

**LIMITED REMEDIAL INVESTIGATION (RI)
WESTERN END OF GMPT WILLOW RUN FACILITY**

**2932 ECORSE AND WIARDS ROADS
YPSILANTI, MICHIGAN**

Prepared For:

**General Motors Corporation
ENCORE, LLC**

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1.0 INTRODUCTION

This report has been prepared to summarize the data acquired during the Limited Remedial Investigation (RI) of the western end of GMPT Willow Run Facility (Site) in Ypsilanti, Michigan (see Figure 1.1). The RI was completed prior to the Site-wide RI due to the decommissioning and major re-build of the western end of the plant. The RI was conducted to evaluate whether contamination is present and to evaluate potential risks to human health or the environment within the western end of the plant before the installation of the YTO Six Speed Transmission Line (Six-Speed Area). The RI Sampling Area included approximately 1-1/4 million square feet beneath the western end of the plant (see Figure 1.2). This included the entire Six-Speed Area and the areas immediately north, east, and south of the Six-Speed Area (see Figure 1.3). The RI field investigation was conducted between February and April, 2003 with well decommissioning activities being completed between April 2003 and June 2004.

General Motors Corporation (GM)/ENCORE, LLC conducted this RI on a voluntary basis. This RI compares the analytical results to the cleanup criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended.

1.1 SITE LOCATION

The GMPT Willow Run plant is located at 2932 Ecorse and Wiard Roads in Ypsilanti, Michigan. The property is bounded to the north by Ecorse Road and Michigan Avenue, to the east by the Willow Run Airport, to the south and southeast by the Willow Run Airport Hangers and parking lots, to the south-southwest by Tyler Pond, GM Company Vehicle Operations, and the former GM Assembly Plant, and to the West by ponds and a creek/drain and beyond by Wiard Road.

1.2 DESCRIPTION OF SITE

The facility consists of approximately 4.8 million square feet of manufacturing area having various process operations over the years. These operations primarily include the manufacture of automobile transmissions. A Site Plan is included as Figure 1.2.

The RI Sampling Area included the western quarter of the plant or approximately 1-1/4 million square feet within and immediately north of the plant, including the entire SIX-SPEED AREA (see Figure 1.3).

1.3 CURRENT AND HISTORICAL OPERATIONS

The GMPT Willow Run site has been in operation since 1941. The facility was initially built by the Ford Motor Company to manufacture B-24 Bombers for the World War II effort. After the war, the plant was purchased by Kaiser-Fraser to produce automobiles. During the Korean War, Kaiser-Fraser produced C-119 and C-123 planes at the facility. In 1953, Kaiser-Fraser disbanded operations. Finally, the facility was purchased by General Motors in late 1953, and used to the present day for the manufacture of automobile transmissions. The facility consists of approximately 4.8 million square feet of manufacturing area having various process operations over the years. These operations have primarily included machining, cleaning, and painting of metal parts and products.

1.4 LAND USE

Land use zoning maps from the Charter Townships of Ypsilanti and Van Buren were utilized to create a Land Use Zoning Map for the area in the vicinity of the Site (Figure 1.4). Figure 1.4 reveals that the Site and the areas to the north, northeast, west-northwest, and south of the Site are Industrial. The property to the east of the Site (Willow Run Airport) is zoned Airport. The property to the southwest of the Site, across Wiard Road (approximately 2,000 feet southwest of the GMPT plant), is zoned Residential.

1.5 WATER USE

The Site and adjacent properties utilize municipal water. CRA requested any available information associated with water wells within 1-Mile of the Site from the Environmental Health Department of Washtenaw County and Wayne County. Based on the Water Well Record information obtained, there are 11 water wells in the general area. Figure 1.5 displays the locations of the 11 water wells. Most of the wells are located to the north and west of the Site with one well located approximately 1-mile southeast of the Site, on the opposite side of Willow Run Creek. Table 1.1 summarizes the well usage and details. The shallowest well is screened from a depth of 64 feet below ground surface and the 11 wells vary from 68 to 134 feet deep. It is unknown as to whether all of these wells still exist, however, the date installed for several of the wells are fairly recent, indicating they are likely to still be present. Well Number 7 (residential

well), is the closest well being located approximately 1,500 feet to the northwest of the plant, within an area zoned for industrial usage. The water well record for this well does not have an installation date and may not be present anymore. Based on information from the Site-wide groundwater contour maps (monitoring wells screened within the upper 20 feet) and the regional topography, the regional groundwater flow direction is to the southeast.

2.0 REGIONAL SETTING

The regional geology and hydrogeology described in the sections below are based on a review of the following references:

- Quaternary Geology of South Michigan (Department of Geological Sciences; the University of Michigan, Ann Arbor, 1982); and
- Hydrogeologic Atlas of Michigan (Department of Geology, Western Michigan University, Kalamazoo, 1981).

