs (total)	1336-36-3	B2	2.0E+00	1	30,32	2.0E+00	1	30,32	2.0E-05	300	1	72	**2.0E-05**		1		**2.0E+00**	**2.0E-05**
INORG	Aluminum	7429-90-5																	
INORG	Antimony	7440-36-0								4.0E-04	1000	1		4.0E-04	1000	1	4		**4.0E-04**
INORG	Arsenic	7440-38-2	A	1.5E+00	1		1.5E+00	1	4	3.0E-04	3	1		**3.0E-04**		1		**1.5E+00**	**3.0E-04**
INORG	Barium	7440-39-3	D							7.0E-02	3	1		**7.0E-02**		1	90,63		**7.0E-02**
INORG	Beryllium	7440-41-7	B1				8.4E+00	2		2.0E-03	300	1		5.7E-06	10	1	63		**2.0E-03**
INORG	Cadmium	7440-43-9	B1				**6.3E+00**	1		1.0E-03	10	1	95	5.7E-05		3			**1.0E-03**
INORG	Calcium	7440-70-2																	
INORG	Chromium (total)	7440-47-3					4.1E+01	2	8	3.0E-03	900	1	8	2.9E-05	300	1	59,8,63		**3.0E-03**
INORG	Cobalt	7440-48-4	B1				9.8E+00	3		2.0E-02	10	105		5.7E-06		3			**2.0E-02**
INORG	Copper	7440-50-8	D							4.0E-02	2	50	49	4.0E-02	2	50	49,4		**4.0E-02**
INORG	Cyanide (total)	57-12-5	D							2.0E-02	500	1		2.0E-02	500	1	4		**2.0E-02**
INORG	Lead	7439-92-1	B2																
INORG	Manganese	7439-96-5	D							1.4E-01	1	1	36	1.4E-05	1000	1	63		**1.4E-01**
INORG	Mercury	7439-97-6	D							3.0E-04	1000	1	51	8.6E-05	30	1	63		**3.0E-04**
INORG	Nickel	7440-02-0	A				8.4E-01	2		2.0E-02	300	1		**2.0E-02**		1			**2.0E-02**
INORG	Selenium	7782-49-2	D							5.0E-03	3	1		5.0E-03	3	1	4		**5.0E-03**
INORG	Silver	7440-22-4	D							5.0E-03	3	1		2.9E-06	1000	83	63		**5.0E-03**
INORG	Thallium	7440-28-0								7.0E-05	3000	52	49	7.0E-05	3000	52	49,4		**7.0E-05**
INORG	Tin	7440-31-5								6.0E-01		2		6.0E-01		2	4		**6.0E-01**
INORG	Vanadium	7440-62-2								7.0E-03	100	2	6	7.0E-03	100	2	6,4		**7.0E-03**
INORG	Zinc	7440-66-6	D							3.0E-01	3	1		3.0E-01	3	1	4		**3.0E-01**

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Toxicity Notes	
Note	**Comment**
2	USEPA adopted chronic value as subchronic value.
3	HEAST Alternate Method.
4	ENVIRON obtained value by route-to-route extrapolation.
5	Based on analogy to Benzo(a)pyrene [CASRN 50-32-8] using USEPA relative potency described in the indicated reference.
6	Under review, according to IRIS.
8	ENVIRON used Chromium VI [CASRN 18540-29-9] value from IRIS (reference 1) as a surrogate.
10	ENVIRON used 1,2-Dichlorobenzene [CASRN 95-50-1] value from the indicated reference as a surrogate.
20	ENVIRON used Pyrene [CASRN 129-00-0] value from IRIS (reference 1) as a surrogate.
26	USEPA obtained value by route-to-route extrapolation.
30	Upper-bound slope factor.
32	High risk & persistence tier for: food chain exposure; sediment/soil ingestion; dust/aerosol inhalation; dermal exposure, if an absorption factor is applied; presence of dioxin-like, tumor-promoting/persistent congeners; and all early life exposures.
36	IRIS recommends applying a modifying factor of 3 when using this RfD in assessing exposures to drinking water or soil.
44	ENVIRON derived inhalation RfC from inhalation RfD value presented in the indicated reference, using standard USEPA methodology presented in HEAST.
45	ENVIRON derived inhalation URF from Inhalation Slope Factor value presented in the indicated reference, using standard USEPA methodology presented in HEAST.
49	ENVIRON derived oral RfD from adverse health effect level value presented in the indicated reference.
51	ENVIRON used Mercuric Chloride [CASRN 7487-94-7] value from the indicated reference as a surrogate.
58	This RfD is for chromic acid mists and dissolved Chromium VI aerosols.
59	This RfD is for particulates. The RfD for chromic acid mists and dissolved Chromium VI aerosols is 0.000008 mg/m3.
60	IRIS provides a range of 2.2E-6 to 7.8E-6 (ug/m3)-1 as the inhalation URF for Benzene.
61	ENVIRON used Naphthalene [CASRN 91-20-3] value from indicated reference as a surrogate.
62	ENVIRON used chronic value as a surrogate for the subchronic value.
63	ENVIRON derived inhalation RfD from inhalation RfC published in the indicated reference, using standard USEPA methodology presented in HEAST.
68	IRIS provides a range of 1.5E-2 to 5.5E-2 (mg/kg/d)-1 as the oral Slope Factor for Benzene.
72	ENVIRON used Aroclor 1254 [CASRN 11097-69-1] value from the indicated reference as a surrogate for Polychlorinated biphenyls [CASRN 1336-36-3].
78	IRIS recommends an oral Slope Factor for Vinyl Chloride of 7.2E-1 (mg/kg/d)-1 to account for continuous lifetime exposure during adulthood; a twofold increase to 1.4 (mg/kg/d)-1 is recommended to account for continuous exposure from birth.
79	IRIS recommends an inhalation URF for Vinyl Chloride of 4.4E-6 (ug/m3)-1 to account for continuous lifetime exposure during adulthood; a twofold increase to 8.8E-6 (ug/m3)-1 is recommended to account for continuous exposure from birth.
90	Inadequate data exist to derive a toxicity value, according to the indicated reference.
91	This criterion is applicable to insoluable forms of the compound occurring as dust or fumes.
94	Two provisional RfC values are presented in the indicated reference (4E-1 and 6E-1 mg/m3). Personal communication with NCEA indicated that either RfC is acceptable and the RfC should be chosen on a case-by-case basis.
95	Diet Criterion.
97	ENVIRON used withdrawn source.
99	ENVIRON used 3-Methylphenol [CASRN 108-39-4] values from the indicated reference as a surrogate.
102	A dose equivalency factor of 4.5 was applied to the chronic RfC to derive the subchronic RfC.

Table 15: Bounding Estimates of Site-Related Cumulative Cancer Risks and His
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Cumulative Cancer Risks

	On-Site Worker						Off-Site Resident
	Routine Industrial Activites			Excavation Activities			All Activities
SWMU	Ingestion	Dermal	Inhalation	Ingestion	Dermal	Inhalation	Inhalation
Waste Pile Staging Area	7E-04	5E-03	7E-05	1E-05	9E-06	3E-05	2E-05
Sum Across Routes:	6E-03			5E-05			

Hazard Indices

	Routine Industrial Worker						Off-Site Resident
	Routine Industrial Activites			Excavation Activities			All Activities
SWMU	Ingestion	Dermal	Inhalation	Ingestion	Dermal	Inhalation	Inhalation
Waste Pile Staging Area	2E+01	2E+01	4E+00	3E-01	3E-02	4E-01	7E-01
Sum Across Routes:	4E+01			7E-01			

Notes:

Estimates are based on the removal of oil impacted soil as discussed in Section 4.

Table 16: Estimates of Site-Related Cumulative Cancer Risks and His (Max and 95% UCLs)
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Cumulative Cancer Risks

	On-Site Worker						Off-Site Resident
	Routine Industrial Activites			Excavation Activities			All Activities
SWMU	Ingestion	Dermal	Inhalation	Ingestion	Dermal	Inhalation	Inhalation
Waste Pile Staging Area	2E-05	1E-04	1E-05	1E-06	8E-07	5E-06	3E-06
Sum Across Routes:		**1E-04**			**6E-06**		

Hazard Indices

	Routine Industrial Worker						Off-Site Resident
	Routine Industrial Activites			Excavation Activities			All Activities
SWMU	Ingestion	Dermal	Inhalation	Ingestion	Dermal	Inhalation	Inhalation
Waste Pile Staging Area	**3E+00**	**4E+00**	8E-01	3E-02	5E-03	1E-01	1E-01
Sum Across Routes:		**7E+00**			**2E-01**		

Notes:

Estimates are based on the removal of oil impacted soil as discussed in Section 4.

Table 17: Estimates of Site-Related Cumulative Cancer Risks and His (Max or 95% UCLs)
After Additional Excavation Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Cumulative Cancer Risks

	On-Site Worker						Off-Site Resident
	Routine Industrial Activites			Excavation Activities			All Activities
SWMU	Ingestion	Dermal	Inhalation	Ingestion	Dermal	Inhalation	Inhalation
Waste Pile Staging Area	1E-05	5E-05	2E-06	3E-07	2E-07	3E-06	9E-07
Sum Across Routes:	6E-05			3E-06			

Hazard Indices

	Routine Industrial Worker						Off-Site Resident
	Routine Industrial Activites			Excavation Activities			All Activities
SWMU	Ingestion	Dermal	Inhalation	Ingestion	Dermal	Inhalation	Inhalation
Waste Pile Staging Area	2E-01	3E-01	2E-01	5E-03	5E-04	1E-01	4E-02
Sum Across Routes:	7E-01			1E-01			

Notes:
Estimates are based on the removal of soil as discussed in Section 6.5.2.1.

Table 18: Estimated Distributions of Blood Lead Concentrations (ug/dL)
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

Estimated Lead Uptake

SWMU	Exposure	On-Facility Worker ADD_{oral} (mg/kg/d)	On-Facility Worker ADD_{inh} (mg/kg/d)	Off-Facility ADD_{inh} (mg/kg/d)
Waste Pile Staging Area	Routine Industrial Activities	8.8E-05	3.5E-08	6.1E-09
Waste Pile Staging Area	Construction Activities	3.7E-06	1.5E-07	1.3E-08
	Total:	9.2E-05	1.9E-07	2.0E-08
	Absorption Fraction:	0.12	0.32	0.32
	Body Weight (kg):	70	70	70
	Lead Uptake (ug/d):	7.71E-01	4.22E-03	4.38E-04

Estimated Blood Lead Concentrations

		Worker	Resident
Total Lead Uptake (ug/d)	ADD_{total}	7.8E-01	4.4E-04
Biokinetic Slope Factor (ug/dL per ug/d)	BSF	0.4	0.4
Baseline Blood Lead (ug/dL)	$PbB_{baseline}$	2.0	2.0
Geometric Standard Deviation	GSD	2	2

Distribution Percentile	z	Worker PbB (ug/dL)	Resident PbB (ug/dL)
1	-2.33	0	0
5	-1.64	1	1
10	-1.28	1	1
20	-0.84	1	1
30	-0.52	2	1
40	-0.25	2	2
50	0.00	2	2
60	0.25	3	2
70	0.52	3	3
80	0.84	4	3
90	1.28	5	5
95	**1.64**	**7**	**6**
99	2.33	11	10

Note:
Value selected for GSD and $PbB_{baseline}$ are the average of the ranges presented in the USEPA Guidance (USEPA 2003).

Table 19: Summary of Estimated Groundwater Concentrations (mg/L) for Groundwater Use Evaluated in Scenario 1
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.	0.	0.0001	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0001	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0001	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.0001	0.0001	0.	3.65	
VOC	Benzene	71-43-2	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0001	0.	0.0001	0.07	
VOC	Ethyl Benzene	100-41-4	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0004	0.0001	0.	0.005	
VOC	Toluene	108-88-3	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0001	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0001	0.	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.	0.	0.0001	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.0002	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0004	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0011	0.0003	0.	1.095	
SVOC	Pyrene	129-00-0	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0028	0.0006	0.0001	0.05	
INORG	Barium	7440-39-3	0.0695	0.0149	0.0009	2.	
INORG	Beryllium	7440-41-7	0.	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.	0.	0.0011	0.1	
INORG	Cobalt	7440-48-4	0.0007	0.0002	0.0003	2.19	
INORG	Copper	7440-50-8	0.0002	0.0001	0.0004	1.3	
INORG	Cyanide (total)	57-12-5	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.	0.	0.0001	0.015	
INORG	Manganese	7439-96-5	0.2305	0.0397	0.003	5.11	
INORG	Mercury	7439-97-6	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0031	0.0007	0.0004	0.1	
INORG	Selenium	7782-49-2	0.0036	0.0006	0.	0.05	
INORG	Silver	7440-22-4	0.	0.	0.0003	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.1267	0.0264	0.0014	10.95	

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.

Table 20: Summary of Estimated Groundwater Concentrations (mg/L) for Groundwater Use Evaluated in Scenario 2
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Miami Shores	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0033	0.	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0011	0.0001	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.	0.0001	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0005	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.0007	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.002	0.0001	0.	0.	3.65	
VOC	Benzene	71-43-2	0.0001	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0001	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.003	0.0001	0.	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0014	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0004	0.0003	0.0001	0.	0.005	
VOC	Toluene	108-88-3	0.0023	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.	0.0001	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0004	0.0001	0.	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0027	0.	0.	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0001	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0001	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.0001	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.0002	0.0001	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0002	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.0006	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0003	0.0002	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0004	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0017	0.0008	0.0003	0.	1.095	
SVOC	Pyrene	129-00-0	0.0003	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0024	0.002	0.0007	0.	0.05	
INORG	Barium	7440-39-3	0.0194	0.0503	0.0164	0.0006	2.	
INORG	Beryllium	7440-41-7	0.0001	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0004	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.05	0.	0.	0.0002	0.1	
INORG	Cobalt	7440-48-4	0.0155	0.0005	0.0002	0.0001	2.19	
INORG	Copper	7440-50-8	0.0176	0.0001	0.	0.0001	1.3	
INORG	Cyanide (total)	57-12-5	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0017	0.	0.	0.	0.015	
INORG	Manganese	7439-96-5	0.148	0.3314	0.0738	0.0008	5.11	
INORG	Mercury	7439-97-6	0.0001	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0157	0.0022	0.0007	0.0001	0.1	
INORG	Selenium	7782-49-2	0.0003	0.004	0.0009	0.	0.05	
INORG	Silver	7440-22-4	0.0123	0.	0.	0.0001	0.1825	
INORG	Thallium	7440-28-0	0.0001	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.0005	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.0641	0.0926	0.0301	0.0003	10.95	

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.

Table 21: Summary of Estimated Groundwater Concentrations (mg/L) for Groundwater Use Evaluated in Scenario 3
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Miami Shores	Moraine Assembly	Moraine Engine	Well 28	Delphi Thermal	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.001	0.	0.	0.	0.0021	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0003	0.	0.	0.0002	0.0007	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.	0.	0.	0.0002	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0001	0.	0.	0.	0.0004	0.	0.07	
VOC	2-Butanone	78-93-3	0.0002	0.	0.	0.	0.0013	0.	21.9	
VOC	Acetone	67-64-1	0.0006	0.0001	0.0001	0.0021	0.0018	0.	3.65	
VOC	Benzene	71-43-2	0.	0.	0.	0.	0.0001	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.	0.	0.	0.	0.0001	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.	0.	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.	0.0001	0.	0.0002	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.	0.	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0009	0.	0.	0.0002	0.0019	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0005	0.	0.	0.	0.0009	0.	0.7	
VOC	Styrene	100-42-5	0.	0.	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0001	0.0002	0.0001	0.0008	0.0005	0.	0.005	
VOC	Toluene	108-88-3	0.0007	0.	0.	0.	0.0015	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.	0.	0.	0.0002	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0002	0.0001	0.	0.0004	0.0003	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.	0.	0.	0.0002	0.0001	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0009	0.	0.	0.0001	0.0018	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.	0.	0.	0.0001	0.0002	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.	0.	0.	0.0001	0.0002	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.	0.	0.	0.0008	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.0002	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.	0.0001	0.	0.0004	0.0002	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0001	0.	0.	0.	0.0001	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.0002	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.0001	0.	0.	0.	0.0003	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0001	0.0002	0.0001	0.0014	0.0003	0.	1.46	
SVOC	Fluorene	86-73-7	0.	0.	0.	0.0001	0.0001	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0001	0.	0.	0.	0.0006	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0006	0.0005	0.0002	0.0027	0.0012	0.	1.095	
SVOC	Pyrene	129-00-0	0.0001	0.	0.	0.0009	0.0003	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.	0.	0.	0.0001	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0008	0.0011	0.0004	0.0054	0.0013	0.	0.05	
INORG	Barium	7440-39-3	0.0057	0.027	0.01	0.1354	0.0238	0.0002	2.	
INORG	Beryllium	7440-41-7	0.	0.0001	0.	0.0002	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0001	0.	0.	0.0001	0.0003	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0158	0.	0.	0.0003	0.0316	0.0001	0.1	
INORG	Cobalt	7440-48-4	0.0049	0.0003	0.0001	0.0017	0.0098	0.	2.19	
INORG	Copper	7440-50-8	0.0056	0.0001	0.	0.0008	0.0112	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.	0.	0.	0.	0.0001	0.	0.2	
INORG	Lead	7439-92-1	0.0006	0.	0.	0.0001	0.0012	0.	0.015	
INORG	Manganese	7439-96-5	0.0474	0.2926	0.0753	0.6005	0.2528	0.0003	5.11	
INORG	Mercury	7439-97-6	0.	0.	0.	0.	0.0001	0.	0.002	
INORG	Nickel	7440-02-0	0.0049	0.0012	0.0005	0.0068	0.0101	0.	0.1	
INORG	Selenium	7782-49-2	0.0001	0.0033	0.0008	0.0071	0.0003	0.	0.05	
INORG	Silver	7440-22-4	0.0039	0.	0.	0.	0.0077	0.	0.1825	
INORG	Thallium	7440-28-0	0.	0.	0.	0.	0.0001	0.	0.002	
INORG	Vanadium	7440-62-2	0.0002	0.	0.	0.0005	0.0004	0.	0.2555	
INORG	Zinc	7440-66-6	0.0201	0.0489	0.0174	0.2233	0.0415	0.0001	10.95	

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.

Table 22: Summary of Estimated Groundwater Concentrations (mg/L) for Groundwater Use Evaluated in Scenario 4
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road South	Miami Shores	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0419	0.0026	0.	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0138	0.0009	0.0001	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0001	0.	0.0001	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0057	0.0003	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.0083	0.0005	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.0252	0.0017	0.0002	0.0001	0.	3.65	
VOC	Benzene	71-43-2	0.0013	0.0001	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0007	0.	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.0006	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0004	0.	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.0006	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0379	0.0024	0.0001	0.	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0174	0.0011	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.0006	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0041	0.0002	0.0002	0.0001	0.	0.005	
VOC	Toluene	108-88-3	0.029	0.0018	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0002	0.	0.0001	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0048	0.0003	0.0001	0.	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.0001	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0003	0.	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0345	0.0022	0.	0.	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0017	0.0001	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0013	0.0001	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.0008	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.0001	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.0002	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.0006	0.0002	0.0001	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0025	0.0002	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.0003	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.0049	0.0005	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0036	0.0002	0.0002	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.0006	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0049	0.0004	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0221	0.0014	0.0007	0.0003	0.	1.095	
SVOC	Pyrene	129-00-0	0.0035	0.0002	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.0001	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0001	0.	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0314	0.0025	0.0018	0.0007	0.	0.05	
INORG	Barium	7440-39-3	0.1881	0.018	0.0442	0.0169	0.0006	2.	
INORG	Beryllium	7440-41-7	0.0012	0.0001	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.005	0.0003	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.6366	0.0401	0.	0.	0.0001	0.1	OVER
INORG	Cobalt	7440-48-4	0.1964	0.0124	0.0004	0.0002	0.	2.19	
INORG	Copper	7440-50-8	0.2232	0.0141	0.0001	0.0001	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.0003	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.016	0.0008	0.	0.	0.	0.015	OVER
INORG	Manganese	7439-96-5	1.9122	0.1425	0.3983	0.0985	0.0004	5.11	
INORG	Mercury	7439-97-6	0.0018	0.0001	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.1973	0.0126	0.002	0.0008	0.	0.1	OVER
INORG	Selenium	7782-49-2	0.0024	0.0003	0.0039	0.0011	0.	0.05	
INORG	Silver	7440-22-4	0.1559	0.0098	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.0011	0.0001	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.0066	0.0004	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.8084	0.0529	0.0805	0.0298	0.0002	10.95	

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.

Table 23: Summary of Estimated Groundwater Concentrations (mg/L) for Groundwater Use Evaluated in Scenario 5
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road South	Miami Shores	Moraine Assembly	Moraine Engine	Well 28	Delphi Thermal	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0245	0.0018	0.	0.	0.	0.0017	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0081	0.0006	0.	0.	0.0001	0.0006	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.0001	0.	0.	0.	0.0001	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0034	0.0002	0.	0.	0.	0.0004	0.	0.07	
VOC	2-Butanone	78-93-3	0.0048	0.0004	0.	0.	0.	0.0011	0.	21.9	
VOC	Acetone	67-64-1	0.0147	0.0011	0.0001	0.0001	0.002	0.0014	0.	3.65	
VOC	Benzene	71-43-2	0.0008	0.0001	0.	0.	0.	0.0001	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0004	0.	0.	0.	0.	0.0001	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.0003	0.	0.	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0003	0.	0.0001	0.	0.0002	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.0003	0.	0.	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0222	0.0016	0.	0.	0.0002	0.0015	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0104	0.0007	0.	0.	0.	0.0007	0.	0.7	
VOC	Styrene	100-42-5	0.0003	0.	0.	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0026	0.0002	0.0001	0.	0.0007	0.0004	0.	0.005	
VOC	Toluene	108-88-3	0.017	0.0012	0.	0.	0.	0.0012	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0001	0.	0.	0.	0.0002	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0032	0.0002	0.	0.	0.0004	0.0003	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0002	0.	0.	0.	0.0002	0.0001	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0202	0.0015	0.	0.	0.0001	0.0014	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.001	0.0001	0.	0.	0.0001	0.0001	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0007	0.0001	0.	0.	0.0001	0.0002	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.0005	0.	0.	0.	0.0007	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.0002	0.	0.	0.	0.0002	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.0004	0.	0.0001	0.	0.0004	0.0003	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0015	0.0001	0.	0.	0.	0.0001	0.	7.3	
SVOC	Chrysene	218-01-9	0.0002	0.	0.	0.	0.0002	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.0029	0.0002	0.	0.	0.	0.0004	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0022	0.0002	0.0001	0.0001	0.0013	0.0002	0.	1.46	
SVOC	Fluorene	86-73-7	0.0003	0.	0.	0.	0.0001	0.0001	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0029	0.0003	0.	0.	0.	0.0004	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.013	0.0009	0.0004	0.0001	0.0026	0.0009	0.	1.095	
SVOC	Pyrene	129-00-0	0.0021	0.0001	0.	0.	0.0008	0.0002	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0001	0.	0.	0.	0.0001	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0187	0.0016	0.001	0.0003	0.0051	0.0011	0.	0.05	
INORG	Barium	7440-39-3	0.1176	0.0102	0.0236	0.0066	0.1283	0.0224	0.0002	2.	
INORG	Beryllium	7440-41-7	0.0009	0.	0.0001	0.	0.0002	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0029	0.0002	0.	0.	0.0001	0.0002	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.372	0.0271	0.	0.	0.0003	0.0252	0.	0.1	OVER
INORG	Cobalt	7440-48-4	0.1148	0.0084	0.0002	0.0001	0.0016	0.0079	0.	2.19	
INORG	Copper	7440-50-8	0.1304	0.0095	0.0001	0.	0.0008	0.009	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.0002	0.	0.	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0107	0.0005	0.	0.	0.0001	0.0009	0.	0.015	
INORG	Manganese	7439-96-5	1.2105	0.1028	0.2783	0.0662	0.6109	0.1693	0.0002	5.11	
INORG	Mercury	7439-97-6	0.001	0.0001	0.	0.	0.	0.0001	0.	0.002	
INORG	Nickel	7440-02-0	0.1154	0.0084	0.0011	0.0003	0.0064	0.0082	0.	0.1	OVER
INORG	Selenium	7782-49-2	0.0014	0.0001	0.0031	0.0006	0.007	0.0003	0.	0.05	
INORG	Silver	7440-22-4	0.0911	0.0066	0.	0.	0.	0.0062	0.	0.1825	
INORG	Thallium	7440-28-0	0.0007	0.	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.0039	0.0003	0.	0.	0.0005	0.0003	0.	0.2555	
INORG	Zinc	7440-66-6	0.4698	0.0344	0.0428	0.0112	0.2116	0.0337	0.0001	10.95	

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.

Table 24: Summary of Estimated Groundwater Concentrations (mg/L) for Groundwater Use Evaluated in Scenario 6
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road North	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0023	0.	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0008	0.	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.	0.	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0003	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.0006	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.0018	0.0001	0.0001	0.	3.65	
VOC	Benzene	71-43-2	0.0001	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0001	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0001	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0021	0.	0.	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.001	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0006	0.0001	0.0001	0.	0.005	
VOC	Toluene	108-88-3	0.0016	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0001	0.	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0006	0.	0.	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0001	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0019	0.	0.	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0001	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0002	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.0001	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.0008	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0001	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.0009	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0005	0.0001	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.0001	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0004	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0018	0.0002	0.0003	0.	1.095	
SVOC	Pyrene	129-00-0	0.0003	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0001	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0098	0.0006	0.0006	0.	0.05	
INORG	Barium	7440-39-3	0.0681	0.0153	0.0149	0.	2.	
INORG	Beryllium	7440-41-7	0.0002	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0003	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0343	0.	0.	0.	0.1	
INORG	Cobalt	7440-48-4	0.0112	0.0002	0.0002	0.	2.19	
INORG	Copper	7440-50-8	0.0124	0.	0.0001	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0025	0.	0.	0.	0.015	
INORG	Manganese	7439-96-5	0.6584	0.269	0.091	0.	5.11	
INORG	Mercury	7439-97-6	0.0001	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0128	0.0007	0.0007	0.	0.1	
INORG	Selenium	7782-49-2	0.0018	0.0028	0.001	0.	0.05	
INORG	Silver	7440-22-4	0.0084	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.0001	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.0004	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.0977	0.028	0.0264	0.	10.95	

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.

Table 25: Summary of Estimated Groundwater Concentrations (mg/L) for Groundwater Use Evaluated in Scenario 7
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road North	Miami Shores	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.004	0.	0.	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0014	0.	0.	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.	0.	0.	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0006	0.	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.0009	0.	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.0032	0.	0.0001	0.0001	0.	3.65	
VOC	Benzene	71-43-2	0.0002	0.	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0001	0.	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.0001	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0001	0.	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.0001	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0037	0.	0.	0.	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0017	0.	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.0001	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0008	0.	0.0001	0.0001	0.	0.005	
VOC	Toluene	108-88-3	0.0028	0.	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0001	0.	0.	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.001	0.	0.	0.	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0001	0.	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0034	0.	0.	0.	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0002	0.	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0003	0.	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.0003	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.0001	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.0009	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0002	0.	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.0001	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.0012	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0007	0.	0.	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.0001	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0008	0.	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0028	0.	0.0001	0.0003	0.	1.095	
SVOC	Pyrene	129-00-0	0.0006	0.	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.0001	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0001	0.	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0158	0.	0.0003	0.0006	0.	0.05	
INORG	Barium	7440-39-3	0.0919	0.0005	0.0082	0.0144	0.	2.	
INORG	Beryllium	7440-41-7	0.0003	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0006	0.	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.061	0.	0.	0.	0.	0.1	
INORG	Cobalt	7440-48-4	0.0195	0.	0.0001	0.0002	0.	2.19	
INORG	Copper	7440-50-8	0.0218	0.	0.	0.0001	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.0001	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0032	0.	0.	0.	0.	0.015	
INORG	Manganese	7439-96-5	0.9503	0.0022	0.2114	0.091	0.	5.11	
INORG	Mercury	7439-97-6	0.0002	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0215	0.	0.0004	0.0007	0.	0.1	
INORG	Selenium	7782-49-2	0.0021	0.	0.0023	0.001	0.	0.05	
INORG	Silver	7440-22-4	0.0149	0.	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.0001	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.0008	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.1356	0.0003	0.015	0.0256	0.	10.95	

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.

Table 26: Summary of Estimated Groundwater Concentrations (mg/L) for Groundwater Use Evaluated in Scenario 8
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road North	Miami Shores	Moraine Assembly	Moraine Engine	Well 28	Delphi Thermal	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0029	0.	0.	0.	0.	0.0009	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.001	0.	0.	0.	0.0001	0.0003	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.	0.	0.	0.	0.0001	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0004	0.	0.	0.	0.	0.0002	0.	0.07	
VOC	2-Butanone	78-93-3	0.0006	0.	0.	0.	0.	0.0008	0.	21.9	
VOC	Acetone	67-64-1	0.0024	0.	0.	0.0001	0.0011	0.0007	0.	3.65	
VOC	Benzene	71-43-2	0.0001	0.	0.	0.	0.	0.0001	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0001	0.	0.	0.	0.	0.0001	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.	0.	0.	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0001	0.	0.0001	0.	0.0002	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.	0.	0.	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0026	0.	0.	0.	0.0002	0.0008	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0012	0.	0.	0.	0.	0.0004	0.	0.7	
VOC	Styrene	100-42-5	0.	0.	0.	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0006	0.	0.	0.0001	0.0005	0.0003	0.	0.005	
VOC	Toluene	108-88-3	0.002	0.	0.	0.	0.	0.0006	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0001	0.	0.	0.	0.0001	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0007	0.	0.	0.	0.0002	0.0002	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0001	0.	0.	0.	0.0001	0.0001	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.0024	0.	0.	0.	0.	0.0008	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0002	0.	0.	0.	0.	0.0001	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0002	0.	0.	0.	0.	0.0001	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.0002	0.	0.	0.	0.0004	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.0001	0.	0.	0.	0.0001	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.0009	0.	0.	0.	0.0003	0.0002	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0002	0.	0.	0.	0.	0.0001	0.	7.3	
SVOC	Chrysene	218-01-9	0.0001	0.	0.	0.	0.0001	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.0011	0.	0.	0.	0.	0.0002	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0005	0.	0.	0.0001	0.0008	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.0001	0.	0.	0.	0.	0.0001	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0007	0.	0.	0.	0.	0.0002	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.002	0.	0.0001	0.0003	0.0019	0.0005	0.	1.095	
SVOC	Pyrene	129-00-0	0.0004	0.	0.	0.	0.0004	0.0001	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.0001	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0001	0.	0.	0.	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0114	0.	0.0002	0.0007	0.0039	0.0006	0.	0.05	
INORG	Barium	7440-39-3	0.0698	0.0001	0.0051	0.0175	0.0986	0.0115	0.	2.	
INORG	Beryllium	7440-41-7	0.0002	0.	0.	0.	0.0002	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0004	0.	0.	0.	0.	0.0001	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0433	0.	0.	0.	0.0001	0.013	0.	0.1	
INORG	Cobalt	7440-48-4	0.0139	0.	0.0001	0.0002	0.0011	0.0041	0.	2.19	
INORG	Copper	7440-50-8	0.0156	0.	0.	0.0001	0.0005	0.0047	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.0001	0.	0.	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0025	0.	0.	0.	0.0001	0.0005	0.	0.015	
INORG	Manganese	7439-96-5	0.7902	0.0002	0.1406	0.0888	0.7074	0.0551	0.	5.11	
INORG	Mercury	7439-97-6	0.0001	0.	0.	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0153	0.	0.0002	0.0008	0.0047	0.0043	0.	0.1	
INORG	Selenium	7782-49-2	0.0013	0.	0.0018	0.001	0.0073	0.0002	0.	0.05	
INORG	Silver	7440-22-4	0.0106	0.	0.	0.	0.	0.0032	0.	0.1825	
INORG	Thallium	7440-28-0	0.0001	0.	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.0006	0.	0.	0.	0.0002	0.0002	0.	0.2555	
INORG	Zinc	7440-66-6	0.0886	0.0001	0.0093	0.0315	0.1696	0.0177	0.	10.95	

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.

Table 27: Summary of Estimated Groundwater Concentrations (mg/L) for Groundwater Use Evaluated in Scenario 9
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road North	Dryden Road South	Miami Shores	Moraine Assembly	Moraine Engine	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0048	0.0016	0.	0.	0.	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0016	0.0006	0.	0.	0.	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.	0.	0.	0.	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0007	0.0002	0.	0.	0.	0.	0.07	
VOC	2-Butanone	78-93-3	0.001	0.0002	0.	0.	0.	0.	21.9	
VOC	Acetone	67-64-1	0.0038	0.0016	0.	0.0001	0.0001	0.	3.65	
VOC	Benzene	71-43-2	0.0002	0.0001	0.	0.	0.	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0001	0.	0.	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.0001	0.	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0001	0.0001	0.	0.0001	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.0001	0.	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0044	0.0015	0.	0.	0.	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.002	0.0006	0.	0.	0.	0.	0.7	
VOC	Styrene	100-42-5	0.0001	0.	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0008	0.0004	0.	0.	0.0001	0.	0.005	
VOC	Toluene	108-88-3	0.0033	0.0011	0.	0.	0.	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0001	0.0001	0.	0.	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0011	0.0005	0.	0.	0.	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0001	0.0001	0.	0.	0.	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.004	0.0013	0.	0.	0.	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0003	0.0001	0.	0.	0.	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0003	0.0001	0.	0.	0.	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.0003	0.0002	0.	0.	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.0001	0.0001	0.	0.	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.0009	0.0001	0.	0.	0.	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0003	0.0001	0.	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.0001	0.0001	0.	0.	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.0013	0.0002	0.	0.	0.	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0008	0.0005	0.	0.	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.0001	0.0001	0.	0.	0.	0.	1.46	
SVOC	Naphthalene	91-20-3	0.001	0.0004	0.	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0031	0.0016	0.	0.0001	0.0003	0.	1.095	
SVOC	Pyrene	129-00-0	0.0007	0.0003	0.	0.	0.	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.0001	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0001	0.	0.	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0158	0.0115	0.	0.0003	0.0006	0.	0.05	
INORG	Barium	7440-39-3	0.0902	0.0564	0.0006	0.0069	0.0143	0.	2.	
INORG	Beryllium	7440-41-7	0.0003	0.0002	0.	0.0001	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0007	0.0002	0.	0.	0.	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0734	0.0244	0.	0.	0.	0.	0.1	
INORG	Cobalt	7440-48-4	0.0232	0.008	0.	0.0001	0.0002	0.	2.19	
INORG	Copper	7440-50-8	0.0262	0.0087	0.	0.	0.0001	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.0001	0.	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0033	0.0006	0.	0.	0.	0.	0.015	
INORG	Manganese	7439-96-5	0.9317	0.7301	0.0038	0.1994	0.0908	0.	5.11	
INORG	Mercury	7439-97-6	0.0002	0.0001	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0249	0.0094	0.	0.0003	0.0007	0.	0.1	
INORG	Selenium	7782-49-2	0.0018	0.0018	0.	0.0022	0.001	0.	0.05	
INORG	Silver	7440-22-4	0.0179	0.0059	0.	0.	0.	0.	0.1825	
INORG	Thallium	7440-28-0	0.0001	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.0009	0.0004	0.	0.	0.	0.	0.2555	
INORG	Zinc	7440-66-6	0.135	0.0951	0.0007	0.0127	0.0254	0.	10.95	

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.

Table 28: Summary of Estimated Ground Water Concentrations (mg/L) for Ground Water Use Evaluated in Scenario 10
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Dryden Road North	Dryden Road South	Miami Shores	Moraine Assembly	Moraine Engine	Well 28	Delphi Thermal	West Carrollton	Criteria	Flag
VOC	1,1,1-Trichloroethane	71-55-6	0.0037	0.0004	0.	0.	0.	0.	0.0007	0.	0.2	
VOC	1,1-Dichloroethane	75-34-3	0.0012	0.0002	0.	0.	0.	0.0001	0.0003	0.	3.65	
VOC	1,1-Dichloroethene	75-35-4	0.	0.	0.	0.	0.	0.0001	0.	0.	0.007	
VOC	1,2-Dichloroethene (total)	540-59-0	0.0005	0.0001	0.	0.	0.	0.	0.0002	0.	0.07	
VOC	2-Butanone	78-93-3	0.0007	0.0001	0.	0.	0.	0.	0.0007	0.	21.9	
VOC	Acetone	67-64-1	0.0022	0.0004	0.	0.	0.0001	0.0011	0.0005	0.	3.65	
VOC	Benzene	71-43-2	0.0001	0.	0.	0.	0.	0.	0.0001	0.	0.005	
VOC	Carbon Disulfide	75-15-0	0.0001	0.	0.	0.	0.	0.	0.	0.	3.65	
VOC	Chlorobenzene	108-90-7	0.0001	0.	0.	0.	0.	0.	0.	0.	0.1	
VOC	Chloroethane	75-00-3	0.0001	0.	0.	0.0001	0.	0.0002	0.	0.	0.01	
VOC	Chloroform	67-66-3	0.0001	0.	0.	0.	0.	0.	0.	0.	0.1	
VOC	cis-1,2-Dichloroethene	156-59-2	0.0033	0.0004	0.	0.	0.	0.0001	0.0006	0.	0.07	
VOC	Ethyl Benzene	100-41-4	0.0015	0.0002	0.	0.	0.	0.	0.0003	0.	0.7	
VOC	Styrene	100-42-5	0.0001	0.	0.	0.	0.	0.	0.	0.	0.1	
VOC	Tetrachloroethene	127-18-4	0.0007	0.0002	0.	0.	0.0001	0.0005	0.0003	0.	0.005	
VOC	Toluene	108-88-3	0.0025	0.0003	0.	0.	0.	0.	0.0005	0.	1.	
VOC	trans-1,2-Dichloroethene	156-60-5	0.0001	0.	0.	0.	0.	0.0001	0.	0.	0.1	
VOC	Trichloroethene	79-01-6	0.0009	0.0002	0.	0.	0.	0.0002	0.0002	0.	0.005	
VOC	Trichlorofluoromethane	75-69-4	0.	0.	0.	0.	0.	0.	0.	0.	10.95	
VOC	Vinyl Chloride	75-01-4	0.0002	0.	0.	0.	0.	0.0001	0.0001	0.	0.002	
VOC	Xylenes (total)	1330-20-7	0.003	0.0004	0.	0.	0.	0.	0.0006	0.	10.	
SVOC	1,2-Dichlorobenzene	95-50-1	0.0002	0.	0.	0.	0.	0.	0.0001	0.	0.6	
SVOC	2-Methylnaphthalene	91-57-6	0.0001	0.	0.	0.	0.	0.	0.0001	0.	0.73	
SVOC	Benzo(a)anthracene	56-55-3	0.0002	0.0001	0.	0.	0.	0.0004	0.	0.	0.01	
SVOC	Benzo(a)pyrene	50-32-8	0.	0.	0.	0.	0.	0.	0.	0.	0.0002	
SVOC	Benzo(b)fluoranthene	205-99-2	0.0001	0.	0.	0.	0.	0.0001	0.	0.	0.01	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	0.0009	0.0001	0.	0.	0.	0.0002	0.0002	0.	0.006	
SVOC	Butylbenzylphthalate	85-68-7	0.0002	0.	0.	0.	0.	0.	0.	0.	7.3	
SVOC	Chrysene	218-01-9	0.0001	0.	0.	0.	0.	0.0001	0.	0.	0.0117	
SVOC	Di-n-butylphthalate	84-74-2	0.0012	0.	0.	0.	0.	0.	0.0002	0.	3.65	
SVOC	Fluoranthene	206-44-0	0.0006	0.0002	0.	0.	0.0001	0.0008	0.0001	0.	1.46	
SVOC	Fluorene	86-73-7	0.0001	0.	0.	0.	0.	0.	0.0001	0.	1.46	
SVOC	Naphthalene	91-20-3	0.0002	0.	0.	0.	0.	0.	0.	0.	0.73	
SVOC	Phenanthrene	85-01-8	0.0024	0.0006	0.	0.0001	0.0003	0.0018	0.0004	0.	1.095	
SVOC	Pyrene	129-00-0	0.0005	0.0001	0.	0.	0.	0.0004	0.0001	0.	1.095	
P/PCB	Aroclor-1242	53469-21-9	0.	0.	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1254	11097-69-1	0.0001	0.	0.	0.	0.	0.	0.	0.	0.0005	
P/PCB	Aroclor-1260	11096-82-5	0.	0.	0.	0.	0.	0.	0.	0.	0.0005	
INORG	Antimony	7440-36-0	0.0001	0.	0.	0.	0.	0.	0.	0.	0.006	
INORG	Arsenic	7440-38-2	0.0133	0.0046	0.	0.0002	0.0007	0.0037	0.0005	0.	0.05	
INORG	Barium	7440-39-3	0.0526	0.021	0.0002	0.0044	0.0173	0.0935	0.0056	0.	2.	
INORG	Beryllium	7440-41-7	0.0002	0.0001	0.	0.	0.	0.0002	0.	0.	0.004	
INORG	Cadmium	7440-43-9	0.0005	0.0001	0.	0.	0.	0.	0.0001	0.	0.005	
INORG	Chromium (total)	7440-47-3	0.0558	0.0066	0.	0.	0.	0.0001	0.0108	0.	0.1	
INORG	Cobalt	7440-48-4	0.0178	0.0023	0.	0.	0.0002	0.0011	0.0034	0.	2.19	
INORG	Copper	7440-50-8	0.02	0.0024	0.	0.	0.0001	0.0005	0.0039	0.	1.3	
INORG	Cyanide (total)	57-12-5	0.	0.	0.	0.	0.	0.	0.	0.	0.2	
INORG	Lead	7439-92-1	0.0026	0.0002	0.	0.	0.	0.0001	0.0005	0.	0.015	
INORG	Manganese	7439-96-5	0.8674	0.3091	0.0009	0.1348	0.081	0.6164	0.0427	0.	5.11	
INORG	Mercury	7439-97-6	0.0002	0.	0.	0.	0.	0.	0.	0.	0.002	
INORG	Nickel	7440-02-0	0.0192	0.003	0.	0.0002	0.0008	0.0045	0.0036	0.	0.1	
INORG	Selenium	7782-49-2	0.0011	0.0008	0.	0.0017	0.001	0.0065	0.0001	0.	0.05	
INORG	Silver	7440-22-4	0.0136	0.0016	0.	0.	0.	0.	0.0026	0.	0.1825	
INORG	Thallium	7440-28-0	0.0001	0.	0.	0.	0.	0.	0.	0.	0.002	
INORG	Vanadium	7440-62-2	0.0007	0.0001	0.	0.	0.	0.0002	0.0002	0.	0.2555	
INORG	Zinc	7440-66-6	0.1019	0.0399	0.0002	0.008	0.0311	0.1606	0.0146	0.	10.95	

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.

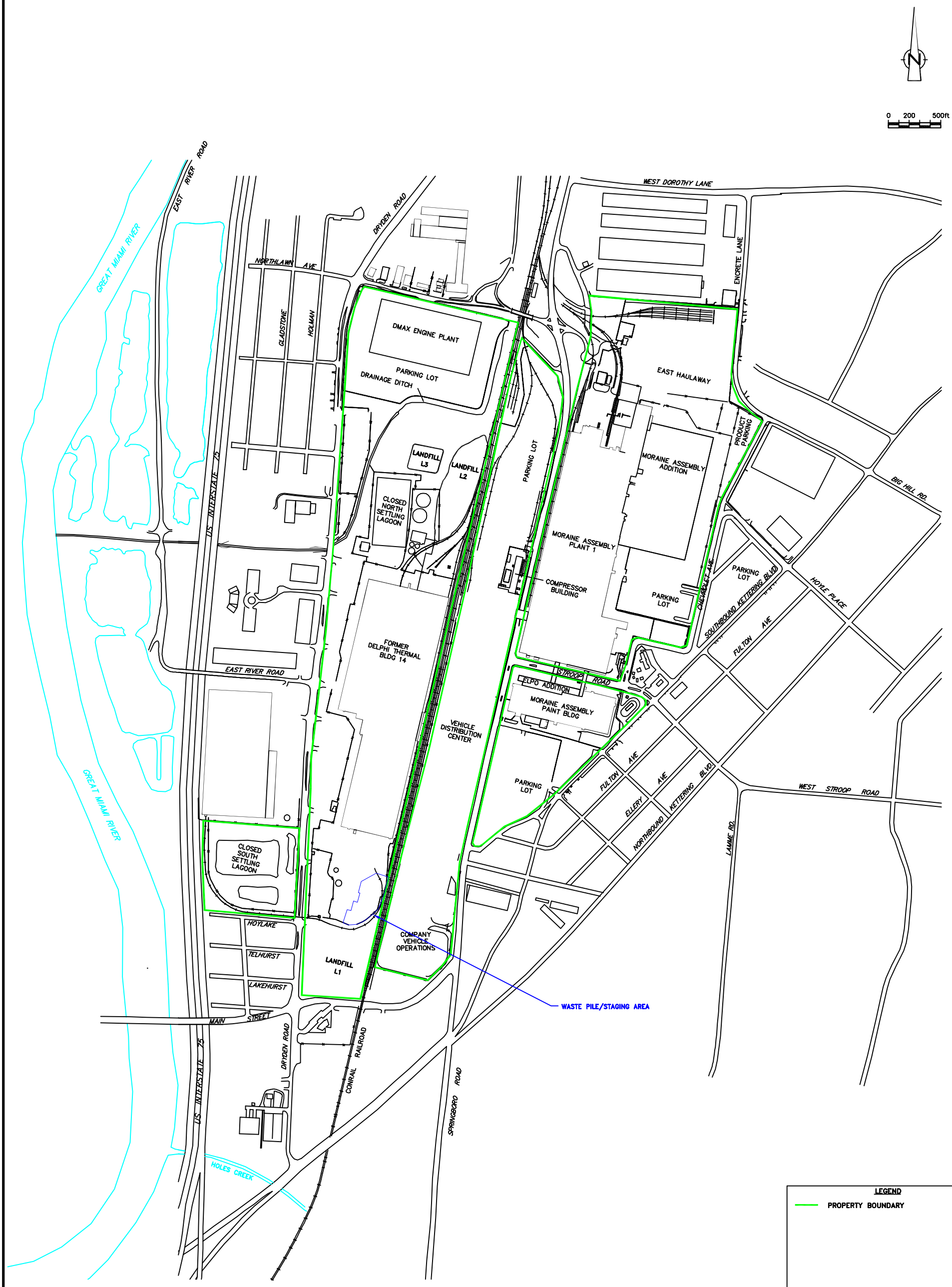
Table 29: Summary of Predicted Groundwater Exceedances
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10
VOC	1,1,1-Trichloroethane	71-55-6										
VOC	1,1-Dichloroethane	75-34-3										
VOC	1,1-Dichloroethene	75-35-4										
VOC	1,2-Dichloroethene (total)	540-59-0										
VOC	2-Butanone	78-93-3										
VOC	Acetone	67-64-1										
VOC	Benzene	71-43-2										
VOC	Carbon Disulfide	75-15-0										
VOC	Chlorobenzene	108-90-7										
VOC	Chloroethane	75-00-3										
VOC	Chloroform	67-66-3										
VOC	cis-1,2-Dichloroethene	156-59-2										
VOC	Ethyl Benzene	100-41-4										
VOC	Styrene	100-42-5										
VOC	Tetrachloroethene	127-18-4										
VOC	Toluene	108-88-3										
VOC	trans-1,2-Dichloroethene	156-60-5										
VOC	Trichloroethene	79-01-6										
VOC	Trichlorofluoromethane	75-69-4										
VOC	Vinyl Chloride	75-01-4										
VOC	Xylenes (total)	1330-20-7										
SVOC	1,2-Dichlorobenzene	95-50-1										
SVOC	2-Methylnaphthalene	91-57-6										
SVOC	Benzo(a)anthracene	56-55-3										
SVOC	Benzo(a)pyrene	50-32-8										
SVOC	Benzo(b)fluoranthene	205-99-2										
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7										
SVOC	Butylbenzylphthalate	85-68-7										
SVOC	Chrysene	218-01-9										
SVOC	Di-n-butylphthalate	84-74-2										
SVOC	Fluoranthene	206-44-0										
SVOC	Fluorene	86-73-7										
SVOC	Naphthalene	91-20-3										
SVOC	Phenanthrene	85-01-8										
SVOC	Pyrene	129-00-0										
P/PCB	Aroclor-1242	53469-21-9										

Table 29: Summary of Predicted Groundwater Exceedances
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

TCL/TAL Group	Constituent	CASRN	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10
P/PCB	Aroclor-1254	11097-69-1										
P/PCB	Aroclor-1260	11096-82-5										
INORG	Antimony	7440-36-0										
INORG	Arsenic	7440-38-2										
INORG	Barium	7440-39-3										
INORG	Beryllium	7440-41-7										
INORG	Cadmium	7440-43-9										
INORG	Chromium (total)	7440-47-3				OVER	OVER					
INORG	Cobalt	7440-48-4										
INORG	Copper	7440-50-8										
INORG	Cyanide (total)	57-12-5										
INORG	Lead	7439-92-1				OVER						
INORG	Manganese	7439-96-5										
INORG	Mercury	7439-97-6										
INORG	Nickel	7440-02-0				OVER	OVER					
INORG	Selenium	7782-49-2										
INORG	Silver	7440-22-4										
INORG	Thallium	7440-28-0										
INORG	Vanadium	7440-62-2										
INORG	Zinc	7440-66-6										
	Sum of Exceedances = 5		**0**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**

Note:
Based on soil concentrations remaining after excavation discussed in section 6.5.4 and source concentrations presented in Appendix E, which includes all other SWMUs and AOIs at the Site.



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284 Cramer Creek Court
Dublin, OH 43017
Tel: 614/764-2310 Fax: 614/764-1270

SITE LAYOUT
GENERAL MOTORS CORPORATION
MORAINE, OHIO

DATE	PROJECT MANAGER	DRAWING NAME
7/8/2004	N. GILLOTTI	CRA\WPSA\WPSASITE
DRAWN	LEAD DESIGN PROF.	CHECKED
R. SMITH	J. REID	N. GILLOTTI
PROJECT NUMBER		DRAWING NUMBER
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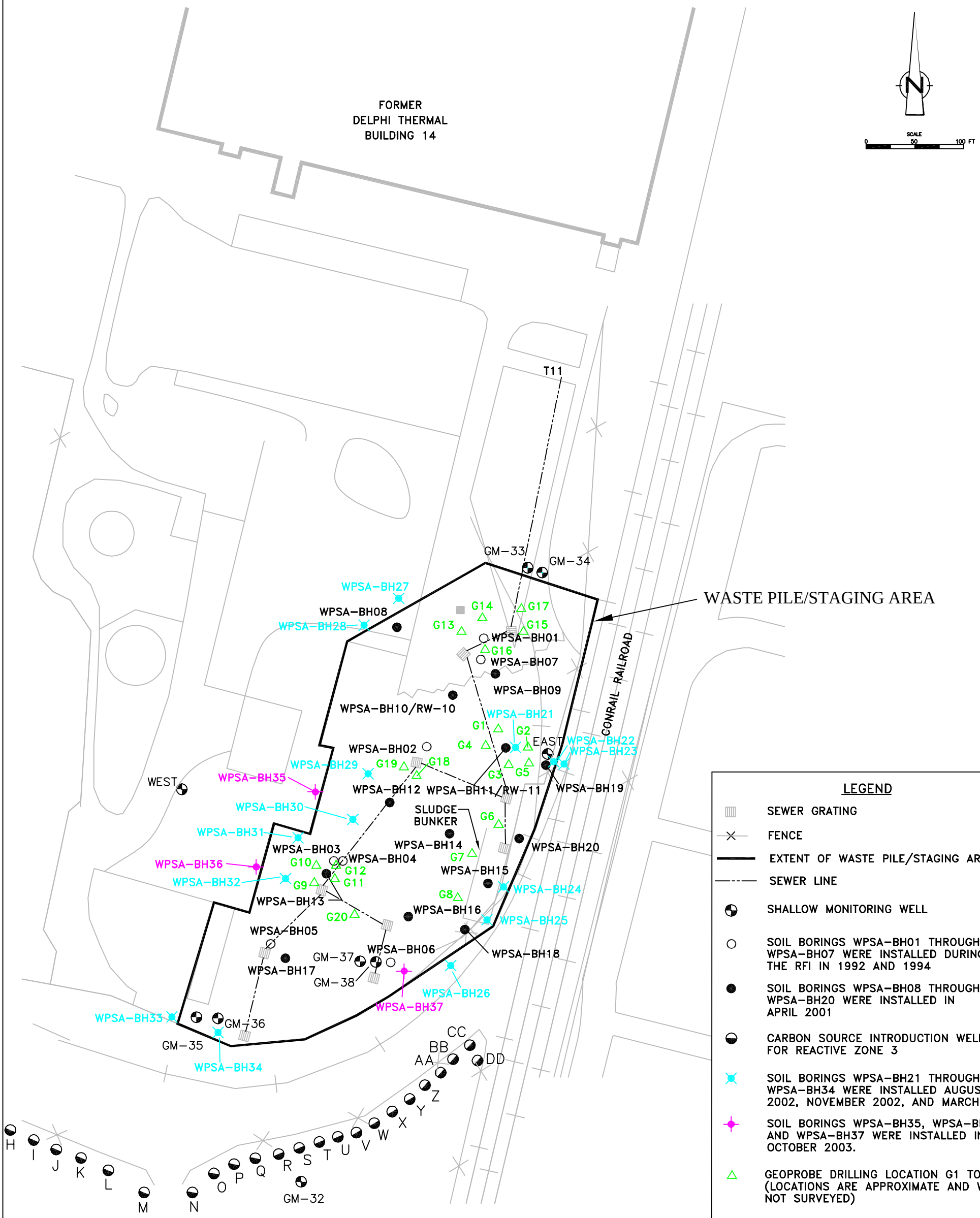

LEGEND

- SEWER GRATING
- FENCE
- EXTENT OF WASTE PILE/STAGING AREA
- SEWER LINE
- SHALLOW MONITORING WELL
- SOIL BORINGS WPSA-BH01 THROUGH WPSA-BH07 WERE INSTALLED DURING THE RFI IN 1992 AND 1994
- SOIL BORINGS WPSA-BH08 THROUGH WPSA-BH20 WERE INSTALLED IN APRIL 2001
- CARBON SOURCE INTRODUCTION WELL FOR REACTIVE ZONE 3
- SOIL BORINGS WPSA-BH21 THROUGH WPSA-BH34 WERE INSTALLED AUGUST 2002, NOVEMBER 2002, AND MARCH 2003
- SOIL BORINGS WPSA-BH35, WPSA-BH36, AND WPSA-BH37 WERE INSTALLED IN OCTOBER 2003.
- GEOPROBE DRILLING LOCATION G1 TO G20 (LOCATIONS ARE APPROXIMATE AND WERE NOT SURVEYED)

T11 IS A 38,000 GALLON CONCRETE UNDERGROUND STORAGE TANK USED TO STORE STORM-WATER DRAINED FROM THE WASTE PILE/STAGING AREA.

NOTES:

1. WPSA-BH10 CONVERTED TO RECOVERY WELL: RW-10.
2. WPSA-BH11 CONVERTED TO RECOVERY WELL: RW-11.

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SOIL BORING AND MONITORING WELL LOCATIONS
WASTE PILE/STAGING AREA
GENERAL MOTORS CORPORATION
MORAINE, OHIO

DATE	PROJECT MANAGER	DRAWING NAME
7/8/2004	N. GILLOTTI	CRA\WPSA\WPSA-10
DRAWN	LEAD DESIGN PROF.	CHECKED
R. SMITH	J. REID	N. GILLOTTI
PROJECT NUMBER		DRAWING NUMBER
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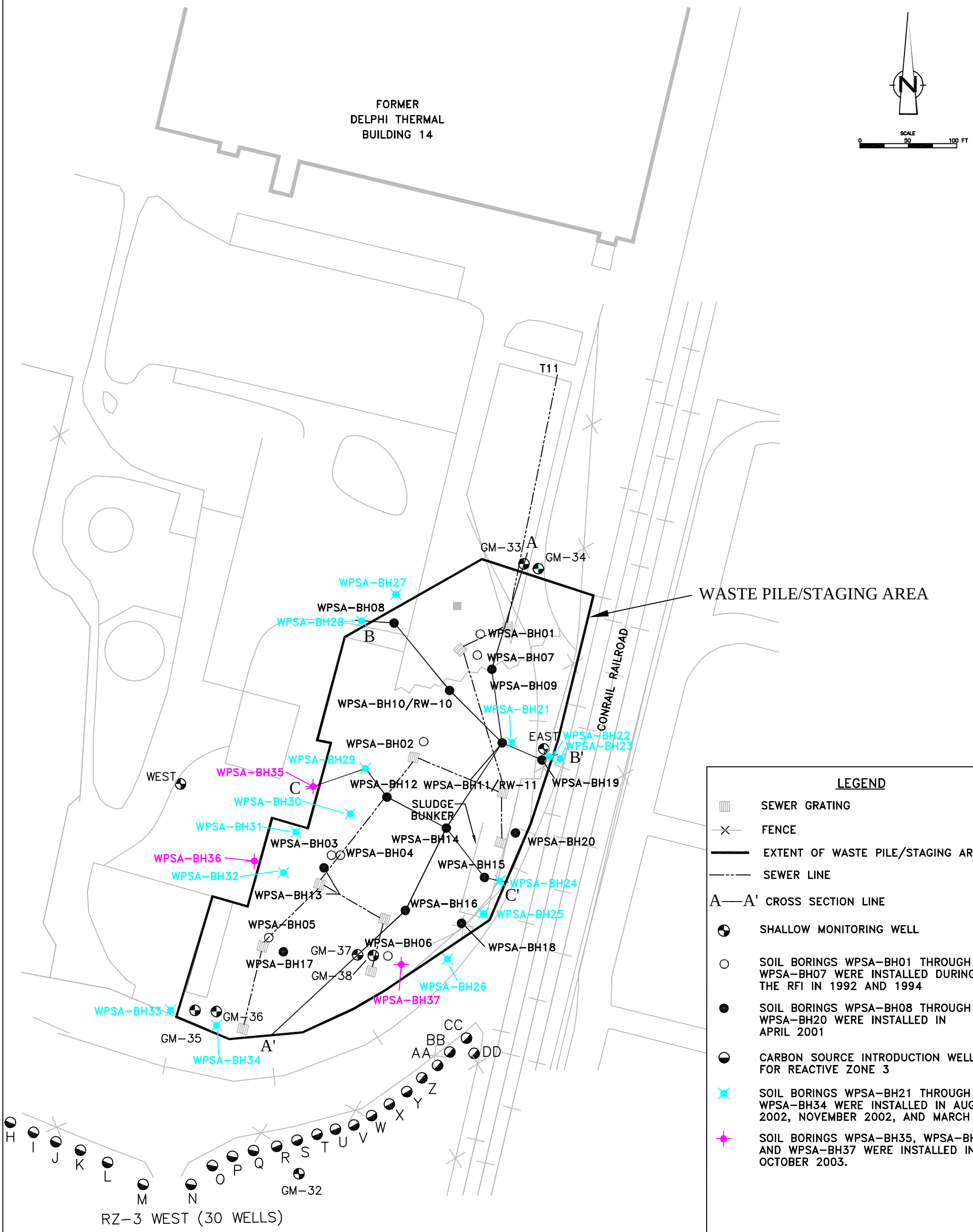

LEGEND

- SEWER GRATING
- FENCE
- EXTENT OF WASTE PILE/STAGING AREA
- SEWER LINE
- A—A' CROSS SECTION LINE
- SHALLOW MONITORING WELL
- SOIL BORINGS WPSA-BH01 THROUGH WPSA-BH07 WERE INSTALLED DURING THE RFI IN 1992 AND 1994
- SOIL BORINGS WPSA-BH08 THROUGH WPSA-BH20 WERE INSTALLED IN APRIL 2001
- CARBON SOURCE INTRODUCTION WELL FOR REACTIVE ZONE 3
- SOIL BORINGS WPSA-BH21 THROUGH WPSA-BH34 WERE INSTALLED IN AUGUST 2002, NOVEMBER 2002, AND MARCH 2003
- SOIL BORINGS WPSA-BH35, WPSA-BH36, AND WPSA-BH37 WERE INSTALLED IN OCTOBER 2003.

T11 IS A 38,000 GALLON CONCRETE UNDERGROUND STORAGE TANK USED TO STORE STORM-WATER DRAINED FROM THE WASTE PILE/STAGING AREA.

NOTES:

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2. WPSA-BH11 CONVERTED TO RECOVERY WELL: RW-11.

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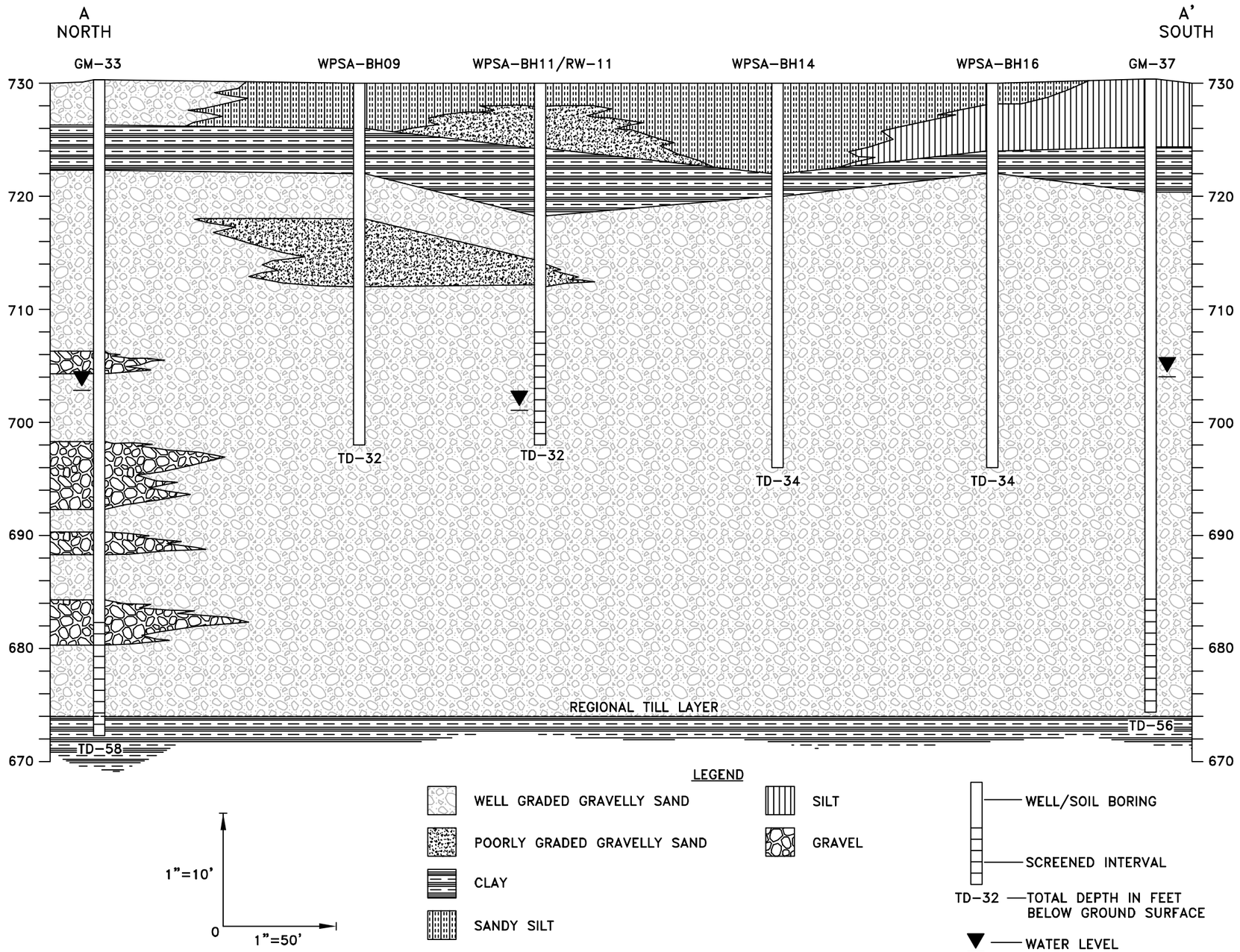
LINES OF CROSS SECTION
WASTE PILE/STAGING AREA
GENERAL MOTORS CORPORATION
MORAINE, OHIO

DATE	PROJECT MANAGER	DRAWING NAME
7/8/2004	N. GILLOTTI	CRA\WPSA\WPSA-10
DRAWN	LEAD DESIGN PROF.	CHECKED
R. SMITH	J. REID	N. GILLOTTI
PROJECT NUMBER		DRAWING NUMBER
0H000294.0007.0007		3



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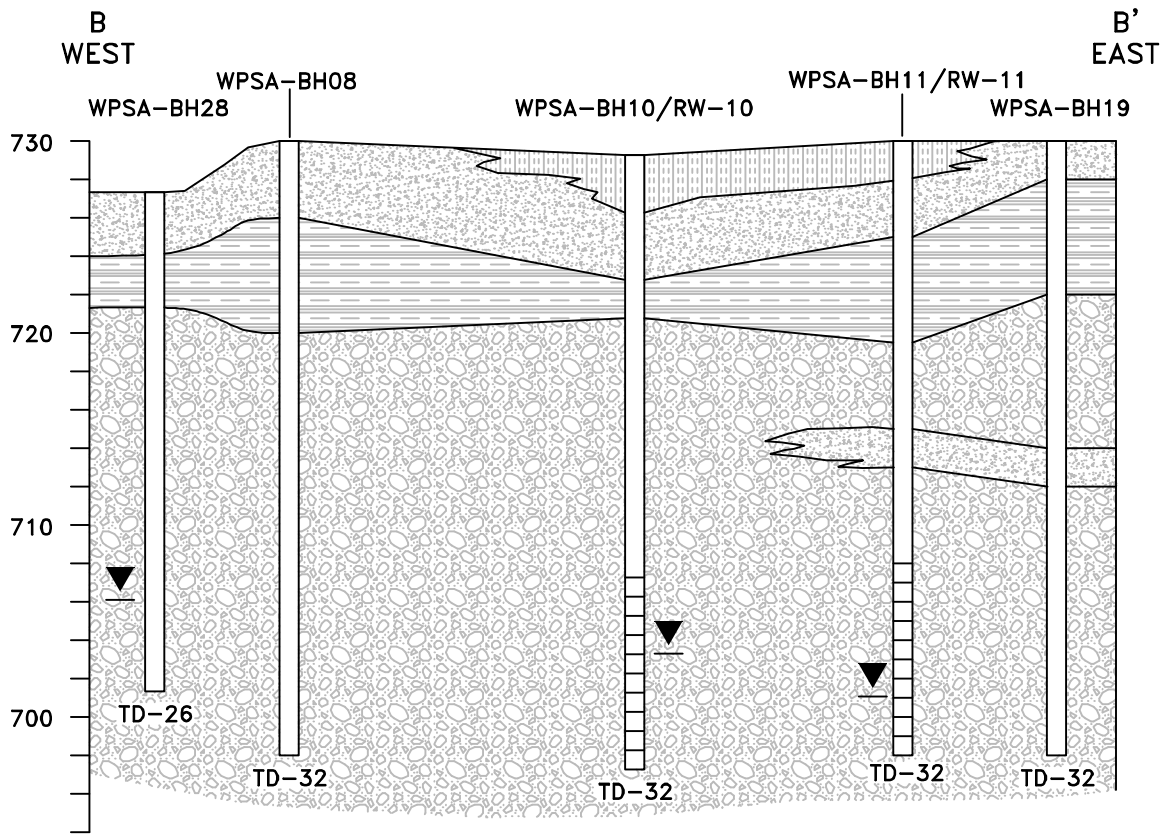
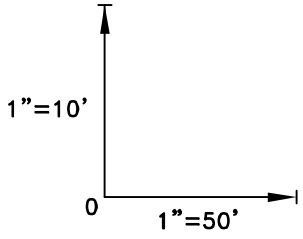
CROSS SECTION A-A'
WASTE PILE/STAGING AREA
GENERAL MOTORS CORPORATION
MORAINE, OHIO

DATE 3/3/2004	PROJECT MANAGER N. GILLOTTI	DRAWING NAME CRA\WPSA\WPSA–CS1
DRAWN R. SMITH	LEAD DESIGN PROF. J. REID	CHECKED N. GILLOTTI
PROJECT NUMBER 0H000294.0007.0007		FIGURE NUMBER 4



LEGEND



WELL GRADED GRAVELLY SAND

POORLY GRADED GRAVELLY SAND

CLAY

SANDY SILT

WELL/SOIL BORING

SCREENED INTERVAL

TD-32 — TOTAL DEPTH IN FEET BELOW GROUND SURFACE

WATER LEVEL

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Tel: 614/764-2310 Fax: 614/764-1270

CROSS SECTION B-B'
WASTE PILE/STAGING AREA
GENERAL MOTORS CORPORATION
MORAINE, OHIO

DATE	PROJECT MANAGER	DRAWING NAME
7/8/2004	N. GILLOTTI	CRA\WPSA\WPSA-CS2
DRAWN	LEAD DESIGN PROF.	CHECKED
R. SMITH	J. REID	N. GILLOTTI
PROJECT NUMBER		FIGURE NUMBER
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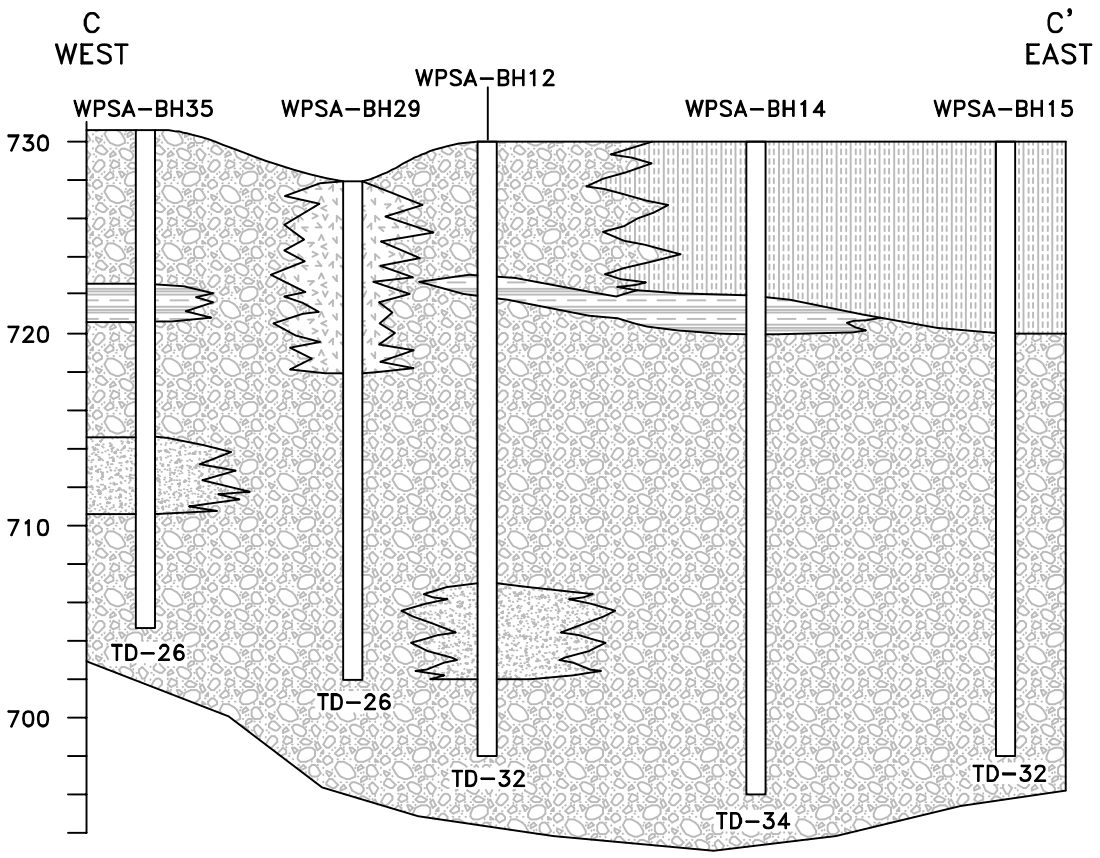

LEGEND

WELL GRADED GRAVELLY SAND

POORLY GRADED GRAVELLY SAND

CLAY

SANDY SILT

SILTY SAND

SOIL BORING

TD-32 —TOTAL DEPTH IN FEET BELOW GROUND SURFACE

1"=10'

0

1"=50'

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CROSS SECTION C-C'
WASTE PILE/STAGING AREA
GENERAL MOTORS CORPORATION
MORAINE, OHIO

DATE	PROJECT MANAGER	DRAWING NAME
7/8/2004	N. GILLOTTI	CRA\WPSA\WPSA-CS4
DRAWN	LEAD DESIGN PROF.	CHECKED
R. SMITH	J. REID	N. GILLOTTI
PROJECT NUMBER		FIGURE NUMBER
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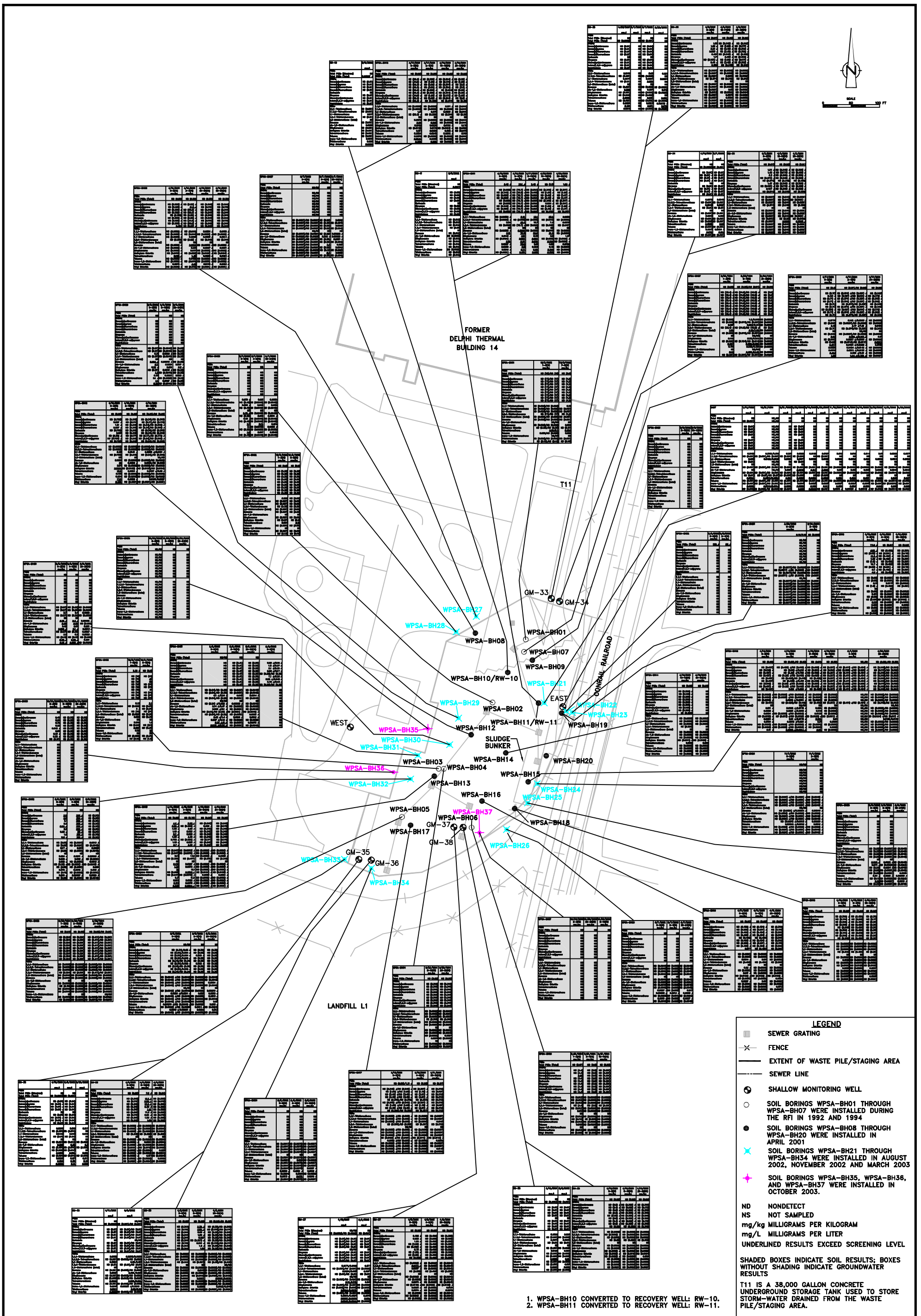

LEGEND

- SEWER GRATING
- FENCE
- EXTENT OF WASTE PILE/STAGING AREA
- SEWER LINE
- SHALLOW MONITORING WELL
- SOIL BORINGS WPSA-BH01 THROUGH WPSA-BH07 WERE INSTALLED DURING THE RFI IN 1992 AND 1994
- SOIL BORINGS WPSA-BH08 THROUGH WPSA-BH20 WERE INSTALLED IN APRIL 2001
- SOIL BORINGS WPSA-BH21 THROUGH WPSA-BH34 WERE INSTALLED IN AUGUST 2002, NOVEMBER 2002 AND MARCH 2003
- SOIL BORINGS WPSA-BH35, WPSA-BH36, AND WPSA-BH37 WERE INSTALLED IN OCTOBER 2003.

ND NONDETECT
NS NOT SAMPLED
mg/kg MILLIGRAMS PER KILOGRAM
mg/L MILLIGRAMS PER LITER
UNDERLINED RESULTS EXCEED SCREENING LEVEL

SHADED BOXES INDICATE SOIL RESULTS; BOXES WITHOUT SHADING INDICATE GROUNDWATER RESULTS

T11 IS A 38,000 GALLON CONCRETE UNDERGROUND STORAGE TANK USED TO STORE STORM-WATER DRAINED FROM THE WASTE PILE/STAGING AREA.

1. WPSA-BH10 CONVERTED TO RECOVERY WELL: RW-10.
2. WPSA-BH11 CONVERTED TO RECOVERY WELL: RW-11.

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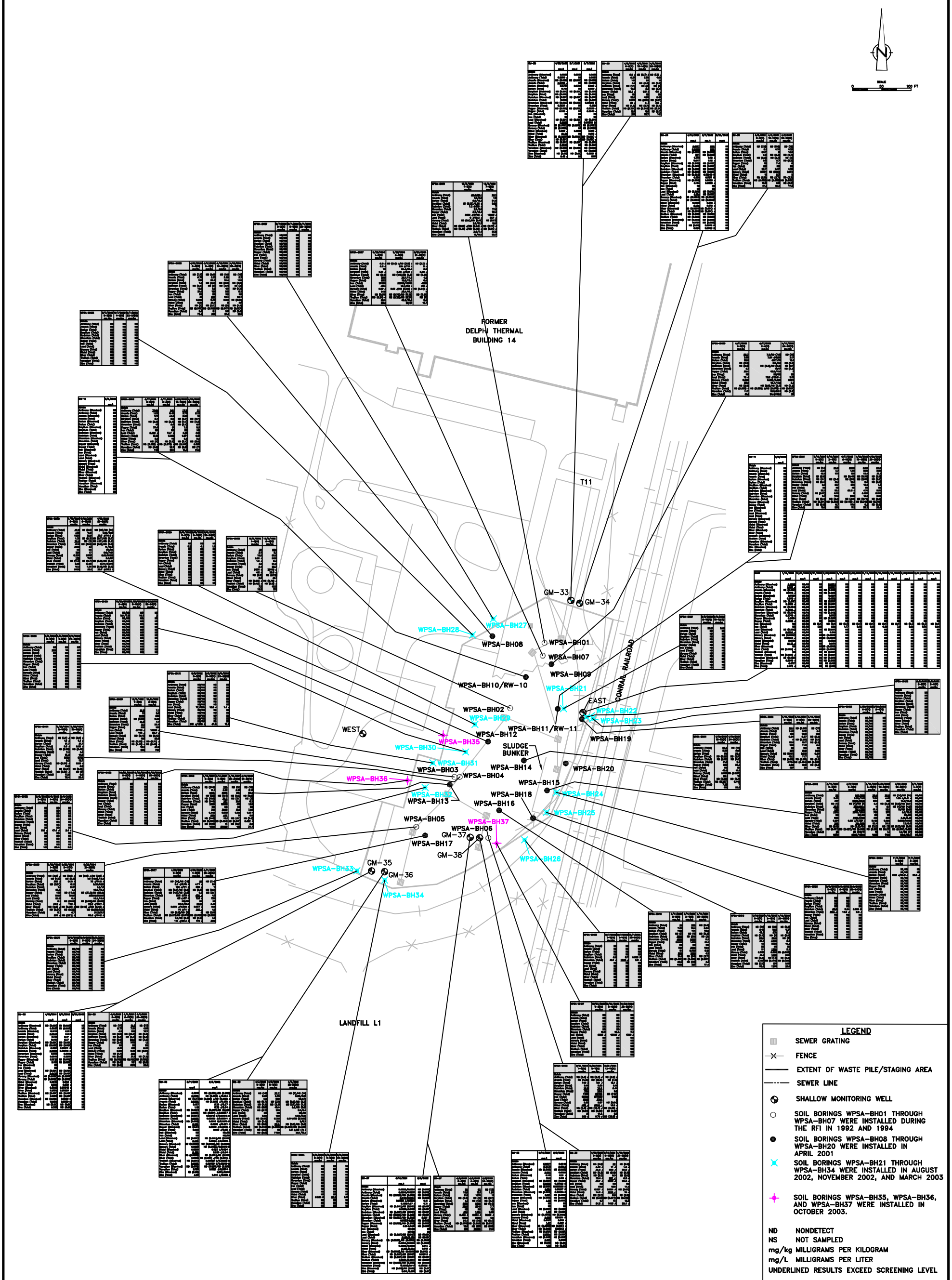
DATABOXES FOR ORGANICS
WASTE PILE/STAGING AREA
GENERAL MOTORS CORPORATION
MORAINE, OHIO

DATE	PROJECT MANAGER	DRAWING NAME
7/8/2004	N. GILLOTTI	CRA\WPSA\WPSAVOC
DRAWN	LEAD DESIGN PROF.	CHECKED
R. SMITH	J. REID	N. GILLOTTI
PROJECT NUMBER		DRAWING NUMBER
0H000294.0007.0007		7



1. WPSA-BH10 CONVERTED TO RECOVERY WELL: RW-10.
2. WPSA-BH11 CONVERTED TO RECOVERY WELL: RW-11.

LEGEND

- SEWER GRATING
- FENCE
- EXTENT OF WASTE PILE/STAGING AREA
- SEWER LINE
- SHALLOW MONITORING WELL
- SOIL BORINGS WPSA-BH01 THROUGH WPSA-BH07 WERE INSTALLED DURING THE RFI IN 1992 AND 1994
- SOIL BORINGS WPSA-BH08 THROUGH WPSA-BH20 WERE INSTALLED IN APRIL 2001
- SOIL BORINGS WPSA-BH21 THROUGH WPSA-BH34 WERE INSTALLED IN AUGUST 2002, NOVEMBER 2002, AND MARCH 2003
- SOIL BORINGS WPSA-BH35, WPSA-BH36, AND WPSA-BH37 WERE INSTALLED IN OCTOBER 2003.

ND NONDETECT
NS NOT SAMPLED
mg/kg MILLIGRAMS PER KILOGRAM
mg/L MILLIGRAMS PER LITER
UNDERLINED RESULTS EXCEED SCREENING LEVEL

SHADED BOXES INDICATE SOIL RESULTS; BOXES WITHOUT SHADING INDICATE GROUNDWATER RESULTS

T11 IS A 38,000 GALLON CONCRETE UNDERGROUND STORAGE TANK USED TO STORE STORM-WATER DRAINED FROM THE WASTE PILE/STAGING AREA.

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284 Cramer Creek Court
Dublin, OH 43017
Tel: 614/764-2310 Fax: 614/764-1270

DATABOXES FOR INORGANICS
WASTE PILE/STAGING AREA
GENERAL MOTORS CORPORATION
MORAINE, OHIO

DATE	PROJECT MANAGER	DRAWING NAME
7/8/2004	N. GILLOTTI	CRA\WPSA\WPSAINOR
DRAWN	LEAD DESIGN PROF.	CHECKED
R. SMITH	J. REID	N. GILLOTTI
PROJECT NUMBER		DRAWING NUMBER
0H000294.0007.0007		8

DRAFT

Appendix A

Waste Pile/Staging Area Soil and Groundwater Laboratory Analytical Results

Table A-1. Identification of Replicate Samples Submitted for Laboratory Analysis, Waste Pile/ Staging Area, General Motors Corporation, Moraine, Ohio.

Replicate Sample	Original Sample	Sample Medium	Date Taken
DUP-97	GM-36(28-30)SL	Soil	4/3/2001
DUP-98	WPSA-BH17(0-2)SL	Soil	4/10/2001
DUP-99	WPSA-BH15(2-4)SL	Soil	4/12/2001
DUP-100	WPSA-BH09(2-4)SL	Soil	4/17/2001
DUP-101	WPSA-BH12(26-28)SL	Soil	4/18/2001
DUP-102	GM-37	Groundwater	4/19/2001
DUP-103	WPSA-BH15(26-28)SL	Soil	4/20/2001
DUP-104	WPSA-BH19TW	Groundwater	4/23/2001
DUP-118	WPSA-BH33(0-2)SL	Soil	8/5/2002
DUP-119	GM-36	Groundwater	8/5/2002
DUP-120	WPSA-BH31(0-2)SL	Soil	8/6/2002
DUP-121	WPSA-BH27 (0-2)SL	Soil	8/7/2002
DUP-122	WPSA-BH31(0-2)SL	Soil	8/9/2002
DUP-124	WPSA-BH24(0-2)SL	Soil	11/1/2002
DUP-125	WPSA-BH23(0-2)SL	Soil	3/20/2003
DUP-132	WPSA-BH35(0-2)SL	Soil	10/23/2003

DUP - Duplicate.
BH - Borehole.
SL - Soil.
WPSA- Waste Pile/Staging Area.

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

Compound	Units	WPSA-BH08 4/12/01 (0-2)	WPSA-BH08 4/12/01 (2-4)	WPSA-BH08 4/12/01 (24-26)	WPSA-BH08 4/12/01 (26-28)	WPSA-BH09 4/17/01 (0-2)	WPSA-BH09 4/17/01 (2-4)	WPSA-BH09 4/17/01 DUP-100	WPSA-BH09 4/17/01 (24-26)	WPSA-BH10 4/17/01 (0-2)	WPSA-BH10 4/17/01 (2-4)
VOCs											
1,1,1-Trichloroethane	ug/kg	<5.60UJ	<44.0	25.4J	19.3J	77.4	30.9J	146J	<9.30	<5.90	<5.90
1,1,2,2-Tetrachloroethane	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
1,1,2-Trichloroethane	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
1,1-Dichloroethane	ug/kg	<5.60UJ	50.8	30.9J	21.4J	5450	1510J	3770J	46.5	1510	576
1,1-Dichloroethene	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	9.90	<5.70	<9.30	19.3	9.40
1,2-Dichloroethane	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
1,2-Dichloropropane	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
2-Butanone (MEK)	ug/kg	R	R	R	R	R	R	R	<185	R	R
2-Hexanone	ug/kg	<55.9UJ	<440	<52.9UJ	<52.2UJ	<452	<58.7	<56.6	<92.5	<58.8	<58.8
4-Methyl-2-pentanone (MIBK)	ug/kg	<55.9UJ	<440	<52.9UJ	<52.2UJ	<452	<58.7	<56.6	<92.5	<58.8	<58.8
Acetone	ug/kg	<112UJ	<881	<106UJ	<104UJ	<903	239	318	<185	416	636
Benzene	ug/kg	<5.60UJ	91.8	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	7.80	<5.90
Bromodichloromethane	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
Bromoform	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
Bromomethane	ug/kg	<11.2UJ	<88.0	<10.6UJ	<10.4UJ	<90.0	<11.7	<11.3UJ	<18.5	<11.8	<11.8
Carbon disulfide	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
Carbon tetrachloride	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90UJ	22.1J	<9.30	<5.90	<5.90
Chlorobenzene	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
Chloroethane	ug/kg	<11.2UJ	<88.0	<10.6UJ	<10.4UJ	<90.0	29.9J	73.3J	<18.5	409	113
Chloroform	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
Chloromethane	ug/kg	<11.2UJ	<88.0	<10.6UJ	<10.4UJ	<90.0	<11.7	<11.3	<18.5	<11.8	<11.8
Dibromochloromethane	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
Ethylbenzene	ug/kg	<5.60UJ	47.0	<5.30UJ	<5.20UJ	<45.0	6.60J	20.7J	<9.30	18.9	23.6
Methylene Chloride	ug/kg	<11.2UJ	<88.0	<10.6UJ	<10.4UJ	<90.0	<11.7	<11.3	24.2	<11.8	17.9
Styrene	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
Tetrachloroethene	ug/kg	138J	1360	20.5J	18.4J	477	22.3J	49.4J	18.8	11.0	9.60
Toluene	ug/kg	<5.60UJ	48.2	<5.30UJ	<5.20UJ	82.9	14.2J	48.4J	<9.30	38.4	24.8
Trichloroethene	ug/kg	37.6J	4450	17.5J	16.4J	414	10.0J	33.0J	<9.30	64.4	38.5
Vinyl Chloride	ug/kg	<2.20UJ	<18.0	<2.10UJ	<2.10UJ	1450	709J	1440J	<3.70	339	32.0
Xylenes, Total	ug/kg	6.00J	296	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
cis-1,2-Dichloroethene	ug/kg	<5.60UJ	201	95.7J	6.10J	2540	107J	812J	10.0	2680	548
cis-1,3-Dichloropropene	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90
trans-1,2-Dichloroethene	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	91.2	12.3J	21.2J	<9.30	7.80	<5.90
trans-1,3-Dichloropropene	ug/kg	<5.60UJ	<44.0	<5.30UJ	<5.20UJ	<45.0	<5.90	<5.70	<9.30	<5.90	<5.90

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Compound	Units	WPSA-BH08 4/12/01 (0-2)	WPSA-BH08 4/12/01 (2-4)	WPSA-BH08 4/12/01 (24-26)	WPSA-BH08 4/12/01 (26-28)	WPSA-BH09 4/17/01 (0-2)	WPSA-BH09 4/17/01 (2-4)	WPSA-BH09 4/17/01 DUP-100	WPSA-BH09 4/17/01 (24-26)	WPSA-BH10 4/17/01 (0-2)	WPSA-BH10 4/17/01 (2-4)
SVOCs											
1,2,4-Trichlorobenzene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2,2'-oxybis(1-Chloropropane)	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2,4,5-Trichlorophenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2,4,6-Trichlorophenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2,4-Dichlorophenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2,4-Dimethylphenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2,4-Dinitrophenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2,4-Dinitrotoluene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2,6-Dinitrotoluene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2-Chloronaphthalene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2-Chlorophenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
2-Methylnaphthalene	ug/kg	522	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
3,3'-Dichlorobenzidine	ug/kg	<738UJ	<13600UJ	<698	<689	<1400	<775UJ	<747UJ	<686	<139000UJ	<776UJ
4,6-Dinitro-2-methylphenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ
4-Bromophenyl phenyl ether	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ
4-Chloro-3-methylphenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ
4-Chlorophenyl phenyl ether	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Acenaphthene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Acenaphthylene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Anthracene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Benzo(a)anthracene	ug/kg	<369UJ	<6920UJ	<349	<344	<710	<387UJ	<374UJ	<343	<69300UJ	<388UJ
Benzo(a)pyrene	ug/kg	<185UJ	11900J	<175	<172	431J	<194UJ	<187UJ	<172UJ	<34600UJ	<1880UJ
Benzo(b)fluoranthene	ug/kg	<369UJ	<69200UJ	<349	<344	<710UJ	<387UJ	<374UJ	<343UJ	<69300UJ	<3880UJ
Benzo(ghi)perylene	ug/kg	<369UJ	21300J	<349	<344	<710UJ	<387UJ	<374UJ	<343UJ	<69300UJ	<3880UJ
Benzo(k)fluoranthene	ug/kg	<369UJ	<69200UJ	<349	<344	<710UJ	<387UJ	<374UJ	<343UJ	<69300UJ	<3880UJ
Bis(2-chloroethoxy)methane	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Bis(2-chloroethyl)ether	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Bis(2-ethylhexyl)phthalate	ug/kg	487J	<6920UJ	<349	<344	<710	<387UJ	<374UJ	<343	8550J	<388UJ
Butyl benzyl phthalate	ug/kg	<369UJ	<6920UJ	<349	<344	<710	<387UJ	<374UJ	<343	<69300UJ	<388UJ
Carbazole	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ
Chrysene	ug/kg	<369UJ	<6920UJ	<349	<344	<710	<387UJ	<374UJ	<343	<69300UJ	<388UJ
Di-n-butyl phthalate	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ
Di-n-octyl phthalate	ug/kg	<369UJ	<69200UJ	<349	<344	<710UJ	<387UJ	<374UJ	<343UJ	<69300UJ	<3880UJ
Dibenzo(a,h)anthracene	ug/kg	<185UJ	<34600UJ	<175	<172	<355UJ	<194UJ	<187UJ	<172UJ	<34600UJ	<1880UJ
Dibenzofuran	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Diethyl phthalate	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Dimethyl phthalate	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	WPSA-BH08 4/12/01 (0-2)	(2-4)	(24-26)	(26-28)	WPSA-BH09 4/17/01 (0-2)	(2-4)	DUP-100	(24-26)	WPSA-BH10 4/17/01 (0-2)	(2-4)
SVOCs (continued)											
Fluoranthene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ
Fluorene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Hexachlorobenzene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ
Hexachlorobutadiene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Hexachlorocyclopentadiene	ug/kg	<738	<13600UJ	<698	<689	<1400	<775	<747	<686	<139000UJ	<776
Hexachloroethane	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Indeno(1,2,3-cd)pyrene	ug/kg	<369UJ	<69200UJ	<349	<344	<710UJ	<387UJ	<374UJ	<343UJ	<69300UJ	<3880UJ
Isophorone	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
N-Nitrosodiphenylamine	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
N-Nitrosodipropylamine	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Naphthalene	ug/kg	404	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Nitrobenzene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Pentachlorophenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388UJ
Phenanthrene	ug/kg	<369	<6920UJ	<349	<344	<710	602	906J	<343	<69300UJ	787J
Phenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
Pyrene	ug/kg	<369UJ	53600J	<349	<344	3950	<387UJ	<374UJ	<343	<69300UJ	<388UJ
m-Dichlorobenzene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
m-Nitroaniline	ug/kg	<554	<10400UJ	<524	<517	<1060	<581	<561	<515	<104000UJ	<582
meta & para-Methylphenol	ug/kg	<369	<6920UJ	<349	<344	<710	439	<374	<343	<69300UJ	435J
o-Dichlorobenzene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
o-Nitroaniline	ug/kg	<554	<10400UJ	<524	<517	<1060	<581	<561	<515	<104000UJ	<582
o-Nitrophenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
ortho-Methylphenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
p-Chloroaniline	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
p-Dichlorobenzene	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
p-Nitroaniline	ug/kg	<554	<10400UJ	<524	<517	<1060	<581	<561	<515	<104000UJ	<582
p-Nitrophenol	ug/kg	<369	<6920UJ	<349	<344	<710	<387	<374	<343	<69300UJ	<388
PCBs											
Aroclor 1016	mg/kg	<0.560	<0.520	<0.530	<0.520	<5.40UJ	<0.590	<0.570	<0.520	<0.520UJ	<0.590
Aroclor 1221	mg/kg	<0.560	<0.520	<0.530	<0.520	<5.40UJ	<0.590	<0.570	<0.520	<0.520UJ	<0.590
Aroclor 1232	mg/kg	<0.560	<0.520	<0.530	<0.520	<5.40UJ	<0.590	<0.570	<0.520	<0.520UJ	<0.590
Aroclor 1242	mg/kg	<0.560	<0.520	<0.530	<0.520	<5.40UJ	<0.590	<0.570	<0.520	<0.520UJ	<0.590
Aroclor 1248	mg/kg	<0.560	<0.520	<0.530	<0.520	<5.40UJ	<0.590	<0.570	<0.520	<0.520UJ	<0.590
Aroclor 1254	mg/kg	<0.560	<0.520	<0.530	<0.520	<5.40UJ	<0.590	<0.570	<0.520	<0.520UJ	<0.590
Aroclor 1260	mg/kg	<0.560	<0.520	<0.530	<0.520	<5.40UJ	<0.590	<0.570	<0.520	<0.520UJ	<0.590

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

Compound	Units	WPSA-BH08 4/12/01 (0-2)	WPSA-BH08 4/12/01 (2-4)	WPSA-BH08 4/12/01 (24-26)	WPSA-BH08 4/12/01 (26-28)	WPSA-BH09 4/17/01 (0-2)	WPSA-BH09 4/17/01 (2-4)	WPSA-BH09 4/17/01 DUP-100	WPSA-BH09 4/17/01 (24-26)	WPSA-BH10 4/17/01 (0-2)	WPSA-BH10 4/17/01 (2-4)
Metals											
Antimony, ICP	mg/kg	<7.40	<6.80	<10.0	<10.0	86.7	<7.60	7.80	<10.0	7740	241
Arsenic, GFAA	mg/kg	6.78	3.13	2.08	3.30	3.05	2.05	7.54J	3.17	1.52	6.49
Barium, ICP	mg/kg	183	86.2	13.4	11.6	32.5	79.0	60.7	12.3	127	44.5
Beryllium, ICP	mg/kg	1.20	<0.300	<0.500	<0.500	<0.300	0.600	0.600	<0.500	0.700	0.500
Cadmium, ICP	mg/kg	<2.20	<2.00	<3.10	<3.00	<2.20	<2.20	<2.30	<3.10	<2.90	<2.40
Chromium, ICP	mg/kg	13.9	8.20	4.80	<4.10	6.10	11.0	10.0	<4.20	19.0	8.90
Cobalt, ICP	mg/kg	3.00	2.20	<2.00	<2.00	3.10	7.70	6.80	<2.10	2.50	7.30
Copper, ICP	mg/kg	34.6	126	8.80	6.20	28.4	14.8	18.2	6.00	37.4	31.0
Lead, GFAA	mg/kg	45.0	947	19.4	22.7	16.0J	13.6J	12.5J	5.15	0.222J	13.7J
Manganese, ICP	mg/kg	157	215	176	217	518	250	309	252	204	376
Mercury,CVAA	mg/kg	0.292	0.730	0.011	<0.010	0.035	0.038	0.039	0.012	8.48	0.165
Nickel, ICP	mg/kg	9.26	26.9	5.00	4.90	33.2	14.6	15.7	4.50	8.60	18.0
Selenium, GFAA	mg/kg	<0.183UJ	<0.174UJ	<0.171UJ	<0.170UJ	<0.506	<0.567	<0.537	<0.170	<0.507	<0.557
Silver, ICP	mg/kg	<3.00	<2.70	<4.00	<4.10	<2.90	<3.10	<2.90	<4.20	<4.00	<3.10
Thallium, GFAA	mg/kg	<0.367	<0.348	<0.347	<0.327	<0.338UJ	<0.379UJ	<0.359UJ	<0.337	<0.338UJ	<0.373UJ
Vanadium, ICP	mg/kg	9.60	9.10	5.50	<5.10	11.7	22.5	18.9	<5.20	<4.90	15.7
Zinc, ICP	mg/kg	72.3	295	24.1	29.1	44.1	48.5	54.4	20.0	143	56.1

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Compound	Units	WPSA-BH10 4/18/01 (16-18)	WPSA-BH10 4/18/01 (26-28)	WPSA-BH11 4/16/01 (0-2)	WPSA-BH11 4/16/01 (2-4)	WPSA-BH11 4/16/01 (8-10)	WPSA-BH11 4/20/01 (16-18)	WPSA-BH11 4/20/01 (26-28)	WPSA-BH12 4/18/01 (0-2)	WPSA-BH12 4/18/01 (8-10)	WPSA-BH12 4/18/01 (26-28)	WPSA-BH12 4/18/01 DUP-101
VOCs												
1,1,1-Trichloroethane	ug/kg	11.0J	<44.0	<5.20UJ	2210	13100	23200	5.90	<8.30	<5.30	<5.20	<5.20
1,1,2,2-Tetrachloroethane	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
1,1,2-Trichloroethane	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
1,1-Dichloroethane	ug/kg	33.6J	<44.0	2540	36400	10700	7400	57.3	6330	44.1J	12.1J	25.3J
1,1-Dichloroethene	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	15.9	<5.30	<5.20	<5.20
1,2-Dichloroethane	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
1,2-Dichloropropane	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
2-Butanone (MEK)	ug/kg	R	R	R	R	R	R	R	R	R	R	R
2-Hexanone	ug/kg	<52.2	<445	<52.0UJ	<584	<588	<444	<52.6	<83.4	<52.8	<52.0	<51.5
4-Methyl-2-pentanone (MIBK)	ug/kg	<52.2	<445	<52.0UJ	<584	<588	<444	<52.6	<83.4	<52.8	<52.0	<51.5
Acetone	ug/kg	<104	<890	<104UJ	<1170	<1180	<887	<105UJ	<167	<106	<104	<103
Benzene	ug/kg	<5.20	<44.0	<5.20UJ	60.2	<59.0	<44.0	<5.30	9.10	<5.30	<5.20	<5.20
Bromodichloromethane	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
Bromoform	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
Bromomethane	ug/kg	<10.4	<89.0	<10.4UJ	<120	<120	<89.0	<10.5	<16.7	<10.6	<10.4	<10.3
Carbon disulfide	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
Carbon tetrachloride	ug/kg	<5.20	<44.0	<5.20	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
Chlorobenzene	ug/kg	<5.20	<44.0	<5.20	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
Chloroethane	ug/kg	38.4J	<89.0	<10.4	<120	<120	<89.0	49.1	4290	<10.6	<10.4UJ	<10.3UJ
Chloroform	ug/kg	<5.20	<44.0	<5.20	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
Chloromethane	ug/kg	<10.4	<89.0	<10.4	<120	<120	<89.0	<10.5	<16.7	<10.6	<10.4	<10.3
Dibromochloromethane	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
Ethylbenzene	ug/kg	73.1J	175	14.2J	107000	5990	8800	1270	2040	<5.30	<5.20	<5.20
Methylene Chloride	ug/kg	<10.4UJ	<89.0	<10.4UJ	627	567	<89.0	<10.5UJ	60.4	<10.6UJ	<10.4	<10.3
Styrene	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
Tetrachloroethene	ug/kg	38.0J	<44.0	2530	2370	534	204	<5.30UJ	12200	6.40J	20.0J	48.7J
Toluene	ug/kg	84.2J	106	50.7J	28600	5010	4690	79.5	105	<5.30	<5.20	<5.20
Trichloroethene	ug/kg	<5.20	<44.0	51.6J	6110	2020	315	<5.30	17600	8.80J	8.70	16.6
Vinyl Chloride	ug/kg	<2.10	<18.0	<2.10UJ	371	108	323	<2.10	232	<2.10	<2.10	<2.10
Xylenes, Total	ug/kg	33.0J	<44.0	8.10J	5340	398	517	30.5	27.5	<5.30	<5.20	<5.20
cis-1,2-Dichloroethene	ug/kg	<5.20	<44.0	5610	72800	20600	21300	<5.30	18000	6.80J	<5.00	6.50
cis-1,3-Dichloropropene	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20
trans-1,2-Dichloroethene	ug/kg	<5.20	<44.0	9.80J	900	202	120	<5.30	64.0	<5.30	<5.20	<5.20
trans-1,3-Dichloropropene	ug/kg	<5.20	<44.0	<5.20UJ	<58.0	<59.0	<44.0	<5.30	<8.30	<5.30	<5.20	<5.20

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Compound	Units	WPSA-BH10 4/18/01 (16-18)	WPSA-BH10 4/18/01 (26-28)	WPSA-BH11 4/16/01 (0-2)	WPSA-BH11 4/16/01 (2-4)	WPSA-BH11 4/16/01 (8-10)	WPSA-BH11 4/20/01 (16-18)	WPSA-BH11 4/20/01 (26-28)	WPSA-BH12 4/18/01 (0-2)	WPSA-BH12 4/18/01 (8-10)	WPSA-BH12 4/18/01 (26-28)	WPSA-BH12 4/18/01 DUP-101
SVOCs												
1,2,4-Trichlorobenzene	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
2,2'-oxybis(1-Chloropropane)	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
2,4,5-Trichlorophenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
2,4,6-Trichlorophenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
2,4-Dichlorophenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348	<347	<759	<348	<343	<340
2,4-Dimethylphenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348	<347	<759	<348	<343	<340
2,4-Dinitrophenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
2,4-Dinitrotoluene	ug/kg	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
2,6-Dinitrotoluene	ug/kg	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
2-Chloronaphthalene	ug/kg	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
2-Chlorophenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348	<347	<759	<348	<343	<340
2-Methylnaphthalene	ug/kg	<344	<350	<686	11500J	1610	869J	<347	<759	<348	<343	<340
3,3'-Dichlorobenzidine	ug/kg	<689UJ	<699UJ	<1350	<157000UJ	<1820	<697UJ	<695UJ	<1500	<697	<687UJ	<680
4,6-Dinitro-2-methylphenol	ug/kg	<344	<350UJ	<6860UJ	<78700UJ	<924	<348UJ	<347UJ	<759	<348	<343	<340
4-Bromophenyl phenyl ether	ug/kg	<344	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	<759	<348	<343	<340
4-Chloro-3-methylphenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348	<347	<759	<348	<343	<340
4-Chlorophenyl phenyl ether	ug/kg	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
Acenaphthene	ug/kg	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
Acenaphthylene	ug/kg	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
Anthracene	ug/kg	<344	<350UJ	<686	<78700UJ	6230J	835J	484J	<759	<348	<343	<340
Benzo(a)anthracene	ug/kg	<344UJ	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	<759	<348	<343	<340
Benzo(a)pyrene	ug/kg	<172UJ	R	<343UJ	<39300UJ	<462	R	R	567J	<174	<172	<170
Benzo(b)fluoranthene	ug/kg	<344UJ	R	<686UJ	<78700UJ	<924	R	R	1610J	<348	<343UJ	<340
Benzo(ghi)perylene	ug/kg	<344UJ	R	<686UJ	<78700UJ	<924	R	R	<759UJ	<348	<343UJ	<340
Benzo(k)fluoranthene	ug/kg	<344UJ	R	<686UJ	<78700UJ	<924	R	R	807J	<348	<343UJ	<340
Bis(2-chloroethoxy)methane	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
Bis(2-chloroethyl)ether	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
Bis(2-ethylhexyl)phthalate	ug/kg	<344UJ	<350UJ	<686	<78700UJ	<924	399J	<347UJ	<759	<348	<343	<340
Butyl benzyl phthalate	ug/kg	<344UJ	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	<759	<348	<343	<340
Carbazole	ug/kg	<344	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	<759	<348	<343	<340
Chrysene	ug/kg	<344UJ	<350UJ	<686	<78700UJ	<924	584J	<347UJ	961	<348	<343	<340
Di-n-butyl phthalate	ug/kg	<344	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	<759	<348	<343	<340
Di-n-octyl phthalate	ug/kg	<344UJ	R	<686UJ	<78700UJ	<924	R	R	<759UJ	<348	<343UJ	<340
Dibenzo(a,h)anthracene	ug/kg	<172UJ	R	<343UJ	<39300UJ	<462	R	R	<380UJ	<174	<172UJ	<170
Dibenzofuran	ug/kg	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
Diethyl phthalate	ug/kg	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
Dimethyl phthalate	ug/kg	<344	<350	<686	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Compound	Units	WPSA-BH10 4/18/01 (16-18)	WPSA-BH10 4/18/01 (26-28)	WPSA-BH11 4/16/01 (0-2)	WPSA-BH11 4/16/01 (2-4)	WPSA-BH11 4/16/01 (8-10)	WPSA-BH11 4/20/01 (16-18)	WPSA-BH11 4/20/01 (26-28)	WPSA-BH12 4/18/01 (0-2)	WPSA-BH12 4/18/01 (8-10)	WPSA-BH12 4/18/01 (26-28)	WPSA-BH12 4/18/01 DUP-101
SVOCs (continued)												
Fluoranthene	ug/kg	<344	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	1240	<348	<343	<340
Fluorene	ug/kg	<344	<350	<686	<78700UJ	<924	465J	345J	<759	<348	<343	<340
Hexachlorobenzene	ug/kg	<344	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	<759	<348	<343	<340
Hexachlorobutadiene	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
Hexachlorocyclopentadiene	ug/kg	<689	<699	<1350	<157000UJ	<1820	<697UJ	<695	<1500	<697	<687	<680
Hexachloroethane	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
Indeno(1,2,3-cd)pyrene	ug/kg	<344UJ	<350	<686UJ	<78700UJ	<924	R	R	<759UJ	<348	<343UJ	<340
Isophorone	ug/kg	<344	R	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
N-Nitrosodiphenylamine	ug/kg	<344	<350	<686	<78700UJ	<924	355J	<347	<759	<348	<343	<340
N-Nitrosodipropylamine	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
Naphthalene	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
Nitrobenzene	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
Pentachlorophenol	ug/kg	<344	<350UJ	<6860UJ	<78700UJ	<924	<348UJ	<347UJ	<759	<348	<343	<340
Phenanthrene	ug/kg	1030J	701J	<686	<78700UJ	<924	2980J	1770J	808	<348	<343	<340
Phenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348	<347	<759	<348	<343	<340
Pyrene	ug/kg	<344UJ	<350UJ	<686	<78700UJ	<924	<348UJ	<347UJ	1930	<348	<343	<340
m-Dichlorobenzene	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
m-Nitroaniline	ug/kg	<517	<524	<1030	<118000UJ	<1390	<523UJ	<521	<1140	<523	<515	<510
meta & para-Methylphenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348	<347	<759	<348	<343	<340
o-Dichlorobenzene	ug/kg	<344	<350	<686	12800J	1360	444J	<347	<759	<348	<343	<340
o-Nitroaniline	ug/kg	<517	<524	<1030	<118000UJ	<1390	<523UJ	<521	<1140	<523	<515	<510
o-Nitrophenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348	<347	<759	<348	<343	<340
ortho-Methylphenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348	<347	<759	<348	<343	<340
p-Chloroaniline	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
p-Dichlorobenzene	ug/kg	<344	<350	<686	<78700UJ	<924	<348	<347	<759	<348	<343	<340
p-Nitroaniline	ug/kg	<517	<524	<1030	<118000UJ	<1390	<523UJ	<521	<1140	<523	<515	<510
p-Nitrophenol	ug/kg	<344	<350	<6860UJ	<78700UJ	<924	<348UJ	<347	<759	<348	<343	<340
PCBs												
Aroclor 1016	mg/kg	<0.520	<0.530	<0.520UJ	<1.20UJ	<0.700	<1.10UJ	<0.530	<0.580	<0.530	<0.520	<0.520
Aroclor 1221	mg/kg	<0.520	<0.530	<0.520UJ	<1.20UJ	<0.700	<1.10UJ	<0.530	<0.580	<0.530	<0.520	<0.520
Aroclor 1232	mg/kg	<0.520	<0.530	<0.520UJ	<1.20UJ	<0.700	<1.10UJ	<0.530	<0.580	<0.530	<0.520	<0.520
Aroclor 1242	mg/kg	<0.520	<0.530	<0.520UJ	<1.20UJ	<0.700	<1.10UJ	<0.530	<0.580	<0.530	<0.520	<0.520
Aroclor 1248	mg/kg	<0.520	<0.530	<0.520UJ	<1.20UJ	<0.700	<1.10UJ	<0.530	<0.580	<0.530	<0.520	<0.520
Aroclor 1254	mg/kg	<0.520	<0.530	2.93J	10.9J	1.72J	<1.10UJ	1.06	<0.580	<0.530	<0.520	<0.520
Aroclor 1260	mg/kg	<0.520	<0.530	<0.520UJ	<1.20UJ	<0.700	<1.10UJ	<0.530	<0.580	<0.530	<0.520	<0.520

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	WPSA-BH10 4/18/01 (16-18)	WPSA-BH10 4/18/01 (26-28)	WPSA-BH11 4/16/01 (0-2)	WPSA-BH11 4/16/01 (2-4)	WPSA-BH11 4/16/01 (8-10)	WPSA-BH11 4/20/01 (16-18)	WPSA-BH11 4/20/01 (26-28)	WPSA-BH12 4/18/01 (0-2)	WPSA-BH12 4/18/01 (8-10)	WPSA-BH12 4/18/01 (26-28)	WPSA-BH12 4/18/01 DUP-101
Metals												
Antimony, ICP	mg/kg	17.2	21.0	<14.0	50.8	9020	64.8	56.5	47.8	<6.80	<14.0	<13.0
Arsenic, GFAA	mg/kg	3.73	5.13	2.94	4.70	1.62	2.58	3.28	138	11.6	4.68	4.25
Barium, ICP	mg/kg	9.65	16.0	46.9	173	100	12.4	21.2	1200	32.8	44.4J	25.7J
Beryllium, ICP	mg/kg	<0.700	<0.700	<0.600	1.00	<0.460	<0.350	<0.800	1.33	<0.300	<0.700	<0.700
Cadmium, ICP	mg/kg	<4.10	<4.20	<4.10	<2.40	<2.80	<2.07	<5.20	20.4	<2.00	<4.20	<4.10
Chromium, ICP	mg/kg	<5.40	6.90	<5.40	44.1	23.1	5.50	<6.90	47.5	<348	<5.50	<5.50
Cobalt, ICP	mg/kg	<2.70	3.00	<2.70	3.30	3.20	3.40	<3.50	35.2	3.20	<2.70	<2.70
Copper, ICP	mg/kg	7.90	9.30	8.50	237	275	12.8	7.50	4990	43.0	15.9	11.0
Lead, GFAA	mg/kg	4.29	4.51	32.2	55.1	69.3J	4.76	6.93	325	17.0	7.87	6.80
Manganese, ICP	mg/kg	213	285	213	55.0	203	260	399	549	216	167	165
Mercury,CVAA	mg/kg	0.011	0.010	<0.010	0.180	3.00	0.088	0.013	0.333	0.051	0.012	0.010
Nickel, ICP	mg/kg	5.90	9.30	3.70	17.8	26.5	10.8	5.55	175	7.81	5.10	5.10
Selenium, GFAA	mg/kg	<0.172	<0.172	<0.170	<0.197	<0.672	<0.173	<0.173	<0.184	<0.171	<0.172	<0.170
Silver, ICP	mg/kg	<5.40	<5.60	<5.40	<3.10	<3.60	<2.77	<6.90	<7.30	<2.70	<5.50	<5.50
Thallium, GFAA	mg/kg	<0.343	0.595	<0.341	<0.393	<0.448UJ	<0.345	<0.346	2.08	0.431	0.378	0.411
Vanadium, ICP	mg/kg	<6.80	<7.00	<6.80	6.70	19.9	6.20	<8.60	12.9	7.34	<6.90	<6.80
Zinc, ICP	mg/kg	17.4	21.5	19.8	290	112	35.5	28.4	2430	52.1	39.3J	25.7J

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	WPSA-BH13 4/12/01 (0-2)	(4-6)	(22-24)	(24-26)	WPSA-BH14 4/19/01 (10-12)	(24-26)	WPSA-BH15 4/12/01 (0-2)	(2-4)	DUP-99	4/16/01 (8-10)	(10-12)
VOCs												
1,1,1-Trichloroethane	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
1,1,2,2-Tetrachloroethane	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
1,1,2-Trichloroethane	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
1,1-Dichloroethane	ug/kg	5120	14600	<5.20UJ	5.80J	<5.50	<5.20	<6.60UJ	6.40J	6.80J	<6.10	<5.60
1,1-Dichloroethene	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
1,2-Dichloroethane	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
1,2-Dichloropropane	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
2-Butanone (MEK)	ug/kg	R	R	R	R	R	R	R	R	R	R	R
2-Hexanone	ug/kg	<466	<72.3UJ	<51.8UJ	<52.4UJ	<55.4	<52.3	<66.2UJ	<63.1UJ	<64.9UJ	<60.9	<55.7
4-Methyl-2-pentanone (MIBK)	ug/kg	<466	<72.3UJ	<51.8UJ	<52.4UJ	<55.4	<52.3	<66.2UJ	<63.1UJ	<64.9UJ	<60.9	<55.7
Acetone	ug/kg	<932	<145UJ	<104UJ	<105UJ	<111	<105	600	1390	2430	453	<111
Benzene	ug/kg	118	26.7J	<5.20UJ	<5.20UJ	<5.50	<5.20	11.0J	17.5J	16.2J	24.0	<5.60
Bromodichloromethane	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
Bromoform	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
Bromomethane	ug/kg	<93.0	<14.5UJ	<10.4UJ	<10.5UJ	<11.1	<10.5	<13.2UJ	<12.6UJ	<13.0UJ	<12.2	<11.1
Carbon disulfide	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
Carbon tetrachloride	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
Chlorobenzene	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
Chloroethane	ug/kg	1730	3240	<10.4UJ	<10.5UJ	<11.1	<10.5	<13.2UJ	<12.6UJ	<13.0UJ	<12.2	<11.1
Chloroform	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
Chloromethane	ug/kg	<93.0	<14.5UJ	<10.4UJ	<10.5UJ	<11.1	<10.5	<13.2UJ	<12.6UJ	<13.0UJ	<12.2	<11.1
Dibromochloromethane	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
Ethylbenzene	ug/kg	19000	12100	<5.20UJ	<5.20UJ	<5.50	<5.20	6.40J	<6.30UJ	<6.50UJ	13.6	<5.60
Methylene Chloride	ug/kg	<93.0	31.8J	<10.4UJ	<10.5UJ	<11.1UJ	<10.5UJ	<13.2UJ	<12.6UJ	<13.0UJ	<12.2UJ	<11.1UJ
Styrene	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
Tetrachloroethene	ug/kg	<47.0	<7.20UJ	8.20J	5.40J	8.10	9.00	20.4J	17.8J	10.0J	164	10.0
Toluene	ug/kg	9310	11200	<5.20UJ	<5.20UJ	<5.50	<5.20	16.4J	84.0J	87.5J	5210	6.60
Trichloroethene	ug/kg	111	7.50J	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	5.80
Vinyl Chloride	ug/kg	346	87.4J	<2.10UJ	<2.10UJ	<2.20	<2.10	10.0J	21.4J	20.5J	20.0	<2.20
Xylenes, Total	ug/kg	77900	48000	<5.20UJ	<5.20UJ	<5.50	<5.20	51.3J	31.5J	24.4J	81.5	<5.60
cis-1,2-Dichloroethene	ug/kg	1340	87.3J	<5.20UJ	<5.20UJ	<5.50	<5.20	88.2J	81.8J	85.1J	119	<5.60
cis-1,3-Dichloropropene	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
trans-1,2-Dichloroethene	ug/kg	615	15.6J	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60
trans-1,3-Dichloropropene	ug/kg	<47.0	<7.20UJ	<5.20UJ	<5.20UJ	<5.50	<5.20	<6.60UJ	<6.30UJ	<6.50UJ	<6.10	<5.60

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	WPSA-BH13 4/12/01 (0-2)	WPSA-BH13 4/12/01 (4-6)	WPSA-BH13 4/12/01 (22-24)	WPSA-BH13 4/12/01 (24-26)	WPSA-BH14 4/19/01 (10-12)	WPSA-BH14 4/19/01 (24-26)	WPSA-BH15 4/12/01 (0-2)	WPSA-BH15 4/12/01 (2-4)	WPSA-BH15 4/12/01 DUP-99	WPSA-BH15 4/16/01 (8-10)	WPSA-BH15 4/16/01 (10-12)
SVOCs												
1,2,4-Trichlorobenzene	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2,2'-oxybis(1-Chloropropane)	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2,4,5-Trichlorophenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2,4,6-Trichlorophenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2,4-Dichlorophenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2,4-Dimethylphenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2,4-Dinitrophenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2,4-Dinitrotoluene	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2,6-Dinitrotoluene	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2-Chloronaphthalene	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2-Chlorophenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
2-Methylnaphthalene	ug/kg	2340J	1840J	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
3,3'-Dichlorobenzidine	ug/kg	<733UJ	<954UJ	<683	<691	731UJ	<874	<874	<832UJ	<857UJ	<804UJ	<735UJ
4,6-Dinitro-2-methylphenol	ug/kg	<366	<477	<342	<346	<365UJ	<437	<437	<416	<429	<402	<367UJ
4-Bromophenyl phenyl ether	ug/kg	<366	<477	<342	<346	<365UJ	<437	<437	<416	<429	<402	<367UJ
4-Chloro-3-methylphenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
4-Chlorophenyl phenyl ether	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Acenaphthene	ug/kg	1320J	1170J	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Acenaphthylene	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Anthracene	ug/kg	2400J	1370J	<342	<346	<365UJ	<437	<437	<416	<429	<402	<367UJ
Benzo(a)anthracene	ug/kg	4200J	2280J	<342	<346	<365UJ	<437	<437	<416UJ	<429UJ	<402UJ	<367UJ
Benzo(a)pyrene	ug/kg	2950J	<238UJ	208J	<173	<183UJ	<219UJ	<219UJ	212J	<2080UJ	<201UJ	<184UJ
Benzo(b)fluoranthene	ug/kg	4960J	2990J	<342	<346	<365UJ	<437UJ	<437UJ	709J	<4290UJ	<402UJ	<367UJ
Benzo(ghi)perylene	ug/kg	1540J	675J	<342	<346	<365UJ	<437UJ	<437UJ	<416UJ	<4290UJ	<402UJ	<367UJ
Benzo(k)fluoranthene	ug/kg	1190J	925J	<342	<346	<365UJ	<437UJ	<437UJ	<416UJ	<4290UJ	<402UJ	<367UJ
Bis(2-chloroethoxy)methane	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Bis(2-chloroethyl)ether	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Bis(2-ethylhexyl)phthalate	ug/kg	<366UJ	<477UJ	<342	<346	<365UJ	<437	<437	643J	806J	<402UJ	<367UJ
Butyl benzyl phthalate	ug/kg	<366UJ	<477UJ	<342	<346	<365UJ	<437	<437	<416UJ	<429UJ	<402UJ	<367UJ
Carbazole	ug/kg	700J	608J	<342	<346	<365UJ	<437	<437	<416	<429	<402	<367UJ
Chrysene	ug/kg	4560J	2380J	<342	<346	<365UJ	<437	<437	419J	<429UJ	<402UJ	<367UJ
Di-n-butyl phthalate	ug/kg	<366	<477	<342	<346	<365UJ	<437	<437	<416	<429	<402	<367UJ
Di-n-octyl phthalate	ug/kg	<366UJ	<477UJ	<342	<346	<365UJ	<437UJ	<437UJ	<416UJ	<4290UJ	<402UJ	<367UJ
Dibenzo(a,h)anthracene	ug/kg	795J	<238UJ	<171	<173	<365UJ	<219UJ	<219UJ	<208UJ	<2080UJ	<201UJ	<184UJ
Dibenzofuran	ug/kg	2240J	1000J	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Diethyl phthalate	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Dimethyl phthalate	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	WPSA-BH13 4/12/01 (0-2)	(4-6)	(22-24)	(24-26)	WPSA-BH14 4/19/01 (10-12)	(24-26)	WPSA-BH15 4/12/01 (0-2)	(2-4)	DUP-99	4/16/01 (8-10)	(10-12)
SVOCs (continued)												
Fluoranthene	ug/kg	9990J	6160J	559J	<346	<365UJ	<437	<437	<416	<429	<402	<367UJ
Fluorene	ug/kg	1510J	1030J	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Hexachlorobenzene	ug/kg	<366	<477	<342	<346	<365UJ	<437	<437	<416	<429	<402	<367UJ
Hexachlorobutadiene	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Hexachlorocyclopentadiene	ug/kg	<733	<954	<683	<691	<731	<874	<874	<832	<857	<804	<735UJ
Hexachloroethane	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Indeno(1,2,3-cd)pyrene	ug/kg	1190J	529J	<342	<346	<365UJ	<437UJ	<437UJ	<416UJ	<4290UJ	<402UJ	<367UJ
Isophorone	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
N-Nitrosodiphenylamine	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
N-Nitrosodipropylamine	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Naphthalene	ug/kg	8700J	3380J	<342	<346	<365	<437	<437	869J	581J	<402	<367UJ
Nitrobenzene	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Pentachlorophenol	ug/kg	<366	<477	<342	<346	<365UJ	<437	<437	<416	<429	<402	<367UJ
Phenanthrene	ug/kg	20500J	7950J	534J	<346	<365UJ	<437	<437	628J	<429	<402	<367UJ
Phenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
Pyrene	ug/kg	13700J	6560J	464J	<346	<365UJ	<437	<437	1440J	797J	518J	<367UJ
m-Dichlorobenzene	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
m-Nitroaniline	ug/kg	<549	<715	<512	<518	<548	<656	<656	<624	<643	<603	<551UJ
meta & para-Methylphenol	ug/kg	<366	617J	<342	<346	<365	453J	453J	827	526	<402	<367UJ
o-Dichlorobenzene	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
o-Nitroaniline	ug/kg	<549	<715	<512	<518	<548	<656	<656	<624	<643	<603	<551UJ
o-Nitrophenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
ortho-Methylphenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
p-Chloroaniline	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
p-Dichlorobenzene	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
p-Nitroaniline	ug/kg	<549	<715	<512	<518	<548	<656	<656	<624	<643	<603	<551UJ
p-Nitrophenol	ug/kg	<366	<477	<342	<346	<365	<437	<437	<416	<429	<402	<367UJ
PCBs												
Aroclor 1016	mg/kg	<0.550	<0.720	<0.520	<0.520	<0.550	<0.520	<0.660	<0.630	<0.650	<0.610	<0.560
Aroclor 1221	mg/kg	<0.550	<0.720	<0.520	<0.520	<0.550	<0.520	<0.660	<0.630	<0.650	<0.610	<0.560
Aroclor 1232	mg/kg	<0.550	<0.720	<0.520	<0.520	<0.550	<0.520	<0.660	<0.630	<0.650	<0.610	<0.560
Aroclor 1242	mg/kg	<0.550	<0.720	<0.520	<0.520	<0.550	<0.520	<0.660	<0.630	<0.650	<0.610	<0.560
Aroclor 1248	mg/kg	<0.550	<0.720	<0.520	<0.520	<0.550	<0.520	<0.660	<0.630	<0.650	<0.610	<0.560
Aroclor 1254	mg/kg	<0.550	<0.720	<0.520	<0.520	<0.550	<0.520	<0.660	<0.630	<0.650	<0.610	<0.560
Aroclor 1260	mg/kg	<0.550	<0.720	<0.520	<0.520	<0.550	<0.520	<0.660	<0.630	<0.650	<0.610	<0.560

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Compound	Units	WPSA-BH13 4/12/01 (0-2)	WPSA-BH13 4/12/01 (4-6)	WPSA-BH13 4/12/01 (22-24)	WPSA-BH13 4/12/01 (24-26)	WPSA-BH14 4/19/01 (10-12)	WPSA-BH14 4/19/01 (24-26)	WPSA-BH15 4/12/01 (0-2)	WPSA-BH15 4/12/01 (2-4)	WPSA-BH15 4/12/01 DUP-99	WPSA-BH15 4/16/01 (8-10)	WPSA-BH15 4/16/01 (10-12)
Metals												
Antimony, ICP	mg/kg	<344	223	<10.0	<10.0	22.8	14.0U	38.0	330	247	29.4	23.9
Arsenic, GFAA	mg/kg	17.1	2.02	2.33	3.16	6.88	4.62	6.82	7.33	9.38	7.54	4.45
Barium, ICP	mg/kg	1840	2070	63.1	20.3	151	28.2	497	2840	2250	804	331
Beryllium, ICP	mg/kg	<22.0	<0.400	<0.500	<0.500	0.350U	0.700U	<1.00	<1.00	<1.00	0.400	0.300U
Cadmium, ICP	mg/kg	<100	35.7	<3.10	<3.00	2.16U	4.10U	32.8	60.4	58.6	11.0	5.50
Chromium, ICP	mg/kg	<144	217	29.6	6.20	21.6	5.40	123	106	79.1	41.4	18.6
Cobalt, ICP	mg/kg	178	63.7	2.40	2.10	15.5	3.20	20.0	247	218	32.3	13.0
Copper, ICP	mg/kg	2050	16600	473	13.8	293	26.2	2210	2900	2860	766	375
Lead, GFAA	mg/kg	391	3920	40.9	7.08	40.2	11.5	583	1790	2120	449	392
Manganese, ICP	mg/kg	910	863	164	226	358	189	1590	1230	1310	463	331
Mercury,CVAA	mg/kg	0.142	0.818	0.051	0.017	0.032	0.007U	0.291	0.429J	0.630J	0.128	0.062
Nickel, ICP	mg/kg	289	426	14.0	5.90	26.1	7.10	328	492	381	83.4	34.5
Selenium, GFAA	mg/kg	<0.180UJ	<0.231UJ	<0.170UJ	<0.170UJ	0.184U	0.170U	<0.209UJ	<0.204UJ	<0.213UJ	0.195U	0.185U
Silver, ICP	mg/kg	<144	19.1	<4.10	<4.10	2.88U	5.40U	<8.50	8.80	<8.30	3.30U	3.00U
Thallium, GFAA	mg/kg	<0.361	<0.464	<0.341	0.422J	0.367U	0.442	<0.417	<0.409	<0.427	0.390U	0.370U
Vanadium, ICP	mg/kg	<178	14.0	<5.20	5.90	7.55	7.00	26.0	11.0	<10.0	12.0	7.10
Zinc, ICP	mg/kg	1690	24400	182	34.7	419	39.5	9210	10900	9260	1660	1160

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Compound	Units	WPSA-BH15 4/20/01 (26-28)	WPSA-BH15 4/20/01 DUP-103	WPSA-BH15A 5/1/01 (4-6)	WPSA-BH15B 5/1/01 (4-6)	WPSA-BH16 4/11/01 (0-2)	WPSA-BH16 4/11/01 (2-4)	WPSA-BH16 4/11/01 (26-28)	WPSA-BH17 4/10/01 (0-2)	WPSA-BH17 4/10/01 DUP-98	WPSA-BH17 4/10/01 (4-6)	WPSA-BH17 4/11/01 (28-30)
VOCs												
1,1,1-Trichloroethane	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
1,1,2,2-Tetrachloroethane	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
1,1,2-Trichloroethane	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
1,1-Dichloroethane	ug/kg	<5.50	<5.20	--	--	51.4J	11.0	<5.20	<5.00UJ	<5.30UJ	<5.60	16.9
1,1-Dichloroethene	ug/kg	<5.50	<5.20	--	--	<6.10UJ	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
1,2-Dichloroethane	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
1,2-Dichloropropane	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
2-Butanone (MEK)	ug/kg	R	R	--	--	<123UJ	<132UJ	<105UJ	R	R	R	R
2-Hexanone	ug/kg	<55.1	<52.2	--	--	<61.4	<65.8	<52.5	<50.3UJ	<52.9UJ	<55.7	<56.6
4-Methyl-2-pentanone (MIBK)	ug/kg	<55.1	<52.2	--	--	<61.4	<65.8	<52.5	<50.3UJ	<52.9UJ	<55.7	<56.6
Acetone	ug/kg	<110	<104	--	--	6390	5960	<105UJ	<101UJ	<106UJ	<111UJ	<113
Benzene	ug/kg	<5.50	<5.20	--	--	20.0J	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Bromodichloromethane	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Bromoform	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Bromomethane	ug/kg	<11.0	<10.4	--	--	<12.3	<13.2	<10.5	<10.1UJ	<10.6UJ	<11.1	<11.3
Carbon disulfide	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Carbon tetrachloride	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Chlorobenzene	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Chloroethane	ug/kg	<11.0	<10.4	--	--	<12.3UJ	<13.2	<10.5	<10.1UJ	<10.6UJ	<11.1	<11.3
Chloroform	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Chloromethane	ug/kg	<11.0	<10.4	--	--	<12.3	<13.2UJ	<10.5UJ	<10.1UJ	<10.6UJ	<11.1	<11.3
Dibromochloromethane	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Ethylbenzene	ug/kg	<5.50	<5.20	--	--	11.0J	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Methylene Chloride	ug/kg	<11.0UJ	<10.4UJ	--	--	<12.3UJ	<13.2UJ	<10.5UJ	<10.1UJ	<10.6UJ	<11.1UJ	<11.3UJ
Styrene	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Tetrachloroethene	ug/kg	14.6	13.8	--	--	<6.10	<6.60	53.4	<5.00UJ	8.20J	<5.60	36.2
Toluene	ug/kg	<5.50	<5.20	--	--	28.7J	11.0	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
Trichloroethene	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	11.3	<5.00UJ	<5.30UJ	<5.60	14.9
Vinyl Chloride	ug/kg	<2.20	<2.10	--	--	<2.50	<2.60	<2.10	<2.00UJ	<2.10UJ	<2.20	<2.30
Xylenes, Total	ug/kg	<5.50	<5.20	--	--	71.4J	29.2	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
cis-1,2-Dichloroethene	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
cis-1,3-Dichloropropene	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
trans-1,2-Dichloroethene	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70
trans-1,3-Dichloropropene	ug/kg	<5.50	<5.20	--	--	<6.10	<6.60	<5.20	<5.00UJ	<5.30UJ	<5.60	<5.70