2.1 REGIONAL GEOLOGY

The Site is located in the Erie-Huron Lowland physiographic region, which is located in the southeast portion of Michigan. The topography is a nearly featureless lake plain, which slopes gently to the southeast towards the Detroit River and Lake Erie.

Bedrock of the Washtenaw and Wayne County area is covered with glacial deposits, deposited on the glacial lake bottoms leaving lacustrine plains as these lakes receded. The glacial drift in the area has a thickness of approximately 90 to 200 feet, and is composed mainly of silty sands underlain by a series of glacial clays and tills.

The clay layer underlying the glacial silty sand deposit is approximately 50 feet thick and is a laterally extensive unit that is present beneath the entire Site and throughout the area. Water Well Records indicate the clay extends from approximately 15 to 20 feet bgs to at least 63 feet bgs and typically extends to greater than 80 feet bgs. The clay is underlain by interbedded gravel, sands, and clays to the top of the Antrim Shale bedrock, encountered between 90 and 200 feet bgs.

The Antrim Shale is comprised of hard, dark gray to black or brown, pyritiferous shale that contains abundant silt, making it a confining layer (aquitard). The shale is generally too impermeable to be an aquifer and the abundance of pyrite restricts its water quality for use as a potable water supply.

2.2 REGIONAL HYDROGEOLOGY

The groundwater within the upper sand and silty sand units are unconfined or semi-confined (units monitored at the Site). Groundwater in this unit is generally discontinuous or intermittent in nature and does not yield a significant volume of water.

Regionally extensive lacustrine clay separates the surficial water-bearing zones from the drinking water aquifer.

The majority of southeastern Michigan, including the area of the Site, consists of aquifers that are classified as "protected". Protected aquifers are those that are protected from surface contamination by a minimum of 15 feet of vertically continuous clay in the subsurface or 20 feet of vertically continuous clay from the ground surface above the aquifer (WMU, 1981). The lower confined aquifer in the vicinity of the Site, if present, is protected from surficial contamination by the regionally extensive lacustrine clay aquitard that exists across the area.

The types of aquifer material and their formation in Wayne County are related to the potential for groundwater impact. According to the "Aquifer Vulnerability to Surface Contamination in Michigan" map (WMU, 1981), the majority of Southeastern Michigan contains low permeability soils over low sensitivity overburden. Shallow groundwater in glacial overburden is generally of limited extent and usability. In many locations (within Southeastern Michigan), shallow groundwater has been identified by the MDEQ to be considered as Groundwater Not In An Aquifer (GWNIAA), thereby indicating that drinking water criteria are not pertinent at that location.

2.3 REGIONAL HYDROLOGY

The Huron River is the prominent hydrologic feature in the vicinity of the Site. The Huron River and its local impoundments, Ford Lake and Belleville Lake, discharge into Lake Erie, which is located approximately 50 miles southeast of the Site.

The prominent hydrologic features in the immediate vicinity of the Site are Willow Run Creek and a couple of small ponds approximately 500 feet west of the plant, and Willow Run Creek and Tyler Pond, located approximately 500 feet south of the Site. Willow Run creek discharges into Belleville Lake, approximately 2 miles southeast of the Site.

3.0 SCOPE OF WORK

The purpose of the RI was to gather representative soil, groundwater, and NAPL data to evaluate the entire West End of the plant. In an effort to investigate this relatively large area (approximately 1-1/4 mill. ft.²), CRA selected the sampling locations by creating 100 ft by 100 ft grids across the entire west end of the plant. A sampling location was selected from every other grid or roughly at 200-foot centers. The actual location was selected from any point within the 100-ft by 100-ft grid, based on location of surface equipment, underground utilities, potential source areas, and existing wells. Groundwater monitoring wells were installed in 51 of the 52 grids selected for sampling. One location (CRA 419S) was completed as a soil boring due to the presence of existing monitoring wells in the area.

The existing monitoring wells selected for sampling were selected based on aerial coverage. If one of the wells selected was damaged or was not accessible, had LNAPL, was dry, or did not yield enough water for the collection of groundwater samples, another nearby well was selected, if present.

The general scope of work consisted of:

- Completed 52 soil borings;
- Collected two soil samples for laboratory analysis from each soil boring;
- Installed 53 groundwater monitoring wells and sampled 52 wells, including 2 well pairs;
- Collected groundwater samples from 17 existing monitoring wells;
- Analysed the soil and groundwater samples for total compound list (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), target analyte list (TAL) inorganics, and polychlorinated biphenyls (PCBs);
- Measured the depth to water and thickness of non-aqueous phase liquid, if present, from all the accessible monitoring wells on the west end of the plant;
- Surveyed the locations and elevations of all new wells and borings in addition to any existing wells that had not been surveyed by CRA's survey crew; and
- Decommissioned 69 wells that were within the Six-Speed Area.

Section 4.0 describes the completed scope of work in more detail.

4.0 METHODS

4.1 SOIL BORING INSTALLATION/ SOIL SAMPLING

The soil borings and monitoring wells that were installed for this RI were identified as a 400 series location. An example of the soil boring and monitoring well nomenclature for this RI follows: CRA-419S (soil boring); CRA-402M-S (monitoring well, shallow). Fifty-two soil borings were completed between February 3, 2003 and March 10, 2003. One hundred and four soil samples were collected from 52 locations spaced at roughly 200-foot intervals throughout the western end of the plant. Two unsaturated soil samples were collected at each location. One sample was collected just beneath the concrete, typically at 2 to 4 feet bgs. A second soil sample was collected from the interval with the greatest field evidence of impact, based on visual, olfactory, and photoionization detector (PID) readings. If no significant impact was observed, the sample was collected from the 2-foot interval immediately above the water table.

The soil borings were completed using direct push methodology with a Geoprobe® system to a depth of approximately 10 to 20 bgs. Continuous soil samples were collected from each soil boring location. The soil samples were examined by a CRA geologist for soil type, moisture, color, visual and olfactory evidence of impact, and screened for total VOCs with a PID. Collected soils were described and classified according to the Unified Soil Classification System (USCS). The instrumentation and stratigraphic logs are included as Appendix A.

The soil samples were collected and analyzed for TCL VOCs, TCL SVOCs, TAL inorganics, and PCBs. Samples were collected in laboratory supplied containers, labeled, packed on ice and shipped under chain of custody (COC) protocol. Collected samples were shipped to Severn Trent Laboratory in North Canton, Ohio (STL) to be analyzed within a standard 2-week timeframe.

4.2 MONITORING WELL INSTALLATION/ GROUNDWATER SAMPLING

The monitoring wells that were installed for this RI were identified as a 400 series location. An example of the monitoring well nomenclature for this RI follows: CRA-401M-D (monitoring well, deep) and CRA-402M-S (monitoring well, shallow). Fifty-one of the fifty-two soil boring locations listed in Section 4.1 were converted into groundwater monitoring wells. Two locations were converted into a nested set of monitoring wells. The shallow well screen straddled the water table and the deep well screen was placed within the confined or semi-confined silty sand unit. A total of 53

monitoring wells were installed, 32 shallow and 21 deep. The monitoring wells were constructed of 1-inch diameter, 5-foot long, 0.01-inch slot, Schedule 40 polyvinyl chloride (PVC) screen threaded to a 1-inch diameter PVC riser pipe. The screens of the shallow wells (perched water) straddle the water table and typically straddle the entire perched zone. Silica sand was placed in the annulus to a height of approximately 1-foot above the screen. The remaining annulus was filled with bentonite chips to within approximately 0.5-foot of surface. A flush-mount protective casing and concrete surface seal secure the well at the surface. Deep wells were installed if there was insufficient water present in the surficial perched zone. The deep monitoring wells were screened within the second saturated zone. The same well materials will utilized for the deep wells, however, the bentonite chips were carefully placed to physically separate the two water-bearing zones. The well screen elevations are listed in Table 4.1 and the instrumentation and stratigraphic logs are included as Appendix A.

Seventeen existing monitoring wells were chosen for groundwater sampling. The existing monitoring wells were developed according to CRA field method guidelines prior to groundwater collection.

Collection of groundwater samples occurred from February 12, 2003 to March 26, 2003. The wells were purged with a peristaltic pump using low-flow purge (LFP) techniques at approximately 100 to 200 milliliters/minute with continuous monitoring to confirm less than 0.3 feet of drawdown. Groundwater quality measurements were recorded in consecutive timed intervals until stabilization occurred with three similar consecutive readings. On the occasion when maintaining less than 0.3 feet of drawdown was not possible, a minimum of three well volumes were removed, collecting groundwater quality measurements for each well volume. If the well went dry before three casing volumes could be purged, the well was allowed to recover and was sampled within 24-hours. A flow-cell was used to measure pH, specific conductivity, temperature, dissolved oxygen, and oxidation-reduction potential and a turbidity meter was used to measure turbidity. Groundwater samples collected for the analysis of TAL Inorganics were field filtered (except for cyanide) and are considered dissolved concentrations.

Monitoring wells that had light non-aqueous phase liquid (LNAPL) at the time of sampling were not sampled.

Samples were collected in laboratory supplied containers, labeled, packed on ice and shipped under chain of custody (COC) protocol. Samples were collected and analyzed for TCL VOCs, TCL SVOCs, TAL inorganics, and PCBs. Some wells were not sampled for all parameters, due to low yields. VOCs were sampled and analyzed for all wells. The samples were analyzed by STL within a standard two-week time frame.

4.3 FLUID LEVEL MONITORING

Groundwater and LNAPL levels were measured and recorded on April 1 and April 2, 2003. Well caps were unlocked and removed allowing the water levels in the wells to stabilize. Static water and LNAPL levels were measured using an interface probe. Static water levels are listed in Table 4.2 and LNAPL levels are summarized in Table 4.3.