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	WPSA-BH15 4/20/01 (26-28)	WPSA-BH15 4/20/01 DUP-103	WPSA-BH15A 5/1/01 (4-6)	WPSA-BH15B 5/1/01 (4-6)	WPSA-BH16 4/11/01 (0-2)	WPSA-BH16 4/11/01 (2-4)	WPSA-BH16 4/11/01 (26-28)	WPSA-BH17 4/10/01 (0-2)	WPSA-BH17 4/10/01 DUP-98	WPSA-BH17 4/10/01 (4-6)	4/11/01 (28-30)
SVOCs												
1,2,4-Trichlorobenzene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2,2'-oxybis(1-Chloropropane)	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2,4,5-Trichlorophenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2,4,6-Trichlorophenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2,4-Dichlorophenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2,4-Dimethylphenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2,4-Dinitrophenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2,4-Dinitrotoluene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2,6-Dinitrotoluene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2-Chloronaphthalene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2-Chlorophenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
2-Methylnaphthalene	ug/kg	<363	<345	<404UJ	<411UJ	1340	<434	<346	<346	<349	<367	<373
3,3'-Dichlorobenzidine	ug/kg	<727	<690	<809UJ	<822UJ	<811UJ	<868UJ	<693	<691UJ	<698UJ	<735UJ	<747
4,6-Dinitro-2-methylphenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
4-Bromophenyl phenyl ether	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
4-Chloro-3-methylphenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
4-Chlorophenyl phenyl ether	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Acenaphthene	ug/kg	<363	<345	<404UJ	<411UJ	421	<434	<346	<346	<349	<367	<373
Acenaphthylene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Anthracene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Benzo(a)anthracene	ug/kg	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<346UJ	<349UJ	<367UJ	<373
Benzo(a)pyrene	ug/kg	<182	<172	<202UJ	<205UJ	<203UJ	<217UJ	<173	<1680UJ	<1690UJ	<1780UJ	<187
Benzo(b)fluoranthene	ug/kg	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<3460UJ	<3490UJ	<3670UJ	<373
Benzo(ghi)perylene	ug/kg	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<3460UJ	<3490UJ	<3670UJ	<373
Benzo(k)fluoranthene	ug/kg	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<3460UJ	<3490UJ	<3670UJ	<373
Bis(2-chloroethoxy)methane	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Bis(2-chloroethyl)ether	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Bis(2-ethylhexyl)phthalate	ug/kg	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<346UJ	<349UJ	<367UJ	<373
Butyl benzyl phthalate	ug/kg	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<346UJ	<349UJ	<367UJ	<373
Carbazole	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Chrysene	ug/kg	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<346UJ	<349UJ	<367UJ	<373
Di-n-butyl phthalate	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Di-n-octyl phthalate	ug/kg	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<3460UJ	<3490UJ	<3670UJ	<373
Dibenzo(a,h)anthracene	ug/kg	<182	<172	<202UJ	<205UJ	<203UJ	<217UJ	<173	<1680UJ	<1690UJ	<1780UJ	<187
Dibenzofuran	ug/kg	<363	<345	<404UJ	<411UJ	1300	<434	<346	<346	<349	<367	<373
Diethyl phthalate	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Dimethyl phthalate	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	WPSA-BH15 4/20/01 (26-28)	WPSA-BH15 4/20/01 DUP-103	WPSA-BH15A 5/1/01 (4-6)	WPSA-BH15B 5/1/01 (4-6)	WPSA-BH16 4/11/01 (0-2)	WPSA-BH16 4/11/01 (2-4)	WPSA-BH16 4/11/01 (26-28)	WPSA-BH17 4/10/01 (0-2)	WPSA-BH17 4/10/01 DUP-98	WPSA-BH17 4/10/01 (4-6)	4/11/01 (28-30)
SVOCs (continued)												
Fluoranthene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Fluorene	ug/kg	<363	<345	<404UJ	<411UJ	575	<434	<346	<346	<349	<367	<373
Hexachlorobenzene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Hexachlorobutadiene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Hexachlorocyclopentadiene	ug/kg	<727	<690	<809UJ	<822UJ	<811	<868	<693	<691	<698	<735	<747
Hexachloroethane	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Indeno(1,2,3-cd)pyrene	ug/kg	<363	<345	<404UJ	<411UJ	<405UJ	<434UJ	<346	<3460UJ	<3490UJ	<3670UJ	<373
Isophorone	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
N-Nitrosodiphenylamine	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
N-Nitrosodipropylamine	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Naphthalene	ug/kg	<363	<345	<404UJ	<411UJ	877	<434	<346	<346	<349	<367	<373
Nitrobenzene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Pentachlorophenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Phenanthrene	ug/kg	<363	<345	<404UJ	<411UJ	1180	1160	<346	<346	<349	<367	<373
Phenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
Pyrene	ug/kg	<363	<345	<404UJ	<411UJ	<405UJ	709J	<346	<346UJ	<349UJ	<367UJ	<373
m-Dichlorobenzene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
m-Nitroaniline	ug/kg	<545	<517	<607UJ	<616UJ	<608	<651	<519	<518	<523	<551	<560
meta & para-Methylphenol	ug/kg	<363	<345	<404UJ	<411UJ	2690	<434	<346	<346	<349	<367	<373
o-Dichlorobenzene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
o-Nitroaniline	ug/kg	<545	<517	<607UJ	<616UJ	<608	<651	<519	<518	<523	<551	<560
o-Nitrophenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
ortho-Methylphenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
p-Chloroaniline	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
p-Dichlorobenzene	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
p-Nitroaniline	ug/kg	<545	<517	<607UJ	<616UJ	<608	<651	<519	<518	<523	<551	<560
p-Nitrophenol	ug/kg	<363	<345	<404UJ	<411UJ	<405	<434	<346	<346	<349	<367	<373
PCBs												
Aroclor 1016	mg/kg	<0.550	<0.520	--	--	<0.610	<0.660	<0.520	<0.500	<0.530	<0.560	<0.570
Aroclor 1221	mg/kg	<0.550	<0.520	--	--	<0.610	<0.660	<0.520	<0.500	<0.530	<0.560	<0.570
Aroclor 1232	mg/kg	<0.550	<0.520	--	--	<0.610	<0.660	<0.520	<0.500	<0.530	<0.560	<0.570
Aroclor 1242	mg/kg	<0.550	<0.520	--	--	<0.610	<0.660	<0.520	<0.500	<0.530	<0.560	<0.570
Aroclor 1248	mg/kg	<0.550	<0.520	--	--	<0.610	<0.660	<0.520	<0.500	<0.530	<0.560	<0.570
Aroclor 1254	mg/kg	<0.550	<0.520	--	--	<0.610	<0.660	<0.520	0.810	<0.530	<0.560	<0.570
Aroclor 1260	mg/kg	<0.550	<0.520	--	--	<0.610	<0.660	<0.520	<0.500	<0.530	<0.560	<0.570

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	WPSA-BH15 4/20/01 (26-28)	WPSA-BH15 4/20/01 DUP-103	WPSA-BH15A 5/1/01 (4-6)	WPSA-BH15B 5/1/01 (4-6)	WPSA-BH16 4/11/01 (0-2)	WPSA-BH16 4/11/01 (2-4)	WPSA-BH16 4/11/01 (26-28)	WPSA-BH17 4/10/01 (0-2)	WPSA-BH17 4/10/01 DUP-98	WPSA-BH17 4/10/01 (4-6)	WPSA-BH17 4/11/01 (28-30)
Metals												
Antimony, ICP	mg/kg	<14.0	<14.0	--	--	34.0	232	<6.80	<13.0	<14.0	22.0	<7.40
Arsenic, GFAA	mg/kg	4.41J	1.26J	--	--	7.94	10.4	6.04	5.75J	5.20J	4.77J	5.90
Barium, ICP	mg/kg	13.3	13.6	--	--	1150	174	10.5	111J	106J	256J	11.0
Beryllium, ICP	mg/kg	<0.700	<0.600	--	--	<1.00	<4.00	<0.300	<0.600	<0.700	<0.800	<0.300
Cadmium, ICP	mg/kg	<4.20	<4.00	--	--	2080	<26.0	<2.00	<3.80	<4.10	8.20	<2.10
Chromium, ICP	mg/kg	<5.60	10.0	--	--	4890	3410	6.30	10.0J	15.6J	434J	4.30
Cobalt, ICP	mg/kg	<2.90	2.70	--	--	43.5	55.0	1.50	4.80	5.00	9.10	<1.50
Copper, ICP	mg/kg	10.2	9.20	--	--	34500	1470	23.1	57.0J	63.0J	720J	13.6
Lead, GFAA	mg/kg	5.43	4.31	--	--	557	3810	10.6	26.8	27.6	2240	8.48
Manganese, ICP	mg/kg	229	243	--	--	974	2990	137	231	204	278	140
Mercury,CVAA	mg/kg	0.009	0.008	--	--	0.100	0.063	0.010	0.055J	0.072J	0.067J	0.010
Nickel, ICP	mg/kg	5.50	7.50	--	--	869	1910	4.20	11.0J	14.0J	312J	4.30
Selenium, GFAA	mg/kg	<0.174	<0.173	--	--	0.822	<0.213	<0.676	<0.635UJ	<0.698UJ	<0.176UJ	<0.369
Silver, ICP	mg/kg	<5.60	<5.20	--	--	24.6	<34.0	<2.70	<5.00	<5.50	8.00	<2.90
Thallium, GFAA	mg/kg	0.491	<0.347	--	--	<0.403	<0.425	<0.337	<0.318	<0.370	<0.353	<0.369
Vanadium, ICP	mg/kg	<7.00	7.60	--	--	69.3	<43.0	4.30	<6.30	7.60	<7.30	4.30
Zinc, ICP	mg/kg	20.7	20.8	--	--	1830	387	17.4	96.4J	114J	178J	23.2

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

Compound	Units	WPSA-BH18 4/18/01 (0-2)	WPSA-BH18 4/18/01 (2-4)	WPSA-BH18 4/18/01 (26-28)	WPSA-BH19 4/19/01 (0-2)	WPSA-BH19 4/19/01 (6-8)	WPSA-BH19 4/19/01 (26-28)	GM-33 4/2/01 (0-2)	GM-33 4/2/01 (12-14)	GM-33 4/2/01 (26-28)
VOCs										
1,1,1-Trichloroethane	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
1,1,2,2-Tetrachloroethane	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
1,1,2-Trichloroethane	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
1,1-Dichloroethane	ug/kg	<5.30	<6.40	<5.20	120	17.7	<5.30	<5.70	9.80	<5.20
1,1-Dichloroethene	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
1,2-Dichloroethane	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
1,2-Dichloropropane	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
2-Butanone (MEK)	ug/kg	R	R	R	R	R	R	<113	<104	<104
2-Hexanone	ug/kg	<52.8	<64.3	<51.5	<803	<61.0	<53.2	<56.7	<51.8	<51.8
4-Methyl-2-pentanone (MIBK)	ug/kg	<52.8	<64.3	<51.5	6820	<61.0	<53.2	<56.7	<51.8	<51.8
Acetone	ug/kg	<106	<129	<103	<1610	<122	<106	<113UJ	<104UJ	<104UJ
Benzene	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
Bromodichloromethane	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
Bromoform	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
Bromomethane	ug/kg	<10.6	<12.9	<10.3	<161	<12.2	<10.6	<11.3	<10.4	<10.4
Carbon disulfide	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
Carbon tetrachloride	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
Chlorobenzene	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
Chloroethane	ug/kg	<10.6UJ	<12.9	<10.3UJ	<161	<12.2	<10.6	<11.3	<10.4	<10.4
Chloroform	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
Chloromethane	ug/kg	<10.6	<12.9UJ	<10.3	<161	<12.2	<10.6	<11.3	<10.4	<10.4
Dibromochloromethane	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
Ethylbenzene	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	880	<5.20
Methylene Chloride	ug/kg	<10.6	<12.9	<10.3	<161	<12.2UJ	<10.6UJ	<11.3	<10.4	<10.4
Styrene	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
Tetrachloroethene	ug/kg	8.80	<6.40	23.7	118	<6.10	<5.30	<5.70	7.30	<5.20
Toluene	ug/kg	<5.30	<6.40	<5.20	85.0	<6.10	8.30	<5.70	36.6	<5.20
Trichloroethene	ug/kg	<5.30	<6.40	6.50	148	<6.10	<5.30	<5.70	<5.20	<5.20
Vinyl Chloride	ug/kg	<2.10	<2.60	<2.10	<33.0	<2.40	<2.10	<2.30	<2.10	<2.10
Xylenes, Total	ug/kg	<5.30	<6.40	<5.20	237	<6.10	<5.30	<5.70	27.8	<5.20
cis-1,2-Dichloroethene	ug/kg	19.2	<6.40	<5.20	212	<6.10	<5.30	<5.70	<5.20	<5.20
cis-1,3-Dichloropropene	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
trans-1,2-Dichloroethene	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20
trans-1,3-Dichloropropene	ug/kg	<5.30	<6.40	<5.20	<80.0	<6.10	<5.30	<5.70	<5.20	<5.20

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Compound	Units	WPSA-BH18 4/18/01 (0-2)	WPSA-BH18 4/18/01 (2-4)	WPSA-BH18 4/18/01 (26-28)	WPSA-BH19 4/19/01 (0-2)	WPSA-BH19 4/19/01 (6-8)	WPSA-BH19 4/19/01 (26-28)	GM-33 4/2/01 (0-2)	GM-33 4/2/01 (12-14)	GM-33 4/2/01 (26-28)
SVOCs										
1,2,4-Trichlorobenzene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2,2'-oxybis(1-Chloropropane)	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2,4,5-Trichlorophenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2,4,6-Trichlorophenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2,4-Dichlorophenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2,4-Dimethylphenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2,4-Dinitrophenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2,4-Dinitrotoluene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2,6-Dinitrotoluene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2-Chloronaphthalene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2-Chlorophenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
2-Methylnaphthalene	ug/kg	<348	<424	<340	6650J	<402	<351	435	818	<342
3,3'-Dichlorobenzidine	ug/kg	<697UJ	<848UJ	<680	R	<805UJ	<702UJ	<748	<684UJ	<684UJ
4,6-Dinitro-2-methylphenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342UJ	<342
4-Bromophenyl phenyl ether	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342UJ	<342
4-Chloro-3-methylphenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
4-Chlorophenyl phenyl ether	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Acenaphthene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Acenaphthylene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Anthracene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	502	474J	<342
Benzo(a)anthracene	ug/kg	<348UJ	<424	<340	4820J	<402	<351	1850	<342UJ	<342
Benzo(a)pyrene	ug/kg	<174UJ	<212	<170	R	<201UJ	<176	1520J	<1660UJ	<171UJ
Benzo(b)fluoranthene	ug/kg	<348UJ	<424	<340	11300J	<402UJ	<351	3240J	<3420UJ	<342UJ
Benzo(ghi)perylene	ug/kg	<348UJ	<424	<340	5880J	<402UJ	<351	423J	<3420UJ	<342UJ
Benzo(k)fluoranthene	ug/kg	<348UJ	<424	<340	4220J	<402UJ	<351	593J	<3420UJ	<342UJ
Bis(2-chloroethoxy)methane	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Bis(2-chloroethyl)ether	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Bis(2-ethylhexyl)phthalate	ug/kg	<348UJ	<424	<340	R	<402	<351	<374	1530J	458J
Butyl benzyl phthalate	ug/kg	<348UJ	<424	<340	R	<402	<351	<374	<342UJ	<342UJ
Carbazole	ug/kg	<348	<424	<340	<1800UJ	<402	<351	407	<342UJ	<342
Chrysene	ug/kg	<348UJ	<424	<340	10700J	<402	<351	1710	428J	<342UJ
Di-n-butyl phthalate	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342UJ	<342
Di-n-octyl phthalate	ug/kg	<348UJ	<424	<340	R	<402UJ	<351	<374UJ	<3420UJ	<342UJ
Dibenzo(a,h)anthracene	ug/kg	<174UJ	<212	<170	R	<201UJ	<176	<187UJ	<1660UJ	<171UJ
Dibenzofuran	ug/kg	<348	<424	<340	3030J	<402	<351	<374	<342	<342
Diethyl phthalate	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Dimethyl phthalate	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	WPSA-BH18 4/18/01 (0-2)	WPSA-BH18 4/18/01 (2-4)	WPSA-BH18 4/18/01 (26-28)	WPSA-BH19 4/19/01 (0-2)	WPSA-BH19 4/19/01 (6-8)	WPSA-BH19 4/19/01 (26-28)	GM-33 4/2/01 (0-2)	GM-33 4/2/01 (12-14)	GM-33 4/2/01 (26-28)
SVOCs (continued)										
Fluoranthene	ug/kg	<348	<424	<340	4610J	<402	<351	450J	<342UJ	<342
Fluorene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	419	<342
Hexachlorobenzene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342UJ	<342
Hexachlorobutadiene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Hexachlorocyclopentadiene	ug/kg	<697	<848	<680	<3590UJ	<805	<702	<748	<684	<684
Hexachloroethane	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Indeno(1,2,3-cd)pyrene	ug/kg	<348UJ	<424	<340	6100J	<402UJ	<351	440J	<3420UJ	<342UJ
Isophorone	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
N-Nitrosodiphenylamine	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
N-Nitrosodipropylamine	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Naphthalene	ug/kg	<348	<424	<340	4900J	<402	<351	398	<342	<342
Nitrobenzene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Pentachlorophenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342UJ	<342
Phenanthrene	ug/kg	<348	<424	<340	9400J	<402	<351	2650	1980J	<342
Phenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
Pyrene	ug/kg	<348UJ	<424	<340	19700J	<402	<351	3870J	<342UJ	<342UJ
m-Dichlorobenzene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
m-Nitroaniline	ug/kg	<523	<636	<510	<2690UJ	<604	<527	<561	<513	<513
meta & para-Methylphenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
o-Dichlorobenzene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	906	<342
o-Nitroaniline	ug/kg	<523	<636	<510	<2690UJ	<604	<527	<561	<513	<513
o-Nitrophenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
ortho-Methylphenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
p-Chloroaniline	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
p-Dichlorobenzene	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
p-Nitroaniline	ug/kg	<523	<636	<510	<2690UJ	<604	<527	<561	<513	<513
p-Nitrophenol	ug/kg	<348	<424	<340	<1800UJ	<402	<351	<374	<342	<342
PCBs										
Aroclor 1016	mg/kg	<0.530	<0.640	<0.520	<6.80UJ	<0.610	<0.530	<0.570	<0.520	<0.520
Aroclor 1221	mg/kg	<0.530	<0.640	<0.520	<6.80UJ	<0.610	<0.530	<0.570	<0.520	<0.520
Aroclor 1232	mg/kg	<0.530	<0.640	<0.520	<6.80UJ	<0.610	<0.530	<0.570	<0.520	<0.520
Aroclor 1242	mg/kg	<0.530	<0.640	<0.520	<6.80UJ	<0.610	<0.530	<0.570	<0.520	<0.520
Aroclor 1248	mg/kg	<0.530	<0.640	<0.520	<6.80UJ	<0.610	<0.530	<0.570	<0.520	<0.520
Aroclor 1254	mg/kg	<0.530	<0.640	<0.520	71.0J	<0.610	<0.530	<0.570	<0.520	<0.520
Aroclor 1260	mg/kg	<0.530	<0.640	<0.520	<6.80UJ	<0.610	<0.530	<0.570	<0.520	<0.520

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

Compound	Units	WPSA-BH18 4/18/01 (0-2)	WPSA-BH18 4/18/01 (2-4)	WPSA-BH18 4/18/01 (26-28)	WPSA-BH19 4/19/01 (0-2)	WPSA-BH19 4/19/01 (6-8)	WPSA-BH19 4/19/01 (26-28)	GM-33 4/2/01 (0-2)	GM-33 4/2/01 (12-14)	GM-33 4/2/01 (26-28)
Metals										
Antimony, ICP	mg/kg	<14.0	<35.0	<9.90	26.1	7.65U	17.0U	6.50J	<6.70UJ	<13.0UJ
Arsenic, GFAA	mg/kg	6.42	16.5	4.37	14.8	7.12	4.40	6.24	5.58	4.99
Barium, ICP	mg/kg	40.3	279	11.9	188	95.6	228	145	9.10	10.0
Beryllium, ICP	mg/kg	<0.700	<1.00	<0.500	0.940	0.570	0.900U	0.500	<0.300	<0.600
Cadmium, ICP	mg/kg	29.6	98.6	<3.00	4.00	2.29U	5.10U	<1.10	<2.00	<4.00
Chromium, ICP	mg/kg	21.5	4340	6.50	18.8	10.7	6.80U	13.5	3.20	<5.40
Cobalt, ICP	mg/kg	4.20	41.0	2.00	16.7	8.34	3.40U	11.7	2.00	<2.70
Copper, ICP	mg/kg	47.0	5720	11.3	260	11.9	6.80	55.1J	6.30J	4.60J
Lead, GFAA	mg/kg	111	1360	5.30	309	19.8	5.86	55.8	4.53	9.35
Manganese, ICP	mg/kg	284	1580	215	117	254	283	518	284	284
Mercury,CVAA	mg/kg	0.039	0.093	<0.008	0.010U	0.021	0.011	0.078	<0.010	<0.010
Nickel, ICP	mg/kg	41.6	1360	5.63	45.3	11.7	3.90	26.0J	6.00J	3.60J
Selenium, GFAA	mg/kg	<0.173	<0.207	<0.170	0.448	0.322	0.170U	0.253	<0.684	<0.170
Silver, ICP	mg/kg	<5.60	<14.0	<3.90	3.55U	3.06U	6.80U	<1.50	<2.70	<5.40
Thallium, GFAA	mg/kg	0.498	<0.415	<0.328	0.754	0.404U	0.335U	<0.361	<0.342	<0.340
Vanadium, ICP	mg/kg	<7.10	175	5.03	8.22	19.8	8.50U	16.9	5.60	<6.70
Zinc, ICP	mg/kg	63.3	1200	24.6	467	36.0	19.0	214	16.7	14.1

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	GM-34 4/3/01 (0-2)	GM-34 4/3/01 (16-18)	GM-34 4/3/01 (26-28)	GM-35 4/4/01 (0-2)	GM-35 4/4/01 (8-10)	GM-35 4/4/01 (30-32)	GM-36 4/3/01 (0-2)	GM-36 4/3/01 (6-8)	GM-36 4/3/01 (28-30)	DUP-97
VOCs											
1,1,1-Trichloroethane	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
1,1,2,2-Tetrachloroethane	ug/kg	<5.70	<44.0	<5.10UJ	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
1,1,2-Trichloroethane	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
1,1-Dichloroethane	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
1,1-Dichloroethene	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
1,2-Dichloroethane	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
1,2-Dichloropropane	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
2-Butanone (MEK)	ug/kg	<113	<880UJ	<103	<104UJ	<118	<109	<104	<116	<105	<106
2-Hexanone	ug/kg	<56.7	<440	<51.3UJ	<52.0UJ	<58.8	<54.3	<52.1	<57.8	<52.7	<53.0
4-Methyl-2-pentanone (MIBK)	ug/kg	<56.7	<440	<51.3	<52.0UJ	<58.8	<54.3	<52.1	<57.8	<52.7	<53.0
Acetone	ug/kg	<113UJ	R	<103UJ	<104UJ	<118UJ	<109UJ	<104UJ	<116UJ	<105UJ	<106UJ
Benzene	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Bromodichloromethane	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Bromoform	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Bromomethane	ug/kg	<11.3	<88.0	<10.3	<10.4UJ	<11.8	<10.9	<10.4	<11.6	<10.5	<10.6
Carbon disulfide	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Carbon tetrachloride	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Chlorobenzene	ug/kg	<5.70	<44.0	<5.10UJ	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Chloroethane	ug/kg	<11.3	<88.0	<10.3	<10.4UJ	<11.8	<10.9	<10.4	<11.6	<10.5	<10.6
Chloroform	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Chloromethane	ug/kg	<11.3	<88.0	<10.3	<10.4UJ	<11.8	<10.9	<10.4	<11.6	<10.5	<10.6
Dibromochloromethane	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Ethylbenzene	ug/kg	<5.70	<44.0	<5.10UJ	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Methylene Chloride	ug/kg	<11.3	<220	<10.3	<10.4UJ	<11.8	<10.9	<10.4	<11.6	<10.5	<10.6
Styrene	ug/kg	<5.70	<44.0	<5.10UJ	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Tetrachloroethene	ug/kg	<5.70	84.8	69.3J	<5.20UJ	<5.90	23.0	<5.20	67.7	73.4	76.7
Toluene	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
Trichloroethene	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	8.50	<5.20	20.9	14.8	16.2
Vinyl Chloride	ug/kg	<2.30	<44.0	<2.10	<2.10UJ	<2.40	<2.20	<2.10	<2.30	<2.10	<2.10
Xylenes, Total	ug/kg	<5.70	<44.0	<5.10UJ	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
cis-1,2-Dichloroethene	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	55.4	<5.40	<5.20	14.6	<5.30	<5.30
cis-1,3-Dichloropropene	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30
trans-1,2-Dichloroethene	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	11.0	<5.40	<5.20	<5.80	<5.30	<5.30
trans-1,3-Dichloropropene	ug/kg	<5.70	<44.0	<5.10	<5.20UJ	<5.90	<5.40	<5.20	<5.80	<5.30	<5.30

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	GM-34 4/3/01 (0-2)	GM-34 4/3/01 (16-18)	GM-34 4/3/01 (26-28)	GM-35 4/4/01 (0-2)	GM-35 4/4/01 (8-10)	GM-35 4/4/01 (30-32)	GM-36 4/3/01 (0-2)	GM-36 4/3/01 (6-8)	GM-36 4/3/01 (28-30)	DUP-97
SVOCs											
1,2,4-Trichlorobenzene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
2,2'-oxybis(1-Chloropropane)	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
2,4,5-Trichlorophenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
2,4,6-Trichlorophenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
2,4-Dichlorophenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
2,4-Dimethylphenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
2,4-Dinitrophenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
2,4-Dinitrotoluene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
2,6-Dinitrotoluene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
2-Chloronaphthalene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
2-Chlorophenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
2-Methylnaphthalene	ug/kg	<374	<346	<339	<343	495	<359	<344	404	<348	<350
3,3'-Dichlorobenzidine	ug/kg	<748UJ	<691UJ	<678UJ	<686	<776UJ	<717	<688	<734UJ	<695	<700
4,6-Dinitro-2-methylphenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
4-Bromophenyl phenyl ether	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
4-Chloro-3-methylphenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
4-Chlorophenyl phenyl ether	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Acenaphthene	ug/kg	<374	<346	<339	<343	1530	<359	<344	434	<348	<350
Acenaphthylene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Anthracene	ug/kg	441	<346	<339	<343	5550J	<359	<344	834	<348	<350
Benzo(a)anthracene	ug/kg	1940J	<346UJ	<339UJ	<343	11100J	<359	<344	2380J	<348	<350
Benzo(a)pyrene	ug/kg	1430J	<173UJ	<169UJ	<172	8930J	<179	<172	3840J	<174	<175
Benzo(b)fluoranthene	ug/kg	3300J	<346UJ	<339UJ	<343	17200J	<359	<344	5090J	<348	<350
Benzo(ghi)perylene	ug/kg	449J	<346UJ	<339UJ	<343	1690J	<359	<344	1360J	<348	<350
Benzo(k)fluoranthene	ug/kg	<374UJ	<346UJ	<339UJ	<343	5390J	<359	<344	1060J	<348	<350
Bis(2-chloroethoxy)methane	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Bis(2-chloroethyl)ether	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Bis(2-ethylhexyl)phthalate	ug/kg	<374UJ	<346UJ	<339UJ	<343	<388UJ	<359	<344	<367UJ	<348	<350
Butyl benzyl phthalate	ug/kg	<374UJ	<346UJ	<339UJ	<343	<388UJ	<359	<344	<367UJ	<348	<350
Carbazole	ug/kg	<374	<346	<339	<343	1910	<359	<344	527	<348	<350
Chrysene	ug/kg	1470J	<346UJ	<339UJ	<343	11300J	<359	<344	<367UJ	<348	<350
Di-n-butyl phthalate	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Di-n-octyl phthalate	ug/kg	<374UJ	<346UJ	<339UJ	<343	<388UJ	<359	<344	<367UJ	<348	<350
Dibenzo(a,h)anthracene	ug/kg	<187UJ	<173UJ	<169UJ	<172	840J	<179	<172	341J	<174	<175
Dibenzofuran	ug/kg	<374	<346	<339	<343	1310	<359	<344	437	<348	<350
Diethyl phthalate	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Dimethyl phthalate	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	GM-34 4/3/01 (0-2)	GM-34 4/3/01 (16-18)	GM-34 4/3/01 (26-28)	GM-35 4/4/01 (0-2)	GM-35 4/4/01 (8-10)	GM-35 4/4/01 (30-32)	GM-36 4/3/01 (0-2)	GM-36 4/3/01 (6-8)	GM-36 4/3/01 (28-30)	DUP-97
SVOCs (continued)											
Fluoranthene	ug/kg	3270	<346	<339	<343	21500J	<359	<344	5840J	<348	<350
Fluorene	ug/kg	<374	<346	<339	<343	2090	<359	<344	389	<348	<350
Hexachlorobenzene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Hexachlorobutadiene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Hexachlorocyclopentadiene	ug/kg	<748	<691	<678	<686	<776	<717	<688	<734	<695	<700
Hexachloroethane	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Indeno(1,2,3-cd)pyrene	ug/kg	467J	<346UJ	<339UJ	<343	1850J	<359	<344	1200J	<348	<350
Isophorone	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
N-Nitrosodiphenylamine	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
N-Nitrosodipropylamine	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Naphthalene	ug/kg	<374	<346	<339	<343	1050	<359	<344	1090	<348	<350
Nitrobenzene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
Pentachlorophenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
Phenanthrene	ug/kg	2340	<346	<339	<343	22800J	<359	<344	4360J	<348	<350
Phenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
Pyrene	ug/kg	3880J	<346UJ	<339UJ	<343	20700J	<359	<344	6210J	<348	<350
m-Dichlorobenzene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
m-Nitroaniline	ug/kg	<561	<518	<508	<515	<582	<538	<516	<551	<522	<525
meta & para-Methylphenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
o-Dichlorobenzene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
o-Nitroaniline	ug/kg	<561	<518	<508	<515	<582	<538	<516	<551	<522	<525
o-Nitrophenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
ortho-Methylphenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
p-Chloroaniline	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
p-Dichlorobenzene	ug/kg	<374	<346	<339	<343	<388	<359	<344	<367	<348	<350
p-Nitroaniline	ug/kg	<561	<518	<508	<515	<582	<538	<516	<551	<522	<525
p-Nitrophenol	ug/kg	<374	<346	<339	<343	<388	<359	<344UJ	<367	<348	<350
PCBs											
Aroclor 1016	mg/kg	<0.570	<0.520	<0.510	<0.520	<2.90UJ	<0.540	<0.520	<0.560	<0.530	<0.530
Aroclor 1221	mg/kg	<0.570	<0.520	<0.510	<0.520	<2.90UJ	<0.540	<0.520	<0.560	<0.530	<0.530
Aroclor 1232	mg/kg	<0.570	<0.520	<0.510	<0.520	<2.90UJ	<0.540	<0.520	<0.560	<0.530	<0.530
Aroclor 1242	mg/kg	<0.570	<0.520	<0.510	<0.520	<2.90UJ	<0.540	<0.520	<0.560	<0.530	<0.530
Aroclor 1248	mg/kg	<0.570	<0.520	<0.510	<0.520	<2.90UJ	<0.540	<0.520	<0.560	<0.530	<0.530
Aroclor 1254	mg/kg	<0.570	<0.520	<0.510	<0.520	4.60J	<0.540	<0.520	<0.560	<0.530	<0.530
Aroclor 1260	mg/kg	<0.570	<0.520	<0.510	<0.520	<2.90UJ	<0.540	<0.520	<0.560	<0.530	<0.530

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	GM-34 4/3/01 (0-2)	GM-34 4/3/01 (16-18)	GM-34 4/3/01 (26-28)	GM-35 4/4/01 (0-2)	GM-35 4/4/01 (8-10)	GM-35 4/4/01 (30-32)	GM-36 4/3/01 (0-2)	GM-36 4/3/01 (6-8)	GM-36 4/3/01 (28-30)	DUP-97
Metals											
Antimony, ICP	mg/kg	<7.50	<6.90	<13.0	<17.0	16.1	<17.0	<14.0	27.7	<14.0	<7.00
Arsenic, GFAA	mg/kg	5.10	4.19	4.28	5.73	7.54	4.93	2.38	3.73	4.69	5.68
Barium, ICP	mg/kg	84.7	8.00	13.8	4.30	966	18.7	4.80	596	11.0	15.3
Beryllium, ICP	mg/kg	0.500	<0.300	<0.700	<0.800	<38.6	<0.900	<0.700	<33.0	<0.700	<0.300
Cadmium, ICP	mg/kg	<2.30	<2.10	<4.00	<5.10	<2.40	<5.30	<4.10	<2.10	<4.20	<2.10
Chromium, ICP	mg/kg	9.20	3.70	<5.30	<6.80	66.9	<7.20	<5.50	45.4	<5.60	6.20
Cobalt, ICP	mg/kg	8.50	1.90	<2.70	<3.40	248	<3.60	<2.70	86.9	<2.80	2.00
Copper, ICP	mg/kg	12.0	7.40	5.00	<3.40	1410	12.0	<2.70	210	5.50	6.90
Lead, GFAA	mg/kg	22.7	3.47	4.29	4.46	488	6.99	2.08	150	4.32	4.33
Manganese, ICP	mg/kg	876	182	195	126	553	228	116	187	216	186
Mercury,CVAA	mg/kg	0.034	<0.010	0.015	0.011	2.58	<0.010	<0.010	0.301	<0.008	0.011
Nickel, ICP	mg/kg	11.0	5.30	5.00	<1.70	368	8.00	<1.40	119	6.70	5.00
Selenium, GFAA	mg/kg	0.338	<0.338	<0.332	<0.339	<0.193	<0.352	<0.344	<0.044	<0.335	<0.349
Silver, ICP	mg/kg	<2.90	<2.70	<5.30	<6.80	31.9	<7.20	<5.50	82.6	<5.60	<2.80
Thallium, GFAA	mg/kg	<0.359	<0.338	<0.332	<0.339	<0.385	<0.352	<0.344	<0.358	<0.335	<0.349
Vanadium, ICP	mg/kg	18.3	6.80	<6.80	<8.50	13.1	<8.90	<6.90	10.0	<7.00UJ	5.60J
Zinc, ICP	mg/kg	47.1	18.4	17.9	<8.50	4810	39.8	<6.90	7760	15.9	33.1

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Compound	Units	GM-37 4/9/01 (0-2)	GM-37 4/9/01 (4-6)	GM-37 4/9/01 (24-26)	GM-38 4/10/01 (0-2)	GM-38 4/10/01 (8-10)	GM-38 4/10/01 (26-28)
VOCs							
1,1,1-Trichloroethane	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20
1,1,2,2-Tetrachloroethane	ug/kg	17.3J	<6.20	<6.40	<5.20UJ	<5.80	<5.20
1,1,2-Trichloroethane	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20
1,1-Dichloroethane	ug/kg	6.70J	<6.20	<6.40	<5.20	<5.80	<5.20
1,1-Dichloroethene	ug/kg	<5.80	<6.20	<6.40	<5.20	<5.80	<5.20
1,2-Dichloroethane	ug/kg	<5.80	<6.20	<6.40	<5.20	<5.80	<5.20
1,2-Dichloropropane	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20
2-Butanone (MEK)	ug/kg	R	R	R	R	<116UJ	<104UJ
2-Hexanone	ug/kg	<57.9UJ	<61.6	<64.2	<51.5UJ	<58.1	<52.2
4-Methyl-2-pentanone (MIBK)	ug/kg	<57.9UJ	<61.6	<64.2	<51.5	<58.1	<52.2
Acetone	ug/kg	<116UJ	<123UJ	<128UJ	<103UJ	<116UJ	<104UJ
Benzene	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20
Bromodichloromethane	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20
Bromoform	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20
Bromomethane	ug/kg	<11.6	<12.3	<12.8	<10.3	<11.6	<10.4
Carbon disulfide	ug/kg	<5.80	<6.20	<6.40	<5.20	<5.80	<5.20
Carbon tetrachloride	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20
Chlorobenzene	ug/kg	<5.80	<6.20	<6.40	<5.20UJ	<5.80	<5.20
Chloroethane	ug/kg	<11.6	<12.3	<12.8	<10.3	<11.6	<10.4
Chloroform	ug/kg	<5.80	<6.20	<6.40	<5.20	<5.80	<5.20
Chloromethane	ug/kg	<11.6	<12.3	<12.8	<10.3	<11.6	<10.4
Dibromochloromethane	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20
Ethylbenzene	ug/kg	7.40J	<6.20	<6.40	<5.20UJ	<5.80	<5.20
Methylene Chloride	ug/kg	<11.6UJ	<12.3UJ	<12.8UJ	<10.3UJ	<11.6	<10.4
Styrene	ug/kg	<5.80UJ	<6.20	<6.40	<5.20UJ	<5.80	<5.20
Tetrachloroethene	ug/kg	6.40J	<6.20	13.1	<5.20UJ	<5.80	19.1
Toluene	ug/kg	7.40J	<6.20	7.90	<5.20	<5.80	<5.20
Trichloroethene	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20
Vinyl Chloride	ug/kg	<2.30	<2.50	<2.50	<2.10	<2.30	<2.10
Xylenes, Total	ug/kg	34.1J	<6.20	9.60	<5.20UJ	<5.80	<5.20
cis-1,2-Dichloroethene	ug/kg	<5.80	<6.20	<6.40	<5.20	<5.80	<5.20
cis-1,3-Dichloropropene	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20
trans-1,2-Dichloroethene	ug/kg	<5.80	<6.20	<6.40	<5.20	<5.80	<5.20
trans-1,3-Dichloropropene	ug/kg	<5.80UJ	<6.20	<6.40	<5.20	<5.80	<5.20

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Compound	Units	GM-37 4/9/01 (0-2)	GM-37 4/9/01 (4-6)	GM-37 4/9/01 (24-26)	GM-38 4/10/01 (0-2)	GM-38 4/10/01 (8-10)	GM-38 4/10/01 (26-28)
SVOCs							
1,2,4-Trichlorobenzene	ug/kg	<382	<406	<335	<680	<383	<345
2,2'-oxybis(1-Chloropropane)	ug/kg	<382	<406	<335	<680	<383	<345
2,4,5-Trichlorophenol	ug/kg	<382UJ	<406	<335	<680	<383	<345
2,4,6-Trichlorophenol	ug/kg	<382UJ	<406	<335	<680	<383	<345
2,4-Dichlorophenol	ug/kg	<382	<406	<335	<680	<383	<345
2,4-Dimethylphenol	ug/kg	<382	<406	<335	<680	<383	<345
2,4-Dinitrophenol	ug/kg	<382UJ	<406	<335	<680	<383	<345
2,4-Dinitrotoluene	ug/kg	<382UJ	<406	<335	<680	<383	<345
2,6-Dinitrotoluene	ug/kg	<382UJ	<406	<335	<680	<383	<345
2-Chloronaphthalene	ug/kg	<382UJ	<406	<335	<680	<383	<345
2-Chlorophenol	ug/kg	<382	<406	<335	<680	<383	<345
2-Methylnaphthalene	ug/kg	<382	<406	<335	<680	<383	<345
3,3'-Dichlorobenzidine	ug/kg	<7650UJ	<813	<671	<13400UJ	<767UJ	<690
4,6-Dinitro-2-methylphenol	ug/kg	<382UJ	<406	<335	<680UJ	<383UJ	<345
4-Bromophenyl phenyl ether	ug/kg	<382UJ	<406	<335	<680UJ	<383UJ	<345
4-Chloro-3-methylphenol	ug/kg	<382	<406	<335	<680	<383	<345
4-Chlorophenyl phenyl ether	ug/kg	<382UJ	<406	<335	<680	<383	<345
Acenaphthene	ug/kg	<382UJ	<406	<335	<680	<383	<345
Acenaphthylene	ug/kg	<382UJ	<406	<335	<680	<383	<345
Anthracene	ug/kg	<382UJ	<406	<335	<680UJ	<383UJ	<345
Benzo(a)anthracene	ug/kg	465J	<406	<335	<6800UJ	<383UJ	<345
Benzo(a)pyrene	ug/kg	525J	<203	<168	<3400UJ	<192UJ	<172
Benzo(b)fluoranthene	ug/kg	1040J	<406	<335	<6800UJ	<383UJ	<345
Benzo(ghi)perylene	ug/kg	<3820UJ	<406	<335	<6800UJ	<383UJ	<345
Benzo(k)fluoranthene	ug/kg	<3820UJ	<406	<335	<6800UJ	<383UJ	<345
Bis(2-chloroethoxy)methane	ug/kg	<382	<406	<335	<680	<383	<345
Bis(2-chloroethyl)ether	ug/kg	<382	<406	<335	<680	<383	<345
Bis(2-ethylhexyl)phthalate	ug/kg	<3820UJ	<406	<335	1680J	<383UJ	<345
Butyl benzyl phthalate	ug/kg	<3820UJ	<406	<335	<6800UJ	<383UJ	<345
Carbazole	ug/kg	<382UJ	<406	<335	<680UJ	<383UJ	<345
Chrysene	ug/kg	760J	<406	<335	<6800UJ	<383UJ	<345
Di-n-butyl phthalate	ug/kg	<382UJ	<406	<335	<680UJ	<383UJ	<345
Di-n-octyl phthalate	ug/kg	<3820UJ	<406	<335	748J	<383UJ	<345
Dibenzo(a,h)anthracene	ug/kg	<1850UJ	<203	<168	<3400UJ	<192UJ	<172
Dibenzofuran	ug/kg	<382UJ	<406	<335	<680	<383	<345
Diethyl phthalate	ug/kg	<382UJ	<406	<335	<680	<383	<345
Dimethyl phthalate	ug/kg	<382UJ	<406	<335	<680	<383	<345

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	GM-37 4/9/01 (0-2)	GM-37 4/9/01 (4-6)	GM-37 4/9/01 (24-26)	GM-38 4/10/01 (0-2)	GM-38 4/10/01 (8-10)	GM-38 4/10/01 (26-28)
SVOCs (continued)							
Fluoranthene	ug/kg	454J	<406	<335	<680UJ	<383UJ	<345
Fluorene	ug/kg	<382UJ	<406	<335	<680	<383	<345
Hexachlorobenzene	ug/kg	<382UJ	<406	<335	<680UJ	<383UJ	<345
Hexachlorobutadiene	ug/kg	<382	<406	<335	<680	<383	<345
Hexachlorocyclopentadiene	ug/kg	<765UJ	<813	<671	<1340	<767	<690
Hexachloroethane	ug/kg	<382	<406	<335	<680	<383	<345
Indeno(1,2,3-cd)pyrene	ug/kg	<3820UJ	<406	<335	<6800UJ	<383UJ	<345
Isophorone	ug/kg	<382	<406	<335	<680	<383	<345
N-Nitrosodiphenylamine	ug/kg	<382UJ	<406	<335	<680	<383	<345
N-Nitrosodipropylamine	ug/kg	<382	<406	<335	<680	<383	<345
Naphthalene	ug/kg	<382	<406	<335	<680	<383	<345
Nitrobenzene	ug/kg	<382	<406	<335	<680	<383	<345
Pentachlorophenol	ug/kg	<382UJ	<406	<335	<680UJ	<383UJ	<345
Phenanthrene	ug/kg	<382UJ	<406	<335	<680UJ	<383UJ	<345
Phenol	ug/kg	<382	<406	<335	<680	<383	<345
Pyrene	ug/kg	>3300J	<406	<335	2120J	<383UJ	<345
m-Dichlorobenzene	ug/kg	<382	<406	<335	<680	<383	<345
m-Nitroaniline	ug/kg	<574UJ	<610	<503	<1020	<575	<517
meta & para-Methylphenol	ug/kg	<382	<406	<335	<680	<383	<345
o-Dichlorobenzene	ug/kg	<382	<406	<335	<680	<383	<345
o-Nitroaniline	ug/kg	<574UJ	<610	<503	<1020	<575	<517
o-Nitrophenol	ug/kg	<382	<406	<335	<680	<383	<345
ortho-Methylphenol	ug/kg	<382	<406	<335	<680	<383	<345
p-Chloroaniline	ug/kg	<382	<406	<335	<680	<383	<345
p-Dichlorobenzene	ug/kg	<382	<406	<335	<680	<383	<345
p-Nitroaniline	ug/kg	<574UJ	<610	<503	<1020	<575	<517
p-Nitrophenol	ug/kg	<382UJ	<406	<335	<680	<383	<345
PCBs							
Aroclor 1016	mg/kg	<0.580	<0.620	<0.510	<0.520	<0.580	<0.520
Aroclor 1221	mg/kg	<0.580	<0.620	<0.510	<0.520	<0.580	<0.520
Aroclor 1232	mg/kg	<0.580	<0.620	<0.510	<0.520	<0.580	<0.520
Aroclor 1242	mg/kg	<0.580	<0.620	<0.510	<0.520	<0.580	<0.520
Aroclor 1248	mg/kg	<0.580	<0.620	<0.510	<0.520	<0.580	<0.520
Aroclor 1254	mg/kg	<0.580	<0.620	<0.510	<0.520	<0.580	<0.520
Aroclor 1260	mg/kg	<0.580	<0.620	<0.510	<0.520	<0.580	<0.520

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

Compound	Units	GM-37 4/9/01 (0-2)	(4-6)	(24-26)	GM-38 4/10/01 (0-2)	(8-10)	(26-28)
Metals							
Antimony, ICP	mg/kg	35.0	62.0	<13.0	<6.80	33.0	<6.90
Arsenic, GFAA	mg/kg	10.8	13.1	1.99	3.49J	11.0J	1.30J
Barium, ICP	mg/kg	613	1070	11.0	36.8J	520J	20.9J
Beryllium, ICP	mg/kg	<0.900	<2.00	<0.700	<0.300	<0.800	<0.300
Cadmium, ICP	mg/kg	14.0	<12.0	<4.10	<2.10	9.30	<2.10
Chromium, ICP	mg/kg	1160	2000	<5.40	13.4J	557J	8.30J
Cobalt, ICP	mg/kg	28.4	53.3	<2.70	3.00	38.4	6.40
Copper, ICP	mg/kg	3200	2040	7.70	39.7J	5260J	28.3J
Lead, GFAA	mg/kg	929	1490	5.05	40.9	538	14.2
Manganese, ICP	mg/kg	920	1600	157	290	1240	177
Mercury,CVAA	mg/kg	0.433J	0.034J	0.026J	0.027J	0.034J	<0.010
Nickel, ICP	mg/kg	1020	3350	4.20	14.8J	1630J	10.0J
Selenium, GFAA	mg/kg	0.423	0.608	<0.663	<0.660UJ	0.374J	<0.692UJ
Silver, ICP	mg/kg	24.4	<16.0	<5.40	<2.70	8.90	<2.80
Thallium, GFAA	mg/kg	<0.378	<0.398	<0.331	<0.330	<0.377	<0.346
Vanadium, ICP	mg/kg	18.9	<20.0	<6.80	6.10	15.0	12.3
Zinc, ICP	mg/kg	950	20600	22.9	54.5J	1460J	29.4J

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	RB-74 04/04/01	RB-75 04/10/01	RB-76 04/12/01	RB-77 04/17/01	RB-78 04/18/01	RB-80 04/20/01	TB-112 04/02/01	TB-113 04/03/01	TB-114 04/03/01	TB-115 04/04/01
VOCs											
1,1,1-Trichloroethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,2,2-Tetrachloroethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,2-Trichloroethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloroethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloropropane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
2-Butanone (MEK)	ug/L	<12.5UJ	R	R	R	R	R	R	R	R	<12.5UJ
2-Hexanone	ug/L	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5
4-Methyl-2-pentanone (MIBK)	ug/L	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5
Acetone	ug/L	<20.0	R	<20.0	<20.0	<20.0	<20.0UJ	<20.0	<20.0	<20.0	<20.0
Benzene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromodichloromethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromoform	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromomethane	ug/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Carbon disulfide	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Carbon tetrachloride	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chlorobenzene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloroethane	ug/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Chloroform	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloromethane	ug/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Dibromochloromethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ethylbenzene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Methylene Chloride	ug/L	<5.00	<10.0	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Styrene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Toluene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Trichloroethene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl Chloride	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Xylenes, Total	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
cis-1,2-Dichloroethene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
cis-1,3-Dichloropropene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,3-Dichloropropene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	RB-74 04/04/01	RB-75 04/10/01	RB-76 04/12/01	RB-77 04/17/01	RB-78 04/18/01	RB-80 04/20/01	TB-112 04/02/01	TB-113 04/03/01	TB-114 04/03/01	TB-115 04/04/01
SVOCs											
1,2,4-Trichlorobenzene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2,2'-oxybis(1-Chloropropane)	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2,4,5-Trichlorophenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2,4,6-Trichlorophenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2,4-Dichlorophenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2,4-Dimethylphenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2,4-Dinitrophenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2,4-Dinitrotoluene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2,6-Dinitrotoluene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2-Chloronaphthalene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2-Chlorophenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
2-Methylnaphthalene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
3,3'-Dichlorobenzidine	ug/L	<50.0UJ	<50.0	<50.0	<50.0	<50.0UJ	<50.0	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
4-Bromophenyl phenyl ether	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
4-Chloro-3-methylphenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
4-Chlorophenyl phenyl ether	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Acenaphthene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Acenaphthylene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Anthracene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Benzo(a)anthracene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Benzo(a)pyrene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Benzo(b)fluoranthene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Benzo(ghi)perylene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Benzo(k)fluoranthene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Bis(2-chloroethoxy)methane	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Bis(2-chloroethyl)ether	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Bis(2-ethylhexyl)phthalate	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Butyl benzyl phthalate	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Carbazole	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Chrysene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Di-n-butyl phthalate	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Di-n-octyl phthalate	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Dibenzo(a,h)anthracene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Dibenzofuran	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Diethyl phthalate	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Dimethyl phthalate	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	RB-74 04/04/01	RB-75 04/10/01	RB-76 04/12/01	RB-77 04/17/01	RB-78 04/18/01	RB-80 04/20/01	TB-112 04/02/01	TB-113 04/03/01	TB-114 04/03/01	TB-115 04/04/01
SVOCs (continued)											
Fluoranthene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Fluorene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Hexachlorobenzene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Hexachlorobutadiene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Hexachlorocyclopentadiene	ug/L	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	--	--	--	--
Hexachloroethane	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Isophorone	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
N-Nitrosodiphenylamine	ug/L	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	--	--	--	--
N-Nitrosodipropylamine	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Naphthalene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Nitrobenzene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Pentachlorophenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Phenanthrene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Phenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
Pyrene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
m-Dichlorobenzene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
m-Nitroaniline	ug/L	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	--	--	--	--
meta & para-Methylphenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
o-Dichlorobenzene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
o-Nitroaniline	ug/L	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	--	--	--	--
o-Nitrophenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
ortho-Methylphenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
p-Chloroaniline	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
p-Dichlorobenzene	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
p-Nitroaniline	ug/L	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	--	--	--	--
p-Nitrophenol	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--	--
PCBs											
Aroclor 1016	ug/L	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	--	--	--	--
Aroclor 1221	ug/L	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	--	--	--	--
Aroclor 1232	ug/L	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	--	--	--	--
Aroclor 1242	ug/L	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	--	--	--	--
Aroclor 1248	ug/L	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	--	--	--	--
Aroclor 1254	ug/L	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	--	--	--	--
Aroclor 1260	ug/L	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	--	--	--	--

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	RB-74 04/04/01	RB-75 04/10/01	RB-76 04/12/01	RB-77 04/17/01	RB-78 04/18/01	RB-80 04/20/01	TB-112 04/02/01	TB-113 04/03/01	TB-114 04/03/01	TB-115 04/04/01
Metals											
Antimony, ICP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--
Arsenic, GFAA	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--
Barium, ICP	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--
Beryllium, ICP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--
Cadmium, ICP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--
Chromium, ICP	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	--	--	--
Cobalt, ICP	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--
Copper, ICP	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--
Lead, GFAA	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--
Manganese, ICP	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	--	--	--	--
Mercury,CVAA	mg/L	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	--	--	--	--
Nickel, ICP	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--
Selenium, GFAA	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--
Silver, ICP	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	--	--	--	--
Thallium, GFAA	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	--	--	--	--
Vanadium, ICP	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	--	--	--
Zinc, ICP	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	--	--	--	--

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	TB-116 04/09/01	TB-117 04/10/01	TB-119 04/11/01	TB-121 04/12/01	TB-122 04/12/01	TB-124 04/16/01	TB-125 04/17/01	TB-128 04/19/01	TB-129 04/20/01
VOCs										
1,1,1-Trichloroethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,2,2-Tetrachloroethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,2-Trichloroethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloroethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloropropane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
2-Butanone (MEK)	ug/L	<12.5UJ	R	R	R	R	R	R	R	R
2-Hexanone	ug/L	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5
4-Methyl-2-pentanone (MIBK)	ug/L	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5
Acetone	ug/L	R	R	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0UJ
Benzene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromodichloromethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromoform	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromomethane	ug/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Carbon disulfide	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Carbon tetrachloride	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chlorobenzene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloroethane	ug/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Chloroform	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloromethane	ug/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Dibromochloromethane	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Ethylbenzene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Methylene Chloride	ug/L	<5.00	<10.0	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Styrene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Toluene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Trichloroethene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl Chloride	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Xylenes, Total	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
cis-1,2-Dichloroethene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
cis-1,3-Dichloropropene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,3-Dichloropropene	ug/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	TB-116 04/09/01	TB-117 04/10/01	TB-119 04/11/01	TB-121 04/12/01	TB-122 04/12/01	TB-124 04/16/01	TB-125 04/17/01	TB-128 04/19/01	TB-129 04/20/01
SVOCs										
1,2,4-Trichlorobenzene	ug/L	--	--	--	--	--	--	--	--	--
2,2'-oxybis(1-Chloropropane)	ug/L	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/L	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/L	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	ug/L	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/L	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/L	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/L	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/L	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/L	--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/L	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/L	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/L	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/L	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/L	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/L	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	ug/L	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/L	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/L	--	--	--	--	--	--	--	--	--
Anthracene	ug/L	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	ug/L	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/L	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/L	--	--	--	--	--	--	--	--	--
Benzo(ghi)perylene	ug/L	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/L	--	--	--	--	--	--	--	--	--
Bis(2-chloroethoxy)methane	ug/L	--	--	--	--	--	--	--	--	--
Bis(2-chloroethyl)ether	ug/L	--	--	--	--	--	--	--	--	--
Bis(2-ethylhexyl)phthalate	ug/L	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/L	--	--	--	--	--	--	--	--	--
Carbazole	ug/L	--	--	--	--	--	--	--	--	--
Chrysene	ug/L	--	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	ug/L	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	ug/L	--	--	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	ug/L	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/L	--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/L	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/L	--	--	--	--	--	--	--	--	--

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

Compound	Units	TB-116 04/09/01	TB-117 04/10/01	TB-119 04/11/01	TB-121 04/12/01	TB-122 04/12/01	TB-124 04/16/01	TB-125 04/17/01	TB-128 04/19/01	TB-129 04/20/01
SVOCs (continued)										
Fluoranthene	ug/L	--	--	--	--	--	--	--	--	--
Fluorene	ug/L	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	ug/L	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/L	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/L	--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/L	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/L	--	--	--	--	--	--	--	--	--
Isophorone	ug/L	--	--	--	--	--	--	--		--
N-Nitrosodiphenylamine	ug/L	--	--	--	--	--	--	--	--	--
N-Nitrosodipropylamine	ug/L	--	--	--	--	--	--	--	--	--
Naphthalene	ug/L	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/L	--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/L	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/L	--	--	--	--	--	--	--	--	--
Phenol	ug/L	--	--	--	--	--	--	--	--	--
Pyrene	ug/L	--	--	--	--	--	--	--	--	--
m-Dichlorobenzene	ug/L	--	--	--	--	--	--	--	--	--
m-Nitroaniline	ug/L	--	--	--	--	--	--	--	--	--
meta & para-Methylphenol	ug/L	--	--	--	--	--	--	--	--	--
o-Dichlorobenzene	ug/L	--	--	--	--	--	--	--	--	--
o-Nitroaniline	ug/L	--	--	--	--	--	--	--	--	--
o-Nitrophenol	ug/L	--	--	--	--	--	--	--	--	--
ortho-Methylphenol	ug/L	--	--	--	--	--	--	--	--	--
p-Chloroaniline	ug/L	--	--	--	--	--	--	--	--	--
p-Dichlorobenzene	ug/L	--	--	--	--	--	--	--	--	--
p-Nitroaniline	ug/L	--	--	--	--	--	--	--	--	--
p-Nitrophenol	ug/L	--	--	--	--	--	--	--	--	--
PCBs										
Aroclor 1016	ug/L	--	--	--	--	--	--	--	--	--
Aroclor 1221	ug/L	--	--	--	--	--	--	--	--	--
Aroclor 1232	ug/L	--	--	--	--	--	--	--	--	--
Aroclor 1242	ug/L	--	--	--	--	--	--	--	--	--
Aroclor 1248	ug/L	--	--	--	--	--	--	--	--	--
Aroclor 1254	ug/L	--	--	--	--	--	--	--	--	--
Aroclor 1260	ug/L	--	--	--	--	--	--	--	--	--

Table A-2. VOCs, SVOCs, PCBs, and Metal Analytical Results for Soil, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

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Compound	Units	TB-116 04/09/01	TB-117 04/10/01	TB-119 04/11/01	TB-121 04/12/01	TB-122 04/12/01	TB-124 04/16/01	TB-125 04/17/01	TB-128 04/19/01	TB-129 04/20/01
Metals										
Antimony, ICP	mg/L	--	--	--	--	--	--	--	--	--
Arsenic, GFAA	mg/L	--	--	--	--	--	--	--	--	--
Barium, ICP	mg/L	--	--	--	--	--	--	--	--	--
Beryllium, ICP	mg/L	--	--	--	--	--	--	--	--	--
Cadmium, ICP	mg/L	--	--	--	--	--	--	--	--	--
Chromium, ICP	mg/L	--	--	--	--	--	--	--	--	--
Cobalt, ICP	mg/L	--	--	--	--	--	--	--	--	--
Copper, ICP	mg/L	--	--	--	--	--	--	--	--	--
Lead, GFAA	mg/L	--	--	--	--	--	--	--	--	--
Manganese, ICP	mg/L	--	--	--	--	--	--	--	--	--
Mercury,CVAA	mg/L	--	--	--	--	--	--	--	--	--
Nickel, ICP	mg/L	--	--	--	--	--	--	--	--	--
Selenium, GFAA	mg/L	--	--	--	--	--	--	--	--	--
Silver, ICP	mg/L	--	--	--	--	--	--	--	--	--
Thallium, GFAA	mg/L	--	--	--	--	--	--	--	--	--
Vanadium, ICP	mg/L	--	--	--	--	--	--	--	--	--
Zinc, ICP	mg/L	--	--	--	--	--	--	--	--	--

TB - Trip Blank.
VOC - Volatile organic compound.
SVOC - Semi-volatile organic compound.
PCBs - Polychlorinated biphenyls.
BH - Borehole.
WPSA - Waste Pile Staging Area.
RB - Rinseate Blank.
DUP-97 - Duplicate of GM-36/28-30
DUP-98 - Duplicate of WPSA-BH17/0-2
DUP-99 - Duplicate of WPSA-BH15/2-4
DUP-100 - Duplicate of WPSA-BH09/2-4
DUP-101 - Duplicate of WPSA-BH12/26-28
DUP-103 - Duplicate of WPSA-BH15/26-28
UJ - Constitutent was not detected above the reporting limit. Reporing limit is estimated.
< - Constituent not detected above report limit shown.

ug/kg - Micrograms per kilogram.
mg/kg - Milligrams per kilogram.
ug/L - Micrograms per liter.
mg/L - Milligrams per liter.
J - Value is estimated.
-- - Not analyzed.
R - Value is rejected.

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH21 8/8/2002 (8-10)	WPSA-BH21 8/8/2002 (10-12)	WPSA-BH22 8/8/2002 (0-2)	WPSA-BH22 8/8/2002 (2-4)	WPSA-BH23 3/20/2003 (0-2)	WPSA-BH23 3/20/2003 DUP-125	WPSA-BH23 3/20/2003 (2-4)	WPSA-BH24 11/1/2002 (0-2)	WPSA-BH24 11/1/2002 DUP-124	WPSA-BH24 11/1/2002 (2-3)
VOCs											
1,1,1-Trichloroethane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 UJ	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
1,1,2-Trichloroethane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
1,1-Dichloroethane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
1,1-Dichloroethene	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	0.52 J
1,2,4-Trichlorobenzene	ug/kg	--	--	--	--	< 9.5 UJ	< 7.7 UJ	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	--	--	--	--	< 19 UJ	< 15 UJ	< 10 U	< 10 UJ	< 10 UJ	< 9.8 UJ
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
1,2-Dichlorobenzene	ug/kg	--	--	--	--	< 9.5 UJ	< 7.7 UJ	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
1,2-Dichloroethane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
1,2-Dichloropropane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
1,3-Dichlorobenzene	ug/kg	--	--	--	--	< 9.5 UJ	< 7.7 UJ	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
1,4-Dichlorobenzene	ug/kg	--	--	--	--	< 9.5 UJ	< 7.7 U	< 5.1 U	2.6 J	< 5.1 UJ	1.3 J
2-Butanone	ug/kg	--	--	--	--	< 38 U	< 31 U	< 21 U	20 J	14 J	16 J
2-Hexanone	ug/kg	--	--	--	--	< 38 U	< 31 U	< 21 U	3.1 J	< 21 UJ	< 20 UJ
4-Methyl-2-pentanone	ug/kg	--	--	--	--	< 38 U	< 31 U	< 21 U	< 20 UJ	< 21 UJ	< 20 UJ
Acetone	ug/kg	--	--	--	--	< 38 U	< 31 U	< 21 U	82 J	59 J	90 J
Benzene	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	0.64 J	< 5.1 UJ	0.49 J
Benzene, isopropyl	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Bromodichloromethane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Bromoform	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Bromomethane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	R	R	R
Carbon disulfide	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	1 J
Carbon tetrachloride	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Chlorobenzene	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Chloroethane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Chloroform (Trichloromethane)	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Chloromethane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
cis-1,2-Dichloroethene	ug/kg	--	--	--	--	< 4.8 U	< 3.8 U	< 2.6 U	< 2.6 UJ	< 2.6 UJ	< 2.5 UJ
cis-1,3-Dichloropropene	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Cyclohexane	ug/kg	--	--	--	--	< 19 U	< 15 U	< 10 U	1.7 J	< 10 UJ	1.1 J
Dibromochloromethane	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Dichlorodifluoromethane (CFC-12)	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Ethylbenzene	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Methyl acetate	ug/kg	--	--	--	--	< 19 U	< 15 U	< 10 U	24 J	7.4 J	20 J
Methyl cyclohexane	ug/kg	--	--	--	--	1.1 J	1.0 J	< 10 U	2.1 J	0.51 J	1.8 J

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH21 8/8/2002 (8-10)	WPSA-BH21 8/8/2002 (10-12)	WPSA-BH22 8/8/2002 (0-2)	WPSA-BH22 8/8/2002 (2-4)	WPSA-BH23 3/20/2003 (0-2)	WPSA-BH23 3/20/2003 DUP-125	WPSA-BH23 3/20/2003 (2-4)	WPSA-BH24 11/1/2002 (0-2)	WPSA-BH24 11/1/2002 DUP-124	WPSA-BH24 11/1/2002 (2-3)
VOCs (continued)											
Methyl Tert Butyl Ether	ug/kg	--	--	--	--	< 38 U	< 31 U	< 21 U	< 20 UJ	< 21 UJ	< 20 UJ
Methylene chloride	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 2.5 UJ	< 2 UJ	< 2.8 UJ
Styrene	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Tetrachloroethene	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	1.3 J	< 5.1 UJ	0.86 J
Toluene	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	1.5 J	0.42 J	1.2 J
trans-1,2-Dichloroethene	ug/kg	--	--	--	--	< 4.8 U	< 3.8 U	< 2.6 U	< 2.6 UJ	< 2.6 UJ	< 2.5 UJ
trans-1,3-Dichloropropene	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Trichloroethene	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Trichlorofluoromethane (CFC-11)	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Trifluorotrichloroethane (Freon 113)	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Vinyl chloride	ug/kg	--	--	--	--	< 9.5 U	< 7.7 U	< 5.1 U	< 5.1 UJ	< 5.1 UJ	< 4.9 UJ
Xylene (total)	ug/kg	--	--	--	--	< 19 U	< 15 U	< 10 U	< 1.7 UJ	< 10 UJ	< 1.5 UJ
SVOCs											
2,2'-oxybis(1-Chloropropane)	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/kg	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Methyl naphthalene	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/kg	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--	--

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH21 8/8/2002 (8-10)	WPSA-BH21 8/8/2002 (10-12)	WPSA-BH22 8/8/2002 (0-2)	WPSA-BH22 8/8/2002 (2-4)	WPSA-BH23 3/20/2003 (0-2)	WPSA-BH23 3/20/2003 DUP-125	WPSA-BH23 3/20/2003 (2-4)	WPSA-BH24 11/1/2002 (0-2)	WPSA-BH24 11/1/2002 DUP-124	WPSA-BH24 11/1/2002 (2-3)
SVOCs (continued)											
4-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/kg	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/kg	--	--	--	--	--	--	--	--	--	--
Acetophenone	ug/kg	--	--	--	--	--	--	--	--	--	--
Anthracene	ug/kg	--	--	--	--	--	--	--	--	--	--
Atrazine	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--	--
Biphenyl	ug/kg	--	--	--	--	--	--	--	--	--	--
bis(2-Chloroethoxy)methane	ug/kg	--	--	--	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	ug/kg	--	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Butyl benzylphthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Caprolactam	ug/kg	--	--	--	--	--	--	--	--	--	--
Carbazole	ug/kg	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/kg	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/kg	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/kg	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Di-n-butylphthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--	--
Fluorene	ug/kg	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	ug/kg	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/kg	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/kg	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/kg	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	--	--	--	--	--	--
Isophorone	ug/kg	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg	--	--	--	--	--	--	--	--	--	--

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH21 8/8/2002 (8-10)	WPSA-BH21 8/8/2002 (10-12)	WPSA-BH22 8/8/2002 (0-2)	WPSA-BH22 8/8/2002 (2-4)	WPSA-BH23 3/20/2003 (0-2)	WPSA-BH23 3/20/2003 DUP-125	WPSA-BH23 3/20/2003 (2-4)	WPSA-BH24 11/1/2002 (0-2)	WPSA-BH24 11/1/2002 DUP-124	WPSA-BH24 11/1/2002 (2-3)
SVOCs (continued)											
Nitrobenzene	ug/kg	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/kg	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/kg	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/kg	--	--	--	--	--	--	--	--	--	--
Phenol	ug/kg	--	--	--	--	--	--	--	--	--	--
Pyrene	ug/kg	--	--	--	--	--	--	--	--	--	--
PCBs											
Aroclor-1254	ug/kg	--	--	130000 J	80000 J	120	150	<39	--	--	--
Metals											
Antimony	mg/kg	22.8	14.3	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	38.8 J	45.8 J	28.6 J
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH25 8/9/2002 (0-2)	WPSA-BH25 8/9/2002 (6-8)	WPSA-BH25 8/9/2002 (22-24)	WPSA-BH26 8/7/2002 (0-2)	WPSA-BH26 8/7/2002 (2-4)	WPSA-BH26 8/7/2002 (22-24)	WPSA-BH27 8/7/2002 (0-2)	WPSA-BH27 8/7/2002 DUP-121	WPSA-BH27 8/7/2002 (6-8)	WPSA-BH27 8/7/2002 (20-22)
VOCs											
1,1,1-Trichloroethane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	6.2
1,1,2,2-Tetrachloroethane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
1,1,2-Trichloroethane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
1,1-Dichloroethane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	5.5
1,1-Dichloroethene	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
1,2,4-Trichlorobenzene	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 440 U	< 10 U	< 9.8 U	< 9.2 U	< 16 U	< 9.5 U	< 10 U	< 11 U	< 530 U	< 7.9 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
1,2-Dichlorobenzene	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
1,2-Dichloroethane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
1,2-Dichloropropane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
1,3-Dichlorobenzene	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
1,4-Dichlorobenzene	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
2-Butanone	ug/kg	< 880 U	4.8 J	< 20 U	< 18 U	< 32 U	< 19 U	< 20 U	< 23 U	< 1100 U	2.4 J
2-Hexanone	ug/kg	< 880 UJ	< 20 U	< 20 U	< 18 U	< 32 U	< 19 U	< 20 U	< 23 U	< 1100 U	< 16 U
4-Methyl-2-pentanone	ug/kg	< 880 U	< 20 U	< 20 U	< 18 U	< 32 U	< 19 U	< 20 U	< 23 U	< 1100 U	< 16 U
Acetone	ug/kg	< 750 U	< 23 U	< 3.9 U	< 18 U	< 32 U	< 19 U	< 20 U	< 23 U	< 1100 U	< 16 U
Benzene	ug/kg	43 J	2.2 J	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	0.98 J
Benzene, isopropyl	ug/kg	< 220 U	3.1 J	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Bromodichloromethane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Bromoform	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Bromomethane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Carbon disulfide	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Carbon tetrachloride	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Chlorobenzene	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Chloroethane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Chloroform (Trichloromethane)	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Chloromethane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
cis-1,2-Dichloroethene	ug/kg	74 J	< 2.6 U	< 2.4 U	< 2.3 U	< 4 U	< 2.4 U	< 2.5 U	< 2.9 U	65 J	0.89 J
cis-1,3-Dichloropropene	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Cyclohexane	ug/kg	< 440 U	< 10 U	< 9.8 U	< 9.2 U	< 16 U	< 9.5 U	< 10 U	< 11 U	< 530 U	1.5 J
Dibromochloromethane	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Dichlorodifluoromethane (CFC-12)	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Ethylbenzene	ug/kg	< 220 U	2.4 J	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	2.1 J
Methyl acetate	ug/kg	< 440 U	< 10 U	< 9.8 U	< 9.2 U	< 16 U	< 9.5 U	< 10 U	< 11 U	< 530 U	< 7.9 U
Methyl cyclohexane	ug/kg	< 440 U	2.5 J	< 9.8 U	< 9.2 U	< 16 U	< 9.5 U	< 10 U	< 11 U	< 530 U	2.4 J

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH25 8/9/2002 (0-2)	WPSA-BH25 8/9/2002 (6-8)	WPSA-BH25 8/9/2002 (22-24)	WPSA-BH26 8/7/2002 (0-2)	WPSA-BH26 8/7/2002 (2-4)	WPSA-BH26 8/7/2002 (22-24)	WPSA-BH27 8/7/2002 (0-2)	WPSA-BH27 8/7/2002 DUP-121	WPSA-BH27 8/7/2002 (6-8)	WPSA-BH27 8/7/2002 (20-22)
VOCs (continued)											
Methyl Tert Butyl Ether	ug/kg	< 880 U	< 20 U	< 20 U	< 18 U	< 32 U	< 19 U	< 20 U	< 23 U	< 1100 U	< 16 U
Methylene chloride	ug/kg	< 75 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Styrene	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Tetrachloroethene	ug/kg	< 220 U	< 5.1 U	5.8	2.7 J	< 8 U	13	< 5.1 U	< 5.7 U	1400	32
Toluene	ug/kg	40 J	2.6 J	0.59 J	0.63 J	1.3 J	0.8 J	< 5.1 U	< 5.7 U	< 260 U	4.3
trans-1,2-Dichloroethene	ug/kg	< 110 U	< 2.6 U	< 2.4 U	< 2.3 U	< 4 U	< 2.4 U	< 2.5 U	< 2.9 U	< 130 U	< 2 U
trans-1,3-Dichloropropene	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Trichloroethene	ug/kg	360	< 5.1 U	1.3 J	1.6 J	< 8 U	2.7 J	< 5.1 U	< 5.7 U	300	5.2
Trichlorofluoromethane (CFC-11)	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Trifluorotrichloroethane (Freon 113)	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	3.4 J
Vinyl chloride	ug/kg	< 220 U	< 5.1 U	< 4.9 U	< 4.6 U	< 8 U	< 4.8 U	< 5.1 U	< 5.7 U	< 260 U	< 4 U
Xylene (total)	ug/kg	170 J	22	< 9.8 U	< 9.2 U	< 16 U	< 9.5 U	< 10 U	< 11 U	< 530 U	4 J
SVOCs											
2,2'-oxybis(1-Chloropropane)	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/kg	--	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Methyl naphthalene	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/kg	--	--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--	--

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH25 8/9/2002 (0-2)	(6-8)	(22-24)	WPSA-BH26 8/7/2002 (0-2)	(2-4)	(22-24)	WPSA-BH27 8/7/2002 (0-2)	DUP-121	(6-8)	(20-22)
SVOCs (continued)											
4-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--	--
4-Nitrophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/kg	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/kg	--	--	--	--	--	--	--	--	--	--
Acetophenone	ug/kg	--	--	--	--	--	--	--	--	--	--
Anthracene	ug/kg	--	--	--	--	--	--	--	--	--	--
Atrazine	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzaldehyde	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	ug/kg	--	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--	--
Biphenyl	ug/kg	--	--	--	--	--	--	--	--	--	--
bis(2-Chloroethoxy)methane	ug/kg	--	--	--	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	ug/kg	--	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Butyl benzylphthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Caprolactam	ug/kg	--	--	--	--	--	--	--	--	--	--
Carbazole	ug/kg	--	--	--	--	--	--	--	--	--	--
Chrysene	ug/kg	--	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/kg	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/kg	--	--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Di-n-butylphthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--	--
Fluorene	ug/kg	--	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	ug/kg	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/kg	--	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/kg	--	--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/kg	--	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	--	--	--	--	--	--
Isophorone	ug/kg	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg	--	--	--	--	--	--	--	--	--	--

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH25 8/9/2002 (0-2)	(6-8)	(22-24)	WPSA-BH26 8/7/2002 (0-2)	(2-4)	(22-24)	WPSA-BH27 8/7/2002 (0-2)	DUP-121	(6-8)	(20-22)
SVOCs (continued)											
Nitrobenzene	ug/kg	--	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/kg	--	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/kg	--	--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/kg	--	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/kg	--	--	--	--	--	--	--	--	--	--
Phenol	ug/kg	--	--	--	--	--	--	--	--	--	--
Pyrene	ug/kg	--	--	--	--	--	--	--	--	--	--
PCBs											
Aroclor-1254	ug/kg	--	--	--	--	--	--	--	--	--	--
Metals											
Antimony	mg/kg	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	35.9	0.24	0.054 B	6.2	5.7	0.058 B	--	--	--	--
Chromium	mg/kg	79.6 J	13.9 J	2.3 J	43.1 J	1300 J	2.9 J	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--

Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH28 8/7/2002 (0-2)	WPSA-BH28 8/7/2002 (4-6)	WPSA-BH28 8/7/2002 (22-24)	WPSA-BH29 8/6/2002 (0-2)	WPSA-BH29 8/6/2002 (8-10)	WPSA-BH29 8/6/2002 (22-24)	WPSA-BH30 8/6/2002 (0-2)	WPSA-BH30 8/6/2002 (4-6)	WPSA-BH30 8/6/2002 (24-26)
VOCs										
1,1,1-Trichloroethane	ug/kg	79 J	21	5.5	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
1,1,2,2-Tetrachloroethane	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
1,1,2-Trichloroethane	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
1,1-Dichloroethane	ug/kg	92 J	43	5	310	2.5 J	< 230 U	2700	2400	2.5 J
1,1-Dichloroethene	ug/kg	< 450 U	< 4.5 U	< 4.3 U	51 J	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
1,2,4-Trichlorobenzene	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 900 U	< 8.9 U	< 8.6 U	< 540 U	< 8.8 U	< 470 U	< 530 U	< 520 U	< 7.9 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
1,2-Dichlorobenzene	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	3.2 J	43 J	< 270 U	< 260 U	0.92 J
1,2-Dichloroethane	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
1,2-Dichloropropane	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
1,3-Dichlorobenzene	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
1,4-Dichlorobenzene	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	0.57 J
2-Butanone	ug/kg	< 1800 U	2.5 J	< 17 U	< 1100 U	< 18 U	< 940 U	< 1100 U	< 1000 U	4.5 J
2-Hexanone	ug/kg	< 1800 U	< 18 U	< 17 U	< 1100 U	< 18 U	< 940 U	< 1100 U	< 1000 U	< 16 U
4-Methyl-2-pentanone	ug/kg	< 1800 U	< 18 U	< 17 U	< 1100 U	< 18 U	< 940 U	< 1100 U	< 1000 U	< 16 U
Acetone	ug/kg	< 1800 U	< 18 U	< 17 U	< 1100 U	< 18 U	< 940 U	< 1100 UJ	< 1000 UJ	< 16 U
Benzene	ug/kg	350 J	< 4.5 U	< 4.3 U	54 J	0.72 J	< 230 U	190 J	200 J	0.56 J
Benzene, isopropyl	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	1.2 J	< 230 U	490	640	< 3.9 U
Bromodichloromethane	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Bromoform	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Bromomethane	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Carbon disulfide	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Carbon tetrachloride	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Chlorobenzene	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Chloroethane	ug/kg	< 450 U	< 4.5 U	< 4.3 U	180 J	2.6 J	< 230 U	1300	1500	1.7 J
Chloroform (Trichloromethane)	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Chloromethane	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
cis-1,2-Dichloroethene	ug/kg	< 220 U	18	1.4 J	6700	9.1	37 J	430	650	< 2 U
cis-1,3-Dichloropropene	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Cyclohexane	ug/kg	990	< 8.9 U	< 8.6 U	31 J	< 8.8 U	< 470 U	130 J	100 J	1.7 J
Dibromochloromethane	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Dichlorodifluoromethane (CFC-12)	ug/kg	< 450 U	< 4.5 U	< 4.3 U	47 J	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Ethylbenzene	ug/kg	180 J	< 4.5 U	< 4.3 U	220 J	31	200 J	420	660	1 J
Methyl acetate	ug/kg	< 900 U	< 8.9 U	< 8.6 U	83 J	< 8.8 U	51 J	150 J	260 J	< 7.9 U
Methyl cyclohexane	ug/kg	2700	< 8.9 U	< 8.6 U	88 J	0.96 J	< 470 U	520 J	390 J	3.1 J

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH28 8/7/2002 (0-2)	(4-6)	(22-24)	WPSA-BH29 8/6/2002 (0-2)	(8-10)	(22-24)	WPSA-BH30 8/6/2002 (0-2)	(4-6)	(24-26)
VOCs (continued)										
Methyl Tert Butyl Ether	ug/kg	< 1800 U	< 18 U	< 17 U	< 1100 U	< 18 U	< 940 U	< 1100 U	< 1000 U	< 16 U
Methylene chloride	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	1.6 J	< 230 U	55 J	100 J	1.3 J
Styrene	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Tetrachloroethene	ug/kg	2100	130	15	1200	< 4.4 U	< 230 U	< 270 U	< 260 U	2.7 J
Toluene	ug/kg	2100	< 4.5 U	0.8 J	460	6.4	28 J	3900	5300	2.2 J
trans-1,2-Dichloroethene	ug/kg	< 220 U	< 2.2 U	< 2.2 U	100 J	< 2.2 U	< 120 U	< 130 U	< 130 U	< 2 U
trans-1,3-Dichloropropene	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Trichloroethene	ug/kg	1500	17	4.6	1100	0.7 J	< 230 U	260 J	220 J	1 J
Trichlorofluoromethane (CFC-11)	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Trifluorotrichloroethane (Freon 113)	ug/kg	< 450 U	< 4.5 U	< 4.3 U	< 270 U	< 4.4 U	< 230 U	< 270 U	< 260 U	< 3.9 U
Vinyl chloride	ug/kg	< 450 U	< 4.5 U	< 4.3 U	350	< 4.4 U	< 230 U	130 J	86 J	< 3.9 U
Xylene (total)	ug/kg	2700	< 8.9 U	< 8.6 U	190 J	13	130 J	3900	5900	2.1 J
SVOCs										
2,2'-oxybis(1-Chloropropane)	ug/kg	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/kg	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/kg	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/kg	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/kg	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/kg	--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/kg	--	--	--	--	--	--	--	--	--
2-Methyl naphthalene	ug/kg	--	--	--	--	--	--	--	--	--
2-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/kg	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/kg	--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/kg	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/kg	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/kg	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--
4-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH28 8/7/2002 (0-2)	(4-6)	(22-24)	WPSA-BH29 8/6/2002 (0-2)	(8-10)	(22-24)	WPSA-BH30 8/6/2002 (0-2)	(4-6)	(24-26)
SVOCs (continued)										
4-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--
4-Nitrophenol	ug/kg	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/kg	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/kg	--	--	--	--	--	--	--	--	--
Acetophenone	ug/kg	--	--	--	--	--	--	--	--	--
Anthracene	ug/kg	--	--	--	--	--	--	--	--	--
Atrazine	ug/kg	--	--	--	--	--	--	--	--	--
Benzaldehyde	ug/kg	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	ug/kg	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/kg	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	ug/kg	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--
Biphenyl	ug/kg	--	--	--	--	--	--	--	--	--
bis(2-Chloroethoxy)methane	ug/kg	--	--	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	ug/kg	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	ug/kg	--	--	--	--	--	--	--	--	--
Butyl benzylphthalate	ug/kg	--	--	--	--	--	--	--	--	--
Caprolactam	ug/kg	--	--	--	--	--	--	--	--	--
Carbazole	ug/kg	--	--	--	--	--	--	--	--	--
Chrysene	ug/kg	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/kg	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/kg	--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--
Di-n-butylphthalate	ug/kg	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--
Fluorene	ug/kg	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	ug/kg	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/kg	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/kg	--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/kg	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	--	--	--	--	--
Isophorone	ug/kg	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg	--	--	--	--	--	--	--	--	--

Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH28 8/7/2002 (0-2)	(4-6)	(22-24)	WPSA-BH29 8/6/2002 (0-2)	(8-10)	(22-24)	WPSA-BH30 8/6/2002 (0-2)	(4-6)	(24-26)
SVOCs (continued)										
Nitrobenzene	ug/kg	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/kg	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/kg	--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/kg	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/kg	--	--	--	--	--	--	--	--	--
Phenol	ug/kg	--	--	--	--	--	--	--	--	--
Pyrene	ug/kg	--	--	--	--	--	--	--	--	--
PCBs										
Aroclor-1254	ug/kg	--	--	--	--	--	--	--	--	--
Metals										
Antimony	mg/kg	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	8.2	4.1	1.8	223	18	3.1
Barium	mg/kg	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--

Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH31 8/6/2002 (0-2)	DUP-120	DUP-122	(8-10)	(24-26)	WPSA-BH32 8/6/2002 (0-2)	(4-6)	(24-26)
VOCs									
1,1,1-Trichloroethane	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	1.3 J
1,1,2,2-Tetrachloroethane	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
1,1,2-Trichloroethane	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
1,1-Dichloroethane	ug/kg	240 J	100 J	--	48	1.4 J	170 J	13	8.5
1,1-Dichloroethene	ug/kg	24 J	< 240 UJ	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
1,2,4-Trichlorobenzene	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 590 U	< 480 U	--	< 10 U	< 8.9 U	< 500 U	< 10 U	< 8.5 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
1,2-Dichlorobenzene	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
1,2-Dichloroethane	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
1,2-Dichloropropane	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
1,3-Dichlorobenzene	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
1,4-Dichlorobenzene	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	0.69 J	0.63 J
2-Butanone	ug/kg	< 1200 U	< 950 U	--	< 20 U	< 18 U	< 1000 U	5.5 J	5.8 J
2-Hexanone	ug/kg	< 1200 U	< 950 U	--	< 20 U	< 18 U	< 1000 U	< 20 U	< 17 U
4-Methyl-2-pentanone	ug/kg	< 1200 U	< 950 U	--	< 20 U	< 18 U	< 1000 U	< 20 U	< 17 U
Acetone	ug/kg	< 1200 UJ	< 950 U	--	< 20 U	< 18 U	< 1000 UJ	< 20 U	< 17 U
Benzene	ug/kg	32 J	< 240 UJ	--	0.83 J	< 4.5 U	24 J	1.1 J	0.65 J
Benzene, isopropyl	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Bromodichloromethane	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Bromoform	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Bromomethane	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Carbon disulfide	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	0.75 J
Carbon tetrachloride	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Chlorobenzene	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Chloroethane	ug/kg	< 290 U	< 240 U	--	3.7 J	< 4.5 U	< 250 U	< 5.1 U	2.6 J
Chloroform (Trichloromethane)	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Chloromethane	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
cis-1,2-Dichloroethene	ug/kg	470 J	140 J	--	< 2.5 U	< 2.2 U	35 J	2 J	< 2.1 U
cis-1,3-Dichloropropene	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Cyclohexane	ug/kg	50 J	40 J	--	< 10 U	< 8.9 U	< 500 U	< 10 U	1.2 J
Dibromochloromethane	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Dichlorodifluoromethane (CFC-12)	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Ethylbenzene	ug/kg	100 J	32 J	--	< 5.1 U	< 4.5 U	55 J	< 5.1 U	1.3 J
Methyl acetate	ug/kg	130 J	110 J	--	< 10 U	< 8.9 U	70 J	< 10 U	< 8.5 U
Methyl cyclohexane	ug/kg	56 J	44 J	--	< 10 U	< 8.9 U	26 J	< 10 U	1.9 J

Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH31 8/6/2002 (0-2)	DUP-120	DUP-122	(8-10)	(24-26)	WPSA-BH32 8/6/2002 (0-2)	(4-6)	(24-26)
VOCs (continued)									
Methyl Tert Butyl Ether	ug/kg	< 1200 U	< 950 U	--	< 20 U	< 18 U	< 1000 U	< 20 U	< 17 U
Methylene chloride	ug/kg	< 290 UJ	< 240 U	--	< 5.1 UJ	< 4.5 UJ	< 250 UJ	< 5.1 UJ	< 4.3 UJ
Styrene	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Tetrachloroethene	ug/kg	< 290 U	< 240 U	--	< 5.1 U	3.5 J	< 250 U	< 5.1 U	6
Toluene	ug/kg	1400 J	420 J	--	1.6 J	1.2 J	75 J	1.5 J	3 J
trans-1,2-Dichloroethene	ug/kg	120 J	37 J	--	< 2.5 U	< 2.2 U	< 130 U	< 2.6 U	< 2.1 U
trans-1,3-Dichloropropene	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Trichloroethene	ug/kg	2000 J	570 J	--	< 5.1 U	0.75 J	36 J	0.87 J	2.9 J
Trichlorofluoromethane (CFC-11)	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Trifluorotrichloroethane (Freon 113)	ug/kg	< 290 U	< 240 U	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Vinyl chloride	ug/kg	220 J	78 J	--	< 5.1 U	< 4.5 U	< 250 U	< 5.1 U	< 4.3 U
Xylene (total)	ug/kg	430 J	210 J	--	< 10 U	< 8.9 U	84 J	< 10 U	3.4 J
SVOCs									
2,2'-oxybis(1-Chloropropane)	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
2,4,5-Trichlorophenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
2,4,6-Trichlorophenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
2,4-Dichlorophenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
2,4-Dimethylphenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
2,4-Dinitrophenol	ug/kg	< 1700 U	--	< 1700 U	< 2000 U	< 1700 U	< 4500 U	< 710000 U	< 1700 U
2,4-Dinitrotoluene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
2,6-Dinitrotoluene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
2-Chloronaphthalene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
2-Chlorophenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
2-Methyl naphthalene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	290 J	83000 J	< 340 U
2-Methylphenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
2-Nitroaniline	ug/kg	< 1700 U	--	< 1700 U	< 2000 U	< 1700 U	< 4500 U	< 710000 U	< 1700 U
2-Nitrophenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
3,3'-Dichlorobenzidine	ug/kg	< 1700 U	--	< 1700 U	< 2000 U	< 1700 U	< 4500 U	< 710000 U	< 1700 U
3-Nitroaniline	ug/kg	< 1700 U	--	< 1700 U	< 2000 U	< 1700 U	< 4500 U	< 710000 U	< 1700 U
4,6-Dinitro-2-methylphenol	ug/kg	< 1700 U	--	< 1700 U	< 2000 U	< 1700 U	< 4500 U	< 710000 U	< 1700 U
4-Bromophenyl phenyl ether	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
4-Chloro-3-methylphenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
4-Chloroaniline	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
4-Chlorophenyl phenyl ether	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
4-Methylphenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U

Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH31 8/6/2002 (0-2)	DUP-120	DUP-122	(8-10)	(24-26)	WPSA-BH32 8/6/2002 (0-2)	(4-6)	(24-26)
SVOCs (continued)									
4-Nitroaniline	ug/kg	< 1700 U	--	< 1700 U	< 2000 U	< 1700 U	< 4500 U	< 710000 U	< 1700 U
4-Nitrophenol	ug/kg	< 1700 U	--	< 1700 U	< 2000 U	< 1700 U	< 4500 U	< 710000 U	< 1700 U
Acenaphthene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	600 J	300000 J	< 340 U
Acenaphthylene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Acetophenone	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Anthracene	ug/kg	< 350 UJ	--	93 J	< 410 U	< 360 U	1200	600000 J	< 340 U
Atrazine	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Benzaldehyde	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Benzo(a)anthracene	ug/kg	150 J	--	550 J	< 410 U	< 360 U	2900	520000 J	< 340 U
Benzo(a)pyrene	ug/kg	270 J	--	1500 J	< 410 U	< 360 U	3600	380000 J	< 340 U
Benzo(b)fluoranthene	ug/kg	360 J	--	2100 J	< 410 U	< 360 U	5100	580000 J	< 340 U
Benzo(g,h,i)perylene	ug/kg	150 J	--	810 J	< 410 U	< 360 U	2100	150000 J	< 340 U
Benzo(k)fluoranthene	ug/kg	170 J	--	890 J	< 410 U	< 360 U	2300	260000 J	< 340 U
Biphenyl	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	110 J	26000 J	< 340 U
bis(2-Chloroethoxy)methane	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
bis(2-Chloroethyl)ether	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
bis(2-Ethylhexyl)phthalate	ug/kg	53 J	--	< 350 UJ	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Butyl benzylphthalate	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Caprolactam	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Carbazole	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	630 J	270000 J	< 340 U
Chrysene	ug/kg	220 J	--	1100 J	< 410 U	< 360 U	3200	650000 J	< 340 U
Dibenz(a,h)anthracene	ug/kg	43 J	--	280 J	< 410 U	< 360 U	550 J	56000 J	< 340 U
Dibenzofuran	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	710 J	270000 J	< 340 U
Diethyl phthalate	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Dimethyl phthalate	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Di-n-butylphthalate	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	98 J	< 150000 U	< 340 U
Di-n-octyl phthalate	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Fluoranthene	ug/kg	250 J	--	430 J	< 410 U	< 360 U	7900	1800000 J	< 340 U
Fluorene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	960	500000 J	< 340 U
Hexachlorobenzene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Hexachlorobutadiene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Hexachlorocyclopentadiene	ug/kg	< 1700 U	--	< 1700 U	< 2000 U	< 1700 U	< 4500 U	< 710000 U	< 1700 U
Hexachloroethane	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Indeno(1,2,3-cd)pyrene	ug/kg	130 J	--	720 J	< 410 U	< 360 U	1800	130000 J	< 340 U
Isophorone	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Naphthalene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	800 J	100000 J	< 340 U

Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH31 8/6/2002 (0-2)	DUP-120	DUP-122	(8-10)	(24-26)	WPSA-BH32 8/6/2002 (0-2)	(4-6)	(24-26)
SVOCs (continued)									
Nitrobenzene	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
N-Nitrosodi-n-propylamine	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
N-Nitrosodiphenylamine	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Pentachlorophenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Phenanthrene	ug/kg	93 J	--	150 J	< 410 U	< 360 U	5900	3000000 J	< 340 U
Phenol	ug/kg	< 350 U	--	< 350 U	< 410 U	< 360 U	< 930 U	< 150000 U	< 340 U
Pyrene	ug/kg	200 J	--	600 J	< 410 U	< 360 U	5500	1100000 J	< 340 U
PCBs									
Aroclor-1254	ug/kg	--	--	--	--	--	--	--	--
Metals									
Antimony	mg/kg	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--
Lead	mg/kg	155 J	72	--	16.5 J	1.4 J	152 J	47.4 J	2.4 J
Silver	mg/kg	--	--	--	--	--	--	--	--
Zinc	mg/kg	1210 J	651 J	--	61.8	12.3	106	89.4	8.9

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH33 8/5/2002 (0-2)	DUP-118	(6-8)	(24-26)	WPSA-BH34 8/5/2002 (0-2)	(6-8)	(24-26)	RB-95 8/5/02	RB-96 8/6/02
VOCs										
1,1,1-Trichloroethane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,1,2-Trichloroethane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,1-Dichloroethane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	3.4 J	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,1-Dichloroethene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 9.1 U	< 9.1 UJ	< 11 U	< 9.5 U	< 9.4 U	< 15 U	< 13 U	< 2 U	< 2 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,2-Dichlorobenzene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,2-Dichloropropane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,3-Dichlorobenzene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
1,4-Dichlorobenzene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
2-Butanone	ug/kg	< 18 U	< 18 UJ	< 22 U	< 19 U	< 19 U	< 29 U	< 27 U	< 10 U	< 10 U
2-Hexanone	ug/kg	< 18 UJ	< 18 UJ	< 22 UJ	< 19 UJ	< 19 U	< 29 U	< 27 U	< 10 U	< 10 U
4-Methyl-2-pentanone	ug/kg	< 18 U	< 18 UJ	< 22 U	< 19 U	< 19 U	< 29 U	< 27 U	< 10 U	< 10 U
Acetone	ug/kg	< 18 U	< 18 U	< 22 U	< 19 U	< 19 U	< 29 U	< 27 U	< 10 U	< 10 U
Benzene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	0.79 J	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Benzene, isopropyl	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Bromodichloromethane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Bromoform	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Bromomethane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 UJ	< 7.3 UJ	< 6.7 UJ	< 1 U	< 1 U
Carbon disulfide	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Carbon tetrachloride	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Chlorobenzene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Chloroethane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 UJ	< 7.3 UJ	< 6.7 UJ	< 1 U	< 1 U
Chloroform (Trichloromethane)	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Chloromethane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	ug/kg	1.1 J	2.4 J	22	1.8 J	< 2.4 U	39	< 3.3 U	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Cyclohexane	ug/kg	< 9.1 U	< 9.1 UJ	< 11 U	1 J	< 9.4 U	< 15 U	< 13 U	< 1 U	< 1 U
Dibromochloromethane	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Dichlorodifluoromethane (CFC-12)	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Ethylbenzene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	1.3 J	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Methyl acetate	ug/kg	< 9.1 U	< 9.1 UJ	< 11 U	< 9.5 U	< 9.4 U	< 15 U	< 13 U	< 10 U	< 10 U
Methyl cyclohexane	ug/kg	< 9.1 U	< 9.1 UJ	< 11 U	1.6 J	< 9.4 U	< 15 U	< 13 U	< 1 U	< 1 U

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH33 8/5/2002 (0-2)	WPSA-BH33 8/5/2002 DUP-118	WPSA-BH33 8/5/2002 (6-8)	WPSA-BH33 8/5/2002 (24-26)	WPSA-BH34 8/5/2002 (0-2)	WPSA-BH34 8/5/2002 (6-8)	WPSA-BH34 8/5/2002 (24-26)	RB-95 8/5/02	RB-96 8/6/02
VOCs (continued)										
Methyl Tert Butyl Ether	ug/kg	< 18 U	< 18 UJ	< 22 U	< 19 U	< 19 U	< 29 U	< 27 U	< 5 U	< 5 U
Methylene chloride	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Styrene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Tetrachloroethene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	30	< 4.7 U	< 7.3 U	2.7 J	< 1 U	< 1 U
Toluene	ug/kg	< 4.5 UJ	0.79 J	< 5.5 U	3 J	0.9 J	2.1 J	1.5 J	< 1 U	< 1 U
trans-1,2-Dichloroethene	ug/kg	< 2.3 U	< 2.3 UJ	1.4 J	< 2.4 U	< 2.4 U	6.1	< 3.3 U	< 0.5 U	< 0.5 U
trans-1,3-Dichloropropene	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Trichloroethene	ug/kg	0.81 J	1.9 J	6.3	13	1.3 J	76	1.9 J	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 UJ	< 7.3 UJ	< 6.7 UJ	< 1 U	< 1 U
Trifluorotrichloroethane (Freon 113)	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Vinyl chloride	ug/kg	< 4.5 U	< 4.5 UJ	< 5.5 U	< 4.8 U	< 4.7 U	< 7.3 U	< 6.7 U	< 1 U	< 1 U
Xylene (total)	ug/kg	< 9.1 U	< 9.1 UJ	< 11 U	2.8 J	< 9.4 U	< 15 U	< 13 U	< 1 U	< 1 U
SVOCs										
2,2'-oxybis(1-Chloropropane)	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2,4,5-Trichlorophenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2,4,6-Trichlorophenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2,4-Dichlorophenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2,4-Dimethylphenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2,4-Dinitrophenol	ug/kg	< 1600 U	< 1600 U	< 1900 U	< 1700 U	--	--	--	< 50 U	< 50 UJ
2,4-Dinitrotoluene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2,6-Dinitrotoluene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2-Chloronaphthalene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2-Chlorophenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2-Methyl naphthalene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2-Methylphenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
2-Nitroaniline	ug/kg	< 1600 U	< 1600 U	< 1900 U	< 1700 U	--	--	--	< 50 U	< 50 U
2-Nitrophenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
3,3'-Dichlorobenzidine	ug/kg	< 1600 U	< 1600 U	< 1900 U	< 1700 U	--	--	--	< 50 U	< 50 U
3-Nitroaniline	ug/kg	< 1600 U	< 1600 U	< 1900 U	< 1700 U	--	--	--	< 50 U	< 50 U
4,6-Dinitro-2-methylphenol	ug/kg	< 1600 U	< 1600 U	< 1900 U	< 1700 U	--	--	--	< 50 U	< 50 U
4-Bromophenyl phenyl ether	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
4-Chloro-3-methylphenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
4-Chloroaniline	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
4-Chlorophenyl phenyl ether	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
4-Methylphenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH33 8/5/2002 (0-2)	DUP-118	(6-8)	(24-26)	WPSA-BH34 8/5/2002 (0-2)	(6-8)	(24-26)	RB-95 8/5/02	RB-96 8/6/02
SVOCs (continued)										
4-Nitroaniline	ug/kg	< 1600 U	< 1600 U	< 1900 U	< 1700 U	--	--	--	< 50 U	< 50 U
4-Nitrophenol	ug/kg	< 1600 U	< 1600 U	< 1900 U	< 1700 U	--	--	--	< 50 U	< 50 U
Acenaphthene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Acenaphthylene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Acetophenone	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Anthracene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Atrazine	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Benzaldehyde	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Benzo(a)anthracene	ug/kg	50 J	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Benzo(a)pyrene	ug/kg	54 J	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Benzo(b)fluoranthene	ug/kg	84 J	< 340 U	58 J	< 350 U	--	--	--	< 10 U	< 10 U
Benzo(g,h,i)perylene	ug/kg	53 J	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Benzo(k)fluoranthene	ug/kg	48 J	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Biphenyl	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
bis(2-Chloroethoxy)methane	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
bis(2-Chloroethyl)ether	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
bis(2-Ethylhexyl)phthalate	ug/kg	91 J	50 J	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Butyl benzylphthalate	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Caprolactam	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Carbazole	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Chrysene	ug/kg	56 J	< 340 U	58 J	< 350 U	--	--	--	< 10 U	< 10 U
Dibenz(a,h)anthracene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Dibenzofuran	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Diethyl phthalate	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Dimethyl phthalate	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Di-n-butylphthalate	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Di-n-octyl phthalate	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Fluoranthene	ug/kg	98 J	< 340 U	69 J	< 350 U	--	--	--	< 10 U	< 10 U
Fluorene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Hexachlorobenzene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Hexachlorobutadiene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Hexachlorocyclopentadiene	ug/kg	< 1600 U	< 1600 U	< 1900 U	< 1700 U	--	--	--	< 50 U	< 50 U
Hexachloroethane	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Indeno(1,2,3-cd)pyrene	ug/kg	45 J	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Isophorone	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Naphthalene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	WPSA-BH33 8/5/2002 (0-2)	DUP-118	(6-8)	(24-26)	WPSA-BH34 8/5/2002 (0-2)	(6-8)	(24-26)	RB-95 8/5/02	RB-96 8/6/02
SVOCs (continued)										
Nitrobenzene	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
N-Nitrosodi-n-propylamine	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
N-Nitrosodiphenylamine	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Pentachlorophenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Phenanthrene	ug/kg	53 J	< 340 U	71 J	< 350 U	--	--	--	< 10 U	< 10 U
Phenol	ug/kg	< 340 U	< 340 U	< 390 U	< 350 U	--	--	--	< 10 U	< 10 U
Pyrene	ug/kg	90 J	< 340 U	42 J	< 350 U	--	--	--	< 10 U	< 10 U
PCBs										
Aroclor-1254	ug/kg	--	--	--	--	--	--	--	--	--
Metals										
Antimony	mg/kg	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	0.000092 BJ
Silver	mg/kg	--	--	--	--	0.032 B	87.2	0.19	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	< 0.01 U

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	RB-98 8/7/02	RB-101 11/1/02	RB-102 3/20/03	TB-146 8/5/02	TB-149 8/6/02	TB-151 8/7/02	TB-153 8/9/02	TB-155 11/1/02	TB-156 3/20/03
VOCs										
1,1,1-Trichloroethane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/kg	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 2 U	< 2 U	< 2 UJ	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 UJ
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloropropane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Butanone	ug/kg	< 10 UJ	< 10 U	< 10 UJ	< 10 U	< 10 U	< 10 UJ	< 10 U	< 10 U	< 10 UJ
2-Hexanone	ug/kg	< 10 UJ	< 10 U	< 10 UJ	< 10 U	< 10 U	< 10 UJ	< 10 U	< 10 U	< 10 UJ
4-Methyl-2-pentanone	ug/kg	< 10 U	< 10 U	< 10 UJ	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 UJ
Acetone	ug/kg	3.5 J	1.3 J	< 10 UJ	4.1 J	< 10 U	1.9 J	< 10 U	2.6 J	< 10 UJ
Benzene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Benzene, isopropyl	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromoform	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromomethane	ug/kg	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
Carbon disulfide	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	ug/kg	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U
Chlorobenzene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroethane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform (Trichloromethane)	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloromethane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	ug/kg	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dibromochloromethane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane (CFC-12)	ug/kg	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U
Ethylbenzene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	1.4	< 1 U
Methyl acetate	ug/kg	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Methyl cyclohexane	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U

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Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	RB-98 8/7/02	RB-101 11/1/02	RB-102 3/20/03	TB-146 8/5/02	TB-149 8/6/02	TB-151 8/7/02	TB-153 8/9/02	TB-155 11/1/02	TB-156 3/20/03
VOCs (continued)										
Methyl Tert Butyl Ether	ug/kg	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Methylene chloride	ug/kg	< 1 U	< 1 U	< 1 U	< 1.1 U	< 1 U	< 1.1 U	< 1 U	0.59 BJ	1.4 B
Styrene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	2	< 1 U
Tetrachloroethene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Toluene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,2-Dichloroethene	ug/kg	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,3-Dichloropropene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	ug/kg	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 UJ
Trifluorotrichloroethane (Freon 113)	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl chloride	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Xylene (total)	ug/kg	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.58 J	< 1 U
SVOCs										
2,2'-oxybis(1-Chloropropane)	ug/kg	--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	ug/kg	--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/kg	--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/kg	--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/kg	--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/kg	--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/kg	--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/kg	--	--	--	--	--	--	--	--	--
2-Methyl naphthalene	ug/kg	--	--	--	--	--	--	--	--	--
2-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/kg	--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/kg	--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/kg	--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	ug/kg	--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/kg	--	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--
4-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--

Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	RB-98 8/7/02	RB-101 11/1/02	RB-102 3/20/03	TB-146 8/5/02	TB-149 8/6/02	TB-151 8/7/02	TB-153 8/9/02	TB-155 11/1/02	TB-156 3/20/03
SVOCs (continued)										
4-Nitroaniline	ug/kg	--	--	--	--	--	--	--	--	--
4-Nitrophenol	ug/kg	--	--	--	--	--	--	--	--	--
Acenaphthene	ug/kg	--	--	--	--	--	--	--	--	--
Acenaphthylene	ug/kg	--	--	--	--	--	--	--	--	--
Acetophenone	ug/kg	--	--	--	--	--	--	--	--	--
Anthracene	ug/kg	--	--	--	--	--	--	--	--	--
Atrazine	ug/kg	--	--	--	--	--	--	--	--	--
Benzaldehyde	ug/kg	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	ug/kg	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	ug/kg	--	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	ug/kg	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--
Biphenyl	ug/kg	--	--	--	--	--	--	--	--	--
bis(2-Chloroethoxy)methane	ug/kg	--	--	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	ug/kg	--	--	--	--	--	--	--	--	--
bis(2-Ethylhexyl)phthalate	ug/kg	--	--	--	--	--	--	--	--	--
Butyl benzylphthalate	ug/kg	--	--	--	--	--	--	--	--	--
Caprolactam	ug/kg	--	--	--	--	--	--	--	--	--
Carbazole	ug/kg	--	--	--	--	--	--	--	--	--
Chrysene	ug/kg	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	ug/kg	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/kg	--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--
Di-n-butylphthalate	ug/kg	--	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	ug/kg	--	--	--	--	--	--	--	--	--
Fluoranthene	ug/kg	--	--	--	--	--	--	--	--	--
Fluorene	ug/kg	--	--	--	--	--	--	--	--	--
Hexachlorobenzene	ug/kg	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/kg	--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/kg	--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/kg	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	--	--	--	--	--
Isophorone	ug/kg	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg	--	--	--	--	--	--	--	--	--

Table A-3. VOCs, SVOCs, PCBs, and Metals Analytical Results for Soil, August and November 2002 and March 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Compound	Units	RB-98 8/7/02	RB-101 11/1/02	RB-102 3/20/03	TB-146 8/5/02	TB-149 8/6/02	TB-151 8/7/02	TB-153 8/9/02	TB-155 11/1/02	TB-156 3/20/03
SVOCs (continued)										
Nitrobenzene	ug/kg	--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/kg	--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/kg	--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/kg	--	--	--	--	--	--	--	--	--
Phenanthrene	ug/kg	--	--	--	--	--	--	--	--	--
Phenol	ug/kg	--	--	--	--	--	--	--	--	--
Pyrene	ug/kg	--	--	--	--	--	--	--	--	--
PCBs										
Aroclor-1254	ug/kg	--	--	< 1 U	--	--	--	--	--	--
Metals										
Antimony	mg/kg	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--
Barium	mg/kg	--	< 0.2 U	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--	--
Silver	mg/kg	--	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--	--

ug/kg - Micrograms per kilogram.
mg/kg - Milligrams per kilogram.
ug/l - Micrograms per liter.
mg/l - Milligrams per liter.
WPSA - Waste Pile Staging Area.
BH - Borehole.
SL - Soil.
VOCs - Volatile organic compounds.
SVOCs - Semi-volatile organic compounds.
PCBs - Polychlorinated biphenyls.
(1) SVOCs were collected on August 9, 2002.
-- Not Analyzed.
R - Value is rejected.
RB - Rinseate Blank (concentrations presented in ug/l for organics and mg/l for inorganics).
TB - Trip Blank (concentrations presented in ug/l).
U - Constituent was not detected above the reporting limit.
Inorganic Compounds: B - Result is above the method detection limit but below the reporting limit.
Inorganic Compounds: J - Analyte was also detected in the associated method blank.
DUP-118 - Duplicate of WPSA-BH33/0-2/SL.
DUP-120 - Duplicate of WPSA-BH31/0-2/SL (VOCs, lead, zinc on 8/6/02).
DUP-121 - Duplicate of WPSA-BH27/0-2/SL.
DUP-122 - Duplicate of WPSA-BH31/0-2/SL (SVOCs on 8/9/02).
DUP-124 - Duplicate of WPSA-BH24/0-2/SL.
DUP-125 - Duplicate of WPSA-BH23/0-2/SL.
UJ - Constituent was not detected above the reporting limit. Reporting limit is estimated.
< - Constituent not detected above laboratory reporting limit.
Organic Compounds: J - Result is above the method detection limit but below the reporting limit.
Organic Compounds: B - Analyte was also detected in the associated method blank.

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Table A-4. SVOCs and Metal Analytical Results for Soil, October 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Constituents	Units	WPSA-BH35 10/23/2003 (0-2)	WPSA-BH35 10/23/2003 DUP-132	WPSA-BH35 10/23/2003 (8-10)	WPSA-BH35 10/23/2003 (22-24)	WPSA-BH36 10/23/2003 (0-2)	WPSA-BH36 10/23/2003 (8-10)	WPSA-BH36 10/23/2003 (20-22)	WPSA-BH37 10/23/2003 (0-2)	WPSA-BH37 10/23/2003 (8-10)	WPSA-BH37 10/23/2003 (20-22)	RB-109 10/23/2003
SVOCs												
2,2'-oxybis(1-Chloropropane)	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
2,4,5-Trichlorophenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
2,4,6-Trichlorophenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
2,4-Dichlorophenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
2,4-Dimethylphenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
2,4-Dinitrophenol	ug/kg	--	--	--	--	< 1800	< 1900	< 1700	--	--	--	--
2,4-Dinitrotoluene	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
2,6-Dinitrotoluene	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
2-Chloronaphthalene	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
2-Chlorophenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
2-Methyl naphthalene	ug/kg	--	--	--	--	20J	< 390	< 360	--	--	--	--
2-Methylphenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
2-Nitroaniline	ug/kg	--	--	--	--	< 1800	< 1900	< 1700	--	--	--	--
2-Nitrophenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
3,3'-Dichlorobenzidine	ug/kg	--	--	--	--	< 1800	< 1900	< 1700	--	--	--	--
3-Nitroaniline	ug/kg	--	--	--	--	< 1800	< 1900	< 1700	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/kg	--	--	--	--	< 1800	< 1900	< 1700	--	--	--	--
4-Bromophenyl phenyl ether	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
4-Chloro-3-methylphenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
4-Chloroaniline	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
4-Chlorophenyl phenyl ether	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
4-Methylphenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
4-Nitroaniline	ug/kg	--	--	--	--	< 1800	< 1900	< 1700	--	--	--	--
4-Nitrophenol	ug/kg	--	--	--	--	< 1800	< 1900	< 1700	--	--	--	--
Acenaphthene	ug/kg	--	--	--	--	31J	< 390	< 360	--	--	--	--
Acenaphthylene	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Acetophenone	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Anthracene	ug/kg	--	--	--	--	98J	< 390	< 360	--	--	--	--
Atrazine	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Benzaldehyde	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Benzo(a)anthracene	ug/kg	--	--	--	--	480	< 390	< 360	--	--	--	--
Benzo(a)pyrene	ug/kg	--	--	--	--	560	< 390	< 360	--	--	--	--
Benzo(b)fluoranthene	ug/kg	--	--	--	--	750	< 390	< 360	--	--	--	--

Table A-4. SVOCs and Metal Analytical Results for Soil, October 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Constituents	Units	WPSA-BH35 10/23/2003 (0-2)	WPSA-BH35 10/23/2003 DUP-132	WPSA-BH35 10/23/2003 (8-10)	WPSA-BH35 10/23/2003 (22-24)	WPSA-BH36 10/23/2003 (0-2)	WPSA-BH36 10/23/2003 (8-10)	WPSA-BH36 10/23/2003 (20-22)	WPSA-BH37 10/23/2003 (0-2)	WPSA-BH37 10/23/2003 (8-10)	WPSA-BH37 10/23/2003 (20-22)	RB-109 10/23/2003
SVOCs (continued)												
Benzo(g,h,i)perylene	ug/kg	--	--	--	--	340J	< 390	< 360	--	--	--	--
Benzo(k)fluoranthene	ug/kg	--	--	--	--	380	< 390	< 360	--	--	--	--
Biphenyl	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
bis(2-Chloroethoxy)methane	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
bis(2-Chloroethyl)ether	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
bis(2-Ethylhexyl)phthalate	ug/kg	--	--	--	--	< 370	< 390	27J	--	--	--	--
Butyl benzylphthalate	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Caprolactam	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Carbazole	ug/kg	--	--	--	--	42J	< 390	< 360	--	--	--	--
Chrysene	ug/kg	--	--	--	--	630	< 390	< 360	--	--	--	--
Dibenz(a,h)anthracene	ug/kg	--	--	--	--	130J	< 390	< 360	--	--	--	--
Dibenzofuran	ug/kg	--	--	--	--	24J	< 390	< 360	--	--	--	--
Diethyl phthalate	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Dimethyl phthalate	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Di-n-butylphthalate	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Di-n-octyl phthalate	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Fluoranthene	ug/kg	--	--	--	--	1300	< 390	< 360	--	--	--	--
Fluorene	ug/kg	--	--	--	--	29J	< 390	< 360	--	--	--	--
Hexachlorobenzene	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Hexachlorobutadiene	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Hexachlorocyclopentadiene	ug/kg	--	--	--	--	< 1800	< 1900	< 1700	--	--	--	--
Hexachloroethane	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	350J	< 390	< 360	--	--	--	--
Isophorone	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Naphthalene	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Nitrobenzene	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
N-Nitrosodi-n-propylamine	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
N-Nitrosodiphenylamine	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Pentachlorophenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Phenanthrene	ug/kg	--	--	--	--	540	< 390	< 360	--	--	--	--
Phenol	ug/kg	--	--	--	--	< 370	< 390	< 360	--	--	--	--
Pyrene	ug/kg	--	--	--	--	920	< 390	< 360	--	--	--	--

Table A-4. SVOCs and Metal Analytical Results for Soil, October 2003, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

Constituents	Units	WPSA-BH35 10/23/2003 (0-2)	DUP-132	(8-10)	(22-24)	WPSA-BH36 10/23/2003 (0-2)	(8-10)	(20-22)	WPSA-BH37 10/23/2003 (0-2)	(8-10)	(20-22)	RB-109 10/23/2003
Metals												
Arsenic	mg/kg	7.8	10.1	16.1	2.0	--	--	--	--	--	--	<0.010
Copper	mg/kg	--	--	--	--	--	--	--	10.2	26.3	7.3	--
Iron	mg/kg	--	--	--	--	--	--	--	6550J	15400J	4720J	--

ug/kg - micrograms per kilogram.
mg/kg - milligrams per kilogram.
-- - Not analyzed.
J - Value was estimated.
ug/l - Micrograms per liter.
mg/l - Milligrams per liter.
RB - Rinseate Blank (concentrations presented in ug/l for organics and mg/l for inorganics).
SVOCs - Semi-volatile organic compounds.

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Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	GM-33 04/23/01	GM-34 04/10/01	GM-35 04/19/01	GM-36 04/11/01	GM-37 04/19/01	DUP-102 04/19/01	GM-38 04/19/01	RB-79 04/19/01
VOCs									
1,1,1,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,1-Trichloroethane	ug/l	14.6	7.90	24.6	3.80	16.8	17.4	6.90	<1.00
1,1,2,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,2-Trichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	ug/l	7.40	4.30	44.2	85.4	9.00	9.40	7.90	<1.00
1,1-Dichloroethene	ug/l	1.20	<1.00	3.40	<1.00	1.10	1.10	<1.00	<1.00
1,2,3-Trichloropropane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
1,2-Dibromo-3-chloropropane	ug/l	<5.00UJ	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
1,2-Dibromoethane (EDB)	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
1,2-Dichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloropropane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
2-Butanone (MEK)	ug/l	R	R	R	R	R	R	R	R
2-Hexanone	ug/l	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5
4-Methyl-2-pentanone (MIBK)	ug/l	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5
Acetone	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Acrolein	ug/l	R	<50.0	R	<50.0	R	R	R	R
Acrylonitrile	ug/l	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
Allyl chloride	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Benzene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromodichloromethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromoform	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromomethane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Carbon disulfide	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Carbon tetrachloride	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chlorobenzene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloroethane	ug/l	<5.00	<5.00	<5.00	64.8	<5.00	<5.00	<5.00	<5.00
Chloroform	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloromethane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Chloroprene	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Dibromochloromethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Dibromomethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	GM-33 04/23/01	GM-34 04/10/01	GM-35 04/19/01	GM-36 04/11/01	GM-37 04/19/01	DUP-102 04/19/01	GM-38 04/19/01	RB-79 04/19/01
VOCs (continued)									
Dichlorodifluoromethane	ug/l	<1.00	<1.00	45.4	64.5	24.8	26.6	<1.00	<1.00
Ethyl methacrylate	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Ethylbenzene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Iodomethane (Methyl Iodide)	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Methacrylonitrile	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Methyl methacrylate	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Methylene Chloride	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Pentachloroethane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00UJ	<5.00
Propionitrile	ug/l	R	<50.0	R	<50.0	R	R	R	R
Styrene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	ug/l	23.6	18.6	41.5	94.2	57.4	56.4	66.5	<1.00
Toluene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Trichloroethene	ug/l	141	72.0	284	51.1	87.8	89.7	42.7	<1.00
Trichlorofluoromethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl Acetate	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Vinyl Chloride	ug/l	1.90	<1.00	87.6	8.90	4.40	4.60	<1.00	<1.00
Xylenes, Total	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
cis-1,2-Dichloroethene	ug/l	99.0	31.9	238	60.7	118	120	15.8	<1.00
cis-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	ug/l	3.40	1.30	9.50	1.80	3.40	3.40	<1.00	<1.00
trans-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,4-Dichloro-2-butene	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
SVOCs									
1,2,4,5-Tetrachlorobenzene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
1,2,4-Trichlorobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
1,3,5-Trinitrobenzene	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
1,4-Napthoquinone	ug/l	<100	<100	<100	<100	<100	<100	<100	<100
1-Naphthylamine	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
2,2'-oxybis(1-Chloropropane)	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,3,4,6-Tetrachlorophenol	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
2,4,5-Trichlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

COMPOUND	UNITS	GM-33 04/23/01	GM-34 04/10/01	GM-35 04/19/01	GM-36 04/11/01	GM-37 04/19/01	DUP-102 04/19/01	GM-38 04/19/01	RB-79 04/19/01
SVOCs (continued)									
2,4,6-Trichlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,4-Dichlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,4-Dimethylphenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,4-Dinitrophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,4-Dinitrotoluene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,6-Dichlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,6-Dinitrotoluene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2-Acetylaminofluorene (2-AAF)	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
2-Chloronaphthalene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2-Chlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2-Methylnaphthalene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2-Naphthylamine	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
2-Picoline	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
3,3'-Dichlorobenzidine	ug/l	<50.0UJ	<50.0	<50.0UJ	<50.0	<50.0UJ	<50.0UJ	<50.0UJ	<50.0UJ
3,3'-Dimethylbenzidine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
3-Methylcholanthrene	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
4,6-Dinitro-2-methylphenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
4-Aminobiphenyl	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
4-Bromophenyl phenyl ether	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
4-Chloro-3-methyl phenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
4-Chlorophenyl phenyl ether	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
4-Nitroquinoline 1-oxide	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
5-Nitro-o-toluidine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
7,12-Dimethylbenz(a)anthracene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Acenaphthene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Acenaphthylene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Acetophenone	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Aniline	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Anthracene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Aramite	ug/l	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Benzo(a)anthracene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Benzo(a)pyrene	ug/l	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0	<10.0	<10.0	<10.0

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. Draft

COMPOUND	UNITS	GM-33 04/23/01	GM-34 04/10/01	GM-35 04/19/01	GM-36 04/11/01	GM-37 04/19/01	DUP-102 04/19/01	GM-38 04/19/01	RB-79 04/19/01
SVOCs (continued)									
Benzo(b)fluoranthene	ug/l	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0	<10.0	<10.0	<10.0
Benzo(ghi)perylene	ug/l	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0	<10.0	<10.0	<10.0
Benzo(k)fluoranthene	ug/l	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0	<10.0	<10.0	<10.0
Benzyl alcohol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bis(2-chloroethoxy)methane	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bis(2-chloroethyl)ether	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bis(2-ethylhexyl)phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Butyl benzyl phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chlorobenzilate	ug/l	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
Chrysene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Di-n-butyl phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Di-n-octyl phthalate	ug/l	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0	<10.0	<10.0	<10.0
Diallate	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
Dibenzo(a,h)anthracene	ug/l	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0	<10.0	<10.0	<10.0
Dibenzofuran	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diethyl phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Dimethoate	ug/l	<100	<100	<100	<100	<100	<100	<100	<100
Dimethyl phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diphenylamine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Disulfoton	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Ethyl methanesulfonate	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Famphur	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Fluoranthene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Fluorene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Hexachlorobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Hexachlorobutadiene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Hexachlorocyclopentadiene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Hexachloroethane	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Hexachlorophene	ug/l	<500	<500	<500	<500	<500	<500	<500	<500
Hexachloropropene	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
Indeno(1,2,3-cd)pyrene	ug/l	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0	<10.0	<10.0	<10.0
Isodrin	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

COMPOUND	UNITS	GM-33 04/23/01	GM-34 04/10/01	GM-35 04/19/01	GM-36 04/11/01	GM-37 04/19/01	DUP-102 04/19/01	GM-38 04/19/01	RB-79 04/19/01
SVOCs (continued)									
Isophorone	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Isosafrole	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Kepone	ug/l	<250	<250	<250	<250	<250	<250	<250	<250
Methapyrilene	ug/l	<100	<100	<100	<100	<100	<100	<100	<100
Methyl methanesulfonate	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Methyl parathion	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
N-Nitrosodi-n-butylamine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
N-Nitrosodiethylamine	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
N-Nitrosodimethylamine	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
N-Nitrosodipropylamine	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
N-Nitrosomethylethylamine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
N-Nitrosomorpholine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
N-Nitrosopiperidine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
N-Nitrosopyrrolidine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Naphthalene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Nitrobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Parathion	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Pentachlorobenzene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Pentachloronitrobenzene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Pentachlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Phenacetin	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Phenanthrene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Phenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Phorate	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Pronamide	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Pyrene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Pyridine	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Safrole	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Sulfotepp	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Thionazin	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Triethyl phosphorothioate	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
a,a-Dimethyl-phenethylamine	ug/l	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

COMPOUND	UNITS	GM-33 04/23/01	GM-34 04/10/01	GM-35 04/19/01	GM-36 04/11/01	GM-37 04/19/01	DUP-102 04/19/01	GM-38 04/19/01	RB-79 04/19/01
SVOCs (continued)									
m-Dichlorobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
m-Dinitrobenzene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
m-Nitroaniline	ug/l	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
meta & para-Methylphenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
o-Dichlorobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
o-Nitroaniline	ug/l	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
o-Nitrophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
o-Toluidine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
ortho-Methylphenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
p-(Dimethylamino)azobenzene	ug/l	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
p-Chloroaniline	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
p-Dichlorobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
p-Nitroaniline	ug/l	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
p-Nitrophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
p-Phenylenediamine	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
PCBs									
Aroclor 1016	ug/l	<0.200	<0.200UJ	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200UJ
Aroclor 1221	ug/l	<0.200	<0.200UJ	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200UJ
Aroclor 1232	ug/l	<0.200	<0.200UJ	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200UJ
Aroclor 1242	ug/l	<0.200	<0.200UJ	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200UJ
Aroclor 1248	ug/l	<0.200	<0.200UJ	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200UJ
Aroclor 1254	ug/l	<0.200	<0.200UJ	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200UJ
Aroclor 1260	ug/l	<0.200	<0.200UJ	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200UJ
Metals									
Antimony, Dissolved, ICPMS	mg/l	0.0023	0.0117	0.0023	0.0019	0.0037	0.0034	0.0179	<0.001
Antimony, ICPMS	mg/l	0.0059J	0.0388	<0.001	0.0193	0.0024	0.0028	0.0077	<0.001
Arsenic, Dissolved, ICPMS	mg/l	<0.005	<0.005	0.0545	<0.010	0.0854	0.0760	0.2570	<0.005
Arsenic, ICPMS	mg/l	0.0733J	0.110	0.0112	0.0735	<0.005	<0.005	<0.005	<0.005
Barium, Dissolved, ICPMS	mg/l	0.0734	0.149	0.4570	0.187	1.67J	0.133J	10.2000	<0.005
Barium, ICPMS	mg/l	0.707	0.647	0.1280	1.19	0.0864	0.0938	0.1410	<0.005

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

COMPOUND	UNITS	GM-33 04/23/01	GM-34 04/10/01	GM-35 04/19/01	GM-36 04/11/01	GM-37 04/19/01	DUP-102 04/19/01	GM-38 04/19/01	RB-79 04/19/01
Metals (continued)									
Beryllium, Dissolved, ICPMS	mg/l	<0.001	<0.001	<0.005	<0.001	0.0031	0.0025	0.0205	<0.001
Beryllium, ICPMS	mg/l	<0.002	<0.005	<0.001	0.0056	<0.001	<0.001	<0.001	<0.001
Cadmium, Dissolved, ICPMS	mg/l	<0.001	<0.001	0.0056	<0.001	<0.002	<0.002	0.0180	<0.001
Cadmium, ICPMS	mg/l	0.0013	<0.005	0.0021	0.0553	<0.001	<0.001	<0.001	<0.001
Chromium, Dissolved, ICPMS	mg/l	<0.002	<0.002	0.0649	<0.002	0.1190	0.0953	0.7310	<0.002
Chromium, ICPMS	mg/l	0.0534J	0.056	0.0030	0.205	<0.002	<0.002	<0.002	<0.002
Cobalt, Dissolved, ICPMS	mg/l	<0.005	<0.005	0.0594	<0.005	0.0743	0.0610	0.4970	<0.005
Cobalt, ICPMS	mg/l	0.0585	0.0545	0.0337	0.139	<0.005	<0.005	<0.005	<0.005
Copper, Dissolved, ICPMS	mg/l	<0.005	<0.005	0.1080	<0.010	0.2600	0.2140	1.9900	<0.005
Copper, ICPMS	mg/l	0.135J	0.184	0.0128	0.666	<0.005	<0.005	<0.005	<0.005
Lead, Dissolved, ICPMS	mg/l	<0.001	<0.001	0.0476	<0.001	0.1360	0.1080	1.2300	<0.001
Lead, ICPMS	mg/l	0.0808	0.114	<0.001	0.345	<0.001	<0.001	<0.001	<0.001
Mercury, Dissolved, CVAA	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	0.0004	0.0030	<0.0002
Mercury, CVAA	mg/l	<0.0002	<0.0002	<0.0002	0.0008	<0.0002	<0.0002	<0.0002	<0.0002
Nickel, Dissolved, ICPMS	mg/l	0.009J	0.0069	0.0950	0.0205	0.2040	0.1680	1.3700	<0.005
Nickel, ICPMS	mg/l	0.148	0.134	0.0233	0.455	0.0086	0.0095	0.0107	<0.005
Selenium, Dissolved, GFAA	mg/l	<0.005	<0.005	<0.04	<0.005UJ	<0.005	0.0253	<0.005	<0.005
Selenium, GFAA	mg/l	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005
Silver, Dissolved, ICPMS	mg/l	<0.0005	<0.0005	0.0012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver, ICPMS	mg/l	<0.0005	<0.0005	0.0008	0.0085	<0.0005	<0.0005	<0.0005	<0.0005
Thallium, Dissolved, ICPMS	mg/l	<0.001	<0.001	0.0015	<0.001	0.0041	0.0031	0.0204	<0.001
Thallium, ICPMS	mg/l	0.0025	<0.005	<0.001	0.0084	<0.001	<0.001	<0.001	<0.001
Tin, Dissolved, ICP	mg/l	<2.00	<2.00	<2.0	<2.00	<2.0	<2.0	<10.0	<2.00
Tin, ICP	mg/l	<4.00	<2.00	<2.0	<2.00	<2.0	<2.0	<2.0	<2.00
Vanadium, Dissolved, ICPMS	mg/l	<0.005	<0.005	0.0619	<0.005	0.1180	0.0993	0.5720	<0.005
Vanadium, ICPMS	mg/l	0.069	0.0799	<0.005	0.159	<0.005	<0.005	<0.005	<0.005
Zinc, Dissolved, ICPMS	mg/l	<0.050	<0.050	0.2580	<0.050	0.7560	0.6410	4.9500	<0.050
Zinc, ICPMS	mg/l	0.480J	0.683	<0.05	3.29	<0.05	<0.05	<0.05	<0.050

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	RB-81 04/23/01	TB-118 03/30/01	TB-127 04/17/01	TB-130 04/23/01
VOCs					
1,1,1,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,1,1-Trichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,1,2,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,1,2-Trichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethene	ug/l	<1.00	<1.00	<1.00	<1.00
1,2,3-Trichloropropane	ug/l	<5.00	<5.00	<5.00	<5.00
1,2-Dibromo-3-chloropropane	ug/l	<5.00UJ	<5.00	<5.00	<5.00UJ
1,2-Dibromoethane (EDB)	ug/l	<5.00	<5.00	<5.00	<5.00
1,2-Dichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,2-Dichloropropane	ug/l	<1.00	<1.00	<1.00	<1.00
2-Butanone (MEK)	ug/l	R	R	R	R
2-Hexanone	ug/l	<12.5	<12.5	<12.5	<12.5
4-Methyl-2-pentanone (MIBK)	ug/l	<12.5	<12.5	<12.5	<12.5
Acetone	ug/l	<20.0	<20.0	<20.0	<20.0
Acrolein	ug/l	R	<50.0	R	R
Acrylonitrile	ug/l	<50.0	<50.0	<50.0	<50.0
Allyl chloride	ug/l	<5.00	<5.00	<5.00	<5.00
Benzene	ug/l	<1.00	<1.00	<1.00	<1.00
Bromodichloromethane	ug/l	<1.00	<1.00	<1.00	<1.00
Bromoform	ug/l	<1.00	<1.00	<1.00	<1.00
Bromomethane	ug/l	<5.00	<5.00	<5.00	<5.00
Carbon disulfide	ug/l	<1.00	<1.00	<1.00	<1.00
Carbon tetrachloride	ug/l	<1.00	<1.00	<1.00	<1.00
Chlorobenzene	ug/l	<1.00	<1.00	<1.00	<1.00
Chloroethane	ug/l	<5.00	<5.00	<5.00	<5.00
Chloroform	ug/l	<1.00	<1.00	<1.00	<1.00
Chloromethane	ug/l	<5.00	<5.00	<5.00	<5.00
Chloroprene	ug/l	<5.00	<5.00	<5.00	<5.00
Dibromochloromethane	ug/l	<1.00	<1.00	<1.00	<1.00
Dibromomethane	ug/l	<1.00	<1.00	<1.00	<1.00

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	RB-81 04/23/01	TB-118 03/30/01	TB-127 04/17/01	TB-130 04/23/01
VOCs (continued)					
Dichlorodifluoromethane	ug/l	<1.00	<1.00	<1.00	<1.00
Ethyl methacrylate	ug/l	<5.00	<5.00	<5.00	<5.00
Ethylbenzene	ug/l	<1.00	<1.00	<1.00	<1.00
Iodomethane (Methyl Iodide)	ug/l	<5.00	<5.00	<5.00	<5.00
Methacrylonitrile	ug/l	<5.00	<5.00	<5.00	<5.00
Methyl methacrylate	ug/l	<5.00	<5.00	<5.00	<5.00
Methylene Chloride	ug/l	<5.00	<5.00	<5.00	<5.00
Pentachloroethane	ug/l	<5.00	<5.00	<5.00	<5.00
Propionitrile	ug/l	R	<50.0	R	R
Styrene	ug/l	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	ug/l	<1.00	<1.00	<1.00	<1.00
Toluene	ug/l	<1.00	<1.00	<1.00	<1.00
Trichloroethene	ug/l	<1.00	<1.00	<1.00	<1.00
Trichlorofluoromethane	ug/l	<1.00	<1.00	<1.00	<1.00
Vinyl Acetate	ug/l	<5.00	<5.00	<5.00	<5.00
Vinyl Chloride	ug/l	<1.00	<1.00	<1.00	<1.00
Xylenes, Total	ug/l	<1.00	<1.00	<1.00	<1.00
cis-1,2-Dichloroethene	ug/l	<1.00	<1.00	<1.00	<1.00
cis-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	ug/l	<1.00	<1.00	<1.00	<1.00
trans-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00	<1.00
trans-1,4-Dichloro-2-butene	ug/l	<5.00	<5.00	<5.00	<5.00
SVOCs					
1,2,4,5-Tetrachlorobenzene	ug/l	<20.0	--	--	--
1,2,4-Trichlorobenzene	ug/l	<10.0	--	--	--
1,3,5-Trinitrobenzene	ug/l	<30.0	--	--	--
1,4-Napthoquinone	ug/l	<100	--	--	--
1-Naphthylamine	ug/l	<30.0	--	--	--
2,2'-oxybis(1-Chloropropane)	ug/l	<10.0	--	--	--
2,3,4,6-Tetrachlorophenol	ug/l	<20.0	--	--	--
2,4,5-Trichlorophenol	ug/l	<10.0	--	--	--

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	RB-81 04/23/01	TB-118 03/30/01	TB-127 04/17/01	TB-130 04/23/01
SVOCs (continued)					
2,4,6-Trichlorophenol	ug/l	<10.0	--	--	--
2,4-Dichlorophenol	ug/l	<10.0	--	--	--
2,4-Dimethylphenol	ug/l	<10.0	--	--	--
2,4-Dinitrophenol	ug/l	<10.0	--	--	--
2,4-Dinitrotoluene	ug/l	<10.0	--	--	--
2,6-Dichlorophenol	ug/l	<10.0	--	--	--
2,6-Dinitrotoluene	ug/l	<10.0	--	--	--
2-Acetylaminofluorene (2-AAF)	ug/l	<20.0	--	--	--
2-Chloronaphthalene	ug/l	<10.0	--	--	--
2-Chlorophenol	ug/l	<10.0	--	--	--
2-Methylnaphthalene	ug/l	<10.0	--	--	--
2-Naphthylamine	ug/l	<30.0	--	--	--
2-Picoline	ug/l	<20.0	--	--	--
3,3'-Dichlorobenzidine	ug/l	<50.0UJ	--	--	--
3,3'-Dimethylbenzidine	ug/l	<20.0	--	--	--
3-Methylcholanthrene	ug/l	<30.0	--	--	--
4,6-Dinitro-2-methylphenol	ug/l	<10.0	--	--	--
4-Aminobiphenyl	ug/l	<20.0	--	--	--
4-Bromophenyl phenyl ether	ug/l	<10.0	--	--	--
4-Chloro-3-methyl phenol	ug/l	<10.0	--	--	--
4-Chlorophenyl phenyl ether	ug/l	<10.0	--	--	--
4-Nitroquinoline 1-oxide	ug/l	<30.0	--	--	--
5-Nitro-o-toluidine	ug/l	<20.0	--	--	--
7,12-Dimethylbenz(a)anthracene	ug/l	<20.0	--	--	--
Acenaphthene	ug/l	<10.0	--	--	--
Acenaphthylene	ug/l	<10.0	--	--	--
Acetophenone	ug/l	<20.0	--	--	--
Aniline	ug/l	<10.0	--	--	--
Anthracene	ug/l	<10.0	--	--	--
Aramite	ug/l	<15.0	--	--	--
Benzo(a)anthracene	ug/l	<10.0	--	--	--
Benzo(a)pyrene	ug/l	<10.0UJ	--	--	--

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	RB-81 04/23/01	TB-118 03/30/01	TB-127 04/17/01	TB-130 04/23/01
SVOCs (continued)					
Benzo(b)fluoranthene	ug/l	<10.0UJ	--	--	--
Benzo(ghi)perylene	ug/l	<10.0UJ	--	--	--
Benzo(k)fluoranthene	ug/l	<10.0UJ	--	--	--
Benzyl alcohol	ug/l	<10.0	--	--	--
Bis(2-chloroethoxy)methane	ug/l	<10.0	--	--	--
Bis(2-chloroethyl)ether	ug/l	<10.0	--	--	--
Bis(2-ethylhexyl)phthalate	ug/l	<10.0	--	--	--
Butyl benzyl phthalate	ug/l	<10.0	--	--	--
Chlorobenzilate	ug/l	<50.0	--	--	--
Chrysene	ug/l	<10.0	--	--	--
Di-n-butyl phthalate	ug/l	<10.0	--	--	--
Di-n-octyl phthalate	ug/l	<10.0UJ	--	--	--
Diallate	ug/l	<30.0	--	--	--
Dibenzo(a,h)anthracene	ug/l	<10.0UJ	--	--	--
Dibenzofuran	ug/l	<10.0	--	--	--
Diethyl phthalate	ug/l	<10.0	--	--	--
Dimethoate	ug/l	<100	--	--	--
Dimethyl phthalate	ug/l	<10.0	--	--	--
Diphenylamine	ug/l	<20.0	--	--	--
Disulfoton	ug/l	<20.0	--	--	--
Ethyl methanesulfonate	ug/l	<20.0	--	--	--
Famphur	ug/l	<10.0	--	--	--
Fluoranthene	ug/l	<10.0	--	--	--
Fluorene	ug/l	<10.0	--	--	--
Hexachlorobenzene	ug/l	<10.0	--	--	--
Hexachlorobutadiene	ug/l	<10.0	--	--	--
Hexachlorocyclopentadiene	ug/l	<20.0	--	--	--
Hexachloroethane	ug/l	<10.0	--	--	--
Hexachlorophene	ug/l	<500	--	--	--
Hexachloropropene	ug/l	<30.0	--	--	--
Indeno(1,2,3-cd)pyrene	ug/l	<10.0UJ	--	--	--
Isodrin	ug/l	<30.0	--	--	--

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	RB-81 04/23/01	TB-118 03/30/01	TB-127 04/17/01	TB-130 04/23/01
SVOCs (continued)			--	--	--
Isophorone	ug/l	<10.0	--	--	--
Isosafrole	ug/l	<20.0	--	--	--
Kepone	ug/l	<250	--	--	--
Methapyrilene	ug/l	<100	--	--	--
Methyl methanesulfonate	ug/l	<20.0	--	--	--
Methyl parathion	ug/l	<20.0	--	--	--
N-Nitrosodi-n-butylamine	ug/l	<20.0	--	--	--
N-Nitrosodiethylamine	ug/l	<30.0	--	--	--
N-Nitrosodimethylamine	ug/l	<10.0	--	--	--
N-Nitrosodipropylamine	ug/l	<10.0	--	--	--
N-Nitrosomethylethylamine	ug/l	<20.0	--	--	--
N-Nitrosomorpholine	ug/l	<20.0	--	--	--
N-Nitrosopiperidine	ug/l	<20.0	--	--	--
N-Nitrosopyrrolidine	ug/l	<20.0	--	--	--
Naphthalene	ug/l	<10.0	--	--	--
Nitrobenzene	ug/l	<10.0	--	--	--
Parathion	ug/l	<20.0	--	--	--
Pentachlorobenzene	ug/l	<20.0	--	--	--
Pentachloronitrobenzene	ug/l	<20.0	--	--	--
Pentachlorophenol	ug/l	<10.0	--	--	--
Phenacetin	ug/l	<20.0	--	--	--
Phenanthrene	ug/l	<10.0	--	--	--
Phenol	ug/l	<10.0	--	--	--
Phorate	ug/l	<20.0	--	--	--
Pronamide	ug/l	<20.0	--	--	--
Pyrene	ug/l	<10.0	--	--	--
Pyridine	ug/l	<10.0	--	--	--
Safrole	ug/l	<20.0	--	--	--
Sulfotepp	ug/l	<20.0	--	--	--
Thionazin	ug/l	<20.0	--	--	--
Triethyl phosphorothioate	ug/l	<20.0	--	--	--
a,a-Dimethyl-phenethylamine	ug/l	<50.0	--	--	--

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

Draft

COMPOUND	UNITS	RB-81 04/23/01	TB-118 03/30/01	TB-127 04/17/01	TB-130 04/23/01
SVOCs (continued)					
m-Dichlorobenzene	ug/l	<10.0	--	--	--
m-Dinitrobenzene	ug/l	<20.0	--	--	--
m-Nitroaniline	ug/l	<15.0	--	--	--
meta & para-Methylphenol	ug/l	<10.0	--	--	--
o-Dichlorobenzene	ug/l	<10.0	--	--	--
o-Nitroaniline	ug/l	<15.0	--	--	--
o-Nitrophenol	ug/l	<10.0	--	--	--
o-Toluidine	ug/l	<20.0	--	--	--
ortho-Methylphenol	ug/l	<10.0	--	--	--
p-(Dimethylamino)azobenzene	ug/l	<50.0	--	--	--
p-Chloroaniline	ug/l	<10.0	--	--	--
p-Dichlorobenzene	ug/l	<10.0	--	--	--
p-Nitroaniline	ug/l	<15.0	--	--	--
p-Nitrophenol	ug/l	<10.0	--	--	--
p-Phenylenediamine	ug/l	<30.0	--	--	--
PCBs					
Aroclor 1016	ug/l	<0.200	--	--	--
Aroclor 1221	ug/l	<0.200	--	--	--
Aroclor 1232	ug/l	<0.200	--	--	--
Aroclor 1242	ug/l	<0.200	--	--	--
Aroclor 1248	ug/l	<0.200	--	--	--
Aroclor 1254	ug/l	<0.200	--	--	--
Aroclor 1260	ug/l	<0.200	--	--	--
Metals					
Antimony, Dissolved, ICPMS	mg/l	<0.001	--	--	--
Antimony, ICPMS	mg/l	<0.001	--	--	--
Arsenic, Dissolved, ICPMS	mg/l	<0.005	--	--	--
Arsenic, ICPMS	mg/l	<0.005	--	--	--
Barium, Dissolved, ICPMS	mg/l	<0.005	--	--	--
Barium, ICPMS	mg/l	<0.005	--	--	--

Table A-5. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	RB-81 04/23/01	TB-118 03/30/01	TB-127 04/17/01	TB-130 04/23/01
Metals (continued)					
Beryllium, Dissolved, ICPMS	mg/l	<0.001	--	--	--
Beryllium, ICPMS	mg/l	<0.001	--	--	--
Cadmium, Dissolved, ICPMS	mg/l	<0.001	--	--	--
Cadmium, ICPMS	mg/l	<0.001	--	--	--
Chromium, Dissolved, ICPMS	mg/l	<0.002	--	--	--
Chromium, ICPMS	mg/l	<0.002	--	--	--
Cobalt, Dissolved, ICPMS	mg/l	<0.005	--	--	--
Cobalt, ICPMS	mg/l	<0.005	--	--	--
Copper, Dissolved, ICPMS	mg/l	<0.005	--	--	--
Copper, ICPMS	mg/l	<0.005	--	--	--
Lead, Dissolved, ICPMS	mg/l	<0.001	--	--	--
Lead, ICPMS	mg/l	<0.001	--	--	--
Mercury, Dissolved, CVAA	mg/l	<0.0002	--	--	--
Mercury, CVAA	mg/l	<0.0002	--	--	--
Nickel, Dissolved, ICPMS	mg/l	<0.005	--	--	--
Nickel, ICPMS	mg/l	<0.005	--	--	--
Selenium, Dissolved, GFAA	mg/l	<0.005	--	--	--
Selenium, GFAA	mg/l	<0.005	--	--	--
Silver, Dissolved, ICPMS	mg/l	<0.0005	--	--	--
Silver, ICPMS	mg/l	<0.0005	--	--	--
Thallium, Dissolved, ICPMS	mg/l	<0.001	--	--	--
Thallium, ICPMS	mg/l	<0.001	--	--	--
Tin, Dissolved, ICP	mg/l	<2.00	--	--	--
Tin, ICP	mg/l	<2.00	--	--	--
Vanadium, Dissolved, ICPMS	mg/l	<0.005	--	--	--
Vanadium, ICPMS	mg/l	<0.005	--	--	--
Zinc, Dissolved, ICPMS	mg/l	<0.050	--	--	--
Zinc, ICPMS	mg/l	<0.050	--	--	--

ug/l - Micrograms per liter.
mg/l - Milligrams per liter.
-- Not Analyzed.
RB - Rinseate Blank.
TB - Trip Blank.
VOC - Volatile Organic Compounds.
SVOC - Semi-volatile Organic Compounds.
PCB - Polychlorinated Biphenyls.
J - Value is estimated.
R - Value is rejected.
DUP-102 - Duplicate of GM-37.
UJ - Constituent was not detected above the reporting limit. Reporting limit is estimated.
< - Constituent not detected above laboratory reporting limit shown.