4.4 SITE SURVEYING

Each of the new and existing monitoring wells were surveyed for location and elevation by CRA's surveying crew. A summary of the locations and elevations is included in Table 4.2.

4.5 WELL DECOMMISSIONING

Due to the construction plans for the new Six-Speed Area, monitoring wells within this area were required to be abandoned. Upon completion of groundwater sampling, monitoring wells within this portion of the plant were abandoned (decommissioned) utilizing pressure grouting methods according to GM/ENCORE field method guidelines. Flush mount monitoring well covers and the top one to two feet of riser were removed and the wells was pressure grouted to the surface. Additionally, recovery wells in the Dynamometer Area and monitoring wells immediately south of the Six-Speed Area were decommissioned between April 2003 and June 2004, prior to construction activities in those areas. Table 4.4 lists the 69 wells that were decommissioned between April 9 and April 17, 2003 and the 17 additional wells that have been decommissioned between April 2003 and June 2004.

5.0 RESULTS

5.1 SITE SETTING

The Site geology and hydrogeology described in the sections below are defined based on a review of the stratigraphic and instrumentation logs from this investigation (Appendix A) and the logs from historical investigations by others.

5.1.1 SITE GEOLOGY

The surficial Site geology is most easily described by dividing the stratigraphy into four units. The upper most unit typically extends 8 to 10 feet bgs, consists of fill and native soils composed of a mixture of silty sands, clayey sands, and poorly graded sands with a trace of fine subrounded gravels. The sandy upper unit is underlain by a firm dark green to gray, high plasticity clay with occasional discontinuous sand lenses. This clay unit is typically 2 to 5 feet thick. The third unit generally consists of silty sands with some interbedded silt units, and is saturated. This sandy unit is typically 4 to 6 feet thick. The fourth unit is a firm dark green to gray, high plasticity clay that extends to the total depth drilled (greater than 5 feet thick). This clay unit appears to be the documented lacustrine clay that is approximately 50 feet thick and is a laterally extensive unit throughout the area (see Sections 2.1 and 2.2.). The cross-section locations (Figure 1.3) and the cross sections generated from this data, Figures 5.1 and 5.2, show the relative uniformity of these units across the Site.

5.1.2 SITE HYDROGEOLOGY

The shallow water-bearing zones at the Site consist of a shallow and a deep unit. As discussed in Section 5.1.1, the shallow water-bearing zone consists of fill and native soils composed of a mixture of silty sands, clayey sands, and poorly graded sands with a trace of fine subrounded gravels and extends to approximately 8 to 10 feet bgs. That saturated portion of this perched zone is less than 3 feet thick. A clay unit that is typically 2 to 5 feet thick separates the shallow and deep water-bearing zones. The deep water-bearing zone consists of silty sands with some interbedded silt units. This confined or semi-confined sandy unit is typically 4 to 6 feet thick and the entire section is saturated. The depth to water is approximately 8 to 9 feet bgs in the shallow unit and 9 to 11 feet bgs in the deep unit. It appears that there is a downward gradient between the two water-bearing zones. However, from the two nested well pairs, at opposite ends of the plant, no Site-wide conclusions can be presented regarding vertical gradient.

Monitoring wells CRA-406M S and D (shallow and deep) are located at the north end of the plant and monitoring wells CRA-443M S and D are located at the south end of the plant. Water levels measured in the north suggest a downward gradient, based on a difference in groundwater elevation of approximately 1.5 feet between the shallow and deep well pair, CRA-406M S and D. Water levels measured in the south suggest an upward gradient, based on a difference in groundwater elevation of approximately 0.5 feet between the shallow and deep well pair, CRA-443M S and D.

Shallow and deep groundwater contour maps were generated from groundwater elevations collected in April, 2003 (Figures 5.3 and 5.4). Groundwater in the deep unit generally flows from a high point in the northeast quarter of the West End of the plant with the predominant groundwater flow direction to the south. Groundwater in the shallow perched unit has several localized groundwater flow directions. The localized flow appears to be the product of the undulating, perching clay unit and the man-made obstructions consisting of tunnels, concrete pits, and utility corridors that extend below the shallow perched water table. Based on historical and Site-wide groundwater contour maps, the overall groundwater flow direction beneath the west end of the plant (and plant wide) is to the south. A groundwater contour map for the shallow perched unit prepared from water levels measured on March 31, 2004, is included as Figure 5.5. The generalized groundwater flow direction for the shallow perched unit is to the south at a relatively flat hydraulic gradient of approximately 0.004. This figure is based on fewer data points than Figure 5.3 and utilizes wells spread further apart.

5.2 EXPOSURE PATHWAYS

This section identifies the exposure pathways that are complete, or likely to become complete, in light of the intended use of the property and the features of the property including potential exposure barriers such as structures or pavement. As described in Section 1, the entire plant property is zoned, used, and access controlled for industrial production operations. Adjacent surrounding properties are roadways, industrial, and a commercial airport. The 4.8 million square foot plant has concrete flooring that affords a barrier from exposure to subsurface substances. Surface waters are greater than 500 feet from the plant. The source for water supply purposes is a municipal system. Local groundwater resources are not of sufficient availability to be a viable alternative to the municipal supply. The shallow water-bearing zones addressed in this RI are not used for water supply purposes (see Section 1.5).

Exposure pathways that are potentially “complete”, based on current and foreseeable conditions are identified as follows:

Soils

- Groundwater contact protection criteria;
- Industrial and commercial soil volatilization to indoor air inhalation criteria;
- Industrial and commercial particulate soil inhalation criteria; and
- Industrial and commercial direct contact criteria.

Groundwater

- Groundwater contact criteria; and
- Industrial and commercial groundwater volatilization to indoor air inhalation criteria.

This RI compares the analytical results to the cleanup criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended. Table 5.1, Table 5.2, Plan 1, and Plan 2 compare the analytical results to all Part 201 Generic Residential and Industrial Criteria and identify any exceedences of these criteria. Any exceedences of the potentially “complete” Part 201 Generic criteria are further identified.

This RI only included information from beneath the West End of the plant. A Site wide RI will be completed in the future. The Site wide RI will address the utility corridors and potential off-site migration of impacted groundwater and will compare the data to a broader range of potentially “complete” pathway criteria.

5.3 ANALYTICAL RESULTS - SOIL

Table 5.1 – Summary of Detected Parameters in Soil and Plan 1 – Analytical Results of Soil Samples summarize the analytical results of the soil samples. Several soil samples were detected above Part 201 Generic Residential and Industrial Criteria for one or more parameter. However, only one sample exceeded a potentially “complete” Part 201 Generic criteria.

Benzene was detected in the soil sample collected from CRA-408M-S at a depth of 7 to 9 feet bgs at 15 milligrams per kilogram (mg/Kg). This benzene level exceeds the generic industrial and commercial soil volatilization to indoor air inhalation criteria at this location. A site-specific industrial and commercial soil volatilization to indoor air

inhalation criteria was calculated to further evaluate this sample. Based on the calculated site-specific criteria of 114 mg/Kg, the detected benzene concentration does not exceed the site-specific industrial and commercial soil volatilization to indoor air inhalation criteria. The site-specific calculations and associated assumptions are summarized in Appendix B.

Constituents in soil samples detected above Part 201 Generic Residential and/or Industrial Criteria are summarized below:

VOCs

- Benzene, ethylbenzene, xylenes, and trichloroethene (TCE)

SVOCs

- Napthalene

Inorganics

- Aluminum, antimony, chromium, cobalt, cyanide, iron, manganese, and selenium

The chromium concentrations detected in soil did not exceed the statewide default background levels for total chromium. However, because hexavalent chromium was not analyzed (no speciation was performed), the results need to be compared to hexavalent chromium criteria. The only criteria exceeded for hexavalent chromium was groundwater surface water interface protective criteria. The exceedence of groundwater surface water interface protective criteria for the chromium concentrations detected in soil are not an actual threat to groundwater or surface water. This is based on the following:

- Chromium did not exceed the Generic Residential and/or Industrial Criteria in any of the groundwater samples;
- Chromium did not exceed the statewide default background levels for total chromium in soil; and
- The distance to a surface water body (Tyler Pond) is over 500 feet from all of the sample locations.

5.4 ANALYTICAL RESULTS - GROUNDWATER

Table 5.2 – Summary of Detected Parameters in Groundwater and Plan 2 – Analytical Results of Groundwater Samples summarize the analytical results of the groundwater samples. Several groundwater samples were detected above Part 201 Generic

Residential and Industrial Criteria for one or more parameter. However, no samples exceeded a potentially “complete” Part 201 Generic criteria.

Constituents in groundwater samples detected above Part 201 Generic Residential and/or Industrial Criteria are summarized below:

VOCs

- Cis-1,2-dichloroethene, TCE, vinyl chloride, ethylbenzene, xylenes, and methylene chloride

SVOCs

- Fluoranthene and phenanthrene

Inorganics

- Aluminum, arsenic, barium, copper, iron, manganese, mercury, nickel, selenium, vanadium, and zinc

PCBs

PCBs were detected above Part 201 generic groundwater surface water interface protective criteria at one location.

5.5 LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL)

LNAPL is a generic term used to label most petroleum compounds that have a specific gravity that is lighter than water and will accumulate at the top of a water layer when present. LNAPL was observed in several monitoring wells during the collection of groundwater samples and/or during the round of fluid level monitoring. Six groundwater monitoring wells and five recovery wells within the West End had LNAPL present from a sheen to 1.86 feet thick. Table 4.3 summarizes the locations and thickness of the observed LNAPL. The LNAPL observed during this RI was within areas that had historically documented releases. The locations of the LNAPL plumes are shown on Plan 2.