Table A-6. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	GM-33 8/7/02	GM-34 8/7/02	GM-35 8/6/02	GM-36 8/5/02	DUP-119 8/5/02	GM-37 8/6/02	GM-38 8/6/02	RW-10 8/8/02
VOCs									
1,1,1,2-Tetrachloroethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
1,1,1-Trichloroethane	ug/l	20	4.8	19	5.5	5.3	17	6	< 1 U
1,1,2,2-Tetrachloroethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
1,1,2-Trichloroethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
1,1-Dichloroethane	ug/l	9.4	2.7	42	21	20	7.1	6.5	17
1,1-Dichloroethene	ug/l	0.99 J	< 1 U	< 14 U	< 2 U	< 2 U	0.98 J	< 2 U	< 1 U
1,2,3-Trichloropropane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 4 U	< 2 U	< 29 U	< 4 U	< 4 U	< 5 U	< 4 U	< 2 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
1,2-Dichloroethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
1,2-Dichloropropane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
1,4-Dioxane	ug/l	R	R	R	R	R	R	R	R
2-Butanone	ug/l	< 20 UJ	< 10 UJ	< 140 U	< 20 U	< 20 U	< 25 U	< 20 U	< 10 U
2-Hexanone	ug/l	< 20 UJ	< 10 UJ	< 140 U	< 20 UJ	< 20 UJ	< 25 U	< 20 U	< 10 UJ
4-Methyl-2-pentanone	ug/l	< 20 U	< 10 U	< 140 U	< 20 U	< 20 U	< 25 U	< 20 U	< 10 U
Acetone	ug/l	5.3 J	3.2 J	< 140 UJ	< 20 UJ	< 20 UJ	< 25 UJ	< 20 UJ	< 10 U
Acetonitrile	ug/l	< 40 U	< 20 U	< 290 U	< 40 U	< 40 U	< 50 U	< 40 U	R
Acrolein	ug/l	R	R	R	R	R	R	R	R
Acrylonitrile	ug/l	R	R	R	R	R	R	R	R
Allyl chloride	ug/l	< 4 U	< 2 U	< 29 U	< 4 U	< 4 U	< 5 U	< 4 U	< 2 U
Benzene	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Bromodichloromethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Bromoform	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Bromomethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Carbon disulfide	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 UJ
Carbon tetrachloride	ug/l	< 2 UJ	< 1 UJ	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	0.32 J
Chlorobenzene	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Chloroethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Chloroform (Trichloromethane)	ug/l	< 2 U	< 1 U	< 14 U	5.3	5.1	< 2.5 U	0.73 J	6.9
Chloromethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Chloroprene	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
	ug/l	< 4 U	< 2 U	< 29 U	< 4 U	< 4 U	< 5 U	< 4 U	< 2 U

Table A-6. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	GM-33 8/7/02	GM-34 8/7/02	GM-35 8/6/02	GM-36 8/5/02	DUP-119 8/5/02	GM-37 8/6/02	GM-38 8/6/02	RW-10 8/8/02
VOCs (continued)									
cis-1,2-Dichloroethene	ug/l	24	3	350	55	54	41	22	6.6
cis-1,3-Dichloropropene	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Dibromochloromethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Dibromomethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Dichlorodifluoromethane (CFC-12)	ug/l	< 2 UJ	< 1 UJ	< 14 U	< 2 UJ	< 2 UJ	< 2.5 U	< 2 U	1.5
Ethyl methacrylate	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Ethylbenzene	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Iodomethane	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 UJ
Isobutyl alcohol	ug/l	R	R	R	< 100 U	< 100 U	R	R	R
Methyl acrylonitrile	ug/l	< 4 U	< 2 U	< 29 U	< 4 U	< 4 U	< 5 U	< 4 U	< 2 U
Methyl methacrylate	ug/l	< 4 U	< 2 U	< 29 U	< 4 U	< 4 U	< 5 U	< 4 U	< 2 U
Methylene chloride	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Propionitrile (Ethyl cyanide)	ug/l	R	R	< 57 U	< 8 U	< 8 U	< 10 U	< 8 U	R
Styrene	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Tetrachloroethene	ug/l	37	20	24	54	53	58	50	< 1 U
Toluene	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 0.77 U
trans-1,2-Dichloroethene	ug/l	1.3	0.4 J	11	1.6 J	0.86 J	1.6	1	1.6
trans-1,3-Dichloropropene	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
trans-1,4-Dichloro-2-butene	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
Trichloroethene	ug/l	71	11	320	50	50	84	25	2
Trichlorofluoromethane (CFC-11)	ug/l	< 2 UJ	< 1 UJ	< 14 U	< 2 UJ	< 2 UJ	< 2.5 U	< 2 U	< 1 U
Vinyl acetate	ug/l	< 4 UJ	< 2 UJ	< 29 U	< 4 UJ	< 4 UJ	< 5 U	< 4 U	< 2 UJ
Vinyl chloride	ug/l	< 2 U	< 1 U	110	< 2 U	< 2 U	< 2.5 U	< 2 U	2.8
Xylene (total)	ug/l	< 2 U	< 1 U	< 14 U	< 2 U	< 2 U	< 2.5 U	< 2 U	< 1 U
SVOCs									
0,0,0-Triethylphosphorothioate	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
1,2,4,5-Tetrachlorobenzene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
1,2,4-Trichlorobenzene	ug/l	89	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
1,2-Dichlorobenzene	ug/l	7.9 J	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	1.1 J
1,3,5-Trinitrobenzene	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
1,3-Dichlorobenzene	ug/l	5 J	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
1,3-Dinitrobenzene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
1,4-Dichlorobenzene	ug/l	7 J	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
1,4-Naphthoquinone	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U

Table A-6. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	GM-33 8/7/02	GM-34 8/7/02	GM-35 8/6/02	GM-36 8/5/02	DUP-119 8/5/02	GM-37 8/6/02	GM-38 8/6/02	RW-10 8/8/02
SVOCs (continued)									
1-Naphthylamine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,2'-oxybis(1-Chloropropane)	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,3,4,6-Tetrachlorophenol	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
2,4,5-Trichlorophenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,4,6-Trichlorophenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,4-Dichlorophenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,4-Dimethylphenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,4-Dinitrophenol	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
2,4-Dinitrotoluene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,6-Dichlorophenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2,6-Dinitrotoluene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Acetylaminofluorene	ug/l	< 400 U	< 100 U	< 400 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U
2-Chloronaphthalene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Chlorophenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Methyl naphthalene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Methylphenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Naphthylamine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Nitroaniline	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
2-Nitrophenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
2-Picoline	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
2-Toluidine	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
3,3'-Dichlorobenzidine	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	R	< 50 U	< 50 U	< 50 U
3,3-Dimethylbenzidine	ug/l	< 200 U	R	< 200 U	R	< 50 U	< 50 U	< 50 U	R
3-Methylcholanthrene	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
3-Methylphenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
3-Nitroaniline	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
4,6-Dinitro-2-methylphenol	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
4-Aminobiphenyl	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
4-Bromophenyl phenyl ether	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
4-Chloro-3-methylphenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
4-Chloroaniline	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
4-Chlorophenyl phenyl ether	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
4-Dimethylaminoazobenzene	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
4-Methylphenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
4-Nitroaniline	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U

Table A-6. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	GM-33 8/7/02	GM-34 8/7/02	GM-35 8/6/02	GM-36 8/5/02	DUP-119 8/5/02	GM-37 8/6/02	GM-38 8/6/02	RW-10 8/8/02
SVOCs (continued)									
4-Nitrophenol	ug/l	< 200 U	< 50 U	< 200 U	< 50 UJ	< 50 UJ	< 50 U	< 50 U	< 50 U
4-Nitroquinoline-N-oxide	ug/l	< 400 U	< 100 U	< 400 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U
5-Nitro-2-Toluidine	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
7,12-Dimethylbenz(a)anthracene	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
a,a-Dimethylphenethylamine	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Acenaphthene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acenaphthylene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acetophenone	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Aniline	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Anthracene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Aramite	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Benzo(a)anthracene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Benzo(a)pyrene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Benzo(b)fluoranthene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Benzo(g,h,i)perylene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Benzo(k)fluoranthene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Benzyl Alcohol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
bis(2-Chloroethoxy)methane	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
bis(2-Chloroethyl)ether	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
bis(2-Ethylhexyl)phthalate	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Butyl benzylphthalate	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Chlorobenzilate	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Chrysene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Diallate	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Dibenz(a,h)anthracene	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Dibenzofuran	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Diethyl phthalate	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Dimethoate	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Dimethyl phthalate	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Di-n-butylphthalate	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Di-n-octyl phthalate	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Dinoseb	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Diphenylamine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Disulfoton	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Ethyl methanesulfonate	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U

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COMPOUND	UNITS	GM-33 8/7/02	GM-34 8/7/02	GM-35 8/6/02	GM-36 8/5/02	DUP-119 8/5/02	GM-37 8/6/02	GM-38 8/6/02	RW-10 8/8/02
SVOCs (continued)									
Famphur	ug/l	< 40 UJ	< 10 UJ	< 40 UJ	< 10 UJ	< 10 UJ	< 10 UJ	< 10 UJ	< 10 UJ
Fluoranthene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Fluorene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Hexachlorobenzene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Hexachlorobutadiene	ug/l	3.7 J	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Hexachlorocyclopentadiene	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Hexachloroethane	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Hexachloropropene	ug/l	< 400 U	< 100 U	< 400 U	< 100 U	< 100 U	< 100 U	< 100 U	< 100 U
Indeno(1,2,3-cd)pyrene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Isophorone	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Isosafrole	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Methapyrilene	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Methyl methanesulfonate	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Naphthalene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Nitrobenzene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Nitrosodiethylamine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Nitrosodimethylamine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Nitrosodi-N-butylamine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Nitrosodi-n-propylamine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Nitrosodiphenylamine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Nitrosomethylethylamine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Nitrosomorpholine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Nitrosopiperidine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
N-Nitrosopyrrolidine	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Pentachlorobenzene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Pentachloroethane	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Pentachloronitrobenzene	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Pentachlorophenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Phenacetin	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Phenanthrene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Phenol	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Phorate	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
p-Phenylenediamine	ug/l	R	R	R	R	R	R	R	R
Pronamide	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Pyrene	ug/l	< 40 U	< 10 U	< 40 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U

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COMPOUND	UNITS	GM-33 8/7/02	GM-34 8/7/02	GM-35 8/6/02	GM-36 8/5/02	DUP-119 8/5/02	GM-37 8/6/02	GM-38 8/6/02	RW-10 8/8/02
SVOCs (continued)									
Pyridine	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Safrole	ug/l	< 80 U	< 20 U	< 80 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Sulfotep	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Thionazin	ug/l	< 200 U	< 50 U	< 200 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
PCBs									
Aroclor-1016	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Aroclor-1221	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Aroclor-1232	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Aroclor-1242	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Aroclor-1248	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Aroclor-1254	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Aroclor-1260	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	0.27 J
Metals									
Antimony	mg/l	0.0033	0.01	< 0.002 U	0.004 J	< 0.002 UJ	< 0.0029 U	0.0063	--
Antimony (Dissolved)	mg/l	0.0032	0.01	< 0.002 U	< 0.002 U	< 0.002 U	< 0.003 U	0.0046	--
Arsenic	mg/l	< 0.0021 U	< 0.002 U	0.013	0.012 J	< 0.0055 UJ	< 0.005 U	0.0099	--
Arsenic (Dissolved)	mg/l	< 0.0016 U	< 0.0019 U	0.012	< 0.005 UJ	< 0.005 UJ	< 0.005 U	< 0.005 U	--
Barium	mg/l	0.099 J	0.12 J	0.17 J	0.24 J	0.26 J	0.11 J	0.22 J	--
Barium (Dissolved)	mg/l	0.092 J	0.12 J	0.17 J	0.27 J	0.26 J	0.11 J	0.21 J	--
Beryllium	mg/l	< 0.001 U	< 0.001 U	< 0.001 U	0.00017 J	< 0.001 UJ	< 0.001 U	0.00022 B	--
Beryllium (Dissolved)	mg/l	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	--
Cadmium	mg/l	< 0.001 U	< 0.001 U	0.00076 B	0.00041 J	0.00026 J	< 0.001 U	0.00017 B	--
Cadmium (Dissolved)	mg/l	< 0.001 U	< 0.001 U	0.00071 B	0.00015 B	0.00013 B	< 0.001 U	0.000098 B	--
Chromium	mg/l	0.0021	0.0011 B	0.0093	0.021 J	0.0086 J	< 0.006 U	< 0.0082 U	--
Chromium (Dissolved)	mg/l	0.00065 B	0.00048 B	0.0052	0.0015 B	0.0013 B	0.001 B	0.00094 B	--
Cobalt	mg/l	0.0031	0.0027	0.029	0.0072	0.0058	0.0028	0.0095	--
Cobalt (Dissolved)	mg/l	0.0026	0.0028	0.03	0.0047	0.0043	0.0025	0.007	--
Copper	mg/l	0.0049 J	0.0026 J	< 0.02 U	0.03 J	0.012 J	< 0.0045 U	< 0.018 U	--
Copper (Dissolved)	mg/l	0.0039 J	0.0025 J	< 0.0025 U	0.0045 J	0.0043 J	< 0.0035 U	< 0.0041 U	--
Lead	mg/l	0.00075 BJ	< 0.00022 U	< 0.0021 U	0.0079 J	0.0024 J	< 0.001 U	< 0.0073 U	--
Lead (Dissolved)	mg/l	< 0.0002 U	< 0.00015 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	< 0.001 U	--
Nickel	mg/l	0.016 J	0.016 J	0.026 J	0.04 J	0.029 J	0.018 J	0.022 J	--
Nickel (Dissolved)	mg/l	0.015 J	0.016 J	0.023 J	0.024 J	0.022 J	0.014 J	0.016 J	--

Table A-6. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	GM-33 8/7/02	GM-34 8/7/02	GM-35 8/6/02	GM-36 8/5/02	DUP-119 8/5/02	GM-37 8/6/02	GM-38 8/6/02	RW-10 8/8/02
Metals (continued)									
Selenium	mg/l	< 0.00044 U	0.0017 BJ	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	--
Selenium (Dissolved)	mg/l	< 0.005 U	0.0021 BJ	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	--
Silver	mg/l	< 0.001 UJ	< 0.001 UJ	0.00059 J	< 0.001 UJ	< 0.001 UJ	0.00013 J	0.00013 J	--
Silver (Dissolved)	mg/l	< 0.001 UJ	< 0.001 UJ	0.00045 J	< 0.001 U	< 0.001 U	< 0.001 UJ	< 0.001 UJ	--
Thallium	mg/l	< 0.000063 U	< 0.001 U	< 0.001 U	0.00049 B	0.00038 B	< 0.001 U	< 0.001 U	--
Thallium (Dissolved)	mg/l	< 0.000049 U	< 0.001 U	< 0.001 U	0.00032 B	0.00029 B	< 0.001 U	< 0.001 U	--
Tin	mg/l	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--
Tin, Dissolved	mg/l	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	< 0.01 U	--
Vanadium	mg/l	< 0.00083 U	< 0.005 U	0.0039 B	0.0074 J	0.0021 J	0.00052 B	0.0099	--
Vanadium (Dissolved)	mg/l	< 0.005 U	< 0.005 U	0.0026 B	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	--
Zinc	mg/l	0.011	0.0088 B	< 0.022 U	0.088 J	0.041 J	< 0.014 U	< 0.052 U	--
Zinc (Dissolved)	mg/l	0.0081 B	0.0075 B	< 0.01 U	0.018	0.015	< 0.011 U	< 0.01 U	--
Mercury	mg/l	< 0.0002 U	< 0.0002 U	< 0.0002 U	0.00018 B	< 0.0002 U	< 0.0002 U	0.00011 B	--
Mercury (Dissolved)	mg/l	< 0.0002 U	< 0.0002 U	< 0.0002 U	< 0.0002 U	< 0.0002 U	< 0.0002 U	< 0.0002 U	--

Table A-6. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	RW-11 8/8/02	RB-97 8/6/02	TB-147 8/5/02	TB-148 8/6/02	TB-150 8/7/02	TB-152 8/8/02
VOCs							
1,1,1,2-Tetrachloroethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2,3-Trichloropropane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 25 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloropropane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dioxane	ug/l	R	R	R	R	R	R
2-Butanone	ug/l	< 120 U	< 10 U	< 10 U	< 10 U	< 10 UJ	< 10 U
2-Hexanone	ug/l	< 120 UJ	< 10 U	< 10 UJ	< 10 U	< 10 UJ	< 10 UJ
4-Methyl-2-pentanone	ug/l	< 120 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acetone	ug/l	< 65 U	1.4 J	< 10 U	< 10 UJ	< 4.4 UJ	< 5.7 U
Acetonitrile	ug/l	R	< 20 U	< 20 U	< 20 U	< 20 U	R
Acrolein	ug/l	R	R	R	R	R	R
Acrylonitrile	ug/l	R	R	R	R	R	R
Allyl chloride	ug/l	< 25 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Benzene	ug/l	< 12 U	2.7	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromoform	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromomethane	ug/l	< 4.1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
Carbon disulfide	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U
Chlorobenzene	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform (Trichloromethane)	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloromethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroprene	ug/l	< 25 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U

Table A-6. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	RW-11 8/8/02	RB-97 8/6/02	TB-147 8/5/02	TB-148 8/6/02	TB-150 8/7/02	TB-152 8/8/02
VOCs (continued)							
cis-1,2-Dichloroethene	ug/l	< 6.2 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dibromochloromethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dibromomethane	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane (CFC-12)	ug/l	< 12 U	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U
Ethyl methacrylate	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Ethylbenzene	ug/l	< 12 U	1.2	< 1 U	< 1 U	< 1 U	< 1 U
Iodomethane	ug/l	4.9 J	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
Isobutyl alcohol	ug/l	R	R	< 50 U	R	R	R
Methyl acrylonitrile	ug/l	< 25 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Methyl methacrylate	ug/l	< 25 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
Methylene chloride	ug/l	< 12 U	< 1 U	< 1.3 U	< 1 U	< 1.3 U	< 1.6 U
Propionitrile (Ethyl cyanide)	ug/l	R	< 4 U	< 4 U	< 4 U	R	R
Styrene	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Toluene	ug/l	< 12 U	8.2	< 1 U	0.66 J	< 0.78 U	< 0.64 U
trans-1,2-Dichloroethene	ug/l	< 6.2 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,3-Dichloropropene	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,4-Dichloro-2-butene	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	ug/l	< 12 U	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U
Vinyl acetate	ug/l	< 25 UJ	< 2 U	< 2 UJ	< 2 U	< 2 UJ	< 2 UJ
Vinyl chloride	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Xylene (total)	ug/l	< 12 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
SVOCs							
0,0,0-Triethylphosphorothioate	ug/l	< 250 U	< 50 U	--	--	--	--
1,2,4,5-Tetrachlorobenzene	ug/l	< 50 U	< 10 U	--	--	--	--
1,2,4-Trichlorobenzene	ug/l	< 50 U	< 10 U	--	--	--	--
1,2-Dichlorobenzene	ug/l	< 50 U	< 10 U	--	--	--	--
1,3,5-Trinitrobenzene	ug/l	< 250 U	< 50 U	--	--	--	--
1,3-Dichlorobenzene	ug/l	< 50 U	< 10 U	--	--	--	--
1,3-Dinitrobenzene	ug/l	< 50 U	< 10 U	--	--	--	--
1,4-Dichlorobenzene	ug/l	< 50 U	< 10 U	--	--	--	--
1,4-Naphthoquinone	ug/l	< 250 U	< 50 U	--	--	--	--

Table A-6. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	RW-11 8/8/02	RB-97 8/6/02	TB-147 8/5/02	TB-148 8/6/02	TB-150 8/7/02	TB-152 8/8/02
SVOCs (continued)							
1-Naphthylamine	ug/l	< 50 U	< 10 U	--	--	--	--
2,2'-oxybis(1-Chloropropane)	ug/l	< 50 U	< 10 U	--	--	--	--
2,3,4,6-Tetrachlorophenol	ug/l	< 250 U	< 50 U	--	--	--	--
2,4,5-Trichlorophenol	ug/l	< 50 U	< 10 U	--	--	--	--
2,4,6-Trichlorophenol	ug/l	< 50 U	< 10 U	--	--	--	--
2,4-Dichlorophenol	ug/l	< 50 U	< 10 U	--	--	--	--
2,4-Dimethylphenol	ug/l	< 50 U	< 10 U	--	--	--	--
2,4-Dinitrophenol	ug/l	< 250 U	< 50 U	--	--	--	--
2,4-Dinitrotoluene	ug/l	< 50 U	< 10 U	--	--	--	--
2,6-Dichlorophenol	ug/l	< 50 U	< 10 U	--	--	--	--
2,6-Dinitrotoluene	ug/l	< 50 U	< 10 U	--	--	--	--
2-Acetylaminofluorene	ug/l	< 500 U	< 100 U	--	--	--	--
2-Chloronaphthalene	ug/l	< 50 U	< 10 U	--	--	--	--
2-Chlorophenol	ug/l	< 50 U	< 10 U	--	--	--	--
2-Methyl naphthalene	ug/l	< 50 U	< 10 U	--	--	--	--
2-Methylphenol	ug/l	< 50 U	< 10 U	--	--	--	--
2-Naphthylamine	ug/l	< 50 U	< 10 U	--	--	--	--
2-Nitroaniline	ug/l	< 250 U	< 50 U	--	--	--	--
2-Nitrophenol	ug/l	< 50 U	< 10 U	--	--	--	--
2-Picoline	ug/l	< 100 U	< 20 U	--	--	--	--
2-Toluidine	ug/l	< 100 U	< 20 U	--	--	--	--
3,3'-Dichlorobenzidine	ug/l	< 250 U	< 50 U	--	--	--	--
3,3-Dimethylbenzidine	ug/l	R	< 50 U	--	--	--	--
3-Methylcholanthrene	ug/l	< 100 U	< 20 U	--	--	--	--
3-Methylphenol	ug/l	< 50 U	< 10 U	--	--	--	--
3-Nitroaniline	ug/l	< 250 U	< 50 U	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/l	< 250 U	< 50 U	--	--	--	--
4-Aminobiphenyl	ug/l	< 250 U	< 50 U	--	--	--	--
4-Bromophenyl phenyl ether	ug/l	< 50 U	< 10 U	--	--	--	--
4-Chloro-3-methylphenol	ug/l	< 50 U	< 10 U	--	--	--	--
4-Chloroaniline	ug/l	< 50 U	< 10 U	--	--	--	--
4-Chlorophenyl phenyl ether	ug/l	< 50 U	< 10 U	--	--	--	--
4-Dimethylaminoazobenzene	ug/l	< 100 U	< 20 U	--	--	--	--
4-Methylphenol	ug/l	< 50 U	< 10 U	--	--	--	--
4-Nitroaniline	ug/l	< 250 U	< 50 U	--	--	--	--

Table A-6. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	RW-11 8/8/02	RB-97 8/6/02	TB-147 8/5/02	TB-148 8/6/02	TB-150 8/7/02	TB-152 8/8/02
SVOCs (continued)							
4-Nitrophenol	ug/l	< 250 U	< 50 U	--	--	--	--
4-Nitroquinoline-N-oxide	ug/l	< 500 U	< 100 U	--	--	--	--
5-Nitro-2-Toluidine	ug/l	< 100 U	< 20 U	--	--	--	--
7,12-Dimethylbenz(a)anthracene	ug/l	< 100 U	< 20 U	--	--	--	--
a,a-Dimethylphenethylamine	ug/l	< 250 U	< 50 U	--	--	--	--
Acenaphthene	ug/l	< 50 U	< 10 U	--	--	--	--
Acenaphthylene	ug/l	< 50 U	< 10 U	--	--	--	--
Acetophenone	ug/l	< 50 U	< 10 U	--	--	--	--
Aniline	ug/l	< 50 U	< 10 U	--	--	--	--
Anthracene	ug/l	< 50 U	< 10 U	--	--	--	--
Aramite	ug/l	< 50 U	< 10 U	--	--	--	--
Benzo(a)anthracene	ug/l	< 50 U	< 10 U	--	--	--	--
Benzo(a)pyrene	ug/l	< 50 U	< 10 U	--	--	--	--
Benzo(b)fluoranthene	ug/l	< 50 U	< 10 U	--	--	--	--
Benzo(g,h,i)perylene	ug/l	< 50 U	< 10 U	--	--	--	--
Benzo(k)fluoranthene	ug/l	< 50 U	< 10 U	--	--	--	--
Benzyl Alcohol	ug/l	< 50 U	< 10 U	--	--	--	--
bis(2-Chloroethoxy)methane	ug/l	< 50 U	< 10 U	--	--	--	--
bis(2-Chloroethyl)ether	ug/l	< 50 U	< 10 U	--	--	--	--
bis(2-Ethylhexyl)phthalate	ug/l	< 50 U	< 10 U	--	--	--	--
Butyl benzylphthalate	ug/l	< 50 U	< 10 U	--	--	--	--
Chlorobenzilate	ug/l	< 50 U	< 10 U	--	--	--	--
Chrysene	ug/l	< 50 U	< 10 U	--	--	--	--
Diallate	ug/l	< 100 U	< 20 U	--	--	--	--
Dibenz(a,h)anthracene	ug/l	< 50 U	< 10 U	--	--	--	--
Dibenzofuran	ug/l	< 50 U	< 10 U	--	--	--	--
Diethyl phthalate	ug/l	< 50 U	< 10 U	--	--	--	--
Dimethoate	ug/l	< 100 U	< 20 U	--	--	--	--
Dimethyl phthalate	ug/l	< 50 U	< 10 U	--	--	--	--
Di-n-butylphthalate	ug/l	< 50 U	< 10 U	--	--	--	--
Di-n-octyl phthalate	ug/l	< 50 U	< 10 U	--	--	--	--
Dinoseb	ug/l	< 100 U	< 20 U	--	--	--	--
Diphenylamine	ug/l	< 50 U	< 10 U	--	--	--	--
Disulfoton	ug/l	< 250 U	< 50 U	--	--	--	--
Ethyl methanesulfonate	ug/l	< 50 U	< 10 U	--	--	--	--

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COMPOUND	UNITS	RW-11 8/8/02	RB-97 8/6/02	TB-147 8/5/02	TB-148 8/6/02	TB-150 8/7/02	TB-152 8/8/02
SVOCs (continued)							
Famphur	ug/l	< 50 UJ	< 10 UJ	--	--	--	--
Fluoranthene	ug/l	< 50 U	< 10 U	--	--	--	--
Fluorene	ug/l	< 50 U	< 10 U	--	--	--	--
Hexachlorobenzene	ug/l	< 50 U	< 10 U	--	--	--	--
Hexachlorobutadiene	ug/l	< 50 U	< 10 U	--	--	--	--
Hexachlorocyclopentadiene	ug/l	< 250 U	< 50 U	--	--	--	--
Hexachloroethane	ug/l	< 50 U	< 10 U	--	--	--	--
Hexachloropropene	ug/l	< 500 U	< 100 U	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/l	< 50 U	< 10 U	--	--	--	--
Isophorone	ug/l	< 50 U	< 10 U	--	--	--	--
Isosafrole	ug/l	< 100 U	< 20 U	--	--	--	--
Methapyrilene	ug/l	< 250 U	< 50 U	--	--	--	--
Methyl methanesulfonate	ug/l	< 50 U	< 10 U	--	--	--	--
Naphthalene	ug/l	< 50 U	1.3 J	--	--	--	--
Nitrobenzene	ug/l	< 50 U	< 10 U	--	--	--	--
N-Nitrosodiethylamine	ug/l	< 50 U	< 10 U	--	--	--	--
N-Nitrosodimethylamine	ug/l	< 50 U	< 10 U	--	--	--	--
N-Nitrosodi-N-butylamine	ug/l	< 50 U	< 10 U	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l	< 50 U	< 10 U	--	--	--	--
N-Nitrosodiphenylamine	ug/l	< 50 U	< 10 U	--	--	--	--
N-Nitrosomethylethylamine	ug/l	< 50 U	< 10 U	--	--	--	--
N-Nitrosomorpholine	ug/l	< 50 U	< 10 U	--	--	--	--
N-Nitrosopiperidine	ug/l	< 50 U	< 10 U	--	--	--	--
N-Nitrosopyrrolidine	ug/l	< 50 U	< 10 U	--	--	--	--
Pentachlorobenzene	ug/l	< 50 U	< 10 U	--	--	--	--
Pentachloroethane	ug/l	< 250 U	< 50 U	--	--	--	--
Pentachloronitrobenzene	ug/l	< 250 U	< 50 U	--	--	--	--
Pentachlorophenol	ug/l	< 50 U	< 10 U	--	--	--	--
Phenacetin	ug/l	< 100 U	< 20 U	--	--	--	--
Phenanthrene	ug/l	< 50 U	< 10 U	--	--	--	--
Phenol	ug/l	< 50 U	< 10 U	--	--	--	--
Phorate	ug/l	< 250 U	< 50 U	--	--	--	--
p-Phenylenediamine	ug/l	R	R	--	--	--	--
Pronamide	ug/l	< 100 U	< 20 U	--	--	--	--
Pyrene	ug/l	< 50 U	< 10 U	--	--	--	--

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COMPOUND	UNITS	RW-11 8/8/02	RB-97 8/6/02	TB-147 8/5/02	TB-148 8/6/02	TB-150 8/7/02	TB-152 8/8/02
SVOCs (continued)							
Pyridine	ug/l	< 100 U	< 20 U	--	--	--	--
Safrole	ug/l	< 100 U	< 20 U	--	--	--	--
Sulfotep	ug/l	< 250 U	< 50 U	--	--	--	--
Thionazin	ug/l	< 250 U	< 50 U	--	--	--	--
PCBs							
Aroclor-1016	ug/l	< 1 U	< 1 U	--	--	--	--
Aroclor-1221	ug/l	< 1 U	< 1 U	--	--	--	--
Aroclor-1232	ug/l	< 1 U	< 1 U	--	--	--	--
Aroclor-1242	ug/l	< 1 U	< 1 U	--	--	--	--
Aroclor-1248	ug/l	< 1 U	< 1 U	--	--	--	--
Aroclor-1254	ug/l	2.7	< 1 U	--	--	--	--
Aroclor-1260	ug/l	< 1 U	< 1 U	--	--	--	--
Metals							
Antimony	mg/l	--	< 0.002 U	--	--	--	--
Antimony (Dissolved)	mg/l	--	< 0.002 U	--	--	--	--
Arsenic	mg/l	--	0.0015 B	--	--	--	--
Arsenic (Dissolved)	mg/l	--	0.0012 B	--	--	--	--
Barium	mg/l	--	0.000064 BJ	--	--	--	--
Barium (Dissolved)	mg/l	--	0.000079 BJ	--	--	--	--
Beryllium	mg/l	--	< 0.001 U	--	--	--	--
Beryllium (Dissolved)	mg/l	--	< 0.001 U	--	--	--	--
Cadmium	mg/l	--	< 0.001 U	--	--	--	--
Cadmium (Dissolved)	mg/l	--	< 0.001 U	--	--	--	--
Chromium	mg/l	--	0.0017 B	--	--	--	--
Chromium (Dissolved)	mg/l	--	< 0.002 U	--	--	--	--
Cobalt	mg/l	--	< 0.001 U	--	--	--	--
Cobalt (Dissolved)	mg/l	--	0.000048 B	--	--	--	--
Copper	mg/l	--	0.015 J	--	--	--	--
Copper (Dissolved)	mg/l	--	0.011 J	--	--	--	--
Lead	mg/l	--	0.0062 J	--	--	--	--
Lead (Dissolved)	mg/l	--	0.0051 J	--	--	--	--
Nickel	mg/l	--	0.0012 BJ	--	--	--	--
Nickel (Dissolved)	mg/l	--	0.00011 BJ	--	--	--	--

Table A-6. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater, August 2002, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio. **Draft**

COMPOUND	UNITS	RW-11 8/8/02	RB-97 8/6/02	TB-147 8/5/02	TB-148 8/6/02	TB-150 8/7/02	TB-152 8/8/02
Metals (continued)							
Selenium	mg/l	--	0.00035 BJ	--	--	--	--
Selenium (Dissolved)	mg/l	--	< 0.005 U	--	--	--	--
Silver	mg/l	--	< 0.001 U	--	--	--	--
Silver (Dissolved)	mg/l	--	< 0.001 U	--	--	--	--
Thallium	mg/l	--	< 0.001 U	--	--	--	--
Thallium (Dissolved)	mg/l	--	< 0.001 U	--	--	--	--
Tin	mg/l	--	< 0.01 U	--	--	--	--
Tin, Dissolved	mg/l	--	< 0.01 U	--	--	--	--
Vanadium	mg/l	--	< 0.005 U	--	--	--	--
Vanadium (Dissolved)	mg/l	--	< 0.005 U	--	--	--	--
Zinc	mg/l	--	0.015	--	--	--	--
Zinc (Dissolved)	mg/l	--	0.014	--	--	--	--
Mercury	mg/l	--	< 0.0002 U	--	--	--	--
Mercury (Dissolved)	mg/l	--	< 0.0002 U	--	--	--	--

ug/l - Micrograms per liter.
mg/l - Milligrams per liter.
-- Not analyzed.
RB - Rinseate blank.
TB - Trip blank.
VOCs - Volatile organic compounds.
SVOCs - Semi-volatile organic compounds.
PCBs - Polychlorinated biphenyls.
DUP-119 - Duplicate of GM-36.
R - Value is rejected.
U - Constituent was not detected above the reporting limit.
UJ - Constituent was not detected above the reporting limit. Reporting limit is estimated.
< - Constituent not detected above laboratory reporting limit.
Organic Compounds: J - Result is above the method detection limit but below the reporting limit.
Organic Compounds: B - Analyte was also detected in the associated method blank.
Inorganic Compounds: B - Result is above the method detection limit but below the reporting limit.
Inorganic Compounds: J - Analyte was also detected in the associated method blank.

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH08 04/16/01	WPSA-BH09 04/19/01	WPSA-BH10 04/23/01	WPSA-BH11 04/23/01	WPSA-BH12 04/23/01	WPSA-BH13 04/16/01	WPSA-BH14 04/23/01
VOCs								
1,1,1,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,1-Trichloroethane	ug/l	18.2	22.2	6.20	18.5	1.40	<1.00	1.20
1,1,2,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,2-Trichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	ug/l	30.8	110	23.6	152	249	198	33.1
1,1-Dichloroethene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2,3-Trichloropropane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
1,2-Dibromo-3-chloropropane	ug/l	<5.00	<5.00	<5.00UJ	<5.00UJ	<5.00UJ	<5.00	<5.00UJ
1,2-Dibromoethane (EDB)	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
1,2-Dichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloropropane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
2-Butanone (MEK)	ug/l	R	R	R	19.4J	R	R	R
2-Hexanone	ug/l	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5
4-Methyl-2-pentanone (MIBK)	ug/l	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5
Acetone	ug/l	<20.0	<20.0UJ	<20.0	81.7	<20.0	<20.0	<20.0
Acrolein	ug/l	R	R	R	R	R	R	<50.0
Acrylonitrile	ug/l	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	R
Allyl chloride	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Benzene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	1.30	<1.00
Bromodichloromethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromoform	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromomethane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Carbon disulfide	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Carbon tetrachloride	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chlorobenzene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloroethane	ug/l	20.3	8.90	117	257	43.8	130	29.5
Chloroform	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloromethane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Chloroprene	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Dibromochloromethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Dibromomethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Dichlorodifluoromethane	ug/l	1.50	1.70	3.10	3.20	1.00	2.60	1.50
Ethyl methacrylate	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Ethylbenzene	ug/l	<1.00	1.70	5.90	70.3	1.40	4.50	<1.00
Iodomethane (Methyl Iodide)	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Methacrylonitrile	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH08 04/16/01	WPSA-BH09 04/19/01	WPSA-BH10 04/23/01	WPSA-BH11 04/23/01	WPSA-BH12 04/23/01	WPSA-BH13 04/16/01	WPSA-BH14 04/23/01
VOCs (continued)								
Methyl methacrylate	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Methylene Chloride	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Pentachloroethane	ug/l	<5.00	<5.00UJ	<5.00	<5.00	<5.00	<5.00	<5.00
Propionitrile	ug/l	R	R	R	R	R	R	R
Styrene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	ug/l	41.1	55.5	1.30	<1.00	1.90	48.4	9.40
Toluene	ug/l	<1.00	2.40	8.20	28.2	1.20	6.70	1.40
Trichloroethene	ug/l	187	57.2	10.0	5.70	10.0	11.1	16.0
Trichlorofluoromethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl Acetate	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Vinyl Chloride	ug/l	1.30	5.30	12.5	10.4	4.10	4.00	7.30
Xylenes, Total	ug/l	<1.00	<1.00	<1.00	4.80	<1.00	18.4	<1.00
cis-1,2-Dichloroethene	ug/l	53.3	74.5	141	55.4	23.9	12.9	32.2
cis-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	ug/l	2.50	1.90	4.80	3.70	1.90	1.30	<1.00
trans-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,4-Dichloro-2-butene	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
SVOCs								
1,2,4,5-Tetrachlorobenzene	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
1,2,4-Trichlorobenzene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
1,3,5-Trinitrobenzene	ug/l	<30.0	<30.0	<1500UJ	<3000UJ	<30.0	<30.0	<30.0
1,4-Napthoquinone	ug/l	<100	<100	<5000UJ	<10000UJ	<100	<100	<100
1-Naphthylamine	ug/l	<30.0	<30.0	<1500UJ	<3000UJ	<30.0	<30.0	<30.0
2,2'-oxybis(1-Chloropropane)	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2,3,4,6-Tetrachlorophenol	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
2,4,5-Trichlorophenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2,4,6-Trichlorophenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2,4-Dichlorophenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2,4-Dimethylphenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2,4-Dinitrophenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2,4-Dinitrotoluene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2,6-Dichlorophenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2,6-Dinitrotoluene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2-Acetylaminofluorene (2-AAF)	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
2-Chloronaphthalene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH08 04/16/01	WPSA-BH09 04/19/01	WPSA-BH10 04/23/01	WPSA-BH11 04/23/01	WPSA-BH12 04/23/01	WPSA-BH13 04/16/01	WPSA-BH14 04/23/01
SVOCs (continued)								
2-Chlorophenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2-Methylnaphthalene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
2-Naphthylamine	ug/l	<30.0	<30.0	<1500UJ	<3000UJ	<30.0	<30.0	<30.0
2-Picoline	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
3,3'-Dichlorobenzidine	ug/l	<50.0	<50.0	<2500UJ	<5000UJ	<50.0UJ	<50.0	<50.0UJ
3,3'-Dimethylbenzidine	ug/l	<20.0	<20.0UJ	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
3-Methylcholanthrene	ug/l	<30.0	<30.0	<1500UJ	<3000UJ	<30.0	<30.0	<30.0
4,6-Dinitro-2-methylphenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
4-Aminobiphenyl	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
4-Bromophenyl phenyl ether	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
4-Chloro-3-methyl phenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
4-Chlorophenyl phenyl ether	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
4-Nitroquinoline 1-oxide	ug/l	<30.0	<30.0	<1500UJ	<3000UJ	<30.0	<30.0	<30.0
5-Nitro-o-toluidine	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
7,12-Dimethylbenz(a)anthracene	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Acenaphthene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Acenaphthylene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Acetophenone	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Aniline	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Anthracene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Aramite	ug/l	<15.0	<15.0	<750UJ	<1500UJ	<15.0	<15.0	<15.0
Benzo(a)anthracene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Benzo(a)pyrene	ug/l	<10.0	<10.0UJ	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Benzo(b)fluoranthene	ug/l	<10.0	<10.0UJ	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Benzo(ghi)perylene	ug/l	<10.0	<10.0UJ	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Benzo(k)fluoranthene	ug/l	<10.0	<10.0UJ	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Benzyl alcohol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Bis(2-chloroethoxy)methane	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Bis(2-chloroethyl)ether	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Bis(2-ethylhexyl)phthalate	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Butyl benzyl phthalate	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Chlorobenzilate	ug/l	<50.0	<50.0	<2500UJ	<5000UJ	<50.0	<50.0	<50.0
Chrysene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Di-n-butyl phthalate	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Di-n-octyl phthalate	ug/l	<10.0	<10.0UJ	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Diallate	ug/l	<30.0	<30.0	<1500UJ	<3000UJ	<30.0	<30.0	<30.0

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH08 04/16/01	WPSA-BH09 04/19/01	WPSA-BH10 04/23/01	WPSA-BH11 04/23/01	WPSA-BH12 04/23/01	WPSA-BH13 04/16/01	WPSA-BH14 04/23/01
SVOCs (continued)								
Dibenzo(a,h)anthracene	ug/l	<10.0	<10.0UJ	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Dibenzofuran	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Diethyl phthalate	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Dimethoate	ug/l	<100	<100	<5000UJ	<10000UJ	<100	<100	<100
Dimethyl phthalate	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Diphenylamine	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Disulfoton	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Ethyl methanesulfonate	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Famphur	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Fluoranthene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Fluorene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Hexachlorobenzene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Hexachlorobutadiene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Hexachlorocyclopentadiene	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Hexachloroethane	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Hexachlorophene	ug/l	<500	<500	<25000UJ	<50000UJ	<500	<500	<500
Hexachloropropene	ug/l	<30.0	<30.0UJ	<1500UJ	<3000UJ	<30.0	<30.0	<30.0
Indeno(1,2,3-cd)pyrene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Isodrin	ug/l	<30.0	<30.0	<1500UJ	<3000UJ	<30.0	<30.0	<30.0
Isophorone	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Isosafrole	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Kepone	ug/l	<250	<250	<12000UJ	<25000UJ	<250	<250	<250
Methapyrilene	ug/l	<100	<100	<5000UJ	<10000UJ	<100	<100	<100
Methyl methanesulfonate	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Methyl parathion	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
N-Nitrosodi-n-butylamine	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
N-Nitrosodiethylamine	ug/l	<30.0	<30.0	<1500UJ	<3000UJ	<30.0	<30.0	<30.0
N-Nitrosodimethylamine	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
N-Nitrosodipropylamine	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
N-Nitrosomethylethylamine	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
N-Nitrosomorpholine	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
N-Nitrosopiperidine	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
N-Nitrosopyrrolidine	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Naphthalene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Nitrobenzene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Parathion	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH08 04/16/01	WPSA-BH09 04/19/01	WPSA-BH10 04/23/01	WPSA-BH11 04/23/01	WPSA-BH12 04/23/01	WPSA-BH13 04/16/01	WPSA-BH14 04/23/01
SVOCs (continued)								
Pentachlorobenzene	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Pentachloronitrobenzene	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Pentachlorophenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Phenacetin	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Phenanthrene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Phenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Phorate	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Pronamide	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Pyrene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Pyridine	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
Safrole	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Sulfotepp	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Thionazin	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
Triethyl phosphorothioate	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
a,a-Dimethyl-phenethylamine	ug/l	<50.0	<50.0	<2500UJ	<5000UJ	<50.0	<50.0	<50.0
m-Dichlorobenzene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
m-Dinitrobenzene	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
m-Nitroaniline	ug/l	<15.0	<15.0	<750UJ	<1500UJ	<15.0	<15.0	<15.0
meta & para-Methylphenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
o-Dichlorobenzene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
o-Nitroaniline	ug/l	<15.0	<15.0	<750UJ	<1500UJ	<15.0	<15.0	<15.0
o-Nitrophenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
o-Toluidine	ug/l	<20.0	<20.0	<1000UJ	<2000UJ	<20.0	<20.0	<20.0
ortho-Methylphenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
p-(Dimethylamino)azobenzene	ug/l	<50.0	<50.0	<2500UJ	<5000UJ	<50.0	<50.0	<50.0
p-Chloroaniline	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
p-Dichlorobenzene	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
p-Nitroaniline	ug/l	<15.0	<15.0	<750UJ	<1500UJ	<15.0	<15.0	<15.0
p-Nitrophenol	ug/l	<10.0	<10.0	<500UJ	<1000UJ	<10.0	<10.0	<10.0
p-Phenylenediamine	ug/l	<30.0	<30.0	<1500UJ	<3000UJ	<30.0	<30.0	<30.0
PCBs								
Aroclor 1016	ug/l	<0.200	<0.200	<10.0UJ	<20.0UJ	<0.200UJ	<0.200	<0.200UJ
Aroclor 1221	ug/l	<0.200	<0.200	<10.0UJ	<20.0UJ	<0.200UJ	<0.200	<0.200UJ
Aroclor 1232	ug/l	<0.200	<0.200	<10.0UJ	<20.0UJ	<0.200UJ	<0.200	<0.200UJ
Aroclor 1242	ug/l	<0.200	<0.200	<10.0UJ	<20.0UJ	<0.200UJ	<0.200	<0.200UJ

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH08 04/16/01	WPSA-BH09 04/19/01	WPSA-BH10 04/23/01	WPSA-BH11 04/23/01	WPSA-BH12 04/23/01	WPSA-BH13 04/16/01	WPSA-BH14 04/23/01
PCBs (continued)								
Aroclor 1248	ug/l	<0.200	<0.200	<10.0UJ	<20.0UJ	<0.200UJ	<0.200	<0.200UJ
Aroclor 1254	ug/l	<0.200	<0.200	52.2J	149J	<0.200UJ	<0.200	<0.200UJ
Aroclor 1260	ug/l	<0.200	<0.200	<10.0UJ	<20.0UJ	<0.200UJ	<0.200	<0.200UJ
Metals								
Antimony, Dissolved, ICPMS	mg/l	0.0176	0.0542	0.130	0.327	0.0236	0.006	0.0082
Antimony, ICPMS	mg/l	0.0335	0.322	0.693J	1.85J	0.203J	0.0719	0.0239J
Arsenic, Dissolved, ICPMS	mg/l	<0.005	<0.005	0.0117	0.0184	0.0056	<0.010	<0.005
Arsenic, ICPMS	mg/l	0.104	0.112	0.314J	0.718J	0.0931J	<0.050	<0.050UJ
Barium, Dissolved, ICPMS	mg/l	0.117	0.120	0.237	0.398	0.704	0.501	0.413
Barium, ICPMS	mg/l	0.524	2.38	0.905	0.799	3.26	9.53	5.32
Beryllium, Dissolved, ICPMS	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Beryllium, ICPMS	mg/l	<0.005	<0.010	0.0033	0.0015	0.0038	0.013	0.0152
Cadmium, Dissolved, ICPMS	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium, ICPMS	mg/l	<0.005	<0.010	0.0046	0.0023	0.0069	0.0959	0.0137
Chromium, Dissolved, ICPMS	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium, ICPMS	mg/l	0.0764	0.216	0.150J	0.0133J	0.135J	1.07	0.416J
Cobalt, Dissolved, ICPMS	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt, ICPMS	mg/l	0.0594	0.208	0.0908	0.0364	0.058	0.347	0.349
Copper, Dissolved, ICPMS	mg/l	0.0063	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper, ICPMS	mg/l	0.266	0.639	0.387J	0.200J	0.731J	11.7	1.76J
Lead, Dissolved, ICPMS	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead, ICPMS	mg/l	0.144	0.371	0.229	0.126	0.402	5.58	0.755
Mercury, Dissolved, CVAA	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury,CVAA	mg/l	0.0003	0.0012	0.0003	0.0003	0.0006	0.0032	0.0016
Nickel, Dissolved, ICPMS	mg/l	0.0081	0.0128	0.019	0.0149	0.0146	0.0183	0.0214
Nickel, ICPMS	mg/l	0.184	0.645	0.416J	0.233J	0.194J	1.52	0.977J
Selenium, Dissolved, GFAA	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Selenium, GFAA	mg/l	<0.005	<0.020	<0.005	<0.005	<0.005	<0.010	<0.050
Silver, Dissolved, ICPMS	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver, ICPMS	mg/l	<0.005	<0.005	<0.001	<0.001	0.0013	0.0436	<0.005
Thallium, Dissolved, ICPMS	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Thallium, ICPMS	mg/l	<0.005	0.0103	0.008	0.0025	0.0065	0.0167	0.0171
Tin, Dissolved, ICP	mg/l	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Tin, ICP	mg/l	<2.00	<2.00	<4.00	<4.00	<4.00	<10.0	<4.00

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH08 04/16/01	WPSA-BH09 04/19/01	WPSA-BH10 04/23/01	WPSA-BH11 04/23/01	WPSA-BH12 04/23/01	WPSA-BH13 04/16/01	WPSA-BH14 04/23/01
Metals (continued)								
Vanadium, Dissolved, ICPMS	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vanadium, ICPMS	mg/l	0.144	0.192	0.192	0.131	0.142	0.285	0.337
Zinc, Dissolved, ICPMS	mg/l	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Zinc, ICPMS	mg/l	0.891	1.90	0.864J	0.327J	1.43J	15.4	3.66J

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH15 04/23/01	WPSA-BH16 04/12/01	WPSA-BH17 04/12/01	WPSA-BH18 04/23/01	WPSA-BH19 04/23/01	DUP-104 04/23/01	RB-79 04/19/01	RB-81 04/23/01
VOCs									
1,1,1,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,1-Trichloroethane	ug/l	4.50	7.00	3.00	5.30	5.50	5.80	<1.00	<1.00
1,1,2,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1,2-Trichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	ug/l	8.00	9.40	105	5.60	18.8	17.9	<1.00	<1.00
1,1-Dichloroethene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2,3-Trichloropropane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
1,2-Dibromo-3-chloropropane	ug/l	<5.00UJ	<5.00	<5.00	<5.00UJ	<5.00UJ	<5.00UJ	<5.00UJ	<5.00UJ
1,2-Dibromoethane (EDB)	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
1,2-Dichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloropropane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
2-Butanone (MEK)	ug/l	R	R	R	R	R	<12.5	R	R
2-Hexanone	ug/l	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5
4-Methyl-2-pentanone (MIBK)	ug/l	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5	<12.5
Acetone	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Acrolein	ug/l	R	R	R	R	R	R	R	R
Acrylonitrile	ug/l	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
Allyl chloride	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Benzene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromodichloromethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromoform	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Bromomethane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Carbon disulfide	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Carbon tetrachloride	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chlorobenzene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloroethane	ug/l	<5.00	<5.00	58.6	<5.00	<5.00	<5.00	<5.00	<5.00
Chloroform	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloromethane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Chloroprene	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Dibromochloromethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Dibromomethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Dichlorodifluoromethane	ug/l	<1.00	<1.00	44.4	<1.00	<1.00	<1.00	<1.00	<1.00
Ethyl methacrylate	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Ethylbenzene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Iodomethane (Methyl Iodide)	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Methacrylonitrile	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH15 04/23/01	WPSA-BH16 04/12/01	WPSA-BH17 04/12/01	WPSA-BH18 04/23/01	WPSA-BH19 04/23/01	DUP-104 04/23/01	RB-79 04/19/01	RB-81 04/23/01
VOCs (continued)									
Methyl methacrylate	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Methylene Chloride	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Pentachloroethane	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Propionitrile	ug/l	R	R	R	R	R	R	R	R
Styrene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	ug/l	42.2	84.1	32.3	51.8	27.2	28.0	<1.00	<1.00
Toluene	ug/l	3.00	1.50	1.90	<1.00	<1.00	1.00	<1.00	<1.00
Trichloroethene	ug/l	19.4	29.3	46.7	29.7	26.4	26.6	<1.00	<1.00
Trichlorofluoromethane	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl Acetate	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Vinyl Chloride	ug/l	<1.00	<1.00	8.20	<1.00	3.50	3.30	<1.00	<1.00
Xylenes, Total	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
cis-1,2-Dichloroethene	ug/l	26.4	26.8	59.1	14.0	53.6	52.3	<1.00	<1.00
cis-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	ug/l	<1.00	<1.00	1.50	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,4-Dichloro-2-butene	ug/l	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
SVOCs									
1,2,4,5-Tetrachlorobenzene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
1,2,4-Trichlorobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
1,3,5-Trinitrobenzene	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
1,4-Napthoquinone	ug/l	<100	<100	<100	<100	<100	<100	<100	<100
1-Naphthylamine	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
2,2'-oxybis(1-Chloropropane)	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,3,4,6-Tetrachlorophenol	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
2,4,5-Trichlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,4,6-Trichlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,4-Dichlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,4-Dimethylphenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,4-Dinitrophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,4-Dinitrotoluene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,6-Dichlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2,6-Dinitrotoluene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2-Acetylaminofluorene (2-AAF)	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
2-Chloronaphthalene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH15 04/23/01	WPSA-BH16 04/12/01	WPSA-BH17 04/12/01	WPSA-BH18 04/23/01	WPSA-BH19 04/23/01	DUP-104 04/23/01	RB-79 04/19/01	RB-81 04/23/01
SVOCs (continued)									
2-Chlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2-Methylnaphthalene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
2-Naphthylamine	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
2-Picoline	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
3,3'-Dichlorobenzidine	ug/l	<50.0UJ	<50.0	<50.0	<50.0UJ	<50.0UJ	<50.0UJ	<50.0UJ	<50.0UJ
3,3'-Dimethylbenzidine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
3-Methylcholanthrene	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
4,6-Dinitro-2-methylphenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
4-Aminobiphenyl	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
4-Bromophenyl phenyl ether	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
4-Chloro-3-methyl phenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
4-Chlorophenyl phenyl ether	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0	<10.0
4-Nitroquinoline 1-oxide	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
5-Nitro-o-toluidine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
7,12-Dimethylbenz(a)anthracene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Acenaphthene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Acenaphthylene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Acetophenone	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Aniline	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Anthracene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Aramite	ug/l	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0UJ	<15.0	<15.0
Benzo(a)anthracene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0
Benzo(a)pyrene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0
Benzo(b)fluoranthene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0
Benzo(ghi)perylene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0
Benzo(k)fluoranthene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0
Benzyl alcohol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bis(2-chloroethoxy)methane	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bis(2-chloroethyl)ether	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Bis(2-ethylhexyl)phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0
Butyl benzyl phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0
Chlorobenzilate	ug/l	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
Chrysene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0	<10.0	<10.0
Di-n-butyl phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Di-n-octyl phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0
Diallate	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH15 04/23/01	WPSA-BH16 04/12/01	WPSA-BH17 04/12/01	WPSA-BH18 04/23/01	WPSA-BH19 04/23/01	DUP-104 04/23/01	RB-79 04/19/01	RB-81 04/23/01
SVOCs (continued)									
Dibenzo(a,h)anthracene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0	<10.0	<10.0
Dibenzofuran	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0	<10.0
Diethyl phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Dimethoate	ug/l	<100	<100	<100	<100	<100	<100	<100	<100
Dimethyl phthalate	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Diphenylamine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Disulfoton	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Ethyl methanesulfonate	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Famphur	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Fluoranthene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Fluorene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Hexachlorobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Hexachlorobutadiene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Hexachlorocyclopentadiene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Hexachloroethane	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Hexachlorophene	ug/l	<500	<500	<500	<500	<500	<500	<500	<500
Hexachloropropene	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
Indeno(1,2,3-cd)pyrene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0
Isodrin	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
Isophorone	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Isosafrole	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Kepone	ug/l	<250	<250	<250	<250	<250	<250	<250	<250
Methapyrilene	ug/l	<100	<100	<100	<100	<100	<100	<100	<100
Methyl methanesulfonate	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Methyl parathion	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
N-Nitrosodi-n-butylamine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
N-Nitrosodiethylamine	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
N-Nitrosodimethylamine	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
N-Nitrosodipropylamine	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
N-Nitrosomethylethylamine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
N-Nitrosomorpholine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
N-Nitrosopiperidine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
N-Nitrosopyrrolidine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Naphthalene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Nitrobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Parathion	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH15 04/23/01	WPSA-BH16 04/12/01	WPSA-BH17 04/12/01	WPSA-BH18 04/23/01	WPSA-BH19 04/23/01	DUP-104 04/23/01	RB-79 04/19/01	RB-81 04/23/01
SVOCs (continued)									
Pentachlorobenzene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Pentachloronitrobenzene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Pentachlorophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Phenacetin	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Phenanthrene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Phenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Phorate	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Pronamide	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Pyrene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0UJ	<10.0UJ	<10.0	<10.0
Pyridine	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Safrole	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Sulfotepp	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Thionazin	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Triethyl phosphorothioate	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
a,a-Dimethyl-phenethylamine	ug/l	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
m-Dichlorobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
m-Dinitrobenzene	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
m-Nitroaniline	ug/l	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
meta & para-Methylphenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
o-Dichlorobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
o-Nitroaniline	ug/l	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
o-Nitrophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
o-Toluidine	ug/l	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
ortho-Methylphenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
p-(Dimethylamino)azobenzene	ug/l	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
p-Chloroaniline	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
p-Dichlorobenzene	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
p-Nitroaniline	ug/l	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
p-Nitrophenol	ug/l	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
p-Phenylenediamine	ug/l	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0	<30.0
PCBs									
Aroclor 1016	ug/l	<0.200UJ	<0.200UJ	<0.200	<0.200UJ	<10.0UJ	<10.0UJ	<0.200UJ	<0.200UJ
Aroclor 1221	ug/l	<0.200UJ	<0.200UJ	<0.200	<0.200UJ	<10.0UJ	<10.0UJ	<0.200UJ	<0.200UJ
Aroclor 1232	ug/l	<0.200UJ	<0.200UJ	<0.200	<0.200UJ	<10.0UJ	<10.0UJ	<0.200UJ	<0.200UJ
Aroclor 1242	ug/l	<0.200UJ	<0.200UJ	<0.200	<0.200UJ	<10.0UJ	<10.0UJ	<0.200UJ	<0.200UJ

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH15 04/23/01	WPSA-BH16 04/12/01	WPSA-BH17 04/12/01	WPSA-BH18 04/23/01	WPSA-BH19 04/23/01	DUP-104 04/23/01	RB-79 04/19/01	RB-81 04/23/01
PCBs (continued)									
Aroclor 1248	ug/l	<0.200UJ	<0.200UJ	<0.200	<0.200UJ	<10.0UJ	<10.0UJ	<0.200UJ	<0.200UJ
Aroclor 1254	ug/l	<0.200UJ	<0.200UJ	<0.200	<0.200UJ	59.8J	38.2J	<0.200UJ	<0.200UJ
Aroclor 1260	ug/l	<0.200UJ	<0.200UJ	<0.200	<0.200UJ	<10.0UJ	<10.0UJ	<0.200UJ	<0.200UJ
Metals									
Antimony, Dissolved, ICPMS	mg/l	0.0218	0.0189	0.0029	0.0114	0.0108	0.011	<0.001	<0.001
Antimony, ICPMS	mg/l	0.0609J	0.0398	0.0151	0.0142J	0.0607J	0.124J	<0.001	<0.001
Arsenic, Dissolved, ICPMS	mg/l	<0.005	<0.005	0.0078	<0.005	<0.005	<0.005	<0.005	<0.005
Arsenic, ICPMS	mg/l	0.110J	0.0995	0.0878	<0.050UJ	<0.025UJ	0.068J	<0.005	<0.005
Barium, Dissolved, ICPMS	mg/l	0.198	0.268	0.476	0.130	0.230	0.228	<0.005	<0.005
Barium, ICPMS	mg/l	1.31	1.78	21.7	12.3	2.99J	1.95J	<0.005	<0.005
Beryllium, Dissolved, ICPMS	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Beryllium, ICPMS	mg/l	<0.010	0.0062	0.0075	0.019	0.0107J	0.007J	<0.001	<0.001
Cadmium, Dissolved, ICPMS	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium, ICPMS	mg/l	0.0054	0.0276	0.012	0.112	0.0154J	0.011J	<0.001	<0.001
Chromium, Dissolved, ICPMS	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium, ICPMS	mg/l	0.144J	0.331	0.380	0.583J	0.0663J	0.176J	<0.002	<0.002
Cobalt, Dissolved, ICPMS	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt, ICPMS	mg/l	0.0863	0.178	0.148	0.575	0.225J	0.146J	<0.005	<0.005
Copper, Dissolved, ICPMS	mg/l	<0.005	0.0361	0.0074	0.0054	<0.005	<0.005	<0.005	<0.005
Copper, ICPMS	mg/l	0.464J	0.690	0.869	1.43J	0.612J	0.415J	<0.005	<0.005
Lead, Dissolved, ICPMS	mg/l	<0.001	0.0097	0.0035	<0.001	<0.001	<0.001	<0.001	<0.001
Lead, ICPMS	mg/l	0.222	0.380	0.770	1.27	0.526J	0.326J	<0.001	<0.001
Mercury, Dissolved, CVAA	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Mercury,CVAA	mg/l	0.0003	0.0007	0.001	0.002	0.0009	0.001	<0.0002	<0.0002
Nickel, Dissolved, ICPMS	mg/l	0.0152	0.0136	0.0162	0.0118	0.0128	0.012	<0.005	<0.005
Nickel, ICPMS	mg/l	0.0244J	0.489	0.471	1.12J	0.575J	0.372J	<0.005	<0.005
Selenium, Dissolved, GFAA	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Selenium, GFAA	mg/l	0.0319	<0.005	<0.005	<0.050	<0.005UJ	0.041J	<0.005	<0.005
Silver, Dissolved, ICPMS	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver, ICPMS	mg/l	0.0012	<0.005	<0.005	<0.005	<0.002	<0.001	<0.0005	<0.0005
Thallium, Dissolved, ICPMS	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Thallium, ICPMS	mg/l	0.0045	0.0069	0.0076	0.0168	0.0115J	0.008J	<0.001	<0.001
Tin, Dissolved, ICP	mg/l	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Tin, ICP	mg/l	<4.00	<2.00	<2.00	<10.0	<4.00	<4.00	<2.00	<2.00

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Area, General Motors Corporation, Moraine, Ohio.

COMPOUND	UNITS	WPSA-BH15 04/23/01	WPSA-BH16 04/12/01	WPSA-BH17 04/12/01	WPSA-BH18 04/23/01	WPSA-BH19 04/23/01	DUP-104 04/23/01	RB-79 04/19/01	RB-81 04/23/01
Metals (continued)									
Vanadium, Dissolved, ICPMS	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vanadium, ICPMS	mg/l	0.136	0.158	0.186	0.355	0.192	0.189	<0.005	<0.005
Zinc, Dissolved, ICPMS	mg/l	<0.050	<0.050	<0.050	<0.050	<0.050UJ	0.175J	<0.050	<0.050
Zinc, ICPMS	mg/l	1.25J	1.75	1.96	3.52J	1.73J	1.25J	<0.050	<0.050

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Moraine, Ohio.

COMPOUND	UNITS	TB-120 03/30/01	TB-123 04/16/01	TB-127 04/17/01	TB-130 04/23/01
VOCs					
1,1,1,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,1,1-Trichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,1,2,2-Tetrachloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,1,2-Trichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethene	ug/l	<1.00	<1.00	<1.00	<1.00
1,2,3-Trichloropropane	ug/l	<5.00	<5.00	<5.00	<5.00
1,2-Dibromo-3-chloropropane	ug/l	<5.00	<5.00	<5.00	<5.00UJ
1,2-Dibromoethane (EDB)	ug/l	<5.00	<5.00	<5.00	<5.00
1,2-Dichloroethane	ug/l	<1.00	<1.00	<1.00	<1.00
1,2-Dichloropropane	ug/l	<1.00	<1.00	<1.00	<1.00
2-Butanone (MEK)	ug/l	R	R	R	R
2-Hexanone	ug/l	<12.5	<12.5	<12.5	<12.5
4-Methyl-2-pentanone (MIBK)	ug/l	<12.5	<12.5	<12.5	<12.5
Acetone	ug/l	<20.0	<20.0	<20.0	<20.0
Acrolein	ug/l	R	R	R	R
Acrylonitrile	ug/l	<50.0	<50.0	<50.0	<50.0
Allyl chloride	ug/l	<5.00	<5.00	<5.00	<5.00
Benzene	ug/l	<1.00	<1.00	<1.00	<1.00
Bromodichloromethane	ug/l	<1.00	<1.00	<1.00	<1.00
Bromoform	ug/l	<1.00	<1.00	<1.00	<1.00
Bromomethane	ug/l	<5.00	<5.00	<5.00	<5.00
Carbon disulfide	ug/l	<1.00	<1.00	<1.00	<1.00
Carbon tetrachloride	ug/l	<1.00	<1.00	<1.00	<1.00
Chlorobenzene	ug/l	<1.00	<1.00	<1.00	<1.00
Chloroethane	ug/l	<5.00	<5.00	<5.00	<5.00
Chloroform	ug/l	<1.00	<1.00	<1.00	<1.00
Chloromethane	ug/l	<5.00	<5.00	<5.00	<5.00
Chloroprene	ug/l	<5.00	<5.00	<5.00	<5.00
Dibromochloromethane	ug/l	<1.00	<1.00	<1.00	<1.00
Dibromomethane	ug/l	<1.00	<1.00	<1.00	<1.00
Dichlorodifluoromethane	ug/l	<1.00	<1.00	<1.00	<1.00
Ethyl methacrylate	ug/l	<5.00	<5.00	<5.00	<5.00
Ethylbenzene	ug/l	<1.00	<1.00	<1.00	<1.00
Iodomethane (Methyl Iodide)	ug/l	<5.00	<5.00	<5.00	<5.00
Methacrylonitrile	ug/l	<5.00	<5.00	<5.00	<5.00

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Moraine, Ohio.

COMPOUND	UNITS	TB-120 03/30/01	TB-123 04/16/01	TB-127 04/17/01	TB-130 04/23/01
VOCs (continued)					
Methyl methacrylate	ug/l	<5.00	<5.00	<5.00	<5.00
Methylene Chloride	ug/l	<5.00	<5.00	<5.00	<5.00
Pentachloroethane	ug/l	<5.00	<5.00	<5.00	<5.00
Propionitrile	ug/l	R	R	R	R
Styrene	ug/l	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	ug/l	<1.00	<1.00	<1.00	<1.00
Toluene	ug/l	<1.00	<1.00	<1.00	<1.00
Trichloroethene	ug/l	<1.00	<1.00	<1.00	<1.00
Trichlorofluoromethane	ug/l	<1.00	<1.00	<1.00	<1.00
Vinyl Acetate	ug/l	<5.00	<5.00	<5.00	<5.00
Vinyl Chloride	ug/l	<1.00	<1.00	<1.00	<1.00
Xylenes, Total	ug/l	<1.00	<1.00	<1.00	<1.00
cis-1,2-Dichloroethene	ug/l	<1.00	<1.00	<1.00	<1.00
cis-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	ug/l	<1.00	<1.00	<1.00	<1.00
trans-1,3-Dichloropropene	ug/l	<1.00	<1.00	<1.00	<1.00
trans-1,4-Dichloro-2-butene	ug/l	<5.00	<5.00	<5.00	<5.00
SVOCs					
1,2,4,5-Tetrachlorobenzene	ug/l	--	--	--	--
1,2,4-Trichlorobenzene	ug/l	--	--	--	--
1,3,5-Trinitrobenzene	ug/l	--	--	--	--
1,4-Napthoquinone	ug/l	--	--	--	--
1-Naphthylamine	ug/l	--	--	--	--
2,2'-oxybis(1-Chloropropane)	ug/l	--	--	--	--
2,3,4,6-Tetrachlorophenol	ug/l	--	--	--	--
2,4,5-Trichlorophenol	ug/l	--	--	--	--
2,4,6-Trichlorophenol	ug/l	--	--		
2,4-Dichlorophenol	ug/l	--	--	--	--
2,4-Dimethylphenol	ug/l	--	--	--	--
2,4-Dinitrophenol	ug/l	--	--	--	--
2,4-Dinitrotoluene	ug/l	--	--	--	--
2,6-Dichlorophenol	ug/l	--	--	--	--
2,6-Dinitrotoluene	ug/l	--	--	--	--
2-Acetylaminofluorene (2-AAF)	ug/l	--	--	--	--
2-Chloronaphthalene	ug/l	--	--	--	--

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Moraine, Ohio.

COMPOUND	UNITS	TB-120 03/30/01	TB-123 04/16/01	TB-127 04/17/01	TB-130 04/23/01
SVOCs (continued)				--	--
2-Chlorophenol	ug/l	--	--	--	--
2-Methylnaphthalene	ug/l	--	--	--	--
2-Naphthylamine	ug/l	--	--	--	--
2-Picoline	ug/l	--	--	--	--
3,3'-Dichlorobenzidine	ug/l	--	--	--	--
3,3'-Dimethylbenzidine	ug/l	--	--	--	--
3-Methylcholanthrene	ug/l	--	--	--	--
4,6-Dinitro-2-methylphenol	ug/l	--	--	--	--
4-Aminobiphenyl	ug/l	--	--	--	--
4-Bromophenyl phenyl ether	ug/l	--	--	--	--
4-Chloro-3-methyl phenol	ug/l	--	--	--	--
4-Chlorophenyl phenyl ether	ug/l	--	--	--	--
4-Nitroquinoline 1-oxide	ug/l	--	--	--	--
5-Nitro-o-toluidine	ug/l	--	--	--	--
7,12-Dimethylbenz(a)anthracene	ug/l	--	--	--	--
Acenaphthene	ug/l	--	--	--	--
Acenaphthylene	ug/l	--	--	--	--
Acetophenone	ug/l	--	--	--	--
Aniline	ug/l	--	--	--	--
Anthracene	ug/l	--	--	--	--
Aramite	ug/l	--	--	--	--
Benzo(a)anthracene	ug/l	--	--	--	--
Benzo(a)pyrene	ug/l	--	--	--	--
Benzo(b)fluoranthene	ug/l	--	--		
Benzo(ghi)perylene	ug/l	--	--	--	--
Benzo(k)fluoranthene	ug/l	--	--	--	--
Benzyl alcohol	ug/l	--	--	--	--
Bis(2-chloroethoxy)methane	ug/l	--	--	--	--
Bis(2-chloroethyl)ether	ug/l	--	--	--	--
Bis(2-ethylhexyl)phthalate	ug/l	--	--	--	--
Butyl benzyl phthalate	ug/l	--	--	--	--
Chlorobenzilate	ug/l	--	--	--	--
Chrysene	ug/l	--	--	--	--
Di-n-butyl phthalate	ug/l	--	--	--	--
Di-n-octyl phthalate	ug/l	--	--	--	--
Diallate	ug/l	--	--	--	--

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Moraine, Ohio.

COMPOUND	UNITS	TB-120 03/30/01	TB-123 04/16/01	TB-127 04/17/01	TB-130 04/23/01
SVOCs (continued)				--	--
Dibenzo(a,h)anthracene	ug/l	--	--	--	--
Dibenzofuran	ug/l	--	--	--	--
Diethyl phthalate	ug/l	--	--	--	--
Dimethoate	ug/l	--	--	--	--
Dimethyl phthalate	ug/l	--	--	--	--
Diphenylamine	ug/l	--	--	--	--
Disulfoton	ug/l	--	--	--	--
Ethyl methanesulfonate	ug/l	--	--	--	--
Famphur	ug/l	--	--	--	--
Fluoranthene	ug/l	--	--	--	--
Fluorene	ug/l	--	--	--	--
Hexachlorobenzene	ug/l	--	--	--	--
Hexachlorobutadiene	ug/l	--	--	--	--
Hexachlorocyclopentadiene	ug/l	--	--	--	--
Hexachloroethane	ug/l	--	--	--	--
Hexachlorophene	ug/l	--	--	--	--
Hexachloropropene	ug/l	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/l	--	--	--	--
Isodrin	ug/l	--	--	--	--
Isophorone	ug/l	--	--	--	--
Isosafrole	ug/l	--	--	--	--
Kepone	ug/l	--	--	--	--
Methapyrilene	ug/l	--	--	--	--
Methyl methanesulfonate	ug/l	--	--	--	--
Methyl parathion	ug/l	--	--	--	--
N-Nitrosodi-n-butylamine	ug/l	--	--	--	--
N-Nitrosodiethylamine	ug/l	--	--	--	--
N-Nitrosodimethylamine	ug/l	--	--	--	--
N-Nitrosodipropylamine	ug/l	--	--	--	--
N-Nitrosomethylethylamine	ug/l	--	--	--	--
N-Nitrosomorpholine	ug/l	--	--	--	--
N-Nitrosopiperidine	ug/l	--	--	--	--
N-Nitrosopyrrolidine	ug/l	--	--	--	--
Naphthalene	ug/l	--	--	--	--
Nitrobenzene	ug/l	--	--	--	--
Parathion	ug/l	--	--	--	--

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Moraine, Ohio.

COMPOUND	UNITS	TB-120 03/30/01	TB-123 04/16/01	TB-127 04/17/01	TB-130 04/23/01
SVOCs (continued)				--	--
Pentachlorobenzene	ug/l	--	--	--	--
Pentachloronitrobenzene	ug/l	--	--	--	--
Pentachlorophenol	ug/l	--	--	--	--
Phenacetin	ug/l	--	--	--	--
Phenanthrene	ug/l	--	--	--	--
Phenol	ug/l	--	--	--	--
Phorate	ug/l	--	--	--	--
Pronamide	ug/l	--	--	--	--
Pyrene	ug/l	--	--	--	--
Pyridine	ug/l	--	--	--	--
Safrole	ug/l	--	--	--	--
Sulfotepp	ug/l	--	--	--	--
Thionazin	ug/l	--	--	--	--
Triethyl phosphorothioate	ug/l	--	--	--	--
a,a-Dimethyl-phenethylamine	ug/l	--	--	--	--
m-Dichlorobenzene	ug/l	--	--		
m-Dinitrobenzene	ug/l	--	--	--	--
m-Nitroaniline	ug/l	--	--	--	--
meta & para-Methylphenol	ug/l	--	--	--	--
o-Dichlorobenzene	ug/l	--	--	--	--
o-Nitroaniline	ug/l	--	--	--	--
o-Nitrophenol	ug/l	--	--	--	--
o-Toluidine	ug/l	--	--	--	--
ortho-Methylphenol	ug/l	--	--	--	--
p-(Dimethylamino)azobenzene	ug/l	--	--	--	--
p-Chloroaniline	ug/l	--	--	--	--
p-Dichlorobenzene	ug/l	--	--	--	--
p-Nitroaniline	ug/l	--	--	--	--
p-Nitrophenol	ug/l	--	--	--	--
p-Phenylenediamine	ug/l	--	--	--	--
				--	--
PCBs					
Aroclor 1016	ug/l	--	--		
Aroclor 1221	ug/l	--	--	--	--
Aroclor 1232	ug/l	--	--	--	--
Aroclor 1242	ug/l	--	--	--	--

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Moraine, Ohio.

COMPOUND	UNITS	TB-120 03/30/01	TB-123 04/16/01	TB-127 04/17/01	TB-130 04/23/01
PCBs (continued)					
Aroclor 1248	ug/l	--	--	--	--
Aroclor 1254	ug/l	--	--	--	--
Aroclor 1260	ug/l	--	--	--	--
Metals					
Antimony, Dissolved, ICPMS	mg/l	--	--	--	--
Antimony, ICPMS	mg/l	--	--	--	--
Arsenic, Dissolved, ICPMS	mg/l	--	--	--	--
Arsenic, ICPMS	mg/l	--	--	--	--
Barium, Dissolved, ICPMS	mg/l	--	--	--	--
Barium, ICPMS	mg/l	--	--	--	--
Beryllium, Dissolved, ICPMS	mg/l	--	--		
Beryllium, ICPMS	mg/l	--	--	--	--
Cadmium, Dissolved, ICPMS	mg/l	--	--	--	--
Cadmium, ICPMS	mg/l	--	--	--	--
Chromium, Dissolved, ICPMS	mg/l	--	--	--	--
Chromium, ICPMS	mg/l	--	--	--	--
Cobalt, Dissolved, ICPMS	mg/l	--	--	--	--
Cobalt, ICPMS	mg/l	--	--	--	--
Copper, Dissolved, ICPMS	mg/l	--	--	--	--
Copper, ICPMS	mg/l	--	--	--	--
Lead, Dissolved, ICPMS	mg/l	--	--	--	--
Lead, ICPMS	mg/l	--	--	--	--
Mercury, Dissolved, CVAA	mg/l	--	--	--	--
Mercury,CVAA	mg/l	--	--	--	--
Nickel, Dissolved, ICPMS	mg/l	--	--	--	--
Nickel, ICPMS	mg/l	--	--	--	--
Selenium, Dissolved, GFAA	mg/l	--	--	--	--
Selenium, GFAA	mg/l	--	--	--	--
Silver, Dissolved, ICPMS	mg/l	--	--	--	--
Silver, ICPMS	mg/l	--	--	--	--
Thallium, Dissolved, ICPMS	mg/l	--	--	--	--
Thallium, ICPMS	mg/l	--	--	--	--
Tin, Dissolved, ICP	mg/l	--	--	--	--
Tin, ICP	mg/l	--	--	--	--

Table A-7. VOCs, SVOCs, PCBs, and Metals Analytical Results for Groundwater from Temporary Wells, April 2001, Waste Pile/Staging Moraine, Ohio.

COMPOUND	UNITS	TB-120 03/30/01	TB-123 04/16/01	TB-127 04/17/01	TB-130 04/23/01
Metals (continued)				--	--
Vanadium, Dissolved, ICPMS	mg/l	--	--	--	--
Vanadium, ICPMS	mg/l	--	--	--	--
Zinc, Dissolved, ICPMS	mg/l	--	--	--	--
Zinc, ICPMS	mg/l	--	--	--	--

ug/l - Micrograms per liter.
mg/l - Milligrams per liter.
J - Value is estimated.
UJ - Constituent was not detected above the reporting limit. Reporting limit is estimated.
R - Value is rejected.
DUP-104 - Duplicate of WPSA-BH19.
< - Constituent not detected above laboratory reporting limit shown.
RB - Rinseate Blank.
TB - Trip Blank.
-- Not Analyzed.
VOC - Volatile organic compound.
SVOC - Semi-volatile organic compound.
PCBs - Polychlorinated biphenyls.
BH - Borehole.
WPSA - Waste Pile Staging Area.

DRAFT

Appendix B

Waste Pile/Staging Area Soil Boring and Soil Sampling Logs

ARCADIS

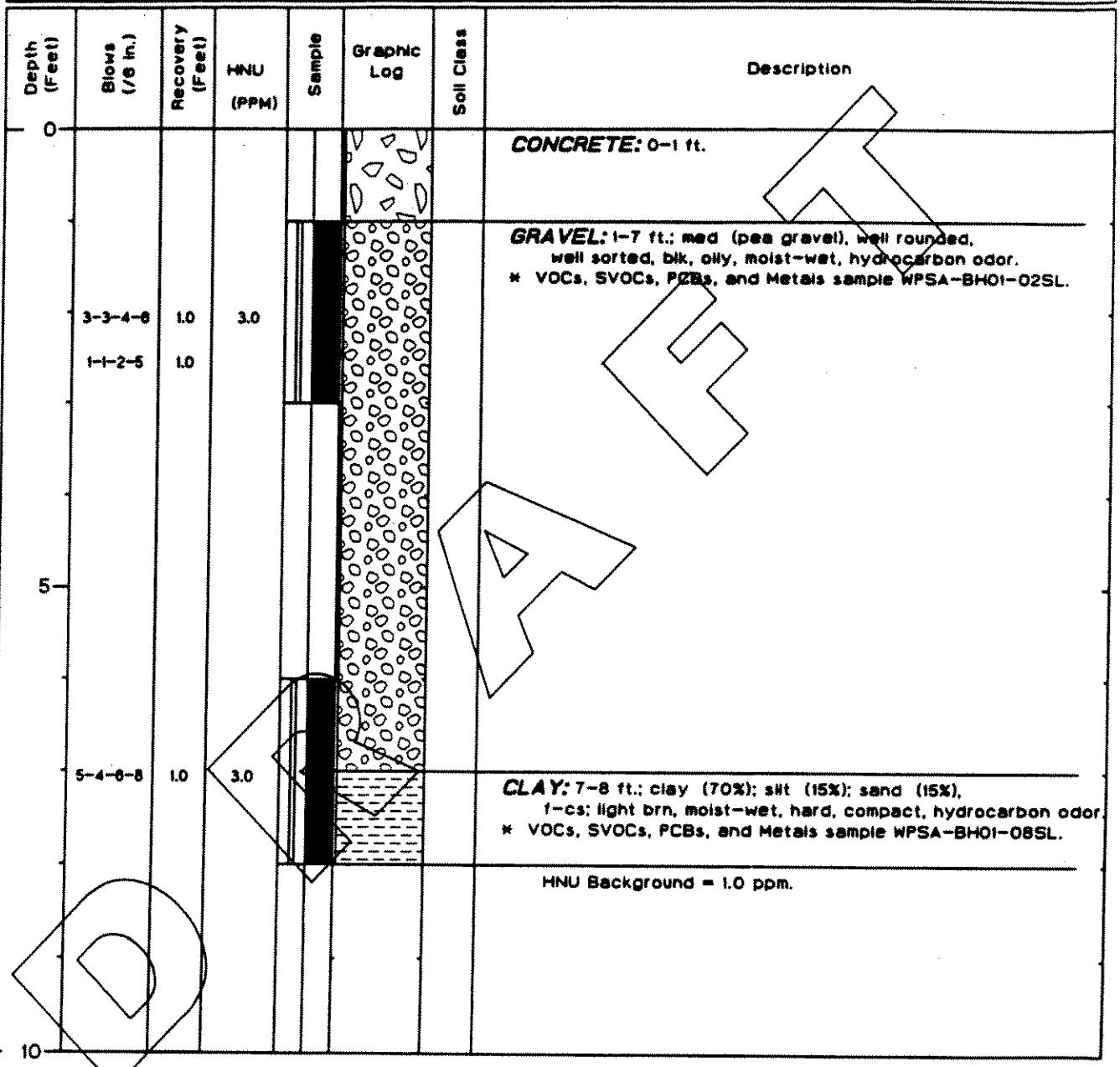
RFI Soil Boring/Sampling Logs

1992-1994

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH01

HARRISON RFI — Moraine, Ohio



DRAFT

☒ Composite to Lab ■ VOC to Lab ▥ Split-Spoon Not Analyzed

Drilling Co.: Belasco
Driller: G. Mayle
Drilling Method: HSA 4 1/4"
Drilling Fluid: None
Remarks:

Geologist: R. Astle
Total Depth: 8
Surface Elev.:
Datum: Feet, MSL
West Coor.:

Begin Drilling: 12/02/92
End Drilling: 12/02/92
Converted to Well: No
Well Name:
South Coor.:

OH019.12

harrison

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison / OH019.12 Page 1 of 2

Site Location Moraine, Ohio

Sample No. WPSA-BH01-02SL Coded/ Replicate No. DUP-7 Date 12-2-92

Weather Snow, 30sF Time Sampling Began 8:30 a.m. Time Sampling Completed 9:30 a.m.

Sampling Method and Material 3" diameter split spoon

Grab X Composite ____

From	To	Soil/Sediment Description
1	3	Gravel, med. (pea gravel), well rounded, well sorted, black, oily, moist-wet, hydrocarbon odor.

Other (OVA; HNU; etc.) HNU in spoon = 3.0 ppm. Background = 1.0 ppm.

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL VOCs	4 oz glass jar	Ice
TCL SVOCs & PCBs	4 oz glass jar	Ice
TAL Metals	16 oz glass jar	Ice

Remarks 1' of concrete at ground surface. Drove 2 spoons to collect duplicate.

Sampling Personnel R. Astle

DRAFT

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison / OH019.12 Page 2 of 2

Site Location Moraine, Ohio

Sample No. WPSA-BH01-08SL Coded/ Replicate No. _____ Date 12-2-92

Weather Snow, 30°F Time Sampling Began 8:30 a.m. Time Sampling Completed 9:30 a.m.

Sampling Method and Material 3" diameter split spoon

Grab X Composite ____

From	To	Soil/Sediment Description
7	8	Clay (70%); silt (15%); sand (15%), f-cs; light brown, moist-wet, hard, compact, hydrocarbon odor.

Other (OVA; HNU; etc.) HNU in spoon = 3.0 ppm. Background = 1.0 ppm.

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL VOCs	4 oz glass jar	Ice
TCL SVOCs & PCBs	4 oz glass jar	Ice
TAL Metals	16 oz glass jar	Ice

Remarks _____

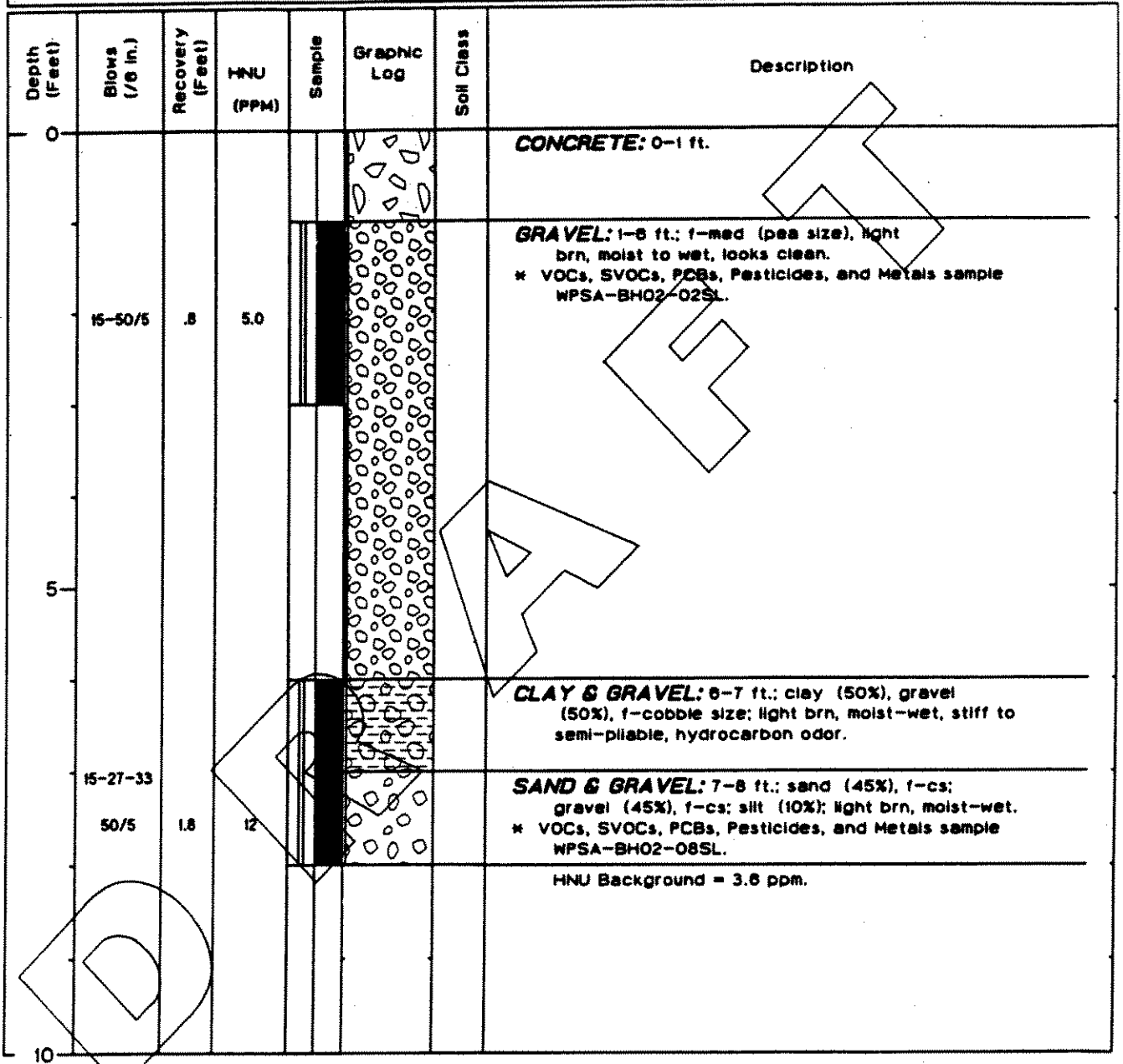
Sampling Personnel R. Astle

DRAFT

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH02

HARRISON RFI — Moraine, Ohio



☒ Composite to Lab ■ VOC to Lab ▥ Split-Spoon Not Analyzed

Drilling Co.: Belasco
Driller: G. Mayle
Drilling Method: HSA 4 1/4"
Drilling Fluid: None
Remarks:

Geologist: R. Astle
Total Depth: 8
Surface Elev.:
Datum: Feet, MSL
West Coor.:

Begin Drilling: 12/02/92
End Drilling: 12/02/92
Converted to Well: No
Well Name:
South Coor.:

OH019.12

harrison

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison / OH019.12 Page 1 of 2

Site Location Moraine, Ohio

Sample No. WPSA-BH02-02SL Coded/ Replicate No. _____ Date 12-2-92

Weather Cloudy, 30sF Time Sampling Began 9:30 a.m. Time Sampling Completed 10:30 a.m.

Sampling Method and Material 3" diameter split spoon

Grab X Composite ____

From	To	Soil/Sediment Description
1	3	Gravel, f-med (pea size), light brn, moist-wet.

Other (OVA; HNU; etc.) HNU in spoon = 5.0 ppm. Background = 3.6 ppm.

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL VOCs	4 oz glass jar	Ice
TCL SVOCs & PCBs	4 oz glass jar	Ice
TAL Metals	16 oz glass jar	Ice

Remarks 1' concrete at ground surface.

Sampling Personnel R. Astle

DRAFT

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison / OH019.12 Page 2 of 2

Site Location Moraine, Ohio

Sample No. WPSA-BH02-08SL Coded/ Replicate No. _____ Date 12-2-92

Weather Cloudy, 30sF Time Sampling Began 9:30 a.m. Time Sampling Completed 10:30 a.m.

Sampling Method and Material 3" diameter split spoon

Grab X Composite ____

From	To	Soil/Sediment Description
6	8	Clay; gravel, f-cs; sand, f-cs; tr silt; light brown, moist-wet, hydrocarbon odor.

Other (OVA; HNU; etc.) HNU in spoon = 12 ppm. Background = 3.6 ppm.

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL VOCs	4 oz glass jar	Ice
TCL SVOCs & PCBs	4 oz glass jar	Ice
TAL Metals	16 oz glass jar	Ice

Remarks _____

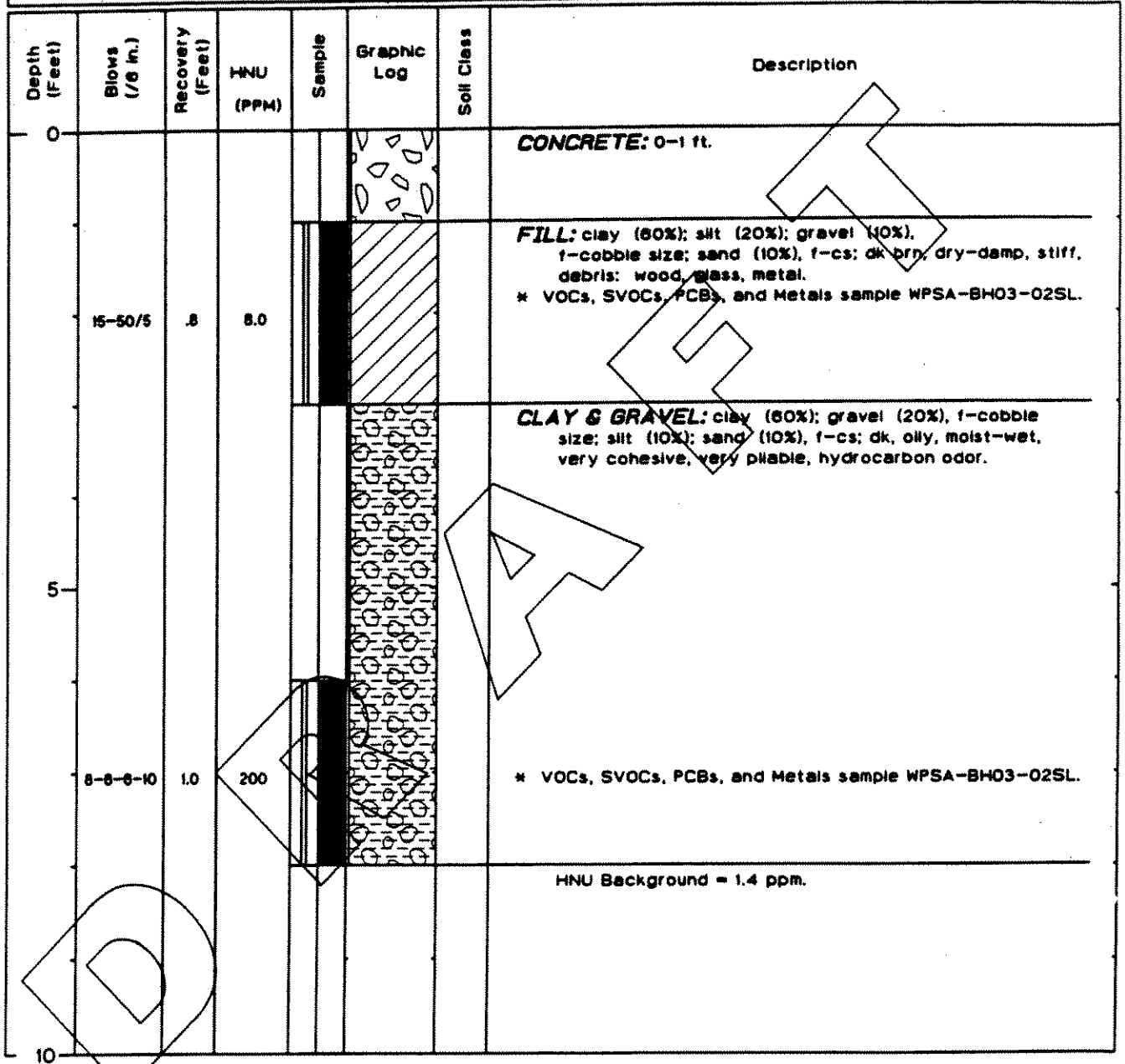
Sampling Personnel R. Astle

DRAFT

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH03

HARRISON RFI — Moraine, Ohio



☒ Composite to Lab ■ VOC to Lab ▥ Split-Spoon Not Analyzed

Drilling Co.: Belasco
Driller: G. Mayle
Drilling Method: HSA 4 1/4"
Drilling Fluid: None
Remarks:

Geologist: R. Astle
Total Depth: 8
Surface Elev.:
Datum: Feet, MSL
West Coor.:

Begin Drilling: 12/02/92
End Drilling: 12/02/92
Converted to Well: No
Well Name:
South Coor.:

OH019.12

harrison

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison / OH019.12 Page 1 of 2

Site Location Moraine, Ohio

Sample No. WPSA-BH03-02SL Coded/ Replicate No. _____ Date 12-2-92

Weather Cloudy, 30sF Time Sampling Began 11:00 a.m. Time Sampling Completed 12:00 p.m.

Sampling Method and Material 3" diameter split spoon

Grab X Composite ____

From	To	Soil/Sediment Description
1	3	Clay (60%); silt (20%); gravel (10%), f-cobble size; sand (10%), f-cs; dark brown, dry-damp, stiff, debris: wood, glass, metal.

Other (OVA; HNU; etc.) HNU in spoon = 8 ppm. Background = 1.4 ppm.

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL VOCs	4 oz glass jar	Ice
TCL SVOCs & PCB	4 oz glass jar	Ice
TAL Metals	16 oz glass jar	Ice

Remarks 1' concrete at ground surface.

Sampling Personnel R. Astle

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison / OH019.12 Page 2 of 2

Site Location Moraine, Ohio

Sample No. WPSA-BH03-08SL Coded/ Replicate No. _____ Date 12-2-92

Weather Cloudy, 30sF Time Sampling Began 11:00 a.m. Time Sampling Completed 12:00 p.m.

Sampling Method and Material 3" diameter split spoon

Grab X Composite ____

From	To	Soil/Sediment Description
6	8	Clay (60%); gravel (20%), f-cobble size; silt (10%); sand (10%), f-cs; dk oily, moist-wet, very cohesive, very pliable, hydrocarbon odor.

Other (OVA; HNU; etc.) HNU in spoon = 200 ppm. Background = 1.4 ppm.

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL VOCs	4 oz glass jar	Ice
TCL SVOCs & PCBs	4 oz glass jar	Ice
TAL Metals	16 oz glass jar	Ice

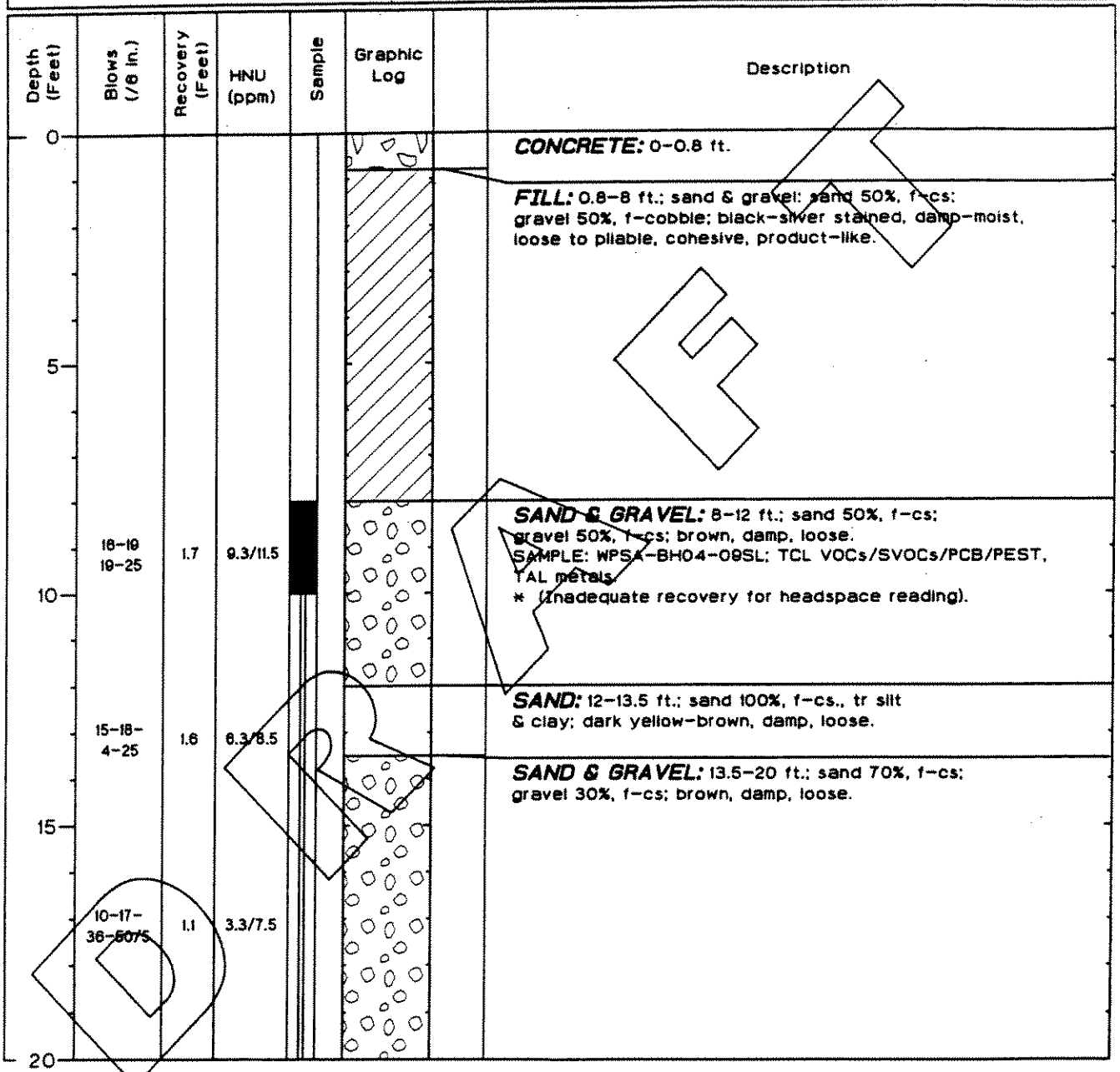
Remarks

Sampling Personnel R. Astle

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH04

HARRISON RADIATOR – OH0019.018 Moraine, Ohio



■ Sample to Lab ▯ Sample Not Analyzed

Drilling Co.: Belasco Drilling
Geologist: R. Astle
Begin Drilling: 09/23/94
Driller: L. Bell
Total Depth: 30
End Drilling: 09/23/94
Drilling Method: Hollow-Stem Auger
Surface Elev.:
Converted to Well: No
Drilling Fluid: Plant Potable Water
Datum:
Well Name:
Remarks: Split-Spoon
West Coor.:
South Coor.:

OH0019.018

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH04

HARRISON RADIATOR – OH0019.018 Moraine, Ohio

Depth (Feet)	Blows (/6 in.)	Recovery (Feet)	HNU (ppm)	Sample	Graphic Log	Description
20	25-50/5	0.5	1.3/3.1			***SAND & GRAVEL:*** 20–24 ft.; sand 50%, f–cs; gravel 50%, f–cobble; tr silt & clay; brown, damp, loose. SAMPLE WPSA-BH04-21SL; TCL VOCs/SVOCs/PCB/PEST, TAL metals. * Wet sample, headspace not applicable.
25	50/6	0.1	0.1/NA			***SILT, CLAYEY SAND, & GRAVEL:*** 24–30 ft.; sand 40%, f–cs; gravel 40%, f–cobble; silt & clay 20%; gray-brown, moist, loose to semi-pliable, semi-cohesive.
30	25-25-50/6	1.5	1.5/NA			** HNU Scan/HNU Headspace
			**			
35						
40						

DRAFT

■ Sample to Lab ▯ Sample Not Analyzed

Drilling Co.: Belasco Drilling
Geologist: R. Astle
Begin Drilling: 09/23/94
Driller: L. Bell
Total Depth: 30
End Drilling: 09/23/94
Drilling Method: Hollow-Stem Auger
Surface Elev.:
Converted to Well: No
Drilling Fluid: Plant Potable Water
Datum:
Well Name:
Remarks: Split-Spoon
West Coor.:
South Coor.:

OH0019.018

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison/OH0019.018 Page 1 of 2

Site Location Moraine, Ohio

Sample No. WPSA-BH04-09SL Coded/ Replicate No. _____ Date 9/23/94

Weather Cool; Overcast Time Sampling Began 8:50 a.m. Time Sampling Completed 9:00 a.m.

Sampling Method and Material 3" stainless steel split spoon

Grab x Composite ___

From	To	Soil/Sediment Description
8'	10'	Sand, fine-coarse; gravel, fine-coarse; brown; damp; loose.

Other (OVA; HNU; etc.) HNU scan: 9.3 ppm; HNU headspace: 11.5 ppm

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
TCL VOCs	4 oz glass jar	cool
TCL SVOCs/PCBs/Pesticides	8 oz glass jar	cool
TAL Metals	16 oz glass jar	cool

Remarks Highest headspace reading at waste pile staging area; boring No. 4, 8-10 ft.

Sampling Personnel R. Astle

DRAFT

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison/OH0019.018 Page 2 of 2

Site Location Moraine, Ohio

Sample No. WPSA-BH04-21SL Coded/ Replicate No. _____ Date 9/23/94

Weather Cool; Overcast Time Sampling Began 9:10 a.m. Time Sampling Completed 9:20 a.m.

Sampling Method and Material 3" stainless steel split spoon

Grab x Composite ___

From	To	Soil/Sediment Description
20'	22'	Sand, fine-coarse; gravel, fine-cobble; trace silt and clay; brown; damp; loose.

Other (OVA; HNU; etc.) HNU scan: 1.3 ppm; HNU headspace: 3.1 ppm

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
TCL VOCs	4 oz glass jar	cool
TCL SVOCs/PCBs/Pesticides	8 oz glass jar	cool
TAL Metals	16 oz glass jar	cool

Remarks Lowest headspace reading at waste pile staging area; Boring No. 4, 20-22 ft.

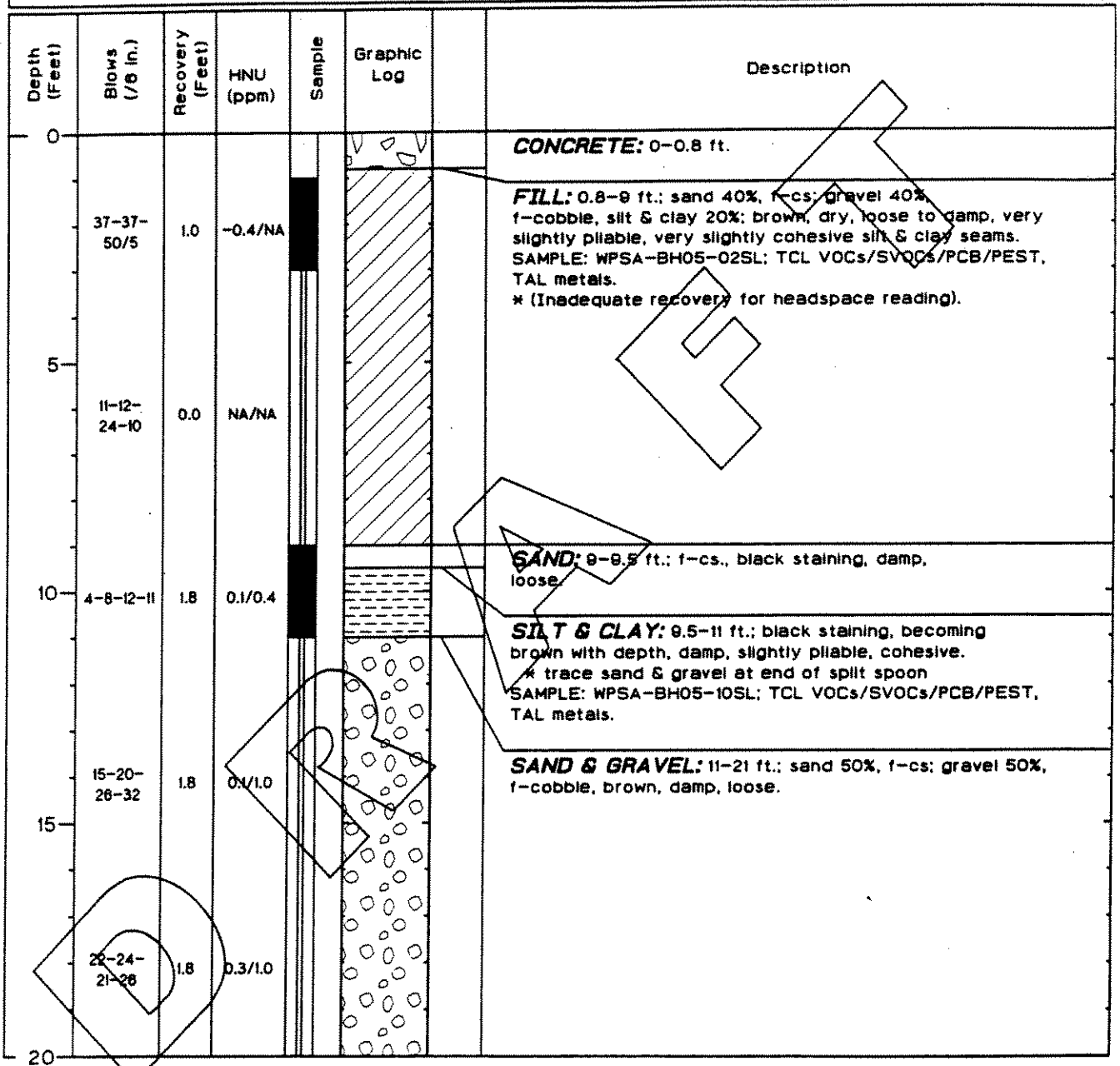
Sampling Personnel R. Astle

DRAFT

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH05

HARRISON RADIATOR – OH0019.018 Moraine, Ohio



■ Sample to Lab ▯ Sample Not Analyzed

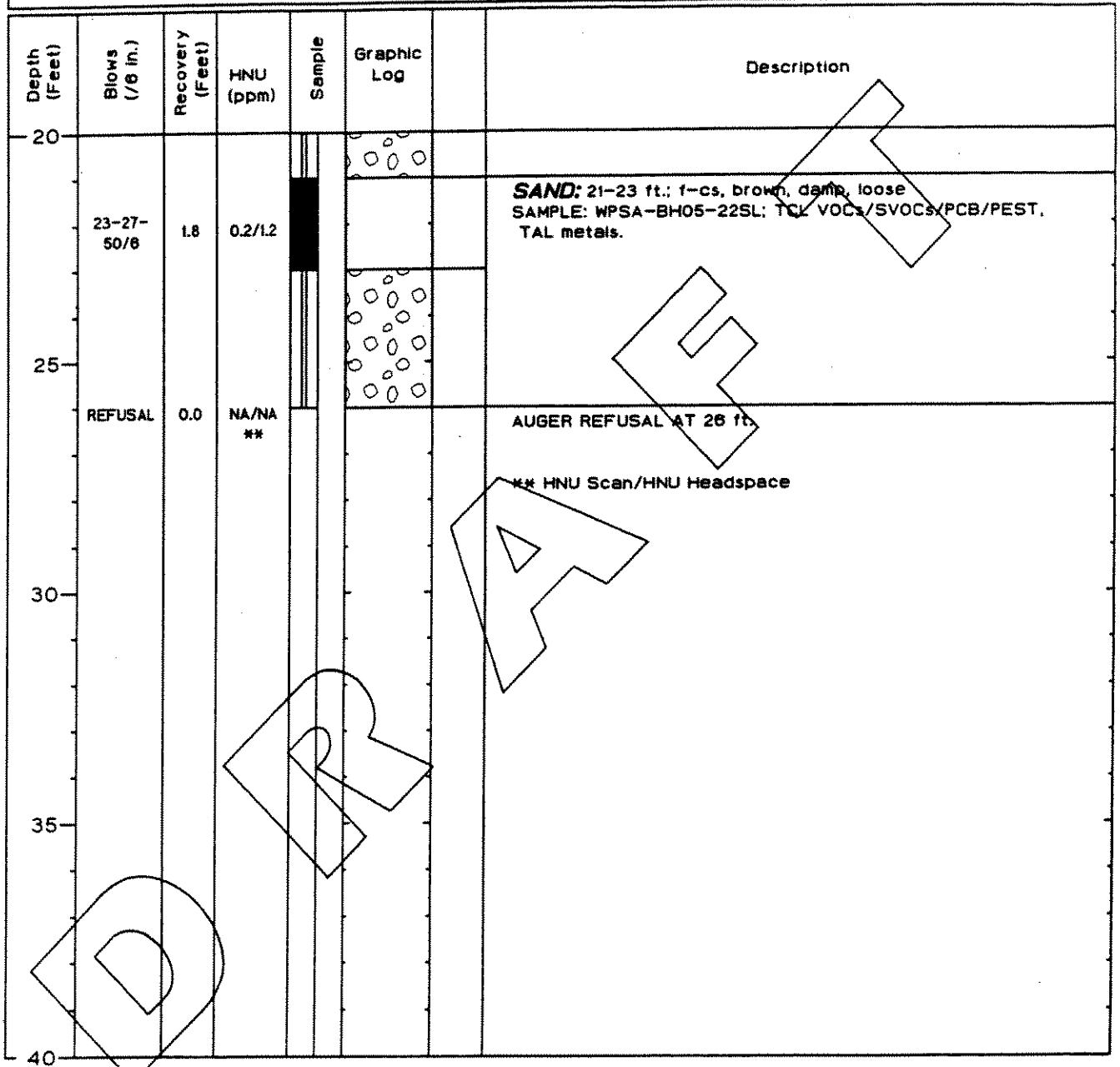
Drilling Co.: Belasco Drilling
Geologist: R. Astle
Begin Drilling: 09/22/94
Driller: L. Bell
Total Depth: 26
End Drilling: 09/22/94
Drilling Method: Hollow-Stem Auger
Surface Elev.:
Converted to Well: No
Drilling Fluid: Plant Potable Water
Datum:
Well Name:
Remarks: Split-Spoon
West Coor.:
South Coor.:

OH0019.018

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH05

HARRISON RADIATOR – OH0019.018 Moraine, Ohio



DRAFT

Sample to Lab Sample Not Analyzed

Drilling Co.: Belasco Drilling Geologist: R. Astle Begin Drilling: 09/22/94

Driller: L. Bell Total Depth: 28 End Drilling: 09/22/94

Drilling Method: Hollow-Stem Auger Surface Elev.: Converted to Well: No

Drilling Fluid: Plant Potable Water Datum: Well Name:

Remarks: Split-Spoon West Coor.: South Coor.:

OH0019.018

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison/OH0019.018 Page 1 of 3

Site Location Moraine, Ohio

Sample No. WPSA-BH05-02SL Coded/ Replicate No. _____ Date 9/22/94

Weather Cool; Overcast Time Sampling Began 12:00 p.m. Time Sampling Completed 2:10 p.m.

Sampling Method and Material 3" stainless steel split spoon

Grab x Composite ___

From	To	Soil/Sediment Description
1'	3'	Sand, fine-coarse; gravel, fine-coarse; trace silt and clay; brown; dry to damp; loose to slightly pliable; semi-cohesive.

Other (OVA; HNU; etc.) HNU scan: 0.4 ppm; HNU headspace not available due to inadequate recovery.

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
TCL VOCs	4 oz glass jar	cool
TCL SVOCs/PCBs/Pesticides	8 oz glass jar	cool
TAL Metals	16 oz glass jar	cool

Remarks Sample waste pile staging area; boring No. 5, 1-3 ft.

Sampling Personnel R. Astle

DRAFT

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison/OH0019.018 Page 2 of 3

Site Location Moraine, Ohio

Sample No. WPSA-BH05-10SL Coded/ Replicate No. _____ Date 9/22/94

Weather Cool; Overcast Time Sampling Began 1:50 p.m. Time Sampling Completed 2:00 p.m.

Sampling Method and Material 3" stainless steel split spoon

Grab x Composite ___

From	To	Soil/Sediment Description
9'	11'	Silt and clay; black stained to brown; damp; slightly pliable; cohesive.

Other (OVA; HNU; etc.) HNU scan: 0.1 ppm; HNU headspace: 0.4 ppm

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
TCL VOCs	4 oz glass jar	cool
TCL SVOCs/PCBs/Pesticides	8 oz glass jar	cool
TAL Metals	16 oz glass jar	cool

Remarks Lowest headspace reading at waste pile staging area; boring No. 5, 9-11 ft.

Sampling Personnel R. Astle

DRAFT

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison/OH0019.018 Page 3 of 3

Site Location Moraine, Ohio

Sample No. WPSA-BH05-22SL Coded/ Replicate No. DUP-25 Date 9/22/94

Weather Cool; Overcast Time Sampling Began 2:30 .m. Time Sampling Completed 2:40 .m.

Sampling Method and Material 3 " stainless steel split spoon

Grab x Composite ___

From	To	Soil/Sediment Description
21'	23'	Sand, fine-coarse; brown; damp; loose.

Other (OVA; HNU; etc.) HNU scan- 0.2 ppm; HNU headspace: 1.2 ppm

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
TCL VOCs	4 oz glass jar	cool
TCL SVOCs/PCBs/Pesticides	4 oz glass jar	cool
TAL Metals	16 oz glass jar	cool

Remarks Highest headspace reading at waste pile staging area; Boring No. 5, 21-23 ft.

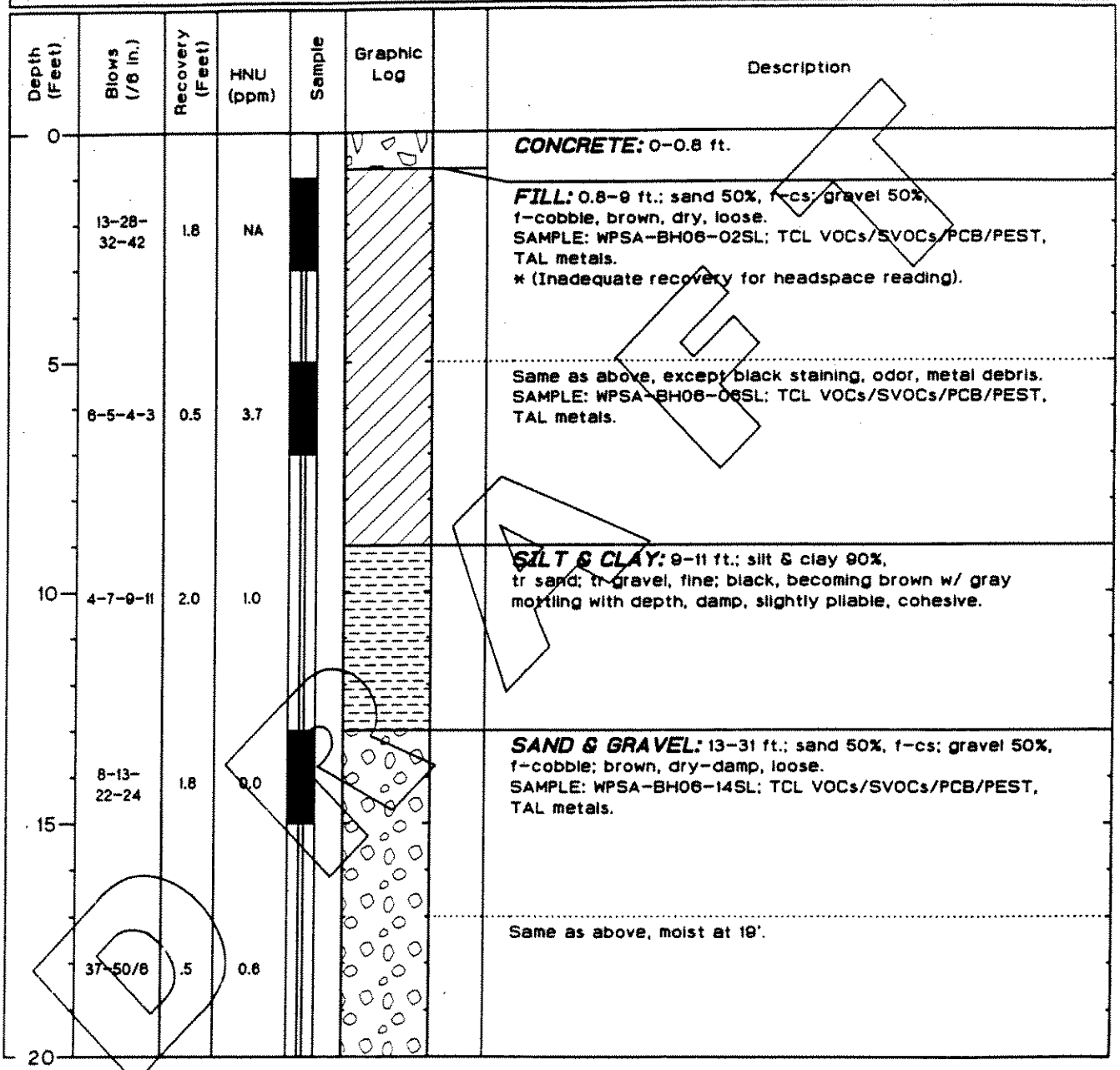
Sampling Personnel R. Astle

DRAFT

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH06

HARRISON RADIATOR – OH0019.018 Moraine, Ohio



■ Sample to Lab ▯ Sample Not Analyzed

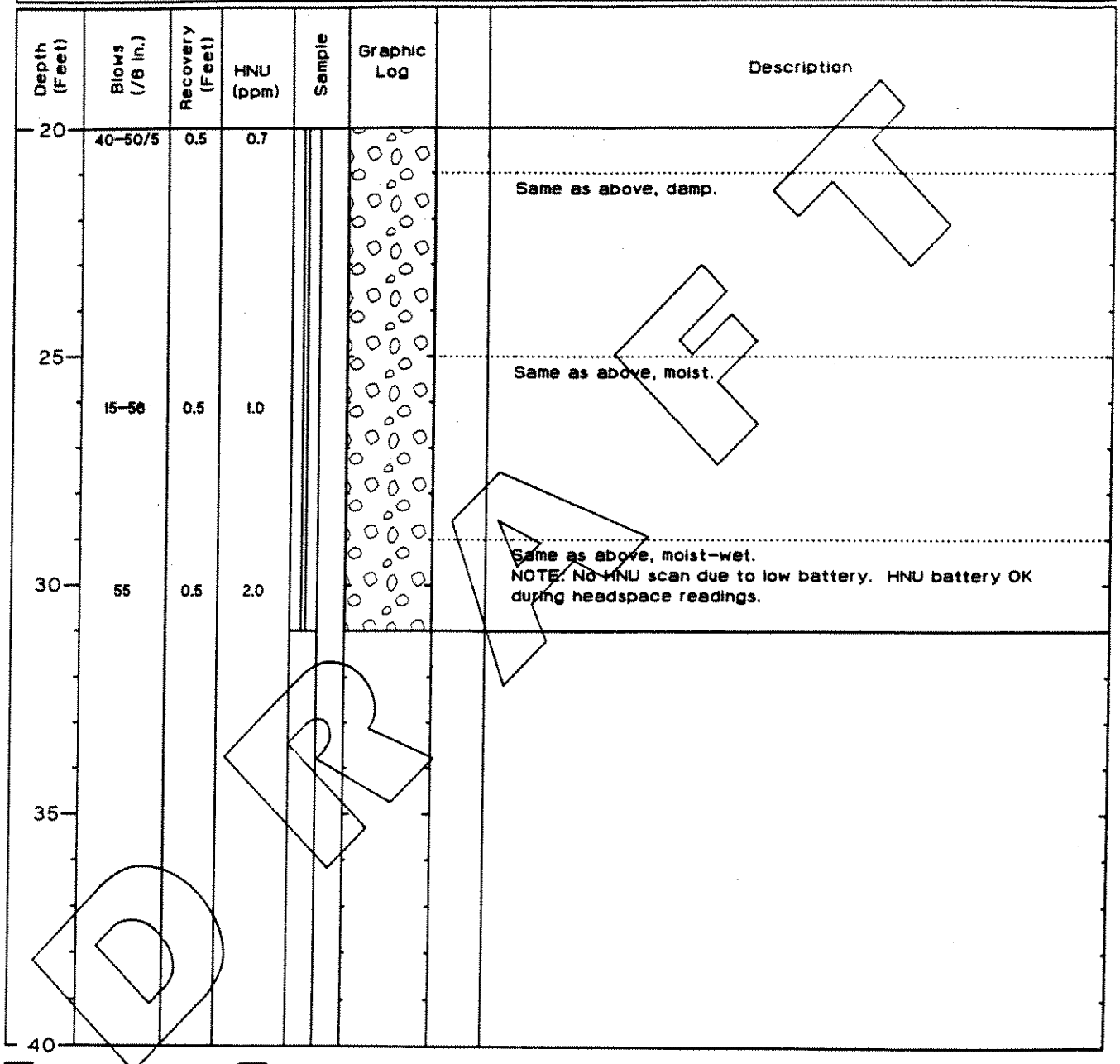
Drilling Co.: Belasco Drilling
Geologist: R. Astle
Begin Drilling: 09/21/94
Driller: L. Bell
Total Depth: 31
End Drilling: 09/21/94
Drilling Method: Hollow-Stem Auger
Surface Elev.:
Converted to Well: No
Drilling Fluid: Plant Potable Water
Datum:
Well Name:
Remarks: Split-Spoon
West Coor.:
South Coor.:

OH0019.018

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH06

HARRISON RADIATOR – OH0019.018 Moraine, Ohio



■ Sample to Lab ▯ Sample Not Analyzed

Drilling Co.: Belasco Drilling
Driller: L. Bell
Drilling Method: Hollow-Stem Auger
Drilling Fluid: Plant Potable Water
Remarks: Split-Spoon

Geologist: R. Astle
Total Depth: 31
Surface Elev.:
Datum:
West Coor.:

Begin Drilling: 09/21/94
End Drilling: 09/21/94
Converted to Well: No
Well Name:
South Coor.:

OH0019.018

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison/OH0019.018 Page 1 of 3

Site Location Moraine, Ohio

Sample No. WPSA-BH06-02SL Coded/ Replicate No. _____ Date 9/21/94

Weather Cool; Overcast Time Sampling Began 3:55 p.m. Time Sampling Completed 4:10 p.m.

Sampling Method and Material 3 " stainless steel split spoon

Grab x Composite ___

From	To	Soil/Sediment Description
1'	3'	Sand, fine-coarse; gravel, fine-cobble; brown; dry; loose.

Other (OVA; HNU; etc.) No HNU scan reading due to low battery; no HNU headspace reading due to inadequate sample recovery.

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
TCL VOCs	4 oz glass jar	cool
TCL SVOCs/PCBs/Pesticides	8 oz glass jar	cool
TAL Metals	16 oz glass jar	cool

Remarks Waste pile staging area; Boring No. 6, 1-3 ft.

Sampling Personnel R. Astle

DRAFT

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison/OH0019.018 Page 2 of 3

Site Location Moraine, Ohio

Sample No. WPSA-BH06-06SL Coded/ Replicate No. _____ Date 9/21/94

Weather Cool; Overcast Time Sampling Began 4:10 p.m. Time Sampling Completed 4:20 p.m.

Sampling Method and Material 3 " stainless steel split spoon

Grab x Composite ___

From	To	Soil/Sediment Description
5'	7'	Sand, fine-coarse; gravel, fine-cobble; trace silt and clay; dark staining; dry; loose; odor; metal debris.

Other (OVA; HNU; etc.) No HNU scan reading due to low battery; HNU headspace: 3.7ppm

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
TCL VOCs	4 oz glass jar	cool
TCL SVOCs/PCBs/Pesticides	8 oz glass jar	cool
TAL Metals	16 oz glass jar	cool

Remarks Highest headspace sample reading at waste pile staging area; Boring No. 6, 5-7 ft.

Sampling Personnel R. Astle

DRAFT

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison/OH0019.018 Page 3 of 3

Site Location Moraine, Ohio

Sample No. WPSA-BH06-14SL Coded/ Replicate No. _____ Date 9/21/94

Weather Cool; Overcast Time Sampling Began 4:30 p.m. Time Sampling Completed 4:40 p.m.

Sampling Method and Material 3 " stainless steel split spoon

Grab x Composite ___

From	To	Soil/Sediment Description
13'	15'	Sand, fine-coarse; gravel, fine-cobble; brown; dry-damp; loose.

Other (OVA; HNU; etc.) No HNU scan reading due to low battery; HNU headspace: 0 ppm

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
TCL VOCs	4 oz glass jar	cool
TCL SVOCs/PCBs/Pesticides	4 oz glass jar	cool
TAL Metals	16 oz glass jar	cool

Remarks Lowest headspace sample reading at waste pile staging area; Boring No. 6, 13-15 ft.