Dyno Area - LNAPL recovery wells were previously present throughout the northeast end of West End of plant. This is the engine testing or dynamometer area (Dyno Area). The recovery wells were installed to recover gasoline from historical releases. The historical wells, in addition to the RI wells, has been used to delineate the extent of the Dyno Area LNAPL plumes.

Bay E-5 Area - Two wells in the southwest end of the plant (Bay E-5 Area), CRA-254M (sheen observed) and CRA-441M-D (0.10 ft), had LNAPL detected during this RI. The source of this LNAPL is unknown. However, monitoring wells in the area (CRA-254M and CRA-255M) are old monitoring wells that were apparently installed to monitor this area of impacted groundwater. This LNAPL plume does not appear to be very extensive.

5.6 DATA QUALITY ASSESSMENT AND VALIDATION

Upon receipt of the soil and groundwater analytical results, CRA's quality assurance officer completed a data quality assessment and validation. The QA/QC evaluation included a review of the laboratory blank data, as well as recovery data from matrix and surrogate spikes and check samples. The analytical data was also assessed for accuracy and precision based on review of the spike recovery data. Data qualifiers were applied based on this assessment in accordance with "U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-99/008, October 1999 and "U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Review", EPA-540/R-94/013, February 1994. An analytical data quality assessment and validation memorandum was prepared consistent with the QAPP and is presented in Appendix C.

5.7 CONCLUSIONS

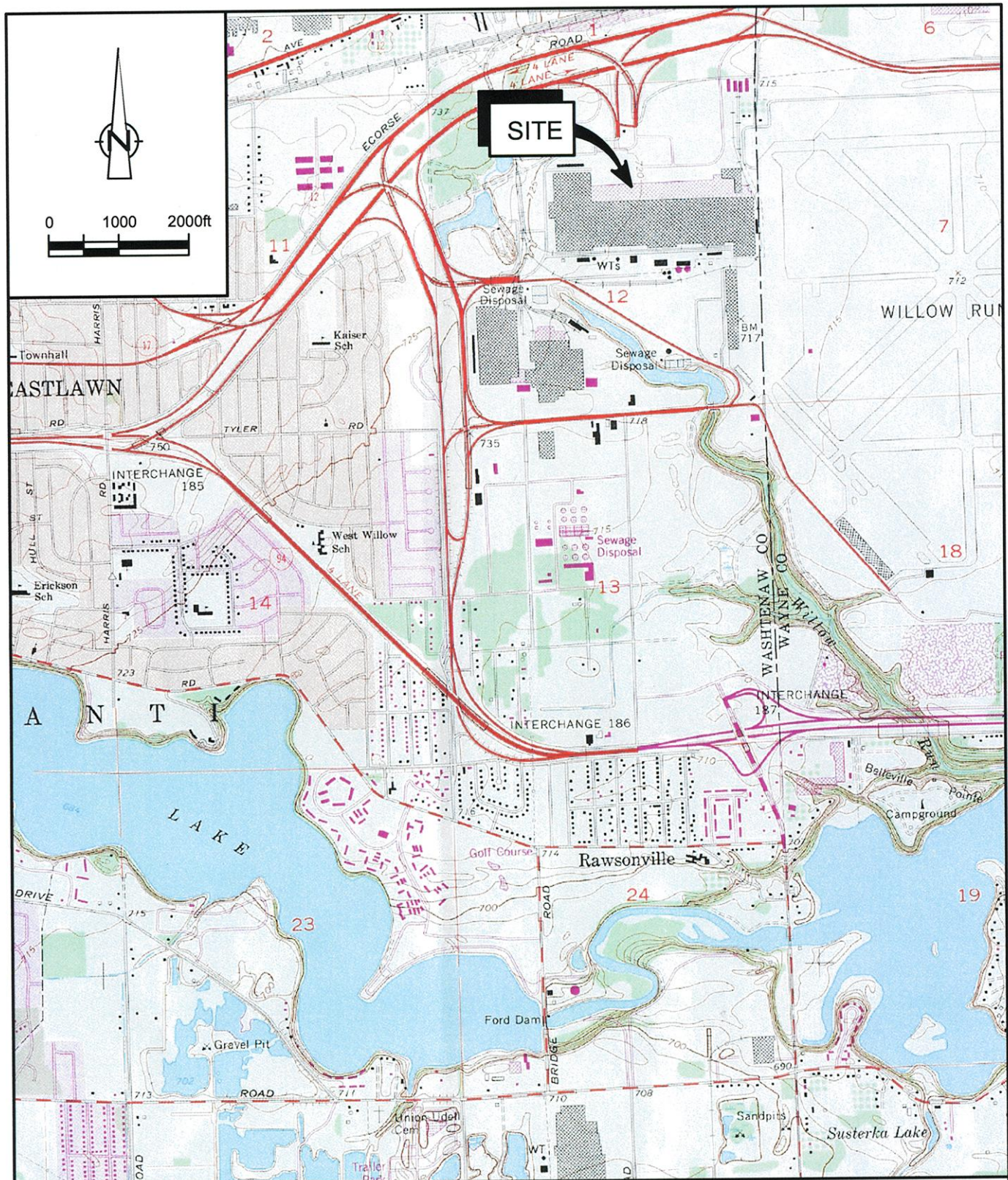
Based on the results of this limited RI, the presence of LNAPL beneath the West End of the plant is the primary concern to human health and the environment. There are two areas of identified LNAPL beneath the West End of the plant.

- The Dyno Area: The LNAPL plumes in this area cover approximately 70,000 square ft and are estimated to contain approximately 50,000 gallons of gasoline containing LNAPL.
- The Bay E-5 Area: The LNAPL plume in this area does not appear to be very extensive, however, the extent has not been clearly defined.

Several soil and groundwater samples had detections above Part 201 Generic Residential and Industrial Criteria for one or more parameter. However, only one soil sample and no groundwater samples exceeded a potentially "complete" Part 201 Generic criteria. A site-specific industrial and commercial soil volatilization to indoor air inhalation criteria was calculated to further evaluate this sample. Based on the calculated site-specific

criteria, the detected concentration does not exceed the site-specific industrial and commercial soil volatilization to indoor air inhalation criteria. Therefore, there are:

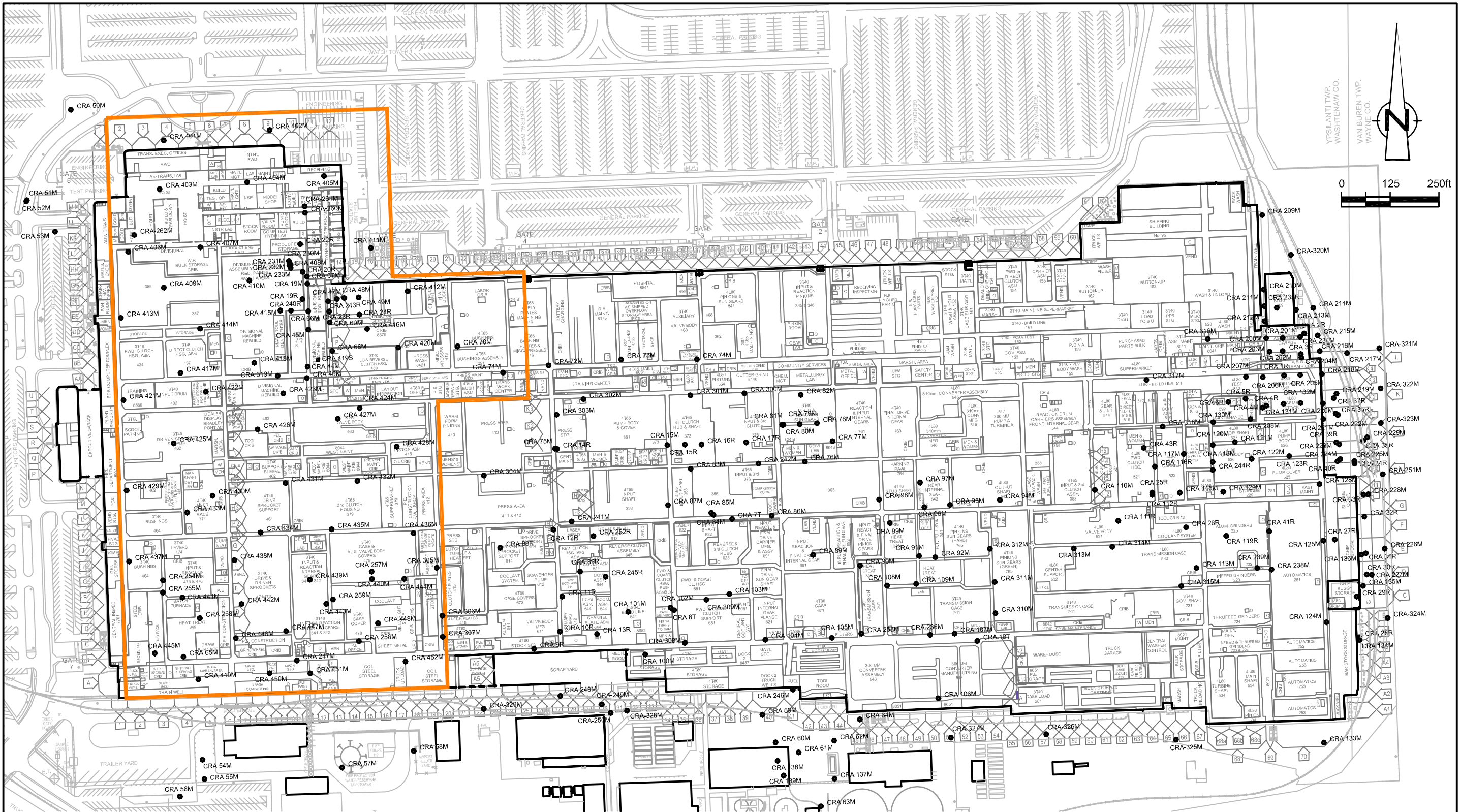
- no soil sample results that exceed a potentially “complete” Part 201 criteria;
- no groundwater sample results exceed potentially “complete” Part 201 criteria.