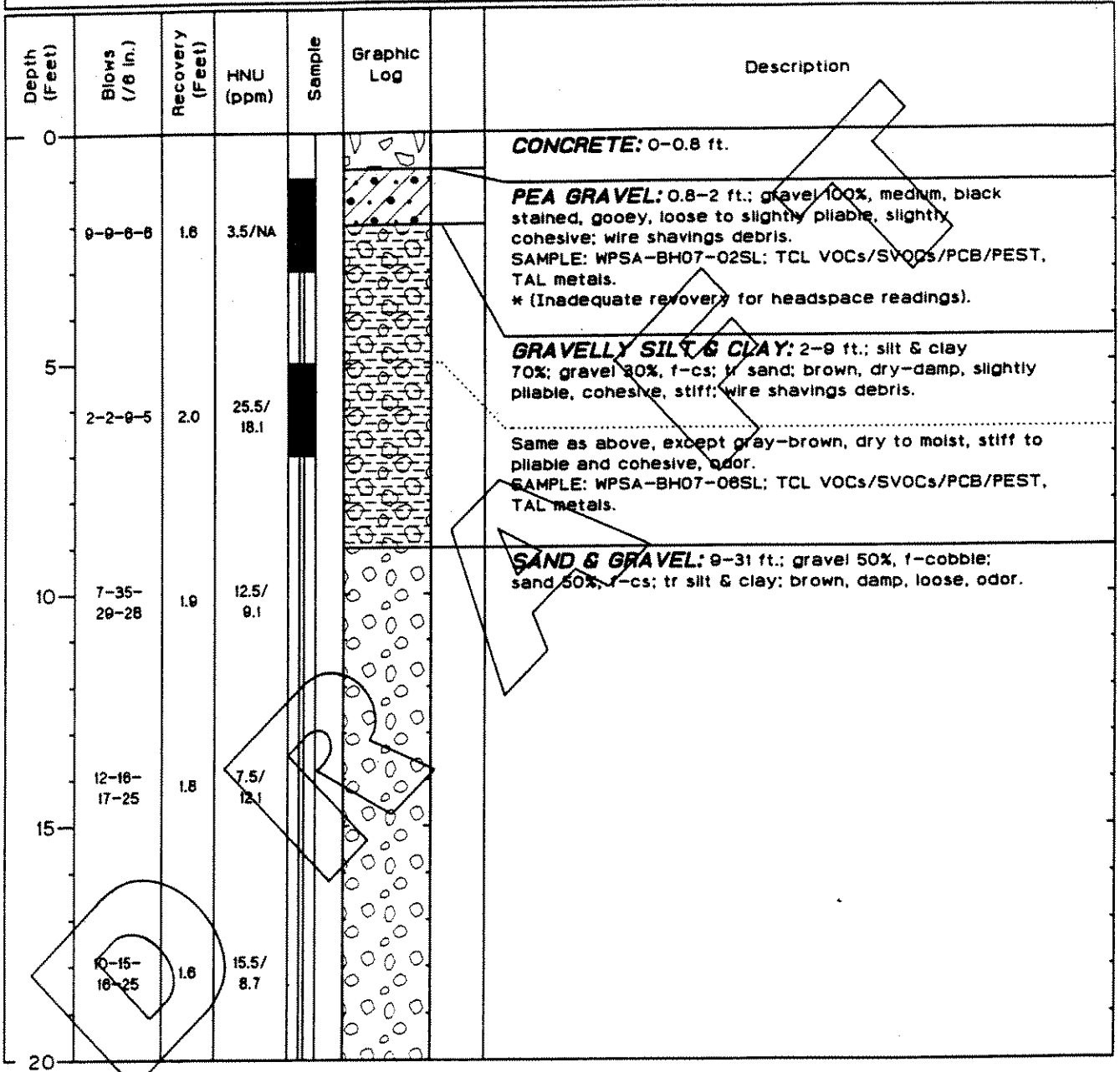
Sampling Personnel R. Astle

TRIAL

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH07

HARRISON RADIATOR – OH0019.018 Moraine, Ohio



Sample to Lab Sample Not Analyzed

Drilling Co.: Belasco Drilling
Driller: L. Bell
Drilling Method: Hollow-Stem Auger
Drilling Fluid: Plant Potable Water
Remarks: Split-Spoon

Geologist: R. Astle
Total Depth: 31
Surface Elev.:
Datum:
West Coor.:

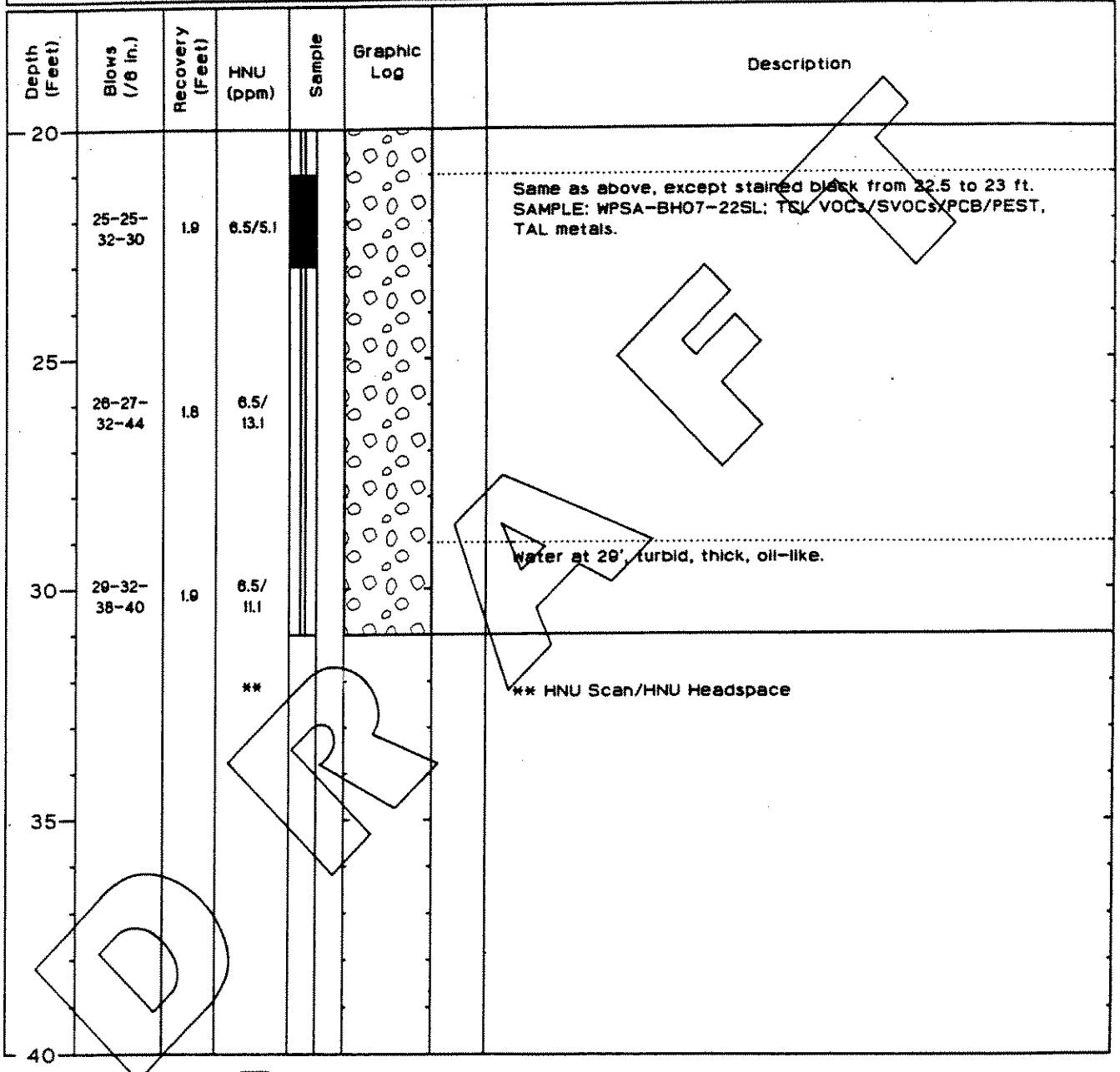
Begin Drilling: 09/23/94
End Drilling: 09/23/94
Converted to Well: No
Well Name:
South Coor.:

OH0019.018

Geraghty & Miller, Inc.
Environmental Services

Log of Boring: WPSA-BH07

HARRISON RADIATOR – OH0019.018 Moraine, Ohio



■ Sample to Lab ▯ Sample Not Analyzed

Drilling Co.: Belasco Drilling | Geologist: R. Astle | Begin Drilling: 09/23/94

Driller: L. Bell | Total Depth: 31 | End Drilling: 09/23/94

Drilling Method: Hollow-Stem Auger | Surface Elev.: | Converted to Well: No

Drilling Fluid: Plant Potable Water | Datum: | Well Name:

Remarks: Split-Spoon | West Coor.: | South Coor.:

OH0019.018

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison/OH0019.018 Page 2 of 3

Site Location Moraine, Ohio

Sample No. WPSA-BH07-02SL Coded/ Replicate No. _____ Date 9/23/94

Weather Cool; Overcast Time Sampling Began 11:40 a.m. Time Sampling Completed 11:50 a.m.

Sampling Method and Material 3" stainless-steel split spoon

Grab x Composite ___

From	To	Soil/Sediment Description
1'	3'	Gravel, medium; black stained; gooey; loose to slightly pliable; and cohesive with gravelly silt and clay; brown; dry-damp; slightly pliable; slightly cohesive; wire debris.

Other (OVA; HNU; etc.) HNU scan: 3.5 ppm, inadequate recovery for headspace reading.

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
TCL VOCs	4 oz glass jar	cool
TCL SVOCs/PCBs/Pesticides	8 oz glass jar	cool
TAL Metals	16 oz glass jar	cool

Remarks Sampled waste pile staging area; Boring No. 7, 1-3 ft.

Sampling Personnel R. Astle

DRAFT

SOIL/SEDIMENT SAMPLING LOG

Project/No. Harrison/OH0019.018 Page 3 of 3

Site Location Moraine, Ohio

Sample No. WPSA-BH07-22SL Coded/ Replicate No. _____ Date 9/23/94

Weather Cool; Overcast Time Sampling Began 1:45 p.m. Time Sampling Completed 2:00 p.m.

Sampling Method and Material 3" stainless steel split spoon

Grab x Composite ___

From	To	Soil/Sediment Description
21'	23'	Sand, fine-coarse; gravel, fine-cobble; trace silt and clay; black stained; damp; loose; odor.

Other (OVA; HNU; etc.) HNU scan: 6.5 ppm, HNU headspace: 5.1 ppm

Constituents Sampled	Container Description From Lab x or G&M ___	Preservative
TCL VOCs	4 oz glass jar	cool
TCL SVOCs/PCBs/Pesticides	8 oz glass jar	cool
TAL Metals	16 oz glass jar	cool

Remarks Lowest headspace reading at waste pile staging area; Boring No. 7, 21-23 ft

Sampling Personnel R. Astle

DRAFT

ARCADIS

Soil Boring/Sampling Logs

April 2001

ARCADIS G&M

Log of Boring: WPSA-BH-08

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,-,5,6	11.5	0.1			SP	SAND concrete; fill; silty sand; stained; dry	
2	2,6,7,8	19	15.1			SP	SAND same as above; stained; odor; large amount of tar (sticky, rubber like substance) in sample; dry	
4	3,4,9,3	18	1.1			CL	CLAY/SILT medium stiff; medium plasticity; moist; yellowish orange; clay 70%; silt 25%; gravel <5%	
6	2,4,5,17	20	6.0			CL	CLAY/SILT soft; medium plasticity; moist; light brown; poorly graded; clay 70%; silt 25%; gravel <5%	
8	29,29,50/6	24	1.8			CL	CLAY/SILT soft; medium plasticity; moist; light brown; poorly graded; clay 70%; silt 25%; gravel <5%	
10	18,42,50/3	12	0.8			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 2236.35

Begin Drilling: 4/12/01
End Drilling: 4/12/01
Converted to Well: N Well I.D.:
East Coor.: 5614.87

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-08

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	13,8,18, 27	24	0.3			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 60%; gravel 35%; silt <5%	
14	5,10,17, 22	15	0.1			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 60%; gravel 35%; silt <5%	
16	14,20,17, 26	15	0.6			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 35%; silt <5%	
18	27,29,50/ 6	20	0.6			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 35%; silt <5%	
20	48,49,50/ 6	20	1.1			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 35%; silt <5%	
22	26,24,36, 28	24	2.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 35%; silt <5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 2236.35

Begin Drilling: 4/12/01
End Drilling: 4/12/01
Converted to Well: N Well I.D.:
East Coor.: 5614.87

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-08

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	15,33,42, 44	8	3.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 35%; silt <5%	
26	19,19,27, 27	18	1.6			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 20%; silt <5%	
28	19,19,29, 50/3	18	4.3			SW	SAND/GRAVEL wet; medium dense; wet; light brown; well graded; sand 80%; gravel 20%; silt <5%	▼
30	20,27,33, 49	20	3.3					
32							Bottom of boring	
34								
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 2236.35

Begin Drilling: 4/12/01
End Drilling: 4/12/01
Converted to Well: N Well I.D.:
East Coor.: 5614.87

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/12/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH08	Coded Replicate No.	
Time Sampling Began	14:35	Time Sampling Ended	16:32

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	Concrete; fill; silty sand; stained; dry
2	4	fill; silty sand; stained; odor; large amounts of tar (sticky, rubber like substance) in sample; dry
24	26	medium dense; moist; light brown; well graded; sand 70%; gravel 35%; silt <5%
26	28	medium dense; moist; light brown; well graded; sand 80%; gravel 20%; silt <3%

OTHER (OVA; HNu; etc.) 0.1, 15.1, 3.0, 1.6

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-09

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	2,2,4,5	8	7.2			SM	SAND/SILT asphalt; loose; moist; black; well graded; silt 80%; sand 15%; gravel <5%	
2	3,3,4,6	20	2.2			SM	SAND/SILT loose; moist; black; well graded; silt 80%; sand 15%; gravel <5%	
4	2,2,2,3	24	0.0			CL	CLAY/GRAVEL soft; medium plasticity; moist; light brown; clay 60%; gravel 20%; silt 20%	
6	3,4,4,4	18	0.0			CL	CLAY/GRAVEL soft; medium plasticity; moist; light brown; clay 60%; gravel 20%; silt 20%	
8	11,13,13, 14	18	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 30%; silt <5%	
10	6,10,10, 11	20	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 30%; silt <5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 2172.55

Begin Drilling: 4/17/01
End Drilling: 4/17/01
Converted to Well: N Well I.D.:
East Coor.: 5766.41

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-09

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	5,8,9,6	24	0.0			SP	SAND loose; moist; light brown; poorly graded; sand 95%; gravel <5%	
14	6,7,7,8	24	0.0			SP	SAND loose; moist; light brown; poorly graded; sand 95%; gravel <5%	
16	6,10,11, 18	22	0.0			SP	SAND loose; moist; light brown; poorly graded; sand 95%; gravel <5%	
18	39,42,50/ 6	20	0.0			SW	SAND loose; moist; light brown; well graded; sand 95%; gravel <5%	
20	12,32,32, 42	24	0.0			SW	SAND loose; moist; light brown; well graded; sand 95%; gravel <5%	
22	31,25,26, 30	20	0.0			SW	SAND loose; moist; light brown; well graded; sand 95%; gravel <5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: Cindy Capell
Begin Drilling: 4/17/01
Driller: Brian Wright
Total Depth: 32'
End Drilling: 4/17/01
Drilling Method: Hollow Stem Auger
Surface Elev.: NM
Converted to Well: N Well I.D.:
Drilling Fluid: None
North Coor.: 2172.55
East Coor.: 5766.41
Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals
Project No.: OH000294.0002.00006
Datum:
Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-09

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	10,18,27, 37	20	0.0			SW	SAND loose; moist; light brown; well graded; sand 95%; gravel <5%	
26	15,15,20, 23	18	0.0			SW	SAND loose; moist to wet; light brown; well graded; sand 95%; gravel <5%	
28	25,25,30, 32	24	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 70%; gravel 30%; silt <5%	
30	28,39,50/ 6	24	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 70%; gravel 30%; silt <5%	
32							Bottom of boring	
34								
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: Cindy Capell
Begin Drilling: 4/17/01
Driller: Brian Wright
Total Depth: 32'
End Drilling: 4/17/01
Drilling Method: Hollow Stem Auger
Surface Elev.: NM
Converted to Well: N Well I.D.:
Drilling Fluid: None
North Coor.: 2172.55
East Coor.: 5766.41
Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals
Project No.: OH000294.0002.00006
Datum:
Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/17/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH09	Coded Replicate No.	DUP-100 @ 2-4 interval
Time Sampling Began	11:30	Time Sampling Ended	14:20

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	asphalt; loose; moist; black; well graded; silt 80%; sand 15%; gravel <5%
2	4	loose; moist; black; well graded; silt 80%; sand 15%; gravel <5%
24	26	loose; moist; light brown; well graded; sand 95%; gravel <5%

OTHER (OVA; HNu; etc.) 7.2, 2.2, 0.0

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-10

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,-,2,6	8	1.4			SM	SAND/SILT first 2" concrete; soft; moist; black; poorly graded; silt 70%; sand 25%; gravel <5%	
2	3,4,6,8	10	9.3			SP-SC	SAND/CLAY soft; moist; black; poorly graded; clay 70%; sand 20%; silt 10%	
4	3,3,5,7	24	1.4			SP-SC	SAND/CLAY soft; moist; black; poorly graded; clay 70%; sand 20%; silt 10%	
6	2,4,7,10	20	1.4			CL-ML	CLAY/SILT soft; medium plasticity; moist; olive brown; poorly graded; clay 80%; silt 20%; gravel <3%	
8	12,24,24, 28	22	0.7			SW	SAND/GRAVEL medium dense; moist; olive gray; well graded; sand 70%; gravel 25%; silt <5%	
10	8,11,14, 16	22	0.7			SW	SAND/GRAVEL medium dense; moist; olive gray; well graded; sand 70%; gravel 25%; silt <5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: Cindy Capell
Begin Drilling: 4/17/01
Driller: Brian Wright
Total Depth: 32'
End Drilling: 4/18/01
Drilling Method: Hollow Stem Auger
Surface Elev.: 729.29
Converted to Well: Y Well I.D.: RW-10
Drilling Fluid: None
North Coor.: 2146.81
East Coor.: 5715.16
Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals
Project No.: OH000294.0002.00006
Datum:
Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-10

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	12,14,16, 18	20	1.4			SW	SAND/GRAVEL medium dense; moist; olive gray; well graded; sand 70%; gravel 25%; silt <5%	
14	8,18,26, 25	24	0.7			SW	SAND/GRAVEL medium dense; moist; olive gray; well graded; sand 70%; gravel 25%; silt <5%	
16	10,30,50/ 6	12	11.3			SW	SAND/GRAVEL medium dense; moist; olive gray-light brown; well graded; sand 80%; gravel 15%; silt <5%	
18	20,30,27, 31	24	8.4			SW	SAND/GRAVEL medium dense; moist; olive gray-light brown; well graded; sand 80%; gravel 15%; silt <5%	
20	12,28,15, 26	22	9.9			SW	SAND/GRAVEL stained; medium dense; moist; olive gray-light brown; black; well graded; sand 60%; gravel 30%; silt 10%	
22	20,24,24, 18	20	7.1			SW	SAND/GRAVEL stained; medium dense; moist; olive gray-light brown; black; well graded; sand 60%; gravel 30%; silt 10%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: 729.29
North Coor.: 2146.81

Begin Drilling: 4/17/01
End Drilling: 4/18/01
Converted to Well: Y Well I.D.: RW-10
East Coor.: 5715.16

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-10

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	50/5	3	130			SW	SAND/GRAVEL stained; medium dense; moist; olive gray-light brown; black; well graded; sand 60%; gravel 30%; silt 10%	
26	19,28,28, 31	20	5.6			SW	SAND/GRAVEL stained; medium dense; moist; black; well graded; sand 60%; gravel 40%; silt <3%	
28	19,21,30, 35	22	2.2			SW	SAND/GRAVEL wet; stained; medium dense; wet; black; well graded; sand 60%; gravel 40%; silt <3%	▼
30	30,35,50/ 5	14	1.3			SW	SAND/GRAVEL wet; stained; medium dense; wet; black; well graded; sand 60%; gravel 40%; silt <3%	
32							Bottom of boring	
34								
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: 729.29
North Coor.: 2146.81

Begin Drilling: 4/17/01
End Drilling: 4/18/01
Converted to Well: Y Well I.D.: RW-10
East Coor.: 5715.16

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/17/01 & 4/18/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH10	Coded Replicate No.	
Time Sampling Began	15:15	Time Sampling Ended	10:35

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	soft; moist; black; poorly graded; silt 70%; sand 25%; gravel <5%
2	4	soft; moist; black; poorly graded; clay 70%; sand 20%; silt 10%
16	18	medium dense; moist; olive gray/light brown; well graded; sand 80%; gravel 15%; silt <5%
26	28	stained; medium dense; moist; black; well graded; sand 60%; gravel 40%; silt <3%

OTHER (OVA; HNu; etc.) 1.4, 9.3, 11.3, 5.6

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel: C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-11

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,-,9,12	10	21.2			SM	SAND/SILT first 7" concrete; medium stiff; moist; black; poorly graded; silt 70%; sand 25%; gravel <5%	
2	2,2,2,4	22	152.9			SP	SAND coarse; stained; odor; medium dense; moist; oil soaked; black; poorly graded	
4	3,3,3,3	10	116.2			SP	SAND coarse; stained; odor; medium dense; moist; oil soaked; black; poorly graded	
6	2,2,3,6	24	76.5			CL	CLAY/SILT medium stiff; medium plasticity; brown; poorly graded; clay 80%; silt 20%; gravel <3%; moist	
8	14,19,19, 19	22	105.6			CL	CLAY/GRAVEL medium stiff; medium plasticity; brown; clay 70%; silt 15%; gravel 15%; moist	
10	19,19,21, 22	22	14.1			CL	CLAY/GRAVEL medium stiff; medium plasticity; brown; clay 70%; silt 15%; gravel 15%; moist	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: 730.02
North Coor.: 2150.56

Begin Drilling: 4/16/01
End Drilling: 4/20/01
Converted to Well: Y Well I.D.: RW-11
East Coor.: 5772.91

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-11

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	4,18,24, 26	22	5.2			SW	SAND/GRAVEL stained; odor; medium dense; moist; gray; well graded; sand 80%; gravel 15%; silt <5%	
14	16,22,23, 24	24	7.1			SW	SAND/GRAVEL stained; odor; medium dense; moist; gray; well graded; sand 80%; gravel 15%; silt <5%	
16	16,24,23, 25	22	11.6			SP	SAND stained; medium dense; moist; dark gray; poorly graded; sand 90%; gravel 5%; silt 5%	
18	8,11,13, 25	12	4.5			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt 5%	
20	16,19,24, 24	18	1.2			SW	SAND/GRAVEL oily appearance; medium dense; moist; light brown; sand 80%; gravel 15%; silt 5%	
22	13,14,16, 19	12	0.3			SW	SAND/GRAVEL oily appearance; medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt 5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: 730.02
North Coor.: 2150.56

Begin Drilling: 4/16/01
End Drilling: 4/20/01
Converted to Well: Y Well I.D.: RW-11
East Coor.: 5772.91

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-11

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	10,22,28, 50/6	18	0.1			SW	SAND/GRAVEL stained; odor; medium dense; moist; black; well graded; sand 70%; gravel 25%; silt <5%	
26	22,32,34, 21	12	0.1			SW	SAND/GRAVEL stained; odor; medium dense; moist; black; well graded; sand 70%; gravel 25%; silt <5%	
28	32,32,50/ 6	20	0.5			SW	SAND/GRAVEL oily; wet; medium dense; wet; light brown; well graded; sand 70%; gravel 25%; silt 5%	▼
30	30,34,40, 39	24	0.3			SW	SAND/GRAVEL oily; wet; medium dense; wet; light brown; well graded; sand 70%; gravel 25%; silt 5%	
32							Bottom of boring	
34								
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: 730.02
North Coor.: 2150.56

Begin Drilling: 4/16/01
End Drilling: 4/20/01
Converted to Well: Y Well I.D.: RW-11
East Coor.: 5772.91

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/16/01, 4/17/01, 4/20/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH11	Coded Replicate No.	
Time Sampling Began	8:36	Time Sampling Ended	13:08

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	concrete; medium stiff; moist; black; poorly graded; silt 70%; sand 25%; gravel <5%
2	4	coarse; stained; odor; medium dense; moist; oil soaked; black; poorly graded
8	10	medium stiff; medium plasticity; brown; well graded; clay 70%; silt 15%; gravel 15%; moist
16	18	stained; medium dense; moist; dark gray; poorly graded; sand 90%; gravel 5%; silt 5%
26	28	stained; odor; medium dense; moist; black; well graded; sand 70%; gravel 25%; silt <5%

OTHER (OVA; HNu; etc.) 21.2, 152.9, 105.6, 11.6, 0.1

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-12

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,-,22,28	18	17.6			SW	SILT/SAND first 7" concrete; fill; stained; medium dense; dry-moist; black-rust colored-blue	
2	5,17,18, 20	12	1.0			SW	SILT/SAND stained; medium dense; dry-moist; black-rust colored-blue	
4	37,15,7,5	10	6.2			SM	SILT/SAND fill; stained; metal debris; soft; moist-wet; black; well graded; silt 70%; sand 25%; gravel 5%	
6	4,7,9,18	20	14.2			SM	SILT/SAND fill; stained; metal debris; soft; wet; black; well graded; silt 70%; sand 25%; gravel 5%	
						CL	CLAY/SILT medium stiff; medium plasticity; brown moist	
8	30,41,50/ 6	18	48.7			SW	SAND/GRAVEL fill; metal debris; medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt 5%	
10	39,46,38, 41	22	1.6			SW	SAND/GRAVEL fill; metal debris; medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt 5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: Cindy Capell
Begin Drilling: 4/18/01
Driller: Brian Wright
Total Depth: 32'
End Drilling: 4/18/01
Drilling Method: Hollow Stem Auger
Surface Elev.: NM
Converted to Well: __ Well I.D.: ____
Drilling Fluid: None
North Coor.: 2018.7 (est)
East Coor.: 5661.2 (est)
Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals
Project No.: OH000294.0002.00006
Datum: ____
Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-12

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	20,28,29, 29	24	1.6			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt 5%	
14	50/5	10	2.2			SW	SAND/GRAVEL refusal - medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt 5%	
16	21,41,50/ 5	20	1.6			SW	SAND/GRAVEL refusal - medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt 5%	
18	38,37,47, 38	24	1.6			SW	SAND/GRAVEL refusal - medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt 5%	
20	45,50/5	12	1.6			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
22	26,36,35, 40	24	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
24						SP	SAND medium dense; moist; light brown; poorly graded	

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 2018.7 (est)

Begin Drilling: 4/18/01
End Drilling: 4/18/01
Converted to Well: __ Well I.D.: ____
East Coor.: 5661.2 (est)

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: ____ Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-12

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	38,48,50/6	24	0.0			SP	SAND medium dense; moist; light brown; poorly graded	
26	50/5	12	1.3			SP	SAND refusal - medium dense; moist; light brown; poorly graded	
28	27,28,38,40	20	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 70%; gravel 25%; silt <5%	▼
30	23,28,29,30	24	0.4			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 70%; gravel 25%; silt <5%	
32							Bottom of boring	
34								
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 2018.7 (est)

Begin Drilling: 4/18/01
End Drilling: 4/18/01
Converted to Well: __ Well I.D.: ____
East Coor.: 5661.2 (est)

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: ____ Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/18/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH12	Coded Replicate No.	DUP-101 @ 26-28 interval
Time Sampling Began	12:40	Time Sampling Ended	14:45

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	concrete; fill; stained; medium dense; dry-moist; black-rust colored-blue
8	10	fill; metal debris; medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt 5%
26	28	medium dense; moist; light brown; poorly sorted

OTHER (OVA; HNu; etc.) 17.6, 48.7, 1.3

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-13

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	13,21,22, 18	10	217.9			SM	SILT/SAND asphalt; pieces of metal in sample; fill; medium dense; moist; black; well graded; silt 70%; sand 20%; gravel 10%	
2	4,10,24, 43	3	283			SM	SILT/SAND fill; nails and metal debris in sample	
4	10,18,8,8	8	17.3			SM	SILT stained; wet; debris in sample; soft; wet; black; poorly graded; silt 95%; sand <5%; liquefied	
6		15	9.2			SP	SAND loose; dry; light brown; poorly graded; sand 95%; gravel <3%; silt <3%	
8	5,7,8,2	22	2.3			SP	SAND loose; moist; light brown; poorly graded; sand 95%; gravel <3%; silt <3%	
10	8,6,7,7	22	2.5			SP	SAND loose; moist; light brown; poorly graded; sand 95%; gravel <3%; silt <3%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capel
Total Depth: 30'
Surface Elev.: NM
North Coor.: 1968.71

Begin Drilling: 4/12/01
End Drilling: 4/12/01
Converted to Well: N Well I.D.: ____
East Coor.: 5623.14

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: ____ Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-13

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	8,6,9,7	20	4.0			SP	SAND loose; moist; light brown; poorly graded; sand 95%; gravel <3%; silt <3%	
14	14,29,44, 36	18	5.5			SW	SAND/GRAVEL medium dense; moist; light brown-gray; well graded; sand 80%; gravel 20%; silt <3%	
16	42,32,44, 45	24	2.5			SW	SAND/GRAVEL medium dense; moist; light brown-gray; well graded; sand 80%; gravel 20%; silt <3%	
18	27,35,50/ 6	22	2.3			SW	SAND/GRAVEL medium dense; moist; light brown-gray; well graded; sand 80%; gravel 20%; silt <3%	
20	100/2	0	-				No recovery - rock and piece of steel in spoon	
22	93,100/10	12	8.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capel
Total Depth: 30'
Surface Elev.: NM
North Coor.: 1968.71

Begin Drilling: 4/12/01
End Drilling: 4/12/01
Converted to Well: N Well I.D.:
East Coor.: 5623.14

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-13

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	86,52,35, 39	18	1.8			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
26	20,18,26, 26	24	3.0			SP	SAND medium dense; wet; light brown; poorly graded; sand 95%; gravel 5%	▼
28	18,27,30, 37	24	2.3			SP	SAND medium dense; wet; light brown; poorly graded; sand 95%; gravel 5%	
30							Bottom of boring	
32								
34								
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capel
Total Depth: 30'
Surface Elev.: NM
North Coor.: 1968.71

Begin Drilling: 4/12/01
End Drilling: 4/12/01
Converted to Well: N Well I.D.:
East Coor.: 5623.14

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/12/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH13	Coded Replicate No.	
Time Sampling Began	8:20	Time Sampling Ended	10:30

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	asphalt; pieces of metal in sample; fill; medium dense; moist; black; well graded; silt 70%; sand 20%; gravel 10%
4	6	stained; wet; debris in sample; soft; wet; black; poorly graded; silt 95%; sand <5%; liquefied
22	24	medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%
24	26	medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%

OTHER (OVA; HNu; etc.) 217.9, 17.3, 8.0, 1.8

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-14

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0		0					Asphalt; no recovery	
2	3,20,30, 26	8	NM			SM	SILT/SAND fill; stained; metal debris; medium dense; moist; black; well graded; silt 70%; sand 20%; gravel 10%	
4	8,42,29, 10	10	13.8			SM	SILT/SAND fill; stained; metal debris; medium dense; moist; black; well graded; silt 70%; sand 20%; gravel 10%	
6	4,16,36, 29	12	22.2			SM	SILT/SAND fill; stained; metal debris; medium dense; wet; black; well graded; silt 70%; sand 20%; gravel 10%	
8	0,1,0,0	12	5.3			CL	CLAY/SAND stained; soft; moist; medium-high plasticity; olive gray-white; poorly graded; clay 70%; sand 20%; silt 10%	
10	31,50/6	10	18.3			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 75%; gravel 20%; silt 5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: NM
North Coor.: 1984.03

Begin Drilling: 4/12/01
End Drilling: 4/19/01
Converted to Well: N Well I.D.:
East Coor.: 5719.70

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-14

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	28,29,50/6	20	0.5			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 75%; gravel 20%; silt 5%	
14	12,25,50/4	20	1.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 75%; gravel 20%; silt 5%	
16	20,26,30,35	0	-				No recovery	
18		0	-				No recovery	
20	11,26,30,36	24	1.4			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
22	16,50/5	12	3.1			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: NM
North Coor.: 1984.03

Begin Drilling: 4/12/01
End Drilling: 4/19/01
Converted to Well: N Well I.D.: ____
East Coor.: 5719.70

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: ____ Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-14

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	4,18,28, 16	12	1.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
26	16,16,12, 12	3	1.2			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
28	18,22,24, 30	24	1.2			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt 5%	▼
30	26,29,31, 31	24	0.8			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt 5%	
32	28,20,24, 26	24	0.3			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt 5%	
34							Bottom of boring	
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: NM
North Coor.: 1984.03

Begin Drilling: 4/12/01
End Drilling: 4/19/01
Converted to Well: N Well I.D.: _____
East Coor.: 5719.70

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: _____ Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/19/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH14	Coded Replicate No.	
Time Sampling Began	13:45	Time Sampling Ended	17:45

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
10	12	medium dense; moist; light brown; well graded; sand 75%; gravel 20%; silt 5%
24	26	medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%

OTHER (OVA; HNu; etc.) 18.3, 1.0

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-15

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	7,8,10,18	8	1.1			SM	SILT/SAND first 7" asphalt/concrete fill; stained; odor; medium dense; moist; black; well graded; silt 70%; sand 20%; gravel 10%	
2		10	4.1			SM	SILT/SAND stained; metal present; medium dense; moist; black; well graded; silt 70%; sand 20%; gravel 10% ; DUP-99	
4	5,7,13,35	0	-				No recovery	
6	30,31,33, 34	24	4.6			SM	SILT/SAND wet; pieces of metal; oil; silt 70%; sand 20%; gravel 10%	
8	9,14,50/6	18	0.0			SM	SILT/SAND stained; pieces of metal; medium dense; wet; black; well graded; sheen present	
10	6,8,41,50/ 6	24	0.0			SW	SAND/GRAVEL pieces of metal in sample; medium dense; moist; dark gray; well graded; sand 80%; gravel 15%; silt <5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 1969.77

Begin Drilling: 4/12/01
End Drilling: 4/20/01
Converted to Well: N Well I.D.:
East Coor.: 5775.25

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-15

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	20,20,21, 50/6	20	3.5			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 20%; silt <3%	
14	16,29,50/ 3	22	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 20%; silt <3%	
16	24,29,29, 31	20	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 20%; silt <3%	
18	18,23,27, 28	12	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 20%; silt <3%	
20	10,20,34, 40	12	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 20%; silt <3%	
22	23,27,32, 37	0	-				No recovery	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 1969.77

Begin Drilling: 4/12/01
End Drilling: 4/20/01
Converted to Well: N Well I.D.: _____
East Coor.: 5775.25

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: _____ Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-15

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	19,26,50/5	20	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
26	16,26,44,50/6	18	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%; DUP-103	
28	22,31,39,40	24	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt <5%	▼
30	33,36,29,20	24	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt <5%	
32							Bottom of boring	
34								
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ☐ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 1969.77

Begin Drilling: 4/12/01
End Drilling: 4/20/01
Converted to Well: N Well I.D.: _____
East Coor.: 5775.25

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: _____ Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/12/01, 4/16/01, 4/20/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH15	Coded Replicate No.	DUP-99 @ 2-4 interval DUP-103 @ 26-28 interval
Time Sampling Began	11:46	Time Sampling Ended	10:30

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	asphalt/concrete; fill; stained; odor; medium dense; moist; black; well graded; silt 70%; sand 20%; gravel 10%
2	4	stained; metal present; medium dense; moist; black; well graded; silt 70%; sand 20%; gravel 10%
8	10	stained; pieces of metal; medium dense; wet; black; well graded; sheen present
10	12	pieces of metal present; medium dense; moist; dark gray; well graded; sand 80%; gravel 15%; silt <5%
26	28	medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%

OTHER (OVA; HNu; etc.) 1.1, 4.1, 0.0, 0.0, 0.0

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel: C. Capell/S. Brown

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	5/1/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH15 A & B	Coded Replicate No.	
Time Sampling Began	10:15	Time Sampling Ended	10:17

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
4	6	soft; moist; black; poorly graded; clay 70%; sand 20%; silts <10%; nuts; bolts; wire screws
		*2 soil samples were collected for SVOCs from the 4-6 ft interval (WPSA-BH-15a/4-6/SL and (WPSA-BH-15b/4-6/SL)

OTHER (OVA; HNu; etc.)

Constituents Sampled	Container Description	Preservative
TCL SVOCs (8270)	16 oz glass jar	Cool

Remarks: WPSA-BH-15 was redrilled to collect soils from the 4-6 ft interval.

Sample Personnel: S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-16

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,-,9,10	11	59.3			SM	SAND/SILT asphalt; fill; stained; odor; loose; moist; black-red-orange	
2	2,4,6,6	11	5.4			ML	SILT/SAND stained; odor; medium dense; moist; black; well graded; poorly sorted; silt 70%; sand 20%; gravel 10%	
4	2,14,10, 11	4	7.0			ML	SILT/SAND stained; odor; medium dense; moist; black; well graded; poorly sorted; silt 70%; sand 20%; gravel 10%	
6	2,4,10,11	12	5.0			CL	SILT/CLAY stained; odor; soft; medium plasticity; moist; black-blue-rust-brown; clay 75%; silt 20%; sand 15%	
8	34,30,30, 32	21	0.1			SW	SAND/GRAVEL odor; medium dense; moist; light brown greenish gray; well graded; sand 80%; gravel 20%; silt <3%	
10	34,50/6	12.5	0.0			SW	SAND/GRAVEL odor; medium dense; moist; light brown greenish gray; well graded; sand 80%; gravel 20%; silt <3%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: NM
North Coor.: 1926.94

Begin Drilling: 4/11/01
End Drilling: 4/11/01
Converted to Well: N Well I.D.:
East Coor.: 5704.86

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-16

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	10,20,16, 16	18	0.3			SW	SAND/GRAVEL odor; medium dense; moist; light brown greenish gray; well graded; sand 80%; gravel 20%; silt <3%	
14	3,21,31, 36	20	0.0			SW	SAND/GRAVEL odor; medium dense; moist; light brown greenish gray; well graded; sand 80%; gravel 20%; silt <3%	
16	14,16,15, 32	17	0.0			SW	SAND/GRAVEL odor; medium dense; moist; light brown greenish gray; well graded; sand 80%; gravel 20%; silt <3%	
18	27,34,31, 30	24	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 30%; silt <3%	
20	20,32,37, 38	24	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 55%; gravel 45%; silt <3%	
22	17,47,35, 38	23	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 55%; gravel 45%; silt <3%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: NM
North Coor.: 1926.94

Begin Drilling: 4/11/01
End Drilling: 4/11/01
Converted to Well: N Well I.D.:
East Coor.: 5704.86

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-16

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	15,24,24, 27	12	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
26	19,26,44, 47	20	0.1			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
28	44,35,50/ 6	18	0.6			SW	SAND/GRAVEL medium dense; moist to wet; light brown; well graded; sand 70%; gravel 25%; silt <5%	
30	16,25,27, 29	24	0.3			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 70%; gravel 25%; silt <5%	
32	100/2	0					No recovery	
34							Bottom of boring	
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: NM
North Coor.: 1926.94

Begin Drilling: 4/11/01
End Drilling: 4/11/01
Converted to Well: N Well I.D.:
East Coor.: 5704.86

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/11/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH16	Coded Replicate No.	
Time Sampling Began	11:15	Time Sampling Ended	14:05

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	asphalt; stained; odor; loose; moist; black-red-orange
2	4	stained; odor; medium dense; moist; black; well graded; silt 70%; sand 20%; gravel 10%
26	28	medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%

OTHER (OVA; HNu; etc.) 59.3, 5.4, 0.1

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-17

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,-,11,31	13	0.0			SW	SAND concrete first 12"; fill; loose; moist; well graded	
2	3,4,4,6	20	0.3			SP	SAND loose; moist; stained; orange-black-white-gray; poorly graded; sand 95%; gravel <5%; silt <3%	
4	2,8,5,5	18	1.1			SP	SAND loose; moist; stained; orange-black-white-gray; poorly graded; sand 95%; gravel <5%; silt <3%	
6	2,2,2,2	24	0.0			CL	CLAY/SILT soft; medium plasticity; moist; stained; peach-black-blue-rust brown; clay 75%; silt 20%; sand 15%	
8	3,4,7,7	22	0.0			CL	CLAY/SILT medium stiff; medium plasticity; moist; light brown-yellowish orange; poorly graded; well sorted; clay 75%; silt 20%; sand <5%	
10	8,8,10,15	24	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt 5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 36'
Surface Elev.: NM
North Coor.: 1838.7 (est)

Begin Drilling: 4/10/01
End Drilling: 4/11/01
Converted to Well: N Well I.D.:
East Coor.: 5593.2 (est)

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-17

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	4,8,11,15	24	1.0			SP	SAND medium dense; moist; light brown; poorly graded; sand 95%; gravel 5%	
14	8,11,13, 20	20	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 30%	
16	14,12,16, 18	24	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 30%	
18	9,9,14,14	22	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 30%	
20	10,15,24, 26	24	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 30%	
22	10,10,50/ 6	20	0.0			SP	SAND medium dense; moist; light brown; poorly graded; sand 95%; gravel <5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 36'
Surface Elev.: NM
North Coor.: 1838.7 (est)

Begin Drilling: 4/10/01
End Drilling: 4/11/01
Converted to Well: N Well I.D.:
East Coor.: 5593.2 (est)

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-17

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	35,50,50, 26	10	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt 5%	
26	30,34,34, 35	10	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt 5%	
28	21,21,29, 27	24	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt 5%	
30	13,20,20, 24	22	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt 5%	
32	29,32,34, 50/3	22.5	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 70%; gravel 25%; silt 5%	
34		24	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 70%; gravel 25%; silt 5%	
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 36'
Surface Elev.: NM
North Coor.: 1838.7 (est)

Begin Drilling: 4/10/01
End Drilling: 4/11/01
Converted to Well: N Well I.D.:
East Coor.: 5593.2 (est)

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-17

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
36							Bottom of boring	
38								
40								
42								
44								
46								
48								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 36'
Surface Elev.: NM
North Coor.: 1838.7 (est)

Begin Drilling: 4/10/01
End Drilling: 4/11/01
Converted to Well: N Well I.D.:
East Coor.: 5593.2 (est)

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/10/01 & 4/11/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH17	Coded Replicate No.	DUP-98 @ 0-2 interval
Time Sampling Began	15:23	Time Sampling Ended	9:54

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	concrete; fill; loose; moist; well graded
4	6	loose; moist; stained; orange-black-white-gray; poorly graded; sand 95%; gravel <5%; silt <3%
28	30	medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%

OTHER (OVA; HNu; etc.) 0.0, 1.1, 0.0

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-18

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,-,2,15	12	1.6			SM	SAND/SILT concrete 7"; fill; medium dense; moist; light brown; poorly graded	
2	14,17,21, 23	22	5.3			SM	SAND/SILT stained; fill; medium dense; moist; black; poorly graded	
4	0,1,2,2	12	3.8			SW	SILT/SAND stained; fill; loose; moist; black; well graded; sand 60%; silt 30%; gravel 10%	
6	5,10,12, 22	24	2.6			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
8	29,50/6	10	2.2			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
10	14,29,50/ 6	20	1.9			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 30'
Surface Elev.: NM
North Coor.: 1919.98

Begin Drilling: 4/18/01
End Drilling: 4/18/01
Converted to Well: N Well I.D.:
East Coor.: 5773.33

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-18

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	18,25,35, 41	24	1.3			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
14	18,38,50/ 6	22	1.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
16	28,38,50/ 6	12	0.7			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
18	19,36,30, 31	19	1.6			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 65%; gravel 30%; silt <5%	
20	19,25,50/ 6	24	1.9			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; poorly sorted; sand 65%; gravel 30%; silt <5%	
22	11,22,28, 29	18	1.9			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 30'
Surface Elev.: NM
North Coor.: 1919.98

Begin Drilling: 4/18/01
End Drilling: 4/18/01
Converted to Well: N Well I.D.: ____
East Coor.: 5773.33

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: ____ Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-18

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	15,20,30, 30	20	1.3			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
26	25,30,30, 32	24	1.6			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
28	12,28,26, 50/6	24	1.9			SW	SAND/GRAVEL medium dense; moist to wet; light brown; well graded; sand 80%; gravel 15%; silt <5%	
30							Bottom of boring	
32								
34								
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 30'
Surface Elev.: NM
North Coor.: 1919.98

Begin Drilling: 4/18/01
End Drilling: 4/18/01
Converted to Well: N Well I.D.:
East Coor.: 5773.33

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/18/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH18	Coded Replicate No.	
Time Sampling Began	15:58	Time Sampling Ended	17:46

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	concrete; fill; medium dense; moist; light brown; poorly graded
2	4	stained; fill; medium dense; moist; black; poorly graded
26	28	medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%

OTHER (OVA; HNu; etc.) 1.6, 5.3, 1.6

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-19

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	16,9	12	5.3			SP	SILT/SAND fill-gravel; fill; stained; medium dense; moist; black; poorly graded; sand 70%; silt 30%	
2	4,7,4,7	24	1.2			CL	CLAY/SAND fill; medium stiff; soft; moist; brown black; clay 60%; sand 30%; silt 10%; medium plasticity	
4	2,5,5,5	22	0.0			CL	CLAY/SAND fill; medium stiff; soft; wet; brown black; clay 60%; sand 30%; silt 10%; medium plasticity	
6	2,2,4,6	24	2.2			CL	SILT/CLAY medium stiff; moist; medium-high plasticity; olive gray-brown; clay 60%; silt 30%; sand 10%	
8	6,20,26, 24	20	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
10	12,25,30, 30	20	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 2092.3 (est)

Begin Drilling: 4/19/01
End Drilling: 4/19/01
Converted to Well: N Well I.D.:
East Coor.: 5808.2 (est)

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-19

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	9,17,20, 21	22	0.8			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
14	12,23,19, 16	24	1.9			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
16	8,21,30, 31	24	1.0			SP	SAND medium dense; moist; light brown; poorly graded; sand 90%; gravel 5%; silt 5%	
18	18,41,50/ 6	20	0.5			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
20	50/4	2	1.2			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
22	20,50/6	12	0.3			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 2092.3 (est)

Begin Drilling: 4/19/01
End Drilling: 4/19/01
Converted to Well: N Well I.D.:
East Coor.: 5808.2 (est)

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: WPSA-BH-19

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	20,41,50/6	18	0.3			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
26	20,50/6	12	0.3			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%	
28	20,40,40,50	24	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt 5%	▼
30		24	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt 5%	
32							Bottom of boring	
34								
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 32'
Surface Elev.: NM
North Coor.: 2092.3 (est)

Begin Drilling: 4/19/01
End Drilling: 4/19/01
Converted to Well: N Well I.D.:
East Coor.: 5808.2 (est)

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/19/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	WPSA-BH19	Coded Replicate No.	
Time Sampling Began	9:45	Time Sampling Ended	12:10

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	fill; gravel; stained; medium dense; moist; black; poorly graded; sand 70%; silt 30%
6	8	medium stiff; moist; medium high plasticity; olive gray-brown; clay 60%; silt 30%; sand 10%
26	28	medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%

OTHER (OVA; HNu; etc.) 5.3, 2.2, 0.3

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel: C. Capell/S. Brown

ARCADIS G&M

Log of Boring: WPSA-BH-20

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,-,15,13	6	0.0			SM	SAND/SILT concrete 7"; medium stiff; moist; black; poorly graded; silt 70%; sand 20%; gravel <10%	
2	8,10,10, 12	24	4.1			SM	SAND/SILT fill stained; odor; medium stiff; moist; black; poorly graded; silt 70%; sand 20%; gravel <10%	
4	5,5,5,7	24	0.3			SM	SAND/SILT fill stained; odor; medium stiff; moist; black; poorly graded; silt 70%; sand 20%; gravel <10%; metal debris	
6							Bottom of boring	
8								
10								
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 6'
Surface Elev.: NM
North Coor.: 2029.20

Begin Drilling: 4/20/01
End Drilling: 4/20/01
Converted to Well: N Well I.D.:
East Coor.: 5799.70

Remarks: Sludge encountered no samples were taken.

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-33

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	4,5,7,7	16	1.3			FILL	FILL topsoil; very soft; sandy silt; dry; brown	
2	5,4,3,4	20	1.7			SW	SAND very loose; moist; dark brown/black; sand 80%; gravel 15%; silt 5%; well graded	
4	3,3,4,2	19	12.3			CL	CLAY soft; moist; dark brown-black; clay 80%; sand 15%; gravel 5%; high plasticity	
6	2,3,4,4	20	18.2			CL	CLAY medium stiff; moist; olive gray; clay 80%; sand 15%; silt 5%; oily; stained; medium plasticity	
8	8,12,8,9	19	15.2			SW	SAND medium dense; moist; black; sand 80%; gravel 10%; silt 10%; oily; stained; well graded	
10	10,8,12, 30	19	15.0			SW	SAND medium dense; moist; black; sand 80%; gravel 15%; silt 5%; oily; stained; well graded	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Denzel Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 58'
Surface Elev.: 730.30
North Coor.: 2277.98

Begin Drilling: 4/2/01
End Drilling: 4/2/01
Converted to Well: Y Well I.D.: ____
East Coor.: 5761.66

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: ____ Filename: April Logs

ARCADIS G&M

Log of Boring: GM-33

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	18,21,30, 18	17	19.2			SW	SAND medium dense; moist; light gray; sand 85%; gravel 10%; silt 5%; well graded	
14	10,13,19, 35	19	14.2			SW	SAND medium dense; moist; light gray; sand 90%; gravel 10%; well graded	
16	10,30,30, 40	19.5	7.5			SW	SAND dense; moist; light gray; sand 85%; gravel 15%; well graded	
18	46,48,50	16	8.1			SW	SAND refusal; dense; moist; light gray; sand 85%; gravel 10%; silt 5%; well graded	
20	12,34,35, 50	22	15.0			SW	SAND dense; moist; light gray; sand 85%; gravel 10%; silt 5%; well graded	
22	16,30,30	20	1.8			SW	SAND spoon refusal; dense; moist; yellowish-orange; sand 90%; gravel 10%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: Cindy Capell
Begin Drilling: 4/2/01
Driller: Denzel Wright
Total Depth: 58'
End Drilling: 4/2/01
Drilling Method: Hollow Stem Auger
Surface Elev.: 730.30
Converted to Well: Y Well I.D.: ____
Drilling Fluid: None
North Coor.: 2277.98
East Coor.: 5761.66
Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals
Project No.: OH000294.0002.00006
Datum: ____
Filename: April Logs

ARCADIS G&M

Log of Boring: GM-33

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	17,9,9,9	20	0.3			GW	GRAVEL medium dense; moist; yellowish-orange; gravel 60%; sand 30%; silt 10%; well graded	
26	9,10,24, 30	20	7.8			SW	SAND medium dense; moist; light brown-black; sand 80%; gravel 15%; silt 5%; oily stained; well graded	
28	35,22,24, 24	20	7.3			SW	SAND medium dense; moist; light brown-gray; sand 60%; gravel 35%; silt 5%; oily stained; well graded	
30	18,15,38, 38	7	1.7			SW	SAND dense; wet; light brown; sand 85%; gravel 10%; silt 5%; well graded	
32	21,28,35, 40	22	2.3			GW	GRAVEL dense; wet; light brown; gravel 60%; sand 35%; silt 5%; well graded	
34	20,24,24, 28	24	0.3			GW	GRAVEL dense; wet; light brown; gravel 80%; sand 20%; well graded	
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ☐ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Denzel Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None
Geologist: Cindy Capell
Total Depth: 58'
Surface Elev.: 730.30
North Coor.: 2277.98
Begin Drilling: 4/2/01
End Drilling: 4/2/01
Converted to Well: Y Well I.D.:
East Coor.: 5761.66
Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals
Project No.: OH000294.0002.00006
Datum:
Filename: April Logs

ARCADIS G&M

Log of Boring: GM-33

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
36	17,13,20, 23	22	3.1			GW	GRAVEL dense; wet; light brown; gravel 60%; sand 40%; well graded	
38	17,23,28, 30	24	6.1			SW	SAND dense; wet; light brown; sand 80%; gravel >15%; silt <5%; well graded	
40	21,21,25, 25	22	5.7			GW	GRAVEL dense; wet; light brown; sand 85%; gravel 10%; silt 5%; well graded	
42	31,21,17, 14	18	0.1			SW	SAND dense; wet; light brown; well graded; sand 85%; silt 10%; gravel 5%	
44	13,17,25, 30	24	0.3			SW	SAND dense; wet; light brown; well graded; sand 80%; gravel 15%; silt 5%	
46	25,17,25, 28	22	0.9			GW	GRAVEL dense; wet; light brown; well graded; gravel 70%; sand 25%; silt <5%	
48								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: Cindy Capell
Begin Drilling: 4/2/01
Driller: Denzel Wright
Total Depth: 58'
End Drilling: 4/2/01
Drilling Method: Hollow Stem Auger
Surface Elev.: 730.30
Converted to Well: Y Well I.D.: ____
Drilling Fluid: None
North Coor.: 2277.98
East Coor.: 5761.66
Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals
Project No.: OH000294.0002.00006
Datum: ____
Filename: April Logs

ARCADIS G&M

Log of Boring: GM-33

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
48	30,32,40, 50	22	0.9			GW	GRAVEL dense; wet; light brown; well graded; gravel 60%; sand 40%; silt <3%	
50	16,21,30, 35	24	0.0			SW	SAND dense; wet; light brown; well graded; sand 80%; gravel 15%; silt <5%	
52	12,24,30, 37	24	0.0			SP	SAND dense; wet; light brown; poorly graded; sand 90%; gravel 10%; silt <3%	
54	23,28,33, 33	24	0.0			SW	SAND dense; wet; light brown; well graded; sand 80%; gravel 15%; silt 5%	
						SP	SAND dense; wet; gray; poorly graded; well sorted; sand 95%; silt 5%	
56	16,22,50	24	0.0			SW	SAND refusal; dense; wet; light brown; well graded; sand 80%; gravel 15%; silt 5%	
						ML	SILT hard; wet; gray; poorly graded; greenish gray; silt 60%; clay 30%; sand <10%	
58							Bottom of boring	
60								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Denzel Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 58'
Surface Elev.: 730.30
North Coor.: 2277.98

Begin Drilling: 4/2/01
End Drilling: 4/2/01
Converted to Well: Y Well I.D.:
East Coor.: 5761.66

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/2/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	GM-33	Coded Replicate No.	
Time Sampling Began	10:00	Time Sampling Ended	16:06

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	topsoil; fill; very soft; sandy silt; dry; brown
12	14	medium dense; moist; light gray; well graded; sand 85%; gravel 10%; silt 5%
26	28	medium dense; moist; light brown-black; well graded; sand 80%; gravel 15%; silt 5%; oily stained

OTHER (OVA; HNu; etc.) 1.3, 19.2, 7.8

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: GM-34

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	6,9,11	11	1.3			CL	CLAY asphalt 5"; fill dense; moist; light brown; well graded; clay 30%; silt 40%; gravel 15%; sand 10%	
2	6,9,7,6	22	0.9			GW	GRAVEL fill; dense; moist; light brown; well graded; gravel 60%; sand 20%; clay 10%; silt 10%	
4	0,1,3,4	0					No recovery	
6	2,3,6,4	13.5	1.7			ML	SILT dense; moist; light brown; well graded; clay 35%; silt 35%; sand 15%; gravel 15%	
8	2,3,3,6	22.5	0.9			CH	CLAY medium stiff; moist; light brown; clay 80%; silt 10%; sand <5%; gravel <5%; medium plasticity	
10	3,12,12, 11	24	0.7			SW	SAND loose; moist; light brown; well graded; sand 70%; gravel 20%; silt 10%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Denzel Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 36'
Surface Elev.: 731.06
North Coor.: 2278.47

Begin Drilling: 4/3/01
End Drilling: 4/3/01
Converted to Well: Y Well I.D.:
East Coor.: 5769.74

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-34

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	16,16,34, 22	24	2.5			SW	SAND medium dense; moist; yellowish orange; well graded; sand 75%; gravel 25%; silt <3%	
14	14,45,45, 40	24	6.6			SW	SAND medium dense; moist; light gray; well graded; sand 75%; gravel 25%; silt <3%	
16	25,27,30, 32	24	9.9			SW	SAND medium dense; moist; light gray; well graded; sand 75%; gravel 25%; silt <3%	
18	9,45,50	18	10.2			SW	SAND medium dense; moist; light gray; well graded; sand 75%; gravel 25%; silt <3%; spoon refusal	
20	23,50,-,-,	12	7.2			SW	SAND medium dense; moist; light gray; well graded; sand 75%; gravel 25%; silt <3%; spoon refusal	
22	21,50/5,-,	12	8.6			SW	SAND medium dense; moist; light gray; well graded; sand 75%; gravel 25%; silt <3%; spoon refusal	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Denzel Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 36'
Surface Elev.: 731.06
North Coor.: 2278.47

Begin Drilling: 4/3/01
End Drilling: 4/3/01
Converted to Well: Y Well I.D.:
East Coor.: 5769.74

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-34

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	31,50/5,-,-	12	4.0			SW	SAND dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%; spoon refusal	
26	45,34,34,16	20	1.7			SW	SAND dense; moist; light gray-light brown; well graded; sand 80%; gravel 15%; silt <5%	
28	16,21,28,45	22	2.1			SW	SAND dense; moist; light gray-light brown; well graded; sand 80%; gravel 15%; silt <5%	
30	21,40,50,-	18	3.1			SW	SAND dense; moist; light gray-light brown; well graded; sand 80%; gravel 15%; silt <5%; spoon refusal	▼
32	40,50	8	1.7			SW	SAND dense; wet; olive gray; well graded; poorly sorted; sand 80%; gravel; 15%; silt <5%; spoon refusal	
34	10,50/5	12	3.5			SW	SAND dense; wet; olive gray; well graded; sand 80%; gravel; 15%; silt <5%; spoon refusal	
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Denzel Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 36'
Surface Elev.: 731.06
North Coor.: 2278.47

Begin Drilling: 4/3/01
End Drilling: 4/3/01
Converted to Well: Y Well I.D.:
East Coor.: 5769.74

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-34

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
36							Bottom of boring	
38								
40								
42								
44								
46								
48								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Denzel Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 36'
Surface Elev.: 731.06
North Coor.: 2278.47

Begin Drilling: 4/3/01
End Drilling: 4/3/01
Converted to Well: Y Well I.D.:
East Coor.: 5769.74

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/3/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	GM-34	Coded Replicate No.	
Time Sampling Began	8:52	Time Sampling Ended	11:15

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	asphalt; fill; dense; moist; light brown; well graded; clay 30%; silt 40%; gravel 15%; sand 10%
16	18	medium dense; moist; light gray; well graded; sand 75%; gravel 25%; silt <3%
26	28	dense; moist; light gray-light brown; well graded; sand 80%; gravel 15%; silt <5%

OTHER (OVA; HNu; etc.) 1.3, 9.9, 1.7

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: GM-35

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,8,12,15	18	1.5			SW	SAND 7" of concrete; fill; medium dense; dry; yellowish orange; well graded; sand 80%; gravel 15%; silt <5%	
2	16,13,8,7	20	1.7			SW	SAND fill; medium dense; dry; yellowish orange; well graded; sand 80%; gravel 15%; silt <5%	
4	9,6,5,4	22	1.7			SW	SAND fill; medium dense; dry; yellowish orange; well graded; sand 80%; gravel 15%; silt <5%	
6	4,9,9,6	20	3.4			SW	SAND loose; moist; white-black-dark brown; well graded; sand 85%; gravel 15%; silt <5%; pieces of wood present	
8	3,6,3,4	22	109.9			CL	CLAY medium stiff; low-medium plasticity; moist; dark gray-black; clay 65%; silt 25%; sand <5%; gravel <5%	
10	3,3,6,10	22	3.0			CL	CLAY medium stiff; low-medium plasticity; moist; dark gray-black; clay 60%; silt 20%; sand 10%; gravel 10%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 70'
Surface Elev.: 731.56
North Coor.: 1750.11

Begin Drilling: 4/4/01
End Drilling: 4/6/01
Converted to Well: Y Well I.D.: _____
East Coor.: 5509.95

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: _____ Filename: April Logs

ARCADIS G&M

Log of Boring: GM-35

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	10,11,8, 12	18	2.5			SW	SAND loose; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
14	11,19,19, 20	24	1.9			SW	SAND loose; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
16	12,20,17, 17	24	2.5			SW	SAND loose; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
18	12,14,16, 26	24	2.5			GW	GRAVEL/SAND loose; moist; light brown; well graded; gravel 60%; sand 35-40%; silt <5%	
20	50,26,50	18	2.3			SW	SAND medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
22	50/5	0	-				No recovery; spoon refusal	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 70'
Surface Elev.: 731.56
North Coor.: 1750.11

Begin Drilling: 4/4/01
End Drilling: 4/6/01
Converted to Well: Y Well I.D.:
East Coor.: 5509.95

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-35

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	20,30,30, 50	22	2.1			SW	SAND medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
26	30,35,50,-	18	2.0			SW	SAND refusal; medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
28	25,50/5	12	2.1			SW	SAND refusal; medium dense; moist; light brown; well graded; sand 80%; gravel 15%; silt <5%	
30	30,26,30, 30	24	3.4			SW	SAND medium dense; wet; yellowish orange; well graded; sand 80%; gravel 15%; silt <5%	▼
32	12,15,24, 24	13	2.3			GW	GRAVEL/SAND medium dense; wet; yellowish orange; well graded; gravel 75%; sand 20%; silt <5%	
34	21,21,30, 50	21	2.8			GW	GRAVEL/SAND medium dense; wet; yellowish orange; well graded; gravel 75%; sand 20%; silt <5%	
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: Cindy Capell
Begin Drilling: 4/4/01
Driller: Brian Wright
Total Depth: 70'
End Drilling: 4/6/01
Drilling Method: Hollow Stem Auger
Surface Elev.: 731.56
Converted to Well: Y Well I.D.:
Drilling Fluid: None
North Coor.: 1750.11
East Coor.: 5509.95
Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals
Project No.: OH000294.0002.00006
Datum:
Filename: April Logs

ARCADIS G&M

Log of Boring: GM-35

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
36	6,6,8,8	15	1.7			GW	GRAVEL/SAND medium dense; wet; yellowish orange; well graded; gravel 75%; sand 20%; silt <5%	
38	39,50/5	14	3.6			SW	SAND/GRAVEL refusal; dense; wet; light brown-yellowish orange; well graded; sand 80%; gravel 15%; silt <5%	
40	6,9,9,15	12	1.5			SW	SAND/GRAVEL loose; wet; yellow orange; well graded; sand 80%; gravel 10%; silt <5%	
42	10,26,30, 35	16.5	1.9			SW	SAND/GRAVEL medium dense; wet; yellowish orange; well graded; sand 75%; gravel 15%; silt <5%	
44	8,15,41, 30	21	3.8			SP	SAND/GRAVEL medium dense; wet; light brown; poorly graded; sand 75%; gravel 20%; silt <5%	
46	7,10,10, 20	22	4.1			SP	SAND/GRAVEL medium dense; wet; light brown; poorly graded; sand 75%; gravel 20%; silt <5%	
48								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 70'
Surface Elev.: 731.56
North Coor.: 1750.11

Begin Drilling: 4/4/01
End Drilling: 4/6/01
Converted to Well: Y Well I.D.:
East Coor.: 5509.95

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-35

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
48	30,50/6	9	2.8			SP	SAND/GRAVEL medium dense; wet; light brown; poorly graded; sand 75%; gravel 20%; silt <5%; spoon refusal	
50	8,20,30, 50/6	24	6.9			SP	SAND loose; wet; brown; poorly graded; sand 95%; silt <5%	
52	13,20,25, 30	24	6.2			SW	SAND/GRAVEL dense; wet; brown; well graded; sand 80%; gravel 15%; silt <5%	
54	16,35,50/ 3	18	7.3			SW	SAND/GRAVEL very dense; wet; brown; well graded; sand 75%; gravel 20%; silt <5%	
56	7,14,24, 38	24	5.4			SP	SAND dense; wet; brown; poorly graded; sand 90%; gravel 5%; silt <5%	
58	10,16,28, 32	24	5.1			SP	SAND dense; wet; brown; poorly graded; sand 90%; gravel 5%; silt <5%	
60								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 70'
Surface Elev.: 731.56
North Coor.: 1750.11

Begin Drilling: 4/4/01
End Drilling: 4/6/01
Converted to Well: Y Well I.D.:
East Coor.: 5509.95

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-35

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
60	10,18,20, 22	24	2.3			SP	SAND dense; wet; brown; poorly graded; sand 90%; gravel 10%; silt <5%	
62	46,50/6	12	0.0			CL	SAND/CLAY very soft; wet; low plasticity; gray; clay 70%; silt 20%; sand 10%	
64	44,50/6	20	0.0			SP	SAND/GRAVEL refusal; dense; wet; olive gray; poorly graded; sand 75%; gravel; 20%; silt <5%	
66	48,50/5	0					No recovery	
68	38,50/6	18	0.0			CL	SILT/CLAY hard; moist; low plasticity; olive gray; clay 55%; silt 40%; sand <5%	
70							Bottom of boring	
72								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 70'
Surface Elev.: 731.56
North Coor.: 1750.11

Begin Drilling: 4/4/01
End Drilling: 4/6/01
Converted to Well: Y Well I.D.:
East Coor.: 5509.95

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/4/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	GM-35	Coded Replicate No.	
Time Sampling Began	9:12	Time Sampling Ended	10:43

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	concrete; fill; medium dense; dry; yellowish orange; well graded; sand 80%; gravel 15%; silt <5%
8	10	medium stiff; low-medium plasticity; moist; dark gray/black; clay 65%; silt 25%; sand <5%; gravel <5%
30	32	medium dense; wet; yellowish orange; well graded; sand 80%; gravel 15%; silt <5%

OTHER (OVA; HNu; etc.) 1.5, 109.9, 3.4

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: GM-36

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,8,11,16	15	0.0			SW	SAND 7" of concrete; loose; dry; light gray white; sand 90%; gravel 5%; silt <5%	
2	25,23,12, 15	24	1.3			SP	SAND medium dense; dry-moist; white-purple-light brown; poorly graded; sand 100%	
4	7,7,8,5	22	5.4			SP	SAND medium dense; dry-moist; white-purple-light brown; poorly graded; sand 100%	
6	3,3,2,1	22	6.8			SP	SAND loose; moist; white-light gray-brown; poorly graded; sand 100% wet at 7' and light gray-white	
8	2,7,7,8	18	1.1			CH	CLAY medium stiff; moist; brown; clay 80%; silt 20%; medium plasticity	
10	1,3,5,4	20	1.3			CL	CLAY medium stiff; moist; olive gray; clay 70%; silt 20%; gravel 10%; medium plasticity	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Denzel Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: 731.44
North Coor.: 1754.76

Begin Drilling: 4/3/01
End Drilling: 4/3/01
Converted to Well: Y Well I.D.: ____
East Coor.: 5551.00

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: ____ Filename: April Logs

ARCADIS G&M

Log of Boring: GM-36

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	2,4,10,7	20	0.5			SP	SAND loose; moist; light brown; poorly graded; sand 90%; gravel 10%	
14	3,4,10,10	20	1.5			SP	SAND loose; moist; light brown; poorly graded; sand 90%; gravel 10%	
16	4,8,8,8	20	0.9			SP	SAND loose; moist; light brown; poorly graded; sand 90%; gravel 10%	
18	10,16,17, 17	20	0.5			SP	SAND loose; moist; light brown; poorly graded; sand 90%; gravel 10%	
20	5,7,11,12	22	0.9			SP	SAND loose; moist; olive gray; poorly graded; sand 95%; gravel <5%	
22	19,25,30, 30	22	0.7			SW	SAND medium dense; moist; light brown; well graded; sand 70%; gravel 35%; silt <5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Denzel Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: 731.44
North Coor.: 1754.76

Begin Drilling: 4/3/01
End Drilling: 4/3/01
Converted to Well: Y Well I.D.:
East Coor.: 5551.00

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-36

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	12,21,44, 44	20	0.3			SW	SAND medium dense; moist; light brown; well graded; sand 70%; gravel 35%; silt <5%	
26	10,15,23, 25	20	0.9			SW	SAND medium dense; moist; light brown; well graded; sand 70%; gravel 35%; silt <5%	
28	13,31,50	18	0.5			SW	SAND medium dense; moist; light brown; well graded; sand 70%; gravel 35%; silt <5%	
30	10,26,30, 30	22	4.2			SW	SAND medium dense; wet; yellowish orange; well graded; sand 75%; gravel 25%; silt <3%	
32	17,29,40, 45	24	2.3			SW	SAND medium dense; wet; yellowish orange; well graded; sand 75%; gravel 25%; silt <3%	
34							Bottom of boring	
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Denzel Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: 731.44
North Coor.: 1754.76

Begin Drilling: 4/3/01
End Drilling: 4/3/01
Converted to Well: Y Well I.D.:
East Coor.: 5551.00

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/3/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	GM-36	Coded Replicate No.	DUP-97 @ 28-30 interval
Time Sampling Began	15:00	Time Sampling Ended	16:55

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	concrete; loose; dry; light gray-white; sand 90%; gravel 5%; silt <5%
6	8	loose; moist; white/light gray/brown; poorly graded; sand 100%
28	30	medium dense; moist; light brown; well graded; sand 70%; gravel 25%; silt <5%

OTHER (OVA; HNu; etc.) 0.0, 6.8, 0.5

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: GM-37

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	7,18,22, 17	19	2.0			ML	SILT asphalt; fill; loose; dry; stained; dark brown-red-blue-orange; silt 70%; sand 25%; gravel <5%; pieces of glass present	
2	4,3,5,2	16	0.0			ML	SILT fill; loose; dry; stained; dark brown-red-blue-orange; silt 70%; sand 25%; gravel <5%; pieces of glass present	
4	2,3,2,2	11	0.2			ML	SILT fill; loose; dry; stained; dark brown-red-blue-orange; silt 70%; sand 25%; gravel <5%; pieces of glass present	
6	0,1,2,3	20	0.0			CL	SILT/CLAY soft; medium plasticity; moist; light brown-olive gray; clay 75%; silt 20%; sand <5%	
8	3,8,7,8	24	0.0			CL	SILT/CLAY medium stiff; medium plasticity; moist; light brown-yellowish orange; clay 75%; silt 20%; sand <5%	
10	8,11,11, 13	18	0.0			SW	SAND/GRAVEL loose; moist; light brown-yellowish orange; well graded; sand 75%; gravel 20%; silt <5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▦ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 56'
Surface Elev.: 730.36
North Coor.: 1857.31

Begin Drilling: 4/9/01
End Drilling: 4/9/01
Converted to Well: Y Well I.D.:
East Coor.: 5696.09

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-37

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	8,12,14, 18	20	0.0			SW	SAND/GRAVEL loose; moist; yellowish orange; well graded; sand 75%; gravel 20%; silt <5%	
14	20,22,22, 24	20	0.0			SW	SAND/GRAVEL medium dense; moist; yellowish orange; well graded; sand 80%; gravel 20%	
16	14,18,26, 20	22	0.0			SW	SAND/GRAVEL medium dense; moist; light brown-yellowish orange; well graded; sand 80%; gravel 20%	
18	18,22,19, 28	22	0.0			SW	SAND/GRAVEL medium dense; moist; light brown-yellowish orange; well graded; sand 80%; gravel 20%;	
20	16,17,34, 50/6	18	0.0			SW	SAND/GRAVEL medium dense; moist; yellowish orange; well graded; sand 60%; gravel 35%; silt <5%	
22	44,46,50/ 6	14	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 60%; gravel 35%; silt <5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 56'
Surface Elev.: 730.36
North Coor.: 1857.31

Begin Drilling: 4/9/01
End Drilling: 4/9/01
Converted to Well: Y Well I.D.:
East Coor.: 5696.09

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-37

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	35,26,50/6	20	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 60%; gravel 35%; silt <5%	
26	100/3	0	-				No recovery	
28	35,46,50	22	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 60%; gravel 35%; silt <5%	▼
30	9,9,19,50/6	18	0.4			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 75%; gravel 20%; silt <5%	
32	4,20,50/6	24	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 75%; gravel 20%; silt <5%	
34	4,16,50/6	20	0.6			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 75%; gravel 20%; silt <5%	
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 56'
Surface Elev.: 730.36
North Coor.: 1857.31

Begin Drilling: 4/9/01
End Drilling: 4/9/01
Converted to Well: Y Well I.D.: ____
East Coor.: 5696.09

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: ____ Filename: April Logs

ARCADIS G&M

Log of Boring: GM-37

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
36	6,10,22, 24	24	1.3			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 75%; gravel 20%; silt <5%	
38	12,11,50/ 6	24	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 75%; gravel 20%; silt <5%	
40	21,10,6,4	24	1.6			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 75%; gravel 20%; silt <5%	
42	40,43,50/ 6	24	1.6			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 75%; gravel 20%; silt <5%	
44	33,38,50/ 6	24	2.3			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 75%; gravel 20%; silt <5%	
46	12,23,29, 23	24	3.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 75%; gravel 20%; silt <5%	
48								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 56'
Surface Elev.: 730.36
North Coor.: 1857.31

Begin Drilling: 4/9/01
End Drilling: 4/9/01
Converted to Well: Y Well I.D.:
East Coor.: 5696.09

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-37

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
48	21,21,36, 34	24	1.6			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt <5%	
50	28,38,50/ 6	22	8.5			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt <5%	
52	48,50/1	22	15.7			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt <5%	
54	44,50/3	24	0.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt <5%	
						CL	SILT/CLAY medium stiff; low plasticity; gray; poorly graded; clay 60%; silt 40%	
56							Bottom of boring	
58								
60								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▥ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 56'
Surface Elev.: 730.36
North Coor.: 1857.31

Begin Drilling: 4/9/01
End Drilling: 4/9/01
Converted to Well: Y Well I.D.:
East Coor.: 5696.09

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/9/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	GM-37	Coded Replicate No.	
Time Sampling Began	9:56	Time Sampling Ended	15:25

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	asphalt; fill; loose; dry; stained; dark brown-red-blue-orange; silt 70%; sand 25%; gravel <5%; pieces of glass present
4	6	fill; loose; dry; stained; dark brown-red-blue-orange; silt 70%; sand 25%; gravel <5%; pieces of glass present
24	26	medium dense; moist; light brown; well graded; sand 60%; gravel 35%; silt <5%

OTHER (OVA; HNu; etc.) 2.0, 0.2, 0.0

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS G&M

Log of Boring: GM-38

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
0	-,-,15,24	12	3.3			ML	SILT 10" of asphalt; fill; loose; dry; stained; dark brown-red-blue-orange; silt 70%; sand 25%; gravel <5%	
2	7,18,18,5	22	0.0			ML	SILT fill; loose; dry; stained; dark brown-red-blue-orange; silt 70%; sand 25%; gravel <5%	
4	10,3,5,5	14	0.7			ML	SILT fill; loose; dry; stained; dark brown-red-blue-orange; silt 70%; sand 25%; gravel <5%	
6	4,4,10,10	6	0.9			ML	SILT fill; loose; dry; stained; dark brown-red-blue-orange; silt 70%; sand 25%; gravel <5%	
8	1,2,3,6	24	0.4			CL	CLAY/SILT stained; medium stiff; medium plasticity; moist; light brown-yellowish orange; clay 75%; silt 20%; sand <5%	
10	3,4,6,7	22	0.0			CL	CLAY/SILT stained; medium stiff; medium plasticity; moist; light brown-yellowish orange; clay 75%; silt 20%; sand <5%	
12								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▥ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: 730.31
North Coor.: 1857.56

Begin Drilling: 4/10/01
End Drilling: 4/10/01
Converted to Well: Y Well I.D.:
East Coor.: 5686.00

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-38

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
12	3,6,6,7	14	0.0			SP	SILT/SAND loose; moist; light brown-yellowish orange; poorly graded; sand 90%; silt 10%; gravel <3%	
14	5,10,10, 12	18.5	0.0			SP	SILT/SAND loose; moist; light brown-yellowish orange; poorly graded; sand 90%; silt 10%; gravel <3%	
16	9,11,17, 17	24	0.0			SW	SAND/GRAVEL loose; moist; light brown-yellowish orange; well graded; sand 80%; gravel 15%; silt <5%	
18	16,19,25, 35	22	0.0			SW	SAND/GRAVEL loose; moist; light brown-yellowish orange; well graded; sand 80%; gravel 15%; silt <5%	
20	28,28,26, 27	22	0.0			GW	GRAVEL/SAND medium dense; moist; light brown; well graded; gravel 70%; sand 25%; silt <5%	
22	9,10,20, 28	20	0.0			GW	GRAVEL/SAND medium dense; moist; light brown; well graded; gravel 70%; sand 25%; silt <5%	
24								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: 730.31
North Coor.: 1857.56

Begin Drilling: 4/10/01
End Drilling: 4/10/01
Converted to Well: Y Well I.D.:
East Coor.: 5686.00

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: Filename: April Logs

ARCADIS G&M

Log of Boring: GM-38

Waste Pile/Staging Area Investigation

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample	Graphic Log	Soil Class.	Description	Depth to Water
24	21,28,28, 30	18	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 60%; gravel 40%; silt <3%	
26	50/6	11.5	0.0			SW	SAND/GRAVEL medium dense; moist; light brown; well graded; sand 60%; gravel 40%; silt <3%	
28	35,50/6	11	0.2			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 60%; gravel 40%; silt <3%	▼
30	16,18,20, 30	23	1.0			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt <5%	
32		20	0.3			SW	SAND/GRAVEL medium dense; wet; light brown; well graded; sand 80%; gravel 15%; silt <5%	
34							Bottom of boring	
36								

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: Brian Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: Cindy Capell
Total Depth: 34'
Surface Elev.: 730.31
North Coor.: 1857.56

Begin Drilling: 4/10/01
End Drilling: 4/10/01
Converted to Well: Y Well I.D.: _____
East Coor.: 5686.00

Remarks: Analyzed for TCL VOCs, SVOCs, PCBs, TAL metals

Project No.: OH000294.0002.00006 Datum: _____ Filename: April Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	4/10/01
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0004.00004
Sample No.	GM-38	Coded Replicate No.	
Time Sampling Began	10:39	Time Sampling Ended	13:36

Sampling Method and Material: Split spoon (3" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	asphalt; fill loose; dry; stained; dark brown-red-blue-orange; silt 70%; sand 25%; gravel <5%
8	10	stained; medium stiff; medium plasticity; moist; light brown-yellowish orange; clay 75%; silt 20%; sand <5%
26	28	medium dense; moist; light brown; well graded; sand 60%; gravel 40%; silt <3%

OTHER (OVA; HNu; etc.) 3.3, 0.4, 0.0

Constituents Sampled	Container Description	Preservative
TCL VOCs (5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	16 oz glass jar	Cool
TCL PCBs (8082)	16 oz glass jar	Cool
TAL Metals (6010B, 7060A, 7421, 7471A, 7740, 7841)	16 oz glass jar	Cool

Remarks

Sample Personnel C. Capell/S. Brown

ARCADIS

Soil Boring/Sampling Logs

August and November 2002
March 2003

ARCADIS

Log of Boring: WPSA-BH21

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	WT,2,8,9	8	35.1					Concrete	
	WT,2,8,9	8	35.1				SP	SILTY SAND & GRAVEL loose; moist; black; well graded; fine-medium sand (70%); small-large gravel (20%); strong odor	
2	7,2,2,3	12	23.9				SP	SAND & GRAVEL loose; black; strong odor; saturated with black oily substance; silt (10%); poorly graded; medium-coarse sand and gravel	
4	1,1,1,1	18	8.1				SP	SAND & GRAVEL strong odor; silt (10%); loose; saturated with black oily; substance black; poorly graded; medium-coarse sand and gravel	
							CL	SANDY CLAY soft; moist; brown; medium plasticity; clay (60%); sand (30%); small gravel (10%)	
6	WT,WT, 1,5	24	9.1				SW	SILTY SAND loose; moist; dark brown-gray; well graded; medium-coarse sand (80%); silt (20%)	
8	5,7,12,12	24	6.1				SW	SILTY SAND loose; moist; dark brown-gray; well graded; medium-coarse sand (80%); silt (20%)	
							SW	SAND & GRAVEL loose; moist; black-oily; well graded; medium-coarse sand and gravel	
10	12,12,15, 10	18	6.6				SW	SAND & GRAVEL loose; moist; black-oily; well graded; medium-coarse sand and gravel	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 12 feet
Surface Elev.: 726.001
North Coor.: 620571.9

Begin Drilling: 8/8/02 @ 9:00
End Drilling: 8/8/02 @ 9:19
Converted to Well: N Well I.D.: N/A
East Coor.: 1483626.6

Remarks: Samples submitted to laboratory for analysis of Antimony.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH21

General Motors Corporation

Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12								Bottom of boring	
14									
16									
18									
20									
22									
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 12 feet
Surface Elev.: 726.001
North Coor.: 620571.9

Begin Drilling: 8/8/02 @ 9:00
End Drilling: 8/8/02 @ 9:19
Converted to Well: N Well I.D.: N/A
East Coor.: 1483626.6

Remarks: Samples submitted to laboratory for analysis of Antimony.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/8/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH21	Coded Replicate No.	
Time Sampling Began	9:00	Time Sampling Ended	9:19

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
8	10	loose; moist; black-oily; well graded; medium-coarse sand and gravel
10	12	loose; moist; black-oily; well graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 6.1, 6.6

Constituents Sampled	Container Description	Preservative
TCL Antimony (6010B)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH22

General Motors Corporation

Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	WT,3,3,3	18	4.5					Concrete	
							SP	SAND & GRAVEL loose; saturated with black oily substance; poorly graded; medium-coarse sand and gravel	
2	2,2,3,3	20	3.0				SP	SAND & GRAVEL loose; saturated with black oily substance; poorly graded; medium-coarse sand and gravel	
							CL	SANDY CLAY soft; moist; dark brown; medium plasticity; clay (60%); sand (30%); small gravel (10%)	
4								Bottom of boring	
6									
8									
10									
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 4 feet
Surface Elev.: 724.664
North Coor.: 620537.3

Begin Drilling: 8/8/02 @ 9:46
End Drilling: 8/8/02 @ 9:48
Converted to Well: N Well I.D.: N/A
East Coor.: 1483657.8

Remarks: Samples submitted to laboratory for analysis of Aroclor-1254.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/8/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH22	Coded Replicate No.	
Time Sampling Began	9:46	Time Sampling Ended	9:48

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	loose; saturated with black oily substance; poorly graded; medium-coarse sand and gravel
2	4	loose; saturated with black oily substance; poorly graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 4.5, 3.0

Constituents Sampled	Container Description	Preservative
TCL PCBs (Aroclor 1254) (8082)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH23

General Motors Corporation — Waste Pile Staging Area, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0			1.7				GW-SW	SAND & GRAVEL dry, sandy gravel, black, poorly sorted	
2			0.4				ML	CLAYEY SILT dry, clayey silt, light brown, medium plasticity, medium hardness, 10% gravel	
4								Bottom of boring	
6									
8									
10									
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: N/A
Driller: N/A
Drilling Method: _____
Drilling Fluid: N/A

Geologist: D. Manzo
Total Depth: 4
Surface Elev.: Not surveyed
North Coor.: Not surveyed

Begin Drilling: 3/20/03 @ 1205
End Drilling: 3/20/03 @ 1310
Converted to Well: No Well I.D.: _____
East Coor.: Not surveyed

Remarks: Samples submitted for analysis of VOCs and PCBs.

Project No.: OH000294.0005.0006 Datum: N/A Filename: March 2003

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/ Waste Pile/Staging Area Investigation

Site Location General Motors, Moraine, Ohio

Date 3/20/2003

Project No. OH000294.0005.00006

Sample No. WPSA-BH23

Coded Replicate No.

Time Sampling Began 12:20

Time Sampling Ended 12:50

Sampling Method and Material: Hand auger

From	To	Soil/Sediment/Sludge Description
0	2	dry, sandy gravel, black, poorly sorted
2	4	dry, clayey silt, light brown, medium plasticity, medium hardness, 10% gravel

OTHER (OVA; HNu; etc.) 1.7, 0.4

Constituents Sampled	Container Description	Preservative
TCL PCBs (Aroclor 1254) (8082)	8 oz. Jar	Cool
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool

Remarks

Sample Personnel J. Manzo

ARCADIS

Log of Boring: WPSA-BH24

General Motors Corporation

Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0			1.7				SP	GRAVEL AND SAND loose; poorly graded; medium coarse sand and gravel	
2			1.0						
								Bottom of boring	
4									
6									
8									
10									
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: N/A
Driller: N/A
Drilling Method: Stainless Steel Hand
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 3 feet
Surface Elev.: 731.167
North Coor.: 620452.8

Begin Drilling: 11/1/02 @ 9:30
End Drilling: 11/1/02 @ 10:15
Converted to Well: N Well I.D.: N/A
East Coor.: 1483616.2

Remarks: Samples submitted to laboratory for analysis VOCs and Barium.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	11/1/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH24	Coded Replicate No.	DUP-124 @ 0-2 interval
Time Sampling Began	9:30	Time Sampling Ended	10:15

Sampling Method and Material: Hand auger

From	To	Soil/Sediment/Sludge Description
0	2	loose; poorly graded; medium coarse sand and gravel
2	3	loose; poorly graded; medium coarse sand and gravel

OTHER (OVA; HNu; etc.) 1.7, 1.0

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool
TCL Barium (6010B)	8 oz. Jar	Cool

Remarks

Sample Personnel J. Manzo

ARCADIS

Log of Boring: WPSA-BH25

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	WT,8,18, 21	12	1.6					Concrete	
							SW	SILTY SAND & GRAVEL loose; dry; black; well graded; fine-medium sand (60%); medium gravel (30%); silt (10%)	
2	15,16,12, 11	12	7.4				SW	SILTY SAND & GRAVEL loose; dry; black; well graded; fine-medium sand (60%); medium gravel (30%); silt (10%)	
4	9,9,2,2	10	5.9				SW	SAND & GRAVEL loose; moist; black; well graded; medium-coarse sand and gravel	
6	1,1,2,7	14	7.5				SW	SAND & GRAVEL loose; wet; black; well graded; medium-coarse sand and gravel	
8	10,29,29, 38	19	2.1				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
10	10,28,50,	9	1.6				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand (75%); large gravel (25%)	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 26 feet
Surface Elev.: 731.624
North Coor.: 620388.2

Begin Drilling: 8/9/02 @ 9:16
End Drilling: 8/9/02 @ 10:26
Converted to Well: N Well I.D.: N/A
East Coor.: 1483579.7

Remarks: Samples submitted to laboratory for analysis of VOCs, cadmium & chromium

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH25

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	28,25,26, 30	12	1.0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand (75%); large gravel (25%)	
14	6,30,30, 30	20	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
16	28,28,29, 30	15	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
18	5,20,20, 20	14	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
20	2,9,18,13	15	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
22	9,7,4,5	14	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 26 feet
Surface Elev.: 731.624
North Coor.: 620388.2

Begin Drilling: 8/9/02 @ 9:16
End Drilling: 8/9/02 @ 10:26
Converted to Well: N Well I.D.: N/A
East Coor.: 1483579.7

Remarks: Samples submitted to laboratory for analysis of VOCs, cadmium & chromium

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH25

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	2,2,4,5	10	0				SW	SAND & GRAVEL loose; wet; light brown; well graded; medium-coarse sand and gravel	⏚
26								Bottom of boring	
28									
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 26 feet
Surface Elev.: 731.624
North Coor.: 620388.2

Begin Drilling: 8/9/02 @ 9:16
End Drilling: 8/9/02 @ 10:26
Converted to Well: N Well I.D.: N/A
East Coor.: 1483579.7

Remarks: Samples submitted to laboratory for analysis of VOCs, cadmium & chromium

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/9/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH25	Coded Replicate No.	
Time Sampling Began	9:16	Time Sampling Ended	10:26

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
6	8	loose; wet; black; poorly graded; medium-coarse sand and gravel
22	24	loose; moist; light brown; well graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 7.5, 0

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool
TCL Cadmium (6010B)	8 oz. Jar	Cool
TCL Chromium (6010B)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH26

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	-,-,25,29	12	0					Concrete	
							SW	SILTY SAND & GRAVEL loose; fine-coarse; moist; black; well graded; sand (70%); medium-coarse gravel (15%); silt (15%)	
2	6,7,2,3	18	0				SW	SILTY SAND & GRAVEL loose; fine-coarse; moist; black; well graded; sand (70%); medium-coarse gravel (15%); silt (15%)	
4	9,10,1,1	12	0				SW	SAND & GRAVEL loose; moist; black; well graded; fine-medium sand and gravel	
6	1,1,1,4	10	0				SW	SAND & GRAVEL loose; wet; black; well graded; medium-coarse sand and gravel	
8	6,8,20,20	20	0				SW	SAND & GRAVEL loose; wet; black; well graded; medium-coarse sand and gravel	
							SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
10	6,8,20,20	20	0				SW	SAND & GRAVEL loose; wet; black; well graded; medium-coarse sand and gravel	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 26 feet
Surface Elev.: 731.455
North Coor.: 620344.9

Begin Drilling: 8/7/02 @ 1330
End Drilling: 8/7/02 @ 1424
Converted to Well: N Well I.D.: N/A
East Coor.: 1483534.5

Remarks: Samples submitted to laboratory for analysis of VOCs, cadmium & chromium

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH26

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	15,15,15, 10	20	0				SW	SAND & GRAVEL loose; wet; black; well graded; medium-coarse sand and gravel	
14	11,18,21, 21	20	0				SW	SAND & GRAVEL loose; wet; black; well graded; medium-coarse sand and gravel	
16	21,28,25, 25	22	0				SW	SAND & GRAVEL loose; wet; black; well graded; medium-coarse sand and gravel	
18	5,18,18, 24	16	0				SW	SAND & GRAVEL loose; wet; black; well graded; medium-coarse sand and gravel	
20	10,30,20, 20	18	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
22	14,15,21, 28	18	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 26 feet
Surface Elev.: 731.455
North Coor.: 620344.9

Begin Drilling: 8/7/02 @ 1330
End Drilling: 8/7/02 @ 1424
Converted to Well: N Well I.D.: N/A
East Coor.: 1483534.5

Remarks: Samples submitted to laboratory for analysis of VOCs, cadmium & chromium

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH26

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24		10	0				SW	SAND & GRAVEL loose; wet; light brown; well graded; medium-coarse sand and gravel	
26								Bottom of boring	
28									
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 26 feet
Surface Elev.: 731.455
North Coor.: 620344.9

Begin Drilling: 8/7/02 @ 1330
End Drilling: 8/7/02 @ 1424
Converted to Well: N Well I.D.: N/A
East Coor.: 1483534.5

Remarks: Samples submitted to laboratory for analysis of VOCs, cadmium & chromium

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/7/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH26	Coded Replicate No.	
Time Sampling Began	13:30	Time Sampling Ended	14:24

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	loose; fine-coarse; moist; black; well graded; sand (70%); medium-coarse gravel (15%); silt (15%)
2	4	loose; fine-coarse; moist; black; well graded; sand (70%); medium-coarse gravel (15%); silt (15%)
22	24	loose; moist; light brown; well graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 0, 0, 0

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool
TCL Cadmium (6010B)	8 oz. Jar	Cool
TCL Chromium (6010B)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH27

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	20,22,40, 45	24	0					Topsoil	
							SP	SAND & GRAVEL loose; dry; black; poorly graded; sand (70%); large gravel (30%)	
2	WT,WT, WT,WT	0						No recovery	
4	2,2,4,6	16	0				CL	SANDY CLAY soft; moist; brown; medium plasticity; clay (70%); sand (25%); gravel (5%)	
6	2,3,8,9	22	2.4				CL	SANDY CLAY soft; moist; brown; medium plasticity; clay (70%); sand (25%); gravel (5%)	
8	6,14,21, 22	10	2.4				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
10	16,14,16, 20	22	2.4				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 24 feet
Surface Elev.: 726.504
North Coor.: 620784.2

Begin Drilling: 8/7/02 @ 10:25
End Drilling: 8/7/02 @ 11:24
Converted to Well: N Well I.D.: N/A
East Coor.: 1483511

Remarks: Samples submitted to laboratory for analysis of VOCs. DUP-121 from 0-2'

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH27

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	7,17,20, 20	10	2.4				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
14	16,16,16, 16	18	1.8				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
16	10,11,16, 19	12	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; fine-coarse sand (70%); large gravel (30%)	
18	4,30,30, 30	20	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; fine-coarse sand (70%); large gravel (30%)	
20	46,32,32, 25	12	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
22	6,10,24, 18	18	0				SW	SAND & GRAVEL loose; wet; light brown; well graded; medium-coarse sand and gravel	▼
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 24 feet
Surface Elev.: 726.504
North Coor.: 620784.2

Begin Drilling: 8/7/02 @ 10:25
End Drilling: 8/7/02 @ 11:24
Converted to Well: N Well I.D.: N/A
East Coor.: 1483511

Remarks: Samples submitted to laboratory for analysis of VOCs. DUP-121 from 0-2'

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH27

General Motors Corporation

Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24								Bottom of boring	
26									
28									
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Geologist: C. Capell
Begin Drilling: 8/7/02 @ 10:25

Driller: B. Wright
Total Depth: 24 feet
End Drilling: 8/7/02 @ 11:24

Drilling Method: Hollow Stem Auger
Surface Elev.: 726.504
Converted to Well: N Well I.D.: N/A

Drilling Fluid: None
North Coor.: 620784.2
East Coor.: 1483511

Remarks: Samples submitted to laboratory for analysis of VOCs. DUP-121 from 0-2'

Project No.: OH000294.0005.00006
Datum: N/A
Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/7/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH27	Coded Replicate No.	DUP-121 @ 0-2 interval
Time Sampling Began	10:25	Time Sampling Ended	11:24

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	loose; dry; black; poorly graded; sand (70%); large gravel (30%)
6	8	soft; moist ;brown; medium plasticity; clay (70%); sand (25%); gravel (5%)
20	22	loose; moist; light brown; well graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 0, 2.4, 0,

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core^{R} Samplers	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH28

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Soil Class.	Description
0	WT,5,17, 21	18	0		Asphalt
				SP	SAND & GRAVEL fill; loose; dry; black; poorly graded; medium-coarse sand and gravel
2	9,8,8,9	12	0	SP	SAND & GRAVEL loose; dry; light brown; poorly graded; fine-medium sand (80%); gravel (20%)
4	5,6,6,4	20	0.8	SP	SAND & GRAVEL loose; dry; light brown; poorly graded; fine-medium sand (80%); gravel (20%)
				CL	SANDY CLAY medium stiff; moist; light brown; medium-high plasticity; clay (75%); sand (20%); gravel (5%)
6	2,2,3,5	18	0.6	CL	SANDY CLAY medium stiff; moist; light brown; medium-high plasticity; clay (75%); sand (20%); gravel (5%)
8	5,21,22, 15	18	0	SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand (70%); large gravel (30%)
10	20,35,35, 23	20	0	SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand (70%); large gravel (30%)
12					

Depth to Water

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 26 feet
Surface Elev.: 727.348
North Coor.: 620750

Begin Drilling: 8/7/02 @ 9:00
End Drilling: 8/7/02 @ 9:45
Converted to Well: N Well I.D.: N/A
East Coor.: 1483443.7

Remarks: Samples submitted to laboratory for analysis of VOCs.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH28

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	14,17,17, 25	20	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
14	12,20,20, 20	22	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
16	6,24,26, 26	14	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
18	15,22,23, 17	16	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
20	8,22,22, 22	16	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse; sand and gravel	
22	9,19,28, 19	16	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Geologist: C. Capell
Begin Drilling: 8/7/02 @ 9:00
Driller: B. Wright
Total Depth: 26 feet
End Drilling: 8/7/02 @ 9:45
Drilling Method: Hollow Stem Auger
Surface Elev.: 727.348
Converted to Well: N Well I.D.: N/A
Drilling Fluid: None
North Coor.: 620750
East Coor.: 1483443.7
Remarks: Samples submitted to laboratory for analysis of VOCs.
Project No.: OH000294.0005.00006
Datum: N/A
Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH28

General Motors Corporation

Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	8,18,14, 33	14	0				SW	SAND & GRAVEL loose; wet; light brown; well graded; medium-coarse sand and gravel	
26								Bottom of boring	
28									
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Geologist: C. Capell
Begin Drilling: 8/7/02 @ 9:00
Driller: B. Wright
Total Depth: 26 feet
End Drilling: 8/7/02 @ 9:45
Drilling Method: Hollow Stem Auger
Surface Elev.: 727.348
Converted to Well: N Well I.D.: N/A
Drilling Fluid: None
North Coor.: 620750
East Coor.: 1483443.7
Remarks: Samples submitted to laboratory for analysis of VOCs.
Project No.: OH000294.0005.00006
Datum: N/A
Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/7/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH28	Coded Replicate No.	
Time Sampling Began	9:00	Time Sampling Ended	9:45

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	fill; loose; dry; black; poorly graded; medium-coarse sand and gravel
4	6	loose; dry; light brown; poorly graded; fine-medium sand (80%); gravel (20%)
22	24	loose; moist; light brown; well graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 0, 0.8, 0

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH29

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	WT,6,7,9	12	6.5					Asphalt	
							SM	SILTY SAND loose; moist; black; poorly graded; fine-medium sand (80%); silt (20%); wood, metal and glass debris	
2	10,9,4,6	10	9.5				SM	SILTY SAND loose; moist; black; poorly graded; fine-medium sand (80%); silt (20%); wood, metal and glass debris	
4	1,3,2,1		-					No recovery	
6	1,2,2,3	14	21.0				SM	SILTY SAND loose; wet; dark gray-black; poorly graded; fine-medium sand (80%); silt (20%)	
8	10,24,33, 32	20	23.5				SM	SILTY SAND loose; wet; dark gray-black; poorly graded; fine-medium sand (80%); silt (20%)	
10	37,28,35, 33	18	1.0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Geologist: C. Capell
Begin Drilling: 8/6/02 @ 1535
Driller: B. Wright
Total Depth: 26 feet
End Drilling: 8/6/02 @ 1650
Drilling Method: Hollow Stem Auger
Surface Elev.: 727.93
Converted to Well: N Well I.D.: N/A
Drilling Fluid: None
North Coor.: 620555.1
East Coor.: 1483460.3
Remarks: Samples submitted to laboratory for analysis of VOCs and Arsenic.
Project No.: OH000294.0005.00006
Datum: N/A
Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH29

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	18,25,25, 15	16	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
14	8,10,26, 28	20	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
16	20,20,29, 25	18	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
18	20,20,20, 15	18	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
20	20,20,10, 18	18	2.0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
22	15,7,9,9	18	27.5				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 26 feet
Surface Elev.: 727.93
North Coor.: 620555.1

Begin Drilling: 8/6/02 @ 1535
End Drilling: 8/6/02 @ 1650
Converted to Well: N Well I.D.: N/A
East Coor.: 1483460.3

Remarks: Samples submitted to laboratory for analysis of VOCs and Arsenic.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH29

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	7,10,12, 22	12	23.0				SW	SAND & GRAVEL loose; wet; light brown; well graded; medium-coarse sand and gravel	
26								Bottom of boring	
28									
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 26 feet
Surface Elev.: 727.93
North Coor.: 620555.1

Begin Drilling: 8/6/02 @ 1535
End Drilling: 8/6/02 @ 1650
Converted to Well: N Well I.D.: N/A
East Coor.: 1483460.3

Remarks: Samples submitted to laboratory for analysis of VOCs and Arsenic.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/ Site Location	Waste Pile/Staging Area Investigation General Motors, Moraine, Ohio	Date Project No.	8/6/2002 OH000294.0005.00006
Sample No.	WPSA-BH29	Coded Replicate No.	
Time Sampling Began	15:35	Time Sampling Ended	16:50

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	loose; moist; black; poorly graded; fine-medium sand (80%); silt (20%); wood, metal, and glass debris
8	10	loose; wet; dark gray-black; poorly graded; fine-medium sand (80%); silt (20%)
22	24	loose; moist; light brown; well graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 6.5, 23.5, 27.5

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool
TCL Arsenic (7060A)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH30

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	8,8,18,29	12	34.0					Concrete	
							SM	SILTY SAND fill; loose; dry; black; sand (70%); silt (20%); gravel (10%)	
2	6,7,9,10	0	0					No recovery - metal in shoe	
4	6,14,18,8	10	23.5				SW	SILTY SAND & GRAVEL loose; moist; black; well graded; sand (70%); silt (20%); gravel (10%)	
6	2,2,2,2	0	0					No recovery - pushing metal	
8	16,24,24, 35	18	1.0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand (60%); large gravel (40%)	
10	15,42,42, 50	12	0				SW	SAND & GRAVEL dense; moist; light brown; well graded; large gravel (80%); medium sand (20%)	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Geologist: C. Capell
Begin Drilling: 8/6/02 @ 1320
Driller: B. Wright
Total Depth: 28 feet
End Drilling: 8/6/02 @ 1458
Drilling Method: Hollow Stem Auger
Surface Elev.: 727.18
Converted to Well: N Well I.D.: N/A
Drilling Fluid: None
North Coor.: 620507.3
East Coor.: 1483446.9
Remarks: Samples submitted to laboratory for analysis of VOCs and arsenic.
Project No.: OH000294.0005.00006
Datum: N/A
Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH30

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	4,9,26,46	20	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
14	28,29,20, 25	24	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
16	12,26,38, 45	12	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
18	18,31,21, 25	12	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
20	8,28,49, 50	14	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
22	28,18,18, 18	14	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 28 feet
Surface Elev.: 727.18
North Coor.: 620507.3

Begin Drilling: 8/6/02 @ 1320
End Drilling: 8/6/02 @ 1458
Converted to Well: N Well I.D.: N/A
East Coor.: 1483446.9

Remarks: Samples submitted to laboratory for analysis of VOCs and arsenic.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH30

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	8,14,14, 27	10	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
26	15,40,50, 50	12	0				SW	SAND & GRAVEL loose; wet; light brown; well graded; medium-coarse sand and gravel	▼
28								Bottom of boring	
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 28 feet
Surface Elev.: 727.18
North Coor.: 620507.3

Begin Drilling: 8/6/02 @ 1320
End Drilling: 8/6/02 @ 1458
Converted to Well: N Well I.D.: N/A
East Coor.: 1483446.9

Remarks: Samples submitted to laboratory for analysis of VOCs and arsenic.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/6/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH30	Coded Replicate No.	
Time Sampling Began	13:20	Time Sampling Ended	14:58

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	fill; loose; dry; black; sand (70%); silt (20%); gravel (10%)
4	6	loose; moist; black; well graded; sand (70%); silt (20%); gravel (10%)
24	26	loose; moist; light brown; well graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 34.0, 1.0, 0

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool
TCL Arsenic (7060A)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH31

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	WT,7,14, 14	14	1.0					Concrete	
							SM	SILTY SAND & GRAVEL fill; debris in sample; moist-wet; loose; black; well graded; fine-coarse sand and gravel (80%); silt (20%)	
2	7,7,6,5	10	1.0				SM	SILTY SAND & GRAVEL fill; debris in sample; moist-wet; loose; black; well graded; fine-coarse sand and gravel (80%); silt (20%)	
4	4,4,5,6	8	0.5				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
6	3,5,5,1	12	1.0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
8	1,1,2,3	20	4.5				CL	SANDY CLAY soft; moist; brown; medium plasticity; clay (60%); sand (35%); gravel (5%)	
10	1,1,1,2	20	0				CL	SANDY CLAY soft; moist; brown; medium plasticity; clay (60%); sand (35%); gravel (5%)	
							SP	SAND loose; moist; light brown; poorly graded; fine-medium sand	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 28 feet
Surface Elev.: 727.342
North Coor.: 620508.2

Begin Drilling: 8/6/02 @ 10:00
End Drilling: 8/6/02 @ 11:22
Converted to Well: N Well I.D.: N/A
East Coor.: 1483399.7

Remarks: Analyzed for VOCs, SVOCs, lead & zinc. DUP-120 & 122 from 0-2'.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH31

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	1,3,4,3	14	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
14	4,5,6,6	20	0				SW	SAND & GRAVEL loose; wet; light brown; well graded; medium-coarse sand and gravel	
							SP	SAND loose; wet; light brown; poorly graded; fine-medium sand	
16	3,4,6,9	22	0				SP	SAND loose; wet; light brown; poorly graded; fine-medium sand	
18	2,3,4,6	24	0				SP	SAND loose; moist; light brown; poorly graded; fine-medium sand	
20	2,3,4,4	22	0				SP	SAND loose; moist; light brown; poorly graded; fine-medium sand	
22	1,9,26,35	18	0				SP	SAND loose; moist; light brown; poorly graded; fine-medium sand	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Geologist: C. Capell
Begin Drilling: 8/6/02 @ 10:00
Driller: B. Wright
Total Depth: 28 feet
End Drilling: 8/6/02 @ 11:22
Drilling Method: Hollow Stem Auger
Surface Elev.: 727.342
Converted to Well: N Well I.D.: N/A
Drilling Fluid: None
North Coor.: 620508.2
East Coor.: 1483399.7
Remarks: Analyzed for VOCs, SVOCs, lead & zinc. DUP-120 & 122 from 0-2'.
Project No.: OH000294.0005.00006
Datum: N/A
Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH31

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	6,32,39, 40	16	0				SP	SAND loose; moist; light brown; poorly graded; fine-medium sand	
26	2,9,8,6	12	0				SP	SAND loose; wet; light brown; poorly graded; fine-medium sand	▼
28								Bottom of boring	
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Geologist: C. Capell
Begin Drilling: 8/6/02 @ 10:00
Driller: B. Wright
Total Depth: 28 feet
End Drilling: 8/6/02 @ 11:22
Drilling Method: Hollow Stem Auger
Surface Elev.: 727.342
Converted to Well: N Well I.D.: N/A
Drilling Fluid: None
North Coor.: 620508.2
East Coor.: 1483399.7
Remarks: Analyzed for VOCs, SVOCs, lead & zinc. DUP-120 & 122 from 0-2'.
Project No.: OH000294.0005.00006
Datum: N/A
Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/6/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH31	Coded Replicate No.	DUP-120 @ 0-2 interval
Time Sampling Began	10:00	Time Sampling Ended	11:22

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	fill; debris in sample; moist-wet; loose; black; well graded; fine-coarse sand and gravel (80%); silt (20%)
8	10	soft; moist; brown; medium plasticity; clay (60%); sand (35%); gravel (5%)
24	26	loose; moist; light brown; poorly graded; fine-medium sand

OTHER (OVA; HNu; etc.) 1.0, 4.5, 0

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	8 oz. Jar	Cool
TCL Lead (7421)	8 oz. Jar	Cool
TCL Zinc (6010B)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/9/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH31	Coded Replicate No.	DUP-122 @ 0-2 interval
Time Sampling Began	11:10	Time Sampling Ended	

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	fill; debris in sample; moist-wet; loose; black; well graded; fine-coarse sand and gravel (80%); silt (20%)

OTHER (OVA; HNu; etc.) 1.0

Constituents Sampled	Container Description	Preservative
TCL SVOCs (8270C)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH32

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (inches)	OVA (PPM)	Soil Class.	Description	Depth to Water
0	WT,6,20, 31	10	2.0		Concrete	
				SP	SAND fill; loose; moist; dark brown; poorly graded; fine-medium sand and gravel	
2	10,36,12, 5	18	0.5	SM	SILT medium dense; moist; black; silt (70%); sand (20%); gravel (10%); wood and metal debris in sample	
4	6,6,5,5	12	2.0	SM	SILT medium dense; moist; black; silt (70%); sand (20%); gravel (10%); wood and metal debris in sample	
6	5,2,7,5	18	1.0	SM	SILT soft; wet; black; silt (90%); sand (10%); debris in sample	
8	2,2,2,4	22	1.0	SP	SAND loose; moist; light brown; poorly graded; sand (95%); silt (5%)	
10	4,5,6,10	22	0.5	SP	SAND loose; moist; light brown; poorly graded; sand (95%); silt (5%)	
12						

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 28 feet
Surface Elev.: 728.023
North Coor.: 620476.6

Begin Drilling: 8/6/02 @ 8:05
End Drilling: 8/6/02 @ 9:30
Converted to Well: N Well I.D.: N/A
East Coor.: 1483408

Remarks: Analyzed for VOCs, SVOCs, lead & zinc.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH32

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	14,14,17, 23	14	0.5				SW	SAND & GRAVEL loose; moist-wet; light brown; well graded; medium-coarse sand and gravel	
14	3,18,15,9	10	0.5				SW	SAND & GRAVEL loose; moist-wet; light brown; well graded; medium-coarse sand and gravel	
16	4,4,5,5	14	0				SW	SAND & GRAVEL loose; moist-wet; light brown; well graded; medium-coarse sand and gravel	
18	5,6,10,14	18	0				SW	SAND & GRAVEL loose; moist-wet; light brown; well graded; medium-coarse sand and gravel	
20	8,8,8,14	14	0				SP	SAND loose; moist; light brown; poorly graded; medium-coarse sand	
22	9,21,22, 23	12	0				SP	SAND loose; moist; light brown; poorly graded; medium-coarse sand	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Geologist: C. Capell
Begin Drilling: 8/6/02 @ 8:05
Driller: B. Wright
Total Depth: 28 feet
End Drilling: 8/6/02 @ 9:30
Drilling Method: Hollow Stem Auger
Surface Elev.: 728.023
Converted to Well: N Well I.D.: N/A
Drilling Fluid: None
North Coor.: 620476.6
East Coor.: 1483408
Remarks: Analyzed for VOCs, SVOCs, lead & zinc.
Project No.: OH000294.0005.00006
Datum: N/A
Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH32

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	5,21,23, 18	12	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
26	30,21,24, 24	10	0				SW	SAND & GRAVEL loose; wet; light brown; well graded; medium-coarse sand and gravel	▼
28								Bottom of boring	
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 28 feet
Surface Elev.: 728.023
North Coor.: 620476.6

Begin Drilling: 8/6/02 @ 8:05
End Drilling: 8/6/02 @ 9:30
Converted to Well: N Well I.D.: N/A
East Coor.: 1483408

Remarks: Analyzed for VOCs, SVOCs, lead & zinc.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/6/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH32	Coded Replicate No.	
Time Sampling Began	8:05	Time Sampling Ended	9:30

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	fill; loose; moist; dark brown; poorly graded; fine-medium sand and gravel
4	6	medium dense; moist; black; silt (70%); sand (20%); gravel (10%); wood and metal debris in sample
24	26	loose; moist; light brown; well graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 2.0, 2.0, 0

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	8 oz. Jar	Cool
TCL Lead (7421)	8 oz. Jar	Cool
TCL Zinc (6010B)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH33

General Motors Corporation

Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	WT,WT, 5,21	10	0					Concrete	
							SP	SAND & GRAVEL fill; loose; moist; black; poorly graded; coarse sand and large gravel	
2	19,10,8,9	12	0				SP	SAND & GRAVEL fill; loose; moist; black; poorly graded; coarse sand and large gravel	
4	3,4,4,3	12	0.3				SP	SAND loose; moist; mottled black-brown, rust colored; poorly graded; fine-medium sand	
6	2,2,2,2	10	1.0				SP	SAND loose; moist; mottled black-brown, rust colored; poorly graded; fine-medium sand	
							SP	SAND wet; loose; light gray/white; poorly graded; fine-medium sand	
8	1,1,1,2							No recovery	
10	2,3,3,5	22	0				CL	SANDY CLAY soft; wet; black; high plasticity; clay (75%); sand (20%); silt (5%)	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Geologist: C. Capell
Begin Drilling: 8/5/02 @ 10:09
Driller: B. Wright
Total Depth: 28 feet
End Drilling: 8/5/02 @ 11:39
Drilling Method: Hollow Stem Auger
Surface Elev.: 731.143
Converted to Well: N Well I.D.: N/A
Drilling Fluid: None
North Coor.: 620285
East Coor.: 1483256.9
Remarks: Analyzed for VOCs and SVOCs. DUP-118 from 0-2'.
Project No.: OH000294.0005.00006
Datum: N/A
Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH33

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	8,8,8,18	12	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
14	8,8,10,10	24	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
16	8,10,15, 15	20	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
18	7,12,17, 18	18	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
20	8,12,18, 19	16	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
22	9,12,15, 17	14	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 28 feet
Surface Elev.: 731.143
North Coor.: 620285

Begin Drilling: 8/5/02 @ 10:09
End Drilling: 8/5/02 @ 11:39
Converted to Well: N Well I.D.: N/A
East Coor.: 1483256.9

Remarks: Analyzed for VOCs and SVOCs. DUP-118 from 0-2'.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH33

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	8,10,16, 16	10	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
26	WT,WT, WT,WT	14	0				SW	SAND & GRAVEL loose; wet; light brown; well graded; medium-coarse sand and gravel	▼
28								Bottom of boring	
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 28 feet
Surface Elev.: 731.143
North Coor.: 620285

Begin Drilling: 8/5/02 @ 10:09
End Drilling: 8/5/02 @ 11:39
Converted to Well: N Well I.D.: N/A
East Coor.: 1483256.9

Remarks: Analyzed for VOCs and SVOCs. DUP-118 from 0-2'.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/5/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH33	Coded Replicate No.	DUP-118 @ 0-2 interval
Time Sampling Began	10:09	Time Sampling Ended	11:39

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	fill; loose; moist; black; poorly graded; coarse sand and large gravel
6	8	loose; moist; mottled black-brown; rust colored; poorly graded; fine-medium sand
24	26	loose; moist; light brown; well graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 0, 1.0, 0

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool
TCL SVOCs (8270C)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Log of Boring: WPSA-BH34

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	WT,WT, 12,15	10	0					Concrete	
							SP	SAND & GRAVEL fill; loose; dry; light brown; poorly graded; medium-coarse sand and gravel	
2	7,11,17, 21	22	0.7				SP	SAND & GRAVEL fill; loose; dry; light brown; poorly graded; medium-coarse sand and gravel	
4	4,11,14, 14	10	1.4				SP	SAND loose; moist; light brown; poorly graded; fine-medium sand (95%); gravel (5%)	
6	4,8,8,9	18	1.4				SP	SAND loose; moist; light brown; poorly graded; fine-medium sand (95%); gravel (5%)	
							SP	SAND loose; moist; blue-green; poorly graded; fine-medium sand (95%); gravel (5%)	
8	3,11,16,1	4	0.7				SP	SAND loose; wet; light brown; poorly graded; fine-medium sand (95%); gravel (5%)	
10	2,2,2,5		-					No recovery-pieces of steel in shoe	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling | Geologist: C. Capell | Begin Drilling: 8/5/02 @ 1353

Driller: B. Wright | Total Depth: 28 feet | End Drilling: 8/5/02 @ 1450

Drilling Method: Hollow Stem Auger | Surface Elev.: 731.318 | Converted to Well: N | Well I.D.: N/A

Drilling Fluid: None | North Coor.: 620269.2 | East Coor.: 1483277.4

Remarks: Analyzed for VOCs and silver. DUP-118 from 0-2'.

Project No.: OH000294.0005.00006 | Datum: N/A | Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH34

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	8,9,8,8	14	0				CL	SANDY CLAY soft; wet; black; high plasticity; clay (75%); sand (20%); silt (5%)	
							SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
14	6,9,10,13	14	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
16	5,8,7,10	18	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
18	7,11,12, 11	14	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
20	15,10,12, 14	18	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
22	29,24,11, 10	20	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 28 feet
Surface Elev.: 731.318
North Coor.: 620269.2

Begin Drilling: 8/5/02 @ 1353
End Drilling: 8/5/02 @ 1450
Converted to Well: N Well I.D.: N/A
East Coor.: 1483277.4

Remarks: Analyzed for VOCs and silver. DUP-118 from 0-2'.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Log of Boring: WPSA-BH34

General Motors Corporation — Waste Pile Staging Area

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	3,5,8,11	10	0				SW	SAND & GRAVEL loose; moist; light brown; well graded; medium-coarse sand and gravel	
26	WT,WT, WT,WT	14	0				SW	SAND & GRAVEL loose; wet; light brown; well graded; medium-coarse sand and gravel	▼
28								Bottom of boring	
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright's Drilling
Driller: B. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: C. Capell
Total Depth: 28 feet
Surface Elev.: 731.318
North Coor.: 620269.2

Begin Drilling: 8/5/02 @ 1353
End Drilling: 8/5/02 @ 1450
Converted to Well: N Well I.D.: N/A
East Coor.: 1483277.4

Remarks: Analyzed for VOCs and silver. DUP-118 from 0-2'.

Project No.: OH000294.0005.00006 Datum: N/A Filename: August 2002 Soil Logs

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile/Staging Area Investigation	Date	8/5/2002
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0005.00006
Sample No.	WPSA-BH34	Coded Replicate No.	
Time Sampling Began	13:53	Time Sampling Ended	14:50

Sampling Method and Material: Split spoon with macro-core liner (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	fill; loose; dry; light brown; poorly graded; medium-coarse sand and gravel
6	8	loose; moist; light brown; poorly graded; fine-medium sand (95%) and gravel (5%)
24	26	loose; moist; light brown; well graded; medium-coarse sand and gravel

OTHER (OVA; HNu; etc.) 0, 1.4, 0

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260/5035)	3 En Core® Samplers	Cool
TCL Silver (6010B)	8 oz. Jar	Cool

Remarks

Sample Personnel C. Capell

ARCADIS

Soil Boring\Sampling Logs

October 2003

ARCADIS

Log of Boring: WPSA-BH35

General Motors Corporation

Waste Pile Staging Area, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Soil Class.	Description	Depth to Water
0	6,17,17, 22	18	19.4		Concrete	
				GW	GRAVEL fill, dry, sandy-gravel, 50% sand, 50% gravel, well graded, dark brown	
2	15,14,28, 30	15	4.1			
4	30,12,12, 10	0	-		Pushing rock, no recovery	
6	5,3,2,3	0	-		No recovery	
8	7,8,8,9	7	2.3	CL	CLAY damp, sandy-clay, dark brown, 40% sand, 60% clay, high plasticity, soft	
10	7,7,9,8	9	2.3	SW	SAND dry, gravely-sand, light brown, 75% medium grained sand, 25% gravel, well graded	
12						

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: D. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: D. Manzo
Total Depth: 26
Surface Elev.: 730.61
North Coor.: 2007.057

Begin Drilling: 10/23/03 @ 9:22
End Drilling: 10/23/03 @ 10:28
Converted to Well: N Well I.D.:
East Coor.: 5593.778

Remarks: Submitted 0-2', 8-10' and 22-24' for analysis.

Project No.: OH000294.0005.00006
Datum: Land Surface
Filename: October 2003

ARCADIS

Log of Boring: WPSA-BH35

General Motors Corporation

Waste Pile Staging Area, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	5,7,8,8	14	2.0				SP	SAND dry, gravely-sand, light brown, 75% medium grained sand, 25% gravel, poorly graded	
14	6,7,8,8	19	3.8						
16	4,6,5,5	22	2.5				SP	SAND dry, sand, light brown, poorly graded, medium grained	
18	11,18,20, 23	24	2.8						
20	50/5	0						Pushing rock, no recovery	
22	24,49,24, 25	7	2.8				SW	SAND dry, gravely-sand, 75% sand, 25% gravel, well graded	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: D. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: D. Manzo
Total Depth: 26
Surface Elev.: 730.61
North Coor.: 2007.057

Begin Drilling: 10/23/03 @ 9:22
End Drilling: 10/23/03 @ 10:28
Converted to Well: N Well I.D.:
East Coor.: 5593.778

Remarks: Submitted 0-2', 8-10' and 22-24' for analysis.

Project No.: OH000294.0005.00006 Datum: Land Surface Filename: October 2003

ARCADIS

Log of Boring: WPSA-BH35

General Motors Corporation — Waste Pile Staging Area, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	5,7,9,10	17	2.5				SW	SAND damp, gravely-sand, 75% sand, 25% gravel, well graded	
							GW	GRAVEL wet (saturated), sand and gravel, 75% gravel, 25% sand, well graded	▼
26								Bottom of boring	
28									
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: D. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: D. Manzo
Total Depth: 26
Surface Elev.: 730.61
North Coor.: 2007.057

Begin Drilling: 10/23/03 @ 9:22
End Drilling: 10/23/03 @ 10:28
Converted to Well: N Well I.D.:
East Coor.: 5593.778

Remarks: Submitted 0-2', 8-10' and 22-24' for analysis.

Project No.: OH000294.0005.00006 Datum: Land Surface Filename: October 2003

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile Staging Area Investigation	Date	10/23/2003
Site Location	General Motors Corporation, Moraine, Ohio	Project No.	OH000294.005.06
Sample No.	WPSA-BH35	Coded Replicate No.	DUP-132
Time Sampling Began	9:22	Time Sampling Ended	10:28

Sampling Method and Material: Split spoon

From	To	Soil/Sediment/Sludge Description
0	2	First 6" concrete, fill, dry, sandy-gravel, 50% sand, 50% gravel, well graded, dark brown
8	10	Damp, sandy-clay, dark brown, 40% sand, 60% clay, high-plasticity, soft
22	24	Dry, gravely-sand, 75% sand, 25% gravel, well graded

OTHER (OVA) 0-2'=19.4 ppm; 8-10'=2.3 ppm; 22-24'=2.8 ppm

Constituents Sampled	Container Description	Preservative
Arsenic (7060A)	4oz glass jar	Cool

Remarks DUP-132 taken from 0-2'; RB-109 taken after completion of boring WPSA-BH35.

Sample Personnel D. Manzo

ARCADIS

Log of Boring: WPSA-BH36

General Motors Corporation — Waste Pile Staging Area, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Soil Class.	Description	Depth to Water
0	-,10,28,16	16	0.7		Concrete	
				SW	SAND fill, gravely-sand, 60% sand, 40% gravel, well graded	
2	3,3,4,5	13	1.2	CL	CLAY fill, silty-clay, dark brown, low plasticity, soft, dry	
4	2,3,4,16	11	1.0			
6	15,22,23,12	0			No recovery	
8	3,2,4,4	19	1.5	SM	SILTY SAND damp, sand with 20% silty-clay, high plasticity, soft, well graded, light brown	
10	10,8,10,18	16	1.5	SW	SAND dry, gravely-sand, 30% gravel, 70% sand, well graded, light brown	
12						

Sample Analysis: ☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Geologist: D. Manzo
Begin Drilling: 10/23/03 @ 11:01
Driller: D. Wright
Total Depth (ft): 24
End Drilling: 10/23/03 @ 12:06
Drilling Method: Hollow Stem Auger
Surface Elev.: 730.83
North Coor.: 1918.491
Drilling Fluid: None
Datum: Land Surface
East Coor.: 5551.932
Remarks: Submitted 0-2', 8-10', and 20-22' for analysis.
Converted to Well: N
Well I.D.:
Project No.: OH000294.0005.00006
Filename: October 2003

ARCADIS

Log of Boring: WPSA-BH36

General Motors Corporation — Waste Pile Staging Area, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	21,21,16, 21	17	2.5				SW	SAND dry, gravely-sand, 30% gravel, 70% sand, well graded, light brown	
14	18,21,21, 23	20	2.5						
16	15,12,8,5	23	1.7						
							SP	SAND fine grained sand, damp, light brown, poorly graded	
18	14,17,14, 16	19	2.0				SW	SAND dry, gravely-sand, 30% gravel, 70% sand, well graded, light brown	
20	9,8,9,7	11	2.3				SP	SAND dry, fine-grained sand, light brown, poorly graded	
22	21,41,44, 27	13	2.0						
							GW	GRAVEL wet (saturated), 40% sand and 60% gravel, well graded	▼
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: D. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: D. Manzo
Total Depth: 24
Surface Elev.: 730.83
North Coor.: 1918.491

Begin Drilling: 10/23/03 @ 11:01
End Drilling: 10/23/03 @ 12:06
Converted to Well: N Well I.D.:
East Coor.: 5551.932

Remarks: Submitted 0-2', 8-10', and 20-22' for analysis.

Project No.: OH000294.0005.00006 Datum: Land Surface Filename: October 2003

ARCADIS

Log of Boring: WPSA-BH36

General Motors Corporation — Waste Pile Staging Area, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24								Bottom of boring	
26									
28									
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: D. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None
Geologist: D. Manzo
Total Depth: 24
Surface Elev.: 730.83
North Coor.: 1918.491
Begin Drilling: 10/23/03 @ 11:01
End Drilling: 10/23/03 @ 12:06
Converted to Well: N Well I.D.:
East Coor.: 5551.932

Remarks: Submitted 0-2', 8-10', and 20-22' for analysis.

Project No.: OH000294.0005.00006 Datum: Land Surface Filename: October 2003

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Waste Pile Staging Area Investigation	Date	10/23/2003
Site Location	General Motors Corporation, Moraine, Ohio	Project No.	OH000294.005.06
Sample No.	WPSA-BH36	Coded Replicate No.	
Time Sampling Began	11:01	Time Sampling Ended	12:06

Sampling Method and Material: Split spoon

From	To	Soil/Sediment/Sludge Description
0	2	First 6" concrete; fill, gravely-sand, 60% sand, 40% gravel, well graded
8	10	Damp, sand with 20% silty clay, high plasticity, soft, well graded, light brown
20	22	Dry, fine grained sand, light brown, poorly graded

OTHER (OVA) 0-2'=0.7 ppm; 8-10'=1.5 ppm; 20-22'=2.3 ppm

Constituents Sampled	Container Description	Preservative
Semi-Volatile Organic Compounds	4oz glass jar	Cool
(8270C)		

Remarks

Sample Personnel D. Manzo

ARCADIS

Log of Boring: WPSA-BH37

General Motors Corporation

Waste Pile Staging Area, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	-,5,6,6	18	3.8					Concrete	
							SW	SAND gravely-sand, dry, 75% sand, 25% gravel, well graded, fill, light brown	
2	6,5,4,5	6	4.1						
4	3,4,2,2	2	4.1						
6	1,2,2,2	14	2.5				SW	SAND gravely-sand, dry, 75% sand, 25% gravel, well graded, fill, light brown, dark staining, glass fragments, insulation and wood fragments visible	
8	2,2,2,4	21	2.8				CL	CLAY damp, light brown, silty clay with 10% gravel, high plasticity, soft	
10	4,4,7,10	22	2.5				CL	CLAY dry, light brown, silty clay with 10% gravel, soft, low plasticity, medium hardness	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: D. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: D. Manzo
Total Depth: 24
Surface Elev.: 730.63
North Coor.: 1848.642

Begin Drilling: 10/23/03 @ 1322
End Drilling: 10/23/03 @ 1419
Converted to Well: N Well I.D.:
East Coor.: 5723.747

Remarks: Submitted 0-2', 8-10', and 20-22' for analysis.

Project No.: OH000294.0005.00006 Datum: Land Surface Filename: October 2003

ARCADIS

Log of Boring: WPSA-BH37

General Motors Corporation

Waste Pile Staging Area, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (inches)	OVA (PPM)	Soil Class.	Description	Depth to Water
12	2,3,2,9	17	2.3	CL	CLAY dry, light brown, silty clay with 10% gravel, soft, low plasticity, medium hardness	
					3" thick fine-grained sand, damp, poorly graded	
14	9,12,23, 11	16	2.8	SW	SAND gravely-sand, dry, 80% sand, 20% gravel, light brown, well graded	
16	10,10,12, 6	19	2.0	SP	SAND dry, medium grained sand, 10% gravel, light brown, poorly graded	
18	10,7,8,10	15	2.5			
20	28,30,30, 32	13	2.1	SW	SAND gravely-sand, dry, light brown, 70% sand, 30% gravel, well graded	
22	18,23,23, 20	19	2.1			
				GW	GRAVEL 25% sand and 75% gravel, wet (saturated) well graded	▼
24						

☒ Composite Sample to Lab ■ Grab Sample to Lab ▨ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: D. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: D. Manzo
Total Depth: 24
Surface Elev.: 730.63
North Coor.: 1848.642

Begin Drilling: 10/23/03 @ 1322
End Drilling: 10/23/03 @ 1419
Converted to Well: N Well I.D.:
East Coor.: 5723.747

Remarks: Submitted 0-2', 8-10', and 20-22' for analysis.

Project No.: OH000294.0005.00006 Datum: Land Surface Filename: October 2003

ARCADIS

Log of Boring: WPSA-BH37

General Motors Corporation — Waste Pile Staging Area, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24								Bottom of boring	
26									
28									
30									
32									
34									
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▥ Split-Spoon Not Analyzed

Drilling Co.: Wright Drilling
Driller: D. Wright
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: D. Manzo
Total Depth: 24
Surface Elev.: 730.63
North Coor.: 1848.642

Begin Drilling: 10/23/03 @ 1322
End Drilling: 10/23/03 @ 1419
Converted to Well: N Well I.D.:
East Coor.: 5723.747

Remarks: Submitted 0-2', 8-10', and 20-22' for analysis.

Project No.: OH000294.0005.00006 Datum: Land Surface Filename: October 2003

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Soil/Sediment/Sludge Sampling Log

Project/ Waste Pile Staging Area Investigation

Site Location General Motors Corporation, Moraine, Ohio

Date 10/23/2003

Project No. OH000294.005.06

Sample No. WPSA-BH37

Coded Replicate No.

Time Sampling Began 13:22

Time Sampling Ended 14:19

Sampling Method and Material: Split spoon

From	To	Soil/Sediment/Sludge Description
0	2	First 6" concrete, gravely-sand, dry, 75% sand, 25% gravel, well graded, fill, light brown
8	10	Damp, light brown, silty-clay with 10% gravel, high plasticity, soft
20	22	Gravely sand, dry, light brown, 70% sand, 30% gravel, well graded

OTHER (OVA) 0-2'=3.8 ppm; 8-10'=2.8 ppm; 20-22'=2.1 ppm

Constituents Sampled	Container Description	Preservative
Iron and Copper (6010B)	4oz glass jar	Cool

Remarks

Sample Personnel D. Manzo

DRAFT

Appendix C

Soil Sampling SOP

Modified January 2002

SOP #31 - Sampling Soil Using an En Core® Sampler (VOCs by Method 5035)

EQUIPMENT:

_____	En Core® Sampler	_____	Paperwork
_____	En Core® T-Handle	_____	PPE, including gloves
_____	Cooler	_____	Ice
_____	Baggies	_____	Tape
_____	Ziploc bags	_____	Watch
_____	Waterproof-ink pen	_____	Plastic sheeting

PROCEDURE:

1. Cover work area with plastic sheeting or aluminum foil.

2. Record pertinent information on the field sampling log or project sampling book, including date, sample identification number, weather, time, and sampler.

3. Label the En Core® sampler container bags (3 container bags are needed per sample) with our company name, the boring identification number, date, time, medium, sampler, and VOC analysis by Method 5035. Also label one 4-ounce jar for collection of soil for dry-weight analysis and one baggie for headspace analysis.

4. Don disposable nitrile or latex gloves. If using a spilt-spoon sampler, insert a plastic liner, or if using a direct-push macro-core liner, use a clean saw to cut a 6 to 8 inch long section from the sample interval and cap each end. Label the sample section, place it in a plastic bag, and store it on ice. Place the remaining portion of each sample interval into a properly labeled plastic bag for field screening (visual inspection and headspace analysis using a PID). If elevated readings or visual staining are apparent, a sample will be collected from the 6 to 8 inch section. If elevated readings or visual staining are not apparent do not retain sample for analysis unless sample interval has been previously specified.

5. Attach En Core sampler to En Core® T-Handle by holding coring body and pushing plunger rod down until small o-ring rests against tabs.

6. Depress locking lever on En Core® T-Handle. Place coring body, plunger end first, into open end of T-Handle, aligning the slots on the coring body with the 2 locking pins in the T-Handle. Twist coring body clockwise to lock pins in slots.

7. Check to ensure Sampler is locked in place. Sampler is ready for use.

8. Position Sampler over soil core with the T-Handle T-up and coring body down.

SOP #31 - Sampling Soil Using an En Core® Sampler (VOCs by Method 5035)

9. Using T-Handle, push Sampler into soil until coring body is completely full. When full, small o-ring will be centered in T-Handle viewing hole.

10. Remove Sampler from soil. Wipe excess soil from coring body exterior.

11. Cap coring body while it is still on T-Handle. Push cap over flat area of ridge. Push and twist cap to lock arm in place. Cap must be seated to seal sampler.

12. Remove the capped Sampler by depressing locking lever on T-Handle while twisting and pulling Sampler from T-Handle.

13. Lock plunger by rotating extended plunger rod fully, counter-clockwise until wings rest firmly against tabs.

14. Attach completed label from En Core® Sampler bag to cap on coring body. Return full En Core® Sampler to zipper bag. Seal bag and put on ice.

15. Repeat Steps 5 through 14 until three (3) samplers are filled with soil.

16. Collect small quantity of soil and place in baggie for headspace analysis. Allow sample to volatilize for at least 10 minutes at room temperature prior to obtaining headspace value.

17. Fill a 4-ounce sampling jar with soil for dry weight calculations by laboratory.

18. Clean work area and prepare for next sampling interval (i.e., next spoon or macro core liner).

19. Repeat Steps 3 through 18 for each sampling interval.

20. Pack samples with bubble wrap and ice. Complete chain-of-custody, seal cooler and deliver to the laboratory.

Note: Refer to the attached sampling procedures from En Novative Technologies, Inc., the web page address is www.ennovativetech.com.

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Appendix D

Waste Pile/Staging Area
Groundwater Sampling and Well
Construction Logs

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Groundwater Sampling Logs

April 2001

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Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/16/01
Site/Well No.	WPSA-BH08	Replicate No.		Code No.	
Weather	Cloudy, 40's	Sampling Time:	Begin 15:00	End	15:45

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	35.25
Depth to Water (ft bmp)	28.63
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	6.62
Casing Diameter/Type	2" PVC
Gallons in Well	1.06
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Very silty
pH (s.u.)	7.06
Conductivity (mS/cm)	14.3
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	17.0
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 15:15
	Sample collected from the borehole using
	a temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/19/01
Site/Well No.	WPSA-BH09	Replicate No.		Code No.	
Weather	Sunny, 40's	Sampling Time:	Begin 17:50	End	19:00

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	NM
Depth to Water (ft bmp)	29.70
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	N/A
Casing Diameter/Type	2" PVC
Gallons in Well	N/A
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy/very silty
pH (s.u.)	6.51
Conductivity (mS/cm)	N/A
(µmhos/cm)	120.0
Turbidity (NTU)	N/A
Temperature (°C)	22.5
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer

Remarks: Sample time @ 18:40. RB-79 collected prior to sampling. Sample collected from borehole using a temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/23/01
Site/Well No.	WPSA-BH10	Replicate No.		Code No.	
Weather	Sunny, 80's	Sampling Time:	Begin 16:10	End	16:45

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	728.53
Land Surface Elevation (ft)	729.29
Sounded Well Depth (ft bmp)	NM
Depth to Water (ft bmp)	30.62
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	N/A
Casing Diameter/Type	2" PVC
Gallons in Well	N/A
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Dark gray
Odor	Yes
Appearance	Cloudy/oily/LNAPLs present
pH (s.u.)	Not collected due to LNAPLS
Conductivity (mS/cm)	Not collected due to LNAPLS
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	Not collected due to LNAPLS
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer

Remarks: Difficult to determine oil/water interface: product thickness <~1/8" in bailer. Sample time @ 16:25. Dissolved metals collected 5/1/01. Sample collected from borehole via temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

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Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/23/01
Site/Well No.	WPSA-BH11	Replicate No.		Code No.	
Weather	Sunny, 80's	Sampling Time:	Begin 15:28	End	16:09

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	729.74
Land Surface Elevation (ft)	730.02
Sounded Well Depth (ft bmp)	NM
Depth to Water (ft bmp)	28.93
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	N/A
Casing Diameter/Type	2" PVC
Gallons in Well	N/A
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Dark gray
Odor	Yes, burns eyes, nose & throat
Appearance	Cloudy/LNAPLs present
pH (s.u.)	Not collected due to LNAPLS
Conductivity (mS/cm)	Not collected due to LNAPLS
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	Not collected due to LNAPLS
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer

Remarks: Difficult to determine oil/water interface with probe <~1/4-3/8" LNAPL in bailer. Sample time @ 15:50. Dissolved metals collected 5/1/01. Sample collected from the borehole using a temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/23/01
Site/Well No.	WPSA-BH12	Replicate No.		Code No.	
Weather	Sunny, 80's	Sampling Time:	Begin 10:49	End	11:30

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	35.31
Depth to Water (ft bmp)	30.13
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	5.18
Casing Diameter/Type	2" PVC
Gallons in Well	0.83
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy/very silty
pH (s.u.)	7.03
Conductivity (mS/cm)	1.104
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	22.3
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 11:10. Dissolved metals collected 5/1/01. Sample collected from the borehole using a temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/16/01
Site/Well No.	WPSA-BH13	Replicate No.		Code No.	
Weather	Cloudy, 40's	Sampling Time:	Begin 13:35	End	14:30

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	32.56
Depth to Water (ft bmp)	29.04
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	3.52
Casing Diameter/Type	2" PVC
Gallons in Well	0.56
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Very silty
pH (s.u.)	6.96
Conductivity (mS/cm)	13.96
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	18.5
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 13:45
	Sample collected from borehole using a
	temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/23/01
Site/Well No.	WPSA-BH14	Replicate No.		Code No.	
Weather	Sunny 80's	Sampling Time:	Begin 11:38	End	12:07

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	35.20
Depth to Water (ft bmp)	29.84
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	5.36
Casing Diameter/Type	2" PVC
Gallons in Well	0.86
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy/very silty
pH (s.u.)	7.04
Conductivity (mS/cm)	1.069
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	21.8
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 11:45. Dissolved metals collected 5/1/01. Sample collected from borehole using a temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/23/01
Site/Well No.	WPSA-BH15	Replicate No.		Code No.	
Weather	Sunny 80's	Sampling Time:	Begin 12:45	End	13:21

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	35.13
Depth to Water (ft bmp)	31.48
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	3.65
Casing Diameter/Type	2" PVC
Gallons in Well	0.58
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy/silty
pH (s.u.)	7.28
Conductivity (mS/cm)	1.008
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	21.6
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 13:00. Dissolved metals collected 5/1/01. Sample collected from borehole using a temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project: WPSA Investigation | Project No.: OH000294.0004(4) | Page: 1 of 1

Site Location: General Motors, Moraine, Ohio | Date: 4/12/01

Site/Well No.: WPSA-BH16 | Replicate No.: | Code No.:

Weather: Sunny 70's | Sampling Time: Begin 14:17 | End 15:21

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	35.42
Depth to Water (ft bmp)	28.93
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	6.49
Casing Diameter/Type	2" PVC
Gallons in Well	1.04
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy/very silty
pH (s.u.)	6.98
Conductivity (mS/cm)	121.5
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	20.2
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 15:00
	Samples very silty.
	Sample collected from the borehole using a
	temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/12/01
Site/Well No.	WPSA-BH17	Replicate No.		Code No.	
Weather	Sunny 70's, Windy	Sampling Time:	Begin 15:40	End	16:38

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	36.49
Depth to Water (ft bmp)	31.32
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	5.17
Casing Diameter/Type	2" PVC
Gallons in Well	0.83
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy/very silty
pH (s.u.)	7.05
Conductivity (mS/cm)	120.0
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	20.8
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 16:00
	Samples very silty.
	Sample collected from the borehole using a
	temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/23/01
Site/Well No.	WPSA-BH18	Replicate No.		Code No.	
Weather	Sunny 80's	Sampling Time:	Begin 12:08	End	12:42

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	35.21
Depth to Water (ft bmp)	29.76
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	5.45
Casing Diameter/Type	2" PVC
Gallons in Well	0.87
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy/very silty
pH (s.u.)	7.33
Conductivity (mS/cm)	0.982
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	21.3
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 12:20. Dissolved metals collected 5/1/01. Sample collected from borehole using a temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/23/01
Site/Well No.	WPSA-BH19	Replicate No.	DUP-104 @ 15:00	Code No.	
Weather	Sunny 80's	Sampling Time:	Begin 14:25	End	15:27

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	N/A
Land Surface Elevation (ft)	N/A
Sounded Well Depth (ft bmp)	35.18
Depth to Water (ft bmp)	30.25
Water-Level Elevation (ft)	N/A
Water Column in Well (ft)	4.93
Casing Diameter/Type	2" PVC
Gallons in Well	0.79
Gallons Pumped/Bailed Prior to Sampling	N/A
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy/silty/sheen w/LNAPL
pH (s.u.)	7.20
Conductivity (mS/cm)	0.963
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	21.1
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer

Remarks: Sample time @ 14:32; RB-81. Dissolved metals collected 5/1/01. No measurable LNAPL but probe had an oily residue. Samples collected from the borehole using a temporary well.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/23/01
Site/Well No.	GM-33	Replicate No.		Code No.	
Weather	Sunny 80's	Sampling Time:	Begin 9:44	End	10:40

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	729.77
Land Surface Elevation (ft)	730.30
Sounded Well Depth (ft bmp)	54.98
Depth to Water (ft bmp)	27.11
Water-Level Elevation (ft)	702.66
Water Column in Well (ft)	27.87
Casing Diameter/Type	2" PVC
Gallons in Well	4.46
Gallons Pumped/Bailed Prior to Sampling	15 bailed
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy, slight sheen
pH (s.u.)	7.18
Conductivity (mS/cm)	1.107
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	22.7
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 10:20

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	
1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47	

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/10/01
Site/Well No.	GM-34	Replicate No.		Code No.	
Weather	Cloudy, rainy 70's	Sampling Time:	Begin 14:53	End	17:11

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	730.56
Land Surface Elevation (ft)	731.06
Sounded Well Depth (ft bmp)	34.86
Depth to Water (ft bmp)	28.81
Water-Level Elevation (ft)	701.75
Water Column in Well (ft)	6.05
Casing Diameter/Type	2" PVC
Gallons in Well	0.97
Gallons Pumped/Bailed Prior to Sampling	48 pumped/5 bailed
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin 15:26 end 16:01
Pumping Rate (gpm)	N/A
Evacuation Method	Submersible pump/bailer

Field Parameters

Color	Brown
Odor	Slight
Appearance	Very silty with sheen
pH (s.u.)	7.11
Conductivity (mS/cm)	117.5
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	19.4
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer

Remarks: Sample time @ 16:20. Pumped 20 gallons with pump intake at bottom of well and 28 gallons with intake at 2 feet from bottom of well. Bailer with pump coated w/oily residue. Oily sheen on water.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/19/01
Site/Well No.	GM-35	Replicate No.		Code No.	
Weather	Sunny 40's	Sampling Time:	Begin 16:34	End	17:47

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	731.27
Land Surface Elevation (ft)	731.56
Sounded Well Depth (ft bmp)	69.95
Depth to Water (ft bmp)	29.23
Water-Level Elevation (ft)	702.04
Water Column in Well (ft)	40.72
Casing Diameter/Type	2" PVC
Gallons in Well	6.52
Gallons Pumped/Bailed Prior to Sampling	20 bailed
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy, soap like foam
pH (s.u.)	6.18
Conductivity (mS/cm)	0.550
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	22.6
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 17:15. Dissolved metals sample an orange color after filtering.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/11/01
Site/Well No.	GM-36	Replicate No.		Code No.	
Weather	Sunny 70's	Sampling Time:	Begin 12:33	End	13:40

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	731.11
Land Surface Elevation (ft)	731.44
Sounded Well Depth (ft bmp)	34.76
Depth to Water (ft bmp)	29.75
Water-Level Elevation (ft)	701.36
Water Column in Well (ft)	5.01
Casing Diameter/Type	2" PVC
Gallons in Well	0.80
Gallons Pumped/Bailed Prior to Sampling	5 bailed
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy/very silty
pH (s.u.)	7.32
Conductivity (mS/cm)	177.7
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	21.7
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 13:20. Samples very silty.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/19/01
Site/Well No.	GM-37	Replicate No.	DUP-102 @ 14:45	Code No.	
Weather	Sunny 40's	Sampling Time:	Begin 13:50	End	15:23

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	730.05
Land Surface Elevation (ft)	730.36
Sounded Well Depth (ft bmp)	54.75
Depth to Water (ft bmp)	27.19
Water-Level Elevation (ft)	702.86
Water Column in Well (ft)	27.56
Casing Diameter/Type	2" PVC
Gallons in Well	4.41
Gallons Pumped/Bailed Prior to Sampling	15 bailed
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy
pH (s.u.)	5.98
Conductivity (mS/cm)	127.0
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	22.0
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 14:45; MS-128 @ 14:45; MSD-127 @ 14:45

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0004(4)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	4/19/01
Site/Well No.	GM-38	Replicate No.		Code No.	
Weather	Sunny 40's	Sampling Time:	Begin 15:24	End	16:27

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	729.88
Land Surface Elevation (ft)	730.31
Sounded Well Depth (ft bmp)	34.50
Depth to Water (ft bmp)	27.64
Water-Level Elevation (ft)	702.24
Water Column in Well (ft)	6.86
Casing Diameter/Type	2" PVC
Gallons in Well	1.10
Gallons Pumped/Bailed Prior to Sampling	5 bailed
Sample Pump Intake Setting (ft bmp)	N/A
Purge Time	begin N/A end
Pumping Rate (gpm)	N/A
Evacuation Method	Disposable bailer

Field Parameters

Color	Brown
Odor	No
Appearance	Cloudy, very silty
pH (s.u.)	6.25
Conductivity (mS/cm)	121.9
(µmhos/cm)	N/A
Turbidity (NTU)	N/A
Temperature (°C)	22.1
Dissolved Oxygen (mg/L)	N/A
ORP (mV)	N/A
Sampling Method	Disposable bailer
Remarks	Sample time @ 16:00.

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs and PCBs	1 gallon amber glass	1	None
APP IX Dissolved Metals	500 ml plastic	1	HNO_3
APP IX Total Metals	500 ml plastic	1	HNO_3

Sampling Personnel: J. Riepenhoff

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

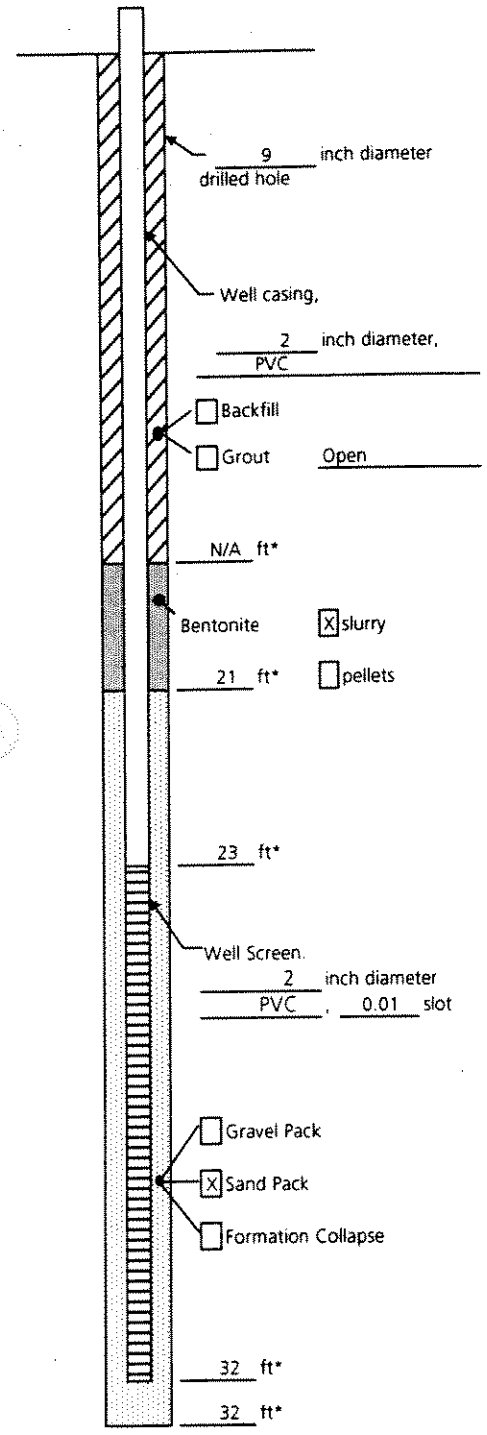
Well Construction Logs

April 2001

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH08

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 2236.35
E 5614.87 feet [X] Surveyed
[ ] Estimated

Installation Date(s) 4/12/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 28.63 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well for groundwater sampling.

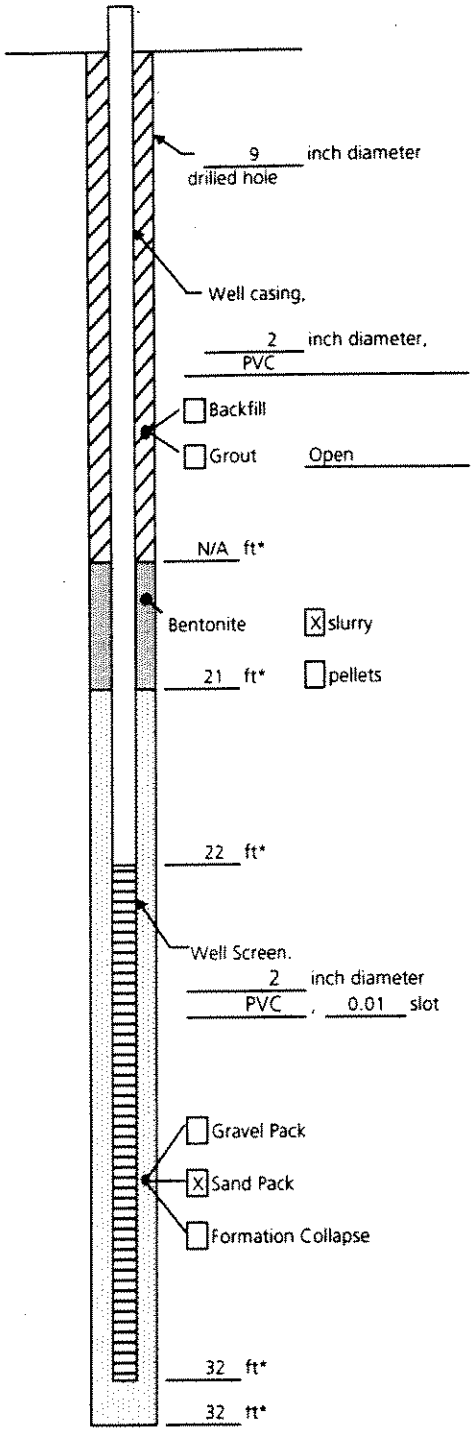
Remarks Temporary well was appropriately abandoned after the collection of groundwater samples.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH09

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 2172.55
E 5766.41 feet [X] Surveyed
[ ] Estimated

Installation Date(s) 4/17/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 29.70 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well for groundwater sampling.

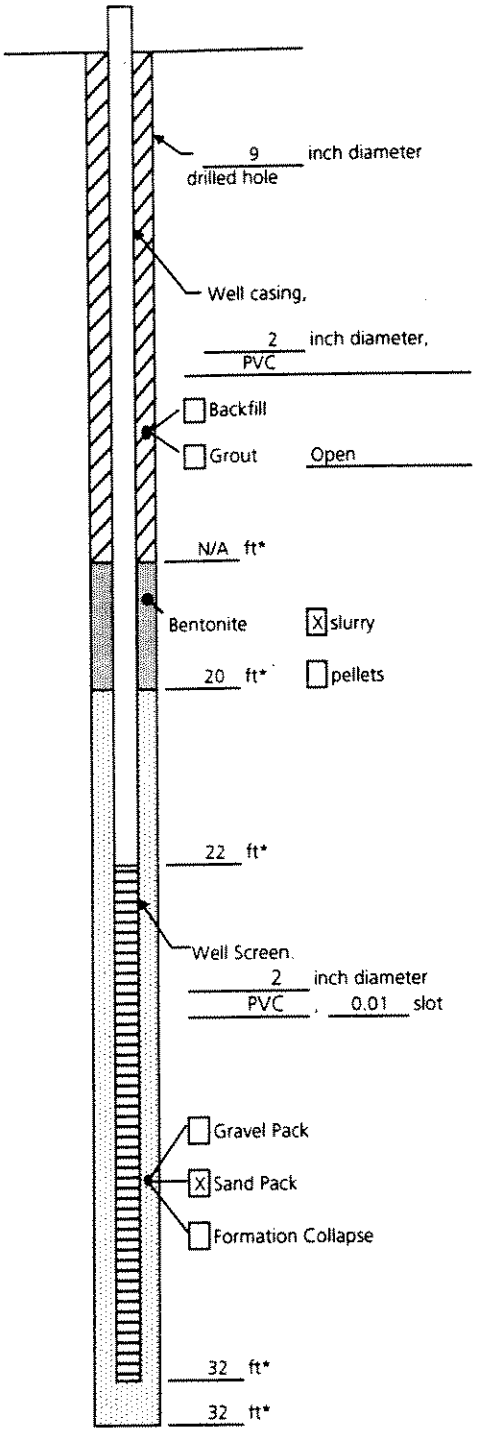
Remarks Temporary well was appropriately abandoned after the collection of groundwater samples.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH10

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 2146.81
E 5715.16 feet [X] Surveyed
[ ] Estimated

Installation Date(s) 4/18/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 30.62 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well WPSA-BH10 was overdrilled and converted to a 4" LNAPL recovery well (RW-10) on 5/1/01.

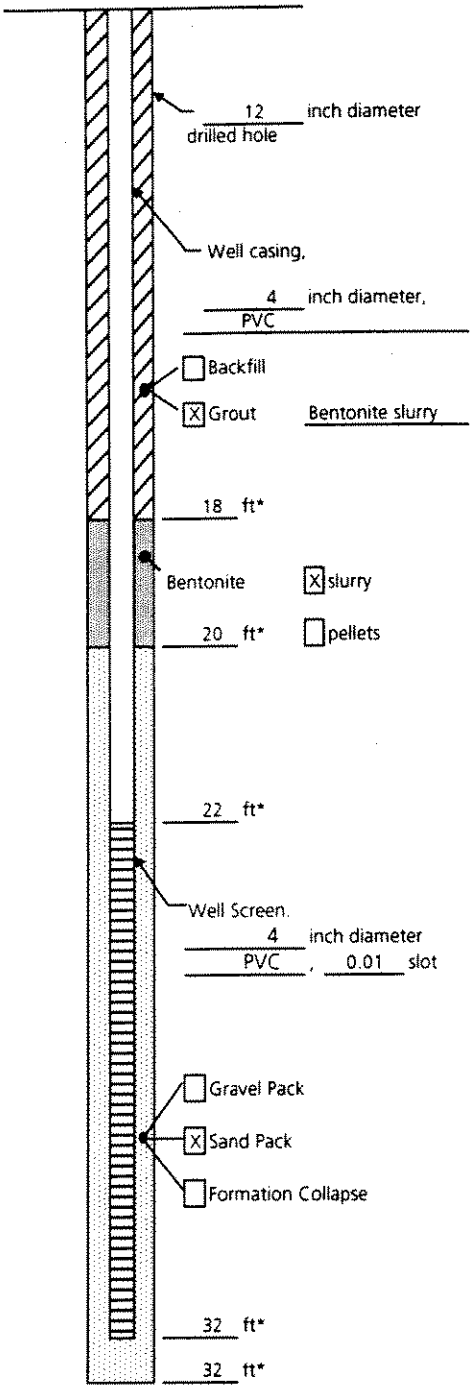
Remarks

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well RW-10

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

729.29 LS/728.53 TOC feet [X] Surveyed

[ ] Estimated

Installation Date(s) 5/1/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

Well Purpose LNAPL recovery, groundwater sampling, and water level measurements.

Remarks Flush mount.

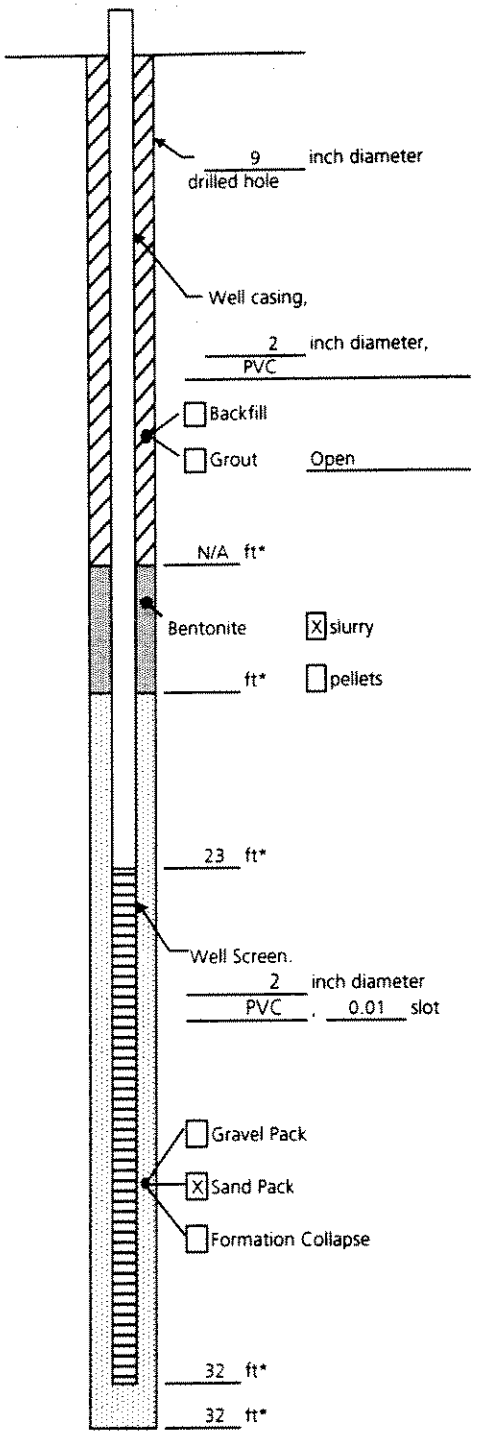
For description of lithology see soil boring log WPSA-BH10

Prepared by S. Brown

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH11

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 2120.56
E 5772.91 feet [X] Surveyed
[ ] Estimated

Installation Date(s) 4/20/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 28.93 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well WPSA-BH11 was overdrilled and converted to a 4" LNAPL recovery well (RW-11) on 5/1/01.

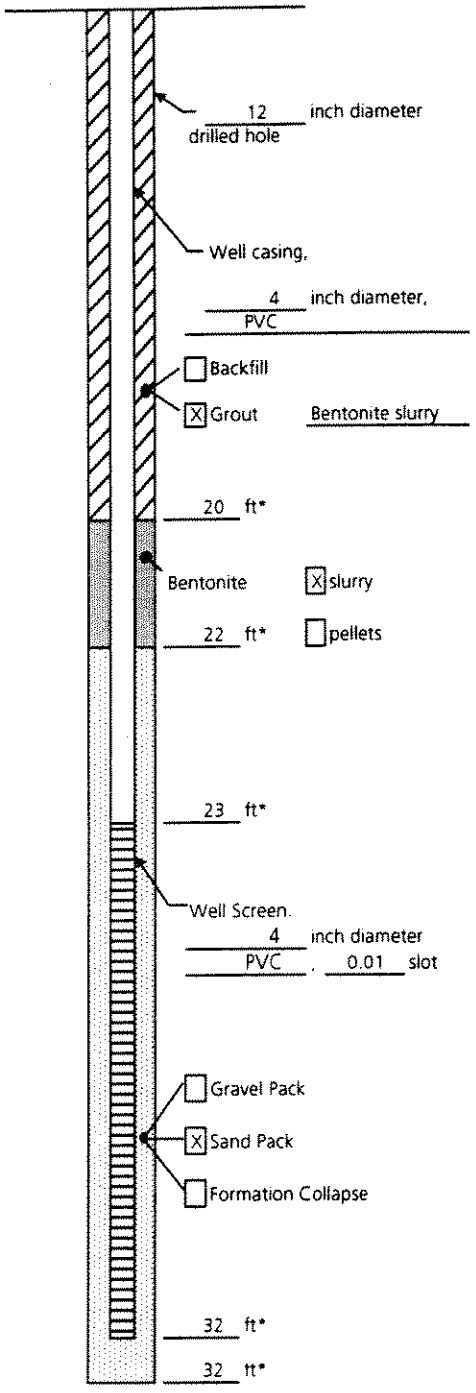
Remarks

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well RW-11

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

730.02 LS/729.74 TOC feet [X] Surveyed

[ ] Estimated

Installation Date(s) 5/1/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

Well Purpose LNAPL recovery, groundwater sampling, and water level measurements.

Remarks Flush mount.

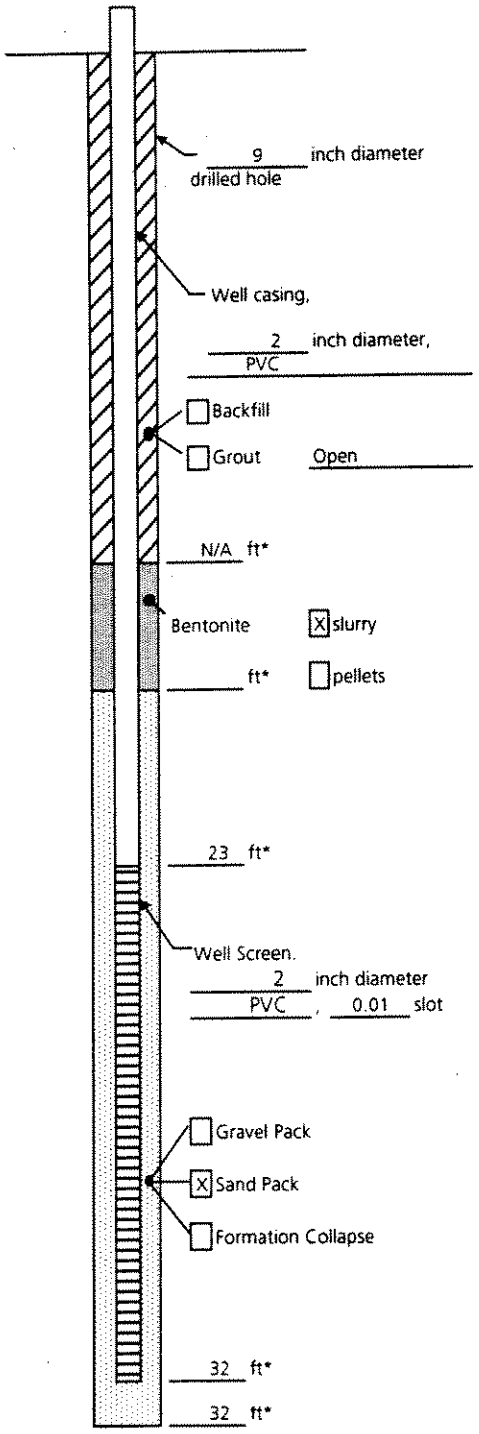
For description of lithology see soil boring log WPSA-BH11

Prepared by S. Brown

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH12

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 2018.70
E 5661.20 feet ☐ Surveyed
☒ Estimated

Installation Date(s) 4/18/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 30.13 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well for groundwater sampling.

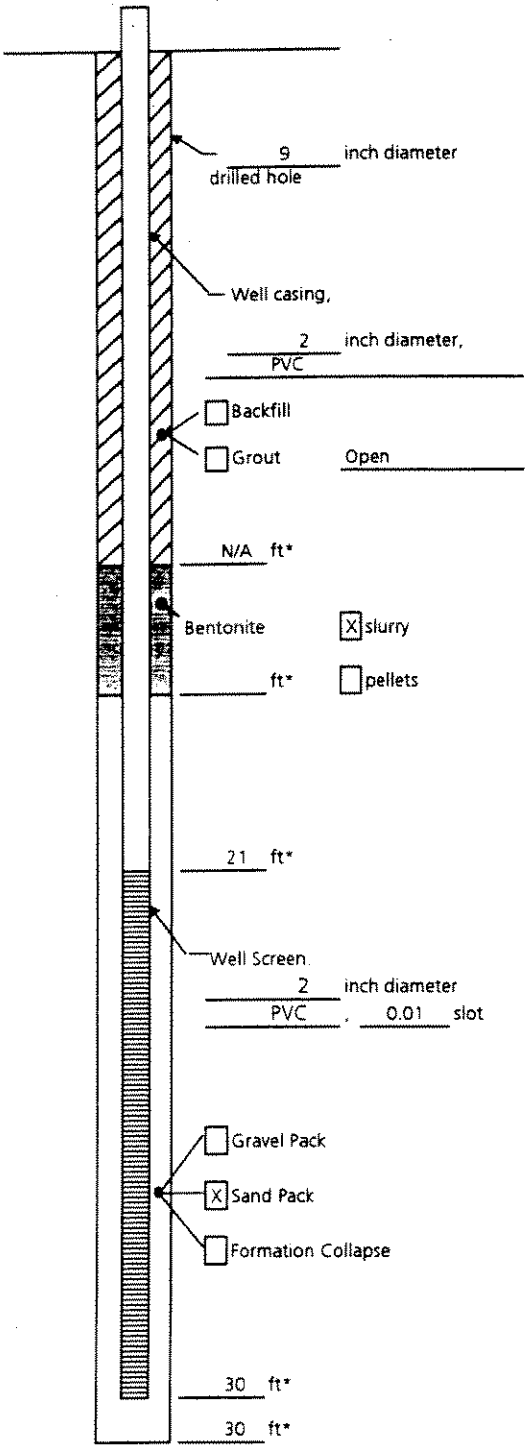
Remarks Temporary well was appropriately abandoned after the collection of groundwater samples.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH13

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 1968.71
E 5623.14 feet [X] Surveyed [ ] Estimated

Installation Date(s) 4/12/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 29.04 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well for groundwater sampling.

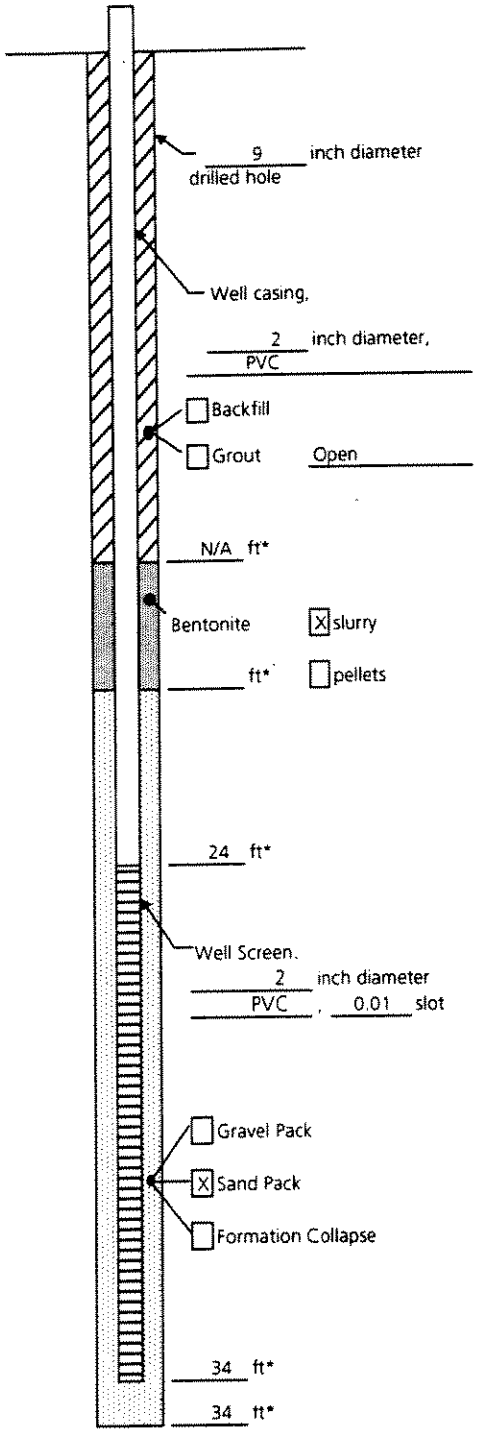
Remarks Temporary well was appropriately abandoned after the collection of groundwater samples.

Prepared by C. Capeli

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH14

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 1984.03
E 5719.70 feet [X] Surveyed
[ ] Estimated

Installation Date(s) 4/19/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 29.84 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well for groundwater sampling.

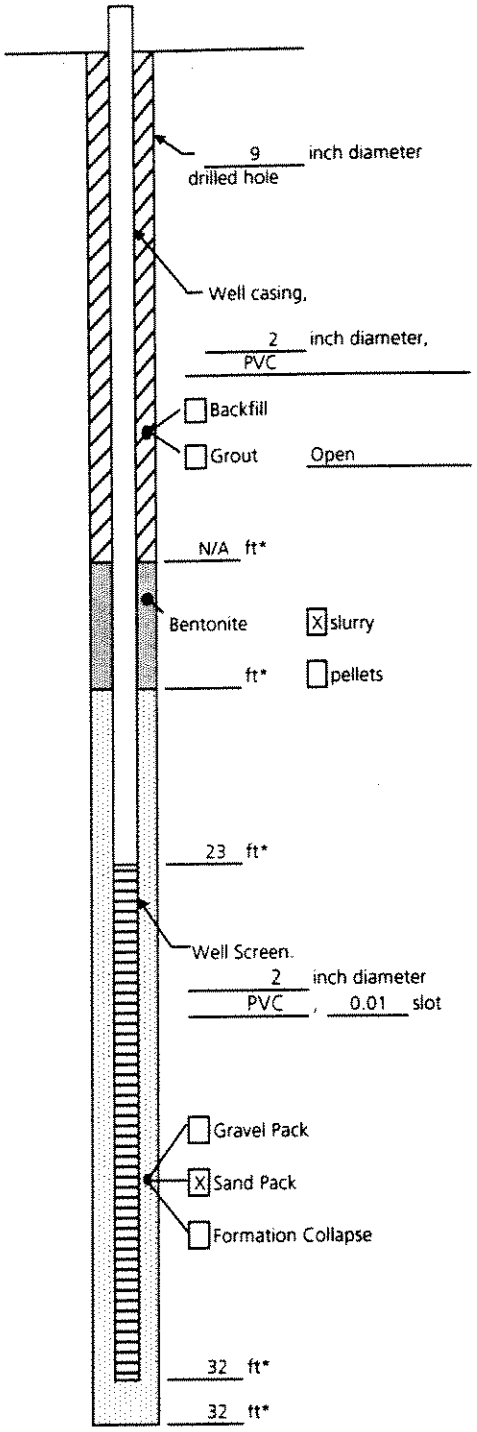
Remarks Temporary well was appropriately abandoned after the collection of groundwater samples.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH15

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 1969.77
E 5775.25 feet [X] Surveyed [ ] Estimated

Installation Date(s) 4/20/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 31.48 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well for groundwater sampling.

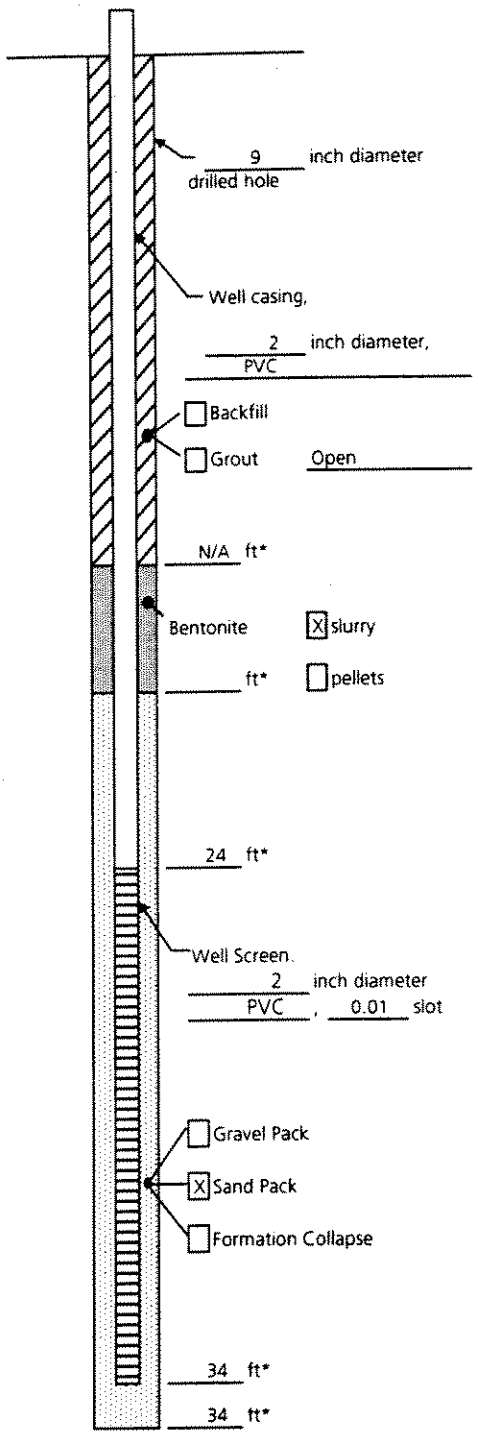
Remarks Temporary well was appropriately abandoned after the collection of groundwater samples.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH16

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 1926.94
E 5704.86 feet [X] Surveyed
[ ] Estimated

Installation Date(s) 4/11/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 28.93 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well for groundwater sampling

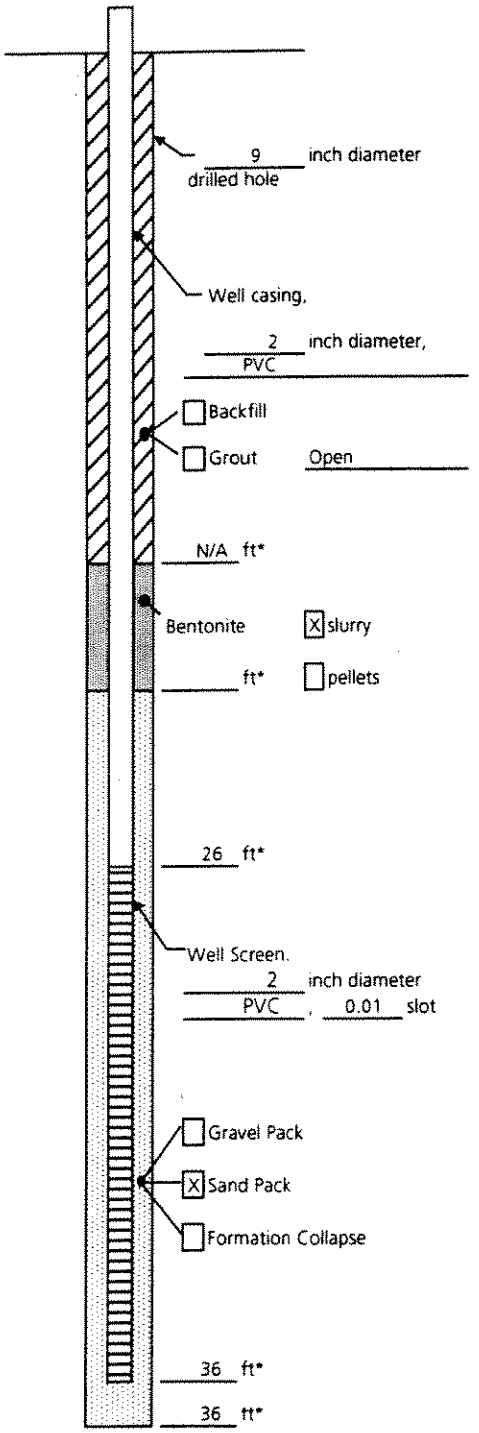
Remarks Temporary well was appropriately abandoned after the collection of groundwater samples.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH17

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 1838.70
E 5593.20 feet ☐ Surveyed
☒ Estimated

Installation Date(s) 4/11/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 31.32 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well for groundwater sampling.

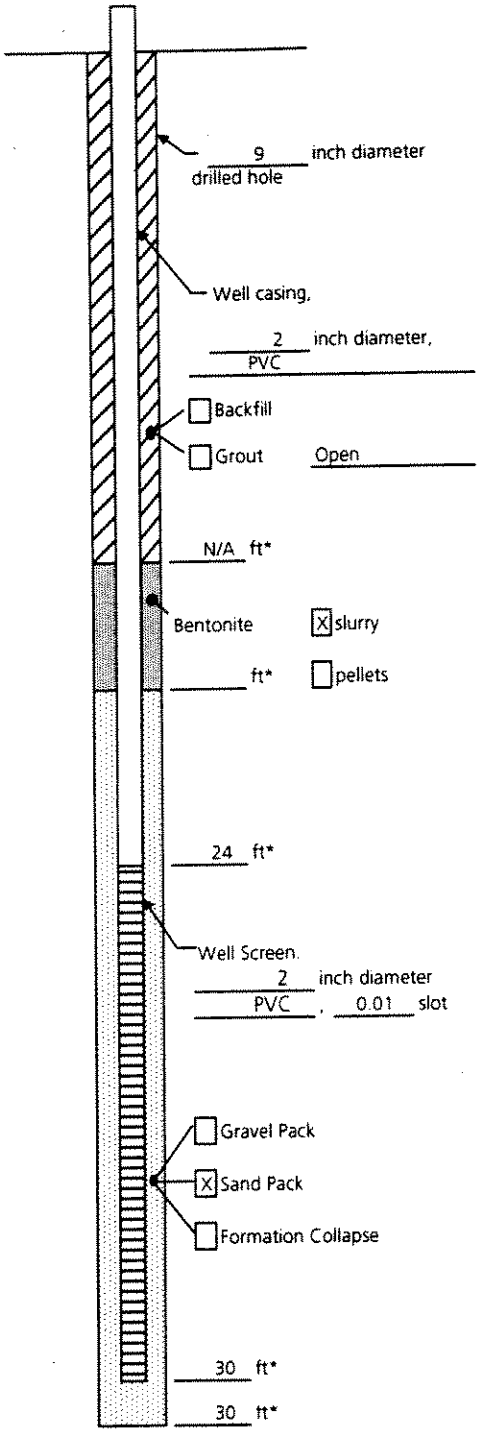
Remarks Temporary well was appropriately abandoned after the collection of groundwater samples.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH18

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 1919.98
E 5773.33 feet [X] Surveyed [ ] Estimated

Installation Date(s) 4/18/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 29.76 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well for groundwater sampling.

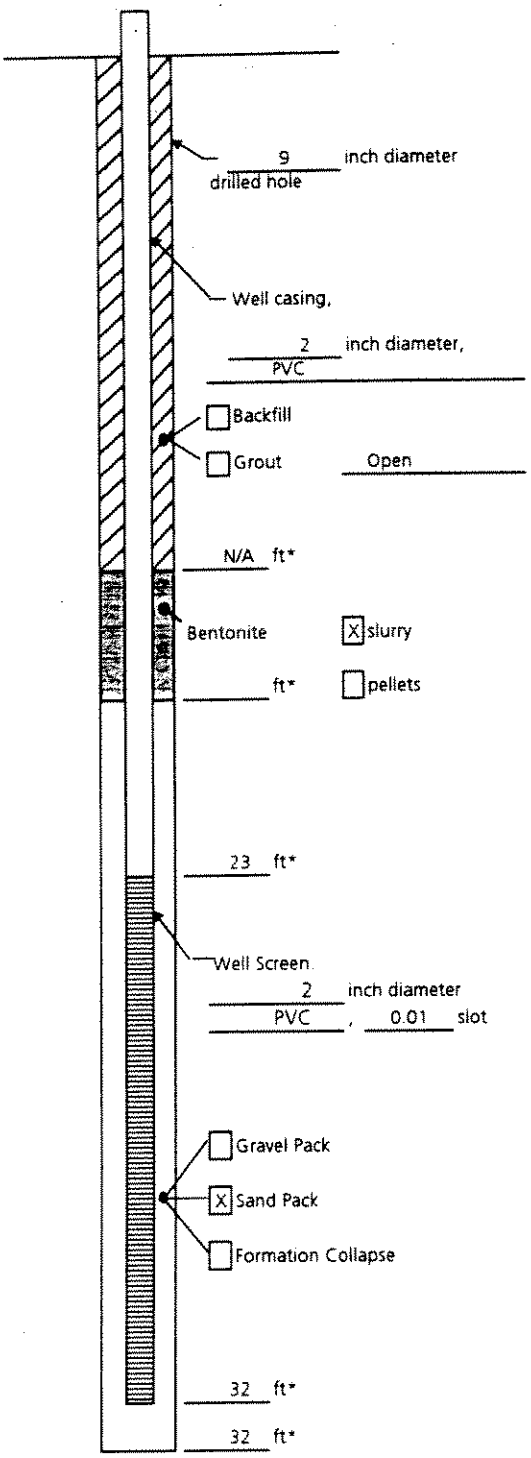
Remarks Temporary well was appropriately abandoned after the collection of groundwater samples.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well WPSA-BH19

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:
N 2092.30
E 5808.20 feet ☐ Surveyed
☒ Estimated

Installation Date(s) 4/19/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

N/A

Fluid Loss During Drilling N/A gallons

Water Removed During Development N/A gallons

Static Depth to Water 30.25 feet below M.P.

Pumping Depth to Water feet below M.P.

Pumping Duration hours

Yield gpm Date

Specific Capacity gpm/ft

Well Purpose Temporary well for groundwater sampling.

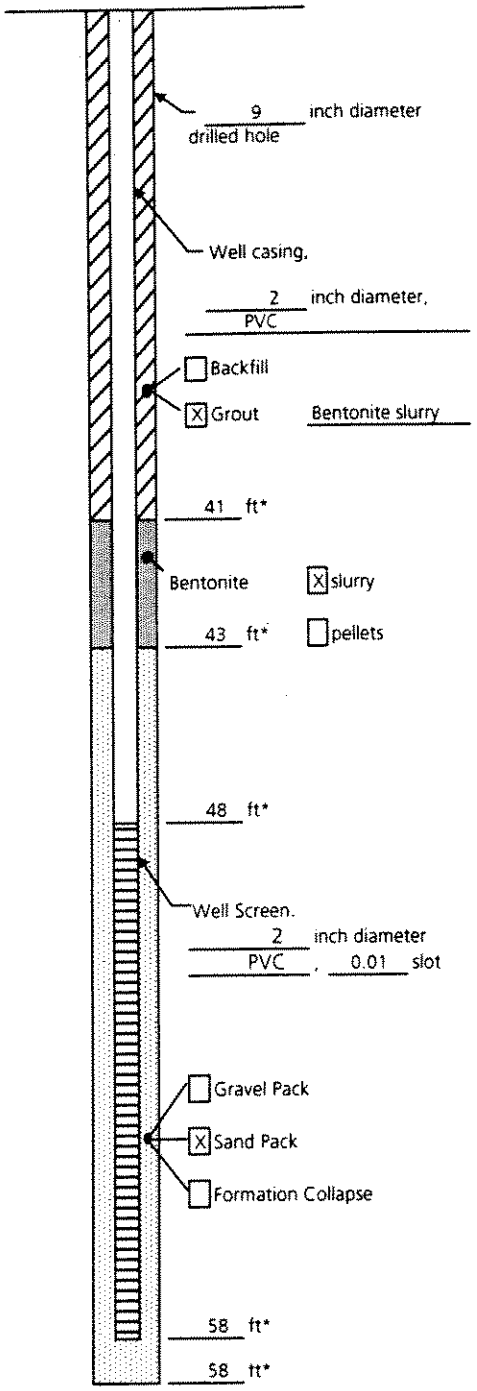
Remarks Temporary well was appropriately abandoned after the collection of groundwater samples.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well GM-33

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

730.30 LS/729.77 TOC feet [X] Surveyed [ ] Estimated

Installation Date(s) 4/2/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

Pumping and surge block 4/10/01 - 4/16/01

Fluid Loss During Drilling N/A gallons

Water Removed During Development 255 gallons

Static Depth to Water 28.04 feet below M.P.

Pumping Depth to Water 50.80 feet below M.P.

Pumping Duration 2 hours

Yield 1.3 gpm Date 4/11/01

Specific Capacity NA gpm/ft

Well Purpose Groundwater sampling and water level measurements.

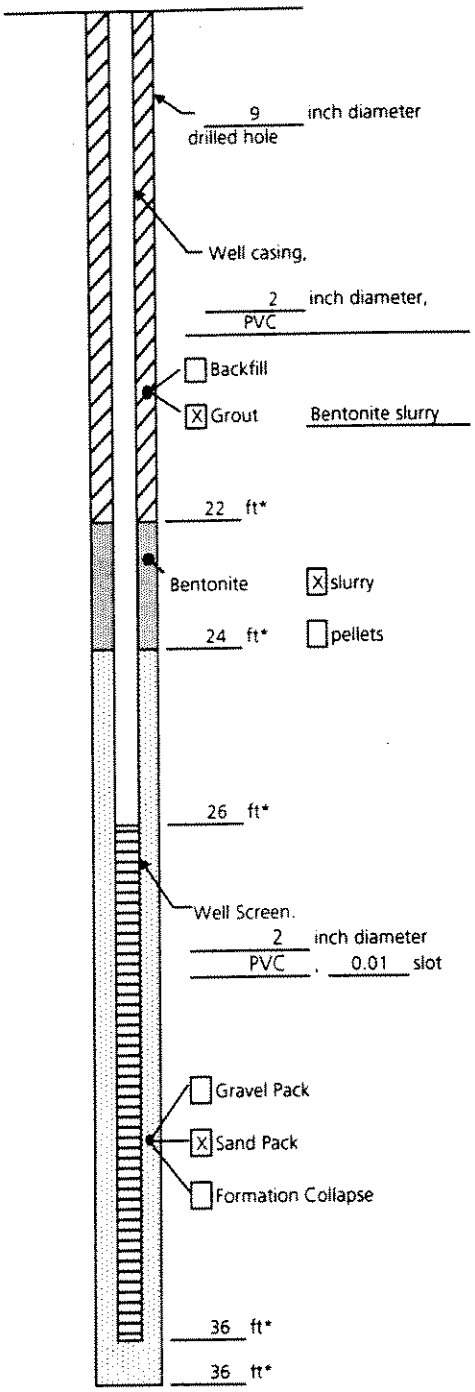
Remarks Flush mount.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well GM-34

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

731.06 LS/730.56 TOC feet [X] Surveyed [ ] Estimated

Installation Date(s) 4/3/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

Pumping 4/9/01

Fluid Loss During Drilling N/A gallons

Water Removed During Development 36 gallons

Static Depth to Water 28.84 feet below M.P.

Pumping Depth to Water 28.85 feet below M.P.

Pumping Duration 1.05 hours

Yield 1.41* gpm Date 4/10/01

Specific Capacity NA gpm/ft

Well Purpose Groundwater sampling and water level measurements.

Remarks Flush mount.

*1.26 gpm on 4/10/01

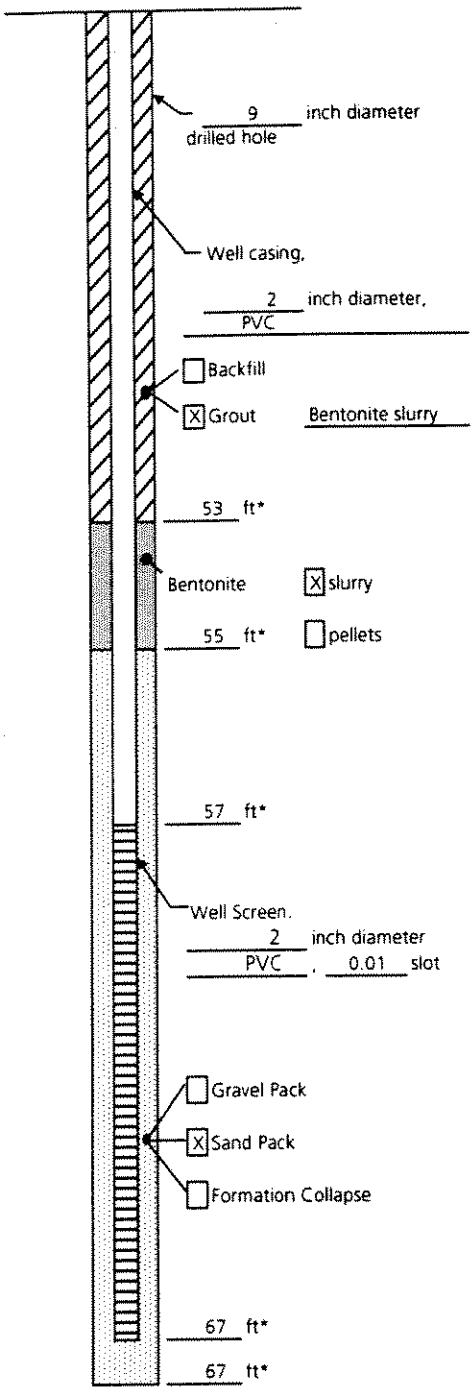
1.41 gpm on 4/9/01

Prepared by C. Capeli

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well GM-35

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

731.56 LS/731.27 TOC feet [X] Surveyed

[ ] Estimated

Installation Date(s) 4/6/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

Pumping and surging 4/11/01 - 4/16/01

Fluid Loss During Drilling N/A gallons

Water Removed During Development 340 gallons

Static Depth to Water 30.02 feet below M.P.

Pumping Depth to Water NR feet below M.P.

Pumping Duration 3.92 hours

Yield 3.91* gpm Date 4/11/01

Specific Capacity NA gpm/ft

Well Purpose Groundwater sampling and water level measurements.

Remarks Unknown amount of water added during well installation to control heaving sands. Flush mount.

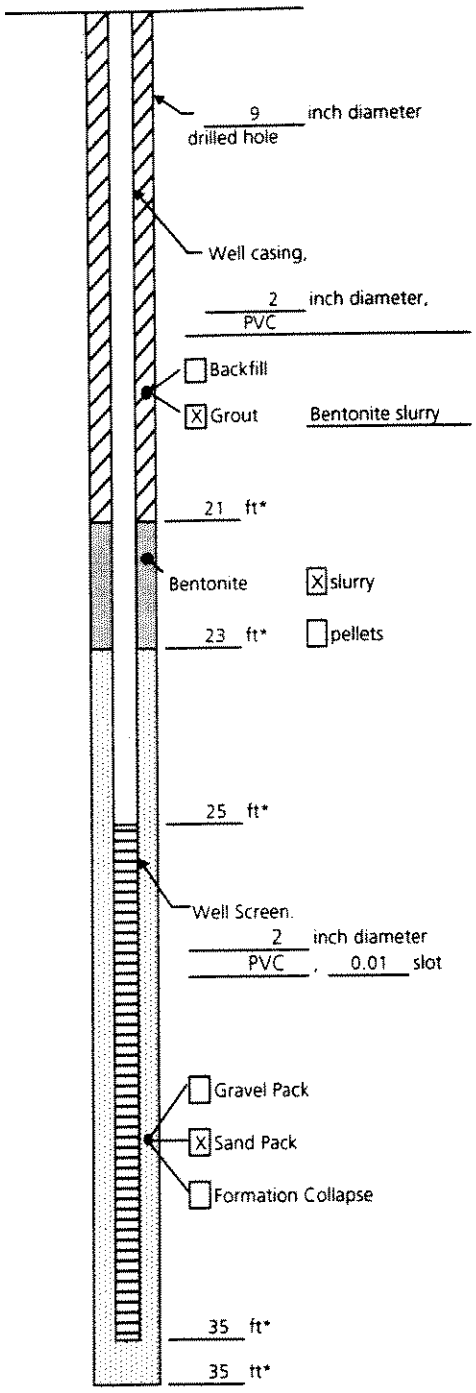
*Started at 1.03 gpm; final 36 minutes at 3.91 gpm

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well GM-36

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

731.44 LS/731.11 TOC feet [X] Surveyed [ ] Estimated

Installation Date(s) 4/3/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

Pumping 4/9/01

Fluid Loss During Drilling N/A gallons

Water Removed During Development 55 gallons

Static Depth to Water 29.92 feet below M.P.

Pumping Depth to Water NR feet below M.P.

Pumping Duration 0.66 hours

Yield 1.34 gpm Date 4/9/01

Specific Capacity NA gpm/ft

Well Purpose Groundwater sampling and water level measurements.

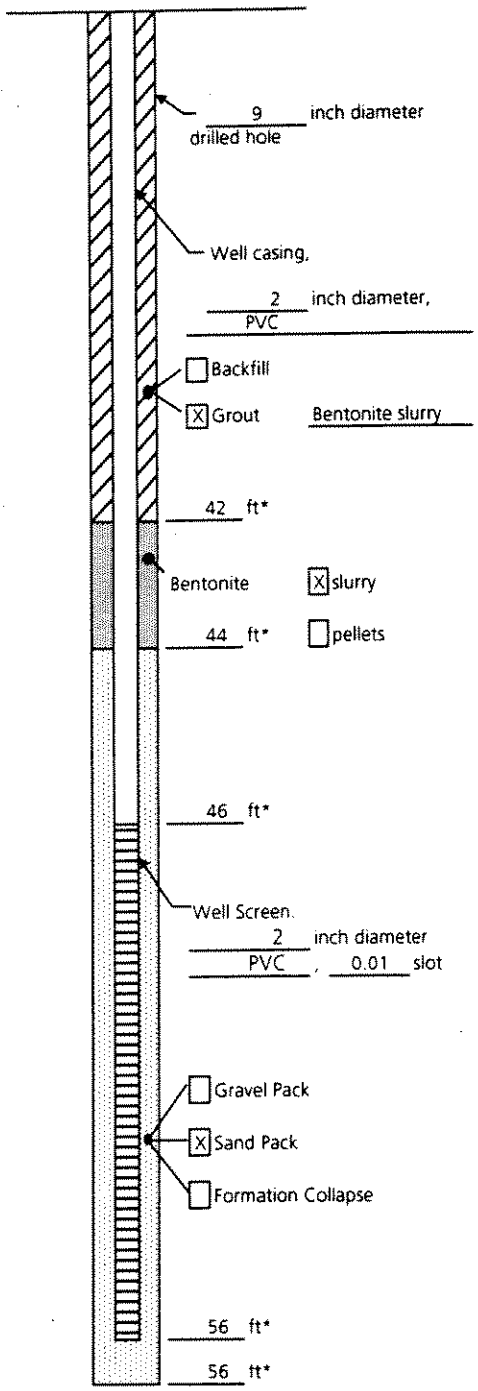
Remarks Flush mount.

Prepared by C. Capell

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well GM-37

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

730.36 LS/730.05 TOC feet [X] Surveyed [ ] Estimated

Installation Date(s) 4/3/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

Surging 4/16/01

Fluid Loss During Drilling N/A gallons

Water Removed During Development 100 gallons

Static Depth to Water 27.85 feet below M.P.

Pumping Depth to Water NR feet below M.P.

Pumping Duration 1.43 hours

Yield 1.16 gpm Date 4/16/01

Specific Capacity NA gpm/ft

Well Purpose Groundwater sampling and water level measurements.

Remarks Flush mount.

Prepared by C. Capell

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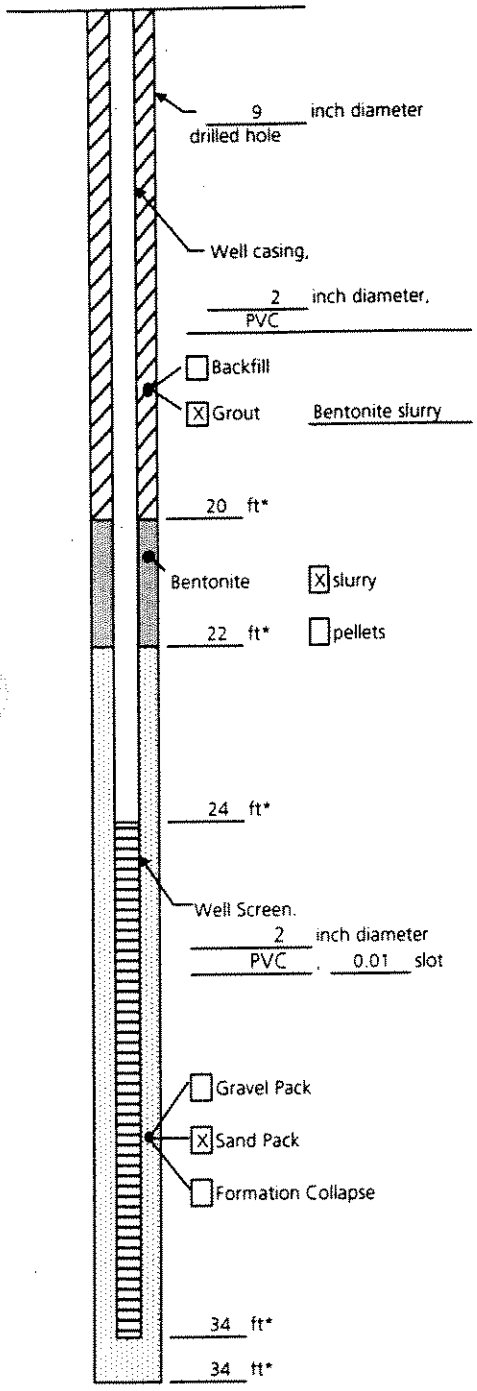
11/27/01

ARCADIS G&M

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0004.00004 Well GM-38

Town/City Moraine

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

730.31 LS/729.88 TOC feet [X] Surveyed

[ ] Estimated

Installation Date(s) 4/10/01

Drilling Method Hollow stem auger

Drilling Contractor Wright Drilling

Drilling Fluid N/A

Development Technique(s) and Date(s)

Pumping 4/12/01

Fluid Loss During Drilling N/A gallons

Water Removed During Development 86 gallons

Static Depth to Water 28.16 feet below M.P.

Pumping Depth to Water NR feet below M.P.

Pumping Duration 1.43 hours

Yield 1 gpm Date 4/12/01

Specific Capacity NA gpm/ft

Well Purpose Groundwater sampling and water level measurements.

Remarks Flush mount.

Prepared by C. Capell

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11/27/01

ARCADIS

Groundwater Sampling Logs

August 2002

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0005(6)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	8/7/2002
Site/Well No.	GM-33	Replicate No.	NA	Code No.	NA
Weather	Partly cloudy, 70s	Sampling Time:	Begin 920	End	1115

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	729.77
Land Surface Elevation (ft)	730.30
Sounded Well Depth (ft bmp)	54.60
Depth to Water (ft bmp)	22.89
Water-Level Elevation (ft)	706.88
Water Column in Well (ft)	31.71
Casing Diameter/Type	2" PVC
Gallons in Well	5.1
Gallons Pumped/Bailed Prior to Sampling	6 pumped
Sample Pump Intake Setting (ft bmp)	Midpoint of screen
Purge Time	begin 1005 end 1029
Pumping Rate (gpm)	.3
Evacuation Method	Submersible pump

Field Parameters

Color	Light brown
Odor	None
Appearance	Cloudy
pH (s.u.)	6.99
Conductivity (mS/cm)	1.637
(µmhos/cm)	NR
Turbidity (NTU)	NR
Temperature (°C)	20.48
Dissolved Oxygen (mg/L)	0.40
ORP (mV)	160.7
Sampling Method	Low flow
Remarks	Sample time @ 1031
	PID reading - 0.0
	DTW final = 22.89

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs	1 liter amber glass	2	None
APP IX Dissolved Metals	1 liter plastic	1	HNO_3
APP IX Total Metals	1 liter plastic	1	HNO_3
APP IX PCBs	1 liter amber glass	2	None

Sampling Personnel: T. Trommer

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0005.00006

Site Location: Moraine, Ohio

Monitoring Well No.: GM-33

Time Pump Started: 10:05

Depth of Sampling: Midpoint of Screen

Date: 8/7/2002

Parameters

Time

	10:08	10:11	10:14	10:17	10:20	10:23	10:26	10:29			
Redox Potential (millivolts)	121.1	104.5	107.9	104.0	113.3	131.7	151.4	160.7			
Dissolved Oxygen (mg/L)	2.11	1.14	0.81	0.60	0.52	0.48	0.44	0.40			
pH (s.u.)	6.97	6.97	6.99	7.01	7.01	6.99	6.99	6.99			
Specific Conductance (uS/cm)	1,542	1,622	1,639	1,641	1,640	1,637	1,637	1,637			
Temperature (C)	18.73	19.27	19.55	19.93	20.16	20.24	20.43	20.48			

Flow Rate: .3 gpm

Total Depth of Well: 54.6

Time Sampled: 10:31

Depth to Water Before Purging: 22.89

Total Water Pumped: 6 gallons

Depth to Water After Purging: 22.89

Comments

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0005(6)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	8/7/2002
Site/Well No.	GM-34	Replicate No.	NA	Code No.	NA
Weather	Sunny, 70s	Sampling Time:	Begin 1300	End	1426

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	730.56
Land Surface Elevation (ft)	731.06
Sounded Well Depth (ft bmp)	35.1
Depth to Water (ft bmp)	23.68
Water-Level Elevation (ft)	706.88
Water Column in Well (ft)	11.42
Casing Diameter/Type	2" PVC
Gallons in Well	1.8
Gallons Pumped/Bailed Prior to Sampling	4 pumped
Sample Pump Intake Setting (ft bmp)	Midpoint of screen
Purge Time	begin 1326 end 1347
Pumping Rate (gpm)	.2
Evacuation Method	Submersible pump

Field Parameters

Color	Tan to colorless
Odor	None
Appearance	Clear
pH (s.u.)	6.88
Conductivity (mS/cm)	1.367
(µmhos/cm)	NR
Turbidity (NTU)	NR
Temperature (°C)	21.65
Dissolved Oxygen (mg/L)	1.33
ORP (mV)	155.7
Sampling Method	Low flow
Remarks	Sample time @ 1350
	PID reading - 0.0
	DTW final = 23.88

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs	1 liter amber glass	2	None
APP IX Dissolved Metals	1 liter plastic	1	HNO_3
APP IX Total Metals	1 liter plastic	1	HNO_3
APP IX PCBs	1 liter amber glass	2	None

Sampling Personnel: T. Trommer

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0005.00006

Site Location: Moraine, Ohio

Monitoring Well No.: GM-34

Time Pump Started: 13:26

Depth of Sampling: Midpoint of Screen

Date: 8/7/2002

Parameters

Time

	13:29	13:32	13:35	13:38	13:41	13:44	13:47				
Redox Potential (millivolts)	228.3	198.4	169.4	156.4	150.9	151.6	155.7				
Dissolved Oxygen (mg/L)	1.17	1.11	1.25	1.21	1.32	1.34	1.33				
pH (s.u.)	6.67	6.77	6.83	6.88	6.86	6.89	6.88				
Specific Conductance (uS/cm)	1,326	1,332	1,344	1,353	1,362	1,369	1,367				
Temperature (C)	19.18	20.77	21.75	22.26	22.97	22.29	21.65				

Flow Rate: .2 gpm

Total Depth of Well: 35.1

Time Sampled: 13:50

Depth to Water Before Purging: 23.68

Total Water Pumped: 4 gallons

Depth to Water After Purging: 23.88

Comments

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0005(6)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	8/6/2002
Site/Well No.	GM-35	Replicate No.	NA	Code No.	NA
Weather	Sunny 70s	Sampling Time:	Begin 930	End	1045

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	731.27
Land Surface Elevation (ft)	731.56
Sounded Well Depth (ft bmp)	65.90
Depth to Water (ft bmp)	24.95
Water-Level Elevation (ft)	706.32
Water Column in Well (ft)	40.95
Casing Diameter/Type	2"PVC
Gallons in Well	6.5
Gallons Pumped/Bailed Prior to Sampling	5 pumped
Sample Pump Intake Setting (ft bmp)	Midpoint of screen
Purge Time	begin 948 end 1009
Pumping Rate (gpm)	.27
Evacuation Method	Submersible pump

Field Parameters

Color	Light brown to colorless
Odor	No
Appearance	Clear
pH (s.u.)	7.71
Conductivity (mS/cm)	4.730
(µmhos/cm)	NR
Turbidity (NTU)	NR
Temperature (°C)	20.70
Dissolved Oxygen (mg/L)	0.34
ORP (mV)	-83.3
Sampling Method	Low flow
Remarks	Sample time @ 10:12
	DTW final = 24.95

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs	1 liter amber glass	2	None
APP IX Dissolved Metals	1 liter ml plastic	1	HNO_3
APP IX Total Metals	1 liter ml plastic	1	HNO_3
APP IX PCBs	1 liter amber glass	2	None

Sampling Personnel: T. Trommer

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0005.00006

Site Location: Moraine, Ohio

Monitoring Well No.: GM-35

Time Pump Started: 9:48

Depth of Sampling: Midpoint of Screen

Date: 8/6/2002

Parameters

Time

	9:51	9:54	9:57	10:00	10:03	10:06	10:09				
Redox Potential (millivolts)	-72.7	-74.5	-78.3	-78.6	-82.2	-82.0	-83.3				
Dissolved Oxygen (mg/L)	1.05	0.70	0.54	0.45	0.43	0.37	0.34				
pH (s.u.)	7.45	7.49	7.53	7.57	7.62	7.64	7.71				
Specific Conductance (uS/cm)	3,843	4,375	4,422	4,649	4,689	4,684	4,730				
Temperature (C)	18.99	19.51	20.35	20.51	20.64	20.85	20.70				

Flow Rate: .27 gpm

Total Depth of Well: 65.9

Time Sampled: 10:12

Depth to Water Before Purging: 24.95

Total Water Pumped: 5 gallons

Depth to Water After Purging: 24.95

Comments

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0005(6)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	8/5/2002
Site/Well No.	GM-36	Replicate No.	DUP-119	Code No.	NA
Weather	Sunny, 90s	Sampling Time:	Begin 1335	End	1515

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	731.11
Land Surface Elevation (ft)	731.44
Sounded Well Depth (ft bmp)	34.30
Depth to Water (ft bmp)	24.60
Water-Level Elevation (ft)	706.51
Water Column in Well (ft)	9.7
Casing Diameter/Type	2" PVC
Gallons in Well	1.5
Gallons Pumped/Bailed Prior to Sampling	6 pumped
Sample Pump Intake Setting (ft bmp)	Midpoint of screen
Purge Time	begin 1404 end 1425
Pumping Rate (gpm)	.3
Evacuation Method	Submersible pump

Field Parameters

Color	Light brown to colorless
Odor	None
Appearance	Cloudy to clear
pH (s.u.)	5.83
Conductivity (mS/cm)	1.430
(µmhos/cm)	NR
Turbidity (NTU)	NR
Temperature (°C)	20.80
Dissolved Oxygen (mg/L)	0.52
ORP (mV)	483.2
Sampling Method	Low flow
Remarks	Sample time @ 1427
	MS/MSD collected on this well
	DTW final = 24.60

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs	1liter amber glass	2	None
APP IX Dissolved Metals	1 liter plastic	1	HNO_3
APP IX Total Metals	1 liter plastic	1	HNO_3
APP IX PCBs	1 liter amber glass	2	None

Sampling Personnel: T. Trommer

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0005.00006

Site Location: Moraine, Ohio

Monitoring Well No.: GM-36

Time Pump Started: 14:00

Depth of Sampling: Midpoint of Screen

Date: 8/5/2002

Parameters

Time

	14:07	14:10	14:13	14:16	14:19	14:22	14:25				
Redox Potential (millivolts)	98.9	199.3	304.3	383.9	436.7	464.0	483.2				
Dissolved Oxygen (mg/L)	2.02	0.98	0.61	0.60	0.56	0.53	0.52				
pH (s.u.)	6.30	6.12	5.97	5.89	5.87	5.85	5.83				
Specific Conductance (uS/cm)	1,448	1,428	1,431	1,431	1,429	1,429	1,430				
Temperature (C)	20.47	19.59	19.78	20.00	20.27	20.56	20.80				

Flow Rate: .3 gpm

Total Depth of Well: 34.30

Time Sampled: 14:27

Depth to Water Before Purging: 24.60

Total Water Pumped: 6 gallons

Depth to Water After Purging: 24.60

Comments

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0005(6)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	8/6/2002
Site/Well No.	GM-37	Replicate No.	NA	Code No.	NA
Weather	Sunny 70's	Sampling Time:	Begin 1100	End	1215

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	730.05
Land Surface Elevation (ft)	730.36
Sounded Well Depth (ft bmp)	55.90
Depth to Water (ft bmp)	23.42
Water-Level Elevation (ft)	706.63
Water Column in Well (ft)	32.48
Casing Diameter/Type	2" PVC
Gallons in Well	5.2
Gallons Pumped/Bailed Prior to Sampling	5.5
Sample Pump Intake Setting (ft bmp)	Midpoint of screen
Purge Time	begin 1129 end 1153
Pumping Rate (gpm)	.23
Evacuation Method	Submersible pump

Field Parameters

Color	Light brown to colorless
Odor	None
Appearance	Slightly cloudy
pH (s.u.)	7.06
Conductivity (mS/cm)	1.522
(µmhos/cm)	NR
Turbidity (NTU)	NR
Temperature (°C)	21.11
Dissolved Oxygen (mg/L)	0.40
ORP (mV)	155.2
Sampling Method	Low flow
Remarks	Sample time @ 1155
	RB-97 @ 1400
	DTW final = 23.40

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs	1 liter amber glass	2	None
APP IX Dissolved Metals	1 liter plastic	1	HNO_3
APP IX Total Metals	1 liter plastic	1	HNO_3
APP IX PCBs	1 liter amber glass	2	None

Sampling Personnel: T. Trommer

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0005.00006

Site Location: Moraine, Ohio

Monitoring Well No.: GM-37

Time Pump Started: 11:29

Depth of Sampling: Midpoint of Screen

Date: 8/6/2002

Parameters

Time

	11:32	11:35	11:38	11:41	11:44	11:47	11:50	11:53			
Redox Potential (millivolts)	183.4	171.5	171.6	173.1	161.1	156.8	157.1	155.2			
Dissolved Oxygen (mg/L)	1.05	0.75	0.55	0.47	0.46	0.42	0.38	0.40			
pH (s.u.)	6.86	6.95	6.99	7.00	7.03	7.03	7.06	7.06			
Specific Conductance (uS/cm)	1,489	1,510	1,516	1,517	1,520	1,521	1,521	1,522			
Temperature (C)	18.65	19.30	19.72	20.16	20.62	20.89	21.09	21.11			

Flow Rate: .23 gpm

Total Depth of Well: 55.90

Time Sampled: 11:55

Depth to Water Before Purging: 23.42

Total Water Pumped: 5.5 gallons

Depth to Water After Purging: 23.40

Comments

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0005(6)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	8/6/2002
Site/Well No.	GM-38	Replicate No.	NA	Code No.	NA
Weather	Sunny 70's	Sampling Time:	Begin 1440	End	1545

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	729.88
Land Surface Elevation (ft)	730.31
Sounded Well Depth (ft bmp)	34.35
Depth to Water (ft bmp)	23.27
Water-Level Elevation (ft)	706.61
Water Column in Well (ft)	11.08
Casing Diameter/Type	2" PVC
Gallons in Well	1.77
Gallons Pumped/Bailed Prior to Sampling	4 pumped
Sample Pump Intake Setting (ft bmp)	Midpoint of screen
Purge Time	begin 1500 end 1523
Pumping Rate (gpm)	.2
Evacuation Method	Submersible pump

Field Parameters

Color	Light brown
Odor	No
Appearance	Cloudy
pH (s.u.)	6.97
Conductivity (mS/cm)	1.433
(µmhos/cm)	NR
Turbidity (NTU)	NR
Temperature (°C)	23.75
Dissolved Oxygen (mg/L)	0.46
ORP (mV)	258.3
Sampling Method	Low flow
Remarks	Sample time @ 1525
	DTW final = 23.27

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs	1 liter amber glass	2	None
APP IX Dissolved Metals	1 liter plastic	1	HNO_3
APP IX Total Metals	1 liter plastic	1	HNO_3
APP IX PCBs	1 liter amber glass	2	None

Sampling Personnel: T. Trommer

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0005.00006

Site Location: Moraine, Ohio

Monitoring Well No.: GM-38

Time Pump Started: 15:00

Depth of Sampling: Midpoint of Screen

Date: 8/6/2002

Parameters

Time

	15:03	15:06	15:09	15:12	15:15	15:18	15:21	15:23			
Redox Potential (millivolts)	342.6	357.5	339.4	316.8	285.5	259.5	258.4	258.3			
Dissolved Oxygen (mg/L)	1.21	0.74	0.58	0.49	0.47	0.49	0.48	0.46			
pH (s.u.)	6.91	6.80	6.87	6.87	6.91	6.95	6.94	6.97			
Specific Conductance (uS/cm)	1,452	1,430	1,423	1,420	1,424	1,427	1,428	1,433			
Temperature (C)	19.09	19.95	20.74	21.51	22.42	23.13	23.35	23.75			

Flow Rate: .2 gpm

Total Depth of Well: 34.35

Time Sampled: 15:25

Depth to Water Before Purging: 23.27

Total Water Pumped: 4 gallons

Depth to Water After Purging: 23.27

Comments

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0005(6)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	8/8/2002
Site/Well No.	RW-10	Replicate No.	NA	Code No.	NA
Weather	Clear, 70s	Sampling Time:	Begin 924		1050

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	728.53
Land Surface Elevation (ft)	729.29
Sounded Well Depth (ft bmp)	34.5
Depth to Water (ft bmp)	21.80
Water-Level Elevation (ft)	706.73
Water Column in Well (ft)	12.7
Casing Diameter/Type	4" PVC
Gallons in Well	8.3
Gallons Pumped/Bailed Prior to Sampling	4.5 pumped
Sample Pump Intake Setting (ft bmp)	Midpoint of screen
Purge Time	begin 1008 end 1029
Pumping Rate (gpm)	.2
Evacuation Method	Submersible pump

Field Parameters

Color	Gray
Odor	Yes
Appearance	Cloudy with sheen
pH (s.u.)	7.14
Conductivity (mS/cm)	1.434
(µmhos/cm)	NR
Turbidity (NTU)	NR
Temperature (°C)	20.22
Dissolved Oxygen (mg/L)	0.59
ORP (mV)	-114
Sampling Method	Low flow
Remarks	Water in bailer - colorless with black specks, no measureable LNAPLs. Sample time @ 1032 PID reading - 0.0; DTW final = 21.8

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs	1 liter amber glass	2	None
APP IX PCBs	1 liter amber glass	2	None

Sampling Personnel: T. Trommer

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0005.00006

Site Location: Moraine, Ohio

Monitoring Well No.: RW-10

Time Pump Started: 10:08

Depth of Sampling: Midpoint of Screen

Date: 8/8/2002

Parameters

Time

	10:11	10:14	10:17	10:20	10:23	10:26	10:29				
Redox Potential (millivolts)	-116.2	-119.4	-118.5	-115.6	-113.7	-113.4	-114.0				
Dissolved Oxygen (mg/L)	1.04	0.72	0.61	0.56	0.49	0.58	0.59				
pH (s.u.)	6.97	7.07	7.11	7.16	7.15	7.15	7.14				
Specific Conductance (uS/cm)	1,415	1,429	1,436	1,436	1,430	1,435	1,434				
Temperature (C)	19.37	20.43	20.89	21.22	19.94	19.87	20.22				

Flow Rate: .2 gpm

Total Depth of Well: 34.5

Time Sampled: 10:32

Depth to Water Before Purging: 21.8

Total Water Pumped: 4.5 gallons

Depth to Water After Purging: 21.8

Comments

ARCADIS G&M

Water Sampling Log

Project	WPSA Investigation	Project No.	OH000294.0005(6)	Page	1 of 1
Site Location	General Motors, Moraine, Ohio			Date	8/8/2002
Site/Well No.	RW-11	Replicate No.	N/A	Code No.	N/A
Weather	Sunny 70s	Sampling Time:	Begin 1105	End	1215

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	729.74
Land Surface Elevation (ft)	730.02
Sounded Well Depth (ft bmp)	36.2
Depth to Water (ft bmp)	22.95
Water-Level Elevation (ft)	706.79
Water Column in Well (ft)	13.25
Casing Diameter/Type	4" PVC
Gallons in Well	8.6
Gallons Pumped/Bailed Prior to Sampling	7 pumped
Sample Pump Intake Setting (ft bmp)	Midpoint of screen
Purge Time	begin 1123 end 1144
Pumping Rate (gpm)	.4
Evacuation Method	Submersible pump

Field Parameters

Color	Gray with black specks
Odor	Yes - strong
Appearance	Turbid
pH (s.u.)	7.04
Conductivity (mS/cm)	1.560
(µmhos/cm)	NR
Turbidity (NTU)	NR
Temperature (°C)	19.39
Dissolved Oxygen (mg/L)	0.29
ORP (mV)	-136.6
Sampling Method	Low flow
Remarks	Sample time @ 1146

Black oil on tubing when pump pulled out of well. No measurable LNAPLs.

PID reading - 0.0; DTW final = 22.95

Constituents Sampled	Container Description	Number	Preservative
APP IX VOCs and cis-1,2-DCE	40 ml VOA	3	HCl
APP IX SVOCs	1 liter amber glass	2	None
APP IX PCBs	1 liter amber glass	2	None

Sampling Personnel: T. Trommer

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Millisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Milligrams per liter	NR	Not Recorded	VOC	Volatile Organic Compounds

ARCADIS

GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0005.0006

Site Location: Moraine, Ohio

Monitoring Well No.: RW-11

Time Pump Started: 11:23

Depth of Sampling: Midpoint of Screen

Date: 8/8/2002

Parameters

	Time										
	11:26	11:29	11:32	11:35	11:38	11:41	11:44				
Redox Potential (millivolts)	-74.8	-95.2	-109.4	-120.4	-129.6	-133.0	-136.6				
Dissolved Oxygen (mg/L)	1.18	0.55	0.40	0.33	0.30	0.30	0.29				
pH (s.u.)	6.54	6.95	7.06	7.08	7.08	7.07	7.04				
Specific Conductance (uS/cm)	1,587	1,574	1,578	1,579	1,573	1,567	1,560				
Temperature (C)	18.42	18.31	19.40	19.42	19.47	19.44	19.39				

Flow Rate: .4 gpm

Total Depth of Well: 36.2

Time Sampled: 11:46

Depth to Water Before Purging: 22.95

Total Water Pumped: 7 gallons

Depth to Water After Purging: 22.95

Comments

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Appendix E

Baseline Risk Assessment Support
for the Waste Pile/Staging Area

Table E-1. Bounding Estimates of Cumulative Cancer Risks - Routine Industrial Activities
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)											Resident (Off-Site)			
				Pathway:	Soil Ingestion			Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake: 1.5E-07			Intake: 8.8E-06				Intake: 5.9E-02				Intake: 1.2E-01			
					FC_i: 1.0			FC_i: 1.0				FC_i: 1.0				FC: 1.0			
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
VOC	Acetone	67-64-1	ID	1.20E+01	1.76E-06							5.04E-03	2.96E-04			5.27E-04	6.19E-05		
VOC	Benzene	71-43-2	A	3.50E-01	5.14E-08	5.5E-02	3E-09			**5.5E-02**		1.47E-04	8.64E-06	2.7E-02	2E-07	1.54E-05	1.81E-06	2.7E-02	5E-08
VOC	2-Butanone	78-93-3	ID	2.95E+00	4.33E-07							6.86E-04	4.03E-05			7.17E-05	8.42E-06		
VOC	Carbon Disulfide	75-15-0		2.77E-02	4.07E-09							3.67E-05	2.16E-06			3.84E-06	4.51E-07		
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	1.84E-09	1.3E-01	2E-10			**1.3E-01**		6.85E-06	4.02E-07	5.3E-02	2E-08	7.17E-07	8.41E-08	5.3E-02	4E-09
VOC	Chloroethane	75-00-3		4.29E+00	6.30E-07							5.47E-03	3.21E-04			5.72E-04	6.71E-05		
VOC	Cumene	98-82-8	D	6.40E-01	9.39E-08							6.38E-10	3.75E-11			7.98E-11	9.37E-12		
VOC	Cyclohexane	110-82-7	ID	9.90E-01	1.45E-07							8.69E-04	5.10E-05			9.09E-05	1.07E-05		
VOC	1,2-Dichlorobenzene	95-50-1	D	1.36E+00	2.00E-07							9.00E-05	5.28E-06			9.41E-06	1.11E-06		
VOC	1,3-Dichlorobenzene	541-73-1	D																
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	2.08E-10	2.4E-02	5E-12			**2.4E-02**		1.06E-07	6.23E-09	2.2E-02	1E-10	1.11E-08	1.30E-09	2.2E-02	3E-11
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	6.90E-09							1.37E-04	8.03E-06			1.43E-05	1.68E-06		
VOC	1,1-Dichloroethane	75-34-3	C	1.07E+01	1.57E-06							5.75E-03	3.38E-04			6.01E-04	7.06E-05		
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	7.49E-09							4.98E-05	2.92E-06			5.21E-06	6.11E-07		
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	3.92E-07							1.41E-03	8.25E-05			1.47E-04	1.73E-05		
VOC	cis-1,2-Dichloroethene	156-59-2	D	2.13E+01	3.13E-06							9.07E-03	5.32E-04			9.48E-04	1.11E-04		
VOC	trans-1,2-Dichloroethene	156-60-5		2.02E-01	2.96E-08							1.06E-04	6.24E-06			1.11E-05	1.31E-06		
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	1.29E-06							1.62E-03	9.50E-05			1.69E-04	1.99E-05		
VOC	2-Hexanone	591-78-6		1.88E-03	2.75E-10							8.75E-07	5.14E-08			9.15E-08	1.07E-08		
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	3.82E-08							2.59E-10	1.52E-11			3.24E-11	3.80E-12		
VOC	4-Methyl-2-pentanone	108-10-1	ID	6.82E+00	1.00E-06							9.73E-04	5.71E-05			1.02E-04	1.19E-05		
VOC	Methylcyclohexane	108-87-2		2.70E+00	3.96E-07							2.69E-09	1.58E-10			3.36E-10	3.95E-11		
VOC	Methylene Chloride	75-09-2	B2	5.67E-01	8.32E-08	7.5E-03	6E-10			**7.5E-03**		3.66E-04	2.15E-05	1.6E-03	4E-08	3.82E-05	4.49E-06	1.6E-03	7E-09
VOC	Styrene	100-42-5		5.90E-02	8.66E-09							4.25E-06	2.50E-07			4.45E-07	5.22E-08		
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	2.54E-09	2.0E-01	5E-10			**2.0E-01**		1.27E-06	7.46E-08	2.0E-01	1E-08	1.33E-07	1.56E-08	2.0E-01	3E-09
VOC	Tetrachloroethene	127-18-4	C-B2	1.22E+01	1.79E-06	5.2E-02	9E-08			**5.2E-02**		5.23E-03	3.07E-04	2.0E-03	6E-07	5.47E-04	6.42E-05	2.0E-03	1E-07
VOC	Toluene	108-88-3	D	1.60E+01	2.35E-06							4.12E-03	2.42E-04			4.30E-04	5.05E-05		
VOC	1,2,4-Trichlorobenzene	120-82-1	D																
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	3.41E-06							1.20E-02	7.02E-04			1.25E-03	1.47E-04		
VOC	Trichloroethene	79-01-6	C-B2	1.76E+01	2.58E-06	1.1E-02	3E-08			**1.1E-02**		5.65E-03	3.32E-04	6.0E-03	2E-06	5.91E-04	6.94E-05	6.0E-03	4E-07
VOC	1,1,2-Trichloro-1,2,2-trifluoro	76-13-1		3.40E-03	4.99E-10							2.79E-06	1.64E-07			2.91E-07	3.42E-08		
VOC	Vinyl Chloride	75-01-4	A	1.45E+00	2.13E-07	1.4E+00	3E-07			**1.4E+00**		3.20E-03	1.88E-04	3.1E-02	6E-06	3.34E-04	3.92E-05	3.1E-02	1E-06
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	2.79E-06							3.19E-03	1.87E-04			3.33E-04	3.91E-05		
SVOC	Acenaphthene	83-32-9		3.00E+02	4.40E-05			1E-01	3.43E-04			1.31E-03	7.68E-05			1.37E-04	1.61E-05		
SVOC	Anthracene	120-12-7	D	6.00E+02	8.81E-05			1E-01	6.87E-04			7.29E-04	4.28E-05			7.62E-05	8.95E-06		
SVOC	Benzo(a)anthracene	56-55-3	B2	5.20E+02	7.63E-05	7.3E-01	6E-05	1E-01	5.95E-04	**7.3E-01**	4E-04	4.93E-05	2.90E-06	7.3E-01	2E-06	5.17E-06	6.07E-07	7.3E-01	4E-07
SVOC	Benzo(a)pyrene	50-32-8	B2	3.80E+02	5.58E-05	7.3E+00	4E-04	1E-01	4.35E-04	**7.3E+00**	3E-03	1.23E-05	7.21E-07	3.1E+00	2E-06	1.29E-06	1.52E-07	3.1E+00	5E-07
SVOC	Benzo(b)fluoranthene	205-99-2	B2	5.80E+02	8.51E-05	7.3E-01	6E-05	1E-01	6.64E-04	**7.3E-01**	5E-04	1.19E-04	7.01E-06	7.3E-01	5E-06	1.25E-05	1.47E-06	7.3E-01	1E-06
SVOC	Benzo(g,h,i)perylene	191-24-2	D	1.50E+02	2.20E-05			1E-01	1.72E-04			1.06E-06	6.21E-08			1.14E-07	1.34E-08		
SVOC	Benzo(k)fluoranthene	207-08-9	B2	2.60E+02	3.82E-05	7.3E-02	3E-06	1E-01	2.98E-04	**7.3E-02**	2E-05	4.86E-06	2.86E-07	7.3E-02	2E-08	5.14E-07	6.04E-08	7.3E-02	4E-09
SVOC	Biphenyl	92-52-4	D	2.60E+01	3.82E-06			1E-01	2.29E-05			1.27E-04	7.44E-06			1.32E-05	1.56E-06		
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	8.55E+00	1.25E-06	1.4E-02	2E-08	1E-01	7.53E-06	**1.4E-02**	1E-07	2.74E-08	1.61E-09	1.4E-02	2E-11	3.04E-09	3.57E-10	1.4E-02	5E-12
SVOC	Butylbenzylphthalate	85-68-7	C					1E-01											
SVOC	Carbazole	86-74-8	B2	2.70E+02	3.96E-05	2.0E-02	8E-07	1E-01	2.38E-04	**2.0E-02**	5E-06	1.65E-05	9.69E-07	2.0E-02	2E-08	1.73E-06	2.03E-07	2.0E-02	4E-09
SVOC	Chrysene	218-01-9	B2	6.50E+02	9.54E-05	7.3E-03	7E-07	1E-01	7.44E-04	**7.3E-03**	5E-06	2.27E-04	1.33E-05	7.3E-03	1E-07	2.38E-05	2.79E-06	7.3E-03	2E-08
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	5.60E+01	8.22E-06	7.3E+00	6E-05	1E-01	6.41E-05	**7.3E+00**	5E-04	1.27E-07	7.45E-09	7.3E+00	5E-08	1.44E-08	1.69E-09	7.3E+00	1E-08
SVOC	Dibenzofuran	132-64-9	D	2.70E+02	3.96E-05			1E-01	2.38E-04			2.13E-04	1.25E-05			2.23E-05	2.62E-06		
SVOC	Di-n-butylphthalate	84-74-2	D	9.80E-02	1.44E-08			1E-01	8.63E-08			5.88E-10	3.45E-11			6.34E-11	7.45E-12		

Table E-1. Bounding Estimates of Cumulative Cancer Risks - Routine Industrial Activities
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	1.5E-07			Intake:	8.8E-06			Intake:	5.9E-02			Intake:	1.2E-01		
					FC_i:	1.0			FC_i:	1.0			FC_i:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	1.10E-07			1E-01	6.59E-07			1.26E-08	7.38E-10			1.33E-09	1.56E-10		
SVOC	Fluoranthene	206-44-0	D	1.80E+03	2.64E-04			1E-01	2.06E-03			5.52E-04	3.24E-05			5.78E-05	6.79E-06		
SVOC	Fluorene	86-73-7	D	5.00E+02	7.34E-05			1E-01	5.72E-04			9.29E-04	5.45E-05			9.72E-05	1.14E-05		
SVOC	Hexachlorobutadiene	87-68-3	C			7.8E-02		1E-01		**7.8E-02**				7.8E-02				7.8E-02	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	1.30E+02	1.91E-05	7.3E-01	1E-05	1E-01	1.49E-04	**7.3E-01**	1E-04	1.88E-06	1.10E-07	7.3E-01	8E-08	1.99E-07	2.33E-08	7.3E-01	2E-08
SVOC	2-Methylnaphthalene	91-57-6	ID	8.30E+01	1.22E-05			1E-01	7.31E-05			1.08E-03	6.32E-05			1.13E-04	1.32E-05		
SVOC	Methylphenol (total)	1319-77-3		2.69E+00	3.95E-07			1E-01	2.37E-06			1.05E-05	6.17E-07			1.10E-06	1.29E-07		
SVOC	Naphthalene	91-20-3	C	1.00E+02	1.47E-05			1E-01	1.14E-04			1.71E-03	1.01E-04			1.79E-04	2.10E-05		
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	5.21E-08	4.9E-03	3E-10	1E-01	3.13E-07	**4.9E-03**	2E-09	5.61E-07	3.29E-08	4.9E-03	2E-10	5.86E-08	6.88E-09	4.9E-03	3E-11
SVOC	Phenanthrene	85-01-8	D	3.00E+03	4.40E-04			1E-01	3.43E-03			2.99E-06	1.76E-07			3.74E-07	4.39E-08		
SVOC	Pyrene	129-00-0	D	1.10E+03	1.61E-04			1E-01	1.26E-03			2.68E-04	1.57E-05			2.80E-05	3.29E-06		
P/PCB	PCBs (total)	1336-36-3	B2	7.78E+01	1.14E-05	2.0E+00	2E-05	1E-01	9.59E-05	**2.0E+00**	2E-04	2.89E-04	1.70E-05	2.0E+00	3E-05	3.03E-05	3.55E-06	2.0E+00	7E-06
INORG	Aluminum	7429-90-5		2.56E+04	3.76E-03							2.55E-05	1.50E-06			3.19E-06	3.75E-07		
INORG	Antimony	7440-36-0		9.02E+03	1.32E-03							8.99E-06	5.28E-07			1.12E-06	1.32E-07		
INORG	Arsenic	7440-38-2	A	2.12E+02	3.11E-05	1.5E+00	5E-05	3E-02	5.59E-05	**1.5E+00**	8E-05	2.11E-07	1.24E-08	1.5E+00	2E-08	2.64E-08	3.10E-09	1.5E+00	5E-09
INORG	Barium	7440-39-3	D	2.52E+03	3.70E-04							2.51E-06	1.48E-07			3.14E-07	3.69E-08		
INORG	Beryllium	7440-41-7	B1	3.74E-01	5.49E-08							3.73E-10	2.19E-11	8.4E+00	2E-10	4.66E-11	5.47E-12	8.4E+00	5E-11
INORG	Cadmium	7440-43-9	B1	2.07E+03	3.05E-04			1E-03	1.83E-05			2.07E-06	1.21E-07	6.3E+00	8E-07	2.59E-07	3.04E-08	6.3E+00	2E-07
INORG	Calcium	7440-70-2		6.64E+05	9.75E-02							6.62E-04	3.89E-05			8.28E-05	9.72E-06		
INORG	Chromium (total)	7440-47-3		4.87E+03	7.15E-04							4.86E-06	2.85E-07	4.1E+01	1E-05	6.07E-07	7.13E-08	4.1E+01	3E-06
INORG	Cobalt	7440-48-4	B1	2.36E+02	3.47E-05							2.35E-07	1.38E-08	9.8E+00	1E-07	2.94E-08	3.45E-09	9.8E+00	3E-08
INORG	Copper	7440-50-8	D	6.27E+04	9.20E-03							6.25E-05	3.67E-06			7.81E-06	9.17E-07		
INORG	Cyanide (total)	57-12-5	D																
INORG	Iron	7439-89-6		5.54E+05	8.14E-02							5.53E-04	3.24E-05			6.91E-05	8.11E-06		
INORG	Lead	7439-92-1	B2	3.79E+03	5.56E-04							3.78E-06	2.22E-07			4.72E-07	5.54E-08		
INORG	Magnesium	7439-95-4		7.13E+04	1.05E-02							7.11E-05	4.17E-06			8.89E-06	1.04E-06		
INORG	Manganese	7439-96-5	D	2.27E+03	3.33E-04							2.26E-06	1.33E-07			2.83E-07	3.32E-08		
INORG	Mercury	7439-97-6	D	7.79E+00	1.14E-06							5.21E-05	3.06E-06			5.45E-06	6.40E-07		
INORG	Nickel	7440-02-0	A	3.33E+03	4.89E-04							3.32E-06	1.95E-07	8.4E-01	2E-07	4.15E-07	4.87E-08	8.4E-01	4E-08
INORG	Potassium	7440-09-7		1.92E+03	2.82E-04							1.91E-06	1.12E-07			2.39E-07	2.81E-08		
INORG	Selenium	7782-49-2	D																
INORG	Silver	7440-22-4	D	8.64E+01	1.27E-05							8.62E-08	5.06E-09			1.08E-08	1.26E-09		
INORG	Sodium	7440-23-5		1.59E+03	2.33E-04							1.59E-06	9.31E-08			1.98E-07	2.33E-08		
INORG	Thallium	7440-28-0		1.83E+00	2.68E-07							1.82E-09	1.07E-10			2.27E-10	2.67E-11		
INORG	Tin	7440-31-5																	
INORG	Vanadium	7440-62-2		1.41E+02	2.07E-05							1.40E-07	8.25E-09			1.76E-08	2.06E-09		
INORG	Zinc	7440-66-6	D	2.05E+04	3.01E-03							2.05E-05	1.20E-06			2.56E-06	3.00E-07		
							Cum. $Risk_{oral}$				Cum. $Risk_{derm}$				Cum. $Risk_{inh}$				Cum. $Risk_{inh}$
Note:																			
Toxicity values in bold are based on extrapolation from oral toxicity values.							7E-04				5E-03				7E-05				1E-05

Table E-2. Bounding Estimates of Cumulative Non-Cancer Risks - Routine Industrial Activities
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	4.9E-07			Intake:	2.9E-05			Intake:	2.0E-01			Intake:	2.7E-01		
					FC_i:	1.0			FCi :	1.0			FCi :	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
VOC	Acetone	67-64-1	ID	1.20E+01	5.87E-06	9.0E-01	7E-06			**9.0E-01**		5.04E-03	9.86E-04	9.0E-01	1E-03	5.27E-04	1.44E-04	9.0E-01	2E-04
VOC	Benzene	71-43-2	A	3.50E-01	1.71E-07	4.0E-03	4E-05			**4.0E-03**		1.47E-04	2.88E-05	1.7E-03	2E-02	1.54E-05	4.22E-06	1.7E-03	2E-03
VOC	2-Butanone	78-93-3	ID	2.95E+00	1.44E-06	6.0E-01	2E-06			**6.0E-01**		6.86E-04	1.34E-04	1.4E+00	9E-05	7.17E-05	1.97E-05	1.4E+00	1E-05
VOC	Carbon Disulfide	75-15-0		2.77E-02	1.36E-08	1.0E-01	1E-07			**1.0E-01**		3.67E-05	7.19E-06	2.0E-01	4E-05	3.84E-06	1.05E-06	2.0E-01	5E-06
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	6.13E-09	7.0E-04	9E-06			**7.0E-04**		6.85E-06	1.34E-06	7.0E-04	2E-03	7.17E-07	1.96E-07	7.0E-04	3E-04
VOC	Chloroethane	75-00-3		4.29E+00	2.10E-06	4.0E-01	5E-06			**4.0E-01**		5.47E-03	1.07E-03	2.9E+00	4E-04	5.72E-04	1.57E-04	2.9E+00	5E-05
VOC	Cumene	98-82-8	D	6.40E-01	3.13E-07	1.0E-01	3E-06			**1.0E-01**		6.38E-10	1.25E-10	1.1E-01	1E-09	7.98E-11	2.19E-11	1.1E-01	2E-10
VOC	Cyclohexane	110-82-7	ID	9.90E-01	4.84E-07							8.69E-04	1.70E-04	1.7E+00	1E-04	9.09E-05	2.49E-05	1.7E+00	1E-05
VOC	1,2-Dichlorobenzene	95-50-1	D	1.36E+00	6.65E-07	9.0E-02	7E-06			**9.0E-02**		9.00E-05	1.76E-05	4.0E-02	4E-04	9.41E-06	2.58E-06	4.0E-02	6E-05
VOC	1,3-Dichlorobenzene	541-73-1	D			9.0E-02				**9.0E-02**				4.0E-02				4.0E-02	
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	6.93E-10	3.0E-02	2E-08			**3.0E-02**		1.06E-07	2.08E-08	2.3E-01	9E-08	1.11E-08	3.04E-09	2.3E-01	1E-08
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	2.30E-08	2.0E-01	1E-07			**2.0E-01**		1.37E-04	2.68E-05	5.7E-02	5E-04	1.43E-05	3.92E-06	5.7E-02	7E-05
VOC	1,1-Dichloroethane	75-34-3	C	1.07E+01	5.23E-06	1.0E-01	5E-05			**1.0E-01**		5.75E-03	1.13E-03	1.0E-01	1E-02	6.01E-04	1.65E-04	1.0E-01	2E-03
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	2.50E-08	5.0E-02	5E-07			**5.0E-02**		4.98E-05	9.74E-06	5.7E-02	2E-04	5.21E-06	1.43E-06	5.7E-02	2E-05
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	1.31E-06	9.0E-03	1E-04			**9.0E-03**		1.41E-03	2.75E-04	9.0E-03	3E-02	1.47E-04	4.03E-05	9.0E-03	4E-03
VOC	cis-1,2-Dichloroethene	156-59-2	D	2.13E+01	1.04E-05	1.0E-02	1E-03			**1.0E-02**		9.07E-03	1.77E-03	1.0E-02	2E-01	9.48E-04	2.60E-04	1.0E-02	3E-02
VOC	trans-1,2-Dichloroethene	156-60-5		2.02E-01	9.88E-08	2.0E-02	5E-06			**2.0E-02**		1.06E-04	2.08E-05	2.0E-02	1E-03	1.11E-05	3.05E-06	2.0E-02	2E-04
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	4.31E-06	1.0E-01	4E-05			**1.0E-01**		1.62E-03	3.17E-04	2.9E-01	1E-03	1.69E-04	4.63E-05	2.9E-01	2E-04
VOC	2-Hexanone	591-78-6		1.88E-03	9.17E-10	4.0E-02	2E-08			**4.0E-02**		8.75E-07	1.71E-07	1.4E-03	1E-04	9.15E-08	2.51E-08	1.4E-03	2E-05
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	1.27E-07	1.0E+00	1E-07			**1.0E+00**		2.59E-10	5.07E-11	1.0E+00	5E-11	3.24E-11	8.88E-12	1.0E+00	9E-12
VOC	4-Methyl-2-pentanone	108-10-1	ID	6.82E+00	3.34E-06							9.73E-04	1.90E-04	8.6E-01	2E-04	1.02E-04	2.79E-05	8.6E-01	3E-05
VOC	Methylcyclohexane	108-87-2		2.70E+00	1.32E-06							2.69E-09	5.27E-10	8.6E-01	6E-10	3.36E-10	9.22E-11	8.6E-01	1E-10
VOC	Methylene Chloride	75-09-2	B2	5.67E-01	2.77E-07	6.0E-02	5E-06			**6.0E-02**		3.66E-04	7.15E-05	8.6E-01	8E-05	3.82E-05	1.05E-05	8.6E-01	1E-05
VOC	Styrene	100-42-5		5.90E-02	2.89E-08	2.0E-01	1E-07			**2.0E-01**		4.25E-06	8.33E-07	2.9E-01	3E-06	4.45E-07	1.22E-07	2.9E-01	4E-07
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	8.46E-09	6.0E-02	1E-07			**6.0E-02**		1.27E-06	2.49E-07	6.0E-02	4E-06	1.33E-07	3.64E-08	6.0E-02	6E-07
VOC	Tetrachloroethene	127-18-4	C-B2	1.22E+01	5.97E-06	1.0E-02	6E-04			**1.0E-02**		5.23E-03	1.02E-03	1.4E-01	7E-03	5.47E-04	1.50E-04	1.4E-01	1E-03
VOC	Toluene	108-88-3	D	1.60E+01	7.83E-06	2.0E-01	4E-05			**2.0E-01**		4.12E-03	8.05E-04	1.1E-01	7E-03	4.30E-04	1.18E-04	1.1E-01	1E-03
VOC	1,2,4-Trichlorobenzene	120-82-1	D			1.0E-02				**1.0E-02**				1.0E-03				1.0E-03	
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	1.14E-05	2.8E-01	4E-05			**2.8E-01**		1.20E-02	2.34E-03	6.3E-01	4E-03	1.25E-03	3.42E-04	6.3E-01	5E-04
VOC	Trichloroethene	79-01-6	C-B2	1.76E+01	8.61E-06	6.0E-03	1E-03			**6.0E-03**		5.65E-03	1.11E-03	6.0E-03	2E-01	5.91E-04	1.62E-04	6.0E-03	3E-02
VOC	1,1,2-Trichloro-1,2,2-trifluoro	76-13-1		3.40E-03	1.66E-09	3.0E+01	6E-11			**3.0E+01**		2.79E-06	5.45E-07	8.6E+00	6E-08	2.91E-07	7.98E-08	8.6E+00	9E-09
VOC	Vinyl Chloride	75-01-4	A	1.45E+00	7.09E-07	3.0E-03	2E-04			**3.0E-03**		3.20E-03	6.25E-04	2.9E-02	2E-02	3.34E-04	9.15E-05	2.9E-02	3E-03
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	9.30E-06	2.0E-01	5E-05			**2.0E-01**		3.19E-03	6.24E-04	2.9E-02	2E-02	3.33E-04	9.13E-05	2.9E-02	3E-03
SVOC	Acenaphthene	83-32-9		3.00E+02	1.47E-04	6.0E-02	2E-03	1E-01	1.14E-03	**6.0E-02**	2E-02	1.31E-03	2.56E-04	6.0E-02	4E-03	1.37E-04	3.75E-05	6.0E-02	6E-04
SVOC	Anthracene	120-12-7	D	6.00E+02	2.94E-04	3.0E-01	1E-03	1E-01	2.29E-03	**3.0E-01**	8E-03	7.29E-04	1.43E-04	3.0E-01	5E-04	7.62E-05	2.09E-05	3.0E-01	7E-05
SVOC	Benzo(a)anthracene	56-55-3	B2	5.20E+02	2.54E-04			1E-01	1.98E-03			4.93E-05	9.66E-06			5.17E-06	1.42E-06		
SVOC	Benzo(a)pyrene	50-32-8	B2	3.80E+02	1.86E-04			1E-01	1.45E-03			1.23E-05	2.40E-06			1.29E-06	3.54E-07		
SVOC	Benzo(b)fluoranthene	205-99-2	B2	5.80E+02	2.84E-04			1E-01	2.21E-03			1.19E-04	2.34E-05			1.25E-05	3.43E-06		
SVOC	Benzo(g,h,i)perylene	191-24-2	D	1.50E+02	7.34E-05	3.0E-02	2E-03	1E-01	5.72E-04	**3.0E-02**	2E-02	1.06E-06	2.07E-07	3.0E-02	7E-06	1.14E-07	3.12E-08	3.0E-02	1E-06
SVOC	Benzo(k)fluoranthene	207-08-9	B2	2.60E+02	1.27E-04			1E-01	9.92E-04			4.86E-06	9.52E-07			5.14E-07	1.41E-07		
SVOC	Biphenyl	92-52-4	D	2.60E+01	1.27E-05	5.0E-02	3E-04	1E-01	7.63E-05	**5.0E-02**	2E-03	1.27E-04	2.48E-05	5.0E-02	5E-04	1.32E-05	3.63E-06	5.0E-02	7E-05
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	8.55E+00	4.18E-06	2.0E-02	2E-04	1E-01	2.51E-05	**2.0E-02**	1E-03	2.74E-08	5.36E-09	2.0E-02	3E-07	3.04E-09	8.33E-10	2.0E-02	4E-08
SVOC	Butylbenzylphthalate	85-68-7	C			2.0E-01		1E-01		**2.0E-01**				2.0E-01				2.0E-01	
SVOC	Carbazole	86-74-8	B2	2.70E+02	1.32E-04			1E-01	7.93E-04			1.65E-05	3.23E-06			1.73E-06	4.74E-07		
SVOC	Chrysene	218-01-9	B2	6.50E+02	3.18E-04			1E-01	2.48E-03			2.27E-04	4.45E-05			2.38E-05	6.51E-06		
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	5.60E+01	2.74E-05			1E-01	2.14E-04			1.27E-07	2.48E-08			1.44E-08	3.95E-09		
SVOC	Dibenzofuran	132-64-9	D	2.70E+02	1.32E-04	2.0E-03	7E-02	1E-01	7.93E-04	**2.0E-03**	4E-01	2.13E-04	4.17E-05	2.0E-03	2E-02	2.23E-05	6.11E-06	2.0E-03	3E-03
SVOC	Di-n-butylphthalate	84-74-2	D	9.80E-02	4.79E-08	1.0E-01	5E-07	1E-01	2.88E-07	**1.0E-01**	3E-06	5.88E-10	1.15E-10	1.0E-01	1E-09	6.34E-11	1.74E-11	1.0E-01	2E-10

Table E-2. Bounding Estimates of Cumulative Non-Cancer Risks - Routine Industrial Activities
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)											Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	4.9E-07			Intake:	2.9E-05			Intake:	2.0E-01			Intake:	2.7E-01		
					FC_i:	1.0			FCi :	1.0			FCi :	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	3.66E-07	2.0E-02	2E-05	1E-01	2.20E-06	**2.0E-02**	1E-04	1.26E-08	2.46E-09	2.0E-02	1E-07	1.33E-09	3.64E-10	2.0E-02	2E-08
SVOC	Fluoranthene	206-44-0	D	1.80E+03	8.81E-04	4.0E-02	2E-02	1E-01	6.87E-03	**4.0E-02**	2E-01	5.52E-04	1.08E-04	4.0E-02	3E-03	5.78E-05	1.58E-05	4.0E-02	4E-04
SVOC	Fluorene	86-73-7	D	5.00E+02	2.45E-04	4.0E-02	6E-03	1E-01	1.91E-03	**4.0E-02**	5E-02	9.29E-04	1.82E-04	4.0E-02	5E-03	9.72E-05	2.66E-05	4.0E-02	7E-04
SVOC	Hexachlorobutadiene	87-68-3	C			2.0E-04		1E-01		**2.0E-04**				2.0E-04				2.0E-04	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	1.30E+02	6.36E-05			1E-01	4.96E-04			1.88E-06	3.67E-07			1.99E-07	5.45E-08		
SVOC	2-Methylnaphthalene	91-57-6	ID	8.30E+01	4.06E-05	4.0E-03	1E-02	1E-01	2.44E-04	**4.0E-03**	6E-02	1.08E-03	2.11E-04	8.6E-04	2E-01	1.13E-04	3.08E-05	8.6E-04	4E-02
SVOC	Methylphenol (total)	1319-77-3		2.69E+00	1.32E-06	5.0E-02	3E-05	1E-01	7.90E-06	**5.0E-02**	2E-04	1.05E-05	2.06E-06	5.0E-02	4E-05	1.10E-06	3.01E-07	5.0E-02	6E-06
SVOC	Naphthalene	91-20-3	C	1.00E+02	4.89E-05	2.0E-02	2E-03	1E-01	3.82E-04	**2.0E-02**	2E-02	1.71E-03	3.35E-04	8.6E-04	4E-01	1.79E-04	4.91E-05	8.6E-04	6E-02
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	1.74E-07	2.0E-02	9E-06	1E-01	1.04E-06	**2.0E-02**	5E-05	5.61E-07	1.10E-07	2.0E-02	5E-06	5.86E-08	1.61E-08	2.0E-02	8E-07
SVOC	Phenanthrene	85-01-8	D	3.00E+03	1.47E-03	3.0E-02	5E-02	1E-01	1.14E-02	**3.0E-02**	4E-01	2.99E-06	5.85E-07	3.0E-02	2E-05	3.74E-07	1.02E-07	3.0E-02	3E-06
SVOC	Pyrene	129-00-0	D	1.10E+03	5.38E-04	3.0E-02	2E-02	1E-01	4.20E-03	**3.0E-02**	1E-01	2.68E-04	5.24E-05	3.0E-02	2E-03	2.80E-05	7.67E-06	3.0E-02	3E-04
P/PCB	PCBs (total)	1336-36-3	B2	7.78E+01	3.81E-05	2.0E-05	2E+00	1E-01	3.20E-04	**2.0E-05**	2E+01	2.89E-04	5.66E-05	2.0E-05	3E+00	3.03E-05	8.29E-06	2.0E-05	4E-01
INORG	Aluminum	7429-90-5		2.56E+04	1.25E-02							2.55E-05	4.99E-06			3.19E-06	8.74E-07		
INORG	Antimony	7440-36-0		9.02E+03	4.41E-03	4.0E-04	1E+01			**4.0E-04**		8.99E-06	1.76E-06	4.0E-04	4E-03	1.12E-06	3.08E-07	4.0E-04	8E-04
INORG	Arsenic	7440-38-2	A	2.12E+02	1.04E-04	3.0E-04	3E-01	3E-02	1.86E-04	**3.0E-04**	6E-01	2.11E-07	4.13E-08	3.0E-04	1E-04	2.64E-08	7.23E-09	3.0E-04	2E-05
INORG	Barium	7440-39-3	D	2.52E+03	1.23E-03	7.0E-02	2E-02			**7.0E-02**		2.51E-06	4.92E-07	7.0E-02	7E-06	3.14E-07	8.61E-08	7.0E-02	1E-06
INORG	Beryllium	7440-41-7	B1	3.74E-01	1.83E-07	2.0E-03	9E-05			**2.0E-03**		3.73E-10	7.30E-11	5.7E-06	1E-05	4.66E-11	1.28E-11	5.7E-06	2E-06
INORG	Cadmium	7440-43-9	B1	2.07E+03	1.02E-03	1.0E-03	1E+00	1E-03	6.09E-05	**1.0E-03**	6E-02	2.07E-06	4.05E-07	5.7E-05	7E-03	2.59E-07	7.08E-08	5.7E-05	1E-03
INORG	Calcium	7440-70-2		6.64E+05	3.25E-01							6.62E-04	1.30E-04			8.28E-05	2.27E-05		
INORG	Chromium (total)	7440-47-3		4.87E+03	2.38E-03	3.0E-03	8E-01			**3.0E-03**		4.86E-06	9.50E-07	2.9E-05	3E-02	6.07E-07	1.66E-07	2.9E-05	6E-03
INORG	Cobalt	7440-48-4	B1	2.36E+02	1.16E-04	2.0E-02	6E-03			**2.0E-02**		2.35E-07	4.61E-08	5.7E-06	8E-03	2.94E-08	8.06E-09	5.7E-06	1E-03
INORG	Copper	7440-50-8	D	6.27E+04	3.07E-02	4.0E-02	8E-01			**4.0E-02**		6.25E-05	1.22E-05	4.0E-02	3E-04	7.81E-06	2.14E-06	4.0E-02	5E-05
INORG	Cyanide (total)	57-12-5	D			2.0E-02				**2.0E-02**				2.0E-02				2.0E-02	
INORG	Iron	7439-89-6		5.54E+05	2.71E-01							5.53E-04	1.08E-04			6.91E-05	1.89E-05		
INORG	Lead	7439-92-1	B2	3.79E+03	1.85E-03							3.78E-06	7.39E-07			4.72E-07	1.29E-07		
INORG	Magnesium	7439-95-4		7.13E+04	3.49E-02							7.11E-05	1.39E-05			8.89E-06	2.43E-06		
INORG	Manganese	7439-96-5	D	2.27E+03	1.11E-03	1.4E-01	8E-03			**1.4E-01**		2.26E-06	4.43E-07	1.4E-05	3E-02	2.83E-07	7.75E-08	1.4E-05	5E-03
INORG	Mercury	7439-97-6	D	7.79E+00	3.81E-06	3.0E-04	1E-02			**3.0E-04**		5.21E-05	1.02E-05	8.6E-05	1E-01	5.45E-06	1.49E-06	8.6E-05	2E-02
INORG	Nickel	7440-02-0	A	3.33E+03	1.63E-03	2.0E-02	8E-02			**2.0E-02**		3.32E-06	6.50E-07	2.0E-02	3E-05	4.15E-07	1.14E-07	2.0E-02	6E-06
INORG	Potassium	7440-09-7		1.92E+03	9.39E-04							1.91E-06	3.75E-07			2.39E-07	6.56E-08		
INORG	Selenium	7782-49-2	D			5.0E-03				**5.0E-03**				5.0E-03				5.0E-03	
INORG	Silver	7440-22-4	D	8.64E+01	4.23E-05	5.0E-03	8E-03			**5.0E-03**		8.62E-08	1.69E-08	2.9E-06	6E-03	1.08E-08	2.95E-09	2.9E-06	1E-03
INORG	Sodium	7440-23-5		1.59E+03	7.78E-04							1.59E-06	3.10E-07			1.98E-07	5.43E-08		
INORG	Thallium	7440-28-0		1.83E+00	8.93E-07	7.0E-05	1E-02			**7.0E-05**		1.82E-09	3.56E-10	7.0E-05	5E-06	2.27E-10	6.23E-11	7.0E-05	9E-07
INORG	Tin	7440-31-5				6.0E-01				**6.0E-01**				6.0E-01				6.0E-01	
INORG	Vanadium	7440-62-2		1.41E+02	6.89E-05	7.0E-03	1E-02			**7.0E-03**		1.40E-07	2.75E-08	7.0E-03	4E-06	1.76E-08	4.81E-09	7.0E-03	7E-07
INORG	Zinc	7440-66-6	D	2.05E+04	1.00E-02	3.0E-01	3E-02			**3.0E-01**		2.05E-05	4.01E-06	3.0E-01	1E-05	2.56E-06	7.01E-07	3.0E-01	2E-06
							HI_{oral}				HI_{derm}				HI_{inh}				HI_{inh}
Note:																			
Toxicity values in bold are based on extrapolation from oral toxicity values.							2E+01				2E+01				4E+00				6E-01

Table E-3. Bounding Estimates of Cumulative Cancer Risks - Excavation Scenario
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)										Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
				Intake:	2.7E-09				Intake:	1.7E-08			Intake:	1.1E-04			Intake:	1.1E-04		
				FC_i:	1.0				FC_i:	1.0			FC_i:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$		AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
VOC	Acetone	67-64-1	ID	1.20E+01	3.22E-08								1.40E-01	1.56E-05			1.74E-02	1.95E-06		
VOC	Benzene	71-43-2	A	3.50E-01	9.39E-10	5.5E-02	5E-11				**5.5E-02**		4.08E-03	4.56E-07	2.7E-02	1E-08	5.10E-04	5.70E-08	2.7E-02	2E-09
VOC	2-Butanone	78-93-3	ID	2.95E+00	7.92E-09								1.90E-02	2.12E-06			2.37E-03	2.66E-07		
VOC	Carbon Disulfide	75-15-0		2.77E-02	7.43E-11								1.02E-03	1.14E-07			1.27E-04	1.42E-08		
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	3.36E-11	1.3E-01	4E-12				**1.3E-01**		1.90E-04	2.12E-08	5.3E-02	1E-09	2.37E-05	2.65E-09	5.3E-02	1E-10
VOC	Chloroethane	75-00-3		4.29E+00	1.15E-08								1.51E-01	1.69E-05			1.89E-02	2.11E-06		
VOC	Cumene	98-82-8	D	6.40E-01	1.72E-09								6.40E-07	7.16E-11			8.00E-08	8.95E-12		
VOC	Cyclohexane	110-82-7	ID	9.90E-01	2.66E-09								2.41E-02	2.69E-06			3.01E-03	3.36E-07		
VOC	1,2-Dichlorobenzene	95-50-1	D	1.36E+00	3.65E-09								2.49E-03	2.79E-07			3.12E-04	3.49E-08		
VOC	1,3-Dichlorobenzene	541-73-1	D																	
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	3.80E-12	2.4E-02	9E-14				**2.4E-02**		2.94E-06	3.29E-10	2.2E-02	7E-12	3.67E-07	4.11E-11	2.2E-02	9E-13
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	1.26E-10								3.79E-03	4.23E-07			4.73E-04	5.29E-08		
VOC	1,1-Dichloroethane	75-34-3	C	1.07E+01	2.87E-08								1.59E-01	1.78E-05			1.99E-02	2.23E-06		
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	1.37E-10								1.38E-03	1.54E-07			1.72E-04	1.93E-08		
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	7.17E-09								3.89E-02	4.35E-06			4.87E-03	5.44E-07		
VOC	cis-1,2-Dichloroethene	156-59-2	D	2.13E+01	5.72E-08								2.51E-01	2.81E-05			3.14E-02	3.51E-06		
VOC	trans-1,2-Dichloroethene	156-60-5		2.02E-01	5.42E-10								2.95E-03	3.29E-07			3.68E-04	4.12E-08		
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	2.36E-08								4.48E-02	5.01E-06			5.60E-03	6.26E-07		
VOC	2-Hexanone	591-78-6		1.88E-03	5.03E-12								2.42E-05	2.71E-09			3.03E-06	3.39E-10		
VOC	Iodomethane	74-88-4																		
VOC	Methyl Acetate	79-20-9		2.60E-01	6.98E-10								2.60E-07	2.91E-11			3.25E-08	3.63E-12		
VOC	4-Methyl-2-pentanone	108-10-1	ID	6.82E+00	1.83E-08								2.69E-02	3.01E-06			3.37E-03	3.77E-07		
VOC	Methylcyclohexane	108-87-2		2.70E+00	7.25E-09								2.70E-06	3.02E-10			3.38E-07	3.77E-11		
VOC	Methylene Chloride	75-09-2	B2	5.67E-01	1.52E-09	7.5E-03	1E-11				**7.5E-03**		1.01E-02	1.13E-06	1.6E-03	2E-09	1.27E-03	1.41E-07	1.6E-03	2E-10
VOC	Styrene	100-42-5		5.90E-02	1.58E-10								1.18E-04	1.32E-08			1.47E-05	1.65E-09		
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	4.64E-11	2.0E-01	9E-12				**2.0E-01**		3.52E-05	3.94E-09	2.0E-01	8E-10	4.40E-06	4.92E-10	2.0E-01	1E-10
VOC	Tetrachloroethene	127-18-4	C-B2	1.22E+01	3.27E-08	5.2E-02	2E-09				**5.2E-02**		1.45E-01	1.62E-05	2.0E-03	3E-08	1.81E-02	2.02E-06	2.0E-03	4E-09
VOC	Toluene	108-88-3	D	1.60E+01	4.29E-08								1.14E-01	1.27E-05			1.42E-02	1.59E-06		
VOC	1,2,4-Trichlorobenzene	120-82-1	D																	
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	6.23E-08								3.31E-01	3.70E-05			4.14E-02	4.62E-06		
VOC	Trichloroethene	79-01-6	C-B2	1.76E+01	4.72E-08	1.1E-02	5E-10				**1.1E-02**		1.57E-01	1.75E-05	6.0E-03	1E-07	1.96E-02	2.19E-06	6.0E-03	1E-08
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		3.40E-03	9.12E-12								7.71E-05	8.63E-09			9.64E-06	1.08E-09		
VOC	Vinyl Chloride	75-01-4	A	1.45E+00	3.89E-09	1.4E+00	5E-09				**1.4E+00**		8.85E-02	9.89E-06	3.1E-02	3E-07	1.11E-02	1.24E-06	3.1E-02	4E-08
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	5.10E-08								8.83E-02	9.87E-06			1.10E-02	1.23E-06		
SVOC	Acenaphthene	83-32-9		3.00E+02	8.05E-07				1E-01	6.54E-07			3.65E-02	4.08E-06			4.56E-03	5.10E-07		
SVOC	Anthracene	120-12-7	D	6.00E+02	1.61E-06				1E-01	1.31E-06			2.08E-02	2.32E-06			2.59E-03	2.90E-07		
SVOC	Benzo(a)anthracene	56-55-3	B2	5.20E+02	1.40E-06	7.3E-01	1E-06		1E-01	1.13E-06	**7.3E-01**	8E-07	1.87E-03	2.09E-07	7.3E-01	2E-07	2.34E-04	2.62E-08	7.3E-01	2E-08
SVOC	Benzo(a)pyrene	50-32-8	B2	3.80E+02	1.02E-06	7.3E+00	7E-06		1E-01	8.29E-07	**7.3E+00**	6E-06	7.09E-04	7.93E-08	3.1E+00	2E-07	8.87E-05	9.92E-09	3.1E+00	3E-08
SVOC	Benzo(b)fluoranthene	205-99-2	B2	5.80E+02	1.56E-06	7.3E-01	1E-06		1E-01	1.26E-06	**7.3E-01**	9E-07	3.87E-03	4.33E-07	7.3E-01	3E-07	4.84E-04	5.41E-08	7.3E-01	4E-08
SVOC	Benzo(g,h,i)perylene	191-24-2	D	1.50E+02	4.03E-07				1E-01	3.27E-07			1.75E-04	1.96E-08			2.19E-05	2.45E-09		
SVOC	Benzo(k)fluoranthene	207-08-9	B2	2.60E+02	6.98E-07	7.3E-02	5E-08		1E-01	5.67E-07	**7.3E-02**	4E-08	3.88E-04	4.33E-08	7.3E-02	3E-09	4.84E-05	5.42E-09	7.3E-02	4E-10
SVOC	Biphenyl	92-52-4	D	2.60E+01	6.98E-08				1E-01	4.36E-08			3.53E-03	3.95E-07			4.41E-04	4.94E-08		
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	8.55E+00	2.29E-08	1.4E-02	3E-10		1E-01	1.43E-08	**1.4E-02**	2E-10	9.07E-06	1.01E-09	1.4E-02	1E-11	1.13E-06	1.27E-10	1.4E-02	2E-12
SVOC	Butylbenzylphthalate	85-68-7	C						1E-01											
SVOC	Carbazole	86-74-8	B2	2.70E+02	7.25E-07	2.0E-02	1E-08		1E-01	4.53E-07	**2.0E-02**	9E-09	7.20E-04	8.05E-08	2.0E-02	2E-09	8.99E-05	1.01E-08	2.0E-02	2E-10
SVOC	Chrysene	218-01-9	B2	6.50E+02	1.74E-06	7.3E-03	1E-08		1E-01	1.42E-06	**7.3E-03**	1E-08	6.92E-03	7.74E-07	7.3E-03	6E-09	8.65E-04	9.67E-08	7.3E-03	7E-10
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	5.60E+01	1.50E-07	7.3E+00	1E-06		1E-01	1.22E-07	**7.3E+00**	9E-07	5.80E-05	6.48E-09	7.3E+00	5E-08	7.25E-06	8.10E-10	7.3E+00	6E-09
SVOC	Dibenzofuran	132-64-9	D	2.70E+02	7.25E-07				1E-01	4.53E-07			6.16E-03	6.89E-07			7.71E-04	8.62E-08		
SVOC	Di-n-butylphthalate	84-74-2	D	9.80E-02	2.63E-10				1E-01	1.64E-10			1.12E-07	1.25E-11			1.39E-08	1.56E-12		

Table E-3. Bounding Estimates of Cumulative Cancer Risks - Excavation Scenario
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)										Resident (Off-Site)			
				Pathway:	Soil Ingestion			Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
				Intake:	2.7E-09			Intake:	1.7E-08			Intake:	1.1E-04			Intake:	1.1E-04		
				FC_i:	1.0			FC_i:	1.0			FC_i:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	2.01E-09			1E-01	1.25E-09			1.08E-06	1.20E-10			1.34E-07	1.50E-11		
SVOC	Fluoranthene	206-44-0	D	1.80E+03	4.83E-06			1E-01	3.93E-06			1.70E-02	1.91E-06			2.13E-03	2.38E-07		
SVOC	Fluorene	86-73-7	D	5.00E+02	1.34E-06			1E-01	1.09E-06			2.62E-02	2.93E-06			3.28E-03	3.66E-07		
SVOC	Hexachlorobutadiene	87-68-3	C			7.8E-02		1E-01		**7.8E-02**				7.8E-02				7.8E-02	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	1.30E+02	3.49E-07	7.3E-01	3E-07	1E-01	2.83E-07	**7.3E-01**	2E-07	1.78E-04	1.99E-08	7.3E-01	1E-08	2.23E-05	2.49E-09	7.3E-01	2E-09
SVOC	2-Methylnaphthalene	91-57-6	ID	8.30E+01	2.23E-07			1E-01	1.39E-07			2.99E-02	3.34E-06			3.74E-03	4.18E-07		
SVOC	Methylphenol (total)	1319-77-3		2.69E+00	7.22E-09			1E-01	4.51E-09			2.94E-04	3.29E-08			3.67E-05	4.11E-09		
SVOC	Naphthalene	91-20-3	C	1.00E+02	2.68E-07			1E-01	2.18E-07			4.75E-02	5.31E-06			5.94E-03	6.64E-07		
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	9.53E-10	4.9E-03	5E-12	1E-01	5.95E-10	**4.9E-03**	3E-12	1.59E-05	1.77E-09	4.9E-03	9E-12	1.98E-06	2.22E-10	4.9E-03	1E-12
SVOC	Phenanthrene	85-01-8	D	3.00E+03	8.05E-06			1E-01	6.54E-06			3.00E-03	3.35E-07			3.75E-04	4.19E-08		
SVOC	Pyrene	129-00-0	D	1.10E+03	2.95E-06			1E-01	2.40E-06			8.48E-03	9.48E-07			1.06E-03	1.18E-07		
P/PCB	PCBs (total)	1336-36-3	B2	7.78E+01	2.09E-07	2.0E+00	4E-07	1E-01	1.83E-07	**2.0E+00**	4E-07	8.08E-03	9.04E-07	2.0E+00	2E-06	1.01E-03	1.13E-07	2.0E+00	2E-07
INORG	Aluminum	7429-90-5		2.56E+04	6.87E-05							2.56E-02	2.86E-06			3.20E-03	3.58E-07		
INORG	Antimony	7440-36-0		9.02E+03	2.42E-05							9.02E-03	1.01E-06			1.13E-03	1.26E-07		
INORG	Arsenic	7440-38-2	A	2.12E+02	5.68E-07	1.5E+00	9E-07	3E-02	1.07E-07	**1.5E+00**	2E-07	2.12E-04	2.37E-08	1.5E+00	4E-08	2.65E-05	2.96E-09	1.5E+00	4E-09
INORG	Barium	7440-39-3	D	2.52E+03	6.77E-06							2.52E-03	2.82E-07			3.15E-04	3.52E-08		
INORG	Beryllium	7440-41-7	B1	3.74E-01	1.00E-09							3.74E-07	4.18E-11	8.4E+00	4E-10	4.68E-08	5.23E-12	8.4E+00	4E-11
INORG	Cadmium	7440-43-9	B1	2.07E+03	5.57E-06			1E-03	3.48E-08			2.07E-03	2.32E-07	6.3E+00	1E-06	2.59E-04	2.90E-08	6.3E+00	2E-07
INORG	Calcium	7440-70-2		6.64E+05	1.78E-03							6.64E-01	7.43E-05			8.30E-02	9.28E-06		
INORG	Chromium (total)	7440-47-3		4.87E+03	1.31E-05							4.87E-03	5.45E-07	4.1E+01	2E-05	6.09E-04	6.81E-08	4.1E+01	3E-06
INORG	Cobalt	7440-48-4	B1	2.36E+02	6.34E-07							2.36E-04	2.64E-08	9.8E+00	3E-07	2.95E-05	3.30E-09	9.8E+00	3E-08
INORG	Copper	7440-50-8	D	6.27E+04	1.68E-04							6.27E-02	7.01E-06			7.84E-03	8.76E-07		
INORG	Cyanide (total)	57-12-5	D																
INORG	Iron	7439-89-6		5.54E+05	1.49E-03							5.54E-01	6.20E-05			6.93E-02	7.75E-06		
INORG	Lead	7439-92-1	B2	3.79E+03	1.02E-05							3.79E-03	4.24E-07			4.74E-04	5.30E-08		
INORG	Magnesium	7439-95-4		7.13E+04	1.91E-04							7.13E-02	7.97E-06			8.91E-03	9.97E-07		
INORG	Manganese	7439-96-5	D	2.27E+03	6.09E-06							2.27E-03	2.54E-07			2.84E-04	3.17E-08		
INORG	Mercury	7439-97-6	D	7.79E+00	2.09E-08							1.45E-03	1.62E-07			1.81E-04	2.03E-08		
INORG	Nickel	7440-02-0	A	3.33E+03	8.94E-06							3.33E-03	3.72E-07	8.4E-01	3E-07	4.16E-04	4.65E-08	8.4E-01	4E-08
INORG	Potassium	7440-09-7		1.92E+03	5.15E-06							1.92E-03	2.15E-07			2.40E-04	2.68E-08		
INORG	Selenium	7782-49-2	D																
INORG	Silver	7440-22-4	D	8.64E+01	2.32E-07							8.64E-05	9.67E-09			1.08E-05	1.21E-09		
INORG	Sodium	7440-23-5		1.59E+03	4.27E-06							1.59E-03	1.78E-07			1.99E-04	2.22E-08		
INORG	Thallium	7440-28-0		1.83E+00	4.90E-09							1.83E-06	2.04E-10			2.28E-07	2.55E-11		
INORG	Tin	7440-31-5																	
INORG	Vanadium	7440-62-2		1.41E+02	3.78E-07							1.41E-04	1.58E-08			1.76E-05	1.97E-09		
INORG	Zinc	7440-66-6	D	2.05E+04	5.51E-05							2.05E-02	2.30E-06			2.57E-03	2.87E-07		
							Cum. $Risk_{oral}$				Cum. $Risk_{derm}$				Cum. $Risk_{inh}$				Cum. $Risk_{inh}$
							1E-05				9E-06				3E-05				3E-06

Note:
Toxicity values in bold are based on extrapolation from oral toxicity values.

Table E-4. Bounding Estimates of Cumulative Non-Cancer Risks - Excavation Scenario
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)										Resident (Off-Site)			
				Pathway:	Soil Ingestion			Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	8.9E-09		Intake:	5.6E-08			Intake:	3.7E-04			Intake:	2.6E-04		
					FC_i:	1.0		FCi :	1.0			FCi :	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
VOC	Acetone	67-64-1	ID	1.20E+01	1.07E-07	9.0E-01	1E-07			**9.0E-01**		1.40E-01	5.20E-05	9.0E-01	6E-05	1.74E-02	4.55E-06	9.0E-01	5E-06
VOC	Benzene	71-43-2	A	3.50E-01	3.13E-09	4.0E-03	8E-07			**4.0E-03**		4.08E-03	1.52E-06	1.7E-03	9E-04	5.10E-04	1.33E-07	1.7E-03	8E-05
VOC	2-Butanone	78-93-3	ID	2.95E+00	2.64E-08	6.0E-01	4E-08			**6.0E-01**		1.90E-02	7.08E-06	1.4E+00	5E-06	2.37E-03	6.20E-07	1.4E+00	4E-07
VOC	Carbon Disulfide	75-15-0		2.77E-02	2.48E-10	1.0E-01	2E-09			**1.0E-01**		1.02E-03	3.79E-07	2.0E-01	2E-06	1.27E-04	3.32E-08	2.0E-01	2E-07
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	1.12E-10	7.0E-04	2E-07			**7.0E-04**		1.90E-04	7.07E-08	7.0E-04	1E-04	2.37E-05	6.19E-09	7.0E-04	9E-06
VOC	Chloroethane	75-00-3		4.29E+00	3.84E-08	4.0E-01	1E-07			**4.0E-01**		1.51E-01	5.64E-05	2.9E+00	2E-05	1.89E-02	4.93E-06	2.9E+00	2E-06
VOC	Cumene	98-82-8	D	6.40E-01	5.73E-09	1.0E-01	6E-08			**1.0E-01**		6.40E-07	2.39E-10	1.1E-01	2E-09	8.00E-08	2.09E-11	1.1E-01	2E-10
VOC	Cyclohexane	110-82-7	ID	9.90E-01	8.86E-09							2.41E-02	8.97E-06	1.7E+00	5E-06	3.01E-03	7.85E-07	1.7E+00	5E-07
VOC	1,2-Dichlorobenzene	95-50-1	D	1.36E+00	1.22E-08	9.0E-02	1E-07			**9.0E-02**		2.49E-03	9.29E-07	4.0E-02	2E-05	3.12E-04	8.13E-08	4.0E-02	2E-06
VOC	1,3-Dichlorobenzene	541-73-1	D			9.0E-02				**9.0E-02**				4.0E-02				4.0E-02	
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	1.27E-11	3.0E-02	4E-10			**3.0E-02**		2.94E-06	1.10E-09	2.3E-01	5E-09	3.67E-07	9.59E-11	2.3E-01	4E-10
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	4.20E-10	2.0E-01	2E-09			**2.0E-01**		3.79E-03	1.41E-06	5.7E-02	2E-05	4.73E-04	1.24E-07	5.7E-02	2E-06
VOC	1,1-Dichloroethane	75-34-3	C	1.07E+01	9.57E-08	1.0E-01	1E-06			**1.0E-01**		1.59E-01	5.93E-05	1.0E-01	6E-04	1.99E-02	5.19E-06	1.0E-01	5E-05
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	4.56E-10	5.0E-02	9E-09			**5.0E-02**		1.38E-03	5.14E-07	5.7E-02	9E-06	1.72E-04	4.50E-08	5.7E-02	8E-07
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	2.39E-08	9.0E-03	3E-06			**9.0E-03**		3.89E-02	1.45E-05	9.0E-03	2E-03	4.87E-03	1.27E-06	9.0E-03	1E-04
VOC	cis-1,2-Dichloroethene	156-59-2	D	2.13E+01	1.91E-07	1.0E-02	2E-05			**1.0E-02**		2.51E-01	9.36E-05	1.0E-02	9E-03	3.14E-02	8.19E-06	1.0E-02	8E-04
VOC	trans-1,2-Dichloroethene	156-60-5		2.02E-01	1.81E-09	2.0E-02	9E-08			**2.0E-02**		2.95E-03	1.10E-06	2.0E-02	5E-05	3.68E-04	9.61E-08	2.0E-02	5E-06
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	7.87E-08	1.0E-01	8E-07			**1.0E-01**		4.48E-02	1.67E-05	2.9E-01	6E-05	5.60E-03	1.46E-06	2.9E-01	5E-06
VOC	2-Hexanone	591-78-6		1.88E-03	1.68E-11	4.0E-02	4E-10			**4.0E-02**		2.42E-05	9.03E-09	1.4E-03	6E-06	3.03E-06	7.90E-10	1.4E-03	6E-07
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	2.33E-09	1.0E+00	2E-09			**1.0E+00**		2.60E-07	9.69E-11	1.0E+00	1E-10	3.25E-08	8.48E-12	1.0E+00	8E-12
VOC	4-Methyl-2-pentanone	108-10-1	ID	6.82E+00	6.10E-08							2.69E-02	1.00E-05	8.6E-01	1E-05	3.37E-03	8.79E-07	8.6E-01	1E-06
VOC	Methylcyclohexane	108-87-2		2.70E+00	2.42E-08							2.70E-06	1.01E-09	8.6E-01	1E-09	3.38E-07	8.81E-11	8.6E-01	1E-10
VOC	Methylene Chloride	75-09-2	B2	5.67E-01	5.07E-09	6.0E-02	8E-08			**6.0E-02**		1.01E-02	3.77E-06	8.6E-01	4E-06	1.27E-03	3.30E-07	8.6E-01	4E-07
VOC	Styrene	100-42-5		5.90E-02	5.28E-10	2.0E-01	3E-09			**2.0E-01**		1.18E-04	4.39E-08	2.9E-01	2E-07	1.47E-05	3.84E-09	2.9E-01	1E-08
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	1.55E-10	6.0E-02	3E-09			**6.0E-02**		3.52E-05	1.31E-08	6.0E-02	2E-07	4.40E-06	1.15E-09	6.0E-02	2E-08
VOC	Tetrachloroethene	127-18-4	C-B2	1.22E+01	1.09E-07	1.0E-02	1E-05			**1.0E-02**		1.45E-01	5.39E-05	1.4E-01	4E-04	1.81E-02	4.72E-06	1.4E-01	3E-05
VOC	Toluene	108-88-3	D	1.60E+01	1.43E-07	2.0E-01	7E-07			**2.0E-01**		1.14E-01	4.25E-05	1.1E-01	4E-04	1.42E-02	3.72E-06	1.1E-01	3E-05
VOC	1,2,4-Trichlorobenzene	120-82-1	D			1.0E-02				**1.0E-02**				1.0E-03				1.0E-03	
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	2.08E-07	2.8E-01	7E-07			**2.8E-01**		3.31E-01	1.23E-04	6.3E-01	2E-04	4.14E-02	1.08E-05	6.3E-01	2E-05
VOC	Trichloroethene	79-01-6	C-B2	1.76E+01	1.57E-07	6.0E-03	3E-05			**6.0E-03**		1.57E-01	5.83E-05	6.0E-03	1E-02	1.96E-02	5.10E-06	6.0E-03	9E-04
VOC	1,1,2-Trichloro-1,2,2-trifluoro	76-13-1		3.40E-03	3.04E-11	3.0E+01	1E-12			**3.0E+01**		7.71E-05	2.88E-08	8.6E+00	3E-09	9.64E-06	2.52E-09	8.6E+00	3E-10
VOC	Vinyl Chloride	75-01-4	A	1.45E+00	1.30E-08	3.0E-03	4E-06			**3.0E-03**		8.85E-02	3.30E-05	2.9E-02	1E-03	1.11E-02	2.89E-06	2.9E-02	1E-04
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	1.70E-07	2.0E-01	8E-07			**2.0E-01**		8.83E-02	3.29E-05	2.9E-02	1E-03	1.10E-02	2.88E-06	2.9E-02	1E-04
SVOC	Acenaphthene	83-32-9		3.00E+02	2.68E-06	6.0E-02	4E-05	1E-01	2.18E-06	**6.0E-02**	4E-05	3.65E-02	1.36E-05	6.0E-02	2E-04	4.56E-03	1.19E-06	6.0E-02	2E-05
SVOC	Anthracene	120-12-7	D	6.00E+02	5.37E-06	3.0E-01	2E-05	1E-01	4.36E-06	**3.0E-01**	1E-05	2.08E-02	7.74E-06	3.0E-01	3E-05	2.59E-03	6.77E-07	3.0E-01	2E-06
SVOC	Benzo(a)anthracene	56-55-3	B2	5.20E+02	4.65E-06			1E-01	3.78E-06			1.87E-03	6.98E-07			2.34E-04	6.11E-08		
SVOC	Benzo(a)pyrene	50-32-8	B2	3.80E+02	3.40E-06			1E-01	2.76E-06			7.09E-04	2.64E-07			8.87E-05	2.31E-08		
SVOC	Benzo(b)fluoranthene	205-99-2	B2	5.80E+02	5.19E-06			1E-01	4.22E-06			3.87E-03	1.44E-06			4.84E-04	1.26E-07		
SVOC	Benzo(g,h,i)perylene	191-24-2	D	1.50E+02	1.34E-06	3.0E-02	4E-05	1E-01	1.09E-06	**3.0E-02**	4E-05	1.75E-04	6.53E-08	3.0E-02	2E-06	2.19E-05	5.71E-09	3.0E-02	2E-07
SVOC	Benzo(k)fluoranthene	207-08-9	B2	2.60E+02	2.33E-06			1E-01	1.89E-06			3.88E-04	1.44E-07			4.84E-05	1.26E-08		
SVOC	Biphenyl	92-52-4	D	2.60E+01	2.33E-07	5.0E-02	5E-06	1E-01	1.45E-07	**5.0E-02**	3E-06	3.53E-03	1.32E-06	5.0E-02	3E-05	4.41E-04	1.15E-07	5.0E-02	2E-06
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	8.55E+00	7.65E-08	2.0E-02	4E-06	1E-01	4.78E-08	**2.0E-02**	2E-06	9.07E-06	3.38E-09	2.0E-02	2E-07	1.13E-06	2.96E-10	2.0E-02	1E-08
SVOC	Butylbenzylphthalate	85-68-7	C			2.0E-01		1E-01		**2.0E-01**				2.0E-01				2.0E-01	
SVOC	Carbazole	86-74-8	B2	2.70E+02	2.42E-06			1E-01	1.51E-06			7.20E-04	2.68E-07			8.99E-05	2.35E-08		
SVOC	Chrysene	218-01-9	B2	6.50E+02	5.81E-06			1E-01	4.72E-06			6.92E-03	2.58E-06			8.65E-04	2.26E-07		
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	5.60E+01	5.01E-07			1E-01	4.07E-07			5.80E-05	2.16E-08			7.25E-06	1.89E-09		
SVOC	Dibenzofuran	132-64-9	D	2.70E+02	2.42E-06	2.0E-03	1E-03	1E-01	1.51E-06	**2.0E-03**	8E-04	6.16E-03	2.30E-06	2.0E-03	1E-03	7.71E-04	2.01E-07	2.0E-03	1E-04
SVOC	Di-n-butylphthalate	84-74-2	D	9.80E-02	8.77E-10	1.0E-01	9E-09	1E-01	5.48E-10	**1.0E-01**	5E-09	1.12E-07	4.16E-11	1.0E-01	4E-10	1.39E-08	3.64E-12	1.0E-01	4E-11

Table E-4. Bounding Estimates of Cumulative Non-Cancer Risks - Excavation Scenario
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)								Resident (Off-Site)			
				Pathway:	Soil Ingestion			Dermal Contact				Inhalation of Soil Vapor and Particulates			Inhalation of Soil Vapor and Particulates			
					Intake:	8.9E-09		Intake:	5.6E-08			Intake:	3.7E-04		Intake:	2.6E-04		
					FC_i:	1.0		FCi :	1.0			FCi :	1.0		FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	6.69E-09	2.0E-02	3E-07	1E-01	4.18E-09	**2.0E-02**	2E-07	1.08E-06	4.01E-10	2.0E-02	2E-08	1.34E-07	3.51E-11	2.0E-02	2E-09
SVOC	Fluoranthene	206-44-0	D	1.80E+03	1.61E-05	4.0E-02	4E-04	1E-01	1.31E-05	**4.0E-02**	3E-04	1.70E-02	6.35E-06	4.0E-02	2E-04	2.13E-03	5.56E-07	4.0E-02	1E-05
SVOC	Fluorene	86-73-7	D	5.00E+02	4.47E-06	4.0E-02	1E-04	1E-01	3.63E-06	**4.0E-02**	9E-05	2.62E-02	9.77E-06	4.0E-02	2E-04	3.28E-03	8.55E-07	4.0E-02	2E-05
SVOC	Hexachlorobutadiene	87-68-3	C			2.0E-04		1E-01		**2.0E-04**				2.0E-04				2.0E-04	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	1.30E+02	1.16E-06			1E-01	9.45E-07			1.78E-04	6.65E-08			2.23E-05	5.82E-09		
SVOC	2-Methylnaphthalene	91-57-6	ID	8.30E+01	7.43E-07	4.0E-03	2E-04	1E-01	4.64E-07	**4.0E-03**	1E-04	2.99E-02	1.11E-05	8.6E-04	1E-02	3.74E-03	9.75E-07	8.6E-04	1E-03
SVOC	Methylphenol (total)	1319-77-3		2.69E+00	2.41E-08	5.0E-02	5E-07	1E-01	1.50E-08	**5.0E-02**	3E-07	2.94E-04	1.10E-07	5.0E-02	2E-06	3.67E-05	9.58E-09	5.0E-02	2E-07
SVOC	Naphthalene	91-20-3	C	1.00E+02	8.95E-07	2.0E-02	4E-05	1E-01	7.27E-07	**2.0E-02**	4E-05	4.75E-02	1.77E-05	8.6E-04	2E-02	5.94E-03	1.55E-06	8.6E-04	2E-03
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	3.18E-09	2.0E-02	2E-07	1E-01	1.98E-09	**2.0E-02**	1E-07	1.59E-05	5.91E-09	2.0E-02	3E-07	1.98E-06	5.17E-10	2.0E-02	3E-08
SVOC	Phenanthrene	85-01-8	D	3.00E+03	2.68E-05	3.0E-02	9E-04	1E-01	2.18E-05	**3.0E-02**	7E-04	3.00E-03	1.12E-06	3.0E-02	4E-05	3.75E-04	9.78E-08	3.0E-02	3E-06
SVOC	Pyrene	129-00-0	D	1.10E+03	9.84E-06	3.0E-02	3E-04	1E-01	8.00E-06	**3.0E-02**	3E-04	8.48E-03	3.16E-06	3.0E-02	1E-04	1.06E-03	2.76E-07	3.0E-02	9E-06
P/PCB	PCBs (total)	1336-36-3	B2	7.78E+01	6.96E-07	2.0E-05	3E-02	1E-01	6.09E-07	**2.0E-05**	3E-02	8.08E-03	3.01E-06	2.0E-05	2E-01	1.01E-03	2.64E-07	2.0E-05	1E-02
INORG	Aluminum	7429-90-5		2.56E+04	2.29E-04							2.56E-02	9.54E-06			3.20E-03	8.35E-07		
INORG	Antimony	7440-36-0		9.02E+03	8.07E-05	4.0E-04	2E-01			**4.0E-04**		9.02E-03	3.36E-06	4.0E-04	8E-03	1.13E-03	2.94E-07	4.0E-04	7E-04
INORG	Arsenic	7440-38-2	A	2.12E+02	1.89E-06	3.0E-04	6E-03	3E-02	3.55E-07	**3.0E-04**	1E-03	2.12E-04	7.89E-08	3.0E-04	3E-04	2.65E-05	6.90E-09	3.0E-04	2E-05
INORG	Barium	7440-39-3	D	2.52E+03	2.26E-05	7.0E-02	3E-04			**7.0E-02**		2.52E-03	9.40E-07	7.0E-02	1E-05	3.15E-04	8.22E-08	7.0E-02	1E-06
INORG	Beryllium	7440-41-7	B1	3.74E-01	3.35E-09	2.0E-03	2E-06			**2.0E-03**		3.74E-07	1.39E-10	5.7E-06	2E-05	4.68E-08	1.22E-11	5.7E-06	2E-06
INORG	Cadmium	7440-43-9	B1	2.07E+03	1.86E-05	1.0E-03	2E-02	1E-03	1.16E-07	**1.0E-03**	1E-04	2.07E-03	7.73E-07	5.7E-05	1E-02	2.59E-04	6.77E-08	5.7E-05	1E-03
INORG	Calcium	7440-70-2		6.64E+05	5.94E-03							6.64E-01	2.48E-04			8.30E-02	2.17E-05		
INORG	Chromium (total)	7440-47-3		4.87E+03	4.36E-05	3.0E-03	1E-02			**3.0E-03**		4.87E-03	1.82E-06	2.9E-05	6E-02	6.09E-04	1.59E-07	2.9E-05	6E-03
INORG	Cobalt	7440-48-4	B1	2.36E+02	2.11E-06	2.0E-02	1E-04			**2.0E-02**		2.36E-04	8.80E-08	5.7E-06	2E-02	2.95E-05	7.70E-09	5.7E-06	1E-03
INORG	Copper	7440-50-8	D	6.27E+04	5.61E-04	4.0E-02	1E-02			**4.0E-02**		6.27E-02	2.34E-05	4.0E-02	6E-04	7.84E-03	2.04E-06	4.0E-02	5E-05
INORG	Cyanide (total)	57-12-5	D			2.0E-02				**2.0E-02**				2.0E-02				2.0E-02	
INORG	Iron	7439-89-6		5.54E+05	4.96E-03							5.54E-01	2.07E-04			6.93E-02	1.81E-05		
INORG	Lead	7439-92-1	B2	3.79E+03	3.39E-05							3.79E-03	1.41E-06			4.74E-04	1.24E-07		
INORG	Magnesium	7439-95-4		7.13E+04	6.38E-04							7.13E-02	2.66E-05			8.91E-03	2.33E-06		
INORG	Manganese	7439-96-5	D	2.27E+03	2.03E-05	1.4E-01	1E-04			**1.4E-01**		2.27E-03	8.46E-07	1.4E-05	6E-02	2.84E-04	7.40E-08	1.4E-05	5E-03
INORG	Mercury	7439-97-6	D	7.79E+00	6.97E-08	3.0E-04	2E-04			**3.0E-04**		1.45E-03	5.41E-07	8.6E-05	6E-03	1.81E-04	4.73E-08	8.6E-05	6E-04
INORG	Nickel	7440-02-0	A	3.33E+03	2.98E-05	2.0E-02	1E-03			**2.0E-02**		3.33E-03	1.24E-06	2.0E-02	6E-05	4.16E-04	1.09E-07	2.0E-02	5E-06
INORG	Potassium	7440-09-7		1.92E+03	1.72E-05							1.92E-03	7.16E-07			2.40E-04	6.26E-08		
INORG	Selenium	7782-49-2	D			5.0E-03				**5.0E-03**				5.0E-03				5.0E-03	
INORG	Silver	7440-22-4	D	8.64E+01	7.73E-07	5.0E-03	2E-04			**5.0E-03**		8.64E-05	3.22E-08	2.9E-06	1E-02	1.08E-05	2.82E-09	2.9E-06	1E-03
INORG	Sodium	7440-23-5		1.59E+03	1.42E-05							1.59E-03	5.93E-07			1.99E-04	5.19E-08		
INORG	Thallium	7440-28-0		1.83E+00	1.63E-08	7.0E-05	2E-04			**7.0E-05**		1.83E-06	6.80E-10	7.0E-05	1E-05	2.28E-07	5.95E-11	7.0E-05	9E-07
INORG	Tin	7440-31-5				6.0E-01				**6.0E-01**				6.0E-01				6.0E-01	
INORG	Vanadium	7440-62-2		1.41E+02	1.26E-06	7.0E-03	2E-04			**7.0E-03**		1.41E-04	5.25E-08	7.0E-03	8E-06	1.76E-05	4.60E-09	7.0E-03	7E-07
INORG	Zinc	7440-66-6	D	2.05E+04	1.84E-04	3.0E-01	6E-04			**3.0E-01**		2.05E-02	7.65E-06	3.0E-01	3E-05	2.57E-03	6.70E-07	3.0E-01	2E-06
Note:							HI_{oral}				HI_{derm}				HI_{inh}				HI_{inh}
Toxicity values in bold are based on extrapolation from oral toxicity values.							3E-01				3E-02				4E-01				3E-02

Table E-5. 95% UCL on the Mean Calculation Details
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

			Analytical Samples		UCL Locations				
Chem Group	Chemical	CASRN	Analyzed	Detected	Analyzed	Detected	Max Detected (mg/kg)	Shallow 95% UCL (0-2 ft bgs) (mg/kg)	Depth Avg 95% UCL (0-10 ft bgs) (mg/kg)
SVOC	Benzo(a)anthracene	56-55-3	91	12	29	10	5.20E+02	6.34E+00	3.92E+01
SVOC	Benzo(a)pyrene	50-32-8	91	16	29	13	3.80E+02	3.51E+00	3.10E+01
SVOC	Benzo(b)fluoranthene	205-99-2	91	16	29	13	5.80E+02	7.09E+00	4.61E+01
SVOC	Benzo(k)fluoranthene	207-08-9	91	11	29	9	2.60E+02	6.53E+00	2.17E+01
SVOC	Carbazole	86-74-8	91	6	29	5	2.70E+02	6.08E+00	2.17E+01
SVOC	Chrysene	218-01-9	91	16	29	11	6.50E+02	6.46E+00	4.87E+01
SVOC	Dibenz(a,h)anthracene	53-70-3	91	7	29	5	5.60E+01	3.32E+00	5.45E+00
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	91	11	29	9	1.30E+02	6.42E+00	1.17E+01
SVOC	2-Methylnaphthalene	91-57-6	91	12	29	9	8.30E+01	6.25E+00	7.63E+00
SVOC	Naphthalene	91-20-3	91	8	29	7	1.00E+02	6.08E+00	8.97E+00
SVOC	Phenanthrene	85-01-8	91	26	29	15	3.00E+03	6.43E+00	2.62E+02
P/PCB	PCBs (total)	1336-36-3	81	7	27	6	7.78E+01	1.54E+01	6.31E+00
INORG	Antimony	7440-36-0	79	27	26	17	9.02E+03	1.36E+03	8.02E+02
INORG	Arsenic	7440-38-2	86	72	28	25	2.23E+02	4.37E+01	2.54E+01
INORG	Cadmium	7440-43-9	83	26	27	15	2.08E+03	3.43E+02	1.64E+02
INORG	Chromium (total)	7440-47-3	83	61	27	26	4.89E+03	9.13E+02	8.12E+02
INORG	Copper	7440-50-8	80	66	26	25	6.27E+04	7.21E+03	5.92E+03
INORG	Mercury	7439-97-6	77	48	25	20	8.48E+00	1.57E+00	8.42E-01
INORG	Nickel	7440-02-0	77	66	25	24	3.35E+03	2.67E+02	5.40E+02

Table E-6. Estimates of Cumulative Cancer Risks - Routine Industrial Activities
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)								Resident (Off-Site)					
				Pathway:	Soil Ingestion			Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	1.5E-07		Intake:	8.8E-06			Intake:	5.9E-02			Intake:	1.2E-01		
					FC_i:	1.0		FC_i:	1.0			FC_i:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
VOC	Acetone	67-64-1	ID	1.20E+01	1.76E-06							5.04E-03	2.96E-04			5.27E-04	6.19E-05		
VOC	Benzene	71-43-2	A	3.50E-01	5.14E-08	5.5E-02	3E-09			**5.5E-02**		1.47E-04	8.64E-06	2.7E-02	2E-07	1.54E-05	1.81E-06	2.7E-02	5E-08
VOC	2-Butanone	78-93-3	ID	2.95E+00	4.33E-07							6.86E-04	4.03E-05			7.17E-05	8.42E-06		
VOC	Carbon Disulfide	75-15-0		2.77E-02	4.07E-09							3.67E-05	2.16E-06			3.84E-06	4.51E-07		
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	1.84E-09	1.3E-01	2E-10			**1.3E-01**		6.85E-06	4.02E-07	5.3E-02	2E-08	7.17E-07	8.41E-08	5.3E-02	4E-09
VOC	Chloroethane	75-00-3		4.29E+00	6.30E-07							5.47E-03	3.21E-04			5.72E-04	6.71E-05		
VOC	Cumene	98-82-8	D	6.40E-01	9.39E-08							6.38E-10	3.75E-11			7.98E-11	9.37E-12		
VOC	Cyclohexane	110-82-7	ID	9.90E-01	1.45E-07							8.69E-04	5.10E-05			9.09E-05	1.07E-05		
VOC	1,2-Dichlorobenzene	95-50-1	D	1.36E+00	2.00E-07							9.00E-05	5.28E-06			9.41E-06	1.11E-06		
VOC	1,3-Dichlorobenzene	541-73-1	D																
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	2.08E-10	2.4E-02	5E-12			**2.4E-02**		1.06E-07	6.23E-09	2.2E-02	1E-10	1.11E-08	1.30E-09	2.2E-02	3E-11
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	6.90E-09							1.37E-04	8.03E-06			1.43E-05	1.68E-06		
VOC	1,1-Dichloroethane	75-34-3	C	1.07E+01	1.57E-06							5.75E-03	3.38E-04			6.01E-04	7.06E-05		
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	7.49E-09							4.98E-05	2.92E-06			5.21E-06	6.11E-07		
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	3.92E-07							1.41E-03	8.25E-05			1.47E-04	1.73E-05		
VOC	cis-1,2-Dichloroethene	156-59-2	D	2.97E+00	4.36E-07							1.26E-03	7.42E-05			1.32E-04	1.55E-05		
VOC	trans-1,2-Dichloroethene	156-60-5		2.02E-01	2.96E-08							1.06E-04	6.24E-06			1.11E-05	1.31E-06		
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	1.29E-06							1.62E-03	9.50E-05			1.69E-04	1.99E-05		
VOC	2-Hexanone	591-78-6		1.88E-03	2.75E-10							8.75E-07	5.14E-08			9.15E-08	1.07E-08		
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	3.82E-08							2.59E-10	1.52E-11			3.24E-11	3.80E-12		
VOC	4-Methyl-2-pentanone	108-10-1	ID	6.82E+00	1.00E-06							9.73E-04	5.71E-05			1.02E-04	1.19E-05		
VOC	Methylcyclohexane	108-87-2		2.70E+00	3.96E-07							2.69E-09	1.58E-10			3.36E-10	3.95E-11		
VOC	Methylene Chloride	75-09-2	B2	5.67E-01	8.32E-08	7.5E-03	6E-10			**7.5E-03**		3.66E-04	2.15E-05	1.6E-03	4E-08	3.82E-05	4.49E-06	1.6E-03	7E-09
VOC	Styrene	100-42-5		5.90E-02	8.66E-09							4.25E-06	2.50E-07			4.45E-07	5.22E-08		
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	2.54E-09	2.0E-01	5E-10			**2.0E-01**		1.27E-06	7.46E-08	2.0E-01	1E-08	1.33E-07	1.56E-08	2.0E-01	3E-09
VOC	Tetrachloroethene	127-18-4	C-B2	1.59E+00	2.34E-07	5.2E-02	1E-08			**5.2E-02**		6.82E-04	4.01E-05	2.0E-03	8E-08	7.14E-05	8.38E-06	2.0E-03	2E-08
VOC	Toluene	108-88-3	D	1.60E+01	2.35E-06							4.12E-03	2.42E-04			4.30E-04	5.05E-05		
VOC	1,2,4-Trichlorobenzene	120-82-1	D																
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	3.41E-06							1.20E-02	7.02E-04			1.25E-03	1.47E-04		
VOC	Trichloroethene	79-01-6	C-B2	2.24E+00	3.29E-07	1.1E-02	4E-09			**1.1E-02**		7.20E-04	4.23E-05	6.0E-03	3E-07	7.53E-05	8.84E-06	6.0E-03	5E-08
VOC	1,1,2-Trichloro-1,2,2-trifluoro	76-13-1		3.40E-03	4.99E-10							2.79E-06	1.64E-07			2.91E-07	3.42E-08		
VOC	Vinyl Chloride	75-01-4	A	2.12E-01	3.11E-08	1.4E+00	4E-08			**1.4E+00**		4.68E-04	2.75E-05	3.1E-02	8E-07	4.89E-05	5.74E-06	3.1E-02	2E-07
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	2.79E-06							3.19E-03	1.87E-04			3.33E-04	3.91E-05		
SVOC	Acenaphthene	83-32-9		3.00E+02	4.40E-05			1E-01	3.43E-04			1.31E-03	7.68E-05			1.37E-04	1.61E-05		
SVOC	Anthracene	120-12-7	D	6.00E+02	8.81E-05			1E-01	6.87E-04			7.29E-04	4.28E-05			7.62E-05	8.95E-06		
SVOC	Benzo(a)anthracene	56-55-3	B2	6.19E+00	9.09E-07	7.3E-01	7E-07	1E-01	7.09E-06	**7.3E-01**	5E-06	5.88E-07	3.45E-08	7.3E-01	3E-08	6.16E-08	7.23E-09	7.3E-01	5E-09
SVOC	Benzo(a)pyrene	50-32-8	B2	3.62E+00	5.31E-07	7.3E+00	4E-06	1E-01	4.14E-06	**7.3E+00**	3E-05	1.17E-07	6.87E-09	3.1E+00	2E-08	1.23E-08	1.45E-09	3.1E+00	4E-09
SVOC	Benzo(b)fluoranthene	205-99-2	B2	6.98E+00	1.02E-06	7.3E-01	7E-07	1E-01	7.99E-06	**7.3E-01**	6E-06	1.44E-06	8.43E-08	7.3E-01	6E-08	1.50E-07	1.77E-08	7.3E-01	1E-08
SVOC	Benzo(g,h,i)perylene	191-24-2	D	1.50E+02	2.20E-05			1E-01	1.72E-04			1.06E-06	6.21E-08			1.14E-07	1.34E-08		
SVOC	Benzo(k)fluoranthene	207-08-9	B2	6.34E+00	9.30E-07	7.3E-02	7E-08	1E-01	7.26E-06	**7.3E-02**	5E-07	1.19E-07	6.96E-09	7.3E-02	5E-10	1.25E-08	1.47E-09	7.3E-02	1E-10
SVOC	Biphenyl	92-52-4	D	2.60E+01	3.82E-06			1E-01	2.29E-05			1.27E-04	7.44E-06			1.32E-05	1.56E-06		
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	8.55E+00	1.25E-06	1.4E-02	2E-08	1E-01	7.53E-06	**1.4E-02**	1E-07	2.74E-08	1.61E-09	1.4E-02	2E-11	3.04E-09	3.57E-10	1.4E-02	5E-12
SVOC	Butylbenzylphthalate	85-68-7	C					1E-01											
SVOC	Carbazole	86-74-8	B2	6.06E+00	8.89E-07	2.0E-02	2E-08	1E-01	5.33E-06	**2.0E-02**	1E-07	3.70E-07	2.17E-08	2.0E-02	4E-10	3.89E-08	4.56E-09	2.0E-02	9E-11
SVOC	Chrysene	218-01-9	B2	6.25E+00	9.17E-07	7.3E-03	7E-09	1E-01	7.15E-06	**7.3E-03**	5E-08	2.18E-06	1.28E-07	7.3E-03	9E-10	2.28E-07	2.68E-08	7.3E-03	2E-10
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	3.28E+00	4.82E-07	7.3E+00	4E-06	1E-01	3.76E-06	**7.3E+00**	3E-05	7.44E-09	4.37E-10	7.3E+00	3E-09	8.45E-10	9.92E-11	7.3E+00	7E-10
SVOC	Dibenzofuran	132-64-9	D	2.70E+02	3.96E-05			1E-01	2.38E-04			2.13E-04	1.25E-05			2.23E-05	2.62E-06		
SVOC	Di-n-butylphthalate	84-74-2	D	9.80E-02	1.44E-08			1E-01	8.63E-08			5.88E-10	3.45E-11			6.34E-11	7.45E-12		

Table E-6. Estimates of Cumulative Cancer Risks - Routine Industrial Activities
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)								Resident (Off-Site)							
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	1.5E-07			Intake:	8.8E-06			Intake:	5.9E-02			Intake:	1.2E-01		
					FC$_i$:	1.0			FC$_i$:	1.0			FC$_i$:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	1.10E-07			1E-01	6.59E-07			1.26E-08	7.38E-10			1.33E-09	1.56E-10		
SVOC	Fluoranthene	206-44-0	D	1.80E+03	2.64E-04			1E-01	2.06E-03			5.52E-04	3.24E-05			5.78E-05	6.79E-06		
SVOC	Fluorene	86-73-7	D	5.00E+02	7.34E-05			1E-01	5.72E-04			9.29E-04	5.45E-05			9.72E-05	1.14E-05		
SVOC	Hexachlorobutadiene	87-68-3	C			7.8E-02		1E-01		**7.8E-02**				7.8E-02				7.8E-02	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	6.24E+00	9.16E-07	7.3E-01	7E-07	1E-01	7.15E-06	**7.3E-01**	5E-06	9.01E-08	5.29E-09	7.3E-01	4E-09	9.54E-09	1.12E-09	7.3E-01	8E-10
SVOC	2-Methylnaphthalene	91-57-6	ID	6.58E+00	9.66E-07			1E-01	5.79E-06			8.53E-05	5.01E-06			8.92E-06	1.05E-06		
SVOC	Methylphenol (total)	1319-77-3		2.69E+00	3.95E-07			1E-01	2.37E-06			1.05E-05	6.17E-07			1.10E-06	1.29E-07		
SVOC	Naphthalene	91-20-3	C	6.23E+00	9.15E-07			1E-01	7.14E-06			1.07E-04	6.27E-06			1.12E-05	1.31E-06		
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	5.21E-08	4.9E-03	3E-10	1E-01	3.13E-07	**4.9E-03**	2E-09	5.61E-07	3.29E-08	4.9E-03	2E-10	5.86E-08	6.88E-09	4.9E-03	3E-11
SVOC	Phenanthrene	85-01-8	D	6.51E+00	9.56E-07			1E-01	7.45E-06			6.49E-09	3.81E-10			8.12E-10	9.53E-11		
SVOC	Pyrene	129-00-0	D	1.10E+03	1.61E-04			1E-01	1.26E-03			2.68E-04	1.57E-05			2.80E-05	3.29E-06		
P/PCB	PCBs (total)	1336-36-3	B2	1.30E+01	1.90E-06	2.0E+00	4E-06	1E-01	1.60E-05	**2.0E+00**	3E-05	4.82E-05	2.83E-06	2.0E+00	6E-06	5.04E-06	5.92E-07	2.0E+00	1E-06
INORG	Aluminum	7429-90-5		2.56E+04	3.76E-03							2.55E-05	1.50E-06			3.19E-06	3.75E-07		
INORG	Antimony	7440-36-0		1.36E+03	2.00E-04							1.36E-06	7.96E-08			1.70E-07	1.99E-08		
INORG	Arsenic	7440-38-2	A	2.11E+01	3.09E-06	1.5E+00	5E-06	3E-02	5.57E-06	**1.5E+00**	8E-06	2.10E-08	1.23E-09	1.5E+00	2E-09	2.63E-09	3.08E-10	1.5E+00	5E-10
INORG	Barium	7440-39-3	D	2.52E+03	3.70E-04							2.51E-06	1.48E-07			3.14E-07	3.69E-08		
INORG	Beryllium	7440-41-7	B1	3.74E-01	5.49E-08							3.73E-10	2.19E-11	8.4E+00	2E-10	4.66E-11	5.47E-12	8.4E+00	5E-11
INORG	Cadmium	7440-43-9	B1	3.36E+02	4.93E-05			1E-03	2.96E-06			3.35E-07	1.97E-08	6.3E+00	1E-07	4.18E-08	4.91E-09	6.3E+00	3E-08
INORG	Calcium	7440-70-2		6.64E+05	9.75E-02							6.62E-04	3.89E-05			8.28E-05	9.72E-06		
INORG	Chromium (total)	7440-47-3		8.54E+02	1.25E-04							8.52E-07	5.00E-08	4.1E+01	2E-06	1.06E-07	1.25E-08	4.1E+01	5E-07
INORG	Cobalt	7440-48-4	B1	2.36E+02	3.47E-05							2.35E-07	1.38E-08	9.8E+00	1E-07	2.94E-08	3.45E-09	9.8E+00	3E-08
INORG	Copper	7440-50-8	D	6.31E+03	9.26E-04							6.29E-06	3.69E-07			7.86E-07	9.23E-08		
INORG	Cyanide (total)	57-12-5	D																
INORG	Iron	7439-89-6		5.54E+05	8.14E-02							5.53E-04	3.24E-05			6.91E-05	8.11E-06		
INORG	Lead	7439-92-1	B2	3.79E+03	5.56E-04							3.78E-06	2.22E-07			4.72E-07	5.54E-08		
INORG	Magnesium	7439-95-4		7.13E+04	1.05E-02							7.11E-05	4.17E-06			8.89E-06	1.04E-06		
INORG	Manganese	7439-96-5	D	2.27E+03	3.33E-04							2.26E-06	1.33E-07			2.83E-07	3.32E-08		
INORG	Mercury	7439-97-6	D	8.90E-01	1.31E-07							5.95E-06	3.49E-07			6.23E-07	7.31E-08		
INORG	Nickel	7440-02-0	A	2.40E+02	3.52E-05							2.39E-07	1.40E-08	8.4E-01	1E-08	2.99E-08	3.51E-09	8.4E-01	3E-09
INORG	Potassium	7440-09-7		1.92E+03	2.82E-04							1.91E-06	1.12E-07			2.39E-07	2.81E-08		
INORG	Selenium	7782-49-2	D																
INORG	Silver	7440-22-4	D	8.64E+01	1.27E-05							8.62E-08	5.06E-09			1.08E-08	1.26E-09		
INORG	Sodium	7440-23-5		1.59E+03	2.33E-04							1.59E-06	9.31E-08			1.98E-07	2.33E-08		
INORG	Thallium	7440-28-0		1.83E+00	2.68E-07							1.82E-09	1.07E-10			2.27E-10	2.67E-11		
INORG	Tin	7440-31-5																	
INORG	Vanadium	7440-62-2		1.41E+02	2.07E-05							1.40E-07	8.25E-09			1.76E-08	2.06E-09		
INORG	Zinc	7440-66-6	D	2.05E+04	3.01E-03							2.05E-05	1.20E-06			2.56E-06	3.00E-07		
						Cum. $Risk_{oral}$				Cum. $Risk_{derm}$					Cum. $Risk_{inh}$				Cum. $Risk_{inh}$
						2E-05				1E-04					1E-05				2E-06

Note:
Toxicity values in bold are based on extrapolation from oral toxicity values.

Table E-7. Estimates of Cumulative Non-Cancer Risks - Routine Industrial Activities
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)											Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	4.9E-07			Intake:	2.9E-05			Intake:	2.0E-01			Intake:	2.7E-01		
					FC_i:	1.0			FCi :	1.0			FCi :	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
VOC	Acetone	67-64-1	ID	1.20E+01	5.87E-06	9.0E-01	7E-06			**9.0E-01**		5.04E-03	9.86E-04	9.0E-01	1E-03	5.27E-04	1.44E-04	9.0E-01	2E-04
VOC	Benzene	71-43-2	A	3.50E-01	1.71E-07	4.0E-03	4E-05			**4.0E-03**		1.47E-04	2.88E-05	1.7E-03	2E-02	1.54E-05	4.22E-06	1.7E-03	2E-03
VOC	2-Butanone	78-93-3	ID	2.95E+00	1.44E-06	6.0E-01	2E-06			**6.0E-01**		6.86E-04	1.34E-04	1.4E+00	9E-05	7.17E-05	1.97E-05	1.4E+00	1E-05
VOC	Carbon Disulfide	75-15-0		2.77E-02	1.36E-08	1.0E-01	1E-07			**1.0E-01**		3.67E-05	7.19E-06	2.0E-01	4E-05	3.84E-06	1.05E-06	2.0E-01	5E-06
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	6.13E-09	7.0E-04	9E-06			**7.0E-04**		6.85E-06	1.34E-06	7.0E-04	2E-03	7.17E-07	1.96E-07	7.0E-04	3E-04
VOC	Chloroethane	75-00-3		4.29E+00	2.10E-06	4.0E-01	5E-06			**4.0E-01**		5.47E-03	1.07E-03	2.9E+00	4E-04	5.72E-04	1.57E-04	2.9E+00	5E-05
VOC	Cumene	98-82-8	D	6.40E-01	3.13E-07	1.0E-01	3E-06			**1.0E-01**		6.38E-10	1.25E-10	1.1E-01	1E-09	7.98E-11	2.19E-11	1.1E-01	2E-10
VOC	Cyclohexane	110-82-7	ID	9.90E-01	4.84E-07							8.69E-04	1.70E-04	1.7E+00	1E-04	9.09E-05	2.49E-05	1.7E+00	1E-05
VOC	1,2-Dichlorobenzene	95-50-1	D	1.36E+00	6.65E-07	9.0E-02	7E-06			**9.0E-02**		9.00E-05	1.76E-05	4.0E-02	4E-04	9.41E-06	2.58E-06	4.0E-02	6E-05
VOC	1,3-Dichlorobenzene	541-73-1	D			9.0E-02				**9.0E-02**				4.0E-02				4.0E-02	
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	6.93E-10	3.0E-02	2E-08			**3.0E-02**		1.06E-07	2.08E-08	2.3E-01	9E-08	1.11E-08	3.04E-09	2.3E-01	1E-08
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	2.30E-08	2.0E-01	1E-07			**2.0E-01**		1.37E-04	2.68E-05	5.7E-02	5E-04	1.43E-05	3.92E-06	5.7E-02	7E-05
VOC	1,1-Dichloroethane	75-34-3	C	1.07E+01	5.23E-06	1.0E-01	5E-05			**1.0E-01**		5.75E-03	1.13E-03	1.0E-01	1E-02	6.01E-04	1.65E-04	1.0E-01	2E-03
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	2.50E-08	5.0E-02	5E-07			**5.0E-02**		4.98E-05	9.74E-06	5.7E-02	2E-04	5.21E-06	1.43E-06	5.7E-02	2E-05
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	1.31E-06	9.0E-03	1E-04			**9.0E-03**		1.41E-03	2.75E-04	9.0E-03	3E-02	1.47E-04	4.03E-05	9.0E-03	4E-03
VOC	cis-1,2-Dichloroethene	156-59-2	D	2.97E+00	1.45E-06	1.0E-02	1E-04			**1.0E-02**		1.26E-03	2.47E-04	1.0E-02	2E-02	1.32E-04	3.62E-05	1.0E-02	4E-03
VOC	trans-1,2-Dichloroethene	156-60-5		2.02E-01	9.88E-08	2.0E-02	5E-06			**2.0E-02**		1.06E-04	2.08E-05	2.0E-02	1E-03	1.11E-05	3.05E-06	2.0E-02	2E-04
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	4.31E-06	1.0E-01	4E-05			**1.0E-01**		1.62E-03	3.17E-04	2.9E-01	1E-03	1.69E-04	4.63E-05	2.9E-01	2E-04
VOC	2-Hexanone	591-78-6		1.88E-03	9.17E-10	4.0E-02	2E-08			**4.0E-02**		8.75E-07	1.71E-07	1.4E-03	1E-04	9.15E-08	2.51E-08	1.4E-03	2E-05
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	1.27E-07	1.0E+00	1E-07			**1.0E+00**		2.59E-10	5.07E-11	1.0E+00	5E-11	3.24E-11	8.88E-12	1.0E+00	9E-12
VOC	4-Methyl-2-pentanone	108-10-1	ID	6.82E+00	3.34E-06							9.73E-04	1.90E-04	8.6E-01	2E-04	1.02E-04	2.79E-05	8.6E-01	3E-05
VOC	Methylcyclohexane	108-87-2		2.70E+00	1.32E-06							2.69E-09	5.27E-10	8.6E-01	6E-10	3.36E-10	9.22E-11	8.6E-01	1E-10
VOC	Methylene Chloride	75-09-2	B2	5.67E-01	2.77E-07	6.0E-02	5E-06			**6.0E-02**		3.66E-04	7.15E-05	8.6E-01	8E-05	3.82E-05	1.05E-05	8.6E-01	1E-05
VOC	Styrene	100-42-5		5.90E-02	2.89E-08	2.0E-01	1E-07			**2.0E-01**		4.25E-06	8.33E-07	2.9E-01	3E-06	4.45E-07	1.22E-07	2.9E-01	4E-07
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	8.46E-09	6.0E-02	1E-07			**6.0E-02**		1.27E-06	2.49E-07	6.0E-02	4E-06	1.33E-07	3.64E-08	6.0E-02	6E-07
VOC	Tetrachloroethene	127-18-4	C-B2	1.59E+00	7.79E-07	1.0E-02	8E-05			**1.0E-02**		6.82E-04	1.34E-04	1.4E-01	1E-03	7.14E-05	1.96E-05	1.4E-01	1E-04
VOC	Toluene	108-88-3	D	1.60E+01	7.83E-06	2.0E-01	4E-05			**2.0E-01**		4.12E-03	8.05E-04	1.1E-01	7E-03	4.30E-04	1.18E-04	1.1E-01	1E-03
VOC	1,2,4-Trichlorobenzene	120-82-1	D			1.0E-02				**1.0E-02**				1.0E-03				1.0E-03	
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	1.14E-05	2.8E-01	4E-05			**2.8E-01**		1.20E-02	2.34E-03	6.3E-01	4E-03	1.25E-03	3.42E-04	6.3E-01	5E-04
VOC	Trichloroethene	79-01-6	C-B2	2.24E+00	1.10E-06	6.0E-03	2E-04			**6.0E-03**		7.20E-04	1.41E-04	6.0E-03	2E-02	7.53E-05	2.06E-05	6.0E-03	3E-03
VOC	1,1,2-Trichloro-1,2,2-trifluoro	76-13-1		3.40E-03	1.66E-09	3.0E+01	6E-11			**3.0E+01**		2.79E-06	5.45E-07	8.6E+00	6E-08	2.91E-07	7.98E-08	8.6E+00	9E-09
VOC	Vinyl Chloride	75-01-4	A	2.12E-01	1.04E-07	3.0E-03	3E-05			**3.0E-03**		4.68E-04	9.15E-05	2.9E-02	3E-03	4.89E-05	1.34E-05	2.9E-02	5E-04
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	9.30E-06	2.0E-01	5E-05			**2.0E-01**		3.19E-03	6.24E-04	2.9E-02	2E-02	3.33E-04	9.13E-05	2.9E-02	3E-03
SVOC	Acenaphthene	83-32-9		3.00E+02	1.47E-04	6.0E-02	2E-03	1E-01	1.14E-03	**6.0E-02**	2E-02	1.31E-03	2.56E-04	6.0E-02	4E-03	1.37E-04	3.75E-05	6.0E-02	6E-04
SVOC	Anthracene	120-12-7	D	6.00E+02	2.94E-04	3.0E-01	1E-03	1E-01	2.29E-03	**3.0E-01**	8E-03	7.29E-04	1.43E-04	3.0E-01	5E-04	7.62E-05	2.09E-05	3.0E-01	7E-05
SVOC	Benzo(a)anthracene	56-55-3	B2	6.19E+00	3.03E-06			1E-01	2.36E-05			5.88E-07	1.15E-07			6.16E-08	1.69E-08		
SVOC	Benzo(a)pyrene	50-32-8	B2	3.62E+00	1.77E-06			1E-01	1.38E-05			1.17E-07	2.29E-08			1.23E-08	3.37E-09		
SVOC	Benzo(b)fluoranthene	205-99-2	B2	6.98E+00	3.41E-06			1E-01	2.66E-05			1.44E-06	2.81E-07			1.50E-07	4.12E-08		
SVOC	Benzo(g,h,i)perylene	191-24-2	D	1.50E+02	7.34E-05	3.0E-02	2E-03	1E-01	5.72E-04	**3.0E-02**	2E-02	1.06E-06	2.07E-07	3.0E-02	7E-06	1.14E-07	3.12E-08	3.0E-02	1E-06
SVOC	Benzo(k)fluoranthene	207-08-9	B2	6.34E+00	3.10E-06			1E-01	2.42E-05			1.19E-07	2.32E-08			1.25E-08	3.43E-09		
SVOC	Biphenyl	92-52-4	D	2.60E+01	1.27E-05	5.0E-02	3E-04	1E-01	7.63E-05	**5.0E-02**	2E-03	1.27E-04	2.48E-05	5.0E-02	5E-04	1.32E-05	3.63E-06	5.0E-02	7E-05
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	8.55E+00	4.18E-06	2.0E-02	2E-04	1E-01	2.51E-05	**2.0E-02**	1E-03	2.74E-08	5.36E-09	2.0E-02	3E-07	3.04E-09	8.33E-10	2.0E-02	4E-08
SVOC	Butylbenzylphthalate	85-68-7	C			2.0E-01		1E-01		**2.0E-01**				2.0E-01				2.0E-01	
SVOC	Carbazole	86-74-8	B2	6.06E+00	2.96E-06			1E-01	1.78E-05			3.70E-07	7.25E-08			3.89E-08	1.06E-08		
SVOC	Chrysene	218-01-9	B2	6.25E+00	3.06E-06			1E-01	2.38E-05			2.18E-06	4.27E-07			2.28E-07	6.26E-08		
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	3.28E+00	1.61E-06			1E-01	1.25E-05			7.44E-09	1.46E-09			8.45E-10	2.31E-10		
SVOC	Dibenzofuran	132-64-9	D	2.70E+02	1.32E-04	2.0E-03	7E-02	1E-01	7.93E-04	**2.0E-03**	4E-01	2.13E-04	4.17E-05	2.0E-03	2E-02	2.23E-05	6.11E-06	2.0E-03	3E-03
SVOC	Di-n-butylphthalate	84-74-2	D	9.80E-02	4.79E-08	1.0E-01	5E-07	1E-01	2.88E-07	**1.0E-01**	3E-06	5.88E-10	1.15E-10	1.0E-01	1E-09	6.34E-11	1.74E-11	1.0E-01	2E-10

Table E-7. Estimates of Cumulative Non-Cancer Risks - Routine Industrial Activities
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
				Pathway:	Soil Ingestion			Dermal Contact				Inhalation of Soil Vapor and Particulates					Inhalation of Soil Vapor and Particulates			
					Intake:	4.9E-07		Intake:	2.9E-05			Intake:	2.0E-01				Intake:	2.7E-01		
					FC_i:	1.0		FCi :	1.0			FCi :	1.0				FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	3.66E-07	2.0E-02	2E-05	1E-01	2.20E-06	2.0E-02	1E-04	1.26E-08	2.46E-09	2.0E-02	1E-07	1.33E-09	3.64E-10	2.0E-02	2E-08
SVOC	Fluoranthene	206-44-0	D	1.80E+03	8.81E-04	4.0E-02	2E-02	1E-01	6.87E-03	4.0E-02	2E-01	5.52E-04	1.08E-04	4.0E-02	3E-03	5.78E-05	1.58E-05	4.0E-02	4E-04
SVOC	Fluorene	86-73-7	D	5.00E+02	2.45E-04	4.0E-02	6E-03	1E-01	1.91E-03	4.0E-02	5E-02	9.29E-04	1.82E-04	4.0E-02	5E-03	9.72E-05	2.66E-05	4.0E-02	7E-04
SVOC	Hexachlorobutadiene	87-68-3	C			2.0E-04		1E-01		2.0E-04				2.0E-04				2.0E-04	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	6.24E+00	3.05E-06			1E-01	2.38E-05			9.01E-08	1.76E-08			9.54E-09	2.62E-09		
SVOC	2-Methylnaphthalene	91-57-6	ID	6.58E+00	3.22E-06	4.0E-03	8E-04	1E-01	1.93E-05	4.0E-03	5E-03	8.53E-05	1.67E-05	8.6E-04	2E-02	8.92E-06	2.45E-06	8.6E-04	3E-03
SVOC	Methylphenol (total)	1319-77-3		2.69E+00	1.32E-06	5.0E-02	3E-05	1E-01	7.90E-06	5.0E-02	2E-04	1.05E-05	2.06E-06	5.0E-02	4E-05	1.10E-06	3.01E-07	5.0E-02	6E-06
SVOC	Naphthalene	91-20-3	C	6.23E+00	3.05E-06	2.0E-02	2E-04	1E-01	2.38E-05	2.0E-02	1E-03	1.07E-04	2.09E-05	8.6E-04	2E-02	1.12E-05	3.06E-06	8.6E-04	4E-03
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	1.74E-07	2.0E-02	9E-06	1E-01	1.04E-06	2.0E-02	5E-05	5.61E-07	1.10E-07	2.0E-02	5E-06	5.86E-08	1.61E-08	2.0E-02	8E-07
SVOC	Phenanthrene	85-01-8	D	6.51E+00	3.19E-06	3.0E-02	1E-04	1E-01	2.48E-05	3.0E-02	8E-04	6.49E-09	1.27E-09	3.0E-02	4E-08	8.12E-10	2.22E-10	3.0E-02	7E-09
SVOC	Pyrene	129-00-0	D	1.10E+03	5.38E-04	3.0E-02	2E-02	1E-01	4.20E-03	3.0E-02	1E-01	2.68E-04	5.24E-05	3.0E-02	2E-03	2.80E-05	7.67E-06	3.0E-02	3E-04
P/PCB	PCBs (total)	1336-36-3	B2	1.30E+01	6.34E-06	2.0E-05	3E-01	1E-01	5.33E-05	2.0E-05	3E+00	4.82E-05	9.43E-06	2.0E-05	5E-01	5.04E-06	1.38E-06	2.0E-05	7E-02
INORG	Aluminum	7429-90-5		2.56E+04	1.25E-02							2.55E-05	4.99E-06			3.19E-06	8.74E-07		
INORG	Antimony	7440-36-0		1.36E+03	6.65E-04	4.0E-04	2E+00			4.0E-04		1.36E-06	2.65E-07	4.0E-04	7E-04	1.70E-07	4.64E-08	4.0E-04	1E-04
INORG	Arsenic	7440-38-2	A	2.11E+01	1.03E-05	3.0E-04	3E-02	3E-02	1.86E-05	3.0E-04	6E-02	2.10E-08	4.11E-09	3.0E-04	1E-05	2.63E-09	7.20E-10	3.0E-04	2E-06
INORG	Barium	7440-39-3	D	2.52E+03	1.23E-03	7.0E-02	2E-02			7.0E-02		2.51E-06	4.92E-07	7.0E-02	7E-06	3.14E-07	8.61E-08	7.0E-02	1E-06
INORG	Beryllium	7440-41-7	B1	3.74E-01	1.83E-07	2.0E-03	9E-05			2.0E-03		3.73E-10	7.30E-11	5.7E-06	1E-05	4.66E-11	1.28E-11	5.7E-06	2E-06
INORG	Cadmium	7440-43-9	B1	3.36E+02	1.64E-04	1.0E-03	2E-01	1E-03	9.85E-06	1.0E-03	1E-02	3.35E-07	6.55E-08	5.7E-05	1E-03	4.18E-08	1.15E-08	5.7E-05	2E-04
INORG	Calcium	7440-70-2		6.64E+05	3.25E-01							6.62E-04	1.30E-04			8.28E-05	2.27E-05		
INORG	Chromium (total)	7440-47-3		8.54E+02	4.18E-04	3.0E-03	1E-01			3.0E-03		8.52E-07	1.67E-07	2.9E-05	6E-03	1.06E-07	2.92E-08	2.9E-05	1E-03
INORG	Cobalt	7440-48-4	B1	2.36E+02	1.16E-04	2.0E-02	6E-03			2.0E-02		2.35E-07	4.61E-08	5.7E-06	8E-03	2.94E-08	8.06E-09	5.7E-06	1E-03
INORG	Copper	7440-50-8	D	6.31E+03	3.09E-03	4.0E-02	8E-02			4.0E-02		6.29E-06	1.23E-06	4.0E-02	3E-05	7.86E-07	2.15E-07	4.0E-02	5E-06
INORG	Cyanide (total)	57-12-5	D			2.0E-02				2.0E-02				2.0E-02				2.0E-02	
INORG	Iron	7439-89-6		5.54E+05	2.71E-01							5.53E-04	1.08E-04			6.91E-05	1.89E-05		
INORG	Lead	7439-92-1	B2	3.79E+03	1.85E-03							3.78E-06	7.39E-07			4.72E-07	1.29E-07		
INORG	Magnesium	7439-95-4		7.13E+04	3.49E-02							7.11E-05	1.39E-05			8.89E-06	2.43E-06		
INORG	Manganese	7439-96-5	D	2.27E+03	1.11E-03	1.4E-01	8E-03			1.4E-01		2.26E-06	4.43E-07	1.4E-05	3E-02	2.83E-07	7.75E-08	1.4E-05	5E-03
INORG	Mercury	7439-97-6	D	8.90E-01	4.35E-07	3.0E-04	1E-03			3.0E-04		5.95E-06	1.16E-06	8.6E-05	1E-02	6.23E-07	1.71E-07	8.6E-05	2E-03
INORG	Nickel	7440-02-0	A	2.40E+02	1.17E-04	2.0E-02	6E-03			2.0E-02		2.39E-07	4.68E-08	2.0E-02	2E-06	2.99E-08	8.18E-09	2.0E-02	4E-07
INORG	Potassium	7440-09-7		1.92E+03	9.39E-04							1.91E-06	3.75E-07			2.39E-07	6.56E-08		
INORG	Selenium	7782-49-2	D			5.0E-03				5.0E-03				5.0E-03				5.0E-03	
INORG	Silver	7440-22-4	D	8.64E+01	4.23E-05	5.0E-03	8E-03			5.0E-03		8.62E-08	1.69E-08	2.9E-06	6E-03	1.08E-08	2.95E-09	2.9E-06	1E-03
INORG	Sodium	7440-23-5		1.59E+03	7.78E-04							1.59E-06	3.10E-07			1.98E-07	5.43E-08		
INORG	Thallium	7440-28-0		1.83E+00	8.93E-07	7.0E-05	1E-02			7.0E-05		1.82E-09	3.56E-10	7.0E-05	5E-06	2.27E-10	6.23E-11	7.0E-05	9E-07
INORG	Tin	7440-31-5				6.0E-01				6.0E-01				6.0E-01				6.0E-01	
INORG	Vanadium	7440-62-2		1.41E+02	6.89E-05	7.0E-03	1E-02			7.0E-03		1.40E-07	2.75E-08	7.0E-03	4E-06	1.76E-08	4.81E-09	7.0E-03	7E-07
INORG	Zinc	7440-66-6	D	2.05E+04	1.00E-02	3.0E-01	3E-02			3.0E-01		2.05E-05	4.01E-06	3.0E-01	1E-05	2.56E-06	7.01E-07	3.0E-01	2E-06
							HI_{oral}				HI_{derm}				HI_{inh}				HI_{Inh}
Note:																			
Toxicity values in bold are based on extrapolation from oral toxicity values.							3E+00				4E+00				8E-01				1E-01

Table E-8. Estimates of Cumulative Cancer Risks - Excavation Scenario
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	2.7E-09			Intake:	1.7E-08			Intake:	1.1E-04			Intake:	1.1E-04		
					FC_i:	1.0			FC_i:	1.0			FC_i:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
VOC	Acetone	67-64-1	ID	1.20E+01	3.22E-08							1.40E-01	1.56E-05			1.74E-02	1.95E-06		
VOC	Benzene	71-43-2	A	3.50E-01	9.39E-10	5.5E-02	5E-11			5.5E-02		4.08E-03	4.56E-07	2.7E-02	1E-08	5.10E-04	5.70E-08	2.7E-02	2E-09
VOC	2-Butanone	78-93-3	ID	2.95E+00	7.92E-09							1.90E-02	2.12E-06			2.37E-03	2.66E-07		
VOC	Carbon Disulfide	75-15-0		2.77E-02	7.43E-11							1.02E-03	1.14E-07			1.27E-04	1.42E-08		
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	3.36E-11	1.3E-01	4E-12			1.3E-01		1.90E-04	2.12E-08	5.3E-02	1E-09	2.37E-05	2.65E-09	5.3E-02	1E-10
VOC	Chloroethane	75-00-3		4.29E+00	1.15E-08							1.51E-01	1.69E-05			1.89E-02	2.11E-06		
VOC	Cumene	98-82-8	D	6.40E-01	1.72E-09							6.40E-07	7.16E-11			8.00E-08	8.95E-12		
VOC	Cyclohexane	110-82-7	ID	9.90E-01	2.66E-09							2.41E-02	2.69E-06			3.01E-03	3.36E-07		
VOC	1,2-Dichlorobenzene	95-50-1	D	1.36E+00	3.65E-09							2.49E-03	2.79E-07			3.12E-04	3.49E-08		
VOC	1,3-Dichlorobenzene	541-73-1	D																
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	3.80E-12	2.4E-02	9E-14			2.4E-02		2.94E-06	3.29E-10	2.2E-02	7E-12	3.67E-07	4.11E-11	2.2E-02	9E-13
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	1.26E-10							3.79E-03	4.23E-07			4.73E-04	5.29E-08		
VOC	1,1-Dichloroethane	75-34-3	C	1.07E+01	2.87E-08							1.59E-01	1.78E-05			1.99E-02	2.23E-06		
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	1.37E-10							1.38E-03	1.54E-07			1.72E-04	1.93E-08		
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	7.17E-09							3.89E-02	4.35E-06			4.87E-03	5.44E-07		
VOC	cis-1,2-Dichloroethene	156-59-2	D	1.79E+00	4.80E-09							2.11E-02	2.35E-06			2.63E-03	2.94E-07		
VOC	trans-1,2-Dichloroethene	156-60-5		2.02E-01	5.42E-10							2.95E-03	3.29E-07			3.68E-04	4.12E-08		
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	2.36E-08							4.48E-02	5.01E-06			5.60E-03	6.26E-07		
VOC	2-Hexanone	591-78-6		1.88E-03	5.03E-12							2.42E-05	2.71E-09			3.03E-06	3.39E-10		
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	6.98E-10							2.60E-07	2.91E-11			3.25E-08	3.63E-12		
VOC	4-Methyl-2-pentanone	108-10-1	ID	6.82E+00	1.83E-08							2.69E-02	3.01E-06			3.37E-03	3.77E-07		
VOC	Methylcyclohexane	108-87-2		2.70E+00	7.25E-09							2.70E-06	3.02E-10			3.38E-07	3.77E-11		
VOC	Methylene Chloride	75-09-2	B2	5.67E-01	1.52E-09	7.5E-03	1E-11			7.5E-03		1.01E-02	1.13E-06	1.6E-03	2E-09	1.27E-03	1.41E-07	1.6E-03	2E-10
VOC	Styrene	100-42-5		5.90E-02	1.58E-10							1.18E-04	1.32E-08			1.47E-05	1.65E-09		
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	4.64E-11	2.0E-01	9E-12			2.0E-01		3.52E-05	3.94E-09	2.0E-01	8E-10	4.40E-06	4.92E-10	2.0E-01	1E-10
VOC	Tetrachloroethene	127-18-4	C-B2	8.16E-01	2.19E-09	5.2E-02	1E-10			5.2E-02		9.68E-03	1.08E-06	2.0E-03	2E-09	1.21E-03	1.35E-07	2.0E-03	3E-10
VOC	Toluene	108-88-3	D	1.60E+01	4.29E-08							1.14E-01	1.27E-05			1.42E-02	1.59E-06		
VOC	1,2,4-Trichlorobenzene	120-82-1	D																
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	6.23E-08							3.31E-01	3.70E-05			4.14E-02	4.62E-06		
VOC	Trichloroethene	79-01-6	C-B2	1.17E+00	3.13E-09	1.1E-02	3E-11			1.1E-02		1.04E-02	1.16E-06	6.0E-03	7E-09	1.30E-03	1.45E-07	6.0E-03	9E-10
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		3.40E-03	9.12E-12							7.71E-05	8.63E-09			9.64E-06	1.08E-09		
VOC	Vinyl Chloride	75-01-4	A	1.95E-01	5.24E-10	1.4E+00	7E-10			1.4E+00		1.19E-02	1.33E-06	3.1E-02	4E-08	1.49E-03	1.66E-07	3.1E-02	5E-09
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	5.10E-08							8.83E-02	9.87E-06			1.10E-02	1.23E-06		
SVOC	Acenaphthene	83-32-9		3.00E+02	8.05E-07			1E-01	6.54E-07			3.65E-02	4.08E-06			4.56E-03	5.10E-07		
SVOC	Anthracene	120-12-7	D	6.00E+02	1.61E-06			1E-01	1.31E-06			2.08E-02	2.32E-06			2.59E-03	2.90E-07		
SVOC	Benzo(a)anthracene	56-55-3	B2	4.02E+01	1.08E-07	7.3E-01	8E-08	1E-01	8.77E-08	7.3E-01	6E-08	1.45E-04	1.62E-08	7.3E-01	1E-08	1.81E-05	2.02E-09	7.3E-01	1E-09
SVOC	Benzo(a)pyrene	50-32-8	B2	3.20E+01	8.58E-08	7.3E+00	6E-07	1E-01	6.97E-08	7.3E+00	5E-07	5.97E-05	6.67E-09	3.1E+00	2E-08	7.46E-06	8.34E-10	3.1E+00	3E-09
SVOC	Benzo(b)fluoranthene	205-99-2	B2	4.79E+01	1.29E-07	7.3E-01	9E-08	1E-01	1.04E-07	7.3E-01	8E-08	3.20E-04	3.58E-08	7.3E-01	3E-08	4.00E-05	4.47E-09	7.3E-01	3E-09
SVOC	Benzo(g,h,i)perylene	191-24-2	D	1.50E+02	4.03E-07			1E-01	3.27E-07			1.75E-04	1.96E-08			2.19E-05	2.45E-09		
SVOC	Benzo(k)fluoranthene	207-08-9	B2	2.18E+01	5.84E-08	7.3E-02	4E-09	1E-01	4.74E-08	7.3E-02	3E-09	3.24E-05	3.63E-09	7.3E-02	3E-10	4.05E-06	4.53E-10	7.3E-02	3E-11
SVOC	Biphenyl	92-52-4	D	2.60E+01	6.98E-08			1E-01	4.36E-08			3.53E-03	3.95E-07			4.41E-04	4.94E-08		
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	8.55E+00	2.29E-08	1.4E-02	3E-10	1E-01	1.43E-08	1.4E-02	2E-10	9.07E-06	1.01E-09	1.4E-02	1E-11	1.13E-06	1.27E-10	1.4E-02	2E-12
SVOC	Butylbenzylphthalate	85-68-7	C					1E-01											
SVOC	Carbazole	86-74-8	B2	2.21E+01	5.94E-08	2.0E-02	1E-09	1E-01	3.71E-08	2.0E-02	7E-10	5.89E-05	6.59E-09	2.0E-02	1E-10	7.37E-06	8.24E-10	2.0E-02	2E-11
SVOC	Chrysene	218-01-9	B2	5.02E+01	1.35E-07	7.3E-03	1E-09	1E-01	1.09E-07	7.3E-03	8E-10	5.34E-04	5.97E-08	7.3E-03	4E-10	6.68E-05	7.47E-09	7.3E-03	5E-11
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	5.70E+00	1.53E-08	7.3E+00	1E-07	1E-01	1.24E-08	7.3E+00	9E-08	5.90E-06	6.60E-10	7.3E+00	5E-09	7.38E-07	8.25E-11	7.3E+00	6E-10
SVOC	Dibenzofuran	132-64-9	D	2.70E+02	7.25E-07			1E-01	4.53E-07			6.16E-03	6.89E-07			7.71E-04	8.62E-08		
SVOC	Di-n-butylphthalate	84-74-2	D	9.80E-02	2.63E-10			1E-01	1.64E-10			1.12E-07	1.25E-11			1.39E-08	1.56E-12		

Table E-8. Estimates of Cumulative Cancer Risks - Excavation Scenario
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	2.7E-09			Intake:	1.7E-08			Intake:	1.1E-04			Intake:	1.1E-04		
					FC_i:	1.0			FC_i:	1.0			FC_i:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	2.01E-09			1E-01	1.25E-09			1.08E-06	1.20E-10			1.34E-07	1.50E-11		
SVOC	Fluoranthene	206-44-0	D	1.80E+03	4.83E-06			1E-01	3.93E-06			1.70E-02	1.91E-06			2.13E-03	2.38E-07		
SVOC	Fluorene	86-73-7	D	5.00E+02	1.34E-06			1E-01	1.09E-06			2.62E-02	2.93E-06			3.28E-03	3.66E-07		
SVOC	Hexachlorobutadiene	87-68-3	C			7.8E-02		1E-01		**7.8E-02**				7.8E-02				7.8E-02	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	1.20E+01	3.22E-08	7.3E-01	2E-08	1E-01	2.62E-08	**7.3E-01**	2E-08	1.65E-05	1.84E-09	7.3E-01	1E-09	2.06E-06	2.30E-10	7.3E-01	2E-10
SVOC	2-Methylnaphthalene	91-57-6	ID	7.66E+00	2.06E-08			1E-01	1.29E-08			2.76E-03	3.09E-07			3.45E-04	3.86E-08		
SVOC	Methylphenol (total)	1319-77-3		2.69E+00	7.22E-09			1E-01	4.51E-09			2.94E-04	3.29E-08			3.67E-05	4.11E-09		
SVOC	Naphthalene	91-20-3	C	9.11E+00	2.45E-08			1E-01	1.99E-08			4.33E-03	4.84E-07			5.41E-04	6.05E-08		
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	9.53E-10	4.9E-03	5E-12	1E-01	5.95E-10	**4.9E-03**	3E-12	1.59E-05	1.77E-09	4.9E-03	9E-12	1.98E-06	2.22E-10	4.9E-03	1E-12
SVOC	Phenanthrene	85-01-8	D	2.22E+02	5.95E-07			1E-01	4.83E-07			2.22E-04	2.48E-08			2.77E-05	3.10E-09		
SVOC	Pyrene	129-00-0	D	1.10E+03	2.95E-06			1E-01	2.40E-06			8.48E-03	9.48E-07			1.06E-03	1.18E-07		
P/PCB	PCBs (total)	1336-36-3	B2	7.86E+00	2.11E-08	2.0E+00	4E-08	1E-01	1.85E-08	**2.0E+00**	4E-08	8.17E-04	9.13E-08	2.0E+00	2E-07	1.02E-04	1.14E-08	2.0E+00	2E-08
INORG	Aluminum	7429-90-5		2.56E+04	6.87E-05							2.56E-02	2.86E-06			3.20E-03	3.58E-07		
INORG	Antimony	7440-36-0		7.72E+02	2.07E-06							7.72E-04	8.63E-08			9.65E-05	1.08E-08		
INORG	Arsenic	7440-38-2	A	1.47E+01	3.94E-08	1.5E+00	6E-08	3E-02	7.39E-09	**1.5E+00**	1E-08	1.47E-05	1.64E-09	1.5E+00	2E-09	1.84E-06	2.05E-10	1.5E+00	3E-10
INORG	Barium	7440-39-3	D	2.52E+03	6.77E-06							2.52E-03	2.82E-07			3.15E-04	3.52E-08		
INORG	Beryllium	7440-41-7	B1	3.74E-01	1.00E-09							3.74E-07	4.18E-11	8.4E+00	4E-10	4.68E-08	5.23E-12	8.4E+00	4E-11
INORG	Cadmium	7440-43-9	B1	1.64E+02	4.39E-07			1E-03	2.74E-09			1.64E-04	1.83E-08	6.3E+00	1E-07	2.05E-05	2.29E-09	6.3E+00	1E-08
INORG	Calcium	7440-70-2		6.64E+05	1.78E-03							6.64E-01	7.43E-05			8.30E-02	9.28E-06		
INORG	Chromium (total)	7440-47-3		8.31E+02	2.23E-06							8.31E-04	9.29E-08	4.1E+01	4E-06	1.04E-04	1.16E-08	4.1E+01	5E-07
INORG	Cobalt	7440-48-4	B1	2.36E+02	6.34E-07							2.36E-04	2.64E-08	9.8E+00	3E-07	2.95E-05	3.30E-09	9.8E+00	3E-08
INORG	Copper	7440-50-8	D	6.37E+03	1.71E-05							6.37E-03	7.12E-07			7.96E-04	8.90E-08		
INORG	Cyanide (total)	57-12-5	D																
INORG	Iron	7439-89-6		1.40E+05	3.74E-04							1.40E-01	1.56E-05			1.74E-02	1.95E-06		
INORG	Lead	7439-92-1	B2	3.79E+03	1.02E-05							3.79E-03	4.24E-07			4.74E-04	5.30E-08		
INORG	Magnesium	7439-95-4		7.13E+04	1.91E-04							7.13E-02	7.97E-06			8.91E-03	9.97E-07		
INORG	Manganese	7439-96-5	D	2.27E+03	6.09E-06							2.27E-03	2.54E-07			2.84E-04	3.17E-08		
INORG	Mercury	7439-97-6	D	2.09E-01	5.61E-10							3.89E-05	4.35E-09			4.86E-06	5.44E-10		
INORG	Nickel	7440-02-0	A	5.59E+02	1.50E-06							5.59E-04	6.25E-08	8.4E-01	5E-08	6.98E-05	7.81E-09	8.4E-01	7E-09
INORG	Potassium	7440-09-7		1.92E+03	5.15E-06							1.92E-03	2.15E-07			2.40E-04	2.68E-08		
INORG	Selenium	7782-49-2	D																
INORG	Silver	7440-22-4	D	8.64E+01	2.32E-07							8.64E-05	9.67E-09			1.08E-05	1.21E-09		
INORG	Sodium	7440-23-5		1.59E+03	4.27E-06							1.59E-03	1.78E-07			1.99E-04	2.22E-08		
INORG	Thallium	7440-28-0		1.83E+00	4.90E-09							1.83E-06	2.04E-10			2.28E-07	2.55E-11		
INORG	Tin	7440-31-5																	
INORG	Vanadium	7440-62-2		1.41E+02	3.78E-07							1.41E-04	1.58E-08			1.76E-05	1.97E-09		
INORG	Zinc	7440-66-6	D	2.05E+04	5.51E-05							2.05E-02	2.30E-06			2.57E-03	2.87E-07		
							Cum. $Risk_{oral}$				Cum. $Risk_{derm}$				Cum. $Risk_{inh}$				Cum. $Risk_{inh}$
							1E-06				8E-07				5E-06				6E-07

Note:
Toxicity values in bold are based on extrapolation from oral toxicity values.

Table E-9. Estimates of Cumulative Non-Cancer Risks - Excavation Scenario
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	8.9E-09			Intake:	5.6E-08			Intake:	3.7E-04			Intake:	2.6E-04		
					FC_i:	1.0			FCi :	1.0			FCi :	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
VOC	Acetone	67-64-1	ID	1.20E+01	1.07E-07	9.0E-01	1E-07			**9.0E-01**		1.40E-01	5.20E-05	9.0E-01	6E-05	1.74E-02	4.55E-06	9.0E-01	5E-06
VOC	Benzene	71-43-2	A	3.50E-01	3.13E-09	4.0E-03	8E-07			**4.0E-03**		4.08E-03	1.52E-06	1.7E-03	9E-04	5.10E-04	1.33E-07	1.7E-03	8E-05
VOC	2-Butanone	78-93-3	ID	2.95E+00	2.64E-08	6.0E-01	4E-08			**6.0E-01**		1.90E-02	7.08E-06	1.4E+00	5E-06	2.37E-03	6.20E-07	1.4E+00	4E-07
VOC	Carbon Disulfide	75-15-0		2.77E-02	2.48E-10	1.0E-01	2E-09			**1.0E-01**		1.02E-03	3.79E-07	2.0E-01	2E-06	1.27E-04	3.32E-08	2.0E-01	2E-07
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	1.12E-10	7.0E-04	2E-07			**7.0E-04**		1.90E-04	7.07E-08	7.0E-04	1E-04	2.37E-05	6.19E-09	7.0E-04	9E-06
VOC	Chloroethane	75-00-3		4.29E+00	3.84E-08	4.0E-01	1E-07			**4.0E-01**		1.51E-01	5.64E-05	2.9E+00	2E-05	1.89E-02	4.93E-06	2.9E+00	2E-06
VOC	Cumene	98-82-8	D	6.40E-01	5.73E-09	1.0E-01	6E-08			**1.0E-01**		6.40E-07	2.39E-10	1.1E-01	2E-09	8.00E-08	2.09E-11	1.1E-01	2E-10
VOC	Cyclohexane	110-82-7	ID	9.90E-01	8.86E-09							2.41E-02	8.97E-06	1.7E+00	5E-06	3.01E-03	7.85E-07	1.7E+00	5E-07
VOC	1,2-Dichlorobenzene	95-50-1	D	1.36E+00	1.22E-08	9.0E-02	1E-07			**9.0E-02**		2.49E-03	9.29E-07	4.0E-02	2E-05	3.12E-04	8.13E-08	4.0E-02	2E-06
VOC	1,3-Dichlorobenzene	541-73-1	D			9.0E-02				**9.0E-02**				4.0E-02				4.0E-02	
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	1.27E-11	3.0E-02	4E-10			**3.0E-02**		2.94E-06	1.10E-09	2.3E-01	5E-09	3.67E-07	9.59E-11	2.3E-01	4E-10
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	4.20E-10	2.0E-01	2E-09			**2.0E-01**		3.79E-03	1.41E-06	5.7E-02	2E-05	4.73E-04	1.24E-07	5.7E-02	2E-06
VOC	1,1-Dichloroethane	75-34-3	C	1.07E+01	9.57E-08	1.0E-01	1E-06			**1.0E-01**		1.59E-01	5.93E-05	1.0E-01	6E-04	1.99E-02	5.19E-06	1.0E-01	5E-05
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	4.56E-10	5.0E-02	9E-09			**5.0E-02**		1.38E-03	5.14E-07	5.7E-02	9E-06	1.72E-04	4.50E-08	5.7E-02	8E-07
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	2.39E-08	9.0E-03	3E-06			**9.0E-03**		3.89E-02	1.45E-05	9.0E-03	2E-03	4.87E-03	1.27E-06	9.0E-03	1E-04
VOC	cis-1,2-Dichloroethene	156-59-2	D	1.79E+00	1.60E-08	1.0E-02	2E-06			**1.0E-02**		2.11E-02	7.85E-06	1.0E-02	8E-04	2.63E-03	6.87E-07	1.0E-02	7E-05
VOC	trans-1,2-Dichloroethene	156-60-5		2.02E-01	1.81E-09	2.0E-02	9E-08			**2.0E-02**		2.95E-03	1.10E-06	2.0E-02	5E-05	3.68E-04	9.61E-08	2.0E-02	5E-06
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	7.87E-08	1.0E-01	8E-07			**1.0E-01**		4.48E-02	1.67E-05	2.9E-01	6E-05	5.60E-03	1.46E-06	2.9E-01	5E-06
VOC	2-Hexanone	591-78-6		1.88E-03	1.68E-11	4.0E-02	4E-10			**4.0E-02**		2.42E-05	9.03E-09	1.4E-03	6E-06	3.03E-06	7.90E-10	1.4E-03	6E-07
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	2.33E-09	1.0E+00	2E-09			**1.0E+00**		2.60E-07	9.69E-11	1.0E+00	1E-10	3.25E-08	8.48E-12	1.0E+00	8E-12
VOC	4-Methyl-2-pentanone	108-10-1	ID	6.82E+00	6.10E-08							2.69E-02	1.00E-05	8.6E-01	1E-05	3.37E-03	8.79E-07	8.6E-01	1E-06
VOC	Methylcyclohexane	108-87-2		2.70E+00	2.42E-08							2.70E-06	1.01E-09	8.6E-01	1E-09	3.38E-07	8.81E-11	8.6E-01	1E-10
VOC	Methylene Chloride	75-09-2	B2	5.67E-01	5.07E-09	6.0E-02	8E-08			**6.0E-02**		1.01E-02	3.77E-06	8.6E-01	4E-06	1.27E-03	3.30E-07	8.6E-01	4E-07
VOC	Styrene	100-42-5		5.90E-02	5.28E-10	2.0E-01	3E-09			**2.0E-01**		1.18E-04	4.39E-08	2.9E-01	2E-07	1.47E-05	3.84E-09	2.9E-01	1E-08
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	1.55E-10	6.0E-02	3E-09			**6.0E-02**		3.52E-05	1.31E-08	6.0E-02	2E-07	4.40E-06	1.15E-09	6.0E-02	2E-08
VOC	Tetrachloroethene	127-18-4	C-B2	8.16E-01	7.30E-09	1.0E-02	7E-07			**1.0E-02**		9.68E-03	3.61E-06	1.4E-01	3E-05	1.21E-03	3.16E-07	1.4E-01	2E-06
VOC	Toluene	108-88-3	D	1.60E+01	1.43E-07	2.0E-01	7E-07			**2.0E-01**		1.14E-01	4.25E-05	1.1E-01	4E-04	1.42E-02	3.72E-06	1.1E-01	3E-05
VOC	1,2,4-Trichlorobenzene	120-82-1	D			1.0E-02				**1.0E-02**				1.0E-03				1.0E-03	
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	2.08E-07	2.8E-01	7E-07			**2.8E-01**		3.31E-01	1.23E-04	6.3E-01	2E-04	4.14E-02	1.08E-05	6.3E-01	2E-05
VOC	Trichloroethene	79-01-6	C-B2	1.17E+00	1.04E-08	6.0E-03	2E-06			**6.0E-03**		1.04E-02	3.87E-06	6.0E-03	6E-04	1.30E-03	3.38E-07	6.0E-03	6E-05
VOC	1,1,2-Trichloro-1,2,2-trifluoro	76-13-1		3.40E-03	3.04E-11	3.0E+01	1E-12			**3.0E+01**		7.71E-05	2.88E-08	8.6E+00	3E-09	9.64E-06	2.52E-09	8.6E+00	3E-10
VOC	Vinyl Chloride	75-01-4	A	1.95E-01	1.75E-09	3.0E-03	6E-07			**3.0E-03**		1.19E-02	4.44E-06	2.9E-02	2E-04	1.49E-03	3.88E-07	2.9E-02	1E-05
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	1.70E-07	2.0E-01	8E-07			**2.0E-01**		8.83E-02	3.29E-05	2.9E-02	1E-03	1.10E-02	2.88E-06	2.9E-02	1E-04
SVOC	Acenaphthene	83-32-9		3.00E+02	2.68E-06	6.0E-02	4E-05	1E-01	2.18E-06	**6.0E-02**	4E-05	3.65E-02	1.36E-05	6.0E-02	2E-04	4.56E-03	1.19E-06	6.0E-02	2E-05
SVOC	Anthracene	120-12-7	D	6.00E+02	5.37E-06	3.0E-01	2E-05	1E-01	4.36E-06	**3.0E-01**	1E-05	2.08E-02	7.74E-06	3.0E-01	3E-05	2.59E-03	6.77E-07	3.0E-01	2E-06
SVOC	Benzo(a)anthracene	56-55-3	B2	4.02E+01	3.60E-07			1E-01	2.92E-07			1.45E-04	5.39E-08			1.81E-05	4.72E-09		
SVOC	Benzo(a)pyrene	50-32-8	B2	3.20E+01	2.86E-07			1E-01	2.32E-07			5.97E-05	2.22E-08			7.46E-06	1.95E-09		
SVOC	Benzo(b)fluoranthene	205-99-2	B2	4.79E+01	4.29E-07			1E-01	3.48E-07			3.20E-04	1.19E-07			4.00E-05	1.04E-08		
SVOC	Benzo(g,h,i)perylene	191-24-2	D	1.50E+02	1.34E-06	3.0E-02	4E-05	1E-01	1.09E-06	**3.0E-02**	4E-05	1.75E-04	6.53E-08	3.0E-02	2E-06	2.19E-05	5.71E-09	3.0E-02	2E-07
SVOC	Benzo(k)fluoranthene	207-08-9	B2	2.18E+01	1.95E-07			1E-01	1.58E-07			3.24E-05	1.21E-08			4.05E-06	1.06E-09		
SVOC	Biphenyl	92-52-4	D	2.60E+01	2.33E-07	5.0E-02	5E-06	1E-01	1.45E-07	**5.0E-02**	3E-06	3.53E-03	1.32E-06	5.0E-02	3E-05	4.41E-04	1.15E-07	5.0E-02	2E-06
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	8.55E+00	7.65E-08	2.0E-02	4E-06	1E-01	4.78E-08	**2.0E-02**	2E-06	9.07E-06	3.38E-09	2.0E-02	2E-07	1.13E-06	2.96E-10	2.0E-02	1E-08
SVOC	Butylbenzylphthalate	85-68-7	C			2.0E-01		1E-01		**2.0E-01**				2.0E-01				2.0E-01	
SVOC	Carbazole	86-74-8	B2	2.21E+01	1.98E-07			1E-01	1.24E-07			5.89E-05	2.20E-08			7.37E-06	1.92E-09		
SVOC	Chrysene	218-01-9	B2	5.02E+01	4.49E-07			1E-01	3.65E-07			5.34E-04	1.99E-07			6.68E-05	1.74E-08		
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	5.70E+00	5.10E-08			1E-01	4.14E-08			5.90E-06	2.20E-09			7.38E-07	1.92E-10		
SVOC	Dibenzofuran	132-64-9	D	2.70E+02	2.42E-06	2.0E-03	1E-03	1E-01	1.51E-06	**2.0E-03**	8E-04	6.16E-03	2.30E-06	2.0E-03	1E-03	7.71E-04	2.01E-07	2.0E-03	1E-04
SVOC	Di-n-butylphthalate	84-74-2	D	9.80E-02	8.77E-10	1.0E-01	9E-09	1E-01	5.48E-10	**1.0E-01**	5E-09	1.12E-07	4.16E-11	1.0E-01	4E-10	1.39E-08	3.64E-12	1.0E-01	4E-11

Table E-9. Estimates of Cumulative Non-Cancer Risks - Excavation Scenario
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	8.9E-09			Intake:	5.6E-08			Intake:	3.7E-04			Intake:	2.6E-04		
					FC_i:	1.0			FCi :	1.0			FCi :	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	6.69E-09	2.0E-02	3E-07	1E-01	4.18E-09	**2.0E-02**	2E-07	1.08E-06	4.01E-10	2.0E-02	2E-08	1.34E-07	3.51E-11	2.0E-02	2E-09
SVOC	Fluoranthene	206-44-0	D	1.80E+03	1.61E-05	4.0E-02	4E-04	1E-01	1.31E-05	**4.0E-02**	3E-04	1.70E-02	6.35E-06	4.0E-02	2E-04	2.13E-03	5.56E-07	4.0E-02	1E-05
SVOC	Fluorene	86-73-7	D	5.00E+02	4.47E-06	4.0E-02	1E-04	1E-01	3.63E-06	**4.0E-02**	9E-05	2.62E-02	9.77E-06	4.0E-02	2E-04	3.28E-03	8.55E-07	4.0E-02	2E-05
SVOC	Hexachlorobutadiene	87-68-3	C			2.0E-04		1E-01		**2.0E-04**				2.0E-04				2.0E-04	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	1.20E+01	1.07E-07			1E-01	8.73E-08			1.65E-05	6.14E-09			2.06E-06	5.38E-10		
SVOC	2-Methylnaphthalene	91-57-6	ID	7.66E+00	6.86E-08	4.0E-03	2E-05	1E-01	4.29E-08	**4.0E-03**	1E-05	2.76E-03	1.03E-06	8.6E-04	1E-03	3.45E-04	9.00E-08	8.6E-04	1E-04
SVOC	Methylphenol (total)	1319-77-3		2.69E+00	2.41E-08	5.0E-02	5E-07	1E-01	1.50E-08	**5.0E-02**	3E-07	2.94E-04	1.10E-07	5.0E-02	2E-06	3.67E-05	9.58E-09	5.0E-02	2E-07
SVOC	Naphthalene	91-20-3	C	9.11E+00	8.15E-08	2.0E-02	4E-06	1E-01	6.62E-08	**2.0E-02**	3E-06	4.33E-03	1.61E-06	8.6E-04	2E-03	5.41E-04	1.41E-07	8.6E-04	2E-04
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	3.18E-09	2.0E-02	2E-07	1E-01	1.98E-09	**2.0E-02**	1E-07	1.59E-05	5.91E-09	2.0E-02	3E-07	1.98E-06	5.17E-10	2.0E-02	3E-08
SVOC	Phenanthrene	85-01-8	D	2.22E+02	1.98E-06	3.0E-02	7E-05	1E-01	1.61E-06	**3.0E-02**	5E-05	2.22E-04	8.26E-08	3.0E-02	3E-06	2.77E-05	7.23E-09	3.0E-02	2E-07
SVOC	Pyrene	129-00-0	D	1.10E+03	9.84E-06	3.0E-02	3E-04	1E-01	8.00E-06	**3.0E-02**	3E-04	8.48E-03	3.16E-06	3.0E-02	1E-04	1.06E-03	2.76E-07	3.0E-02	9E-06
P/PCB	PCBs (total)	1336-36-3	B2	7.86E+00	7.03E-08	2.0E-05	4E-03	1E-01	6.15E-08	**2.0E-05**	3E-03	8.17E-04	3.04E-07	2.0E-05	2E-02	1.02E-04	2.66E-08	2.0E-05	1E-03
INORG	Aluminum	7429-90-5		2.56E+04	2.29E-04							2.56E-02	9.54E-06			3.20E-03	8.35E-07		
INORG	Antimony	7440-36-0		7.72E+02	6.90E-06	4.0E-04	2E-02			**4.0E-04**		7.72E-04	2.88E-07	4.0E-04	7E-04	9.65E-05	2.52E-08	4.0E-04	6E-05
INORG	Arsenic	7440-38-2	A	1.47E+01	1.31E-07	3.0E-04	4E-04	3E-02	2.46E-08	**3.0E-04**	8E-05	1.47E-05	5.48E-09	3.0E-04	2E-05	1.84E-06	4.79E-10	3.0E-04	2E-06
INORG	Barium	7440-39-3	D	2.52E+03	2.26E-05	7.0E-02	3E-04			**7.0E-02**		2.52E-03	9.40E-07	7.0E-02	1E-05	3.15E-04	8.22E-08	7.0E-02	1E-06
INORG	Beryllium	7440-41-7	B1	3.74E-01	3.35E-09	2.0E-03	2E-06			**2.0E-03**		3.74E-07	1.39E-10	5.7E-06	2E-05	4.68E-08	1.22E-11	5.7E-06	2E-06
INORG	Cadmium	7440-43-9	B1	1.64E+02	1.46E-06	1.0E-03	1E-03	1E-03	9.15E-09	**1.0E-03**	9E-06	1.64E-04	6.10E-08	5.7E-05	1E-03	2.05E-05	5.34E-09	5.7E-05	9E-05
INORG	Calcium	7440-70-2		6.64E+05	5.94E-03							6.64E-01	2.48E-04			8.30E-02	2.17E-05		
INORG	Chromium (total)	7440-47-3		8.31E+02	7.43E-06	3.0E-03	2E-03			**3.0E-03**		8.31E-04	3.10E-07	2.9E-05	1E-02	1.04E-04	2.71E-08	2.9E-05	9E-04
INORG	Cobalt	7440-48-4	B1	2.36E+02	2.11E-06	2.0E-02	1E-04			**2.0E-02**		2.36E-04	8.80E-08	5.7E-06	2E-02	2.95E-05	7.70E-09	5.7E-06	1E-03
INORG	Copper	7440-50-8	D	6.37E+03	5.70E-05	4.0E-02	1E-03			**4.0E-02**		6.37E-03	2.37E-06	4.0E-02	6E-05	7.96E-04	2.08E-07	4.0E-02	5E-06
INORG	Cyanide (total)	57-12-5	D			2.0E-02				**2.0E-02**				2.0E-02				2.0E-02	
INORG	Iron	7439-89-6		1.40E+05	1.25E-03							1.40E-01	5.20E-05			1.74E-02	4.55E-06		
INORG	Lead	7439-92-1	B2	3.79E+03	3.39E-05							3.79E-03	1.41E-06			4.74E-04	1.24E-07		
INORG	Magnesium	7439-95-4		7.13E+04	6.38E-04							7.13E-02	2.66E-05			8.91E-03	2.33E-06		
INORG	Manganese	7439-96-5	D	2.27E+03	2.03E-05	1.4E-01	1E-04			**1.4E-01**		2.27E-03	8.46E-07	1.4E-05	6E-02	2.84E-04	7.40E-08	1.4E-05	5E-03
INORG	Mercury	7439-97-6	D	2.09E-01	1.87E-09	3.0E-04	6E-06			**3.0E-04**		3.89E-05	1.45E-08	8.6E-05	2E-04	4.86E-06	1.27E-09	8.6E-05	1E-05
INORG	Nickel	7440-02-0	A	5.59E+02	5.00E-06	2.0E-02	2E-04			**2.0E-02**		5.59E-04	2.08E-07	2.0E-02	1E-05	6.98E-05	1.82E-08	2.0E-02	9E-07
INORG	Potassium	7440-09-7		1.92E+03	1.72E-05							1.92E-03	7.16E-07			2.40E-04	6.26E-08		
INORG	Selenium	7782-49-2	D			5.0E-03				**5.0E-03**				5.0E-03				5.0E-03	
INORG	Silver	7440-22-4	D	8.64E+01	7.73E-07	5.0E-03	2E-04			**5.0E-03**		8.64E-05	3.22E-08	2.9E-06	1E-02	1.08E-05	2.82E-09	2.9E-06	1E-03
INORG	Sodium	7440-23-5		1.59E+03	1.42E-05							1.59E-03	5.93E-07			1.99E-04	5.19E-08		
INORG	Thallium	7440-28-0		1.83E+00	1.63E-08	7.0E-05	2E-04			**7.0E-05**		1.83E-06	6.80E-10	7.0E-05	1E-05	2.28E-07	5.95E-11	7.0E-05	9E-07
INORG	Tin	7440-31-5				6.0E-01				**6.0E-01**				6.0E-01				6.0E-01	
INORG	Vanadium	7440-62-2		1.41E+02	1.26E-06	7.0E-03	2E-04			**7.0E-03**		1.41E-04	5.25E-08	7.0E-03	8E-06	1.76E-05	4.60E-09	7.0E-03	7E-07
INORG	Zinc	7440-66-6	D	2.05E+04	1.84E-04	3.0E-01	6E-04			**3.0E-01**		2.05E-02	7.65E-06	3.0E-01	3E-05	2.57E-03	6.70E-07	3.0E-01	2E-06
							HI_{oral}				HI_{derm}				HI_{inh}				HI_{inh}
Note:																			
Toxicity values in bold are based on extrapolation from oral toxicity values.							3E-02				5E-03				1E-01				1E-02

Table E-10. Estimates of Cumulative Cancer Risks - Routine Industrial Activities (After Soil Remediation)
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)											Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact			Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	1.5E-07			Intake:	8.8E-06		Intake:	5.9E-02			Intake:	1.2E-01		
					FC_I:	1.0			FC_I:	1.0		FC_I:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
VOC	Acetone	67-64-1	ID	1.20E+01	1.76E-06							5.04E-03	2.96E-04			5.27E-04	6.19E-05		
VOC	Benzene	71-43-2	A	3.50E-01	5.14E-08	5.5E-02	3E-09			**5.5E-02**		1.47E-04	8.64E-06	2.7E-02	2E-07	1.54E-05	1.81E-06	2.7E-02	5E-08
VOC	2-Butanone	78-93-3	ID	2.95E+00	4.33E-07							6.86E-04	4.03E-05			7.17E-05	8.42E-06		
VOC	Carbon Disulfide	75-15-0		1.00E-03	1.47E-10							1.33E-06	7.78E-08			1.39E-07	1.63E-08		
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	1.84E-09	1.3E-01	2E-10			**1.3E-01**		6.85E-06	4.02E-07	5.3E-02	2E-08	7.17E-07	8.41E-08	5.3E-02	4E-09
VOC	Chloroethane	75-00-3		4.29E+00	6.30E-07							5.47E-03	3.21E-04			5.72E-04	6.71E-05		
VOC	Cumene	98-82-8	D	6.40E-01	9.39E-08							6.38E-10	3.75E-11			7.98E-11	9.37E-12		
VOC	Cyclohexane	110-82-7	ID	9.90E-01	1.45E-07							8.69E-04	5.10E-05			9.09E-05	1.07E-05		
VOC	1,2-Dichlorobenzene	95-50-1	D	9.06E-01	1.33E-07							6.00E-05	3.52E-06			6.27E-06	7.36E-07		
VOC	1,3-Dichlorobenzene	541-73-1	D																
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	2.08E-10	2.4E-02	5E-12			**2.4E-02**		1.06E-07	6.23E-09	2.2E-02	1E-10	1.11E-08	1.30E-09	2.2E-02	3E-11
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	6.90E-09							1.37E-04	8.03E-06			1.43E-05	1.68E-06		
VOC	1,1-Dichloroethane	75-34-3	C	7.40E+00	1.09E-06							3.98E-03	2.33E-04			4.16E-04	4.88E-05		
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	7.49E-09							4.98E-05	2.92E-06			5.21E-06	6.11E-07		
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	3.92E-07							1.41E-03	8.25E-05			1.47E-04	1.73E-05		
VOC	cis-1,2-Dichloroethene	156-59-2	D	3.05E+00	4.48E-07							1.30E-03	7.62E-05			1.36E-04	1.59E-05		
VOC	trans-1,2-Dichloroethene	156-60-5		1.20E-01	1.76E-08							6.32E-05	3.71E-06			6.61E-06	7.76E-07		
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	1.29E-06							1.62E-03	9.50E-05			1.69E-04	1.99E-05		
VOC	2-Hexanone	591-78-6		1.88E-03	2.75E-10							8.75E-07	5.14E-08			9.15E-08	1.07E-08		
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	3.82E-08							2.59E-10	1.52E-11			3.24E-11	3.80E-12		
VOC	4-Methyl-2-pentanone	108-10-1	ID																
VOC	Methylcyclohexane	108-87-2		2.70E+00	3.96E-07							2.69E-09	1.58E-10			3.36E-10	3.95E-11		
VOC	Methylene Chloride	75-09-2	B2	1.00E-01	1.47E-08	7.5E-03	1E-10			**7.5E-03**		6.45E-05	3.79E-06	1.6E-03	6E-09	6.74E-06	7.92E-07	1.6E-03	1E-09
VOC	Styrene	100-42-5																	
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	2.54E-09	2.0E-01	5E-10			**2.0E-01**		1.27E-06	7.46E-08	2.0E-01	1E-08	1.33E-07	1.56E-08	2.0E-01	3E-09
VOC	Tetrachloroethene	127-18-4	C-B2	1.56E+00	2.29E-07	5.2E-02	1E-08			**5.2E-02**		6.67E-04	3.92E-05	2.0E-03	8E-08	6.98E-05	8.19E-06	2.0E-03	2E-08
VOC	Toluene	108-88-3	D	1.60E+01	2.35E-06							4.12E-03	2.42E-04			4.30E-04	5.05E-05		
VOC	1,2,4-Trichlorobenzene	120-82-1	D																
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	3.41E-06							1.20E-02	7.02E-04			1.25E-03	1.47E-04		
VOC	Trichloroethene	79-01-6	C-B2	2.21E+00	3.25E-07	1.1E-02	4E-09			**1.1E-02**		7.10E-04	4.17E-05	6.0E-03	3E-07	7.43E-05	8.72E-06	6.0E-03	5E-08
VOC	1,1,2-Trichloro-1,2,2-trifluoro	76-13-1		3.40E-03	4.99E-10							2.79E-06	1.64E-07			2.91E-07	3.42E-08		
VOC	Vinyl Chloride	75-01-4	A	2.11E-01	3.09E-08	1.4E+00	4E-08			**1.4E+00**		4.65E-04	2.73E-05	3.1E-02	8E-07	4.86E-05	5.70E-06	3.1E-02	2E-07
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	2.79E-06							3.19E-03	1.87E-04			3.33E-04	3.91E-05		
SVOC	Acenaphthene	83-32-9		1.53E+00	2.25E-07			1E-01	1.75E-06			6.67E-06	3.92E-07			6.98E-07	8.19E-08		
SVOC	Anthracene	120-12-7	D	5.55E+00	8.15E-07			1E-01	6.35E-06			6.74E-06	3.96E-07			7.05E-07	8.28E-08		
SVOC	Benzo(a)anthracene	56-55-3	B2	1.74E+00	2.56E-07	7.3E-01	2E-07	1E-01	1.99E-06	**7.3E-01**	1E-06	1.65E-07	9.71E-09	7.3E-01	7E-09	1.73E-08	2.03E-09	7.3E-01	1E-09
SVOC	Benzo(a)pyrene	50-32-8	B2	1.65E+00	2.42E-07	7.3E+00	2E-06	1E-01	1.89E-06	**7.3E+00**	1E-05	5.32E-08	3.13E-09	3.1E+00	1E-08	5.60E-09	6.58E-10	3.1E+00	2E-09
SVOC	Benzo(b)fluoranthene	205-99-2	B2	1.90E+00	2.78E-07	7.3E-01	2E-07	1E-01	2.17E-06	**7.3E-01**	2E-06	3.91E-07	2.29E-08	7.3E-01	2E-08	4.09E-08	4.80E-09	7.3E-01	4E-09
SVOC	Benzo(g,h,i)perylene	191-24-2	D	2.13E+01	3.13E-06			1E-01	2.44E-05			1.50E-07	8.82E-09			1.62E-08	1.90E-09		
SVOC	Benzo(k)fluoranthene	207-08-9	B2	1.77E+00	2.60E-07	7.3E-02	2E-08	1E-01	2.03E-06	**7.3E-02**	1E-07	3.31E-08	1.94E-09	7.3E-02	1E-10	3.50E-09	4.11E-10	7.3E-02	3E-11
SVOC	Biphenyl	92-52-4	D					1E-01											
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	1.90E+00	2.79E-07	1.4E-02	4E-09	1E-01	1.67E-06	**1.4E-02**	2E-08	6.09E-09	3.58E-10	1.4E-02	5E-12	6.76E-10	7.93E-11	1.4E-02	1E-12
SVOC	Butylbenzylphthalate	85-68-7	C					1E-01											
SVOC	Carbazole	86-74-8	B2	1.47E+00	2.15E-07	2.0E-02	4E-09	1E-01	1.29E-06	**2.0E-02**	3E-08	8.97E-08	5.27E-09	2.0E-02	1E-10	9.41E-09	1.11E-09	2.0E-02	2E-11
SVOC	Chrysene	218-01-9	B2	1.77E+00	2.60E-07	7.3E-03	2E-09	1E-01	2.03E-06	**7.3E-03**	1E-08	6.19E-07	3.63E-08	7.3E-03	3E-10	6.47E-08	7.60E-09	7.3E-03	6E-11
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	1.56E+00	2.29E-07	7.3E+00	2E-06	1E-01	1.79E-06	**7.3E+00**	1E-05	3.53E-09	2.07E-10	7.3E+00	2E-09	4.01E-10	4.71E-11	7.3E+00	3E-10
SVOC	Dibenzofuran	132-64-9	D	1.31E+00	1.92E-07			1E-01	1.15E-06			1.03E-06	6.07E-08			1.08E-07	1.27E-08		
SVOC	Di-n-butylphthalate	84-74-2	D					1E-01											

Table E-10. Estimates of Cumulative Cancer Risks - Routine Industrial Activities (After Soil Remediation)
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)											Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	1.5E-07			Intake:	8.8E-06			Intake:	5.9E-02			Intake:	1.2E-01		
					FC_i:	1.0			FC_i:	1.0			FC_i:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	1.10E-07			1E-01	6.59E-07			1.26E-08	7.38E-10			1.33E-09	1.56E-10		
SVOC	Fluoranthene	206-44-0	D	1.77E+00	2.60E-07			1E-01	2.03E-06			5.44E-07	3.19E-08			5.69E-08	6.68E-09		
SVOC	Fluorene	86-73-7	D	2.09E+00	3.07E-07			1E-01	2.39E-06			3.88E-06	2.28E-07			4.06E-07	4.77E-08		
SVOC	Hexachlorobutadiene	87-68-3	C			7.8E-02		1E-01		**7.8E-02**				7.8E-02				7.8E-02	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	1.77E+00	2.60E-07	7.3E-01	2E-07	1E-01	2.03E-06	**7.3E-01**	1E-06	2.56E-08	1.50E-09	7.3E-01	1E-09	2.71E-09	3.18E-10	7.3E-01	2E-10
SVOC	2-Methylnaphthalene	91-57-6	ID	1.48E+00	2.17E-07			1E-01	1.30E-06			1.91E-05	1.12E-06			2.00E-06	2.35E-07		
SVOC	Methylphenol (total)	1319-77-3		4.35E-01	6.38E-08			1E-01	3.83E-07			1.70E-06	9.98E-08			1.78E-07	2.09E-08		
SVOC	Naphthalene	91-20-3	C	1.47E+00	2.16E-07			1E-01	1.68E-06			2.52E-05	1.48E-06			2.63E-06	3.09E-07		
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	5.21E-08	4.9E-03	3E-10	1E-01	3.13E-07	**4.9E-03**	2E-09	5.61E-07	3.29E-08	4.9E-03	2E-10	5.86E-08	6.88E-09	4.9E-03	3E-11
SVOC	Phenanthrene	85-01-8	D	1.73E+00	2.54E-07			1E-01	1.98E-06			1.72E-09	1.01E-10			2.16E-10	2.53E-11		
SVOC	Pyrene	129-00-0	D	8.30E+01	1.22E-05			1E-01	9.50E-05			2.02E-05	1.19E-06			2.11E-06	2.48E-07		
P/PCB	PCBs (total)	1336-36-3	B2	8.03E-01	1.18E-07	2.0E+00	2E-07	1E-01	9.90E-07	**2.0E+00**	2E-06	2.99E-06	1.75E-07	2.0E+00	4E-07	3.12E-07	3.67E-08	2.0E+00	7E-08
INORG	Aluminum	7429-90-5		3.10E+03	4.55E-04							3.09E-06	1.81E-07			3.86E-07	4.54E-08		
INORG	Antimony	7440-36-0		1.78E+01	2.61E-06							1.77E-08	1.04E-09			2.21E-09	2.60E-10		
INORG	Arsenic	7440-38-2	A	3.12E+01	4.58E-06	1.5E+00	7E-06	3E-02	8.24E-06	**1.5E+00**	1E-05	3.11E-08	1.83E-09	1.5E+00	3E-09	3.89E-09	4.57E-10	1.5E+00	7E-10
INORG	Barium	7440-39-3	D	2.52E+03	3.70E-04							2.51E-06	1.48E-07			3.14E-07	3.69E-08		
INORG	Beryllium	7440-41-7	B1	3.74E-01	5.49E-08							3.73E-10	2.19E-11	8.4E+00	2E-10	4.66E-11	5.47E-12	8.4E+00	5E-11
INORG	Cadmium	7440-43-9	B1	4.78E+00	7.02E-07			1E-03	4.21E-08			4.77E-09	2.80E-10	6.3E+00	2E-09	5.96E-10	7.00E-11	6.3E+00	4E-10
INORG	Calcium	7440-70-2		6.64E+05	9.75E-02							6.62E-04	3.89E-05			8.28E-05	9.72E-06		
INORG	Chromium (total)	7440-47-3		1.82E+02	2.68E-05							1.82E-07	1.07E-08	4.1E+01	4E-07	2.27E-08	2.67E-09	4.1E+01	1E-07
INORG	Cobalt	7440-48-4	B1	2.36E+02	3.47E-05							2.35E-07	1.38E-08	9.8E+00	1E-07	2.94E-08	3.45E-09	9.8E+00	3E-08
INORG	Copper	7440-50-8	D	1.02E+03	1.50E-04							1.02E-06	5.97E-08			1.27E-07	1.49E-08		
INORG	Cyanide (total)	57-12-5	D																
INORG	Iron	7439-89-6		2.90E+04	4.26E-03							2.89E-05	1.70E-06			3.61E-06	4.24E-07		
INORG	Lead	7439-92-1	B2	3.79E+03	5.56E-04							3.78E-06	2.22E-07			4.72E-07	5.54E-08		
INORG	Magnesium	7439-95-4		7.13E+04	1.05E-02							7.11E-05	4.17E-06			8.89E-06	1.04E-06		
INORG	Manganese	7439-96-5	D	2.27E+03	3.33E-04							2.26E-06	1.33E-07			2.83E-07	3.32E-08		
INORG	Mercury	7439-97-6	D																
INORG	Nickel	7440-02-0	A	1.80E+02	2.65E-05							1.80E-07	1.06E-08	8.4E-01	9E-09	2.25E-08	2.64E-09	8.4E-01	2E-09
INORG	Potassium	7440-09-7		1.92E+03	2.82E-04							1.91E-06	1.12E-07			2.39E-07	2.81E-08		
INORG	Selenium	7782-49-2	D																
INORG	Silver	7440-22-4	D	8.64E+01	1.27E-05							8.62E-08	5.06E-09			1.08E-08	1.26E-09		
INORG	Sodium	7440-23-5		1.59E+03	2.33E-04							1.59E-06	9.31E-08			1.98E-07	2.33E-08		
INORG	Thallium	7440-28-0		1.83E+00	2.68E-07							1.82E-09	1.07E-10			2.27E-10	2.67E-11		
INORG	Tin	7440-31-5																	
INORG	Vanadium	7440-62-2		1.41E+02	2.07E-05							1.40E-07	8.25E-09			1.76E-08	2.06E-09		
INORG	Zinc	7440-66-6	D	4.24E+02	6.22E-05							4.23E-07	2.48E-08			5.29E-08	6.21E-09		
							Cum. $Risk_{oral}$				Cum. $Risk_{derm}$				Cum. $Risk_{inh}$				Cum. $Risk_{inh}$
Note:							1E-05				5E-05				2E-06				5E-07
Toxicity values in bold are based on extrapolation from oral toxicity values.																			

Table E-11. Estimates of Cumulative Non-Cancer Risks - Routine Industrial Activities (After Soil Remediation)
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
				Pathway:	Soil Ingestion			Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	4.9E-07		Intake:	2.9E-05			Intake:	2.0E-01			Intake:	2.7E-01		
					FC$_i$:	1.0		FCi :	1.0			FCi :	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
VOC	Acetone	67-64-1	ID	1.20E+01	5.87E-06	9.0E-01	7E-06			**9.0E-01**		5.04E-03	9.86E-04	9.0E-01	1E-03	5.27E-04	1.44E-04	9.0E-01	2E-04
VOC	Benzene	71-43-2	A	3.50E-01	1.71E-07	4.0E-03	4E-05			**4.0E-03**		1.47E-04	2.88E-05	1.7E-03	2E-02	1.54E-05	4.22E-06	1.7E-03	2E-03
VOC	2-Butanone	78-93-3	ID	2.95E+00	1.44E-06	6.0E-01	2E-06			**6.0E-01**		6.86E-04	1.34E-04	1.4E+00	9E-05	7.17E-05	1.97E-05	1.4E+00	1E-05
VOC	Carbon Disulfide	75-15-0		1.00E-03	4.89E-10	1.0E-01	5E-09			**1.0E-01**		1.33E-06	2.59E-07	2.0E-01	1E-06	1.39E-07	3.80E-08	2.0E-01	2E-07
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	6.13E-09	7.0E-04	9E-06			**7.0E-04**		6.85E-06	1.34E-06	7.0E-04	2E-03	7.17E-07	1.96E-07	7.0E-04	3E-04
VOC	Chloroethane	75-00-3		4.29E+00	2.10E-06	4.0E-01	5E-06			**4.0E-01**		5.47E-03	1.07E-03	2.9E+00	4E-04	5.72E-04	1.57E-04	2.9E+00	5E-05
VOC	Cumene	98-82-8	D	6.40E-01	3.13E-07	1.0E-01	3E-06			**1.0E-01**		6.38E-10	1.25E-10	1.1E-01	1E-09	7.98E-11	2.19E-11	1.1E-01	2E-10
VOC	Cyclohexane	110-82-7	ID	9.90E-01	4.84E-07							8.69E-04	1.70E-04	1.7E+00	1E-04	9.09E-05	2.49E-05	1.7E+00	1E-05
VOC	1,2-Dichlorobenzene	95-50-1	D	9.06E-01	4.43E-07	9.0E-02	5E-06			**9.0E-02**		6.00E-05	1.17E-05	4.0E-02	3E-04	6.27E-06	1.72E-06	4.0E-02	4E-05
VOC	1,3-Dichlorobenzene	541-73-1	D			9.0E-02				**9.0E-02**				4.0E-02				4.0E-02	
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	6.93E-10	3.0E-02	2E-08			**3.0E-02**		1.06E-07	2.08E-08	2.3E-01	9E-08	1.11E-08	3.04E-09	2.3E-01	1E-08
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	2.30E-08	2.0E-01	1E-07			**2.0E-01**		1.37E-04	2.68E-05	5.7E-02	5E-04	1.43E-05	3.92E-06	5.7E-02	7E-05
VOC	1,1-Dichloroethane	75-34-3	C	7.40E+00	3.62E-06	1.0E-01	4E-05			**1.0E-01**		3.98E-03	7.78E-04	1.0E-01	8E-03	4.16E-04	1.14E-04	1.0E-01	1E-03
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	2.50E-08	5.0E-02	5E-07			**5.0E-02**		4.98E-05	9.74E-06	5.7E-02	2E-04	5.21E-06	1.43E-06	5.7E-02	2E-05
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	1.31E-06	9.0E-03	1E-04			**9.0E-03**		1.41E-03	2.75E-04	9.0E-03	3E-02	1.47E-04	4.03E-05	9.0E-03	4E-03
VOC	cis-1,2-Dichloroethene	156-59-2	D	3.05E+00	1.49E-06	1.0E-02	1E-04			**1.0E-02**		1.30E-03	2.54E-04	1.0E-02	3E-02	1.36E-04	3.72E-05	1.0E-02	4E-03
VOC	trans-1,2-Dichloroethene	156-60-5		1.20E-01	5.87E-08	2.0E-02	3E-06			**2.0E-02**		6.32E-05	1.24E-05	2.0E-02	6E-04	6.61E-06	1.81E-06	2.0E-02	9E-05
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	4.31E-06	1.0E-01	4E-05			**1.0E-01**		1.62E-03	3.17E-04	2.9E-01	1E-03	1.69E-04	4.63E-05	2.9E-01	2E-04
VOC	2-Hexanone	591-78-6		1.88E-03	9.17E-10	4.0E-02	2E-08			**4.0E-02**		8.75E-07	1.71E-07	1.4E-03	1E-04	9.15E-08	2.51E-08	1.4E-03	2E-05
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	1.27E-07	1.0E+00	1E-07			**1.0E+00**		2.59E-10	5.07E-11	1.0E+00	5E-11	3.24E-11	8.88E-12	1.0E+00	9E-12
VOC	4-Methyl-2-pentanone	108-10-1	ID											8.6E-01				8.6E-01	
VOC	Methylcyclohexane	108-87-2		2.70E+00	1.32E-06							2.69E-09	5.27E-10	8.6E-01	6E-10	3.36E-10	9.22E-11	8.6E-01	1E-10
VOC	Methylene Chloride	75-09-2	B2	1.00E-01	4.89E-08	6.0E-02	8E-07			**6.0E-02**		6.45E-05	1.26E-05	8.6E-01	1E-05	6.74E-06	1.85E-06	8.6E-01	2E-06
VOC	Styrene	100-42-5				2.0E-01				**2.0E-01**				2.9E-01				2.9E-01	
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	8.46E-09	6.0E-02	1E-07			**6.0E-02**		1.27E-06	2.49E-07	6.0E-02	4E-06	1.33E-07	3.64E-08	6.0E-02	6E-07
VOC	Tetrachloroethene	127-18-4	C-B2	1.56E+00	7.62E-07	1.0E-02	8E-05			**1.0E-02**		6.67E-04	1.31E-04	1.4E-01	9E-04	6.98E-05	1.91E-05	1.4E-01	1E-04
VOC	Toluene	108-88-3	D	1.60E+01	7.83E-06	2.0E-01	4E-05			**2.0E-01**		4.12E-03	8.05E-04	1.1E-01	7E-03	4.30E-04	1.18E-04	1.1E-01	1E-03
VOC	1,2,4-Trichlorobenzene	120-82-1	D			1.0E-02				**1.0E-02**				1.0E-03				1.0E-03	
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	1.14E-05	2.8E-01	4E-05			**2.8E-01**		1.20E-02	2.34E-03	6.3E-01	4E-03	1.25E-03	3.42E-04	6.3E-01	5E-04
VOC	Trichloroethene	79-01-6	C-B2	2.21E+00	1.08E-06	6.0E-03	2E-04			**6.0E-03**		7.10E-04	1.39E-04	6.0E-03	2E-02	7.43E-05	2.04E-05	6.0E-03	3E-03
VOC	1,1,2-Trichloro-1,2,2-trifluoro	76-13-1		3.40E-03	1.66E-09	3.0E+01	6E-11			**3.0E+01**		2.79E-06	5.45E-07	8.6E+00	6E-08	2.91E-07	7.98E-08	8.6E+00	9E-09
VOC	Vinyl Chloride	75-01-4	A	2.11E-01	1.03E-07	3.0E-03	3E-05			**3.0E-03**		4.65E-04	9.09E-05	2.9E-02	3E-03	4.86E-05	1.33E-05	2.9E-02	5E-04
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	9.30E-06	2.0E-01	5E-05			**2.0E-01**		3.19E-03	6.24E-04	2.9E-02	2E-02	3.33E-04	9.13E-05	2.9E-02	3E-03
SVOC	Acenaphthene	83-32-9		1.53E+00	7.49E-07	6.0E-02	1E-05	1E-01	5.84E-06	**6.0E-02**	1E-04	6.67E-06	1.31E-06	6.0E-02	2E-05	6.98E-07	1.91E-07	6.0E-02	3E-06
SVOC	Anthracene	120-12-7	D	5.55E+00	2.72E-06	3.0E-01	9E-06	1E-01	2.12E-05	**3.0E-01**	7E-05	6.74E-06	1.32E-06	3.0E-01	4E-06	7.05E-07	1.93E-07	3.0E-01	6E-07
SVOC	Benzo(a)anthracene	56-55-3	B2	1.74E+00	8.52E-07			1E-01	6.65E-06			1.65E-07	3.24E-08			1.73E-08	4.75E-09		
SVOC	Benzo(a)pyrene	50-32-8	B2	1.65E+00	8.06E-07			1E-01	6.29E-06			5.32E-08	1.04E-08			5.60E-09	1.53E-09		
SVOC	Benzo(b)fluoranthene	205-99-2	B2	1.90E+00	9.28E-07			1E-01	7.24E-06			3.91E-07	7.65E-08			4.09E-08	1.12E-08		
SVOC	Benzo(g,h,i)perylene	191-24-2	D	2.13E+01	1.04E-05	3.0E-02	3E-04	1E-01	8.13E-05	**3.0E-02**	3E-03	1.50E-07	2.94E-08	3.0E-02	1E-06	1.62E-08	4.43E-09	3.0E-02	1E-07
SVOC	Benzo(k)fluoranthene	207-08-9	B2	1.77E+00	8.66E-07			1E-01	6.76E-06			3.31E-08	6.48E-09			3.50E-09	9.59E-10		
SVOC	Biphenyl	92-52-4	D			5.0E-02		1E-01		**5.0E-02**				5.0E-02				5.0E-02	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	1.90E+00	9.30E-07	2.0E-02	5E-05	1E-01	5.58E-06	**2.0E-02**	3E-04	6.09E-09	1.19E-09	2.0E-02	6E-08	6.76E-10	1.85E-10	2.0E-02	9E-09
SVOC	Butylbenzylphthalate	85-68-7	C			2.0E-01		1E-01		**2.0E-01**				2.0E-01				2.0E-01	
SVOC	Carbazole	86-74-8	B2	1.47E+00	7.18E-07			1E-01	4.31E-06			8.97E-08	1.76E-08			9.41E-09	2.58E-09		
SVOC	Chrysene	218-01-9	B2	1.77E+00	8.66E-07			1E-01	6.75E-06			6.19E-07	1.21E-07			6.47E-08	1.77E-08		
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	1.56E+00	7.63E-07			1E-01	5.95E-06			3.53E-09	6.92E-10			4.01E-10	1.10E-10		
SVOC	Dibenzofuran	132-64-9	D	1.31E+00	6.41E-07	2.0E-03	3E-04	1E-01	3.85E-06	**2.0E-03**	2E-03	1.03E-06	2.02E-07	2.0E-03	1E-04	1.08E-07	2.96E-08	2.0E-03	1E-05
SVOC	Di-n-butylphthalate	84-74-2	D			1.0E-01		1E-01		**1.0E-01**				1.0E-01				1.0E-01	

Table E-11. Estimates of Cumulative Non-Cancer Risks - Routine Industrial Activities (After Soil Remediation)
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

			Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
			Pathway:	Soil Ingestion			Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
				Intake:	4.9E-07		Intake:	2.9E-05			Intake:	2.0E-01			Intake:	2.7E-01		
				FC_i:	1.0		FCi :	1.0			FCi :	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	3.66E-07	2.0E-02	2E-05	1E-01	2.20E-06	**2.0E-02**	1E-04	1.26E-08	2.46E-09	2.0E-02	1E-07	1.33E-09	3.64E-10	2.0E-02	2E-08
SVOC	Fluoranthene	206-44-0	D	1.77E+00	8.67E-07	4.0E-02	2E-05	1E-01	6.76E-06	**4.0E-02**	2E-04	5.44E-07	1.06E-07	4.0E-02	3E-06	5.69E-08	1.56E-08	4.0E-02	4E-07
SVOC	Fluorene	86-73-7	D	2.09E+00	1.02E-06	4.0E-02	3E-05	1E-01	7.98E-06	**4.0E-02**	2E-04	3.88E-06	7.60E-07	4.0E-02	2E-05	4.06E-07	1.11E-07	4.0E-02	3E-06
SVOC	Hexachlorobutadiene	87-68-3	C			2.0E-04		1E-01		**2.0E-04**				2.0E-04				2.0E-04	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	1.77E+00	8.67E-07			1E-01	6.76E-06			2.56E-08	5.00E-09			2.71E-09	7.42E-10		
SVOC	2-Methylnaphthalene	91-57-6	ID	1.48E+00	7.22E-07	4.0E-03	2E-04	1E-01	4.33E-06	**4.0E-03**	1E-03	1.91E-05	3.74E-06	8.6E-04	4E-03	2.00E-06	5.48E-07	8.6E-04	6E-04
SVOC	Methylphenol (total)	1319-77-3		4.35E-01	2.13E-07	5.0E-02	4E-06	1E-01	1.28E-06	**5.0E-02**	3E-05	1.70E-06	3.33E-07	5.0E-02	7E-06	1.78E-07	4.87E-08	5.0E-02	1E-06
SVOC	Naphthalene	91-20-3	C	1.47E+00	7.19E-07	2.0E-02	4E-05	1E-01	5.61E-06	**2.0E-02**	3E-04	2.52E-05	4.93E-06	8.6E-04	6E-03	2.63E-06	7.21E-07	8.6E-04	8E-04
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	1.74E-07	2.0E-02	9E-06	1E-01	1.04E-06	**2.0E-02**	5E-05	5.61E-07	1.10E-07	2.0E-02	5E-06	5.86E-08	1.61E-08	2.0E-02	8E-07
SVOC	Phenanthrene	85-01-8	D	1.73E+00	8.46E-07	3.0E-02	3E-05	1E-01	6.60E-06	**3.0E-02**	2E-04	1.72E-09	3.38E-10	3.0E-02	1E-08	2.16E-10	5.91E-11	3.0E-02	2E-09
SVOC	Pyrene	129-00-0	D	8.30E+01	4.06E-05	3.0E-02	1E-03	1E-01	3.17E-04	**3.0E-02**	1E-02	2.02E-05	3.95E-06	3.0E-02	1E-04	2.11E-06	5.79E-07	3.0E-02	2E-05
P/PCB	PCBs (total)	1336-36-3	B2	8.03E-01	3.93E-07	2.0E-05	2E-02	1E-01	3.30E-06	**2.0E-05**	2E-01	2.99E-06	5.84E-07	2.0E-05	3E-02	3.12E-07	8.56E-08	2.0E-05	4E-03
INORG	Aluminum	7429-90-5		3.10E+03	1.52E-03							3.09E-06	6.05E-07			3.86E-07	1.06E-07		
INORG	Antimony	7440-36-0		1.78E+01	8.69E-06	4.0E-04	2E-02			**4.0E-04**		1.77E-08	3.47E-09	4.0E-04	9E-06	2.21E-09	6.07E-10	4.0E-04	2E-06
INORG	Arsenic	7440-38-2	A	3.12E+01	1.53E-05	3.0E-04	5E-02	3E-02	2.75E-05	**3.0E-04**	9E-02	3.11E-08	6.09E-09	3.0E-04	2E-05	3.89E-09	1.07E-09	3.0E-04	4E-06
INORG	Barium	7440-39-3	D	2.52E+03	1.23E-03	7.0E-02	2E-02			**7.0E-02**		2.51E-06	4.92E-07	7.0E-02	7E-06	3.14E-07	8.61E-08	7.0E-02	1E-06
INORG	Beryllium	7440-41-7	B1	3.74E-01	1.83E-07	2.0E-03	9E-05			**2.0E-03**		3.73E-10	7.30E-11	5.7E-06	1E-05	4.66E-11	1.28E-11	5.7E-06	2E-06
INORG	Cadmium	7440-43-9	B1	4.78E+00	2.34E-06	1.0E-03	2E-03	1E-03	1.40E-07	**1.0E-03**	1E-04	4.77E-09	9.33E-10	5.7E-05	2E-05	5.96E-10	1.63E-10	5.7E-05	3E-06
INORG	Calcium	7440-70-2		6.64E+05	3.25E-01							6.62E-04	1.30E-04			8.28E-05	2.27E-05		
INORG	Chromium (total)	7440-47-3		1.82E+02	8.93E-05	3.0E-03	3E-02			**3.0E-03**		1.82E-07	3.56E-08	2.9E-05	1E-03	2.27E-08	6.23E-09	2.9E-05	2E-04
INORG	Cobalt	7440-48-4	B1	2.36E+02	1.16E-04	2.0E-02	6E-03			**2.0E-02**		2.35E-07	4.61E-08	5.7E-06	8E-03	2.94E-08	8.06E-09	5.7E-06	1E-03
INORG	Copper	7440-50-8	D	1.02E+03	4.99E-04	4.0E-02	1E-02			**4.0E-02**		1.02E-06	1.99E-07	4.0E-02	5E-06	1.27E-07	3.48E-08	4.0E-02	9E-07
INORG	Cyanide (total)	57-12-5	D			2.0E-02				**2.0E-02**				2.0E-02				2.0E-02	
INORG	Iron	7439-89-6		2.90E+04	1.42E-02							2.89E-05	5.66E-06			3.61E-06	9.90E-07		
INORG	Lead	7439-92-1	B2	3.79E+03	1.85E-03							3.78E-06	7.39E-07			4.72E-07	1.29E-07		
INORG	Magnesium	7439-95-4		7.13E+04	3.49E-02							7.11E-05	1.39E-05			8.89E-06	2.43E-06		
INORG	Manganese	7439-96-5	D	2.27E+03	1.11E-03	1.4E-01	8E-03			**1.4E-01**		2.26E-06	4.43E-07	1.4E-05	3E-02	2.83E-07	7.75E-08	1.4E-05	5E-03
INORG	Mercury	7439-97-6	D			3.0E-04				**3.0E-04**				8.6E-05				8.6E-05	
INORG	Nickel	7440-02-0	A	1.80E+02	8.83E-05	2.0E-02	4E-03			**2.0E-02**		1.80E-07	3.52E-08	2.0E-02	2E-06	2.25E-08	6.16E-09	2.0E-02	3E-07
INORG	Potassium	7440-09-7		1.92E+03	9.39E-04							1.91E-06	3.75E-07			2.39E-07	6.56E-08		
INORG	Selenium	7782-49-2	D			5.0E-03				**5.0E-03**				5.0E-03				5.0E-03	
INORG	Silver	7440-22-4	D	8.64E+01	4.23E-05	5.0E-03	8E-03			**5.0E-03**		8.62E-08	1.69E-08	2.9E-06	6E-03	1.08E-08	2.95E-09	2.9E-06	1E-03
INORG	Sodium	7440-23-5		1.59E+03	7.78E-04							1.59E-06	3.10E-07			1.98E-07	5.43E-08		
INORG	Thallium	7440-28-0		1.83E+00	8.93E-07	7.0E-05	1E-02			**7.0E-05**		1.82E-09	3.56E-10	7.0E-05	5E-06	2.27E-10	6.23E-11	7.0E-05	9E-07
INORG	Tin	7440-31-5				6.0E-01				**6.0E-01**				6.0E-01				6.0E-01	
INORG	Vanadium	7440-62-2		1.41E+02	6.89E-05	7.0E-03	1E-02			**7.0E-03**		1.40E-07	2.75E-08	7.0E-03	4E-06	1.76E-08	4.81E-09	7.0E-03	7E-07
INORG	Zinc	7440-66-6	D	4.24E+02	2.07E-04	3.0E-01	7E-04			**3.0E-01**		4.23E-07	8.27E-08	3.0E-01	3E-07	5.29E-08	1.45E-08	3.0E-01	5E-08
							HI_{oral}			HI_{derm}					HI_{inh}				HI_{inh}
Note:							2E-01			3E-01					2E-01				4E-02
Toxicity values in bold are based on extrapolation from oral toxicity values.																			

Table E-12. Estimates of Cumulative Cancer Risks - Excavation Scenario (After Soil Remediation)
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

			Receptor:	Routine Industrial Worker (On-Site)														Resident (Off-Site)			
			Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
				Intake:	2.7E-09			Intake:	1.7E-08			Intake:	1.1E-04			Intake:	1.1E-04		
				FC_i:	1.0			FC_i:	1.0			FC_i:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
VOC	Acetone	67-64-1	ID	1.20E+01	3.22E-08							1.40E-01	1.56E-05			1.74E-02	1.95E-06		
VOC	Benzene	71-43-2	A	3.50E-01	9.39E-10	5.5E-02	5E-11			5.5E-02		4.08E-03	4.56E-07	2.7E-02	1E-08	5.10E-04	5.70E-08	2.7E-02	2E-09
VOC	2-Butanone	78-93-3	ID	2.95E+00	7.92E-09							1.90E-02	2.12E-06			2.37E-03	2.66E-07		
VOC	Carbon Disulfide	75-15-0		1.00E-03	2.68E-12							3.67E-05	4.10E-09			4.59E-06	5.13E-10		
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	3.36E-11	1.3E-01	4E-12			1.3E-01		1.90E-04	2.12E-08	5.3E-02	1E-09	2.37E-05	2.65E-09	5.3E-02	1E-10
VOC	Chloroethane	75-00-3		4.29E+00	1.15E-08							1.51E-01	1.69E-05			1.89E-02	2.11E-06		
VOC	Cumene	98-82-8	D	6.40E-01	1.72E-09							6.40E-07	7.16E-11			8.00E-08	8.95E-12		
VOC	Cyclohexane	110-82-7	ID	9.90E-01	2.66E-09							2.41E-02	2.69E-06			3.01E-03	3.36E-07		
VOC	1,2-Dichlorobenzene	95-50-1	D	9.06E-01	2.43E-09							1.66E-03	1.86E-07			2.08E-04	2.32E-08		
VOC	1,3-Dichlorobenzene	541-73-1	D																
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	3.80E-12	2.4E-02	9E-14			2.4E-02		2.94E-06	3.29E-10	2.2E-02	7E-12	3.67E-07	4.11E-11	2.2E-02	9E-13
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	1.26E-10							3.79E-03	4.23E-07			4.73E-04	5.29E-08		
VOC	1,1-Dichloroethane	75-34-3	C	7.40E+00	1.99E-08							1.10E-01	1.23E-05			1.38E-02	1.54E-06		
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	1.37E-10							1.38E-03	1.54E-07			1.72E-04	1.93E-08		
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	7.17E-09							3.89E-02	4.35E-06			4.87E-03	5.44E-07		
VOC	cis-1,2-Dichloroethene	156-59-2	D	1.59E+00	4.26E-09							1.87E-02	2.09E-06			2.34E-03	2.62E-07		
VOC	trans-1,2-Dichloroethene	156-60-5		1.20E-01	3.22E-10							1.75E-03	1.96E-07			2.19E-04	2.45E-08		
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	2.36E-08							4.48E-02	5.01E-06			5.60E-03	6.26E-07		
VOC	2-Hexanone	591-78-6		1.88E-03	5.03E-12							2.42E-05	2.71E-09			3.03E-06	3.39E-10		
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	6.98E-10							2.60E-07	2.91E-11			3.25E-08	3.63E-12		
VOC	4-Methyl-2-pentanone	108-10-1	ID																
VOC	Methylcyclohexane	108-87-2		2.70E+00	7.25E-09							2.70E-06	3.02E-10			3.38E-07	3.77E-11		
VOC	Methylene Chloride	75-09-2	B2	1.00E-01	2.68E-10	7.5E-03	2E-12			7.5E-03		1.79E-03	2.00E-07	1.6E-03	3E-10	2.23E-04	2.50E-08	1.6E-03	4E-11
VOC	Styrene	100-42-5																	
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	4.64E-11	2.0E-01	9E-12			2.0E-01		3.52E-05	3.94E-09	2.0E-01	8E-10	4.40E-06	4.92E-10	2.0E-01	1E-10
VOC	Tetrachloroethene	127-18-4	C-B2	8.26E-01	2.22E-09	5.2E-02	1E-10			5.2E-02		9.80E-03	1.10E-06	2.0E-03	2E-09	1.22E-03	1.37E-07	2.0E-03	3E-10
VOC	Toluene	108-88-3	D	1.60E+01	4.29E-08							1.14E-01	1.27E-05			1.42E-02	1.59E-06		
VOC	1,2,4-Trichlorobenzene	120-82-1	D																
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	6.23E-08							3.31E-01	3.70E-05			4.14E-02	4.62E-06		
VOC	Trichloroethene	79-01-6	C-B2	1.17E+00	3.14E-09	1.1E-02	3E-11			1.1E-02		1.04E-02	1.16E-06	6.0E-03	7E-09	1.30E-03	1.45E-07	6.0E-03	9E-10
VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		3.40E-03	9.12E-12							7.71E-05	8.63E-09			9.64E-06	1.08E-09		
VOC	Vinyl Chloride	75-01-4	A	1.78E-01	4.77E-10	1.4E+00	7E-10			1.4E+00		1.08E-02	1.21E-06	3.1E-02	4E-08	1.36E-03	1.52E-07	3.1E-02	5E-09
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	5.10E-08							8.83E-02	9.87E-06			1.10E-02	1.23E-06		
SVOC	Acenaphthene	83-32-9		1.53E+00	4.11E-09			1E-01	3.34E-09			1.86E-04	2.08E-08			2.33E-05	2.60E-09		
SVOC	Anthracene	120-12-7	D	5.55E+00	1.49E-08			1E-01	1.21E-08			1.92E-04	2.15E-08			2.40E-05	2.68E-09		
SVOC	Benzo(a)anthracene	56-55-3	B2	3.01E+00	8.09E-09	7.3E-01	6E-09	1E-01	6.57E-09	7.3E-01	5E-09	1.08E-05	1.21E-09	7.3E-01	9E-10	1.36E-06	1.52E-10	7.3E-01	1E-10
SVOC	Benzo(a)pyrene	50-32-8	B2	5.22E+00	1.40E-08	7.3E+00	1E-07	1E-01	1.14E-08	7.3E+00	8E-08	9.74E-06	1.09E-09	3.1E+00	3E-09	1.22E-06	1.36E-10	3.1E+00	4E-10
SVOC	Benzo(b)fluoranthene	205-99-2	B2	8.86E+00	2.38E-08	7.3E-01	2E-08	1E-01	1.93E-08	7.3E-01	1E-08	5.91E-05	6.61E-09	7.3E-01	5E-09	7.39E-06	8.26E-10	7.3E-01	6E-10
SVOC	Benzo(g,h,i)perylene	191-24-2	D	2.13E+01	5.72E-08			1E-01	4.64E-08			2.49E-05	2.78E-09			3.11E-06	3.48E-10		
SVOC	Benzo(k)fluoranthene	207-08-9	B2	4.06E+00	1.09E-08	7.3E-02	8E-10	1E-01	8.85E-09	7.3E-02	6E-10	6.05E-06	6.76E-10	7.3E-02	5E-11	7.56E-07	8.45E-11	7.3E-02	6E-12
SVOC	Biphenyl	92-52-4	D					1E-01											
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	1.90E+00	5.10E-09	1.4E-02	7E-11	1E-01	3.19E-09	1.4E-02	4E-11	2.02E-06	2.25E-10	1.4E-02	3E-12	2.52E-07	2.82E-11	1.4E-02	4E-13
SVOC	Butylbenzylphthalate	85-68-7	C					1E-01											
SVOC	Carbazole	86-74-8	B2	2.81E+00	7.55E-09	2.0E-02	2E-10	1E-01	4.72E-09	2.0E-02	9E-11	7.49E-06	8.38E-10	2.0E-02	2E-11	9.37E-07	1.05E-10	2.0E-02	2E-12
SVOC	Chrysene	218-01-9	B2	4.87E+00	1.31E-08	7.3E-03	1E-10	1E-01	1.06E-08	7.3E-03	8E-11	5.18E-05	5.79E-09	7.3E-03	4E-11	6.48E-06	7.24E-10	7.3E-03	5E-12
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	3.05E+00	8.19E-09	7.3E+00	6E-08	1E-01	6.65E-09	7.3E+00	5E-08	3.16E-06	3.53E-10	7.3E+00	3E-09	3.95E-07	4.41E-11	7.3E+00	3E-10
SVOC	Dibenzofuran	132-64-9	D	2.75E+00	7.38E-09			1E-01	4.61E-09			6.28E-05	7.02E-09			7.85E-06	8.77E-10		
SVOC	Di-n-butylphthalate	84-74-2	D					1E-01											

Table E-12. Estimates of Cumulative Cancer Risks - Excavation Scenario (After Soil Remediation)
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	2.7E-09			Intake:	1.7E-08			Intake:	1.1E-04			Intake:	1.1E-04		
					FC_i:	1.0			FC_i:	1.0			FC_i:	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	$LADD_{oral}$ (mg/kg/d)	SF_{oral} $(mg/kg/d)^{-1}$	$Risk_{oral}$	AF_{derm} (unitless)	$LADD_{derm}$ (mg/kg/d)	SF_{derm} $(mg/kg/d)^{-1}$	$Risk_{derm}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$	C_{air} (mg/m^3)	$LADD_{inh}$ (mg/kg/d)	SF_{inh} $(mg/kg/d)^{-1}$	$Risk_{inh}$
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	2.01E-09			1E-01	1.25E-09			1.08E-06	1.20E-10			1.34E-07	1.50E-11		
SVOC	Fluoranthene	206-44-0	D	8.43E+00	2.26E-08			1E-01	1.84E-08			7.98E-05	8.93E-09			9.98E-06	1.12E-09		
SVOC	Fluorene	86-73-7	D	2.09E+00	5.61E-09			1E-01	4.56E-09			1.10E-04	1.22E-08			1.37E-05	1.53E-09		
SVOC	Hexachlorobutadiene	87-68-3	C			7.8E-02		1E-01		7.8E-02				7.8E-02				7.8E-02	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	3.80E+00	1.02E-08	7.3E-01	7E-09	1E-01	8.28E-09	7.3E-01	6E-09	5.21E-06	5.82E-10	7.3E-01	4E-10	6.51E-07	7.28E-11	7.3E-01	5E-11
SVOC	2-Methylnaphthalene	91-57-6	ID	2.73E+00	7.32E-09			1E-01	4.58E-09			9.82E-04	1.10E-07			1.23E-04	1.37E-08		
SVOC	Methylphenol (total)	1319-77-3		4.35E-01	1.17E-09			1E-01	7.30E-10			4.75E-05	5.31E-09			5.94E-06	6.64E-10		
SVOC	Naphthalene	91-20-3	C	2.79E+00	7.48E-09			1E-01	6.08E-09			1.32E-03	1.48E-07			1.66E-04	1.85E-08		
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	9.53E-10	4.9E-03	5E-12	1E-01	5.95E-10	4.9E-03	3E-12	1.59E-05	1.77E-09	4.9E-03	9E-12	1.98E-06	2.22E-10	4.9E-03	1E-12
SVOC	Phenanthrene	85-01-8	D	8.17E+00	2.19E-08			1E-01	1.78E-08			8.17E-06	9.14E-10			1.02E-06	1.14E-10		
SVOC	Pyrene	129-00-0	D	8.30E+01	2.23E-07			1E-01	1.81E-07			6.40E-04	7.15E-08			8.00E-05	8.94E-09		
P/PCB	PCBs (total)	1336-36-3	B2	8.75E-01	2.35E-09	2.0E+00	5E-09	1E-01	2.06E-09	2.0E+00	4E-09	9.09E-05	1.02E-08	2.0E+00	2E-08	1.14E-05	1.27E-09	2.0E+00	3E-09
INORG	Aluminum	7429-90-5		3.10E+03	8.32E-06							3.10E-03	3.47E-07			3.88E-04	4.33E-08		
INORG	Antimony	7440-36-0		3.87E+01	1.04E-07							3.87E-05	4.33E-09			4.84E-06	5.41E-10		
INORG	Arsenic	7440-38-2	A	1.33E+01	3.58E-08	1.5E+00	5E-08	3E-02	6.71E-09	1.5E+00	1E-08	1.33E-05	1.49E-09	1.5E+00	2E-09	1.67E-06	1.87E-10	1.5E+00	3E-10
INORG	Barium	7440-39-3	D	2.52E+03	6.77E-06							2.52E-03	2.82E-07			3.15E-04	3.52E-08		
INORG	Beryllium	7440-41-7	B1	3.74E-01	1.00E-09							3.74E-07	4.18E-11	8.4E+00	4E-10	4.68E-08	5.23E-12	8.4E+00	4E-11
INORG	Cadmium	7440-43-9	B1	8.24E+00	2.21E-08			1E-03	1.38E-10			8.24E-06	9.22E-10	6.3E+00	6E-09	1.03E-06	1.15E-10	6.3E+00	7E-10
INORG	Calcium	7440-70-2		6.64E+05	1.78E-03							6.64E-01	7.43E-05			8.30E-02	9.28E-06		
INORG	Chromium (total)	7440-47-3		5.16E+02	1.39E-06							5.16E-04	5.77E-08	4.1E+01	2E-06	6.45E-05	7.22E-09	4.1E+01	3E-07
INORG	Cobalt	7440-48-4	B1	2.36E+02	6.34E-07							2.36E-04	2.64E-08	9.8E+00	3E-07	2.95E-05	3.30E-09	9.8E+00	3E-08
INORG	Copper	7440-50-8	D	9.07E+02	2.43E-06							9.07E-04	1.01E-07			1.13E-04	1.27E-08		
INORG	Cyanide (total)	57-12-5	D																
INORG	Iron	7439-89-6																	
INORG	Lead	7439-92-1	B2	3.79E+03	1.02E-05							3.79E-03	4.24E-07			4.74E-04	5.30E-08		
INORG	Magnesium	7439-95-4		7.13E+04	1.91E-04							7.13E-02	7.97E-06			8.91E-03	9.97E-07		
INORG	Manganese	7439-96-5	D	2.27E+03	6.09E-06							2.27E-03	2.54E-07			2.84E-04	3.17E-08		
INORG	Mercury	7439-97-6	D																
INORG	Nickel	7440-02-0	A	4.61E+02	1.24E-06							4.61E-04	5.15E-08	8.4E-01	4E-08	5.76E-05	6.44E-09	8.4E-01	5E-09
INORG	Potassium	7440-09-7		1.92E+03	5.15E-06							1.92E-03	2.15E-07			2.40E-04	2.68E-08		
INORG	Selenium	7782-49-2	D																
INORG	Silver	7440-22-4	D	8.64E+01	2.32E-07							8.64E-05	9.67E-09			1.08E-05	1.21E-09		
INORG	Sodium	7440-23-5		1.59E+03	4.27E-06							1.59E-03	1.78E-07			1.99E-04	2.22E-08		
INORG	Thallium	7440-28-0		1.83E+00	4.90E-09							1.83E-06	2.04E-10			2.28E-07	2.55E-11		
INORG	Tin	7440-31-5																	
INORG	Vanadium	7440-62-2		1.41E+02	3.78E-07							1.41E-04	1.58E-08			1.76E-05	1.97E-09		
INORG	Zinc	7440-66-6	D	2.05E+03	5.50E-06							2.05E-03	2.29E-07			2.56E-04	2.86E-08		
							Cum. $Risk_{oral}$				Cum. $Risk_{derm}$				Cum. $Risk_{inh}$				Cum. $Risk_{inh}$
							3E-07				2E-07				3E-06				3E-07

Note:
Toxicity values in bold are based on extrapolation from oral toxicity values.

Table-13. Estimates of Cumulative Non-Cancer Risks - Excavation Scenario (After Soil Remediation)
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

			Receptor:	Routine Industrial Worker (On-Site)												Resident (Off-Site)			
			Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
				Intake:	8.9E-09			Intake:	5.6E-08			Intake:	3.7E-04			Intake:	2.6E-04		
				FC$_i$:	1.0			FCi :	1.0			FCi :	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
VOC	Acetone	67-64-1	ID	1.20E+01	1.07E-07	9.0E-01	1E-07			9.0E-01		1.40E-01	5.20E-05	9.0E-01	6E-05	1.74E-02	4.55E-06	9.0E-01	5E-06
VOC	Benzene	71-43-2	A	3.50E-01	3.13E-09	4.0E-03	8E-07			4.0E-03		4.08E-03	1.52E-06	1.7E-03	9E-04	5.10E-04	1.33E-07	1.7E-03	8E-05
VOC	2-Butanone	78-93-3	ID	2.95E+00	2.64E-08	6.0E-01	4E-08			6.0E-01		1.90E-02	7.08E-06	1.4E+00	5E-06	2.37E-03	6.20E-07	1.4E+00	4E-07
VOC	Carbon Disulfide	75-15-0		1.00E-03	8.95E-12	1.0E-01	9E-11			1.0E-01		3.67E-05	1.37E-08	2.0E-01	7E-08	4.59E-06	1.20E-09	2.0E-01	6E-09
VOC	Carbon Tetrachloride	56-23-5	B2	1.25E-02	1.12E-10	7.0E-04	2E-07			7.0E-04		1.90E-04	7.07E-08	7.0E-04	1E-04	2.37E-05	6.19E-09	7.0E-04	9E-06
VOC	Chloroethane	75-00-3		4.29E+00	3.84E-08	4.0E-01	1E-07			4.0E-01		1.51E-01	5.64E-05	2.9E+00	2E-05	1.89E-02	4.93E-06	2.9E+00	2E-06
VOC	Cumene	98-82-8	D	6.40E-01	5.73E-09	1.0E-01	6E-08			1.0E-01		6.40E-07	2.39E-10	1.1E-01	2E-09	8.00E-08	2.09E-11	1.1E-01	2E-10
VOC	Cyclohexane	110-82-7	ID	9.90E-01	8.86E-09							2.41E-02	8.97E-06	1.7E+00	5E-06	3.01E-03	7.85E-07	1.7E+00	5E-07
VOC	1,2-Dichlorobenzene	95-50-1	D	9.06E-01	8.11E-09	9.0E-02	9E-08			9.0E-02		1.66E-03	6.19E-07	4.0E-02	2E-05	2.08E-04	5.42E-08	4.0E-02	1E-06
VOC	1,3-Dichlorobenzene	541-73-1	D			9.0E-02				9.0E-02				4.0E-02				4.0E-02	
VOC	1,4-Dichlorobenzene	106-46-7	C	1.42E-03	1.27E-11	3.0E-02	4E-10			3.0E-02		2.94E-06	1.10E-09	2.3E-01	5E-09	3.67E-07	9.59E-11	2.3E-01	4E-10
VOC	Dichlorodifluoromethane	75-71-8		4.70E-02	4.20E-10	2.0E-01	2E-09			2.0E-01		3.79E-03	1.41E-06	5.7E-02	2E-05	4.73E-04	1.24E-07	5.7E-02	2E-06
VOC	1,1-Dichloroethane	75-34-3	C	7.40E+00	6.62E-08	1.0E-01	7E-07			1.0E-01		1.10E-01	4.10E-05	1.0E-01	4E-04	1.38E-02	3.59E-06	1.0E-01	4E-05
VOC	1,1-Dichloroethene	75-35-4	C	5.10E-02	4.56E-10	5.0E-02	9E-09			5.0E-02		1.38E-03	5.14E-07	5.7E-02	9E-06	1.72E-04	4.50E-08	5.7E-02	8E-07
VOC	1,2-Dichloroethene (total)	540-59-0		2.67E+00	2.39E-08	9.0E-03	3E-06			9.0E-03		3.89E-02	1.45E-05	9.0E-03	2E-03	4.87E-03	1.27E-06	9.0E-03	1E-04
VOC	cis-1,2-Dichloroethene	156-59-2	D	1.59E+00	1.42E-08	1.0E-02	1E-06			1.0E-02		1.87E-02	6.98E-06	1.0E-02	7E-04	2.34E-03	6.10E-07	1.0E-02	6E-05
VOC	trans-1,2-Dichloroethene	156-60-5		1.20E-01	1.07E-09	2.0E-02	5E-08			2.0E-02		1.75E-03	6.52E-07	2.0E-02	3E-05	2.19E-04	5.71E-08	2.0E-02	3E-06
VOC	Ethyl Benzene	100-41-4	D	8.80E+00	7.87E-08	1.0E-01	8E-07			1.0E-01		4.48E-02	1.67E-05	2.9E-01	6E-05	5.60E-03	1.46E-06	2.9E-01	5E-06
VOC	2-Hexanone	591-78-6		1.88E-03	1.68E-11	4.0E-02	4E-10			4.0E-02		2.42E-05	9.03E-09	1.4E-03	6E-06	3.03E-06	7.90E-10	1.4E-03	6E-07
VOC	Iodomethane	74-88-4																	
VOC	Methyl Acetate	79-20-9		2.60E-01	2.33E-09	1.0E+00	2E-09			1.0E+00		2.60E-07	9.69E-11	1.0E+00	1E-10	3.25E-08	8.48E-12	1.0E+00	8E-12
VOC	4-Methyl-2-pentanone	108-10-1	ID											8.6E-01				8.6E-01	
VOC	Methylcyclohexane	108-87-2		2.70E+00	2.42E-08							2.70E-06	1.01E-09	8.6E-01	1E-09	3.38E-07	8.81E-11	8.6E-01	1E-10
VOC	Methylene Chloride	75-09-2	B2	1.00E-01	8.95E-10	6.0E-02	1E-08			6.0E-02		1.79E-03	6.65E-07	8.6E-01	8E-07	2.23E-04	5.82E-08	8.6E-01	7E-08
VOC	Styrene	100-42-5				2.0E-01				2.0E-01				2.9E-01				2.9E-01	
VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	1.73E-02	1.55E-10	6.0E-02	3E-09			6.0E-02		3.52E-05	1.31E-08	6.0E-02	2E-07	4.40E-06	1.15E-09	6.0E-02	2E-08
VOC	Tetrachloroethene	127-18-4	C-B2	8.26E-01	7.39E-09	1.0E-02	7E-07			1.0E-02		9.80E-03	3.65E-06	1.4E-01	3E-05	1.22E-03	3.20E-07	1.4E-01	2E-06
VOC	Toluene	108-88-3	D	1.60E+01	1.43E-07	2.0E-01	7E-07			2.0E-01		1.14E-01	4.25E-05	1.1E-01	4E-04	1.42E-02	3.72E-06	1.1E-01	3E-05
VOC	1,2,4-Trichlorobenzene	120-82-1	D			1.0E-02				1.0E-02				1.0E-03				1.0E-03	
VOC	1,1,1-Trichloroethane	71-55-6	D	2.32E+01	2.08E-07	2.8E-01	7E-07			2.8E-01		3.31E-01	1.23E-04	6.3E-01	2E-04	4.14E-02	1.08E-05	6.3E-01	2E-05
VOC	Trichloroethene	79-01-6	C-B2	1.17E+00	1.05E-08	6.0E-03	2E-06			6.0E-03		1.04E-02	3.88E-06	6.0E-03	6E-04	1.30E-03	3.39E-07	6.0E-03	6E-05
VOC	1,1,2-Trichloro-1,2,2-trifluoro	76-13-1		3.40E-03	3.04E-11	3.0E+01	1E-12			3.0E+01		7.71E-05	2.88E-08	8.6E+00	3E-09	9.64E-06	2.52E-09	8.6E+00	3E-10
VOC	Vinyl Chloride	75-01-4	A	1.78E-01	1.59E-09	3.0E-03	5E-07			3.0E-03		1.08E-02	4.04E-06	2.9E-02	1E-04	1.36E-03	3.54E-07	2.9E-02	1E-05
VOC	Xylenes (total)	1330-20-7	ID	1.90E+01	1.70E-07	2.0E-01	8E-07			2.0E-01		8.83E-02	3.29E-05	2.9E-02	1E-03	1.10E-02	2.88E-06	2.9E-02	1E-04
SVOC	Acenaphthene	83-32-9		1.53E+00	1.37E-08	6.0E-02	2E-07	1E-01	1.11E-08	6.0E-02	2E-07	1.86E-04	6.94E-08	6.0E-02	1E-06	2.33E-05	6.07E-09	6.0E-02	1E-07
SVOC	Anthracene	120-12-7	D	5.55E+00	4.97E-08	3.0E-01	2E-07	1E-01	4.03E-08	3.0E-01	1E-07	1.92E-04	7.16E-08	3.0E-01	2E-07	2.40E-05	6.26E-09	3.0E-01	2E-08
SVOC	Benzo(a)anthracene	56-55-3	B2	3.01E+00	2.70E-08			1E-01	2.19E-08			1.08E-05	4.04E-09			1.36E-06	3.54E-10		
SVOC	Benzo(a)pyrene	50-32-8	B2	5.22E+00	4.67E-08			1E-01	3.79E-08			9.74E-06	3.63E-09			1.22E-06	3.18E-10		
SVOC	Benzo(b)fluoranthene	205-99-2	B2	8.86E+00	7.93E-08			1E-01	6.44E-08			5.91E-05	2.20E-08			7.39E-06	1.93E-09		
SVOC	Benzo(g,h,i)perylene	191-24-2	D	2.13E+01	1.91E-07	3.0E-02	6E-06	1E-01	1.55E-07	3.0E-02	5E-06	2.49E-05	9.27E-09	3.0E-02	3E-07	3.11E-06	8.11E-10	3.0E-02	3E-08
SVOC	Benzo(k)fluoranthene	207-08-9	B2	4.06E+00	3.63E-08			1E-01	2.95E-08			6.05E-06	2.25E-09			7.56E-07	1.97E-10		
SVOC	Biphenyl	92-52-4	D			5.0E-02		1E-01		5.0E-02				5.0E-02				5.0E-02	
SVOC	bis(2-Ethylhexyl)phthalate	117-81-7	B2	1.90E+00	1.70E-08	2.0E-02	8E-07	1E-01	1.06E-08	2.0E-02	5E-07	2.02E-06	7.52E-10	2.0E-02	4E-08	2.52E-07	6.58E-11	2.0E-02	3E-09
SVOC	Butylbenzylphthalate	85-68-7	C			2.0E-01		1E-01		2.0E-01				2.0E-01				2.0E-01	
SVOC	Carbazole	86-74-8	B2	2.81E+00	2.52E-08			1E-01	1.57E-08			7.49E-06	2.79E-09			9.37E-07	2.44E-10		
SVOC	Chrysene	218-01-9	B2	4.87E+00	4.35E-08			1E-01	3.54E-08			5.18E-05	1.93E-08			6.48E-06	1.69E-09		
SVOC	Dibenz(a,h)anthracene	53-70-3	B2	3.05E+00	2.73E-08			1E-01	2.22E-08			3.16E-06	1.18E-09			3.95E-07	1.03E-10		
SVOC	Dibenzofuran	132-64-9	D	2.75E+00	2.46E-08	2.0E-03	1E-05	1E-01	1.54E-08	2.0E-03	8E-06	6.28E-05	2.34E-08	2.0E-03	1E-05	7.85E-06	2.05E-09	2.0E-03	1E-06
SVOC	Di-n-butylphthalate	84-74-2	D			1.0E-01		1E-01		1.0E-01				1.0E-01				1.0E-01	

Table-13. Estimates of Cumulative Non-Cancer Risks - Excavation Scenario (After Soil Remediation)
Waste Pile Staging Area, GMC Delphi Thermal Moraine - Moraine, Ohio

				Receptor:	Routine Industrial Worker (On-Site)											Resident (Off-Site)				
				Pathway:	Soil Ingestion				Dermal Contact				Inhalation of Soil Vapor and Particulates				Inhalation of Soil Vapor and Particulates			
					Intake:	8.9E-09			Intake:	5.6E-08			Intake:	3.7E-04			Intake:	2.6E-04		
					FC_i:	1.0			FCi :	1.0			FCi :	1.0			FC:	1.0		
TCL/TAL Group	Constituent	CASRN	EPA Group	C_{soil} (mg/kg)	ADD_{oral} (mg/kg/d)	RfD_{oral} (mg/kg/d)	HQ_{oral}	AF_{derm} (unitless)	ADD_{derm} (mg/kg/d)	RfD_{derm} (mg/kg/d)	HQ_{derm}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}	C_{air} (mg/m^3)	ADD_{inh} (mg/kg/d)	RfD_{inh} (mg/kg/d)	HQ_{inh}
SVOC	Di-n-octylphthalate	117-84-0		7.48E-01	6.69E-09	2.0E-02	3E-07	1E-01	4.18E-09	**2.0E-02**	2E-07	1.08E-06	4.01E-10	2.0E-02	2E-08	1.34E-07	3.51E-11	2.0E-02	2E-09
SVOC	Fluoranthene	206-44-0	D	8.43E+00	7.54E-08	4.0E-02	2E-06	1E-01	6.13E-08	**4.0E-02**	2E-06	7.98E-05	2.98E-08	4.0E-02	7E-07	9.98E-06	2.60E-09	4.0E-02	7E-08
SVOC	Fluorene	86-73-7	D	2.09E+00	1.87E-08	4.0E-02	5E-07	1E-01	1.52E-08	**4.0E-02**	4E-07	1.10E-04	4.08E-08	4.0E-02	1E-06	1.37E-05	3.57E-09	4.0E-02	9E-08
SVOC	Hexachlorobutadiene	87-68-3	C			2.0E-04		1E-01		**2.0E-04**				2.0E-04				2.0E-04	
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	B2	3.80E+00	3.40E-08			1E-01	2.76E-08			5.21E-06	1.94E-09			6.51E-07	1.70E-10		
SVOC	2-Methylnaphthalene	91-57-6	ID	2.73E+00	2.44E-08	4.0E-03	6E-06	1E-01	1.53E-08	**4.0E-03**	4E-06	9.82E-04	3.66E-07	8.6E-04	4E-04	1.23E-04	3.20E-08	8.6E-04	4E-05
SVOC	Methylphenol (total)	1319-77-3		4.35E-01	3.89E-09	5.0E-02	8E-08	1E-01	2.43E-09	**5.0E-02**	5E-08	4.75E-05	1.77E-08	5.0E-02	4E-07	5.94E-06	1.55E-09	5.0E-02	3E-08
SVOC	Naphthalene	91-20-3	C	2.79E+00	2.49E-08	2.0E-02	1E-06	1E-01	2.03E-08	**2.0E-02**	1E-06	1.32E-03	4.94E-07	8.6E-04	6E-04	1.66E-04	4.32E-08	8.6E-04	5E-05
SVOC	N-Nitrosodiphenylamine	86-30-6	B2	3.55E-01	3.18E-09	2.0E-02	2E-07	1E-01	1.98E-09	**2.0E-02**	1E-07	1.59E-05	5.91E-09	2.0E-02	3E-07	1.98E-06	5.17E-10	2.0E-02	3E-08
SVOC	Phenanthrene	85-01-8	D	8.17E+00	7.31E-08	3.0E-02	2E-06	1E-01	5.94E-08	**3.0E-02**	2E-06	8.17E-06	3.05E-09	3.0E-02	1E-07	1.02E-06	2.66E-10	3.0E-02	9E-09
SVOC	Pyrene	129-00-0	D	8.30E+01	7.43E-07	3.0E-02	2E-05	1E-01	6.03E-07	**3.0E-02**	2E-05	6.40E-04	2.38E-07	3.0E-02	8E-06	8.00E-05	2.09E-08	3.0E-02	7E-07
P/PCB	PCBs (total)	1336-36-3	B2	8.75E-01	7.83E-09	2.0E-05	4E-04	1E-01	6.85E-09	**2.0E-05**	3E-04	9.09E-05	3.39E-08	2.0E-05	2E-03	1.14E-05	2.97E-09	2.0E-05	1E-04
INORG	Aluminum	7429-90-5		3.10E+03	2.77E-05							3.10E-03	1.16E-06			3.88E-04	1.01E-07		
INORG	Antimony	7440-36-0		3.87E+01	3.47E-07	4.0E-04	9E-04			**4.0E-04**		3.87E-05	1.44E-08	4.0E-04	4E-05	4.84E-06	1.26E-09	4.0E-04	3E-06
INORG	Arsenic	7440-38-2	A	1.33E+01	1.19E-07	3.0E-04	4E-04	3E-02	2.24E-08	**3.0E-04**	7E-05	1.33E-05	4.97E-09	3.0E-04	2E-05	1.67E-06	4.35E-10	3.0E-04	1E-06
INORG	Barium	7440-39-3	D	2.52E+03	2.26E-05	7.0E-02	3E-04			**7.0E-02**		2.52E-03	9.40E-07	7.0E-02	1E-05	3.15E-04	8.22E-08	7.0E-02	1E-06
INORG	Beryllium	7440-41-7	B1	3.74E-01	3.35E-09	2.0E-03	2E-06			**2.0E-03**		3.74E-07	1.39E-10	5.7E-06	2E-05	4.68E-08	1.22E-11	5.7E-06	2E-06
INORG	Cadmium	7440-43-9	B1	8.24E+00	7.37E-08	1.0E-03	7E-05	1E-03	4.61E-10	**1.0E-03**	5E-07	8.24E-06	3.07E-09	5.7E-05	5E-05	1.03E-06	2.69E-10	5.7E-05	5E-06
INORG	Calcium	7440-70-2		6.64E+05	5.94E-03							6.64E-01	2.48E-04			8.30E-02	2.17E-05		
INORG	Chromium (total)	7440-47-3		5.16E+02	4.62E-06	3.0E-03	2E-03			**3.0E-03**		5.16E-04	1.92E-07	2.9E-05	7E-03	6.45E-05	1.68E-08	2.9E-05	6E-04
INORG	Cobalt	7440-48-4	B1	2.36E+02	2.11E-06	2.0E-02	1E-04			**2.0E-02**		2.36E-04	8.80E-08	5.7E-06	2E-02	2.95E-05	7.70E-09	5.7E-06	1E-03
INORG	Copper	7440-50-8	D	9.07E+02	8.11E-06	4.0E-02	2E-04			**4.0E-02**		9.07E-04	3.38E-07	4.0E-02	8E-06	1.13E-04	2.96E-08	4.0E-02	7E-07
INORG	Cyanide (total)	57-12-5	D			2.0E-02				**2.0E-02**				2.0E-02				2.0E-02	
INORG	Iron	7439-89-6																	
INORG	Lead	7439-92-1	B2	3.79E+03	3.39E-05							3.79E-03	1.41E-06			4.74E-04	1.24E-07		
INORG	Magnesium	7439-95-4		7.13E+04	6.38E-04							7.13E-02	2.66E-05			8.91E-03	2.33E-06		
INORG	Manganese	7439-96-5	D	2.27E+03	2.03E-05	1.4E-01	1E-04			**1.4E-01**		2.27E-03	8.46E-07	1.4E-05	6E-02	2.84E-04	7.40E-08	1.4E-05	5E-03
INORG	Mercury	7439-97-6	D			3.0E-04				**3.0E-04**				8.6E-05				8.6E-05	
INORG	Nickel	7440-02-0	A	4.61E+02	4.12E-06	2.0E-02	2E-04			**2.0E-02**		4.61E-04	1.72E-07	2.0E-02	9E-06	5.76E-05	1.50E-08	2.0E-02	8E-07
INORG	Potassium	7440-09-7		1.92E+03	1.72E-05							1.92E-03	7.16E-07			2.40E-04	6.26E-08		
INORG	Selenium	7782-49-2	D			5.0E-03				**5.0E-03**				5.0E-03				5.0E-03	
INORG	Silver	7440-22-4	D	8.64E+01	7.73E-07	5.0E-03	2E-04			**5.0E-03**		8.64E-05	3.22E-08	2.9E-06	1E-02	1.08E-05	2.82E-09	2.9E-06	1E-03
INORG	Sodium	7440-23-5		1.59E+03	1.42E-05							1.59E-03	5.93E-07			1.99E-04	5.19E-08		
INORG	Thallium	7440-28-0		1.83E+00	1.63E-08	7.0E-05	2E-04			**7.0E-05**		1.83E-06	6.80E-10	7.0E-05	1E-05	2.28E-07	5.95E-11	7.0E-05	9E-07
INORG	Tin	7440-31-5				6.0E-01				**6.0E-01**				6.0E-01				6.0E-01	
INORG	Vanadium	7440-62-2		1.41E+02	1.26E-06	7.0E-03	2E-04			**7.0E-03**		1.41E-04	5.25E-08	7.0E-03	8E-06	1.76E-05	4.60E-09	7.0E-03	7E-07
INORG	Zinc	7440-66-6	D	2.05E+03	1.83E-05	3.0E-01	6E-05			**3.0E-01**		2.05E-03	7.64E-07	3.0E-01	3E-06	2.56E-04	6.68E-08	3.0E-01	2E-07
							HI_{oral}				HI_{derm}			HI_{inh}					HI_{inh}
							5E-03				5E-04			1E-01					9E-03

Note:
Toxicity values in bold are based on extrapolation from oral toxicity values.

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
Fill Area	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.0055		0.0043	0.0003	0.0003			**0.0003**
Fill Area	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.0055		0.0125	0.0003	0.0003			**0.0003**
Fill Area	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000			**0.**
Fill Area	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.0055		0.0082	0.0003	0.0003			**0.0003**
Fill Area	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00						0.0000			**0.**
Fill Area	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000			**0.**
Fill Area	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.0055		0.0077	0.0003	0.0003			**0.0003**
Fill Area	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.0055		0.0079	0.0003	0.0003			**0.0003**
Fill Area	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			**0.**
Fill Area	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000			**0.**
Fill Area	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000			**0.**
Fill Area	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			**0.**
Fill Area	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.0055		0.0015	0.0003	0.0003			**0.0003**
Fill Area	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			**0.**
Fill Area	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.0114	0.0053		0.0066	0.0006	0.0006			**0.0006**
Fill Area	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.0055		0.0028	0.0003	0.0003			**0.0003**
Fill Area	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			**0.**
Fill Area	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.0055		0.0030	0.0003	0.0003			**0.0003**
Fill Area	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			**0.**
Fill Area	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000			**0.**
Fill Area	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.0055		0.0004	0.0003	0.0003			**0.0003**
Fill Area	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000			**0.**
Fill Area	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000			**0.**
Fill Area	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
Fill Area	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			**0.**
Fill Area	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000			**0.**
Fill Area	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0	0.366		0.0000	0.0183	0.0000			**0.**
Fill Area	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000			**0.**
Fill Area	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
Fill Area	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03	0					0.0000			**0.**
Fill Area	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	0					0.0000			**0.**
Fill Area	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03	0					0.0000			**0.**
Fill Area	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000			**0.**
Fill Area	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	0					0.0000			**0.**
Fill Area	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000			**0.**
Fill Area	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			**0.**
Fill Area	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			**0.**
Fill Area	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			**0.**
Fill Area	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	0	3.2	221.7	0.0710	0.1600	0.0000			**0.**
Fill Area	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	5.2	4	24.5	0.1787	0.2600	0.0000			**0.**
Fill Area	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	17.6		428.6	0.4282	0.8800	0.0000			**0.**
Fill Area	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0.28		1.8	0.0004	0.0140	0.0000			**0.**
Fill Area	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	0		16.4			0.0000			**0.**
Fill Area	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	9.9		43.1	0.5183	0.4950	0.0000			**0.**
Fill Area	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	3.4		49.6	0.0754	0.1700	0.0000			**0.**
Fill Area	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	10.9		36.8	0.0011	0.5450	0.0000			**0.**
Fill Area	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			**0.**
Fill Area	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	87		77.6	0.0967	4.3500	0.0967			**0.0967**
Fill Area	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02			0			0.0000			**0.**
Fill Area	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0.05		0.7	0.0010	0.0025	0.0000			**0.**
Fill Area	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	10.3		34.6	0.1582	0.5150	0.0000			**0.**
Fill Area	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0.38		1.5	0.0745	0.0190	0.0000			**0.**
Fill Area	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000			**0.**
Fill Area	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000			**0.**
Fill Area	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	11.8		85.1	0.0118	0.5900	0.0000			**0.**
Fill Area	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	31.7		169.9	0.5105	1.5850	0.0000			**0.**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
Landfill L1	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.031		0.0243	0.0016	0.0016	0.0002		0.
Landfill L1	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.031		0.0702	0.0016	0.0016	0.0480		0.
Landfill L1	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000	0.0002		0.
Landfill L1	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.031		0.0464	0.0016	0.0016			0.
Landfill L1	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	0					0.0000	0.0063		0.
Landfill L1	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000	0.0100		0.
Landfill L1	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.031		0.0434	0.0016	0.0016	0.0054		0.
Landfill L1	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.031		0.0446	0.0016	0.0016	0.0005		0.
Landfill L1	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			0.
Landfill L1	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000	0.0542		0.
Landfill L1	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000	0.0005		0.
Landfill L1	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000	0.0130		0.
Landfill L1	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.031		0.0082	0.0016	0.0016	0.0110		0.
Landfill L1	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000	0.0005		0.
Landfill L1	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.039	0.031		0.0225	0.0020	0.0020	0.0110		0.011
Landfill L1	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.031		0.0159	0.0016	0.0016	0.0002		0.
Landfill L1	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000	0.0044		0.
Landfill L1	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0.15	0.031		0.0830	0.0075	0.0075	0.0230		0.023
Landfill L1	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000	0.0005		0.
Landfill L1	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000	0.0033		0.
Landfill L1	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0.0097	0.031		0.0007	0.0005	0.0005	0.0055		0.0005
Landfill L1	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000	0.0055		0.
Landfill L1	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000	0.0055		0.
Landfill L1	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	5.45			0.0014	0.2725	0.0014	0.0055		0.0055
Landfill L1	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	4.75			0.0005	0.2375	0.0005			0.
Landfill L1	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	9			0.0007	0.4500	0.0007	0.0055		0.0015
Landfill L1	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0	4.5		0.0000	0.2250	0.0000	0.0055		0.
Landfill L1	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000	0.0055		0.
Landfill L1	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	5.4			0.0014	0.2700	0.0014	0.0055		0.0016
Landfill L1	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000	0.0055		0.
Landfill L1	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	11.55			0.0108	0.5775	0.0108	0.0055		0.0055
Landfill L1	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000	0.0055		0.
Landfill L1	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000	0.0055		0.
Landfill L1	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	7.05			0.0503	0.3525	0.0503	0.0055		0.0055
Landfill L1	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	11.2			0.0107	0.5600	0.0107	0.0055		0.0055
Landfill L1	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0	31		0.0101	1.5500	0.0101			0.
Landfill L1	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	21.3	31		0.0025	1.0650	0.0025			0.
Landfill L1	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0	31		0.0003	1.5500	0.0003			0.
Landfill L1	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	30.4		221.7	0.6741	1.5200	0.0000	0.0005	0.0005	0.0005
Landfill L1	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	48		24.5	1.6495	2.4000	1.6495	0.0360	0.0290	0.029
Landfill L1	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	5860		428.6	142.5791	293.0000	142.5791	0.5200	0.5200	0.52
Landfill L1	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	1.4		1.8	0.0018	0.0700	0.0000	0.0100	0.0100	0.01
Landfill L1	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	31.9		16.4	0.4248	1.5950	0.4248	0.0005	0.0005	0.0005
Landfill L1	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	248		43.1	12.9843	12.4000	12.4000	0.0025	0.0025	0.0025
Landfill L1	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	1030		49.6	22.8381	51.5000	22.8381	0.0025	0.0025	0.0025
Landfill L1	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	2600		36.8	0.2593	130.0000	0.2593	0.0025	0.0025	0.0025
Landfill L1	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01	2			0.2000	0.1000	0.1000			0.
Landfill L1	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	740		77.6	0.8221	37.0000	0.8221	0.0005	0.0005	0.0005
Landfill L1	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02			0			0.0000	0.5800	0.5300	0.
Landfill L1	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	1.2		0.7	0.0230	0.0600	0.0230	0.0001	0.0001	0.0001
Landfill L1	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	1210		34.6	18.5868	60.5000	18.5868	0.0120	0.0126	0.012
Landfill L1	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	1.7	1.5	0.3333	0.0850	0.0850	0.0025	0.0025	0.
Landfill L1	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000	0.0005	0.0005	0.
Landfill L1	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0.51		2.3	0.0072	0.0255	0.0000	0.0005	0.0005	0.0005
Landfill L1	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	36.7		85.1	0.0367	1.8350	0.0000	0.0025	0.0025	0.0025
Landfill L1	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	3990		169.9	64.2512	199.5000	64.2512	0.0250	0.0250	0.025

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
Landfill L2	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.0058		0.0045	0.0003	0.0003	0.0001		0.
Landfill L2	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.0058		0.0131	0.0003	0.0003	0.0130		0.
Landfill L2	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000	0.0001		0.
Landfill L2	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.0058		0.0087	0.0003	0.0003			0.
Landfill L2	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	0					0.0000	0.0063		0.
Landfill L2	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0.33			3.1154	0.0165	0.0165	0.0100		0.01
Landfill L2	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.0058		0.0081	0.0003	0.0003	0.0001		0.
Landfill L2	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0					0.0000	0.0005		0.
Landfill L2	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			0.
Landfill L2	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000	0.0025		0.
Landfill L2	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0	0.0058		0.0113	0.0003	0.0003	0.0005		0.
Landfill L2	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000	0.0099		0.
Landfill L2	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.0058		0.0015	0.0003	0.0003	0.0001		0.
Landfill L2	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000	0.0005		0.
Landfill L2	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.03			0.0173	0.0015	0.0015	0.0001		0.0001
Landfill L2	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.0058		0.0030	0.0003	0.0003	0.0001		0.
Landfill L2	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000	0.0011		0.
Landfill L2	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.0058		0.0032	0.0003	0.0003	0.0016		0.
Landfill L2	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000	0.0005		0.
Landfill L2	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000	0.0001		0.
Landfill L2	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0.0091	0.0058		0.0007	0.0005	0.0005	0.0002		0.0002
Landfill L2	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000	0.0050		0.
Landfill L2	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000	0.0050		0.
Landfill L2	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	4			0.0010	0.2000	0.0010	0.0050		0.005
Landfill L2	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			0.
Landfill L2	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0.5			0.0000	0.0250	0.0000	0.0050		0.0015
Landfill L2	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0	3.6		0.0000	0.1800	0.0000	0.0050		0.
Landfill L2	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000	0.0050		0.
Landfill L2	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	3.9			0.0010	0.1950	0.0010	0.0050		0.0016
Landfill L2	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000	0.0050		0.
Landfill L2	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	9.1			0.0085	0.4550	0.0085	0.0050		0.005
Landfill L2	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000	0.0050		0.
Landfill L2	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000	0.0050		0.
Landfill L2	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	7.9			0.0564	0.3950	0.0564	0.0050		0.005
Landfill L2	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	7.4			0.0070	0.3700	0.0070	0.0050		0.005
Landfill L2	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0	0.6		0.0002	0.0300	0.0002			0.
Landfill L2	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	2	0.6		0.0002	0.1000	0.0002			0.
Landfill L2	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0	0.6		0.0000	0.0300	0.0000			0.
Landfill L2	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	29.9	6.9	221.7	0.6630	1.4950	0.0000	0.0005	0.0005	0.0005
Landfill L2	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	10		24.5	0.3436	0.5000	0.0000	0.0025	0.0025	0.0025
Landfill L2	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	153		428.6	3.7226	7.6500	0.0000	0.0814	0.0795	0.0795
Landfill L2	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	1.03		1.8	0.0013	0.0515	0.0000	0.0005	0.0005	0.0005
Landfill L2	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	6.1		16.4	0.0812	0.3050	0.0000	0.0005	0.0005	0.0005
Landfill L2	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	51.2		43.1	2.6806	2.5600	2.5600	0.0010	0.0010	0.001
Landfill L2	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	14.8		49.6	0.3282	0.7400	0.0000	0.0025	0.0025	0.0025
Landfill L2	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	768		36.8	0.0766	38.4000	0.0766	0.0025	0.0025	0.0025
Landfill L2	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01	0	0.2		0.0200	0.0100	0.0100			0.
Landfill L2	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	47		77.6	0.0522	2.3500	0.0000	0.0005	0.0005	0.0005
Landfill L2	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02			0			0.0000	0.2150	0.2110	0.
Landfill L2	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0		0.7			0.0000	0.0001	0.0001	0.
Landfill L2	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	28.6		34.6	0.4393	1.4300	0.0000	0.0080	0.0080	0.008
Landfill L2	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	0.46	1.5	0.0902	0.0230	0.0000	0.0025	0.0025	0.
Landfill L2	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000	0.0003	0.0003	0.
Landfill L2	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000	0.0005	0.0005	0.
Landfill L2	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	40.6		85.1	0.0406	2.0300	0.0000	0.0025	0.0025	0.0025
Landfill L2	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	360		169.9	5.7971	18.0000	5.7971	0.0250	0.0250	0.025

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
Landfill L3	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.0058		0.0045	0.0003	0.0003	0.0001		0.
Landfill L3	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.0058		0.0131	0.0003	0.0003	0.0001		0.
Landfill L3	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000	0.0001		0.
Landfill L3	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.0058		0.0087	0.0003	0.0003			0.
Landfill L3	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	0					0.0000	0.0063		0.
Landfill L3	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0.33			3.1154	0.0165	0.0165	0.0100		0.01
Landfill L3	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.0058		0.0081	0.0003	0.0003	0.0001		0.
Landfill L3	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0					0.0000	0.0005		0.
Landfill L3	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			0.
Landfill L3	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000	0.0025		0.
Landfill L3	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0	0.0058		0.0113	0.0003	0.0003	0.0005		0.
Landfill L3	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000	0.0001		0.
Landfill L3	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.0058		0.0015	0.0003	0.0003	0.0001		0.
Landfill L3	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000	0.0005		0.
Landfill L3	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.01	0.0056		0.0058	0.0005	0.0005	0.0006		0.0006
Landfill L3	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.0058		0.0030	0.0003	0.0003	0.0001		0.
Landfill L3	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000	0.0001		0.
Landfill L3	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.0058		0.0032	0.0003	0.0003	0.0007		0.
Landfill L3	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000	0.0005		0.
Landfill L3	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000	0.0001		0.
Landfill L3	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.0058		0.0004	0.0003	0.0003	0.0002		0.
Landfill L3	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000	0.0050		0.
Landfill L3	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000	0.0050		0.
Landfill L3	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000	0.0050		0.
Landfill L3	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			0.
Landfill L3	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000	0.0050		0.
Landfill L3	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0	3.7		0.0000	0.1850	0.0000	0.0050		0.
Landfill L3	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000	0.0050		0.
Landfill L3	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000	0.0050		0.
Landfill L3	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000	0.0050		0.
Landfill L3	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	0					0.0000	0.0050		0.
Landfill L3	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000	0.0050		0.
Landfill L3	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000	0.0050		0.
Landfill L3	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	0					0.0000	0.0050		0.
Landfill L3	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000	0.0050		0.
Landfill L3	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0	0.6		0.0002	0.0300	0.0002			0.
Landfill L3	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0	0.6		0.0001	0.0300	0.0001			0.
Landfill L3	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0	0.6		0.0000	0.0300	0.0000			0.
Landfill L3	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	23.2	6.9	221.7	0.5144	1.1600	0.0000	0.0005	0.0005	0.0005
Landfill L3	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	11.6		24.5	0.3986	0.5800	0.0000	0.0025	0.0025	0.0025
Landfill L3	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	80.5		428.6	1.9586	4.0250	0.0000	0.0689	0.0675	0.0675
Landfill L3	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	1		1.8	0.0013	0.0500	0.0000	0.0005	0.0005	0.0005
Landfill L3	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	5.6		16.4	0.0746	0.2800	0.0000	0.0005	0.0005	0.0005
Landfill L3	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	22.1		43.1	1.1571	1.1050	0.0000	0.0010	0.0010	0.001
Landfill L3	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	11.2		49.6	0.2483	0.5600	0.0000	0.0025	0.0025	0.0025
Landfill L3	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	37.9		36.8	0.0038	1.8950	0.0038	0.0025	0.0025	0.0025
Landfill L3	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01	0	0.2		0.0200	0.0100	0.0100			0.
Landfill L3	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	47.6		77.6	0.0529	2.3800	0.0000	0.0005	0.0005	0.0005
Landfill L3	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02			0			0.0000			0.
Landfill L3	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0		0.7			0.0000	0.0001	0.0001	0.
Landfill L3	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	17.6		34.6	0.2704	0.8800	0.0000	0.0025	0.0025	0.0025
Landfill L3	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	0.41	1.5	0.0804	0.0205	0.0000	0.0025	0.0025	0.
Landfill L3	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000	0.0003	0.0003	0.
Landfill L3	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000	0.0005	0.0005	0.
Landfill L3	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	44.8		85.1	0.0448	2.2400	0.0000	0.0025	0.0025	0.0025
Landfill L3	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	99.3		169.9	1.5990	4.9650	0.0000	0.0250	0.0250	0.025

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
Liquid Waste Burner	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.3005		0.2351	0.0150	0.0150			**0.015**
Liquid Waste Burner	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.3005		0.6806	0.0150	0.0150			**0.015**
Liquid Waste Burner	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000			**0.**
Liquid Waste Burner	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.3005		0.4501	0.0150	0.0150			**0.015**
Liquid Waste Burner	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00						0.0000			**0.**
Liquid Waste Burner	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000			**0.**
Liquid Waste Burner	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.3005		0.4207	0.0150	0.0150			**0.015**
Liquid Waste Burner	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.3005		0.4327	0.0150	0.0150			**0.015**
Liquid Waste Burner	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			**0.**
Liquid Waste Burner	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000			**0.**
Liquid Waste Burner	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000			**0.**
Liquid Waste Burner	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			**0.**
Liquid Waste Burner	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	1.95	0.0058		0.5178	0.0975	0.0975			**0.0975**
Liquid Waste Burner	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			**0.**
Liquid Waste Burner	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0	0.3005		0.1733	0.0150	0.0150			**0.015**
Liquid Waste Burner	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.3005		0.1541	0.0150	0.0150			**0.015**
Liquid Waste Burner	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			**0.**
Liquid Waste Burner	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.3005		0.1663	0.0150	0.0150			**0.015**
Liquid Waste Burner	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			**0.**
Liquid Waste Burner	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000			**0.**
Liquid Waste Burner	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.3005		0.0229	0.0150	0.0150			**0.015**
Liquid Waste Burner	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000			**0.**
Liquid Waste Burner	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000			**0.**
Liquid Waste Burner	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
Liquid Waste Burner	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			**0.**
Liquid Waste Burner	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000			**0.**
Liquid Waste Burner	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0	3.52		0.0000	0.1760	0.0000			**0.**
Liquid Waste Burner	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000			**0.**
Liquid Waste Burner	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
Liquid Waste Burner	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000			**0.**
Liquid Waste Burner	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	0					0.0000			**0.**
Liquid Waste Burner	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000			**0.**
Liquid Waste Burner	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000			**0.**
Liquid Waste Burner	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	0					0.0000			**0.**
Liquid Waste Burner	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000			**0.**
Liquid Waste Burner	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			**0.**
Liquid Waste Burner	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0.595	0.58		0.0001	0.0298	0.0001			**0.0001**
Liquid Waste Burner	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			**0.**
Liquid Waste Burner	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	0	3.2	221.7	0.0710	0.1600	0.0000			**0.**
Liquid Waste Burner	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	0	3.55	24.5	0.1220	0.1775	0.0000			**0.**
Liquid Waste Burner	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	19.95		428.6	0.4854	0.9975	0.0000			**0.**
Liquid Waste Burner	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0.11		1.8	0.0001	0.0055	0.0000			**0.**
Liquid Waste Burner	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	0.535		16.4	0.0071	0.0268	0.0000			**0.**
Liquid Waste Burner	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	4.8		43.1	0.2513	0.2400	0.0000			**0.**
Liquid Waste Burner	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	2.75		49.6	0.0610	0.1375	0.0000			**0.**
Liquid Waste Burner	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	29.3	3.9	36.8	0.0029	1.4650	0.0000			**0.**
Liquid Waste Burner	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			**0.**
Liquid Waste Burner	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	8.45		77.6	0.0094	0.4225	0.0000			**0.**
Liquid Waste Burner	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02			0			0.0000			**0.**
Liquid Waste Burner	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0.045		0.7	0.0009	0.0023	0.0000			**0.**
Liquid Waste Burner	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	11.45		34.6	0.1759	0.5725	0.0000			**0.**
Liquid Waste Burner	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	1.4	1.5	0.2745	0.0700	0.0000			**0.**
Liquid Waste Burner	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000			**0.**
Liquid Waste Burner	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000			**0.**
Liquid Waste Burner	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	6.75		85.1	0.0067	0.3375	0.0000			**0.**
Liquid Waste Burner	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	42.45	0.32	169.9	0.6836	2.1225	0.0000			**0.**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
North Settling Lagoon	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0					0.0000	0.0003		**0.**
North Settling Lagoon	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0					0.0000	0.0009		**0.**
North Settling Lagoon	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000	0.0004		**0.**
North Settling Lagoon	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	19.9			29.8044	0.9950	0.9950			**0.**
North Settling Lagoon	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00						0.0000	0.0063		**0.**
North Settling Lagoon	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00						0.0000	0.0100		**0.**
North Settling Lagoon	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0					0.0000	0.0004		**0.**
North Settling Lagoon	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00						0.0000	0.0005		**0.**
North Settling Lagoon	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			**0.**
North Settling Lagoon	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000	0.0025		**0.**
North Settling Lagoon	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000	0.0005		**0.**
North Settling Lagoon	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000	0.1000		**0.**
North Settling Lagoon	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	3.4			0.9029	0.1700	0.1700	0.0004		**0.0004**
North Settling Lagoon	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01						0.0000	0.0005		**0.**
North Settling Lagoon	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	4.7			2.7111	0.2350	0.2350	0.0051		**0.0051**
North Settling Lagoon	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	10.1			5.1791	0.5050	0.5050	0.0003		**0.0003**
North Settling Lagoon	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00	0					0.0000	0.0016		**0.0016**
North Settling Lagoon	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	6.66			3.6861	0.3330	0.3330	0.0081		**0.0081**
North Settling Lagoon	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000	0.0005		**0.**
North Settling Lagoon	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000	0.0066		**0.0066**
North Settling Lagoon	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	9.25			0.7051	0.4625	0.4625	0.0009		**0.0009**
North Settling Lagoon	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	1.52			0.2421	0.0760	0.0760	0.0050		**0.005**
North Settling Lagoon	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	9.54			0.1285	0.4770	0.1285	0.0050		**0.005**
North Settling Lagoon	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000	0.0050		**0.**
North Settling Lagoon	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			**0.**
North Settling Lagoon	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000	0.0050		**0.**
North Settling Lagoon	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	31.2			0.0002	1.5600	0.0002	0.0050		**0.005**
North Settling Lagoon	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000	0.0050		**0.**
North Settling Lagoon	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000	0.0050		**0.**
North Settling Lagoon	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03	0					0.0000	0.0050		**0.**
North Settling Lagoon	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	104			0.0972	5.2000	0.0972	0.0050		**0.005**
North Settling Lagoon	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03	18.5			0.1340	0.9250	0.1340	0.0050		**0.005**
North Settling Lagoon	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000	0.0050		**0.**
North Settling Lagoon	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	41.7			0.2976	2.0850	0.2976	0.0050		**0.005**
North Settling Lagoon	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	81.5			0.0776	4.0750	0.0776	0.0050		**0.005**
North Settling Lagoon	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	3.1			0.0010	0.1550	0.0010			**0.**
North Settling Lagoon	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			**0.**
North Settling Lagoon	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	27.4			0.0003	1.3700	0.0003			**0.**
North Settling Lagoon	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	54.8	221.7		1.2151	2.7400	0.0000	0.0005	0.0005	**0.0005**
North Settling Lagoon	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	158	24.5		5.4296	7.9000	5.4296	0.0112	0.0074	**0.0074**
North Settling Lagoon	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	2550	428.6		62.0438	127.5000	62.0438	0.1060	0.0986	**0.0986**
North Settling Lagoon	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0	1.8				0.0000	0.0005	0.0005	**0.**
North Settling Lagoon	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	1430	16.4		19.0413	71.5000	19.0413	0.0005	0.0005	**0.0005**
North Settling Lagoon	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	3630	43.1		190.0524	181.5000	181.5000	0.0010	0.0010	**0.001**
North Settling Lagoon	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	1210	49.6		26.8293	60.5000	26.8293	0.0025	0.0025	**0.0025**
North Settling Lagoon	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	969	36.8		0.0966	48.4500	0.0966	0.0025	0.0025	**0.0025**
North Settling Lagoon	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01	5.32			0.5320	0.2660	0.2660			**0.**
North Settling Lagoon	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	5970	77.6		6.6326	298.5000	6.6326	0.0010	0.0005	**0.0005**
North Settling Lagoon	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02		0				0.0000			**0.**
North Settling Lagoon	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	1.87	0.7		0.0359	0.0935	0.0359	0.0001	0.0001	**0.0001**
North Settling Lagoon	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	3250	34.6		49.9232	162.5000	49.9232	0.0122	0.0116	**0.0116**
North Settling Lagoon	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	76.6	1.5		15.0196	3.8300	3.8300	0.0025	0.0025	**0.0025**
North Settling Lagoon	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	2.12	1.1		0.2524	0.1060	0.1060	0.0003	0.0003	**0.0003**
North Settling Lagoon	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0	2.3				0.0000	0.0005	0.0005	**0.**
North Settling Lagoon	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	30.7	85.1		0.0307	1.5350	0.0000	0.0025	0.0025	**0.0025**
North Settling Lagoon	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	10501	169.9		169.0982	525.0500	169.0982	0.0250	0.0250	**0.025**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
South Settling Lagoon	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0					0.0000	0.0020		**0.**
South Settling Lagoon	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0					0.0000	0.0010		**0.**
South Settling Lagoon	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000	0.0001		**0.**
South Settling Lagoon	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0					0.0000			**0.**
South Settling Lagoon	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00						0.0000	0.0063		**0.**
South Settling Lagoon	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00						0.0000	0.0100		**0.**
South Settling Lagoon	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0					0.0000	0.0001		**0.**
South Settling Lagoon	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00						0.0000	0.0005		**0.**
South Settling Lagoon	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			**0.**
South Settling Lagoon	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000	0.0025		**0.**
South Settling Lagoon	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000	0.0005		**0.**
South Settling Lagoon	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000	0.0036		**0.**
South Settling Lagoon	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0					0.0000	0.0001		**0.**
South Settling Lagoon	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01						0.0000	0.0005		**0.**
South Settling Lagoon	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0					0.0000	0.0240		**0.**
South Settling Lagoon	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0					0.0000	0.0003		**0.**
South Settling Lagoon	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00	0					0.0000	0.0008		**0.**
South Settling Lagoon	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0					0.0000	0.0130		**0.**
South Settling Lagoon	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000	0.0031		**0.**
South Settling Lagoon	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000	0.0001		**0.**
South Settling Lagoon	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0					0.0000	0.0002		**0.**
South Settling Lagoon	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000	0.0060		**0.**
South Settling Lagoon	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000	0.0060		**0.**
South Settling Lagoon	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000	0.0060		**0.**
South Settling Lagoon	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			**0.**
South Settling Lagoon	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000	0.0060		**0.**
South Settling Lagoon	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	2.76			0.0000	0.1380	0.0000	0.0060		**0.006**
South Settling Lagoon	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000	0.0060		**0.**
South Settling Lagoon	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000	0.0060		**0.**
South Settling Lagoon	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03	1.99			0.0059	0.0995	0.0059	0.0060		**0.006**
South Settling Lagoon	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	0					0.0000	0.0060		**0.**
South Settling Lagoon	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03	0					0.0000	0.0060		**0.**
South Settling Lagoon	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000	0.0060		**0.**
South Settling Lagoon	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	0					0.0000	0.0060		**0.**
South Settling Lagoon	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000	0.0060		**0.**
South Settling Lagoon	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			**0.**
South Settling Lagoon	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	206			0.0244	10.3000	0.0244			**0.**
South Settling Lagoon	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	4.6			0.0000	0.2300	0.0000			**0.**
South Settling Lagoon	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	52.8		221.7	1.1707	2.6400	0.0000	0.0005	0.0005	**0.0005**
South Settling Lagoon	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	157		24.5	5.3952	7.8500	5.3952	0.0025	0.0025	**0.0025**
South Settling Lagoon	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	7310		428.6	177.8589	365.5000	177.8589	0.1830	0.1670	**0.167**
South Settling Lagoon	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0		1.8			0.0000	0.0005	0.0005	**0.**
South Settling Lagoon	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	26.9		16.4	0.3582	1.3450	0.3582	0.0005	0.0005	**0.0005**
South Settling Lagoon	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	2020		43.1	105.7592	101.0000	101.0000	0.0035	0.0010	**0.001**
South Settling Lagoon	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	222		49.6	4.9224	11.1000	4.9224	0.0144	0.0025	**0.0025**
South Settling Lagoon	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	16900		36.8	1.6853	845.0000	1.6853	0.0025	0.0025	**0.0025**
South Settling Lagoon	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01	18.9			1.8900	0.9450	0.9450			**0.**
South Settling Lagoon	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	398		77.6	0.4422	19.9000	0.4422	0.0005	0.0005	**0.0005**
South Settling Lagoon	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02			0			0.0000			**0.**
South Settling Lagoon	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	4.03		0.7	0.0773	0.2015	0.0773	0.0001	0.0001	**0.0001**
South Settling Lagoon	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	1490		34.6	22.8879	74.5000	22.8879	0.0098	0.0067	**0.0067**
South Settling Lagoon	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0.78		1.5	0.1529	0.0390	0.0000	0.0025	0.0025	**0.0025**
South Settling Lagoon	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	2.45		1.1	0.2917	0.1225	0.1225	0.0003	0.0003	**0.0003**
South Settling Lagoon	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000	0.0005	0.0005	**0.**
South Settling Lagoon	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	0		85.1			0.0000	0.0025	0.0025	**0.**
South Settling Lagoon	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	2190		169.9	35.2657	109.5000	35.2657	0.0250	0.0250	**0.025**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
South Tank Farm	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.27		0.2112	0.0135	0.0135			**0.0135**
South Tank Farm	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.27		0.6115	0.0135	0.0135			**0.0135**
South Tank Farm	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000			**0.**
South Tank Farm	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.27		0.4044	0.0135	0.0135			**0.0135**
South Tank Farm	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	0					0.0000			**0.**
South Tank Farm	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000			**0.**
South Tank Farm	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.27		0.3780	0.0135	0.0135			**0.0135**
South Tank Farm	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.27		0.3888	0.0135	0.0135			**0.0135**
South Tank Farm	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			**0.**
South Tank Farm	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000			**0.**
South Tank Farm	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000			**0.**
South Tank Farm	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			**0.**
South Tank Farm	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.27		0.0717	0.0135	0.0135			**0.0135**
South Tank Farm	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			**0.**
South Tank Farm	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	1	0.0053		0.5768	0.0500	0.0500			**0.05**
South Tank Farm	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.27		0.1385	0.0135	0.0135			**0.0135**
South Tank Farm	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			**0.**
South Tank Farm	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.27		0.1494	0.0135	0.0135			**0.0135**
South Tank Farm	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			**0.**
South Tank Farm	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000			**0.**
South Tank Farm	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.27		0.0206	0.0135	0.0135			**0.0135**
South Tank Farm	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01						0.0000			**0.**
South Tank Farm	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02						0.0000			**0.**
South Tank Farm	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04						0.0000			**0.**
South Tank Farm	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05						0.0000			**0.**
South Tank Farm	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05						0.0000			**0.**
South Tank Farm	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06						0.0000			**0.**
South Tank Farm	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03						0.0000			**0.**
South Tank Farm	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04						0.0000			**0.**
South Tank Farm	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000			**0.**
South Tank Farm	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04						0.0000			**0.**
South Tank Farm	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000			**0.**
South Tank Farm	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02						0.0000			**0.**
South Tank Farm	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03						0.0000			**0.**
South Tank Farm	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04						0.0000			**0.**
South Tank Farm	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			**0.**
South Tank Farm	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			**0.**
South Tank Farm	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			**0.**
South Tank Farm	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	0	8.5		221.7	0.1885	0.4250	0.0000		**0.**
South Tank Farm	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	6.6			24.5	0.2268	0.3300	0.0000		**0.**
South Tank Farm	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	56.8			428.6	1.3820	2.8400	0.0000		**0.**
South Tank Farm	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0			1.8			0.0000		**0.**
South Tank Farm	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	2.6			16.4	0.0346	0.1300	0.0000		**0.**
South Tank Farm	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	4.7			43.1	0.2461	0.2350	0.0000		**0.**
South Tank Farm	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	3.8	2.1		49.6	0.0843	0.1900	0.0000		**0.**
South Tank Farm	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	11.9			36.8	0.0012	0.5950	0.0000		**0.**
South Tank Farm	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01							0.0000		**0.**
South Tank Farm	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03				77.6			0.0000		**0.**
South Tank Farm	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02	12.8			0	0.1966	0.6400	0.1966		**0.1966**
South Tank Farm	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0			0.7			0.0000		**0.**
South Tank Farm	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	25.4	6.4		34.6	0.3902	1.2700	0.0000		**0.**
South Tank Farm	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	0.43		1.5	0.0843	0.0215	0.0000		**0.**
South Tank Farm	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	1.2			1.1	0.1429	0.0600	0.0600		**0.06**
South Tank Farm	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0			2.3			0.0000		**0.**
South Tank Farm	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	7.7			85.1	0.0077	0.3850	0.0000		**0.**
South Tank Farm	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	38.9			169.9	0.6264	1.9450	0.0000		**0.**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
T04	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.0058		0.0045	0.0003	0.0003			**0.0003**
T04	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.0058		0.0131	0.0003	0.0003			**0.0003**
T04	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000			**0.**
T04	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.0058		0.0087	0.0003	0.0003			**0.0003**
T04	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	0					0.0000			**0.**
T04	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000			**0.**
T04	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.0058		0.0081	0.0003	0.0003			**0.0003**
T04	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.0058		0.0084	0.0003	0.0003			**0.0003**
T04	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			**0.**
T04	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000			**0.**
T04	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000			**0.**
T04	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			**0.**
T04	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.0058		0.0015	0.0003	0.0003			**0.0003**
T04	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			**0.**
T04	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.019			0.0110	0.0010	0.0010			**0.001**
T04	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.0058		0.0030	0.0003	0.0003			**0.0003**
T04	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			**0.**
T04	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.0058		0.0032	0.0003	0.0003			**0.0003**
T04	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			**0.**
T04	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000			**0.**
T04	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.0058		0.0004	0.0003	0.0003			**0.0003**
T04	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01						0.0000			**0.**
T04	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02						0.0000			**0.**
T04	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04						0.0000			**0.**
T04	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05						0.0000			**0.**
T04	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05						0.0000			**0.**
T04	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06						0.0000			**0.**
T04	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03						0.0000			**0.**
T04	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04						0.0000			**0.**
T04	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000			**0.**
T04	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04						0.0000			**0.**
T04	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000			**0.**
T04	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02						0.0000			**0.**
T04	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03						0.0000			**0.**
T04	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04						0.0000			**0.**
T04	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04						0.0000			**0.**
T04	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04						0.0000			**0.**
T04	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06						0.0000			**0.**
T04	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	22.4			221.7	0.4967	1.1200	0.0000		**0.**
T04	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	6.5			24.5	0.2234	0.3250	0.0000		**0.**
T04	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	65.6			428.6	1.5961	3.2800	0.0000		**0.**
T04	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0.65			1.8	0.0008	0.0325	0.0000		**0.**
T04	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	4.2			16.4	0.0559	0.2100	0.0000		**0.**
T04	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	14.1			43.1	0.7382	0.7050	0.0000		**0.**
T04	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	18.2			49.6	0.4035	0.9100	0.0000		**0.**
T04	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	19			36.8	0.0019	0.9500	0.0000		**0.**
T04	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01							0.0000		**0.**
T04	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	13.5			77.6	0.0150	0.6750	0.0000		**0.**
T04	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02				0			0.0000		**0.**
T04	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0			0.7			0.0000		**0.**
T04	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	0	19.8		34.6	0.3041	0.9900	0.0000		**0.**
T04	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	0.47		1.5	0.0922	0.0235	0.0000		**0.**
T04	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0			1.1			0.0000		**0.**
T04	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0			2.3			0.0000		**0.**
T04	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	26.7			85.1	0.0267	1.3350	0.0000		**0.**
T04	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	70.8			169.9	1.1401	3.5400	0.0000		**0.**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
T05/T06	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.0052		0.0041	0.0003	0.0003			**0.0003**
T05/T06	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.0052		0.0118	0.0003	0.0003			**0.0003**
T05/T06	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000			**0.**
T05/T06	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.0052		0.0078	0.0003	0.0003			**0.0003**
T05/T06	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	0					0.0000			**0.**
T05/T06	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0.19			1.7937	0.0095	0.0095			**0.0095**
T05/T06	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.0052		0.0073	0.0003	0.0003			**0.0003**
T05/T06	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.0052		0.0075	0.0003	0.0003			**0.0003**
T05/T06	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			**0.**
T05/T06	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000			**0.**
T05/T06	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000			**0.**
T05/T06	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			**0.**
T05/T06	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.0052		0.0014	0.0003	0.0003			**0.0003**
T05/T06	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			**0.**
T05/T06	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.044			0.0254	0.0022	0.0022			**0.0022**
T05/T06	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.0052		0.0027	0.0003	0.0003			**0.0003**
T05/T06	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			**0.**
T05/T06	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.0052		0.0029	0.0003	0.0003			**0.0003**
T05/T06	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			**0.**
T05/T06	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000			**0.**
T05/T06	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.0052		0.0004	0.0003	0.0003			**0.0003**
T05/T06	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000			**0.**
T05/T06	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000			**0.**
T05/T06	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
T05/T06	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			**0.**
T05/T06	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000			**0.**
T05/T06	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0.375			0.0000	0.0188	0.0000			**0.**
T05/T06	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000			**0.**
T05/T06	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
T05/T06	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000			**0.**
T05/T06	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	0					0.0000			**0.**
T05/T06	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000			**0.**
T05/T06	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000			**0.**
T05/T06	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	0					0.0000			**0.**
T05/T06	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000			**0.**
T05/T06	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			**0.**
T05/T06	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			**0.**
T05/T06	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			**0.**
T05/T06	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	27.3			221.7	0.6053	1.3650	0.0000		**0.**
T05/T06	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	11			24.5	0.3780	0.5500	0.0000		**0.**
T05/T06	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	28.55			428.6	0.6946	1.4275	0.0000		**0.**
T05/T06	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0.325			1.8	0.0004	0.0163	0.0000		**0.**
T05/T06	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	6.1			16.4	0.0812	0.3050	0.0000		**0.**
T05/T06	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	8.9			43.1	0.4660	0.4450	0.0000		**0.**
T05/T06	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	10.6			49.6	0.2350	0.5300	0.0000		**0.**
T05/T06	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	12.3			36.8	0.0012	0.6150	0.0000		**0.**
T05/T06	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			**0.**
T05/T06	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	9.65			77.6	0.0107	0.4825	0.0000		**0.**
T05/T06	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02				0			0.0000		**0.**
T05/T06	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0			0.7			0.0000		**0.**
T05/T06	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	10.55			34.6	0.1621	0.5275	0.0000		**0.**
T05/T06	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	0.42		1.5	0.0824	0.0210	0.0000		**0.**
T05/T06	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0			1.1			0.0000		**0.**
T05/T06	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0			2.3			0.0000		**0.**
T05/T06	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	13.7			85.1	0.0137	0.6850	0.0000		**0.**
T05/T06	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	50.75			169.9	0.8172	2.5375	0.0000		**0.**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
T11	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.29		0.2269	0.0145	0.0145			**0.0145**
T11	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.29		0.6568	0.0145	0.0145			**0.0145**
T11	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000			**0.**
T11	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.29		0.4343	0.0145	0.0145			**0.0145**
T11	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	0					0.0000			**0.**
T11	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	8.9			84.0207	0.4450	0.4450			**0.445**
T11	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.29		0.4060	0.0145	0.0145			**0.0145**
T11	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.29		0.4176	0.0145	0.0145			**0.0145**
T11	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			**0.**
T11	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000			**0.**
T11	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000			**0.**
T11	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			**0.**
T11	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.29		0.0770	0.0145	0.0145			**0.0145**
T11	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			**0.**
T11	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.11	0.29		0.0635	0.0055	0.0055			**0.0055**
T11	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0.0058	0.29		0.0030	0.0003	0.0003			**0.0003**
T11	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			**0.**
T11	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.29		0.1605	0.0145	0.0145			**0.0145**
T11	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			**0.**
T11	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000			**0.**
T11	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.29		0.0221	0.0145	0.0145			**0.0145**
T11	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000			**0.**
T11	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	7.3			0.0983	0.3650	0.0983			**0.0983**
T11	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
T11	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			**0.**
T11	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000			**0.**
T11	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0.58	3.8		0.0000	0.0290	0.0000			**0.**
T11	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000			**0.**
T11	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
T11	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000			**0.**
T11	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	0					0.0000			**0.**
T11	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000			**0.**
T11	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	7.5			0.3731	0.3750	0.3731			**0.3731**
T11	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	0					0.0000			**0.**
T11	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000			**0.**
T11	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			**0.**
T11	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			**0.**
T11	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			**0.**
T11	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	39.7	6.8	221.7	0.8803	1.9850	0.0000			**0.**
T11	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	9.4		24.5	0.3230	0.4700	0.0000			**0.**
T11	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	543		428.6	13.2117	27.1500	13.2117			**13.2117**
T11	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0.69		1.8	0.0009	0.0345	0.0000			**0.**
T11	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	5.3		16.4	0.0706	0.2650	0.0000			**0.**
T11	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	14.5		43.1	0.7592	0.7250	0.0000			**0.**
T11	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	11.5		49.6	0.2550	0.5750	0.0000			**0.**
T11	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	25.9		36.8	0.0026	1.2950	0.0000			**0.**
T11	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01	0.8	0.1		0.0800	0.0400	0.0400			**0.04**
T11	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	20.9		77.6	0.0232	1.0450	0.0000			**0.**
T11	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02			0			0.0000			**0.**
T11	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0		0.7			0.0000			**0.**
T11	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	33.5		34.6	0.5146	1.6750	0.0000			**0.**
T11	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	2.3	1.5	0.4510	0.1150	0.1150			**0.115**
T11	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000			**0.**
T11	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000			**0.**
T11	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	27.8		85.1	0.0278	1.3900	0.0000			**0.**
T11	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	77.6		169.9	1.2496	3.8800	0.0000			**0.**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
T12	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.0059		0.0046	0.0003	0.0003			0.0003
T12	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.0059		0.0134	0.0003	0.0003			0.0003
T12	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000			0.
T12	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.0059		0.0088	0.0003	0.0003			0.0003
T12	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	0					0.0000			0.
T12	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000			0.
T12	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.0059		0.0083	0.0003	0.0003			0.0003
T12	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.0059		0.0085	0.0003	0.0003			0.0003
T12	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			0.
T12	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000			0.
T12	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000			0.
T12	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			0.
T12	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0.00705	0.0059		0.0019	0.0004	0.0004			0.0004
T12	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0.0305			0.0039	0.0015	0.0015			0.0015
T12	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0	0.0059		0.0034	0.0003	0.0003			0.0003
T12	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.0059		0.0030	0.0003	0.0003			0.0003
T12	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			0.
T12	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.0059		0.0033	0.0003	0.0003			0.0003
T12	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			0.
T12	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000			0.
T12	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.0059		0.0004	0.0003	0.0003			0.0003
T12	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01						0.0000			0.
T12	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02						0.0000			0.
T12	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04						0.0000			0.
T12	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05						0.0000			0.
T12	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05						0.0000			0.
T12	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06						0.0000			0.
T12	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03						0.0000			0.
T12	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04						0.0000			0.
T12	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000			0.
T12	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04						0.0000			0.
T12	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000			0.
T12	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02						0.0000			0.
T12	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03						0.0000			0.
T12	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04						0.0000			0.
T12	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04						0.0000			0.
T12	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04						0.0000			0.
T12	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06						0.0000			0.
T12	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	52.35		221.7	1.1608	2.6175	0.0000			0.
T12	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	4		24.5	0.1375	0.2000	0.0000			0.
T12	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	139		428.6	3.3820	6.9500	0.0000			0.
T12	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0.54		1.8	0.0007	0.0270	0.0000			0.
T12	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	3.4		16.4	0.0453	0.1700	0.0000			0.
T12	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	11.2	4.4	43.1	0.5864	0.5600	0.0000			0.
T12	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	23.3		49.6	0.5166	1.1650	0.0000			0.
T12	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	22		36.8	0.0022	1.1000	0.0000			0.
T12	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			0.
T12	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	14.9		77.6	0.0166	0.7450	0.0000			0.
T12	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02			0			0.0000			0.
T12	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0		0.7			0.0000			0.
T12	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	0	30.9	34.6	0.4747	1.5450	0.0000			0.
T12	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	0.46	1.5	0.0902	0.0230	0.0000			0.
T12	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000			0.
T12	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000			0.
T12	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	25		85.1	0.0250	1.2500	0.0000			0.
T12	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	80.1		169.9	1.2899	4.0050	0.0000			0.

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
Waste Pile Staging Area	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	23.2	0.0595		18.1510	1.1600	1.1600	0.0246		1.16
Waste Pile Staging Area	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	7.4	0.31		16.7610	0.3700	0.3700	0.0854		0.37
Waste Pile Staging Area	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0.051	0.31		0.0631	0.0026	0.0026	0.0040		0.0026
Waste Pile Staging Area	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	2.67	0.31		3.9989	0.1335	0.1335			0.1335
Waste Pile Staging Area	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	2.95	3.1		24.7459	0.1475	0.1475			0.1475
Waste Pile Staging Area	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	12	6.2		113.2863	0.6000	0.6000	0.0053		0.6
Waste Pile Staging Area	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0.35	0.31		0.4900	0.0175	0.0175			0.0175
Waste Pile Staging Area	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0.0277	0.31		0.0399	0.0014	0.0014	0.0003		0.0014
Waste Pile Staging Area	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01		0.31		0.1344	0.0155	0.0155			0.0155
Waste Pile Staging Area	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0.2318748	3.1		0.8268	0.0116	0.0116	0.0648		0.0116
Waste Pile Staging Area	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00		0.31		0.6024	0.0155	0.0155			0.0155
Waste Pile Staging Area	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00	21.3	0.044		44.9826	1.0650	1.0650	0.3500		1.065
Waste Pile Staging Area	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	8.8	0.0595		2.3368	0.4400	0.4400			0.44
Waste Pile Staging Area	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01		0.31		0.0394	0.0155	0.0155			0.0155
Waste Pile Staging Area	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.5338259	0.31		0.3079	0.0267	0.0267	0.0942		0.0267
Waste Pile Staging Area	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	16	0.0595		8.2045	0.8000	0.8000			0.8
Waste Pile Staging Area	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00	0.12	0.044		0.1797	0.0060	0.0060	0.0120		0.006
Waste Pile Staging Area	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0.7642026	0.31		0.4230	0.0382	0.0382	0.3200		0.0382
Waste Pile Staging Area	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01		0.034		0.0098	0.0017	0.0017			0.0017
Waste Pile Staging Area	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0.1249026	1.6		0.3053	0.0062	0.0062	0.1100		0.0062
Waste Pile Staging Area	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	19	0.067		1.4483	0.9500	0.9500			0.95
Waste Pile Staging Area	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0.906	41.15		0.1443	0.0453	0.0453	0.0079		0.0453
Waste Pile Staging Area	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0.869	41.15		0.0117	0.0435	0.0117			0.0117
Waste Pile Staging Area	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	11.1	41.15		0.0028	0.5550	0.0028			0.0028
Waste Pile Staging Area	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	47	41.15		0.0046	2.3500	0.0046			0.0016
Waste Pile Staging Area	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	90	69.2		0.0073	4.5000	0.0073			0.0015
Waste Pile Staging Area	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	1.9	41.15		0.0000	0.0950	0.0000			0.
Waste Pile Staging Area	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03		41.15		0.0716	2.0575	0.0716			0.0716
Waste Pile Staging Area	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	44	41.15		0.0111	2.2000	0.0111			0.0016
Waste Pile Staging Area	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03		41.15		0.1214	2.0575	0.1214			0.1214
Waste Pile Staging Area	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	86	41.15		0.0804	4.3000	0.0804			0.0804
Waste Pile Staging Area	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03	2.09	41.15		0.0151	0.1045	0.0151			0.0151
Waste Pile Staging Area	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	1.09	41.15		0.0542	0.0545	0.0542			0.0542
Waste Pile Staging Area	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	84	41.15		0.5996	4.2000	0.5996			0.5996
Waste Pile Staging Area	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	83	41.15		0.0790	4.1500	0.0790			0.079
Waste Pile Staging Area	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04						0.0000			0.
Waste Pile Staging Area	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	7.5			0.0009	0.3750	0.0009			0.0009
Waste Pile Staging Area	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06						0.0000			0.
Waste Pile Staging Area	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	38.75617	35	43.7	0.8593	1.9378	0.0000	0.1920	0.0562	0.
Waste Pile Staging Area	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	17.6207	25.6	24.5	0.6055	0.8810	0.6055	0.2570	0.0120	0.6055
Waste Pile Staging Area	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	378.35353	0.0795	428.6	9.2057	18.9177	0.0000	10.2000	0.2650	0.
Waste Pile Staging Area	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	1.33	38.6	1.8	0.0017	0.0665	0.0017	0.0205		0.0017
Waste Pile Staging Area	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	10.205661	26	4.0	0.1359	0.5103	0.1359	0.0553	0.0021	0.1359
Waste Pile Staging Area	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	357.41663	348	13.5	18.7129	17.8708	17.8708	0.7310	0.0052	17.8708
Waste Pile Staging Area	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	248	3.6	49.6	5.4989	12.4000	5.4989	0.4970	0.0337	5.4989
Waste Pile Staging Area	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	62700	30.65	36.8	6.2524	3135.0000	6.2524	1.9900	0.0128	6.2524
Waste Pile Staging Area	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000	0.0080		0.
Waste Pile Staging Area	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	210	0.014	16.0	0.2333	10.5000	0.2333	1.2300		0.2333
Waste Pile Staging Area	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02	2990		0	45.9293	149.5000	45.9293	0.6270	0.1450	45.9293
Waste Pile Staging Area	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	2.58	0.13	0.3	0.0495	0.1290	0.0495	0.0030		0.0495
Waste Pile Staging Area	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	356.44477	1.7	14.2	5.4753	17.8222	5.4753	1.3700	0.0233	5.4753
Waste Pile Staging Area	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0.608	2.5	0.9	0.1192	0.0304	0.0304	0.0139	0.0021	0.0304
Waste Pile Staging Area	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	87.2	34	1.1	10.3810	4.3600	4.3600	0.0085	0.0008	4.36
Waste Pile Staging Area	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	2.08	1	1.1	0.0293	0.1040	0.0293	0.0204	0.0003	0.0293
Waste Pile Staging Area	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	175	43	85.1	0.1750	8.7500	0.1750	0.5720	0.0026	0.175
Waste Pile Staging Area	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	1388.3789	28.1	169.9	22.3571	69.4189	22.3571	4.9500	0.0165	22.3571

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
West Tank Farm	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.3		0.2347	0.0150	0.0150			0.015
West Tank Farm	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.3		0.6795	0.0150	0.0150			0.015
West Tank Farm	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0					0.0000			0.
West Tank Farm	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0.925	0.27		1.3854	0.0463	0.0463			0.0463
West Tank Farm	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	6.47			54.2731	0.3235	0.3235			0.3235
West Tank Farm	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000			0.
West Tank Farm	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.3		0.4200	0.0150	0.0150			0.015
West Tank Farm	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.3		0.4320	0.0150	0.0150			0.015
West Tank Farm	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0					0.0000			0.
West Tank Farm	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0					0.0000			0.
West Tank Farm	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0					0.0000			0.
West Tank Farm	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			0.
West Tank Farm	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.3		0.0797	0.0150	0.0150			0.015
West Tank Farm	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			0.
West Tank Farm	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	1.79	0.27		1.0325	0.0895	0.0895			0.0895
West Tank Farm	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.3		0.1538	0.0150	0.0150			0.015
West Tank Farm	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			0.
West Tank Farm	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0.31	0.27		0.1716	0.0155	0.0155			0.0155
West Tank Farm	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			0.
West Tank Farm	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0					0.0000			0.
West Tank Farm	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.3		0.0229	0.0150	0.0150			0.015
West Tank Farm	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01						0.0000			0.
West Tank Farm	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02						0.0000			0.
West Tank Farm	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04						0.0000			0.
West Tank Farm	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05						0.0000			0.
West Tank Farm	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05						0.0000			0.
West Tank Farm	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06						0.0000			0.
West Tank Farm	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03						0.0000			0.
West Tank Farm	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04						0.0000			0.
West Tank Farm	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000			0.
West Tank Farm	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04						0.0000			0.
West Tank Farm	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000			0.
West Tank Farm	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02						0.0000			0.
West Tank Farm	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03						0.0000			0.
West Tank Farm	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04						0.0000			0.
West Tank Farm	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			0.
West Tank Farm	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			0.
West Tank Farm	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			0.
West Tank Farm	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	0	8.7	221.7	0.1929	0.4350	0.0000			0.
West Tank Farm	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	4.6		24.5	0.1581	0.2300	0.0000			0.
West Tank Farm	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	21.9		428.6	0.5328	1.0950	0.0000			0.
West Tank Farm	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0		1.8			0.0000			0.
West Tank Farm	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	2.3		16.4	0.0306	0.1150	0.0000			0.
West Tank Farm	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	9		43.1	0.4712	0.4500	0.0000			0.
West Tank Farm	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	3.2	2.1	49.6	0.0710	0.1600	0.0000			0.
West Tank Farm	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	11.7		36.8	0.0012	0.5850	0.0000			0.
West Tank Farm	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			0.
West Tank Farm	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	11.5		77.6	0.0128	0.5750	0.0000			0.
West Tank Farm	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02			0			0.0000			0.
West Tank Farm	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0		0.7			0.0000			0.
West Tank Farm	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	11.9	6.4	34.6	0.1828	0.5950	0.0000			0.
West Tank Farm	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	0.43	1.5	0.0843	0.0215	0.0000			0.
West Tank Farm	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	1		1.1	0.1190	0.0500	0.0000			0.
West Tank Farm	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000			0.
West Tank Farm	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	9.7		85.1	0.0097	0.4850	0.0000			0.
West Tank Farm	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	35.75		169.9	0.5757	1.7875	0.0000			0.

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
AOI 7 Soil	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0.0064	0.05		0.0050	0.0003	0.0003			**0.0003**
AOI 7 Soil	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.05		0.1132	0.0025	0.0025			**0.0025**
AOI 7 Soil	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0	0.05		0.0619	0.0025	0.0025			**0.0025**
AOI 7 Soil	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0					0.0000			**0.**
AOI 7 Soil	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00						0.0000			**0.**
AOI 7 Soil	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000			**0.**
AOI 7 Soil	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.0055		0.0077	0.0003	0.0003			**0.0003**
AOI 7 Soil	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.0055		0.0079	0.0003	0.0003			**0.0003**
AOI 7 Soil	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0	0.0055		0.0024	0.0003	0.0003			**0.0003**
AOI 7 Soil	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0	0.0549		0.1958	0.0027	0.0027			**0.0027**
AOI 7 Soil	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0	0.0055		0.0107	0.0003	0.0003			**0.0003**
AOI 7 Soil	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00	0.0617			0.1303	0.0031	0.0031			**0.0031**
AOI 7 Soil	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.0055		0.0015	0.0003	0.0003			**0.0003**
AOI 7 Soil	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			**0.**
AOI 7 Soil	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.211	0.005		0.1217	0.0106	0.0106			**0.0106**
AOI 7 Soil	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.0055		0.0028	0.0003	0.0003			**0.0003**
AOI 7 Soil	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00	0	0.05		0.0749	0.0025	0.0025			**0.0025**
AOI 7 Soil	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0.05195	0.0055		0.0288	0.0026	0.0026			**0.0026**
AOI 7 Soil	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			**0.**
AOI 7 Soil	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0	0.02		0.0489	0.0010	0.0010			**0.001**
AOI 7 Soil	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.0055		0.0004	0.0003	0.0003			**0.0003**
AOI 7 Soil	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000			**0.**
AOI 7 Soil	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000			**0.**
AOI 7 Soil	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
AOI 7 Soil	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			**0.**
AOI 7 Soil	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000			**0.**
AOI 7 Soil	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0.65	3.51		0.0000	0.0325	0.0000			**0.**
AOI 7 Soil	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000			**0.**
AOI 7 Soil	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
AOI 7 Soil	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03	0					0.0000			**0.**
AOI 7 Soil	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	4.57			0.0043	0.2285	0.0043			**0.0043**
AOI 7 Soil	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03	0					0.0000			**0.**
AOI 7 Soil	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000			**0.**
AOI 7 Soil	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	3.77			0.0269	0.1885	0.0269			**0.0269**
AOI 7 Soil	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000			**0.**
AOI 7 Soil	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			**0.**
AOI 7 Soil	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			**0.**
AOI 7 Soil	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			**0.**
AOI 7 Soil	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	0	18	221.7	0.3991	0.9000	0.0000			**0.**
AOI 7 Soil	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	10.4		24.5	0.3574	0.5200	0.0000			**0.**
AOI 7 Soil	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	30.2		428.6	0.7348	1.5100	0.0000			**0.**
AOI 7 Soil	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	1.1	0.9	1.8	0.0014	0.0550	0.0000			**0.**
AOI 7 Soil	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	0	5.3	16.4	0.0706	0.2650	0.0000			**0.**
AOI 7 Soil	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	8.6	7	43.1	0.4503	0.4300	0.0000			**0.**
AOI 7 Soil	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	4.1	3.5	49.6	0.0909	0.2050	0.0000			**0.**
AOI 7 Soil	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	13		36.8	0.0013	0.6500	0.0000			**0.**
AOI 7 Soil	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			**0.**
AOI 7 Soil	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	9.39		77.6	0.0104	0.4695	0.0000			**0.**
AOI 7 Soil	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02	331		0	5.0845	16.5500	5.0845			**5.0845**
AOI 7 Soil	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0.052	0.011	0.7	0.0010	0.0026	0.0000			**0.**
AOI 7 Soil	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	25.2		34.6	0.3871	1.2600	0.0000			**0.**
AOI 7 Soil	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	1.66	1.5	0.3255	0.0830	0.0830			**0.083**
AOI 7 Soil	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000			**0.**
AOI 7 Soil	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000			**0.**
AOI 7 Soil	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	0	8.8	85.1	0.0088	0.4400	0.0000			**0.**
AOI 7 Soil	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	227		169.9	3.6554	11.3500	3.6554			**3.6554**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
AOI 7 GW	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0.0064	0.05		0.0050	0.0003	0.0003	0.0001		**0.0001**
AOI 7 GW	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.05		0.1132	0.0025	0.0025	0.0017		**0.**
AOI 7 GW	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0	0.05		0.0619	0.0025	0.0025	0.0001		**0.**
AOI 7 GW	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0					0.0000			**0.**
AOI 7 GW	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00						0.0000	2.1000		**0.**
AOI 7 GW	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000	0.0100		**0.**
AOI 7 GW	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.0055		0.0077	0.0003	0.0003	0.0002		**0.**
AOI 7 GW	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.0055		0.0079	0.0003	0.0003	0.0005		**0.**
AOI 7 GW	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0	0.0055		0.0024	0.0003	0.0003			**0.**
AOI 7 GW	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0	0.0549		0.1958	0.0027	0.0027	0.0025		**0.**
AOI 7 GW	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0	0.0055		0.0107	0.0003	0.0003	0.0005		**0.**
AOI 7 GW	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00	0.0617			0.1303	0.0031	0.0031	0.0004		**0.0004**
AOI 7 GW	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.0055		0.0015	0.0003	0.0003	0.0001		**0.**
AOI 7 GW	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000	0.0005		**0.**
AOI 7 GW	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.211	0.005		0.1217	0.0106	0.0106	0.0004		**0.0004**
AOI 7 GW	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.0055		0.0028	0.0003	0.0003	0.0001		**0.**
AOI 7 GW	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00	0	0.05		0.0749	0.0025	0.0025	0.0021		**0.**
AOI 7 GW	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0.05195	0.0055		0.0288	0.0026	0.0026	0.0009		**0.0009**
AOI 7 GW	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000	0.0005		**0.**
AOI 7 GW	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0	0.02		0.0489	0.0010	0.0010	0.0003		**0.**
AOI 7 GW	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.0055		0.0004	0.0003	0.0003	0.0002		**0.**
AOI 7 GW	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000	0.0050		**0.**
AOI 7 GW	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000	0.0050		**0.**
AOI 7 GW	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000	0.0050		**0.**
AOI 7 GW	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			**0.**
AOI 7 GW	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000	0.0050		**0.**
AOI 7 GW	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0.65	3.51		0.0000	0.0325	0.0000	0.0050		**0.005**
AOI 7 GW	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000	0.0050		**0.**
AOI 7 GW	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000	0.0050		**0.**
AOI 7 GW	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03	0					0.0000	0.0050		**0.**
AOI 7 GW	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	4.57			0.0043	0.2285	0.0043	0.0050		**0.005**
AOI 7 GW	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03	0					0.0000	0.0050		**0.**
AOI 7 GW	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000	0.0050		**0.**
AOI 7 GW	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	3.77			0.0269	0.1885	0.0269	0.0050		**0.005**
AOI 7 GW	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000	0.0050		**0.**
AOI 7 GW	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			**0.**
AOI 7 GW	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			**0.**
AOI 7 GW	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			**0.**
AOI 7 GW	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	0	18	221.7	0.3991	0.9000	0.0000	0.0005	0.0005	**0.**
AOI 7 GW	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	10.4		24.5	0.3574	0.5200	0.0000	0.0860	0.0810	**0.081**
AOI 7 GW	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	30.2		428.6	0.7348	1.5100	0.0000	2.0000	2.0000	**2.**
AOI 7 GW	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	1.1	0.9	1.8	0.0014	0.0550	0.0000	0.0005	0.0005	**0.0005**
AOI 7 GW	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	0	5.3	16.4	0.0706	0.2650	0.0000	0.0005	0.0005	**0.**
AOI 7 GW	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	8.6	7	43.1	0.4503	0.4300	0.0000	0.0089	0.0010	**0.001**
AOI 7 GW	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	4.1	3.5	49.6	0.0909	0.2050	0.0000	0.0267	0.0196	**0.0196**
AOI 7 GW	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	13		36.8	0.0013	0.6500	0.0000	0.0381	0.0050	**0.005**
AOI 7 GW	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			**0.**
AOI 7 GW	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	9.39		77.6	0.0104	0.4695	0.0000	0.0178	0.0005	**0.0005**
AOI 7 GW	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02	331		0	5.0845	16.5500	5.0845	0.4200	0.4000	**0.4**
AOI 7 GW	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0.052	0.011	0.7	0.0010	0.0026	0.0000	0.0001	0.0001	**0.0001**
AOI 7 GW	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	25.2		34.6	0.3871	1.2600	0.0000	0.1080	0.0882	**0.0882**
AOI 7 GW	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	1.66	1.5	0.3255	0.0830	0.0830	0.0025	0.0025	**0.**
AOI 7 GW	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000	0.0003	0.0003	**0.**
AOI 7 GW	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000	0.0005	0.0005	**0.**
AOI 7 GW	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	0	8.8	85.1	0.0088	0.4400	0.0000	0.0144	0.0025	**0.**
AOI 7 GW	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	227		169.9	3.6554	11.3500	3.6554	0.0840	0.0250	**0.025**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
AOI 13	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01						0.0000			0.
AOI 13	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00						0.0000			0.
AOI 13	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00						0.0000			0.
AOI 13	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00						0.0000			0.
AOI 13	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00						0.0000			0.
AOI 13	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00						0.0000			0.
AOI 13	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00						0.0000			0.
AOI 13	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00						0.0000			0.
AOI 13	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01						0.0000			0.
AOI 13	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00						0.0000			0.
AOI 13	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00						0.0000			0.
AOI 13	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			0.
AOI 13	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01						0.0000			0.
AOI 13	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01						0.0000			0.
AOI 13	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01						0.0000			0.
AOI 13	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01						0.0000			0.
AOI 13	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			0.
AOI 13	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01						0.0000			0.
AOI 13	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			0.
AOI 13	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00						0.0000			0.
AOI 13	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02						0.0000			0.
AOI 13	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01						0.0000			0.
AOI 13	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02						0.0000			0.
AOI 13	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04						0.0000			0.
AOI 13	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05						0.0000			0.
AOI 13	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05						0.0000			0.
AOI 13	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06						0.0000			0.
AOI 13	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03						0.0000			0.
AOI 13	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04						0.0000			0.
AOI 13	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03						0.0000			0.
AOI 13	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04						0.0000			0.
AOI 13	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03						0.0000			0.
AOI 13	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02						0.0000			0.
AOI 13	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03						0.0000			0.
AOI 13	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04						0.0000			0.
AOI 13	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			0.
AOI 13	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	7.86				0.0009	0.3930	0.0009		0.0009
AOI 13	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0						0.0000		0.
AOI 13	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	0	7.2	221.7	0.1596	0.3600	0.0000			0.
AOI 13	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	6.19		24.5	0.2127	0.3095	0.0000			0.
AOI 13	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	103		428.6	2.5061	5.1500	0.0000			0.
AOI 13	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0.6		1.8	0.0008	0.0300	0.0000			0.
AOI 13	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	0	1.1	16.4	0.0146	0.0550	0.0000			0.
AOI 13	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	9.7		43.1	0.5079	0.4850	0.0000			0.
AOI 13	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	4.16		49.6	0.0922	0.2080	0.0000			0.
AOI 13	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	13.1		36.8	0.0013	0.6550	0.0000			0.
AOI 13	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			0.
AOI 13	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	23.1		77.6	0.0257	1.1550	0.0000			0.
AOI 13	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02	611		0	9.3856	30.5500	9.3856			9.3856
AOI 13	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0.182		0.7	0.0035	0.0091	0.0000			0.
AOI 13	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	10.9		34.6	0.1674	0.5450	0.0000			0.
AOI 13	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0.643		1.5	0.1261	0.0322	0.0000			0.
AOI 13	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000			0.
AOI 13	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0		2.3			0.0000			0.
AOI 13	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	16.5		85.1	0.0165	0.8250	0.0000			0.
AOI 13	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	82.3		169.9	1.3253	4.1150	0.0000			0.

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
AOI 34	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.005		0.0039	0.0003	0.0003			**0.0003**
AOI 34	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.005		0.0113	0.0003	0.0003			**0.0003**
AOI 34	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0	0.005		0.0062	0.0003	0.0003			**0.0003**
AOI 34	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0					0.0000			**0.**
AOI 34	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	0					0.0000			**0.**
AOI 34	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0	0.1		0.9441	0.0050	0.0050			**0.005**
AOI 34	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.005		0.0070	0.0003	0.0003			**0.0003**
AOI 34	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.005		0.0072	0.0003	0.0003			**0.0003**
AOI 34	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0	0.005		0.0022	0.0003	0.0003			**0.0003**
AOI 34	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0	0.05		0.1783	0.0025	0.0025			**0.0025**
AOI 34	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0	0.005		0.0097	0.0003	0.0003			**0.0003**
AOI 34	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			**0.**
AOI 34	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.005		0.0013	0.0003	0.0003			**0.0003**
AOI 34	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			**0.**
AOI 34	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0	0.005		0.0029	0.0003	0.0003			**0.0003**
AOI 34	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.005		0.0026	0.0003	0.0003			**0.0003**
AOI 34	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			**0.**
AOI 34	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.005		0.0028	0.0003	0.0003			**0.0003**
AOI 34	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			**0.**
AOI 34	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0	0.01		0.0244	0.0005	0.0005			**0.0005**
AOI 34	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.005		0.0004	0.0003	0.0003			**0.0003**
AOI 34	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000			**0.**
AOI 34	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000			**0.**
AOI 34	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
AOI 34	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			**0.**
AOI 34	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000			**0.**
AOI 34	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0	0.33		0.0000	0.0165	0.0000			**0.**
AOI 34	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000			**0.**
AOI 34	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
AOI 34	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03	0					0.0000			**0.**
AOI 34	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	0					0.0000			**0.**
AOI 34	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03	0					0.0000			**0.**
AOI 34	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000			**0.**
AOI 34	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	0					0.0000			**0.**
AOI 34	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000			**0.**
AOI 34	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			**0.**
AOI 34	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			**0.**
AOI 34	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			**0.**
AOI 34	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	0	32	221.7	0.7095	1.6000	0.0000			**0.**
AOI 34	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	3.18		24.5	0.1093	0.1590	0.0000			**0.**
AOI 34	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	22		428.6	0.5353	1.1000	0.0000			**0.**
AOI 34	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0	2	1.8	0.0025	0.1000	0.0025			**0.0025**
AOI 34	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	0	9.6	16.4	0.1278	0.4800	0.0000			**0.**
AOI 34	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	0	13	43.1	0.6806	0.6500	0.0000			**0.**
AOI 34	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	0	6.4	49.6	0.1419	0.3200	0.0000			**0.**
AOI 34	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	0	6.4	36.8	0.0006	0.3200	0.0000			**0.**
AOI 34	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			**0.**
AOI 34	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	3.5		77.6	0.0039	0.1750	0.0000			**0.**
AOI 34	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02	714		0	10.9677	35.7000	10.9677			**10.9677**
AOI 34	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0	0.01	0.7	0.0002	0.0005	0.0000			**0.**
AOI 34	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	24		34.6	0.3687	1.2000	0.0000			**0.**
AOI 34	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	1.66	1.5	0.3255	0.0830	0.0830			**0.083**
AOI 34	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000			**0.**
AOI 34	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0.927		2.3	0.0130	0.0464	0.0000			**0.**
AOI 34	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	0	16	85.1	0.0160	0.8000	0.0000			**0.**
AOI 34	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	20		169.9	0.3221	1.0000	0.0000			**0.**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
AOI 35	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.005		0.0039	0.0003	0.0003			**0.0003**
AOI 35	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.005		0.0113	0.0003	0.0003			**0.0003**
AOI 35	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0	0.005		0.0062	0.0003	0.0003			**0.0003**
AOI 35	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0	0.005		0.0075	0.0003	0.0003			**0.0003**
AOI 35	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00	0					0.0000			**0.**
AOI 35	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000			**0.**
AOI 35	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.005		0.0070	0.0003	0.0003			**0.0003**
AOI 35	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.005		0.0072	0.0003	0.0003			**0.0003**
AOI 35	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0	0.005		0.0022	0.0003	0.0003			**0.0003**
AOI 35	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0	0.05		0.1783	0.0025	0.0025			**0.0025**
AOI 35	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0	0.005		0.0097	0.0003	0.0003			**0.0003**
AOI 35	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			**0.**
AOI 35	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.005		0.0013	0.0003	0.0003			**0.0003**
AOI 35	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			**0.**
AOI 35	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0	0.005		0.0029	0.0003	0.0003			**0.0003**
AOI 35	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.005		0.0026	0.0003	0.0003			**0.0003**
AOI 35	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			**0.**
AOI 35	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0	0.005		0.0028	0.0003	0.0003			**0.0003**
AOI 35	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			**0.**
AOI 35	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0	0.01		0.0244	0.0005	0.0005			**0.0005**
AOI 35	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.005		0.0004	0.0003	0.0003			**0.0003**
AOI 35	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000			**0.**
AOI 35	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000			**0.**
AOI 35	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
AOI 35	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			**0.**
AOI 35	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000			**0.**
AOI 35	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	0	0.33		0.0000	0.0165	0.0000			**0.**
AOI 35	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000			**0.**
AOI 35	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000			**0.**
AOI 35	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03	0					0.0000			**0.**
AOI 35	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	0					0.0000			**0.**
AOI 35	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03	0					0.0000			**0.**
AOI 35	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000			**0.**
AOI 35	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	0					0.0000			**0.**
AOI 35	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000			**0.**
AOI 35	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			**0.**
AOI 35	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			**0.**
AOI 35	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			**0.**
AOI 35	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	0	33	221.7	0.7317	1.6500	0.0000			**0.**
AOI 35	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	3.24		24.5	0.1113	0.1620	0.0000			**0.**
AOI 35	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	15		428.6	0.3650	0.7500	0.0000			**0.**
AOI 35	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0	2	1.8	0.0025	0.1000	0.0025			**0.0025**
AOI 35	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	0	9.9	16.4	0.1318	0.4950	0.0000			**0.**
AOI 35	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	0	13	43.1	0.6806	0.6500	0.0000			**0.**
AOI 35	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	0	6.6	49.6	0.1463	0.3300	0.0000			**0.**
AOI 35	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	0	6.6	36.8	0.0007	0.3300	0.0000			**0.**
AOI 35	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			**0.**
AOI 35	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	4.32		77.6	0.0048	0.2160	0.0000			**0.**
AOI 35	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02	311		0	4.7773	15.5500	4.7773			**4.7773**
AOI 35	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0	0.01	0.7	0.0002	0.0005	0.0000			**0.**
AOI 35	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	7.6		34.6	0.1167	0.3800	0.0000			**0.**
AOI 35	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0	1.64	1.5	0.3216	0.0820	0.0820			**0.082**
AOI 35	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000			**0.**
AOI 35	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0.683		2.3	0.0096	0.0342	0.0000			**0.**
AOI 35	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	0	17	85.1	0.0170	0.8500	0.0000			**0.**
AOI 35	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	28		169.9	0.4509	1.4000	0.0000			**0.**

Table E-14. Estimation of Ground Water Source Concentrations for All SWMUs and AOIs
Delphi Thermal, Moraine Engine and Moraine Assembly Plants - GMC, Moraine, Ohio

SWMU	Constituent	CASRN	Koc (L/kg)	Kd (L/kg)	H (unitless)	Solubility (mg/L)	Effective Kd (L/kg)	Pore Water Conc. per mg/kg (mg/L)	Measured Soil/Waste Conc. (mg/kg)	Maximum Soil/Waste SQL (mg/kg)	Background Level (mg/kg)	Predicted GW Conc. from Soil Partitioning (mg/L)	Predicted GW Conc. From "Leach Test" (mg/L)	Predicted GW Conc. (mg/L)	Measured GW Conc. (mg/L)	Measured Dissolved GW Conc. (mg/L)	GW Source Conc. (mg/L)
AOI 36	1,1,1-Trichloroethane	71-55-6	1.10E+02	1.10E+00	7.05E-01	1.33E+03	1.28E+00	7.82E-01	0	0.0061		0.0048	0.0003	0.0003			0.0003
AOI 36	1,1-Dichloroethane	75-34-3	3.16E+01	3.16E-01	2.30E-01	5.06E+03	4.42E-01	2.26E+00	0	0.0061		0.0138	0.0003	0.0003			0.0003
AOI 36	1,1-Dichloroethene	75-35-4	5.89E+01	5.89E-01	1.07E+00	2.25E+03	8.08E-01	1.24E+00	0	0.0061		0.0076	0.0003	0.0003			0.0003
AOI 36	1,2-Dichloroethene (total)	540-59-0	5.25E+01	5.25E-01	3.85E-01	6.00E+02	6.68E-01	1.50E+00	0					0.0000			0.
AOI 36	2-Butanone	78-93-3	1.90E+00	1.90E-02	1.91E-03	2.23E+05	1.19E-01	8.39E+00						0.0000			0.
AOI 36	Acetone	67-64-1	5.75E-01	5.75E-03	1.59E-03	1.00E+06	1.06E-01	9.44E+00	0					0.0000			0.
AOI 36	Benzene	71-43-2	5.89E+01	5.89E-01	2.28E-01	1.75E+03	7.14E-01	1.40E+00	0	0.0061		0.0085	0.0003	0.0003			0.0003
AOI 36	Carbon Disulfide	75-15-0	4.57E+01	4.57E-01	1.24E+00	1.19E+03	6.94E-01	1.44E+00	0	0.0061		0.0088	0.0003	0.0003			0.0003
AOI 36	Chlorobenzene	108-90-7	2.19E+02	2.19E+00	1.52E-01	4.72E+02	2.31E+00	4.33E-01	0	0.0061		0.0026	0.0003	0.0003			0.0003
AOI 36	Chloroethane	75-00-3	1.49E+01	1.49E-01	2.84E-01	5.68E+03	2.80E-01	3.57E+00	0	0.0611		0.2179	0.0031	0.0031			0.0031
AOI 36	Chloroform	67-66-3	3.98E+01	3.98E-01	1.50E-01	7.92E+03	5.15E-01	1.94E+00	0	0.0061		0.0119	0.0003	0.0003			0.0003
AOI 36	cis-1,2-Dichloroethene	156-59-2	3.55E+01	3.55E-01	1.67E-01	3.50E+03	4.74E-01	2.11E+00						0.0000			0.
AOI 36	Ethyl Benzene	100-41-4	3.63E+02	3.63E+00	3.23E-01	1.69E+02	3.77E+00	2.66E-01	0	0.0061		0.0016	0.0003	0.0003			0.0003
AOI 36	Styrene	100-42-5	7.76E+02	7.76E+00	1.13E-01	3.10E+02	7.87E+00	1.27E-01	0					0.0000			0.
AOI 36	Tetrachloroethene	127-18-4	1.55E+02	1.55E+00	7.54E-01	2.00E+02	1.73E+00	5.77E-01	0.006	0.0061		0.0035	0.0003	0.0003			0.0003
AOI 36	Toluene	108-88-3	1.82E+02	1.82E+00	2.72E-01	5.26E+02	1.95E+00	5.13E-01	0	0.0061		0.0031	0.0003	0.0003			0.0003
AOI 36	trans-1,2-Dichloroethene	156-60-5	5.25E+01	5.25E-01	3.85E-01	6.30E+03	6.68E-01	1.50E+00						0.0000			0.
AOI 36	Trichloroethene	79-01-6	1.66E+02	1.66E+00	4.22E-01	1.10E+03	1.81E+00	5.53E-01	0.0065	0.0061		0.0036	0.0003	0.0003			0.0003
AOI 36	Trichlorofluoromethane	75-69-4	3.10E+02	3.10E+00	2.39E+00	1.10E+03	3.47E+00	2.89E-01						0.0000			0.
AOI 36	Vinyl Chloride	75-01-4	1.86E+01	1.86E-01	1.11E+00	2.76E+03	4.09E-01	2.44E+00	0	0.0122		0.0298	0.0006	0.0006			0.0006
AOI 36	Xylenes (total)	1330-20-7	1.30E+03	1.30E+01	1.72E-01	1.90E+02	1.31E+01	7.62E-02	0	0.0061		0.0005	0.0003	0.0003			0.0003
AOI 36	1,2-Dichlorobenzene	95-50-1	6.17E+02	6.17E+00	7.79E-02	1.56E+02	6.28E+00	1.59E-01	0					0.0000			0.
AOI 36	2-Methylnaphthalene	91-57-6	7.41E+03	7.41E+01	2.04E-02	2.46E+01	7.42E+01	1.35E-02	0					0.0000			0.
AOI 36	Benzo(a)anthracene	56-55-3	3.98E+05	3.98E+03	1.37E-04	9.40E-03	3.98E+03	2.51E-04	0					0.0000			0.
AOI 36	Benzo(a)pyrene	50-32-8	1.02E+06	1.02E+04	4.63E-05	1.62E-03	1.02E+04	9.80E-05	0					0.0000			0.
AOI 36	Benzo(b)fluoranthene	205-99-2	1.23E+06	1.23E+04	4.55E-03	1.50E-03	1.23E+04	8.13E-05	0					0.0000			0.
AOI 36	bis(2-Ethylhexyl)phthalate	117-81-7	1.51E+07	1.51E+05	4.18E-06	3.40E-01	1.51E+05	6.62E-06	1.23	0.403		0.0000	0.0615	0.0000			0.
AOI 36	Butylbenzylphthalate	85-68-7	5.75E+04	5.75E+02	5.17E-05	2.69E+00	5.75E+02	1.74E-03	0					0.0000			0.
AOI 36	Chrysene	218-01-9	3.98E+05	3.98E+03	3.88E-03	1.60E-03	3.98E+03	2.51E-04	0					0.0000			0.
AOI 36	Di-n-butylphthalate	84-74-2	3.39E+04	3.39E+02	3.85E-08	1.12E+01	3.39E+02	2.95E-03	0					0.0000			0.
AOI 36	Fluoranthene	206-44-0	1.07E+05	1.07E+03	6.60E-04	2.06E-01	1.07E+03	9.34E-04	0					0.0000			0.
AOI 36	Fluorene	86-73-7	1.38E+04	1.38E+02	2.61E-03	1.98E+00	1.38E+02	7.24E-03	0					0.0000			0.
AOI 36	Naphthalene	91-20-3	2.00E+03	2.00E+01	1.98E-02	3.10E+01	2.01E+01	4.97E-02	0					0.0000			0.
AOI 36	Phenanthrene	85-01-8	1.40E+04	1.40E+02	1.61E-03	1.15E+00	1.40E+02	7.14E-03	0					0.0000			0.
AOI 36	Pyrene	129-00-0	1.05E+05	1.05E+03	4.51E-04	1.35E-01	1.05E+03	9.52E-04	0					0.0000			0.
AOI 36	Aroclor-1242	53469-21-9	3.06E+05	3.06E+03	2.35E-02	2.40E-01	3.06E+03	3.27E-04	0					0.0000			0.
AOI 36	Aroclor-1254	11097-69-1	8.46E+05	8.46E+03	3.43E-01	1.20E-02	8.46E+03	1.18E-04	0					0.0000			0.
AOI 36	Aroclor-1260	11096-82-5	1.06E+07	1.06E+05	2.92E-01	2.70E-03	1.06E+05	9.44E-06	0					0.0000			0.
AOI 36	Antimony	7440-36-0		4.50E+01			4.51E+01	2.22E-02	0	19.8	221.7	0.4390	0.9900	0.0000			0.
AOI 36	Arsenic	7440-38-2		2.90E+01			2.91E+01	3.44E-02	33.1	0.005	24.5	1.1375	1.6550	1.1375			1.1375
AOI 36	Barium	7440-39-3		4.10E+01			4.11E+01	2.43E-02	86		428.6	2.0925	4.3000	0.0000			0.
AOI 36	Beryllium	7440-41-7		7.90E+02			7.90E+02	1.27E-03	0.9	0.9	1.8	0.0011	0.0450	0.0000			0.
AOI 36	Cadmium	7440-43-9		7.50E+01			7.51E+01	1.33E-02	0	5.2	16.4	0.0692	0.2600	0.0000			0.
AOI 36	Chromium (total)	7440-47-3		1.90E+01			1.91E+01	5.24E-02	11	6.9	43.1	0.5759	0.5500	0.0000			0.
AOI 36	Cobalt	7440-48-4		4.50E+01			4.51E+01	2.22E-02	7.9	3.4	49.6	0.1752	0.3950	0.0000			0.
AOI 36	Copper	7440-50-8		1.00E+04			1.00E+04	9.97E-05	25.5		36.8	0.0025	1.2750	0.0000			0.
AOI 36	Cyanide (total)	57-12-5		9.90E+00			1.00E+01	1.00E-01						0.0000			0.
AOI 36	Lead	7439-92-1		9.00E+02			9.00E+02	1.11E-03	17.1		77.6	0.0190	0.8550	0.0000			0.
AOI 36	Manganese	7439-96-5		6.50E+01			6.51E+01	1.54E-02	619		0	9.5084	30.9500	9.5084			9.5084
AOI 36	Mercury	7439-97-6		5.20E+01	4.67E-01	5.60E-02	5.22E+01	1.92E-02	0.033	0.011	0.7	0.0006	0.0017	0.0000			0.
AOI 36	Nickel	7440-02-0		6.50E+01			6.51E+01	1.54E-02	17.4		34.6	0.2673	0.8700	0.0000			0.
AOI 36	Selenium	7782-49-2		5.00E+00			5.10E+00	1.96E-01	0.924	0.907	1.5	0.1812	0.0462	0.0000			0.
AOI 36	Silver	7440-22-4		8.30E+00			8.40E+00	1.19E-01	0		1.1			0.0000			0.
AOI 36	Thallium	7440-28-0		7.10E+01			7.11E+01	1.41E-02	0.5915		2.3	0.0083	0.0296	0.0000			0.
AOI 36	Vanadium	7440-62-2		1.00E+03			1.00E+03	1.00E-03	20.1	8.6	85.1	0.0201	1.0050	0.0000			0.
AOI 36	Zinc	7440-66-6		6.20E+01			6.21E+01	1.61E-02	67.9		169.9	1.0934	3.3950	0.0000			0.

Note:
Shaded data are provided for informational purposes only and are not considered in developing the ground water source concentration.

ARCADIS

Attachment B-3

Former Building 14 Investigation
Summary Report

March 23, 2005

DRAFT

Former Building 14 Investigation Summary Report

General Motors Corporation
Moraine, Ohio

March 23, 2005

ARCADIS
Infrastructure, environment, facilities

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1. Introduction

The General Motors Corporation (GM) Moraine, Ohio facilities are under an Administrative Order with the United States Environmental Protection Agency (U.S. EPA) Region V, to conduct a Resource Conservation and Recovery Act (RCRA) Corrective Action. The Moraine, Ohio facilities include former Delphi Harrison Thermal Systems Moraine Plant (former Delphi Thermal Moraine [leased to Delphi Corporation between 1999 and September 2003]), the former General Motors Powertrain Group Moraine Engine Plant (former Moraine Engine), and General Motors Truck Group Moraine Assembly Plant (Moraine Assembly) (Figure 1 of the Site-Wide Groundwater Monitoring Report for 2004 [ARCADIS 2005]). One of the requirements of the Administrative Order is to evaluate the need for interim measures that can address potential environmental problems. As part of the final remedy, GM has implemented two corrective measures to address the presence of volatile organic compounds (VOCs) in groundwater at the Moraine facilities referred to as (1) the capture zone corrective measures and (2) the Area of Interest (AOI) 7 corrective measures. The capture zone corrective measures addresses the migration of groundwater containing VOCs via upper and lower aquifer recovery wells and the treatment and off-site discharge of upper aquifer groundwater through an on-site air stripper tower. The AOI 7 – Former Oil House Area corrective measures addresses in-situ treatment of VOCs in groundwater in the vicinity of and downgradient of the Former Oil House Area.

The former Delphi Thermal Moraine facility is located in Moraine, Ohio and occupies approximately 165 acres, within this total acreage the DMAX facility is 7 acres. The main manufacturing activities were conducted in the former Building 14, which was constructed in stages starting with the first structure in 1941 and the last addition completed in 1976 resulting in a total floor space of approximately two million square feet. The former Delphi Thermal Moraine's major operations, which began in 1941, included the machining and assembly of automotive air conditioning compressors, accumulator dehydrators, and miscellaneous air conditioning valves. Operations at the former Delphi Thermal Moraine Building 14 ceased in September 2003 and the building was decommissioned. As of October 1, 2003, management of the building has reverted to GM and GM remains the property owner. Demolition of Building 14 began in August 2004 and is scheduled to be completed in 2005.

As proposed in GM's July 14, 2004 submittal to U.S. EPA, a supplemental investigation was conducted at the former Delphi Thermal Moraine Building 14 (former Building 14) in August 2004. The investigation results will be used to support

a better understanding of the groundwater quality beneath the building and to better assess the current corrective measures.

2. Building 14 Investigation Technical Approach and Methodologies

The specific objective of the former Building 14 investigation of soil and groundwater was to evaluate the groundwater chemistry beneath Building 14 after the building was vacated to better characterize the presence of VOCs in groundwater in this area of the Facility and to assess the current corrective measures at the site. As part of this investigation, soil sampling was conducted to confirm that VOC concentrations were not a concern. This soil sampling was completed by drilling seven borings and collecting soil samples (BD14-01 through BD14-04 and GM-43 through GM-45). The evaluation of groundwater quality was completed through the installation and sampling of three monitoring wells (GM-43 through GM-45) and the collection of groundwater samples from four temporary well points (BD14-01 through BD14-04). Boring and well locations are shown on Figure 1. A summary of the investigation completed at the former Building 14 is presented on Table 1. The technical approach and field methodologies for this investigation are presented below. All field work was completed in August 2004.

2.1 Soil

During the investigation completed at the former Building 14, a rotary-type drilling rig equipped with hollow-stem augers was used to advance the soil borings and split-spoon sampling equipment was used for the collection of soil samples. Soil borings were also sampled continuously for lithologic description. Frontz Drilling Company, Inc. performed the drilling while ARCADIS personnel completed oversight and soil sampling activities. All soil-sampling activities were completed as described in the Building 14 Work Plan (GM correspondence to U.S. EPA, 2004). The methodologies used to obtain soil samples are also described in this report. All soil generated during drilling was contained in labeled drums and disposed of appropriately by GM.

Prior to drilling at each location, drilling equipment (including augers, plugs, and split-spoon samplers) was decontaminated using a high-pressure steam cleaner. Following the collection of each sample, split-spoon samplers were decontaminated in accordance with the approved Supplemental RFI Work Plan (Geraghty & Miller, Inc., 1997). Disposable personal protection equipment (PPE) and sampling equipment were collected and disposed off-site. Pertinent information was recorded on a soil-sampling log for the sampling intervals submitted to the laboratory for analysis. Chain-of-custody forms were completed prior to submitting the samples to the laboratory. During soil sampling, samples were collected for Quality Assurance/Quality Control (QA/QC) purposes. All sampling results, including QA/QC samples are presented in

Table 2. Associated boring logs and soil sampling logs are provided in Appendices A and B, respectively.

When the designated sampling location was reached, personnel donned the appropriate PPE and established the exclusion zone. Plastic sheeting was placed beneath the work area for soil description and sampling activities. The appropriate sample containers were selected and labeled. During drilling activities, the hollow-stem augers were advanced to the designated sampling depth and at this point the drill bit was removed from inside the augers and the decontaminated split-spoon sampler was advanced 2 feet below the lead auger. The first split spoon sample (0 to 2 feet below land surface [ft bls] interval) was obtained prior to hollow-stem auger drilling from beneath the concrete or asphalt surface to 2 ft bls. For those drilling locations within the building, the concrete floor was up to 8 ft thick and the first soil sample was collected beneath the building floor. As drilling continued, the split spoon sampler was then driven 2 ft below the lead auger. Samples were collected using a decontaminated 24-inch long, 2-inch diameter, stainless-steel, split-spoon sampler. When the split-spoon sampler was removed a representative soil sample was placed into a disposable bag and scanned with a photoionization detector (PID). The appropriate sampling containers were then filled. The soil was described on a boring log by an ARCADIS geologist (Appendix A).

In addition to the sample collected from the 0 to 2 ft bls interval (or at a depth beneath the concrete floor), a soil sample was also collected from the interval above the water table. A third sample may have been collected based on the highest headspace readings or visual evidence of contamination. Elevated headspace readings and visual evidence of contamination were not encountered during this investigation; therefore, only two soil samples from each boring were collected. The drilling was terminated when the regional clay till was encountered. Soil samples were submitted for analysis of the Target Compound List (TCL) VOCs. Chain-of-custody forms were completed prior to submitting the samples to the laboratory. The En Core® Sampler was used to collect samples for VOC analysis. Upon completion of each borehole located inside the building (i.e., after each temporary well was installed, developed, and sampled), the borehole was grouted using the tremie method. The three boreholes located outside and west of Building 14 were converted to monitoring wells (designated as GM-43, GM-44 and GM-45).

2.2 Groundwater

All groundwater sampling activities were completed as described in the Building 14 Work Plan (GM correspondence to U.S. EPA, 2004). The methodologies used to obtain groundwater samples are described in this report. All water generated during sampling activities was contained in labeled drums and disposed of appropriately by GM. Associated well construction and groundwater sampling logs are provided in Appendices A and B, respectively.

To evaluate groundwater conditions adjacent to Building 14, three monitoring wells (GM-43 to GM-45) were installed in the asphalt driveway west of the building. Monitor well GM-43 was installed to a depth of 50 ft bls, with the well screen set immediately above the regional confining till that separates the upper and lower aquifers. Monitor well GM-44 was installed to a depth of 61 ft bls, with the well screen set immediately above the regional confining till. Monitor well GM-45 was installed to a depth of 60 ft bls, with the well screen set immediately above the regional confining till. The wells were constructed with 2-inch diameter polyvinyl chloride (PVC) casing and a 10-ft long PVC screen with 0.01 slot size. Well construction logs are presented in Appendix A. The wells were developed by pumping groundwater until pH, specific conductivity, and temperature data stabilized.

Groundwater samples were collected from the newly installed monitoring wells to characterize groundwater quality. Prior to sampling each well, monitoring equipment was decontaminated and field parameter measuring equipment was calibrated. Groundwater samples were collected using low-flow sampling procedures. Field parameters including pH, specific conductance, temperature, oxidation/reduction potential, and dissolved oxygen were measured during purging of each well using a multi-parameter flow-through cell. Samples were submitted for laboratory analysis of TCL VOCs. During groundwater sampling, samples were collected for QA/QC purposes. All sampling results, including QA/QC samples are presented in Table 3. Chain-of-custody forms were completed prior to submitting the samples to the laboratory. Water sampling logs are provided in Appendix B.

To evaluate groundwater conditions beneath the former Building 14, screening samples were collected from four boring locations (BD14-01 through BD14-04) through the installation of a temporary well, consisting of a 2-inch diameter PVC casing with 10-feet long slotted screen. Temporary wells, BD14-01 through BD14-04, were installed to depths of 56 ft bls, 55 ft bls, 66 ft bls, and 66 ft bls, respectively, with the well screens set immediately above the regional confining till that separates the upper and

lower aquifers. A sand pack was placed around the screen and a bentonite seal was placed above the screen. The temporary wells were developed by removing water with a submersible pump. Readings were taken every well volume for conductivity, pH, turbidity, and water level. The groundwater sample was collected using a disposable Teflon bailer after the temporary well was purged. Groundwater samples were collected for analysis of TCL VOCs. All sampling results are presented in Table 3. Chain-of-custody forms were completed prior to submitting the samples to the laboratory. Water sampling logs are provided in Appendix B. Once the sample was collected, the PVC casing was removed, and the borehole was appropriately abandoned.

2.3 Laboratory Analytical Methods

During this investigation all soil and groundwater samples were submitted to Severn Trent Laboratories of North Canton, Ohio (STL North Canton) for analysis. The investigation sample analytical results and QA/QC sample results are presented on Tables 2 and 3 for soil and groundwater, respectively.

ARCADIS personnel independently validated the analytical data in accordance with the approved RFI Quality Assurance Project Plan (Geraghty & Miller, Inc., 1997). The data validation was performed at Level III (based on quality control criteria from the U.S. EPA document Data Quality Objectives for Remedial Response Activities [U.S. EPA 1987] and on quality control criteria from the U.S. EPA document Test Methods for Examining Solid Waste, SW 846 [U.S. EPA 1986 with revision updates]). In addition, the two U.S. EPA Contract Laboratory Program documents National Functional Guidelines for Inorganic Data Review (U.S. EPA 1994a) and National Functional Guidelines for Organic Data Review (U.S. EPA 1994b) were used as guidance for validating and assigning qualifier codes to the analytical results.

The majority of the Building 14 data was determined to be quantitative and acceptable for use. However, data validation qualifiers were assigned to the sample data, as appropriate, to address identified quality control deficiencies. The affected data were either qualified as estimated and flagged with a “J” if detected or a “UJ” if nondetect. The 90% completeness goal, as defined in the RFI Quality Assurance Project Plan, was achieved for the sample parameters analyzed and included in the sample delivery groups.

3. Building 14 Investigation Results

This summary includes a discussion of the former Building 14 lithology, soil analytical results, and groundwater analytical results. Soil and groundwater analytical results are presented in Tables 2 and 3, respectively, and on Figure 2.

3.1 Building 14 Lithologic Characterization

Boring logs from the former Building 14 investigation were used to determine subsurface lithology. For borings BD14-01 through BD14-04, the 0 to 8 ft depth consisted of concrete with some fill material. The lithologic data indicated the subsurface soil composition near Building 14 is primarily sand and gravel. An intermediate confining layer composed of hard silty clay was encountered at depths ranging from 34 to 41 ft bls and ranged in thickness from 3 to 9 ft. The regional clay till layer, composed of hard clay, observed at the site during previous investigations was present at depths ranging from 49 to 65 ft bls.

3.2 Building 14 Soil Results

Borings BD14-01 through BD14-04 and GM-43 through GM-45 were advanced into the regional clay till, with total depths ranging from 50 ft bls to 66 ft bls. Headspace samples were collected every 2 ft from these borings. The headspace readings were 0 parts per million (ppm). Table 2 provides the VOC results for the soil samples that were collected. The locations of these borings and VOC analytical data are depicted on Figure 2.

In soil borings BD14-01 through BD14-04 and GM-43 through GM-45, the following VOCs were detected: benzene, cyclohexane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, isopropyl benzene, cis-1,2-dichloroethene, (cis-1,2-DCE), ethylbenzene, methylene chloride, methyl cyclohexane, styrene, tetrachloroethene (PCE), toluene, trichloroethene (TCE), and xylenes, The detected VOC concentrations will be evaluated and compared to soil screening criteria as discussed in Sections 4.1 and 4.3. As presented in Section 4.3, the detected concentrations in soil were not higher than the screening criteria.

3.3 Building 14 Groundwater Results

Results of the groundwater sampling event completed in August 2004 are detailed below. All groundwater samples were collected from the lower portion of the upper

aquifer above the regional clay till. Table 3 provides the VOC results for the groundwater samples that were collected. The locations of these permanent and temporary wells and VOC analytical data are depicted on Figure 2.

3.3.1 Groundwater Analytical Results from Permanent Wells

In monitoring wells GM-43 through GM-45, the following VOCs were detected: 1,1-dichloroethane (1,1-DCA), cis-1,2-DCE, trans-1,2-DCE, 1,1,1-trichloroethane (1,1,1-TCA), PCE, TCE, trifluorotrichloroethane, trichlorofluoromethane, and vinyl chloride. The detected VOC concentrations will be evaluated and compared to groundwater screening criteria as discussed in Sections 4.2 and 4.3. As presented in Section 4.3, the detected concentrations in groundwater that are higher than the screening criteria include cis-1,2-DCE, PCE, TCE, and vinyl chloride.

3.3.2 Groundwater Analytical Results from Temporary Wells

In temporary wells BD14-01 through BD14-04, the following VOCs were detected: 1,1-DCA, cis-1,2-DCE, trans-1,2-DCE, cyclohexane, methyl cyclohexane, 1,1,1-TCA, PCE, TCE, toluene, and vinyl chloride. The detected VOC concentrations will be evaluated and compared to groundwater screening criteria as discussed in Sections 4.2 and 4.3. As presented in Section 4.3, the detected concentrations in groundwater that are higher than the screening criteria include cis-1,2-DCE, PCE, TCE, and vinyl chloride.

4. Evaluation of the Building 14 Investigation Results

This section discusses the former Building 14 investigation results with respect to the corrective measures that have been implemented at the Site. Specifically, the soil and groundwater data from this investigation were compared to conservative risk-based screening criteria to support decisions regarding whether these data suggest that modifications to the on-going corrective measures at the Site are warranted.

4.1 Soil Screening Criteria

The soil screening criteria are derived from the risk-based preliminary remediation goals (PRGs) that USEPA Region 9 calculated for commercial/industrial settings (USEPA 2004). Use of the PRGs for commercial/industrial settings is consistent with the current and reasonably expected future land use at the Site (ENVIRON 2000a, 2000b). The soil PRGs for commercial/industrial settings were calculated by USEPA Region 9 using USEPA-recommended standard default exposure factors for workers, and a more conservative soil ingestion rate of 100 mg/day which is twice the standard default of 50 mg/day. The USEPA-recommended standard default exposure factors are conservative assumptions about the magnitude, frequency, and duration of exposures, which in combination provide exposure estimates that are expected to be higher than actual exposures to a large portion (90% to 99%) of workers (USEPA 1991a).

The USEPA Region 9 PRGs are based on a target cancer risk of 10^{-6} and a target hazard index (HI) of 1. The target cancer risk of 10^{-6} assumes exposure to a large number of carcinogenic chemicals at a site. According to USEPA, a target risk of 10^{-6} can be used to develop screening criteria (like the PRGs) to ensure that cumulative cancer risk from exposure to multiple human carcinogens at a site would not be above the acceptable cumulative risk of $l0^{-4}$ (61 FR 19432, May 1,1996; USEPA, 1996; USEPA, 1991b). This means that as many as 100 human carcinogens can be present at a site at concentrations equal to these PRGs without being above the cumulative risk goal of $l0^{-4}$.

However, at many sites, including this site, potential exposure is associated with far fewer human carcinogens (i.e., closer to 10 than 100) so that the screening criteria calculated using a target cancer risk of 10^{-6} are far more conservative than necessary to protect for simultaneous exposure to multiple carcinogens, and are not efficient for segregating concentrations that have a high potential for health significance from those

that do not. For these reasons, the screening criteria used in this evaluation are adjusted to a target cancer risk of 10^{-5}.

In addition to the screening criteria based on the PRGs, soil concentrations are also compared to screening criteria based on soil constituent migration to groundwater to evaluate whether soil concentrations found in the Building 14 investigation have the potential to affect groundwater quality. These criteria are derived using the methods and procedures presented in USEPA's Soil Screening Guidance. They conservatively assume that shallow groundwater is a drinking water source and a generic dilution-attenuation factor of 20.

4.2 Groundwater Screening Criteria

The groundwater screening criteria used to evaluate current groundwater concentrations in the Building 14 area are based on maximum contaminant levels (MCLs) established under the Safe Drinking Water Act, and equivalent drinking water limits for constituents without MCLs. The equivalent drinking water limits are generic risk-based drinking water concentrations calculated using conservative standard default exposure factors for estimating high-end exposure via daily drinking water consumption (USEPA 1991a), and a target cancer risk of 10^{-5} and a target hazard quotient (HQ) of 1. These groundwater screening criteria are highly conservative for evaluating shallow groundwater at the Building 14 Area because the groundwater in the uppermost aquifer underlying the site is not a current or reasonably expected future drinking water supply. However, the long-term goal of the corrective measures is to meeting drinking water criteria at the downgradient boundary of the site. As such, these criteria are relevant to the long-term corrective measures goals.

4.3 Screening Results

Tables 4 and 5 show the comparison of the soil and groundwater data with the screening criteria discussed in Sections 4.1 and 4.2, respectively. The constituents with concentrations that are higher than the screening criteria are highlighted on these tables. The spatial distribution of these constituent concentrations is shown on Figure 2.

4.3.1 Soil

Table 4 shows that none of the constituents analyzed in soil samples from the Building 14 Investigation have concentrations in soil that are higher than the screening criteria.

Therefore, these data show that constituent concentrations in soil at the investigated area do not pose a potential risk to commercial/industrial workers and are not having any adverse effect on groundwater, and therefore, do not affect the current corrective measures for the Site.

4.3.2 Groundwater

Table 5 shows that the following constituents have concentrations in groundwater that are higher than the screening criteria: cis-1,2-DCE, PCE, TCE, and vinyl chloride. Table 6 shows additional information (e.g., well location, sample date) for the samples with concentrations that are higher than the groundwater screening criteria. Figure 2 shows the spatial distribution of these constituents in the vicinity of Building 14.

Cis-1,2-DCE, PCE, and TCE were also detected in soil samples collected in the Building 14 investigation. However, as discussed in Section 4.3.1, the concentrations of these constituents in soil do not appear to represent concentrations which would be expected to adversely affect groundwater quality in this area (all soil concentrations are below the conservative soil migration to groundwater criteria). Therefore, the constituent concentrations in groundwater higher than the groundwater screening criteria may be related to releases prior to implementation of corrective measures.

5. Summary and Conclusions

The Building 14 investigation did not find any soil conditions that indicate the presence of any significant concentrations of VOCs in the vadose zone that pose a concern associated with direct exposure to routine workers or could adversely affect groundwater. The concentrations of PCE and TCE in groundwater in the vicinity of former Building 14 are somewhat higher than the current concentrations of these constituents in upgradient and downgradient groundwater. However, the PCE and TCE concentrations in the former Building 14 area are on the same order of magnitude as the concentrations found at the downgradient extent of the Former Oil House Area prior to implementation of corrective measures (i.e., at GM-28, September 1999). Therefore constituent concentrations in the Building 14 area may be related to releases prior to the implementation of corrective measures for the Former Oil House Area. The concentrations do not appear to be having a significant effect on the effectiveness of the groundwater corrective measures operating downgradient of this area, as indicated by decreases in PCE and TCE concentrations in downgradient groundwater.

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Table 1. Summary of the Building 14 Investigation, General Motors Corporation, Moraine, Ohio.

Building 14	Soil Samples	# of Soil Samples[1]	Soil Analyses	Groundwater Samples	# of Groundwater Samples[1]	Groundwater Analyses
August 2004	BD14-01 through BD14-04	9[2]	TCL VOC 5035/8260B	BD14-01 through BD14-04	4	TCL VOC 8260B
	GM-43 through GM-45	7[2]		GM-43 through GM-45	4	

[1]QA/QC samples were collected per the following: 1 per 10 for duplicates and blanks; 1 per cooler for trip blanks; 1 per 20 for MS/MSD.
[2]Samples were collected at depths of 8-10 feet and above the water table for BD14-01 through BD14-04 and samples were collected at depths of 0-2 feet and above the water table for GM-43 through GM-45.

VOC - Volatile Organic Compound.
TCL - Target Compound List.
Method - SW-846.
QA/QC - Quality Assurance/Quality Control.
MS - Matrix Spike.
MSD - Matrix Spike Duplicate.

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Table 2. Soil Analytical Results for the Building 14 Investigation, General Motors Corporation, Moraine, Ohio.

		BD14-01		BD14-02		BD14-03		BD14-04		DUP-136
		8-10 ft	22-24 ft	8-10 ft	24-26 ft	8-10 ft	24-26 ft	8-10 ft	24-26 ft	24-26 ft
	Units	8/9/2004	8/9/2004	8/13/2004	8/13/2004	8/10/2004	8/10/2004	8/12/2004	8/12/2004	8/12/2004
Volatile Organic Compounds										
1,1,1-Trichloroethane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,1,2,2-Tetrachloroethane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,1,2-Trichloroethane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,1-Dichloroethane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,1-Dichloroethene	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,2,4-Trichlorobenzene	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 9.9 U	< 11 U	< 680 U	< 570 U	< 9.6 U	< 11 U	< 460 U	< 12 U	< 13 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,2-Dichlorobenzene	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	12	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,2-Dichloroethane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,2-Dichloropropane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,3-Dichlorobenzene	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	0.29 J	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
1,4-Dichlorobenzene	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
2-Butanone	ug/kg	< 20 U	< 22 U	< 1400 U	< 1100 U	< 19 U	< 22 U	< 910 U	< 23 UJ	< 25 UJ
2-Hexanone	ug/kg	< 20 U	< 22 U	< 1400 U	< 1100 U	< 19 U	< 22 U	< 910 U	< 23 UJ	< 25 UJ
4-Methyl-2-pentanone	ug/kg	< 20 U	< 22 U	< 1400 U	< 1100 U	< 19 U	< 22 U	< 910 U	< 23 U	< 25 U
Acetone	ug/kg	< 20 U	< 22 U	< 1400 U	< 1100 U	< 19 U	< 22 U	< 910 U	< 23 UJ	< 25 UJ
Benzene	ug/kg	0.32 J	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Benzene, isopropyl	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	1.5 J	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Bromodichloromethane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Bromoform	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Bromomethane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Carbon disulfide	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Carbon tetrachloride	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Chlorobenzene	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Chloroethane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Chloroform (Trichloromethane)	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Chloromethane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
cis-1,2-Dichloroethene	ug/kg	< 2.5 U	< 2.8 U	< 170 U	< 140 U	2.4	< 2.7 U	< 110 U	< 2.9 U	< 3.2 U
cis-1,3-Dichloropropene	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Cyclohexane	ug/kg	< 9.9 U	0.56 J	< 680 U	< 570 U	< 9.6 U	< 11 U	< 460 U	< 12 U	< 13 U
Dibromochloromethane	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Dichlorodifluoromethane (CFC-12)	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 UJ	< 5.5 UJ	< 230 U	< 5.8 UJ	< 6.3 UJ

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Table 2. Soil Analytical Results for the Building 14 Investigation, General Motors Corporation, Moraine, Ohio.

		BD14-01		BD14-02		BD14-03		BD14-04		DUP-136
		8-10 ft	22-24 ft	8-10 ft	24-26 ft	8-10 ft	24-26 ft	8-10 ft	24-26 ft	24-26 ft
	Units	8/9/2004	8/9/2004	8/13/2004	8/13/2004	8/10/2004	8/10/2004	8/12/2004	8/12/2004	8/12/2004
Volatile Organic Compounds										
Ethylbenzene	ug/kg	< 4.9 U	0.84 J	< 340 U	< 280 U	0.72 J	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Methyl acetate	ug/kg	< 9.9 U	< 11 U	< 680 U	< 570 U	< 9.6 U	< 11 U	< 460 U	< 12 U	< 13 U
Methyl cyclohexane	ug/kg	< 9.9 U	0.87 J	< 680 U	< 570 U	< 9.6 U	< 11 U	< 460 U	< 12 U	< 13 U
Methyl Tert Butyl Ether	ug/kg	< 20 U	< 22 U	< 1400 U	< 1100 U	< 19 U	< 22 U	< 910 U	< 23 U	< 25 U
Methylene chloride	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.8 UJ	190 J	< 5.8 UJ	< 9 UJ
Styrene	ug/kg	< 4.9 U	0.61 J	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 7.9 U	< 6.3 U
Tetrachloroethene	ug/kg	12	13	410	330	9.3	32	370 J	110	56 J
Toluene	ug/kg	< 4.9 U	1.6 J	< 340 U	< 280 U	6.3 B	< 5.5 U	14 J	< 5.8 U	< 6.3 U
trans-1,2-Dichloroethene	ug/kg	< 2.5 U	< 2.8 U	< 170 U	< 140 U	< 2.4 U	< 2.7 U	< 110 U	< 2.9 U	< 3.2 U
trans-1,3-Dichloropropene	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Trichloroethene	ug/kg	< 4.9 U	< 5.5 U	26 J	38 J	9.3	24	27 J	10	4.8 J
Trichlorofluoromethane (CFC-11)	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Trifluorotrichloroethane (Freon 113)	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Vinyl chloride	ug/kg	< 4.9 U	< 5.5 U	< 340 U	< 280 U	< 4.8 U	< 5.5 U	< 230 U	< 5.8 U	< 6.3 U
Xylene (total)	ug/kg	< 9.9 U	1.7 J	< 680 U	< 570 U	10	< 11 U	14 J	< 12 U	< 13 U

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Table 2. Soil Analytical Results for the Building 14 Investigation, General Motors Corporation, Moraine, Ohio.

		GM-43		GM-44	DUP-135	GM-44	GM-45	
		0-2 ft	20-22 ft	0-2 ft	0-2 ft	18-20 ft	0-2 ft	20-22 ft
	Units	8/9/2004	8/9/2004	8/3/2004	8/3/2004	8/3/2004	8/5/2004	8/5/2004
Volatile Organic Compounds								
1,1,1-Trichloroethane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,1,2,2-Tetrachloroethane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,1,2-Trichloroethane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,1-Dichloroethane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,1-Dichloroethene	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,2,4-Trichlorobenzene	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/kg	< 9.6 U	< 11 U	< 8.8 U	< 9.8 U	< 9 U	< 8.8 U	< 9.8 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,2-Dichlorobenzene	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,2-Dichloroethane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,2-Dichloropropane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,3-Dichlorobenzene	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
1,4-Dichlorobenzene	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
2-Butanone	ug/kg	< 19 U	< 23 U	< 18 U	< 20 U	< 18 U	< 18 U	< 20 U
2-Hexanone	ug/kg	< 19 U	< 23 U	< 18 U	< 20 U	< 18 U	< 18 U	< 20 U
4-Methyl-2-pentanone	ug/kg	< 19 U	< 23 U	< 18 UJ	< 20 U	< 18 U	< 18 U	< 20 U
Acetone	ug/kg	< 19 U	< 23 U	< 18 U	< 24 UJ	< 18 U	< 18 U	< 20 U
Benzene	ug/kg	< 4.8 U	0.75 J	< 4.4 U	< 4.9 U	0.59 J	< 4.4 U	< 4.9 U
Benzene, isopropyl	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Bromodichloromethane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Bromoform	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Bromomethane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 UJ	< 4.9 U	< 4.5 U	< 4.4 UJ	< 4.9 UJ
Carbon disulfide	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Carbon tetrachloride	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Chlorobenzene	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Chloroethane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 UJ	< 4.9 U	< 4.5 U	< 4.4 UJ	< 4.9 UJ
Chloroform (Trichloromethane)	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Chloromethane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
cis-1,2-Dichloroethene	ug/kg	< 2.4 U	< 2.9 U	< 2.2 U	< 2.4 U	< 2.3 U	< 2.2 U	< 2.5 U
cis-1,3-Dichloropropene	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Cyclohexane	ug/kg	< 9.6 U	0.56 J	< 8.8 U	< 9.8 U	< 9 U	< 8.8 U	< 9.8 U
Dibromochloromethane	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Dichlorodifluoromethane (CFC-12)	ug/kg	< 4.8 U	< 5.7 U	< 4.4 UJ	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U

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Table 2. Soil Analytical Results for the Building 14 Investigation, General Motors Corporation, Moraine, Ohio.

		GM-43		GM-44	DUP-135	GM-44	GM-45	
		0-2 ft	20-22 ft	0-2 ft	0-2 ft	18-20 ft	0-2 ft	20-22 ft
	Units	8/9/2004	8/9/2004	8/3/2004	8/3/2004	8/3/2004	8/5/2004	8/5/2004
Volatile Organic Compounds								
Ethylbenzene	ug/kg	< 4.8 U	1.2 J	< 4.4 U	< 4.9 U	0.59 J	< 4.4 U	< 4.9 U
Methyl acetate	ug/kg	< 9.6 U	< 11 U	< 8.8 U	< 9.8 U	< 9 U	< 8.8 UJ	< 9.8 UJ
Methyl cyclohexane	ug/kg	< 9.6 U	0.88 J	< 8.8 U	< 9.8 U	0.45 J	< 8.8 UJ	< 9.8 UJ
Methyl Tert Butyl Ether	ug/kg	< 19 U	< 23 U	< 18 U	< 20 U	< 18 U	< 18 U	< 20 U
Methylene chloride	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 7.2 U	< 4.4 U	< 4.9 U
Styrene	ug/kg	0.34 J	0.68 J	0.62 J	0.97 J	1.3 J	0.39 J	0.74 J
Tetrachloroethene	ug/kg	< 4.8 U	30	1.8 J	2.3 J	29	< 4.4 U	6.9
Toluene	ug/kg	< 4.8 U	3.6 J	< 4.4 U	< 4.9 U	1.6 J	< 4.4 U	< 4.9 U
trans-1,2-Dichloroethene	ug/kg	< 2.4 U	< 2.9 U	< 2.2 U	< 2.4 U	< 2.3 U	< 2.2 U	< 2.5 U
trans-1,3-Dichloropropene	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Trichloroethene	ug/kg	< 4.8 U	< 5.7 U	0.39 J	1.5 J	2.2 J	0.41 J	4.4 J
Trichlorofluoromethane (CFC-11)	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Trifluorotrichloroethane (Freon 113)	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Vinyl chloride	ug/kg	< 4.8 U	< 5.7 U	< 4.4 U	< 4.9 U	< 4.5 U	< 4.4 U	< 4.9 U
Xylene (total)	ug/kg	< 9.6 U	2.4 J	< 8.8 U	< 9.8 U	1.1 J	< 8.8 U	< 9.8 U

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Table 2. Soil Analytical Results for the Building 14 Investigation, General Motors Corporation, Moraine, Ohio.

	Units	RB-112 8/3/2004	RB-113 8/12/2004	TB-172 8/3/2004	TB-173 8/5/2004	TB-174 8/9/2004	TB-175 8/10/2004	TB-176 8/12/2004	TB-177 8/13/2004
Volatile Organic Compounds									
1,1,1-Trichloroethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	0.4 J	0.57 J	1	< 1 U
1,2,4-Trichlorobenzene	ug/l	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloropropane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
2-Butanone	ug/l	< 10 U	< 10 U	2.2 J	2.7 J	4.7 J	3.5 J	5.1 J	2.1 J
2-Hexanone	ug/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
4-Methyl-2-pentanone	ug/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Acetone	ug/l	< 10 UJ	< 10 UJ	9.7 J	17 J	22	17 J	27 J	1.6 J
Benzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Benzene, isopropyl	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromodichloromethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromoform	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Bromomethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U
Carbon disulfide	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Carbon tetrachloride	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U
Chlorobenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U
Chloroform (Trichloromethane)	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloromethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 UJ	< 1 U
cis-1,2-Dichloroethene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Cyclohexane	ug/l	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
Dibromochloromethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane (CFC-12)	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U

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Table 2. Soil Analytical Results for the Building 14 Investigation, General Motors Corporation, Moraine, Ohio.

	Units	RB-112 8/3/2004	RB-113 8/12/2004	TB-172 8/3/2004	TB-173 8/5/2004	TB-174 8/9/2004	TB-175 8/10/2004	TB-176 8/12/2004	TB-177 8/13/2004
Volatile Organic Compounds									
Ethylbenzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Methyl acetate	ug/l	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
Methyl cyclohexane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U
Methyl Tert Butyl Ether	ug/l	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Methylene chloride	ug/l	< 1 U	0.73 J	< 1 U	21 B	16 B	11 B	17	2.4
Styrene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Tetrachloroethene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Toluene	ug/l	< 1 U	< 1 U	< 1 U	0.28 J	0.24 J	0.24 J	0.29 J	< 1 U
trans-1,2-Dichloroethene	ug/l	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,3-Dichloropropene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichloroethene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U
Trifluorotrichloroethane (Freon 113)	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Vinyl chloride	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Xylene (total)	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U

ug/kg - Micrograms per kilogram.
ug/l - Micrograms per liter.
DUP-135 - Duplicate of GM-44/0-2/.
DUP-136 - Duplicate of BD14-04/24-26/.
< - Constituent not detected above laboratory reporting limit shown.
J - Value is estimated.

ARCADIS

Table 3. Groundwater Analytical Results for the Building 14 Investigation, General Motors Corporation, Moraine, Ohio.

	Units	BD14-01[(1)] 8/10/2004	BD14-02[(1)] 8/13/2004	BD14-03[(1)] 8/11/2004	BD14-04[(1)] 8/12/2004	GM-43 8/19/2004	DUP-137 8/19/2004	GM-44 8/19/2004	GM-45 8/19/2004	TB-178 8/19/2004	RB-114 8/19/2004
Volatile Organic Compounds											
1,1,1-Trichloroethane	ug/l	< 1 U	5.5 J	1.9 J	2.4 J	< 9.1 U	< 9.1 U	4 J	5.8 J	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
1,1-Dichloroethane	ug/l	2.5	< 20 U	< 4 U	< 3.3 U	6.9 J	6.4 J	3.3 J	8.5 J	< 1 U	< 1 U
1,1-Dichloroethene	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 UJ	< 9.1 UJ	< 6 UJ	< 9.1 UJ	< 1 UJ	< 1 UJ
1,2-Dibromo-3-chloropropane (DBCP)	ug/l	< 2 U	< 40 U	< 8 U	< 6.7 U	< 18 U	< 18 U	< 12 U	< 18 U	< 2 U	< 2 U
1,2-Dibromoethane (Ethylene Dibromide)	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
1,2-Dichloroethane	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
1,2-Dichloropropane	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
1,4-Dichlorobenzene	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
2-Butanone	ug/l	< 10 U	< 200 U	< 40 U	< 33 U	< 91 U	< 91 U	< 60 U	< 91 U	2.3 J	< 10 U
2-Hexanone	ug/l	< 10 U	< 200 U	< 40 U	< 33 U	< 91 U	< 91 U	< 60 U	< 91 U	< 10 U	< 10 U
4-Methyl-2-pentanone	ug/l	< 10 U	< 200 U	< 40 U	< 33 U	< 91 U	< 91 U	< 60 U	< 91 U	< 10 U	< 10 U
Acetone	ug/l	< 10 U	< 200 UJ	< 40 U	< 33 U	< 91 UJ	< 91 UJ	< 60 UJ	< 91 UJ	4.6 J	< 10 UJ
Benzene	ug/l	< 1 U	< 20 U	1.7 J B	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Benzene, isopropyl	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Bromodichloromethane	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Bromoform	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 UJ	< 9.1 UJ	< 6 UJ	< 9.1 UJ	< 1 UJ	< 1 UJ
Bromomethane	ug/l	< 1 U	< 20 U	< 4 UJ	< 3.3 UJ	< 9.1 UJ	< 9.1 UJ	< 6 UJ	< 9.1 UJ	< 1 UJ	< 1 UJ
Carbon disulfide	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Carbon tetrachloride	ug/l	< 1 UJ	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Chlorobenzene	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Chloroethane	ug/l	< 1 U	< 20 U	< 4 UJ	< 3.3 UJ	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Chloroform (Trichloromethane)	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Chloromethane	ug/l	< 1 U	< 20 U	< 4 UJ	< 3.3 UJ	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	ug/l	26	43	41	12	210	210	130	79	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Cyclohexane	ug/l	0.84 J	< 20 UJ	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Dibromochloromethane	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 UJ	< 9.1 UJ	< 6 UJ	< 9.1 UJ	< 1 UJ	< 1 UJ
Dichlorodifluoromethane (CFC-12)	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Ethylbenzene	ug/l	< 1 UJ	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Methyl acetate	ug/l	< 10 U	< 200 U	< 40 U	< 33 U	< 91 U	< 91 U	< 60 U	< 91 U	< 10 U	< 10 U
Methyl cyclohexane	ug/l	0.92 J	< 20 U	< 4 U	< 3.3 U	< 9.1 UJ	< 9.1 UJ	< 6 UJ	< 9.1 UJ	< 1 UJ	< 1 UJ
Methyl Tert Butyl Ether	ug/l	< 5 U	< 100 U	< 20 U	< 17 U	< 45 U	< 45 U	< 30 U	< 45 U	< 5 U	< 5 U
Methylene chloride	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 UJ	< 1 U
Styrene	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Tetrachloroethene	ug/l	1.2	630	10	37	16	17	57	220	< 1 U	< 1 U
Toluene	ug/l	< 1 U	5.1 J	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
trans-1,2-Dichloroethene	ug/l	1.6	< 10 U	< 2 U	0.87 J	8.7	8.7	4.4	3.5 J	< 0.5 U	< 0.5 U
trans-1,3-Dichloropropene	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Trichloroethene	ug/l	23	170	74	68	100	100	140	220	< 1 U	< 1 U
Trichlorofluoromethane (CFC-11)	ug/l	< 1 U	< 20 U	< 4 UJ	< 3.3 UJ	12	14	7.5	10	< 1 U	< 1 U
Trifluorotrichloroethane (Freon 113)	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	24	7.4 J	< 1 U	< 1 U
Vinyl chloride	ug/l	2.6	< 20 U	< 4 U	< 3.3 U	2.8 J	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U
Xylene (total)	ug/l	< 1 U	< 20 U	< 4 U	< 3.3 U	< 9.1 U	< 9.1 U	< 6 U	< 9.1 U	< 1 U	< 1 U

(1) Groundwater sample collected from a temporary well set at the regional clay till.
ug/l - Micrograms per liter.
DUP 137 - Duplicate of GM-43.
< - Constituent not detected above laboratory reporting limit shown.
J - Value is estimated.

Table 4: Soil Screening Results
GM Moraine Building 14, Moraine, Ohio

									Reg 9 Based			ENVIRON	
Area	Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	Industrial PRG Based Criteria (TR=1E-5 & HQ=1) (mg/kg)		Ratio of Max Detect to Industrial Criteria (1E-5)	MTGW MCL/Tap Water (TR = 1E-5) (mg/kg)	Ratio of Max Detect to MTGW MCL/Tap Water 1E-5
Building 14	VOC	Acetone	67-64-1	ID	16				5.43E+04	NC		1.31E+04	
Building 14	VOC	Benzene	71-43-2	A	16	3	3.20E-04	7.50E-04	1.41E+01	C	5.3E-05	2.00E+00	3.8E-04
Building 14	VOC	Bromodichloromethane	75-27-4	B2	16				1.83E+01	C		3.20E+01	
Building 14	VOC	Bromoform	75-25-2	B2	16				2.18E+03	C		3.20E+01	
Building 14	VOC	Bromomethane	74-83-9	D	16				1.31E+01	NC		2.04E+01	
Building 14	VOC	2-Butanone	78-93-3	ID	16				1.13E+05	NC		8.76E+03	
Building 14	VOC	Carbon Disulfide	75-15-0		16				1.20E+03	NC		1.46E+03	
Building 14	VOC	Carbon Tetrachloride	56-23-5	B2	16				5.49E+00	C		2.00E+00	
Building 14	VOC	Chlorobenzene	108-90-7	D	16				5.30E+02	NC		4.00E+01	
Building 14	VOC	Chloroethane	75-00-3		16				6.49E+01	C		5.84E+03	
Building 14	VOC	Chloroform	67-66-3	B2	16				4.70E+00	C		3.20E+01	
Building 14	VOC	Chloromethane	74-87-3	D	16				1.56E+02	NC		3.80E+02	
Building 14	VOC	Cumene	98-82-8	D	16	1	1.50E-03	1.50E-03	1.98E+03	NC	7.6E-07		
Building 14	VOC	Cyclohexane	110-82-7	ID	16	2	5.60E-04	5.60E-04	9.43E+03	NC	5.9E-08		
Building 14	VOC	1,2-Dibromo-3-chloropropane	96-12-8	B2	16				1.10E+01	NC		8.00E-02	
Building 14	VOC	Dibromochloromethane	124-48-1	C	16				2.55E+01	C		3.20E+01	
Building 14	VOC	1,2-Dibromoethane	106-93-4	B2	16				6.30E-01	C		2.00E-02	
Building 14	VOC	1,2-Dichlorobenzene	95-50-1	D	16	1	1.20E-02	1.20E-02	4.08E+03	NC	2.9E-06	2.40E+02	5.0E-05
Building 14	VOC	1,3-Dichlorobenzene	541-73-1	D	16	1	2.90E-04	2.90E-04	2.09E+03	NC	1.4E-07	4.38E+02	6.6E-07
Building 14	VOC	1,4-Dichlorobenzene	106-46-7	C	16				7.87E+01	C		3.00E+01	
Building 14	VOC	Dichlorodifluoromethane	75-71-8		16				3.08E+02	NC		2.92E+03	
Building 14	VOC	1,1-Dichloroethane	75-34-3	C	16				1.74E+03	NC		1.46E+03	
Building 14	VOC	1,2-Dichloroethane	107-06-2	B2	16				6.03E+00	C		2.00E+00	
Building 14	VOC	1,1-Dichloroethene	75-35-4	C	16				4.13E+02	NC		2.80E+00	
Building 14	VOC	cis-1,2-Dichloroethene	156-59-2	D	16	1	2.40E-03	2.40E-03	1.46E+02	NC	1.6E-05	2.80E+01	8.6E-05
Building 14	VOC	trans-1,2-Dichloroethene	156-60-5		16				2.35E+02	NC		4.00E+01	
Building 14	VOC	1,2-Dichloropropane	78-87-5	B2	16				7.42E+00	C		2.00E+00	
Building 14	VOC	1,3-Dichloropropene (total)	542-75-6	B2	16				1.76E+01	C		2.69E+00	
Building 14	VOC	Ethyl Benzene	100-41-4	D	16	4	5.90E-04	1.20E-03	7.40E+03	NC	1.6E-07	2.80E+02	4.3E-06
Building 14	VOC	2-Hexanone	591-78-6		16								
Building 14	VOC	Methyl Acetate	79-20-9		16				9.15E+04	NC		1.46E+04	
Building 14	VOC	Methyl tert-butyl ether	1634-04-4		16				7.00E+02	C		1.49E+02	
Building 14	VOC	4-Methyl-2-pentanone	108-10-1	ID	16				4.70E+04	NC		1.17E+03	
Building 14	VOC	Methylcyclohexane	108-87-2		16	3	4.50E-04	8.80E-04	8.72E+03	NC	1.0E-07		
Building 14	VOC	Methylene Chloride	75-09-2	B2	16	1	1.90E-01	1.90E-01	2.05E+02	C	9.3E-04	2.00E+00	9.5E-02
Building 14	VOC	Styrene	100-42-5		16	8	3.40E-04	1.30E-03	1.81E+04	NC	7.2E-08	4.00E+01	3.3E-05
Building 14	VOC	1,1,2,2-Tetrachloroethane	79-34-5	C	16				9.29E+00	C		1.34E+00	
Building 14	VOC	Tetrachloroethene	127-18-4	C-B2	16	14	1.80E-03	4.10E-01	1.31E+01	C	3.1E-02	2.00E+00	2.1E-01
Building 14	VOC	Toluene	108-88-3	D	16	5	1.60E-03	1.40E-02	2.21E+03	NC	6.3E-06	4.00E+02	3.5E-05
Building 14	VOC	1,2,4-Trichlorobenzene	120-82-1	D	16				2.16E+02	NC		2.80E+01	
Building 14	VOC	1,1,1-Trichloroethane	71-55-6	D	16				6.95E+03	NC		8.00E+01	
Building 14	VOC	1,1,2-Trichloroethane	79-00-5	C	16				1.61E+01	C		2.00E+00	

Table 4: Soil Screening Results
GM Moraine Building 14, Moraine, Ohio

									Reg 9 Based			ENVIRON	
Area	**Chem Group**	**Chemical**	**CASRN**	**Carc Class**	**Analyzed**	**Detected**	**Min Detected (mg/kg)**	**Max Detected (mg/kg)**	**Industrial PRG Based Criteria (TR=1E-5 & HQ=1) (mg/kg)**		**Ratio of Max Detect to Industrial Criteria (1E-5)**	**MTGW MCL/Tap Water (TR = 1E-5) (mg/kg)**	**Ratio of Max Detect to MTGW MCL/Tap Water 1E-5**
Building 14	VOC	Trichloroethene	79-01-6	C-B2	16	12	3.90E-04	3.80E-02	6.12E+01	C	6.2E-04	2.00E+00	1.9E-02
Building 14	VOC	Trichlorofluoromethane	75-69-4		16				1.28E+03	NC		4.38E+03	
Building 14	VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1		16				6.87E+04	NC			
Building 14	VOC	Vinyl Chloride	75-01-4	A	16				7.46E+00	C		8.00E-01	
Building 14	VOC	Xylenes (total)	1330-20-7	ID	16	5	1.10E-03	1.40E-02	8.97E+02	NC	1.6E-05		

Notes:

The Screening Criteria for cis-1,2-Dichloroethene were used as surrogates for 1,2-Dichloroethene (total).

The concentrations for the Chlordane isomers (alpha and gamma) were summed before comparing to the Screening Criteria.

The concentrations for the 1,3-Dichloropropene isomers (cis and trans) were summed before comparing to the Screening Criteria.

c - The Screening Criterion is based on cancer risk.

nc - The Screening Criterion is based on noncancer effects.

Chem Group - Chemical Group

Carc Class - EPA Weight-of-Evidence Cancer Classification

Table 5: Groundwater Screening Results
GM Moraine Building 14, Moraine, Ohio

												US EPA	OHIO	ENVIRON		Reg 9 Based		4
Area	Wellzone	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Min Detected (mg/L)	Max Detected (mg/L)	MCL FED (mg/L)	Ohio MCL (mg/L)	Solubility (mg/L)	Ratio of Max Detect to Solubility	Drinking Water Criteria (MCL or TR=1E-5 & HQ=1) (mg/L)		Ratio of Max Detect to DW Criteria E-5
Building 14	Shallow	VOC	Acetone	67-64-1	T	ID	8						1.00E+06		3.29E+01	nc	
Building 14	Shallow	VOC	Benzene	71-43-2	T	A	8	1	1.70E-03	1.70E-03	5.00E-03	5.00E-03	1.75E+03	9.7E-07	5.00E-03	sm	3.4E-01
Building 14	Shallow	VOC	Bromodichloromethane	75-27-4	T	B2	8				8.00E-02		6.74E+03		8.00E-02	fm	
Building 14	Shallow	VOC	Bromoform	75-25-2	T	B2	8				8.00E-02		3.10E+03		8.00E-02	fm	
Building 14	Shallow	VOC	Bromomethane	74-83-9	T	D	8						1.52E+04		5.11E-02	nc	
Building 14	Shallow	VOC	2-Butanone	78-93-3	T	ID	8								2.19E+01	nc	
Building 14	Shallow	VOC	Carbon Disulfide	75-15-0	T		8						1.19E+03		3.65E+00	nc	
Building 14	Shallow	VOC	Carbon Tetrachloride	56-23-5	T	B2	8				5.00E-03	5.00E-03	7.93E+02		5.00E-03	sm	
Building 14	Shallow	VOC	Chlorobenzene	108-90-7	T	D	8				1.00E-01	1.00E-01	4.72E+02		1.00E-01	sm	
Building 14	Shallow	VOC	Chloroethane	75-00-3	T		8						5.68E+03		1.46E+01	nc	
Building 14	Shallow	VOC	Chloroform	67-66-3	T	B2	8				8.00E-02		7.92E+03		8.00E-02	fm	
Building 14	Shallow	VOC	Chloromethane	74-87-3	T	D	8						5.33E+03		9.49E-01	nc	
Building 14	Shallow	VOC	Cumene	98-82-8	T	D	8						6.13E+01		3.65E+00	nc	
Building 14	Shallow	VOC	Cyclohexane	110-82-7	T	ID	8	1	8.40E-04	8.40E-04			5.50E+01	1.5E-05	6.21E+01	nc	1.4E-05
Building 14	Shallow	VOC	1,2-Dibromo-3-chloropropane	96-12-8	T	B2	8				2.00E-04	2.00E-04	1.23E+03		2.00E-04	sm	
Building 14	Shallow	VOC	Dibromochloromethane	124-48-1	T	C	8				8.00E-02		2.60E+03		8.00E-02	fm	
Building 14	Shallow	VOC	1,2-Dibromoethane	106-93-4	T	B2	8				5.00E-05	5.00E-05	4.18E+03		5.00E-05	sm	
Building 14	Shallow	VOC	1,2-Dichlorobenzene	95-50-1	T	D	8				6.00E-01	6.00E-01	1.56E+02		6.00E-01	sm	
Building 14	Shallow	VOC	1,3-Dichlorobenzene	541-73-1	T	D	8						1.33E+02		1.10E+00	nc	
Building 14	Shallow	VOC	1,4-Dichlorobenzene	106-46-7	T	C	8				7.50E-02	7.50E-02	7.38E+01		7.50E-02	sm	
Building 14	Shallow	VOC	Dichlorodifluoromethane	75-71-8	T		8						2.80E+02		7.30E+00	nc	
Building 14	Shallow	VOC	1,1-Dichloroethane	75-34-3	T	C	8	5	2.50E-03	8.50E-03			5.06E+03	1.7E-06	3.65E+00	nc	2.3E-03
Building 14	Shallow	VOC	1,2-Dichloroethane	107-06-2	T	B2	8				5.00E-03	5.00E-03	8.52E+03		5.00E-03	sm	
Building 14	Shallow	VOC	1,1-Dichloroethene	75-35-4	T	C	8				7.00E-03	7.00E-03	2.25E+03		7.00E-03	sm	
Building 14	Shallow	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	8	8	1.20E-02	2.10E-01	7.00E-02	7.00E-02	3.50E+03	6.0E-05	7.00E-02	sm	**3.0E+00**
Building 14	Shallow	VOC	trans-1,2-Dichloroethene	156-60-5	T		8	6	8.70E-04	8.70E-03	1.00E-01	1.00E-01	6.30E+03	1.4E-06	1.00E-01	sm	8.7E-02
Building 14	Shallow	VOC	1,2-Dichloropropane	78-87-5	T	B2	8				5.00E-03	5.00E-03	2.80E+03		5.00E-03	sm	
Building 14	Shallow	VOC	1,3-Dichloropropene (total)	542-75-6	T	B2	8								6.72E-03	ca	
Building 14	Shallow	VOC	Ethyl Benzene	100-41-4	T	D	8				7.00E-01	7.00E-01	1.69E+02		7.00E-01	sm	
Building 14	Shallow	VOC	2-Hexanone	591-78-6	T		8										
Building 14	Shallow	VOC	Methyl Acetate	79-20-9	T		8								3.65E+01	nc	
Building 14	Shallow	VOC	Methyl tert-butyl ether	1634-04-4	T		8						5.10E+04		3.74E-01	ca	
Building 14	Shallow	VOC	4-Methyl-2-pentanone	108-10-1	T	ID	8						1.90E+04		2.92E+00	nc	
Building 14	Shallow	VOC	Methylcyclohexane	108-87-2	T		8	1	9.20E-04	9.20E-04					3.14E+01	nc	2.9E-05
Building 14	Shallow	VOC	Methylene Chloride	75-09-2	T	B2	8				5.00E-03	5.00E-03	1.30E+04		5.00E-03	sm	
Building 14	Shallow	VOC	Styrene	100-42-5	T		8				1.00E-01	1.00E-01	3.10E+02		1.00E-01	sm	
Building 14	Shallow	VOC	1,1,2,2-Tetrachloroethane	79-34-5	T	C	8						2.97E+03		3.36E-03	ca	
Building 14	Shallow	VOC	Tetrachloroethene	127-18-4	T	C-B2	8	8	1.20E-03	6.30E-01	5.00E-03	5.00E-03	2.00E+02	3.2E-03	5.00E-03	sm	**1.3E+02**
Building 14	Shallow	VOC	Toluene	108-88-3	T	D	8	1	5.10E-03	5.10E-03	1.00E+00	1.00E+00	5.26E+02	9.7E-06	1.00E+00	sm	5.1E-03
Building 14	Shallow	VOC	1,2,4-Trichlorobenzene	120-82-1	T	D	8				7.00E-02	7.00E-02	3.00E+02		7.00E-02	sm	
Building 14	Shallow	VOC	1,1,1-Trichloroethane	71-55-6	T	D	8	5	1.90E-03	5.80E-03	2.00E-01	2.00E-01	1.33E+03	4.4E-06	2.00E-01	sm	2.9E-02
Building 14	Shallow	VOC	1,1,2-Trichloroethane	79-00-5	T	C	8				5.00E-03	5.00E-03	4.42E+03		5.00E-03	sm	
Building 14	Shallow	VOC	Trichloroethene	79-01-6	T	C-B2	8	8	2.30E-02	2.20E-01	5.00E-03	5.00E-03	1.10E+03	2.0E-04	5.00E-03	sm	**4.4E+01**
Building 14	Shallow	VOC	Trichlorofluoromethane	75-69-4	T		8	4	7.50E-03	1.40E-02			1.10E+03	1.3E-05	1.10E+01	nc	1.3E-03
Building 14	Shallow	VOC	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	T		8	2	7.40E-03	2.40E-02			1.70E+02	1.4E-04	1.10E+03	nc	2.2E-05
Building 14	Shallow	VOC	Vinyl Chloride	75-01-4	T	A	8	2	2.60E-03	2.80E-03	2.00E-03	2.00E-03	2.76E+03	1.0E-06	2.00E-03	sm	**1.4E+00**
Building 14	Shallow	VOC	Xylenes (total)	1330-20-7	T	ID	8				1.00E+01	1.00E+01			1.00E+01	sm	

Notes:

The Screening Criteria for cis-1,2-Dichloroethene were used as surrogates for 1,2-Dichloroethene (total).

The concentrations for the Chlordane isomers (alpha and gamma) were summed before comparing to the Screening Criteria.

The concentrations for the 1,3-Dichloropropene isomers (cis and trans) were summed before comparing to the Screening Criteria.

sm - The Screening Criterion is the State MCL.

fm - The Screening Criterion is the Federal MCL.

c - The Screening Criterion is based on cancer risk.

nc - The Screening Criterion is based on noncancer effects.

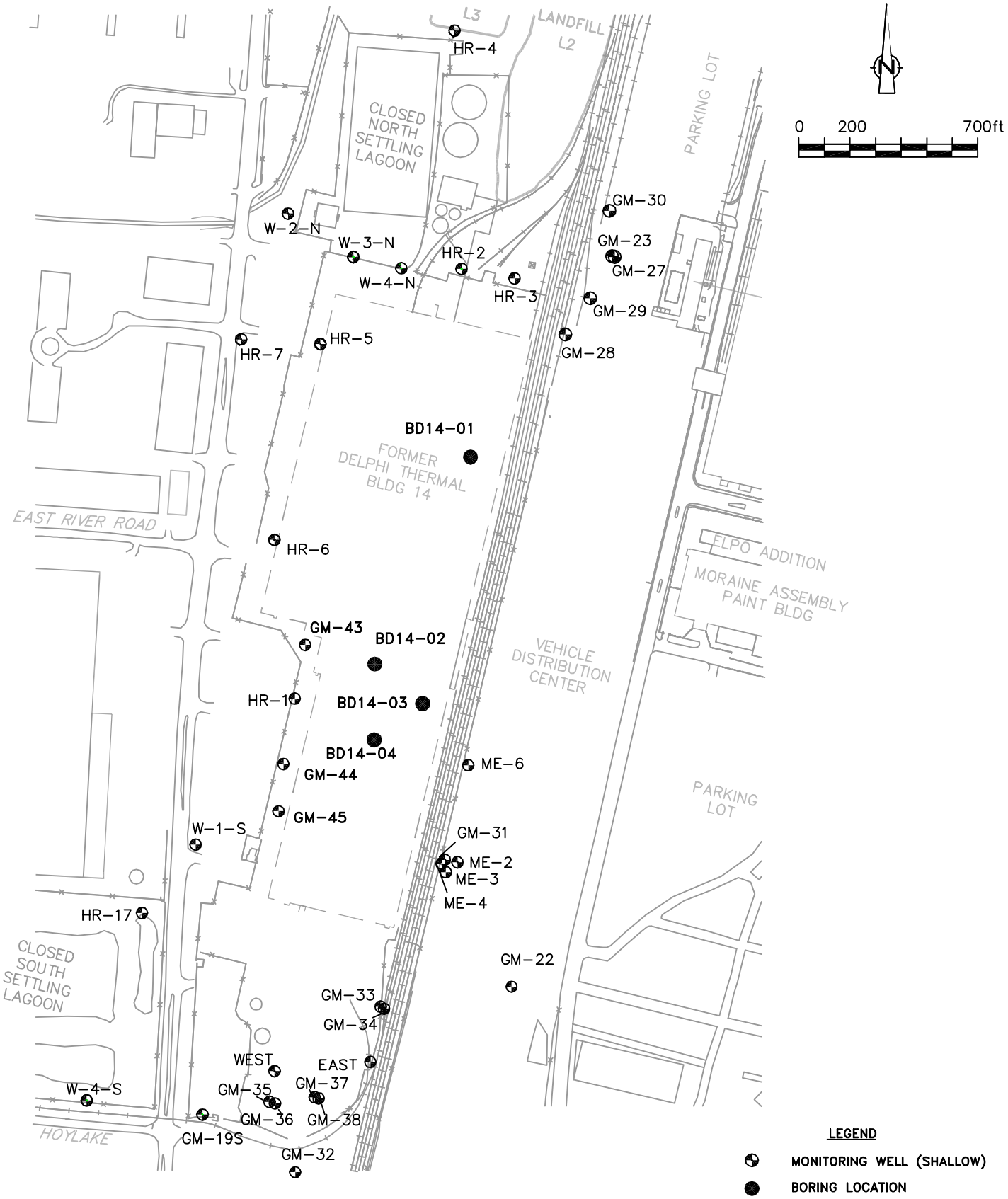
Chem Group - Chemical Group

Meas Basis - Measured Basis; T = Total, D = Dissolved

Carc Class - EPA Weight-of-Evidence Cancer Classification

Table 6: Groundwater Samples Exceeding Screening Criteria
GM Moraine Building 14, Moraine, Ohio

													Reg 9 Based	21
Area	Wellzone	Location	Sample ID	Sample Type	Sample Date	Meas Basis	Chem Group	Chemical	CASRN	Conc (mg/L)	Qual	MRL (mg/L)	Drinking Water Criteria E-5 or HQ 1 (mg/L)	Ratio of Conc to Drinking Water Criteria E-5 or HQ 1
Building 14	Shallow	BD14-01	BD14-01/081004	N	08/10/04	T	VOC	Trichloroethene	79-01-6	2.30E-02		2.80E-04	5.00E-03	**4.6E+00**
Building 14	Shallow	BD14-01	BD14-01/081004	N	08/10/04	T	VOC	Vinyl Chloride	75-01-4	2.60E-03		2.10E-04	2.00E-03	**1.3E+00**
Building 14	Shallow	BD14-02	BD14-02/081304	N	08/13/04	T	VOC	Tetrachloroethene	127-18-4	6.30E-01		3.80E-03	5.00E-03	**1.3E+02**
Building 14	Shallow	BD14-02	BD14-02/081304	N	08/13/04	T	VOC	Trichloroethene	79-01-6	1.70E-01		5.60E-03	5.00E-03	**3.4E+01**
Building 14	Shallow	BD14-03	BD14-03/081104	N	08/11/04	T	VOC	Tetrachloroethene	127-18-4	1.00E-02		7.60E-04	5.00E-03	**2.0E+00**
Building 14	Shallow	BD14-03	BD14-03/081104	N	08/11/04	T	VOC	Trichloroethene	79-01-6	7.40E-02		1.10E-03	5.00E-03	**1.5E+01**
Building 14	Shallow	BD14-04	BD14-04/081204	N	08/12/04	T	VOC	Tetrachloroethene	127-18-4	3.70E-02		6.30E-04	5.00E-03	**7.4E+00**
Building 14	Shallow	BD14-04	BD14-04/081204	N	08/12/04	T	VOC	Trichloroethene	79-01-6	6.80E-02		9.30E-04	5.00E-03	**1.4E+01**
Building 14	Shallow	GM-43	DUP-137	FD	08/19/04	T	VOC	cis-1,2-Dichloroethene	156-59-2	2.10E-01		1.90E-03	7.00E-02	**3.0E+00**
Building 14	Shallow	GM-43	DUP-137	FD	08/19/04	T	VOC	Tetrachloroethene	127-18-4	1.70E-02		1.70E-03	5.00E-03	**3.4E+00**
Building 14	Shallow	GM-43	DUP-137	FD	08/19/04	T	VOC	Trichloroethene	79-01-6	1.00E-01		2.50E-03	5.00E-03	**2.0E+01**
Building 14	Shallow	GM-43	GM-43/081904	N	08/19/04	T	VOC	cis-1,2-Dichloroethene	156-59-2	2.10E-01		1.90E-03	7.00E-02	**3.0E+00**
Building 14	Shallow	GM-43	GM-43/081904	N	08/19/04	T	VOC	Tetrachloroethene	127-18-4	1.60E-02		1.70E-03	5.00E-03	**3.2E+00**
Building 14	Shallow	GM-43	GM-43/081904	N	08/19/04	T	VOC	Trichloroethene	79-01-6	1.00E-01		2.50E-03	5.00E-03	**2.0E+01**
Building 14	Shallow	GM-43	GM-43/081904	N	08/19/04	T	VOC	Vinyl Chloride	75-01-4	2.80E-03	J	1.90E-03	2.00E-03	**1.4E+00**
Building 14	Shallow	GM-44	GM-44/081904	N	08/19/04	T	VOC	cis-1,2-Dichloroethene	156-59-2	1.30E-01		1.30E-03	7.00E-02	**1.9E+00**
Building 14	Shallow	GM-44	GM-44/081904	N	08/19/04	T	VOC	Tetrachloroethene	127-18-4	5.70E-02		1.10E-03	5.00E-03	**1.1E+01**
Building 14	Shallow	GM-44	GM-44/081904	N	08/19/04	T	VOC	Trichloroethene	79-01-6	1.40E-01		1.70E-03	5.00E-03	**2.8E+01**
Building 14	Shallow	GM-45	GM-45/081904	N	08/19/04	T	VOC	cis-1,2-Dichloroethene	156-59-2	7.90E-02		1.90E-03	7.00E-02	**1.1E+00**
Building 14	Shallow	GM-45	GM-45/081904	N	08/19/04	T	VOC	Tetrachloroethene	127-18-4	2.20E-01		1.70E-03	5.00E-03	**4.4E+01**
Building 14	Shallow	GM-45	GM-45/081904	N	08/19/04	T	VOC	Trichloroethene	79-01-6	2.20E-01		2.50E-03	5.00E-03	**4.4E+01**



ARCADIS
284 Cramer Creek Court
Dublin, OH 43017
Tel: 614/764-2310 Fax: 614/764-1270

SOIL BORING AND MONITORING WELL LOCATIONS FOR THE BUILDING 14 INVESTIGATION GENERAL MOTORS CORPORATION MORAINE, OHIO

DATE	PROJECT MANAGER	DRAWING NAME
2/15/2005	N. GILLOTTI	CRA\BLDG14\BLD14-21
DRAWN	LEAD DESIGN PROF.	CHECKED
R. SMITH	J. REID	N. GILLOTTI
PROJECT NUMBER		FIGURE NUMBER
0H000294.0006.0009		1

GM-43	8/19/2004 ug/l
1,1,1-Trichloroethane	ND (9.1) U
1,1-Dichloroethane	6.9 J/6.4 J
1,1-Dichloroethene	ND (9.1) U
Benzene	ND (9.1) U
cis-1,2-Dichloroethene	210/210
Ethylbenzene	ND (9.1) U
Tetrachloroethene	16/17
Toluene	ND (9.1) U
trans-1,2-Dichloroethene	8.7/8.7
Trichloroethene	100/100
Vinyl chloride	2.8 J/ND (9.1) U
Xylene (total)	ND (9.1) U

BD14-01	8/10/2004 ug/l
1,1,1-Trichloroethane	ND (1) U
1,1-Dichloroethane	2.5
1,1-Dichloroethene	ND (1) U
Benzene	ND (1) U
cis-1,2-Dichloroethene	26
Ethylbenzene	ND (1) UJ
Tetrachloroethene	1.2
Toluene	ND (1) U
trans-1,2-Dichloroethene	1.6
Trichloroethene	23
Vinyl chloride	2.6
Xylene (total)	ND (1) U

GM-43	8/9/2004 0-2 ft ug/kg	8/9/2004 20-22 ft ug/kg
1,1,1-Trichloroethane	ND (4.8) U	ND (5.7) U
1,1-Dichloroethane	ND (4.8) U	ND (5.7) U
1,1-Dichloroethene	ND (4.8) U	ND (5.7) U
Benzene	ND (4.8) U	0.75 J
cis-1,2-Dichloroethene	ND (2.4) U	ND (2.9) U
Ethylbenzene	ND (4.8) U	1.2 J
Tetrachloroethene	ND (4.8) U	30
Toluene	ND (4.8) U	3.6 J
trans-1,2-Dichloroethene	ND (2.4) U	ND (2.9) U
Trichloroethene	ND (4.8) U	ND (5.7) U
Vinyl chloride	ND (4.8) U	ND (5.7) U
Xylene (total)	ND (9.6) U	2.4 J

BD14-01	8/9/2004 8-10 ft ug/kg	8/9/2004 22-24 ft ug/kg
1,1,1-Trichloroethane	ND (4.9) U	ND (5.5) U
1,1-Dichloroethane	ND (4.9) U	ND (5.5) U
1,1-Dichloroethene	ND (4.9) U	ND (5.5) U
Benzene	0.32 J	ND (5.5) U
cis-1,2-Dichloroethene	ND (2.5) U	ND (2.8) U
Ethylbenzene	ND (4.9) U	0.84 J
Tetrachloroethene	12	13
Toluene	ND (4.9) U	1.6 J
trans-1,2-Dichloroethene	ND (2.5) U	ND (2.8) U
Trichloroethene	ND (4.9) U	ND (5.5) U
Vinyl chloride	ND (4.9) U	ND (5.5) U
Xylene (total)	ND (9.9) U	1.7 J

GM-44	8/19/2004 ug/l
1,1,1-Trichloroethane	4 J
1,1-Dichloroethane	3.3 J
1,1-Dichloroethene	ND (6) U
Benzene	ND (6) U
cis-1,2-Dichloroethene	130
Ethylbenzene	ND (6) U
Tetrachloroethene	57
Toluene	ND (6) U
trans-1,2-Dichloroethene	4.4
Trichloroethene	140
Vinyl chloride	ND (6) U
Xylene (total)	ND (6) U

BD14-02	8/13/2004 ug/l
1,1,1-Trichloroethane	5.5 J
1,1-Dichloroethane	ND (20) U
1,1-Dichloroethene	ND (20) U
Benzene	ND (20) U
cis-1,2-Dichloroethene	43
Ethylbenzene	ND (20) U
Tetrachloroethene	630
Toluene	5.1 J
trans-1,2-Dichloroethene	ND (10) U
Trichloroethene	170
Vinyl chloride	ND (20) U
Xylene (total)	ND (20) U

GM-44	8/3/2004 0-2 ft ug/kg	8/3/2004 18-20 ft ug/kg
1,1,1-Trichloroethane	ND (4.4) U/ND (4.9) U	ND (4.5) U
1,1-Dichloroethane	ND (4.4) U/ND (4.9) U	ND (4.5) U
1,1-Dichloroethene	ND (4.4) U/ND (4.9) U	ND (4.5) U
Benzene	ND (4.4) U/ND (4.9) U	0.59 J
cis-1,2-Dichloroethene	ND (2.2) U/ND (2.4) U	ND (2.3) U
Ethylbenzene	ND (4.4) U/ND (4.9) U	0.59 J
Tetrachloroethene	1.8 J/2.3 J	29
Toluene	ND (4.4) U/ND (4.9) U	1.6 J
trans-1,2-Dichloroethene	ND (2.2) U/ND (2.4) U	ND (2.3) U
Trichloroethene	0.39 J/1.5 J	2.2 J
Vinyl chloride	ND (4.4) U/ND (4.9) U	ND (4.5) U
Xylene (total)	ND (8.8) U/ND (9.8) U	1.1 J

BD14-02	8/13/2004 8-10 ft ug/kg	8/13/2004 24-26 ft ug/kg
1,1,1-Trichloroethane	ND (340) U	ND (280) U
1,1-Dichloroethane	ND (340) U	ND (280) U
1,1-Dichloroethene	ND (340) U	ND (280) U
Benzene	ND (340) U	ND (280) U
cis-1,2-Dichloroethene	ND (170) U	ND (140) U
Ethylbenzene	ND (340) U	ND (280) U
Tetrachloroethene	410	330
Toluene	ND (340) U	ND (280) U
trans-1,2-Dichloroethene	ND (170) U	ND (140) U
Trichloroethene	26 J	38 J
Vinyl chloride	ND (340) U	ND (280) U
Xylene (total)	ND (680) U	ND (570) U

GM-45	8/19/2004 ug/l
1,1,1-Trichloroethane	5.8 J
1,1-Dichloroethane	8.5 J
1,1-Dichloroethene	ND (9.1) U
Benzene	ND (9.1) U
cis-1,2-Dichloroethene	79
Ethylbenzene	ND (9.1) U
Tetrachloroethene	220
Toluene	ND (9.1) U
trans-1,2-Dichloroethene	3.5 J
Trichloroethene	220
Vinyl chloride	ND (9.1) U
Xylene (total)	ND (9.1) U

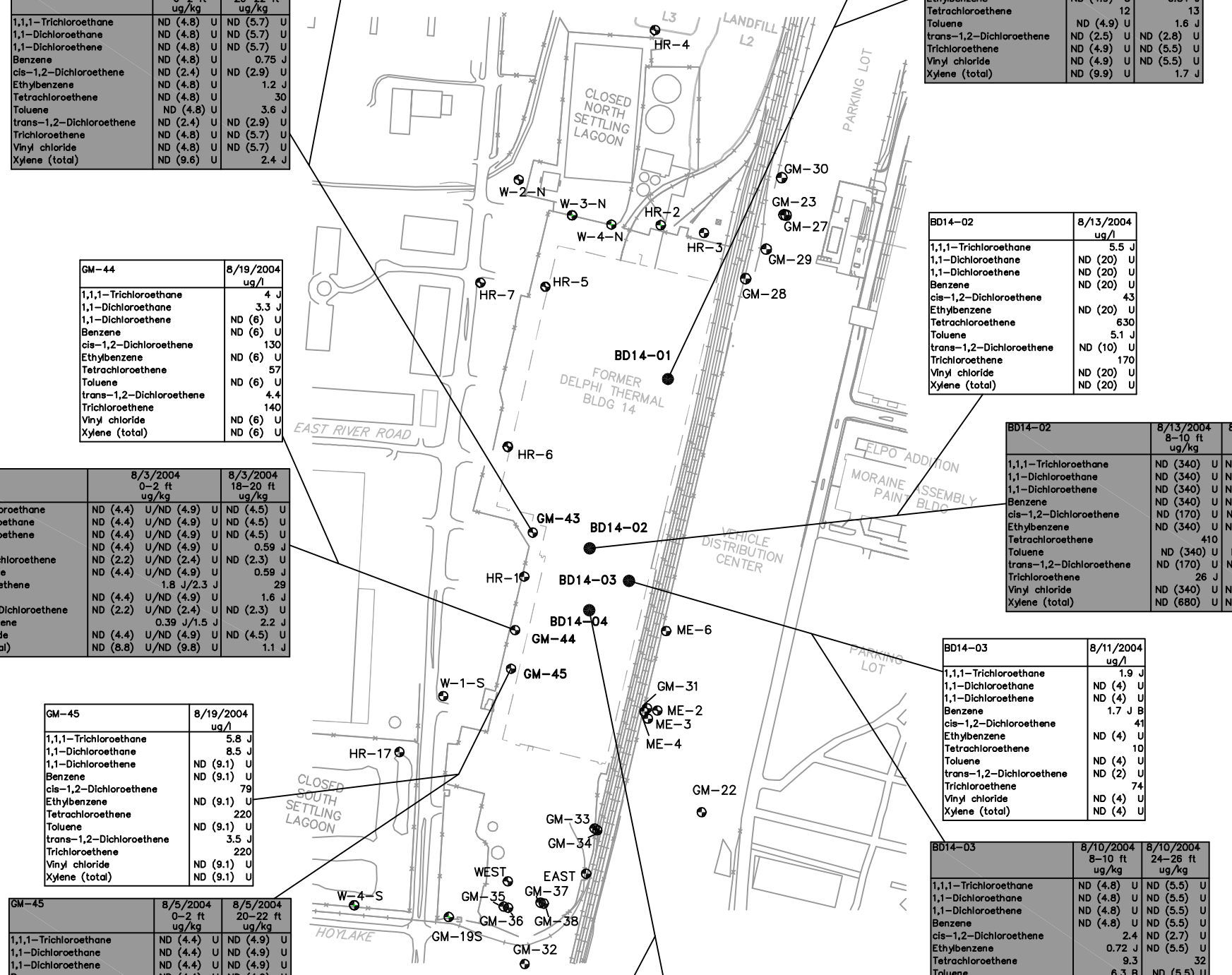
BD14-03	8/11/2004 ug/l
1,1,1-Trichloroethane	1.9 J
1,1-Dichloroethane	ND (4) U
1,1-Dichloroethene	ND (4) U
Benzene	1.7 J B
cis-1,2-Dichloroethene	41
Ethylbenzene	ND (4) U
Tetrachloroethene	10
Toluene	ND (4) U
trans-1,2-Dichloroethene	ND (2) U
Trichloroethene	74
Vinyl chloride	ND (4) U
Xylene (total)	ND (4) U

GM-45	8/5/2004 0-2 ft ug/kg	8/5/2004 20-22 ft ug/kg
1,1,1-Trichloroethane	ND (4.4) U	ND (4.9) U
1,1-Dichloroethane	ND (4.4) U	ND (4.9) U
1,1-Dichloroethene	ND (4.4) U	ND (4.9) U
Benzene	ND (4.4) U	ND (4.9) U
cis-1,2-Dichloroethene	ND (2.2) U	ND (2.5) U
Ethylbenzene	ND (4.4) U	ND (4.9) U
Tetrachloroethene	ND (4.4) U	6.9
Toluene	ND (4.4) U	ND (4.9) U
trans-1,2-Dichloroethene	ND (2.2) U	ND (2.5) U
Trichloroethene	0.41 J	4.4 J
Vinyl chloride	ND (4.4) U	ND (4.9) U
Xylene (total)	ND (8.8) U	ND (9.8) U

BD14-03	8/10/2004 8-10 ft ug/kg	8/10/2004 24-26 ft ug/kg
1,1,1-Trichloroethane	ND (4.8) U	ND (5.5) U
1,1-Dichloroethane	ND (4.8) U	ND (5.5) U
1,1-Dichloroethene	ND (4.8) U	ND (5.5) U
Benzene	ND (4.8) U	ND (5.5) U
cis-1,2-Dichloroethene	2.4	ND (2.7) U
Ethylbenzene	0.72 J	ND (5.5) U
Tetrachloroethene	9.3	32
Toluene	6.3 B	ND (5.5) U
trans-1,2-Dichloroethene	ND (2.4) U	ND (2.7) U
Trichloroethene	9.3	24
Vinyl chloride	ND (4.8) U	ND (5.5) U
Xylene (total)	10	ND (11) U

BD14-04	8/12/2004 ug/l
1,1,1-Trichloroethane	2.4 J
1,1-Dichloroethane	ND (3.3) U
1,1-Dichloroethene	ND (3.3) U
Benzene	ND (3.3) U
cis-1,2-Dichloroethene	12
Ethylbenzene	ND (3.3) U
Tetrachloroethene	37
Toluene	ND (3.3) U
trans-1,2-Dichloroethene	0.87 J
Trichloroethene	68
Vinyl chloride	ND (3.3) U
Xylene (total)	ND (3.3) U

BD14-04	8/12/2004 8-10 ft ug/kg	8/12/2004 24-26 ft ug/kg
1,1,1-Trichloroethane	ND (230) U	ND (5.8) U/ND (6.3) U
1,1-Dichloroethane	ND (230) U	ND (5.8) U/ND (6.3) U
1,1-Dichloroethene	ND (230) U	ND (5.8) U/ND (6.3) U
Benzene	ND (230) U	ND (5.8) U/ND (6.3) U
cis-1,2-Dichloroethene	ND (110) U	ND (2.9) U/ND (3.2) U
Ethylbenzene	ND (230) U	ND (5.8) U/ND (6.3) U
Tetrachloroethene	370 J	110/56 J
Toluene	14 J	ND (5.8) U/ND (6.3) U
trans-1,2-Dichloroethene	ND (110) U	ND (2.9) U/ND (3.2) U
Trichloroethene	27 J/10	10/4.8 J
Vinyl chloride	ND (230) U	ND (5.8) U/ND (6.3) U
Xylene (total)	14 J	ND (12) U/ND (13) U



LEGEND

- MONITORING WELL (SHALLOW)
- BORING LOCATION
- ug/L MICROGRAMS PER LITER
- ug/kg MICROGRAMS PER KILOGRAM

ARCADIS
284 Cramer Creek Court
Dublin, OH 43017
Tel: 614/764-2310 Fax: 614/764-1270

GROUNDWATER AND SOIL DATABOXES FOR THE BUILDING 14 INVESTIGATION GENERAL MOTORS CORPORATION MORAINE, OHIO

DATE	PROJECT MANAGER	DRAWING NAME
2/10/2005	N. GILLOTTI	CRA\BLDG14\BLD14-20
DRAWN	LEAD DESIGN PROF.	CHECKED
R. SMITH	J. REID	N. GILLOTTI
PROJECT NUMBER		DRAWING NUMBER
0H000294.0006.0009		2

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Appendix A

Building 14 Soil Boring and Well Construction Logs

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Log of Boring: BD14-01

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	N/A	N/A	N/A					Concrete with #5 rebar; straight drill to 8 feet	
2	N/A	N/A	N/A					Concrete with #5 rebar	
								Brown silty clay, gravel, fill	
4	N/A	N/A	N/A					Concrete with #5 rebar	
6	N/A	N/A	N/A					Concrete with #5 rebar	
8	11,18,18, 16	24	0				ML	SILT Brown, clayey silt with 25% sand and gravel, well graded, fill	
10	5,10,10, 18	19	0				ML	SILT Brown, clayey silt with 25% sand and gravel, well graded, fill	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 60
Surface Elev.:
North Coor.:

Begin Drilling: 8/9/04 @ 1721
End Drilling: 8/10/04 @ 11:31
Converted to Well: Y Well I.D.: BD14-01
East Coor.:

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-01

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	21,19,21, 17	20	0				SM	SAND Brown, silty sand with 25% coarse grained gravel (cobble), well graded	
14	14,12,20, 17	2	0				SM	SAND Brown, silty sand with 25% coarse grained gravel (cobble), well graded, poor recovery	
16	25,22,14, 20	21	0				SM	SAND Brown, silty sand with 25% coarse grained gravel (cobble), well graded	
18	5,14,23,6	8	0				SM	SAND Brown, silty sand with 25% coarse grained gravel (cobble), well graded	
20	8,20,21, 25	20	0				SM	SAND Brown, silty sand with 25% coarse grained gravel (cobble), well graded	
22	18,10,24, 17	9	0				SM	SAND Silty sand, fine to medium grained, dry, 10% fine grained gravel, well graded	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 60
Surface Elev.:
North Coor.:

Begin Drilling: 8/9/04 @ 1721
End Drilling: 8/10/04 @ 11:31
Converted to Well: Y Well I.D.: BD14-01
East Coor.:

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: BD14-01

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	5,9,10,14	24	0				SP	SAND Wet (saturated), medium grained sand with 10% fine grained gravel, poorly graded	
26	11,14,13,14	24	0				SP	SAND Wet (saturated), medium grained sand with 10% fine grained gravel, poorly graded	
28	6,10,14,24	20	0				SP	SAND Wet (saturated), medium grained sand with 10% fine grained gravel, poorly graded	
30	N/A	6	0				SP	SAND Wet (saturated), medium grained sand with 10% fine grained gravel, poorly graded, poorly recovery	
32	N/A		0				SP	SAND Wet (saturated), medium grained sand with 10% fine grained gravel, poorly graded, poor recovery	
34	N/A		0				SP	SAND Wet (saturated), medium grained sand with 10% fine grained gravel, poorly graded, poor recovery	
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 60
Surface Elev.:
North Coor.:

Begin Drilling: 8/9/04 @ 1721
End Drilling: 8/10/04 @ 11:31
Converted to Well: Y Well I.D.: BD14-01
East Coor.:

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: BD14-01

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
36								No recovery	
38	N/A		0				CL	CLAY Gray, silty clay with 10% gravel, hard, low plasticity	
40	30,50/3	12	0				CL	CLAY Gray, silty clay with 10% gravel, hard, low plasticity	
42	25,35,50/4	17	0				CL	CLAY Gray, silty clay with 10% gravel, hard, low plasticity	
44	4,16,23,27	24	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
46	5,9,19,23	11	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
48									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/9/04 @ 1721
Driller: A.Mackey
Total Depth: 60
End Drilling: 8/10/04 @ 11:31
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-01
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-01

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
48	10,14,17, 21	12	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
50	15,17,20, 19	11	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
52	12,44,26, 21	10	0				GW	GRAVEL Silty sand (50%), gravel (50%), well graded	
54	20,39,50/ 4	6	0				SW	SAND Fine grained sand (75%), silt (25%), poorly graded	
							CL	CLAY Gray, silty clay, 10% gravel, hard, low plasticity	
56	24,37,47, 50/3	0	0					No recovery	
58	36,28,50/ 3	11	0				CL	CLAY Gray, silty clay, 10% gravel, hard, low plasticity	
60									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/9/04 @ 1721
Driller: A.Mackey
Total Depth: 60
End Drilling: 8/10/04 @ 11:31
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-01
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-01

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
60								End of boring	
62									
64									
66									
68									
70									
72									

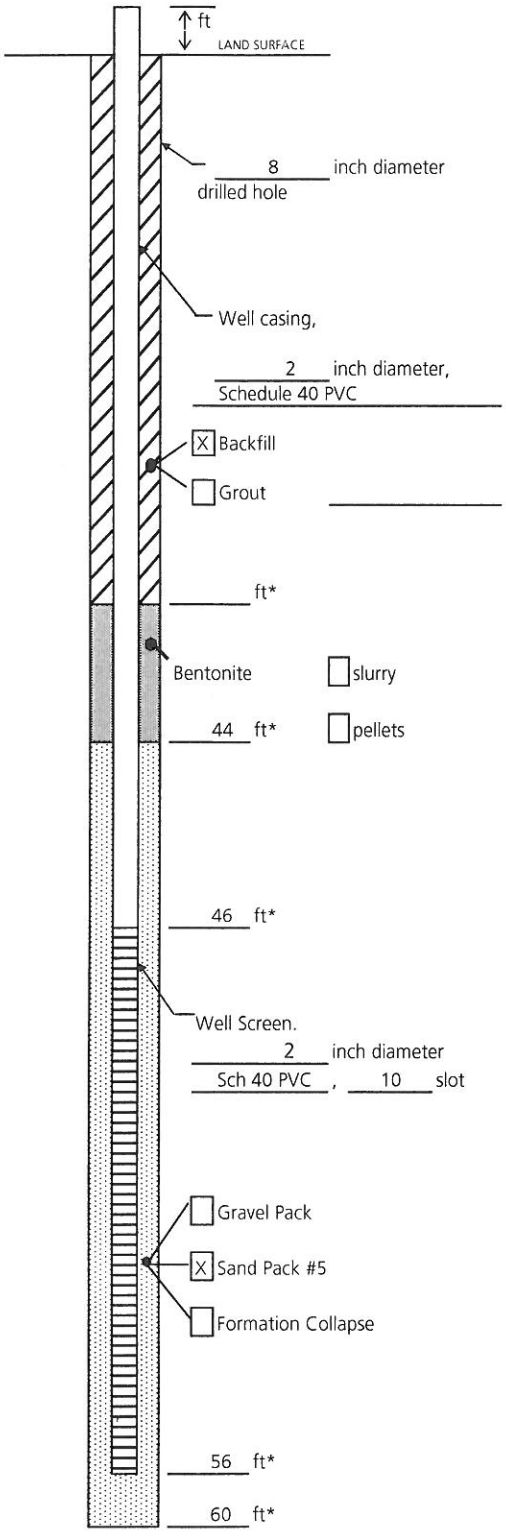
☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/9/04 @ 1721
Driller: A.Mackey
Total Depth: 60
End Drilling: 8/10/04 @ 11:31
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-01
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0006.0009 Well BD14-01

Town/City Moraine, Ohio

County Montgomery State Ohio

Permit No. n/a

Land-Surface (LS) Elevation and Datum:

nm feet ☐ Surveyed ☐ Estimated

Installation Date(s) 8/9/04 - 8/10/04

Drilling Method Hollow stem auger

Drilling Contractor Frontz Drilling

Drilling Fluid None

Development Technique(s) and Date(s)

Submersible pump 8/10/04

Fluid Loss During Drilling N/A gallons

Water Removed During Development 60 gallons

Static Depth to Water 27.72 feet below M.P..

Pumping Depth to Water 27.77 feet below M.P.

Pumping Duration 1.50 hours

Yield NM gpm Date 8/10/04

Specific Capacity NM gpm/ft

Well Purpose Temporary monitoring well, removed after sampling.

Remarks Sampled @ 1355 on 8/10/04

Prepared by J. Manzo

ARCADIS

Log of Boring: BD14-02

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	N/A	N/A	N/A					Concrete with #5 rebar, excavated to 8 feet	
2	N/A	N/A	N/A					Concrete with #5 rebar	
								Brown, clayey silt with sand and gravel, fill, dry	
4	N/A	N/A	N/A					Concrete with #5 rebar	
6	N/A	N/A	N/A					Brown, clayey silt with sand and gravel, fill, dry	
8	4,6,7,8	20	0				ML	SILT Brown, clayey silt, 25% sand and gravel, cobbles visible, dry	
10	4,4,5,6	8	0				ML	SILT Brown, clayey silt, 25% sand and gravel, cobbles visible, dry	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/13/04 @ 8:28
Driller: A.Mackey
Total Depth: 56
End Drilling: 8/13/04 @ 12:06
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-02
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-02

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	12,10,14, 12	10	0				SW	SAND Sand (75%), coarse grained gravel (25%), dry, well graded	
14	6,10,14, 16	13	0				SW	SAND Sand (75%), coarse grained gravel (25%), dry, well graded	
16	10,14,19, 12	15	0				SW	SAND Sand (75%), coarse grained gravel (25%), dry, well graded	
18	9,18,23, 26	14	0				SW	SAND Sand (75%), coarse grained gravel (25%), dry, well graded	
20	8,17,25, 22	20	0				SW	SAND Sand (75%), coarse grained gravel (25%), dry, well graded	
22	18,22,22, 27	8	0				SW	SAND Sand (75%), coarse grained gravel (25%), dry, well graded	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/13/04 @ 8:28
Driller: A.Mackey
Total Depth: 56
End Drilling: 8/13/04 @ 12:06
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-02
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-02

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	14,11,15, 15	9	0				SW	SAND Sand (75%), coarse grained gravel (25%), damp, well graded	
26	5,7,4,7	3	0				GW	GRAVEL Wet (saturated), poor recovery, coarse grained sand (25%), and gravel (75%), well graded	▼
28	9,7,9,12	2	0				GW	GRAVEL Wet (saturated), poor recovery, coarse grained sand (25%), and gravel (75%), well graded	
30	5,6,7,12	8	0				GW	GRAVEL Wet (saturated), poor recovery, coarse grained sand (25%), and gravel (75%), well graded	
32	9,8,12,13	19	0				GW	GRAVEL Wet (saturated), poor recovery, coarse grained sand (25%), and gravel (75%), well graded	
34	10,12,17, 16	20	0				GW	GRAVEL Wet (saturated), poor recovery, coarse grained sand (25%), and gravel (75%), well graded	
36							CL	CLAY	

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/13/04 @ 8:28
Driller: A.Mackey
Total Depth: 56
End Drilling: 8/13/04 @ 12:06
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-02
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-02

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
36	12,17,24, 13	8	0				CL	Gray, clay with 10% coarse gravel, hard, low plasticity CLAY Gray, clay with 10% coarse gravel, hard, low plasticity	
38	24,50/5	13	0				CL	CLAY Gray, clay with 10% coarse gravel, hard, low plasticity	
40	14,32,24, 31	20	0				CL	CLAY Gray, clay with 10% coarse gravel, hard, low plasticity	
42	3,7,47,50/ 3	11	0				CL	CLAY Gray, clay with 10% coarse gravel, hard, low plasticity	
44	2,11,16, 18	17	0				SW	SAND Medium to coarse grained sand (70%), gravel (30%), well graded	
46	7,9,18,14	24	0				SW	SAND Medium to coarse grained sand (70%), gravel (30%), well graded	
48									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/13/04 @ 8:28
Driller: A.Mackey
Total Depth: 56
End Drilling: 8/13/04 @ 12:06
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-02
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-02

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
48	16,17,15, 16	24	0				SW	SAND Medium to coarse grained sand (70%), gravel (30%), well graded	
50	7,12,24, 32	24	0				SW	SAND Medium to coarse grained sand (70%), gravel (30%), well graded	
								3" thick layer of silty clay	
52	7,12,16, 27	20	0				SW	SAND Medium to coarse grained sand (70%), gravel (30%), well graded	
54	7,17,26, 30	8	0				CL	CLAY Gray, clay with 10% coarse gravel, hard, low plasticity	
56								End of boring	
58									
60									

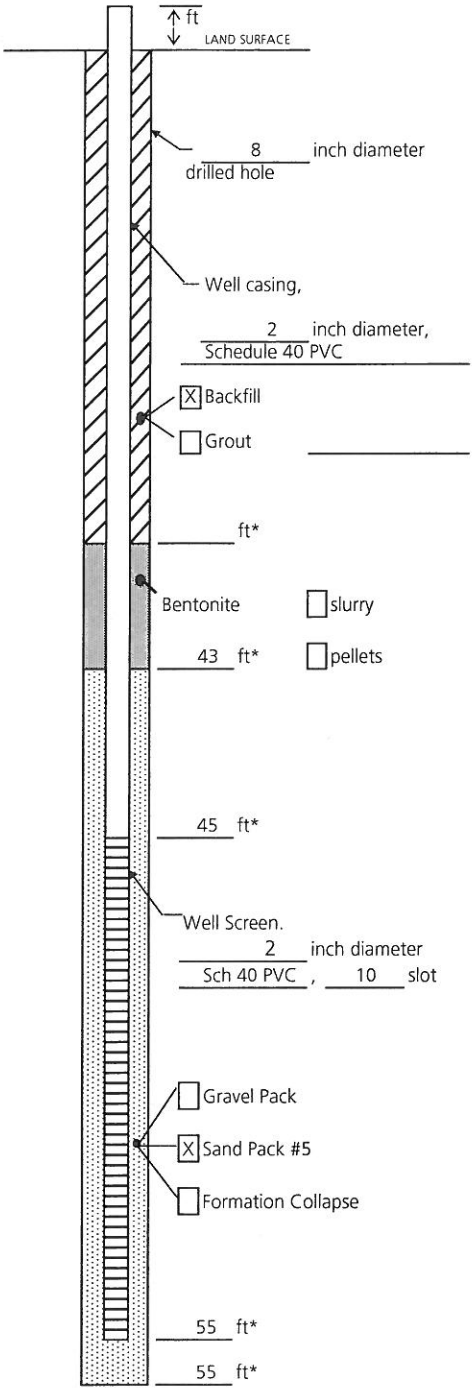
☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/13/04 @ 8:28
Driller: A.Mackey
Total Depth: 56
End Drilling: 8/13/04 @ 12:06
Drilling Method: Hollow Stem Auger
Surface Elev.: _____
Converted to Well: Y Well I.D.: BD14-02
Drilling Fluid: None
North Coor.: _____
East Coor.: _____
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum: _____
Filename: August 2004

ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0006.0009 Well BD14-02

Town/City Moraine, Ohio

County Montgomery State Ohio

Permit No. n/a

Land-Surface (LS) Elevation and Datum:

nm feet ☐ Surveyed ☐ Estimated

Installation Date(s) 8/13/04 - 8/16/04

Drilling Method Hollow stem auger

Drilling Contractor Frontz Drilling

Drilling Fluid None

Development Technique(s) and Date(s)

Submersible pump (proactive mini-typhoon)

Fluid Loss During Drilling N/A gallons

Water Removed During Development 60 gallons

Static Depth to Water 28.86 feet below M.P..

Pumping Depth to Water 27.99 feet below M.P.

Pumping Duration 1 hours

Yield 2 gpm Date 8/13/04

Specific Capacity NM gpm/ft

Well Purpose Temporary monitoring well, removed after sampling.

Remarks Sampled @ 1355 on 8/13/04

Prepared by J. Manzo

ARCADIS

Log of Boring: BD14-03

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	N/A	N/A	N/A					Concrete, straight drill through excavation to 8 feet	
2	N/A	N/A	N/A					Brown clayey silt with 25% coarse gravel, fill	
4	N/A	N/A	N/A					Brown clayey silt with 25% coarse gravel, fill	
6	N/A	N/A	N/A					Brown clayey silt with 25% coarse gravel, fill	
8	8,12,9,9	24	0				CL	CLAY Brown, silty clay with 25% sand and gravel, medium hardness, low plasticity	
10	2,2,3,4	11	0				CL	CLAY Brown, silty clay with 10% sand and gravel, damp, high plasticity, soft	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/10/04 @ 1740
Driller: A.Mackey
Total Depth: 66
End Drilling: 8/11/04 @ 1333
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-03
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-03

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	7,9,6,7	17	0				CL	CLAY Brown, silty clay with 10% sand and gravel, damp, high plasticity, soft	
14	3,2,6,6,	7	0				SM	SAND Silty sand (70%), gravel coarse grained (30%), well graded, dry	
16	9,5,7,7	8	0				SM	SAND Silty sand (70%), gravel coarse grained (30%), well graded, dry	
18	7,7,9,8	8	0				SM	SAND Silty sand (70%), gravel coarse grained (30%), well graded, dry	
20	5,7,9,7	3	0				SM	SAND Silty sand (70%), gravel coarse grained (30%), well graded, dry, poor recovery	
22	4,7,20,24	6	0				SM	SAND Silty sand (70%), gravel coarse grained (30%), well graded, dry	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/10/04 @ 1740
Driller: A.Mackey
Total Depth: 66
End Drilling: 8/11/04 @ 1333
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-03
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-03

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	12,9,7,7	13	0				SM	SAND Silty sand (70%), gravel coarse grained (30%), well graded, damp	▼
26	14,9,9,7	9	0				SW	SAND Sand (30%), gravel (70%), well graded, wet (saturated)	
28	7,8,9,14	5	0				SW	SAND Sand (30%), gravel (70%), well graded, wet (saturated)	
30	6,8,14,12	15	0				GW	GRAVEL Coarse grained sand (25%), gravel (75%), well graded	
32	15,19,12, 17	14	0				GW	GRAVEL Coarse grained sand (25%), gravel (75%), well graded	
34	21,30,34, 32	12	0				CL	CLAY Gray, clay with 10% coarse (pebble-sized) gravel, low plasticity, hard	
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 66
Surface Elev.: _____
North Coor.: _____

Begin Drilling: 8/10/04 @ 1740
End Drilling: 8/11/04 @ 1333
Converted to Well: Y Well I.D.: BD14-03
East Coor.: _____

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: _____ Filename: August 2004

ARCADIS

Log of Boring: BD14-03

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
36	22,34,33, 32	13	0				CL	CLAY Gray, clay with 10% coarse (pebble-sized) gravel, low plasticity, hard	
38	27,28,30, 28	24	0				CL	CLAY Gray, clay with 10% coarse (pebble-sized) gravel, low plasticity, hard	
40	30,31,50/ 3	24	0				CL	CLAY Sandy clay (75%) with 25% gravel, medium plasticity, medium hardness, brown	
42	14,19,20, 13	18	0				GW	GRAVEL Sand (40%), gravel (60%), well graded	
44	15,38,26, 25	21	0				GW	GRAVEL Sand (40%), gravel (60%), well graded	
46	10,18,13, 18	9	0				GW	GRAVEL Coarse grained sand (50%), fine grained gravel (50%), well graded	
48									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 66
Surface Elev.: _____
North Coor.: _____

Begin Drilling: 8/10/04 @ 1740
End Drilling: 8/11/04 @ 1333
Converted to Well: Y Well I.D.: BD14-03
East Coor.: _____

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009
Datum: _____
Filename: August 2004

ARCADIS

Log of Boring: BD14-03

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
48	15,19,17, 17	12	0				GW	GRAVEL Coarse grained sand (50%), fine grained gravel (50%), well graded	
50	9,14,27, 24	18	0				SM	SAND Fine grained sand (25%), silt (75%), poorly graded	
52	21,19,18, 20	19	0				SW	SAND Medium to coarse grained sand (75%), gravel (25%), well graded	
54	15,21,24, 22	24	0				SW	SAND Medium to coarse grained sand (75%), gravel (25%), well graded	
56	11,8,17, 19	24	0				SW	SAND Medium to coarse grained sand (75%), gravel (25%), well graded	
58	4,11,27, 17	22	0				SW	SAND Medium to coarse grained sand (75%), gravel (25%), well graded	
60									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/10/04 @ 1740
Driller: A.Mackey
Total Depth: 66
End Drilling: 8/11/04 @ 1333
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-03
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-03

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
60	17,21,23, 25	24	0				SW	SAND Medium to coarse grained sand (75%), gravel (25%), well graded	
62	50/3	24	0				SW	SAND Medium to coarse grained sand (75%), gravel (25%), well graded	
64	15,38,50/ 4	24	0				SW	SAND Medium to coarse grained sand (75%), gravel (25%), well graded	
							CL	CLAY Gray, clay with 10% coarse gravel, low plasticity, hard	
66								End of boring	
68									
70									
72									

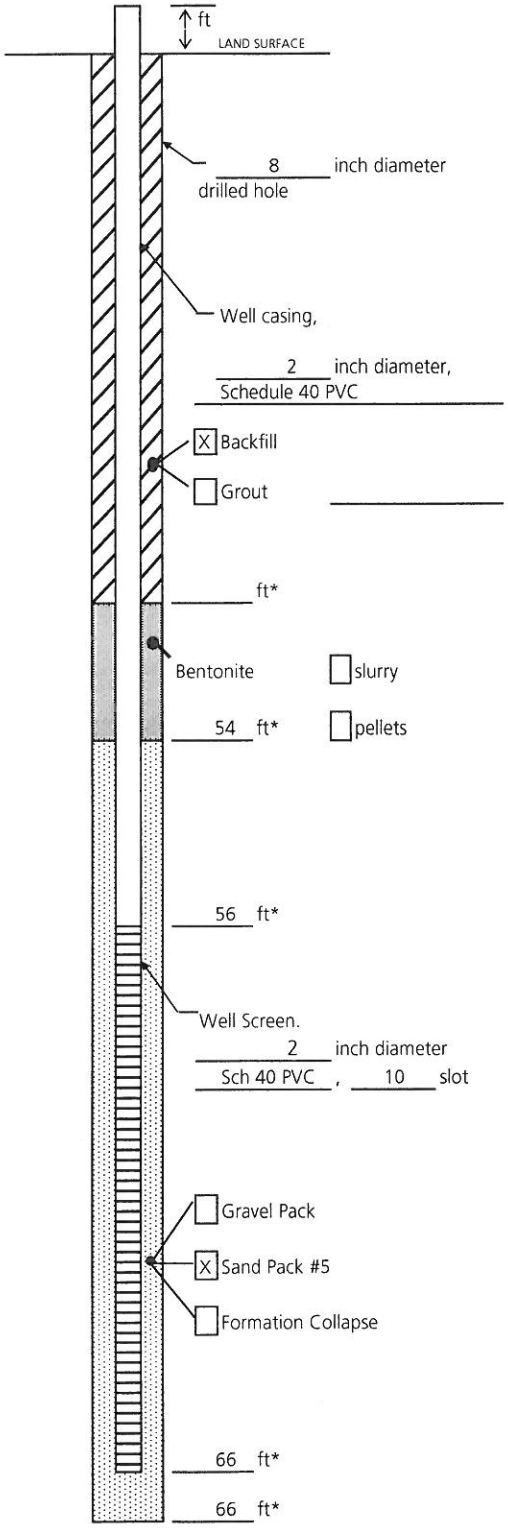
☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/10/04 @ 1740
Driller: A.Mackey
Total Depth: 66
End Drilling: 8/11/04 @ 1333
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-03
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0006.0009 Well BD14-03

Town/City Moraine, Ohio

County Montgomery State Ohio

Permit No. n/a

Land-Surface (LS) Elevation and Datum:

nm feet ☐ Surveyed ☐ Estimated

Installation Date(s) 8/10/04 - 8/11/04

Drilling Method Hollow stem auger

Drilling Contractor Frontz Drilling

Drilling Fluid Water, approx. 50 gallons

Development Technique(s) and Date(s)

Submersible pump (proactive mini-typhoon) 8/11/04

Fluid Loss During Drilling N/A gallons

Water Removed During Development 110 gallons

Static Depth to Water 28.33 feet below M.P..

Pumping Depth to Water 27.90 feet below M.P.

Pumping Duration 1.5 hours

Yield NM gpm Date 8/11/04

Specific Capacity NM gpm/ft

Well Purpose Temporary monitoring well, removed after sampling.

Remarks Sampled @ 1700 on 8/11/04

Prepared by J. Manzo

ARCADIS

Log of Boring: BD14-04

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	N/A	N/A	N/A					Concrete with #5 rebar	
2	N/A	N/A	N/A					Brown, clayey silt with 25% sand and gravel, fill, dry	
4	N/A	N/A	N/A					Concrete	
6	N/A	N/A	N/A					Brown, clayey silt with 25% sand and gravel, fill, dry	
8	4,9,11,11	20	0				CL	CLAY Brown, silty clay with 10% coarse gravel and sand, low plasticity, hard, dry	
10	4,9,9,9	0	0					No recovery	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/12/04 @ 8:40
Driller: A.Mackey
Total Depth: 66
End Drilling: 8/12/04 @ 1410
Drilling Method: Hollow Stem Auger
Surface Elev.: _____
Converted to Well: Y Well I.D.: BD14-04
Drilling Fluid: None
North Coor.: _____
East Coor.: _____
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum: _____
Filename: August 2004

ARCADIS

Log of Boring: BD14-04

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	5,7,9,7	2	0				CL	CLAY Brown, silty clay with 10% coarse gravel and sand, low plasticity, hard, dry	
14	2,5,5,4	17	0				SM	SAND Silty sand, fine grained, dry, poorly graded	
16	6,4,6,5	16	0				SM	SAND Silty sand, fine grained, dry, poorly graded	
18	5,6,7,6	9	0				SM	SAND Silty sand, fine grained, dry, poorly graded	
20	2,5,14,16	11	0				SM	SAND Silty sand, fine to medium grained with 10% coarse gravel, poorly graded, dry	
22	15,16,18, 11	10	0				SW	SAND Medium to coarse grained sand with 10% gravel, well graded, dry	
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/12/04 @ 8:40
Driller: A.Mackey
Total Depth: 66
End Drilling: 8/12/04 @ 1410
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-04
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-04

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	5,9,7,10	20	0				SW	SAND Medium to coarse grained sand with 10% gravel, well graded, dry	
26	21,19,11,16	4	0				GW	GRAVEL Wet (saturated), sand (50%), gravel (50%), well graded	▼
28	19,20,21,24	9	0				GW	GRAVEL Wet (saturated), sand (50%), gravel (50%), well graded	
30	3,4,11,9	5	0				GW	GRAVEL Wet (saturated), sand (50%), gravel (50%), well graded	
32	9,11,17,16	19	0				GW	GRAVEL Wet (saturated), sand (50%), gravel (50%), well graded	
34	22,26,18,15	2	0				GW	GRAVEL Wet (saturated), sand (50%), gravel (50%), well graded, poor recovery	
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/12/04 @ 8:40
Driller: A.Mackey
Total Depth: 66
End Drilling: 8/12/04 @ 1410
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-04
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-04

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
36	14,12,12, 14	2	0				GW	GRAVEL Wet (saturated), sand (50%), gravel (50%), well graded, pushing cobble, poor recovery	
38	50/4	0	0					No recovery	
40	13,17,29, 31	20	0				GW	GRAVEL Wet (saturated), sand (50%), gravel (50%), well graded	
							CL	CLAY Gray, clay with 10% coarse gravel, hard, low plasticity	
42	9,24,34, 36	20	0				CL	CLAY Gray, clay with 10% coarse gravel, hard, low plasticity	
44	21,50/4	9	0				CL	CLAY Gray, clay with 10% coarse gravel, hard, low plasticity	
46	4,12,17, 26	14	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
48									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/12/04 @ 8:40
Driller: A.Mackey
Total Depth: 66
End Drilling: 8/12/04 @ 1410
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-04
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-04

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
48	14,16,17, 17	18	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
50	16,41,34, 37	9	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
52	7,14,19, 21	14	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
54	12,50/4	4	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
56	5,15,21, 34	12	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
58	17,16,50/ 4	13	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
60									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/12/04 @ 8:40
Driller: A.Mackey
Total Depth: 66
End Drilling: 8/12/04 @ 1410
Drilling Method: Hollow Stem Auger
Surface Elev.:
Converted to Well: Y Well I.D.: BD14-04
Drilling Fluid: None
North Coor.:
East Coor.:
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: BD14-04

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
60	7,18,25, 37	20	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
62	7,16,50/5	18	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
64	20,26,19, 26	20	0				SW	SAND Coarse grained sand (75%), fine grained gravel (25%), well graded	
							CL	CLAY Gray clay, hard, low plasticity, 10% coarse gravel	
66								End of boring	
68									
70									
72									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 66
Surface Elev.:
North Coor.:

Begin Drilling: 8/12/04 @ 8:40
End Drilling: 8/12/04 @ 1410
Converted to Well: Y Well I.D.: BD14-04
East Coor.:

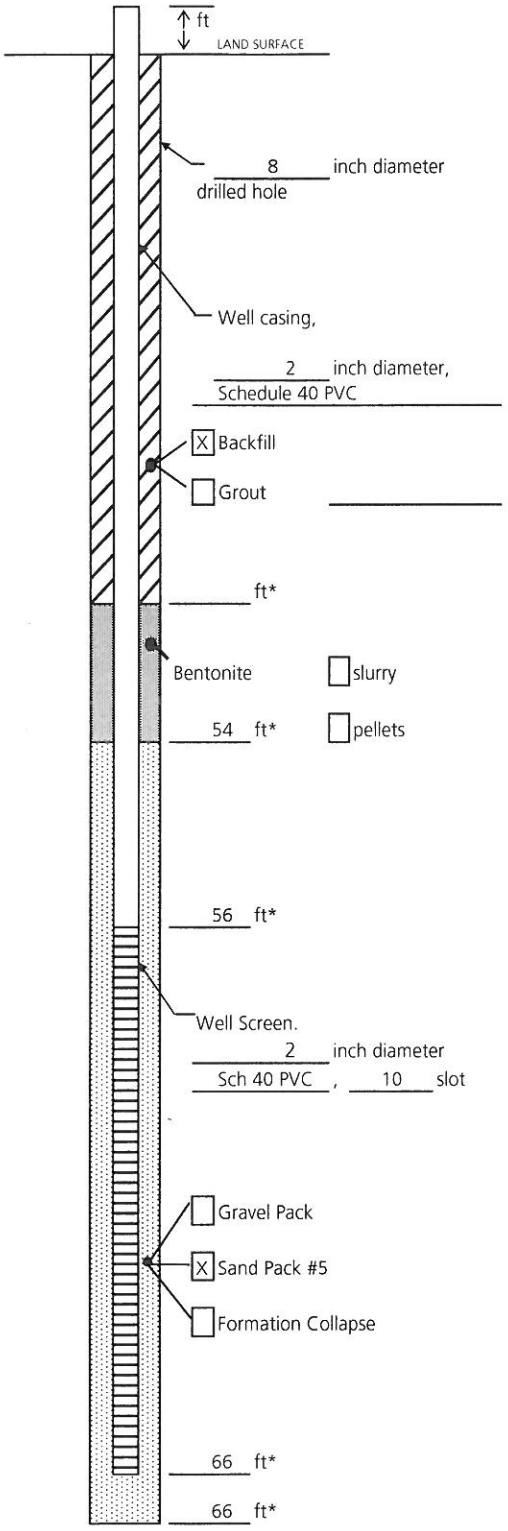
Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0006.0009 Well BD14-04

Town/City Moraine, Ohio

County Montgomery State Ohio

Permit No. n/a

Land-Surface (LS) Elevation and Datum:

nm feet ☐ Surveyed ☐ Estimated

Installation Date(s) 8/12/2004

Drilling Method Hollow stem auger

Drilling Contractor Frontz Drilling

Drilling Fluid Water, approx. 50 gallons

Development Technique(s) and Date(s)

Submersible pump (proactive mini-typhoon) 8/12/04

Fluid Loss During Drilling N/A gallons

Water Removed During Development 75 gallons

Static Depth to Water 28.81 feet below M.P..

Pumping Depth to Water 28.44 feet below M.P.

Pumping Duration 1 hours

Yield 2 gpm Date 8/12/04

Specific Capacity NM gpm/ft

Well Purpose Temporary monitoring well, removed after sampling.

Remarks Sampled @ 1650 on 8/12/04

Prepared by J. Manzo

ARCADIS

Log of Boring: GM-43

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	7,14,12,8	20	0				GW	SANDY GRAVEL First 10" concrete then sandy gravel with 25% silt and clay, dry, fill	
2	8,12,11,7	4	0				GW	SANDY GRAVEL Sandy gravel with 25% silt and clay, dry, fill	
4	7,11,12, 14	21	0				SM	SILTY SAND Silty sand with 25% gravel, well graded, dry	
6	12,10,7,9	12	0				SM	SILTY SAND Silty sand with 25% gravel, well graded, dry	
8	7,13,11, 11	19	0				SW	SAND Medium to coarse grained sand (75%) and gravel (25%), well graded, dry	
10	7,5,4,6	15	0				SW	SAND Medium to coarse grained sand (75%) and gravel (25%), well graded, dry	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 54
Surface Elev.: 729.00
North Coor.: 3654.83199

Begin Drilling: 8/9/04 @ 9:02
End Drilling: 8/9/04 @ 1310
Converted to Well: Y Well I.D.: GM-43
East Coor.: 5210.57176

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-43

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	5,4,3,4	20	0				SW	SAND Fine to medium grained sand with 10% gravel, well graded, dry	
14	4,22,22,16	18	0				SW	SAND Sand (70%) and gravel (30%), well graded, damp	
16	13,19,21,20	20	0				SW	SAND Sand (70%) and gravel (30%), well graded, damp	
18	5,17,24,21	19	0				SM	SILTY SAND Silty sand with 25% gravel, damp, well graded	
20	14,24,21,10	12	0				SM	SILTY SAND Silty sand with 25% gravel, damp, well graded	
22	14,24,12,11	20	0				GW	GRAVEL Wet (saturated), sand (50%) and gravel (50%), well graded	▼
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 54
Surface Elev.: 729.00
North Coor.: 3654.83199

Begin Drilling: 8/9/04 @ 9:02
End Drilling: 8/9/04 @ 1310
Converted to Well: Y Well I.D.: GM-43
East Coor.: 5210.57176

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-43

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	8,17,15, 14	20	0				GW	GRAVEL Wet (saturated), sand (50%) and gravel (50%), well graded	
26	10,14,7, 11	17	0				SW	SAND Medium to coarse grained sand, wet (saturated), well graded	
28	7,5,9,11	11	0				SW	SAND Medium to coarse grained sand, wet (saturated), well graded	
30	11,14,12, 12	19	0				SW	SAND Medium to coarse grained sand, wet (saturated), well graded	
32	7,11,14, 19	21	0				SW	SAND Medium to coarse grained sand, wet (saturated), well graded	
								Gray silty clay with 10% gravel, hard, low plasticity, damp	
34	21,50/4	0	0					No recovery, pushing cobble	
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/9/04 @ 9:02
Driller: A.Mackey
Total Depth: 54
End Drilling: 8/9/04 @ 1310
Drilling Method: Hollow Stem Auger
Surface Elev.: 729.00
Converted to Well: Y Well I.D.: GM-43
Drilling Fluid: None
North Coor.: 3654.83199
East Coor.: 5210.57176
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Log of Boring: GM-43

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
36	12,19,17, 23	20	0				SW	SAND Medium to coarse grained sand and fine grained gravel, well graded	
38	4,17,20, 16	13	0				SW	SAND Medium to coarse grained sand and fine grained gravel, well graded	
40	3,6,50/3	13	0				SW	SAND Medium to coarse grained sand and fine grained gravel, well graded	
42	14,17,19, 22	13	0				SW	SAND Medium to coarse grained sand and fine grained gravel, well graded	
44	12,29,50/ 2	15	0				GW	GRAVEL Fine to medium grained gravel (75%) and coarse grained sand (25%)	
46	7,26,50/2	5	0				SW	SAND Fine to medium grained sand (75%) and gravel, well graded	
48									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 54
Surface Elev.: 729.00
North Coor.: 3654.83199

Begin Drilling: 8/9/04 @ 9:02
End Drilling: 8/9/04 @ 1310
Converted to Well: Y Well I.D.: GM-43
East Coor.: 5210.57176

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-43

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
48	29,19,22, 32	24	0				SW	SAND Fine to medium grained sand (75%) and gravel, well graded	
							CL	CLAY Gray, silty clay with 10% gravel hard, low plasticity	
50	21,25,27, 31	11	0				CL	CLAY Gray, silty clay with 10% gravel hard, low plasticity	
							CL	CLAY Gray, silty clay with 25% gravel and sand, low plasticity, hard	
52	22,50/3	9	0				CL	CLAY Gray, silty clay with 10% gravel, hard, low plasticity	
54								End of boring	
56									
58									
60									

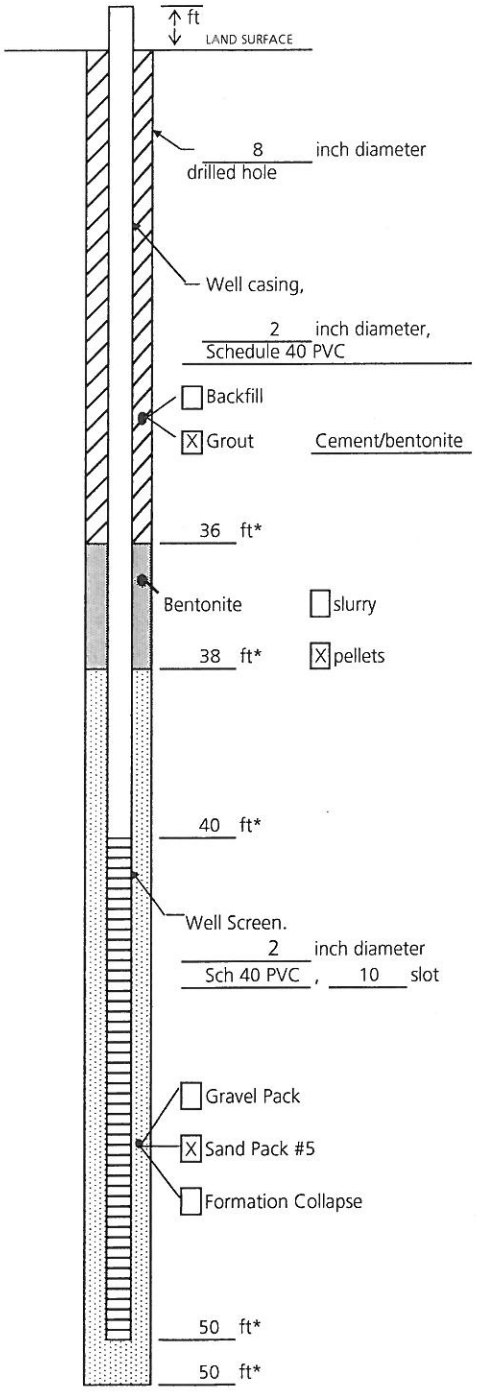
☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/9/04 @ 9:02
Driller: A.Mackey
Total Depth: 54
End Drilling: 8/9/04 @ 1310
Drilling Method: Hollow Stem Auger
Surface Elev.: 729.00
Converted to Well: Y Well I.D.: GM-43
Drilling Fluid: None
North Coor.: 3654.83199
East Coor.: 5210.57176
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0006.0009 Well GM-43

Town/City Moraine, Ohio

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

729.00 feet [X] Surveyed

[ ] Estimated

Installation Date(s) 8/9/2004

Drilling Method Hollow stem auger

Drilling Contractor Frontz Drilling

Drilling Fluid None

Development Technique(s) and Date(s)

Submersible pump (proactive mini-typhoon) 8/16/04

Fluid Loss During Drilling N/A gallons

Water Removed During Development 250 gallons

Static Depth to Water 21.69 feet below M.P..

Pumping Depth to Water 21.97 feet below M.P.

Pumping Duration 2 hours

Yield 2 gpm Date 8/16/04

Specific Capacity NM gpm/ft

Well Purpose Monitoring well

Remarks

Prepared by J. Manzo

ARCADIS

Log of Boring: GM-44

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	5,5,1,1	8	0				ML	SILT 8" of asphalt, brown, clayey-silt with 25% sand and gravel, dry, fill	
2	5,4,6,6	2	0				ML	SILT Brown, clayey-silt with 25% sand and gravel, dry, fill	
4	10,18,23, 11	12	0				GM	GRAVEL Gravel (50%), sand (50%), aggregate, fill, dry (poor recovery)	
6	7,9,9,7	4	0				GM	GRAVEL Gravel (50%), sand (50%), aggregate, fill, dry (poor recovery)	
8	11,27,26, 29	13	0				GW	GRAVEL Sandy gravel, no clay or silt, aggregate visible, fill, dry	
10	16,24,29, 27	15	0				GW	GRAVEL Sandy gravel, no clay or silt, aggregate visible, fill, dry	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 62
Surface Elev.: 728.77
North Coor.: 3137.22419

Begin Drilling: 8/3/04 @ 1528
End Drilling: 8/4/04 @ 8:58
Converted to Well: Y Well I.D.: GM-44
East Coor.: 5217.32129

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-44

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	12,18,21, 27	19	0				GM	GRAVEL Gravel (25%), sand (75%) with 10% silt and clay, dry	
14	11,12,17, 16	12	0				SP	SAND Silt (30%), sand (60%), 10% gravel, dry, poorly graded	
16	14,17,21, 25	2	0				SP	SAND Silt (30%), sand (60%), 10% gravel, dry, poorly graded (poor recovery)	
18	19,29,33, 35	18	0				SP	SAND Silt (30%), sand (60%), 10% gravel, dry, poorly graded	
20	18,50/5	3	0				SW	SAND Silty sand with 25% gravel, dry, well graded, poor recovery	
22	7,10,14, 12	12	0				GW	GRAVEL Saturated, coarse grained sand (40%), gravel (60%), well graded	▼
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 62
Surface Elev.: 728.77
North Coor.: 3137.22419

Begin Drilling: 8/3/04 @ 1528
End Drilling: 8/4/04 @ 8:58
Converted to Well: Y Well I.D.: GM-44
East Coor.: 5217.32129

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-44

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	9,12,11,7	18	0				GW	GRAVEL Saturated, coarse grained sand (40%), gravel (60%), well graded	
26	10,14,13,16	18	0				GW	GRAVEL Saturated, coarse grained sand (40%), gravel (60%), well graded	
28	12,14,16,14	21	0				GW	GRAVEL Saturated, coarse grained sand (40%), gravel (60%), well graded	
30	11,14,17,15	2	0				GW	GRAVEL Saturated, coarse grained sand (40%), gravel (60%), well graded, poor recovery	
32	12,16,14,19	20	0				SW	SAND Fine to medium grained sand (75%), gravel (25%), well graded	
34	10,19,20,17	21	0				SW	SAND Coarse grained sand (75%), gravel (25%), well graded	
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 62
Surface Elev.: 728.77
North Coor.: 3137.22419

Begin Drilling: 8/3/04 @ 1528
End Drilling: 8/4/04 @ 8:58
Converted to Well: Y Well I.D.: GM-44
East Coor.: 5217.32129

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-44

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
36	12,19,21, 26	21	0				GW	GRAVEL Fine gravel (75%), sand (25%), well graded	
38	13,27,50/ 4	4	0				GW	GRAVEL Fine gravel (75%), sand (25%), well graded, poor recovery	
40	25,29,50/ 4	20	0				SP	SAND Fine grained sand, poorly graded	
							CL	CLAY Gray clay, very hard, low plasticity, 25% gravel, dry	
42	16,50/5	17	0				CL	CLAY Gray clay, very hard, low plasticity, 25% gravel, dry	
44	7,14,21, 36	24	0				GW	GRAVEL Sand (20%), fine gravel (80%), well graded	
46	7,9,12,14	13	0				GW	GRAVEL Coarse grained sand (20%), gravel (80%), well graded	
48									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 62
Surface Elev.: 728.77
North Coor.: 3137.22419

Begin Drilling: 8/3/04 @ 1528
End Drilling: 8/4/04 @ 8:58
Converted to Well: Y Well I.D.: GM-44
East Coor.: 5217.32129

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-44

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
48	9,11,14, 21	17	0				GW	GRAVEL Coarse grained sand (20%), gravel (80%), well graded	
50	15,17,19, 23	14	0				GW	GRAVEL Coarse grained sand (20%), gravel (80%), well graded	
52	5,9,17,23	13	0				GW	GRAVEL Coarse grained sand (20%), gravel (80%), well graded	
54	14,15,34, 41	4	0				GW	GRAVEL Coarse grained sand (20%), gravel (80%), well graded	
56	5,17,50/3	5	0				GW	GRAVEL Coarse grained sand (20%), gravel (80%), well graded, pushing cobble	
58	9,50/3	2	0				GW	GRAVEL Coarse grained sand (20%), gravel (80%), well graded, pushing cobble	
60									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 62
Surface Elev.: 728.77
North Coor.: 3137.22419

Begin Drilling: 8/3/04 @ 1528
End Drilling: 8/4/04 @ 8:58
Converted to Well: Y Well I.D.: GM-44
East Coor.: 5217.32129

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-44

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
60	23,27,30, 50/3	13	0				CL	CLAY Gray clay with 10% gravel, hard, low plasticity, dry	
62								End of boring	
64									
66									
68									
70									
72									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 62
Surface Elev.: 728.77
North Coor.: 3137.22419

Begin Drilling: 8/3/04 @ 1528
End Drilling: 8/4/04 @ 8:58
Converted to Well: Y Well I.D.: GM-44
East Coor.: 5217.32129

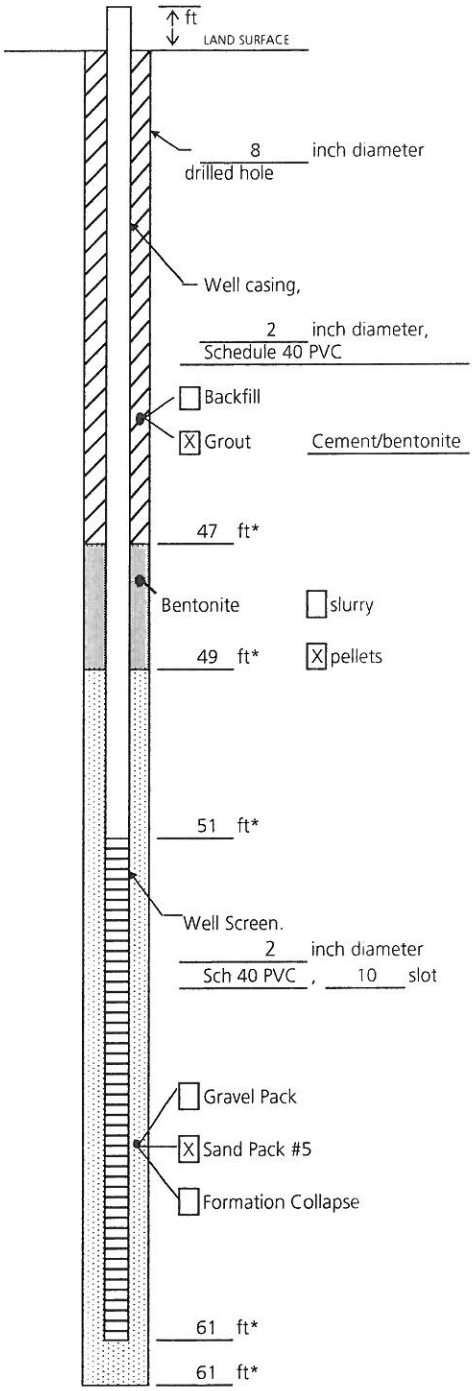
Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted

* Depth Below Land Surface

Project OH000294.0006.0009 Well GM-44

Town/City Moraine, Ohio

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

728.77 feet [X] Surveyed

[ ] Estimated

Installation Date(s) 8/4/2004

Drilling Method Hollow stem auger

Drilling Contractor Frontz Drilling

Drilling Fluid None

Development Technique(s) and Date(s)

Submersible pump (proactive mini-typhoon) 8/16/04

Fluid Loss During Drilling N/A gallons

Water Removed During Development 250 gallons

Static Depth to Water 21.79 feet below M.P..

Pumping Depth to Water 21.87 feet below M.P.

Pumping Duration 2 hours

Yield 2 gpm Date 8/16/04

Specific Capacity NM gpm/ft

Well Purpose Monitoring well

Remarks

Prepared by J. Manzo

ARCADIS

Log of Boring: GM-45

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
0	12,10,11, 12	24	0				CL	CLAY 3" of asphalt then dark brown, silty clay with 10% gravel, hard, low plasticity, dry	
2	8,4,3,4	20	0				CL	CLAY Dark brown, silty clay with 10% gravel, hard, low plasticity, dry	
4	4,6,7,3	17	0				CL	CLAY Brown, silty clay, medium plasticity, medium hardness, dry	
6	6,5,7,8	16	0				SW	SAND Fine to medium grained sand, well graded, 10% gravel	
8	3,5,11,16	17	0				SW	SAND Fine to medium grained sand, well graded, 10% gravel	
10	11,16,21, 34	19	0				SW	SAND Fine to medium grained sand, well graded, 10% gravel	
12									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 60
Surface Elev.: 729.75
North Coor.: 2852.62955

Begin Drilling: 8/5/04 @ 7:18
End Drilling: 8/5/04 @ 1358
Converted to Well: Y Well I.D.: GM-45
East Coor.: 5216.73965

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-45

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
12	36,50/3	3	0				SW	SAND Fine to medium grained sand, well graded, 10% gravel, poor recovery, pushing rock	
14	13,20,19,43	11	0				SW	SAND Fine to medium grained sand, well graded, 10% gravel, poor recovery	
16	31,24,33,37	12	0				SW	SAND Fine to medium grained sand, well graded, 10% gravel, poor recovery	
18	11,10,15,14	10	0				GW	GRAVEL Sand (40%) and cobble size gravel (60%), well graded	
20	9,14,15,4	9	0				GW	GRAVEL Sand (40%) and cobble size gravel (60%), well graded	
22	11,12,10,9	7	0				GW	GRAVEL Saturated, sand (30%), gravel (70%), well graded, sand is coarse grained	▼
24									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 60
Surface Elev.: 729.75
North Coor.: 2852.62955

Begin Drilling: 8/5/04 @ 7:18
End Drilling: 8/5/04 @ 1358
Converted to Well: Y Well I.D.: GM-45
East Coor.: 5216.73965

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-45

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
24	9,12,23, 22	15	0				GW	GRAVEL Saturated, sand (30%), gravel (70%), well graded, sand is coarse grained	
26	12,16,19, 23	24	0				GW	GRAVEL Saturated, sand (30%), gravel (70%), well graded, sand is coarse grained	
28	15,16,32, 35	24	0				GW	GRAVEL Saturated, sand (30%), gravel (70%), well graded, sand is coarse grained	
30	5,30,24, 10	4	0				GW	GRAVEL Saturated, sand (30%), gravel (70%), well graded, sand is coarse grained	
32	5,12,8,11	13	0				GW	GRAVEL Saturated, sand (30%), gravel (70%), well graded, sand is coarse grained	
34	12,20,14, 8	17	0				GW	GRAVEL Saturated, sand (30%), gravel (70%), well graded, sand is coarse grained	
36									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 60
Surface Elev.: 729.75
North Coor.: 2852.62955

Begin Drilling: 8/5/04 @ 7:18
End Drilling: 8/5/04 @ 1358
Converted to Well: Y Well I.D.: GM-45
East Coor.: 5216.73965

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-45

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
36	7,50/3	11	0				GW	GRAVEL Saturated, sand (30%), gravel (70%), well graded, sand is coarse grained	
38	25,40,7/50	16	0				CL	CLAY Gray, clay with 10% gravel, hard, low plasticity	
40	25,24,30,29	20	0				CL	CLAY Gray, clay with 10% gravel, hard, low plasticity	
42	34,50/3	24	0				CL	CLAY Gravel, clay with 25% sand, hard, low plasticity	
44	8,8,16,17	24	0				GW	GRAVEL Coarse grained sand (40%), fine grained gravel (60%), wet (saturated)	
46	8,12,16,11	24	0				GW	GRAVEL Coarse grained sand (40%), fine grained gravel (60%), wet (saturated)	
48									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 60
Surface Elev.: 729.75
North Coor.: 2852.62955

Begin Drilling: 8/5/04 @ 7:18
End Drilling: 8/5/04 @ 1358
Converted to Well: Y Well I.D.: GM-45
East Coor.: 5216.73965

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-45

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
48	12,50/3	9	0				GW	GRAVEL Coarse grained sand (40%), fine grained gravel (60%), wet (saturated)	
50	19,25,29,27	24	0				GW	GRAVEL Coarse grained sand (40%), fine grained gravel (60%), wet (saturated)	
52	8,12,17,15	24	0				GW	GRAVEL Coarse grained sand (40%), fine grained gravel (60%), wet (saturated)	
54	7,15,9,12	12	0				GW	GRAVEL Coarse grained sand (40%), fine grained gravel (60%), wet (saturated)	
56	13,17,50/3	12	0				GW	GRAVEL Coarse grained sand (40%), fine grained gravel (60%), wet (saturated)	
58	9,11,14,12	3	0				GW	GRAVEL Coarse grained sand (40%), fine grained gravel (60%), wet (saturated), poor recovery	
							CL	CLAY Gray, clay with 10% gravel, hard, low plasticity	
60									

☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Driller: A.Mackey
Drilling Method: Hollow Stem Auger
Drilling Fluid: None

Geologist: J. Manzo
Total Depth: 60
Surface Elev.: 729.75
North Coor.: 2852.62955

Begin Drilling: 8/5/04 @ 7:18
End Drilling: 8/5/04 @ 1358
Converted to Well: Y Well I.D.: GM-45
East Coor.: 5216.73965

Remarks: Samples submitted for laboratory analysis of VOCs.

Project No.: OH000294.0006.00009 Datum: Filename: August 2004

ARCADIS

Log of Boring: GM-45

General Motors Corporation

Building 14 Investigation, Moraine, Ohio

Depth (feet)	Blows (/6 in.)	Recovery (Inches)	OVA (PPM)	Sample Analysis	Sample Type	Graphic Log	Soil Class.	Description	Depth to Water
60								End of boring	
62									
64									
66									
68									
70									
72									

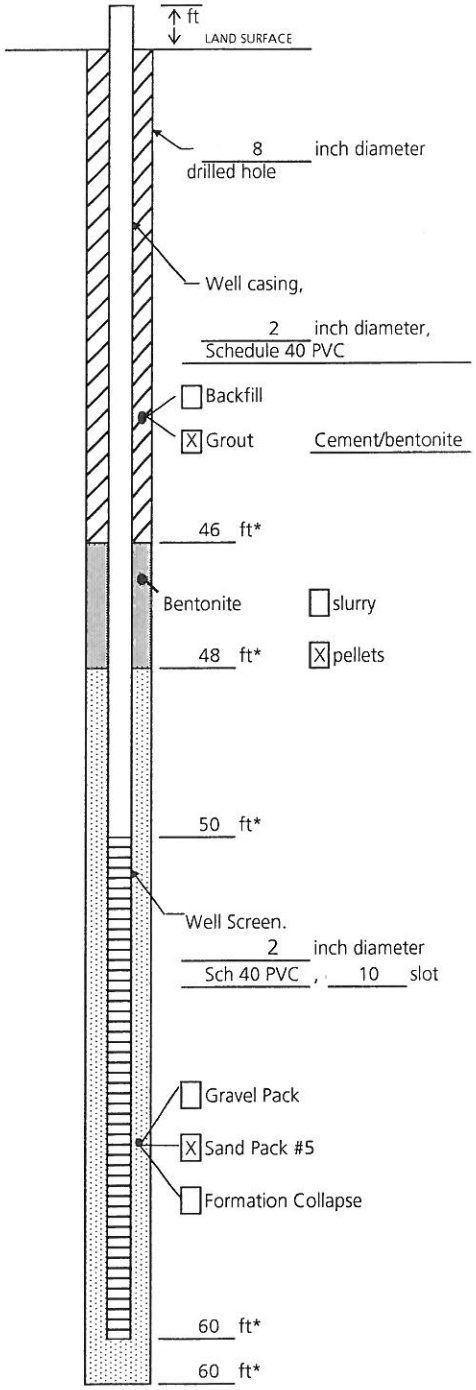
☒ Composite Sample to Lab ■ Grab Sample to Lab ▯ Split-Spoon Not Analyzed

Drilling Co.: Frontz Drilling
Geologist: J. Manzo
Begin Drilling: 8/5/04 @ 7:18
Driller: A.Mackey
Total Depth: 60
End Drilling: 8/5/04 @ 1358
Drilling Method: Hollow Stem Auger
Surface Elev.: 729.75
Converted to Well: Y Well I.D.: GM-45
Drilling Fluid: None
North Coor.: 2852.62955
East Coor.: 5216.73965
Remarks: Samples submitted for laboratory analysis of VOCs.
Project No.: OH000294.0006.00009
Datum:
Filename: August 2004

ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project OH000294.0006.0009 Well GM-45

Town/City Moraine, Ohio

County Montgomery State Ohio

Permit No.

Land-Surface (LS) Elevation and Datum:

729.75 feet [X] Surveyed

[ ] Estimated

Installation Date(s) 8/5/2004

Drilling Method Hollow stem auger

Drilling Contractor Frontz Drilling

Drilling Fluid None

Development Technique(s) and Date(s)

Submersible pump (proactive mini-typhoon) 8/16/04

Fluid Loss During Drilling N/A gallons

Water Removed During Development 300 gallons

Static Depth to Water 22.18 feet below M.P..

Pumping Depth to Water 22.31 feet below M.P.

Pumping Duration 2.50 hours

Yield 2 gpm Date 8/16/04

Specific Capacity NM gpm/ft

Well Purpose Monitoring well

Remarks

Prepared by J. Manzo

ARCADIS

Appendix B

Building 14 Soil and Groundwater Sampling Logs

ARCADIS

Water Sampling Log

Project	GM Building 14	Project No.	OH00294.006.00009	Page	1 of 1
Site Location	General Motors Corporation, Moraine, Ohio			Date	8/10/2004
Site/Well No.	BD14-01	Replicate No.	N/A	Code No.	N/A
Weather	Partly cloudy, 70s	Sampling Time:	Begin 12:55	End	1410

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NM
Land Surface Elevation (ft)	NM
Sounded Well Depth (ft bmp)	58.45
Depth to Water (ft bmp)	27.66
Water-Level Elevation (ft)	NM
Water Column in Well (ft)	30.79
Casing Diameter/Type	2" PVC
Gallons in Well	4.93
Gallons Pumped/Bailed Prior to Sampling	55 pumped
Sample Pump Intake Setting (ft bmp)	53.5'
Purge Time	begin 1300 end 1350
Pumping Rate (gpm)	2 gallons/minute
Evacuation Method	Submersible pump

Field Parameters

Color	Brown
Odor	No
Appearance	Turbid
pH (s.u.)	NM
Conductivity (mS/cm)	NM
(µmhos/cm)	NM
Turbidity (NTU)	NM
Temperature (°C)	NM
Dissolved Oxygen (mg/L)	NM
Salinity (%)	NM
Sampling Method	Disposable bailer
Remarks	Sampled @ 1355
	Temporary well.

Constituents Sampled	Container Description	Number	Preservative
TCL VOCs (8260)	40 mL VOA	3	HCl

Sampling Personnel: D. Manzo

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NM	Not Measured	VOC	Volatile Organic Compounds

ARCADIS

Water Sampling Log

Project	GM Building 14	Project No.	OH00294.006.00009	Page	1 of 1
Site Location	General Motors Corporation, Moraine, Ohio			Date	8/13/2004
Site/Well No.	BD14-02	Replicate No.	N/A	Code No.	N/A
Weather	Clear, 70s	Sampling Time:	Begin 12:50	End	1410

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NM
Land Surface Elevation (ft)	NM
Sounded Well Depth (ft bmp)	56.80
Depth to Water (ft bmp)	28.86
Water-Level Elevation (ft)	NM
Water Column in Well (ft)	27.94
Casing Diameter/Type	2" PVC
Gallons in Well	4.47
Gallons Pumped/Bailed Prior to Sampling	60 pumped
Sample Pump Intake Setting (ft bmp)	51'
Purge Time	begin 12:53 end 1347
Pumping Rate (gpm)	2 gallons/minute
Evacuation Method	Submersible pump

Field Parameters

Color	Brown
Odor	No
Appearance	Turbid
pH (s.u.)	NM
Conductivity (mS/cm)	NM
(µmhos/cm)	NM
Turbidity (NTU)	NM
Temperature (°C)	NM
Dissolved Oxygen (mg/L)	NM
Salinity (%)	NM
Sampling Method	Disposable bailer
Remarks	Sampled @ 1355
	Temporary well.

Constituents Sampled	Container Description	Number	Preservative
TCL VOCs (8260)	40 mL VOA	3	HCl

Sampling Personnel: D. Manzo

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NM	Not Measured	VOC	Volatile Organic Compounds

ARCADIS

Water Sampling Log

Project	GM Building 14	Project No.	OH00294.006.00009	Page	1 of 1
Site Location	General Motors Corporation, Moraine, Ohio			Date	8/11/2004
Site/Well No.	BD14-03	Replicate No.	N/A	Code No.	N/A
Weather	Partly cloudy, 70s	Sampling Time:	Begin 1520	End	1710

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NM
Land Surface Elevation (ft)	NM
Sounded Well Depth (ft bmp)	66.00
Depth to Water (ft bmp)	28.33
Water-Level Elevation (ft)	NM
Water Column in Well (ft)	37.67
Casing Diameter/Type	2" PVC
Gallons in Well	6.03
Gallons Pumped/Bailed Prior to Sampling	~110 pumped
Sample Pump Intake Setting (ft bmp)	61'
Purge Time	begin 1528 end 1643
Pumping Rate (gpm)	2 gallons/minute
Evacuation Method	Submersible pump

Field Parameters

Color	Brown
Odor	No
Appearance	Turbid
pH (s.u.)	NM
Conductivity (mS/cm)	NM
(µmhos/cm)	NM
Turbidity (NTU)	NM
Temperature (°C)	NM
Dissolved Oxygen (mg/L)	NM
Salinity (%)	NM
Sampling Method	Disposable bailer
Remarks	Sampled @ 1700
	Temporary well.

Constituents Sampled	Container Description	Number	Preservative
TCL VOCs (8260)	40 mL VOA	3	HCl

Sampling Personnel: D. Manzo

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NM	Not Measured	VOC	Volatile Organic Compounds

ARCADIS

Water Sampling Log

Project	GM Building 14	Project No.	OH00294.006.00009	Page	1 of 1
Site Location	General Motors Corporation, Moraine, Ohio			Date	8/12/2004
Site/Well No.	BD14-04	Replicate No.	N/A	Code No.	N/A
Weather	Clear, 60s	Sampling Time:	Begin 1530	End	1700

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NM
Land Surface Elevation (ft)	NM
Sounded Well Depth (ft bmp)	68.20
Depth to Water (ft bmp)	28.81
Water-Level Elevation (ft)	NM
Water Column in Well (ft)	39.39
Casing Diameter/Type	2" PVC
Gallons in Well	6.30
Gallons Pumped/Bailed Prior to Sampling	75 pumped
Sample Pump Intake Setting (ft bmp)	63'
Purge Time	begin 1531 end 1630
Pumping Rate (gpm)	2 gallons/minute
Evacuation Method	Submersible pump

Field Parameters

Color	Brown
Odor	No
Appearance	Turbid
pH (s.u.)	NM
Conductivity (mS/cm)	NM
(µmhos/cm)	NM
Turbidity (NTU)	NM
Temperature (°C)	NM
Dissolved Oxygen (mg/L)	NM
Salinity (%)	NM
Sampling Method	Disposable bailer
Remarks	Sampled @ 1650
	Temporary well.

Constituents Sampled	Container Description	Number	Preservative
TCL VOCs (8260)	40 mL VOA	3	HCl

Sampling Personnel: D. Manzo

Well Casing Volumes

Gal./Ft.	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NM	Not Measured	VOC	Volatile Organic Compounds

ARCADIS

Water Sampling Log

Project	Building 14-outside wells	Project No.	OH00294.006.00009	Page	1 of 1
Site Location	General Motors Corporation, Moraine, Ohio			Date	8/19/2004
Site/Well No.	GM-43	Replicate No.	DUP-137	Code No.	N/A
Weather	Sunny, 80s	Sampling Time:	Begin 11:30	End	1405

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NM
Land Surface Elevation (ft)	NM
Sounded Well Depth (ft bmp)	50.15
Depth to Water (ft bmp)	21.87
Water-Level Elevation (ft)	n/a
Water Column in Well (ft)	28.28
Casing Diameter/Type	2" PVC
Gallons in Well	4.5
Gallons Pumped/Bailed Prior to Sampling	6 pumped
Sample Pump Intake Setting (ft bmp)	45'
Purge Time	begin 12:55 end 1328
Pumping Rate (gpm)	0.18
Evacuation Method	Grundfos Pump

Field Parameters

Color	Colorless
Odor	None
Appearance	Clear (after pumped 3 gal)
pH (s.u.)	6.99
Conductivity (mS/cm)	1.446
(µmhos/cm)	NM
Turbidity (NTU)	N/A
Temperature (°C)	20.57
Dissolved Oxygen (mg/L)	0.07
Salinity (%)	N/A
Sampling Method	Grundfos pump and dedicated tubing
Remarks	Sampled @ 1330
	MS/MSD samples collected
	RB-114 at 1345

Constituents Sampled	Container Description	Number	Preservative
TCL VOCs (8260)	40 mL VOA	9	HCl

Sampling Personnel: S. Clouse

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	milliliter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NM	Not Measured	VOC	Volatile Organic Compounds

LOW FLOW SAMPLING
GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0006.00009

Site Location: General Motors, Building 14

Monitoring Well No.: GM-43

Time Pump Started: 12:55

Depth of Sampling: 45'

Date: 8/19/2004

Parameters / Time

	1304	1307	1310	1313	1316	1319	1322	1325	1328		
Redox Potential (millivolts)	-24.4	-28.7	-33.2	-37.0	-39.2	-40.5	-42.1	-43.2	-44.0		
Dissolved Oxygen (mg/L)	0.07	0.06	0.06	0.06	0.05	0.05	0.08	0.08	0.07		
pH (s.u.)	7.13	7.05	7.02	7.01	6.99	7.00	6.99	6.99	6.99		
Specific Conductance (mS/cm)	1.450	1.453	1.454	1.453	1.450	1.450	1.447	1.448	1.446		
Temperature (C)	19.03	20.01	20.56	20.43	20.38	20.34	20.41	20.55	20.57		

Flow Rate: ~470 ml/min

Time Sampled: 1330

Total Water Pumped: 6 gallons

Comments: Water cleared up after 3 gallons was pumped.

ARCADIS

Water Sampling Log

Project	Building 14-outside wells	Project No.	OH00294.006.00009	Page	1 of 1
Site Location	General Motors Corporation, Moraine, Ohio			Date	8/19/2004
Site/Well No.	GM-44	Replicate No.	n/a	Code No.	N/A
Weather	Sunny, 80s	Sampling Time:	Begin 1410	End	1510

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NM
Land Surface Elevation (ft)	NM
Sounded Well Depth (ft bmp)	61.05
Depth to Water (ft bmp)	21.00
Water-Level Elevation (ft)	n/a
Water Column in Well (ft)	40.05
Casing Diameter/Type	2" PVC
Gallons in Well	6.4
Gallons Pumped/Bailed Prior to Sampling	6 pumped
Sample Pump Intake Setting (ft bmp)	55'
Purge Time	begin 1430 end 1459
Pumping Rate (gpm)	0.20
Evacuation Method	Grundfos Pump

Field Parameters

Color	Colorless (after 3 gallons)
Odor	None
Appearance	Clear
pH (s.u.)	7.07
Conductivity (mS/cm)	1.536
(µmhos/cm)	NM
Turbidity (NTU)	N/A
Temperature (°C)	19.90
Dissolved Oxygen (mg/L)	0.10
Salinity (%)	N/A
Sampling Method	Grundfos pump and dedicated tubing
Remarks	Sampled @ 1500

Constituents Sampled	Container Description	Number	Preservative
TCL VOCs (8260)	40 mL VOA	3	HCl

Sampling Personnel: S. Clouse

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	mililiter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NM	Not Measured	VOC	Volatile Organic Compounds

LOW FLOW SAMPLING
GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0006.00009

Site Location: General Motors, Building 14

Monitoring Well No.: GM-44

Time Pump Started: 1430

Depth of Sampling: 55'

Date: 8/19/2004

Parameters	Time										
	1435	1439	1442	1445	1448	1451	1454				
Redox Potential (millivolts)	-64.9	-59.4	-60.3	-61.6	-63.3	-64.8	-65.7				
Dissolved Oxygen (mg/L)	0.21	1.69	0.11	0.10	0.09	0.09	0.10				
pH (s.u.)	7.36	7.16	7.11	7.09	7.08	7.07	7.07				
Specific Conductance (mS/cm)	1.522	1.534	1.535	1.539	1.536	1.535	1.536				
Temperature (C)	17.92	18.40	18.63	18.90	19.17	19.47	19.90				

Flow Rate: ~500 ml/min

Time Sampled: 1500

Total Water Pumped: 6 gallons

Comments: Water cleared up with time, very silty at first.

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Water Sampling Log

Project	Building 14-outside wells	Project No.	OH00294.006.00009	Page	1 of 1
Site Location	General Motors Corporation, Moraine, Ohio			Date	8/19/2004
Site/Well No.	GM-45	Replicate No.	n/a	Code No.	N/A
Weather	Sunny, 80s	Sampling Time:	Begin 1515	End	1630

Evacuation Data

Measuring Point	TOC
MP Elevation (ft)	NM
Land Surface Elevation (ft)	NM
Sounded Well Depth (ft bmp)	60.38
Depth to Water (ft bmp)	22.38
Water-Level Elevation (ft)	n/a
Water Column in Well (ft)	48.00
Casing Diameter/Type	2" PVC
Gallons in Well	7.68
Gallons Pumped/Bailed Prior to Sampling	6 pumped
Sample Pump Intake Setting (ft bmp)	55'
Purge Time	begin 1536 end 1601
Pumping Rate (gpm)	0.24
Evacuation Method	Grundfos Pump

Field Parameters

Color	Colorless (after 3 gallons)
Odor	None
Appearance	Clear
pH (s.u.)	7.03
Conductivity (mS/cm)	1.380
(µmhos/cm)	NM
Turbidity (NTU)	N/A
Temperature (°C)	20.03
Dissolved Oxygen (mg/L)	0.12
Salinity (%)	N/A
Sampling Method	Grundfos pump and dedicated tubing
Remarks	Sampled @ 1610

Constituents Sampled	Container Description	Number	Preservative
TCL VOCs (8260)	40 mL VOA	3	HCl

Sampling Personnel: S. Clouse

Well Casing Volumes

Gal./Ft.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

bmp	below measuring point	ml	mililiter	NTU	Nephelometric Turbidity Units
°C	Degrees Celsius	mS/cm	Milisiemens per centimeter	PVC	Polyvinyl chloride
ft	feet	msl	mean sea-level	s.u.	Standard units
gpm	Gallons per minute	N/A	Not Applicable	umhos/cm	Micromhos per centimeter
mg/L	Miligrams per liter	NM	Not Measured	VOC	Volatile Organic Compounds

LOW FLOW SAMPLING
GROUNDWATER FIELD PARAMETER LOG

Project Number: OH000294.0006.00009

Site Location: General Motors, Building 14

Monitoring Well No.: GM-45

Time Pump Started: 1536

Depth of Sampling: 55'

Date: 8/19/2004

Parameters / Time

	1540	1543	1546	1549	1552	1555	1558	1601			
Redox Potential (millivolts)	23.9	-13.4	-24.6	-29.2	-32.0	-34.1	-34.9	-36.4			
Dissolved Oxygen (mg/L)	0.40	0.18	0.14	0.13	0.11	0.12	0.12	0.12			
pH (s.u.)	7.37	7.19	7.13	7.08	7.06	7.05	7.04	7.03			
Specific Conductance (mS/cm)	1.381	1.381	1.385	1.385	1.384	1.382	1.382	1.380			
Temperature (C)	18.88	19.47	19.70	19.93	19.89	20.00	20.08	20.03			

Flow Rate: ~600 ml/min

Time Sampled: 1610

Total Water Pumped: 6 gallons

Comments: Water cleared up after 3 gallons were pumped.

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Soil/Sediment/Sludge Sampling Log

Project/	Building 14 Investigation/	Date	8/9/2004-8/10/2004
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0006.00009
Sample No.	BD14-01	Coded Replicate No.	N/A
Time Sampling Began	8/9/2004 17:21	Time Sampling Ended	8/10/2004 11:31

Sampling Method and Material: Split spoon (2" x 2')

From	To	Soil/Sediment/Sludge Description
8	10	Brown, Clayey-silt with 25% sand and gravel, well-graded, fill, dry
22	24	Silty-sand, fine- to medium-grained, dry, 10% fine-grained gravel, well graded.

OTHER (OVA; HNu; etc.) OVM 8-10 = 0.0 ppm; OVM 22-24 = 0.0 ppm

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260)	4 oz encore sampler	Cool

Remarks

Sample Personnel D. Manzo

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Building 14 Investigation/	Date	8/13/2004
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0006.00009
Sample No.	BD14-02	Coded Replicate No.	N/A
Time Sampling Began	8:28	Time Sampling Ended	12:06

Sampling Method and Material: Split spoon (2" x 2')

From	To	Soil/Sediment/Sludge Description
8	10	Brown, Clayey-silt with 25% sand and gravel, cobbles visible, dry
24	26	Sand (75%) and coarse-grained gravel (25%), damp, well-graded

OTHER (OVA; HNu; etc.) OVM 8-10 = 0.0 ppm; OVM 24-26 = 0.0 ppm

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260)	4 oz encore sampler	Cool

Remarks

Sample Personnel D. Manzo

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Building 14 Investigation/	Date	8/10/2004-8/11/2004
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0006.00009
Sample No.	BD14-03	Coded Replicate No.	N/A
Time Sampling Began	8/10/2004 17:40	Time Sampling Ended	8/11/2004 13:33

Sampling Method and Material: Split spoon (2" x 2')

From	To	Soil/Sediment/Sludge Description
8	10	Brown, Silty-clay with 25% sand and gravel, medium hardnes, low plasticity.
24	26	Silty-sand (70%) and coarse-grained gravel (30%), well-graded, damp

OTHER (OVA; HNu; etc.) OVM 8-10 = 0.0 ppm; OVM 24-26 = 0.0 ppm

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260)	4 oz encore sampler	Cool

Remarks

Sample Personnel D. Manzo

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Building 14 Investigation/	Date	8/12/2004
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0006.00009
Sample No.	BD14-04	Coded Replicate No.	DUP-136
Time Sampling Began	8:40	Time Sampling Ended	14:10

Sampling Method and Material: Split spoon (2" x 2')

From	To	Soil/Sediment/Sludge Description
8	10	Brown, Silty-clay with 10% coarse sand and gravel, hard, low plasticity, dry
24	26	Medium to coarse-grained sand with 10% gravel, well graded, dry

OTHER (OVA; HNu; etc.) OVM 8-10 = 0.0 ppm, OVM 24-26 = 0.0 ppm

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260)	4 oz encore sampler	Cool

Remarks DUP-136 collected from 8-10'

Sample Personnel D. Manzo

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Building 14 Investigation/	Date	8/9/2004
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0006.00009
Sample No.	GM-43	Coded Replicate No.	N/A
Time Sampling Began	9:02	Time Sampling Ended	13:10

Sampling Method and Material: Split spoon (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	Sandy-gravel with 25% silt and clay, dry, fill
20	22	Silty-sand with 25% gravel, damp, well-graded

OTHER (OVA; HNu; etc.) OVM 0-2 = 0.0 ppm; OVM 20-22 = 0.0 ppm

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260)	4 oz encore sampler	Cool

Remarks

Sample Personnel D. Manzo

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Building 14 Investigation/	Date	8/3/2004-8/4/2004
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0006.00009
Sample No.	GM-44	Coded Replicate No.	DUP-135
Time Sampling Began	8/3/2004 15:28	Time Sampling Ended	8/4/2004 13:10

Sampling Method and Material: Split spoon (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	Brown, Clayey-silt with 25% sand and gravel, dry, fill
18	20	Silt (30%) and sand (60%), with 10% gravel, dry, poorly-graded

OTHER (OVA; HNu; etc.) OVM 0-2 = 0.0 ppm; OVM 18-20 = 0.0 ppm

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260)	4 oz encore sampler	Cool

Remarks DUP-135 collected from 0-2'

Sample Personnel D. Manzo

ARCADIS

Soil/Sediment/Sludge Sampling Log

Project/	Building 14 Investigation/	Date	8/5/2004
Site Location	General Motors, Moraine, Ohio	Project No.	OH000294.0006.00009
Sample No.	GM-45	Coded Replicate No.	N/A
Time Sampling Began	7:18	Time Sampling Ended	13:58

Sampling Method and Material: Split spoon (2" x 2')

From	To	Soil/Sediment/Sludge Description
0	2	Dark brown, silty-clay with 10% gravel, hard, low plasticity, dry
20	22	Sand (40%) and cobble-sized gravel (60%), well-graded

OTHER (OVA; HNu; etc.) OVM 0-2 = 0.0 ppm; OVM 20-22 = 0.0 ppm

Constituents Sampled	Container Description	Preservative
TCL VOCs (8260)	4 oz encore sampler	Cool

Remarks

Sample Personnel D. Manzo