SOURCE: USGS QUADRANGLE MAP;
EAST YPSILANTI, MICHIGAN



figure 1.1
SITE LOCATION MAP
GMPT WILLOW RUN
Ypsilanti, Michigan



LEGEND

● CRA 310M

MONITORING WELL LOCATION

— RI SAMPLING AREA

RI SAMPLING AREA

figure 1.2

SITE PLAN
GMPT WILLOW RUN
Ypsilanti, Michigan



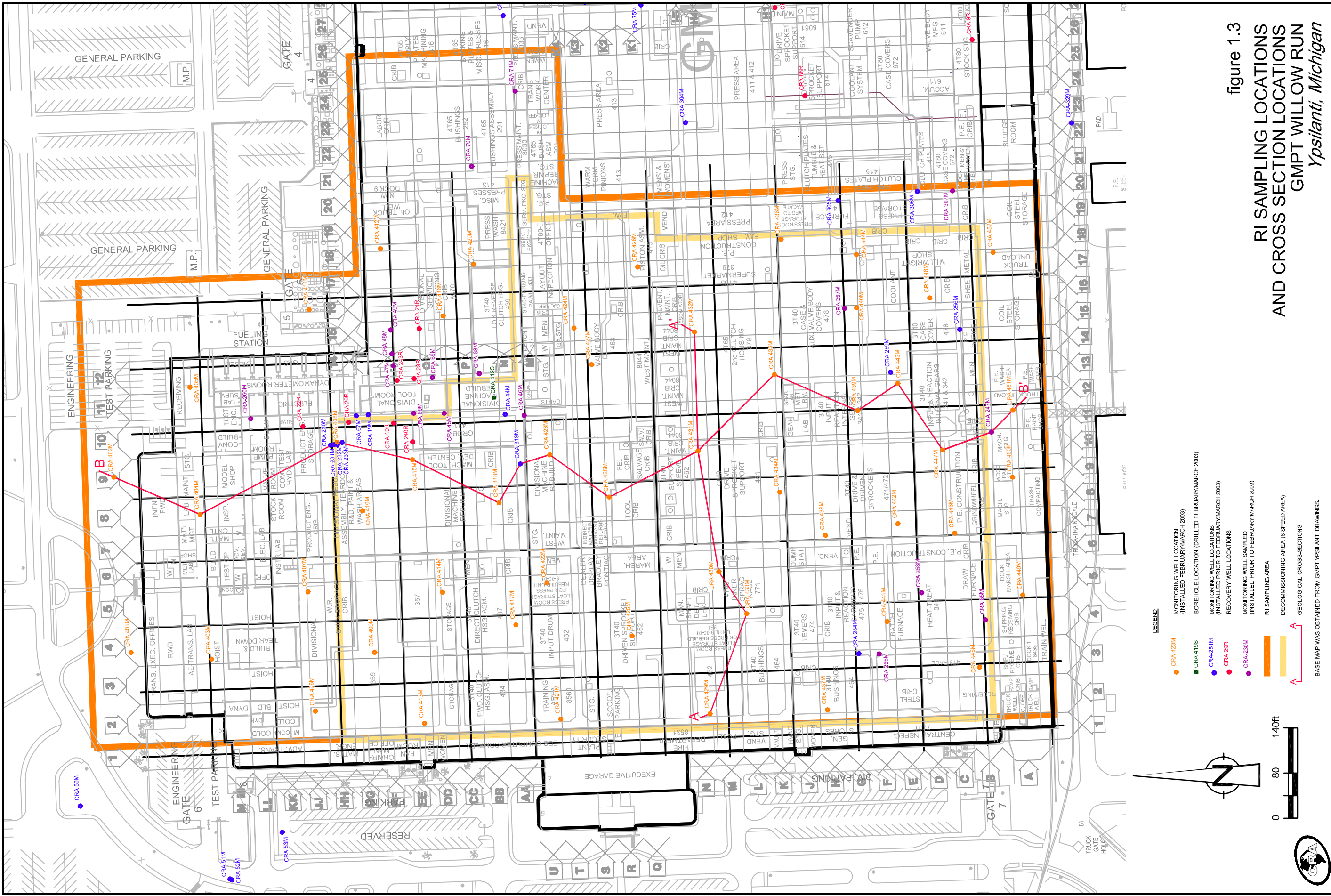
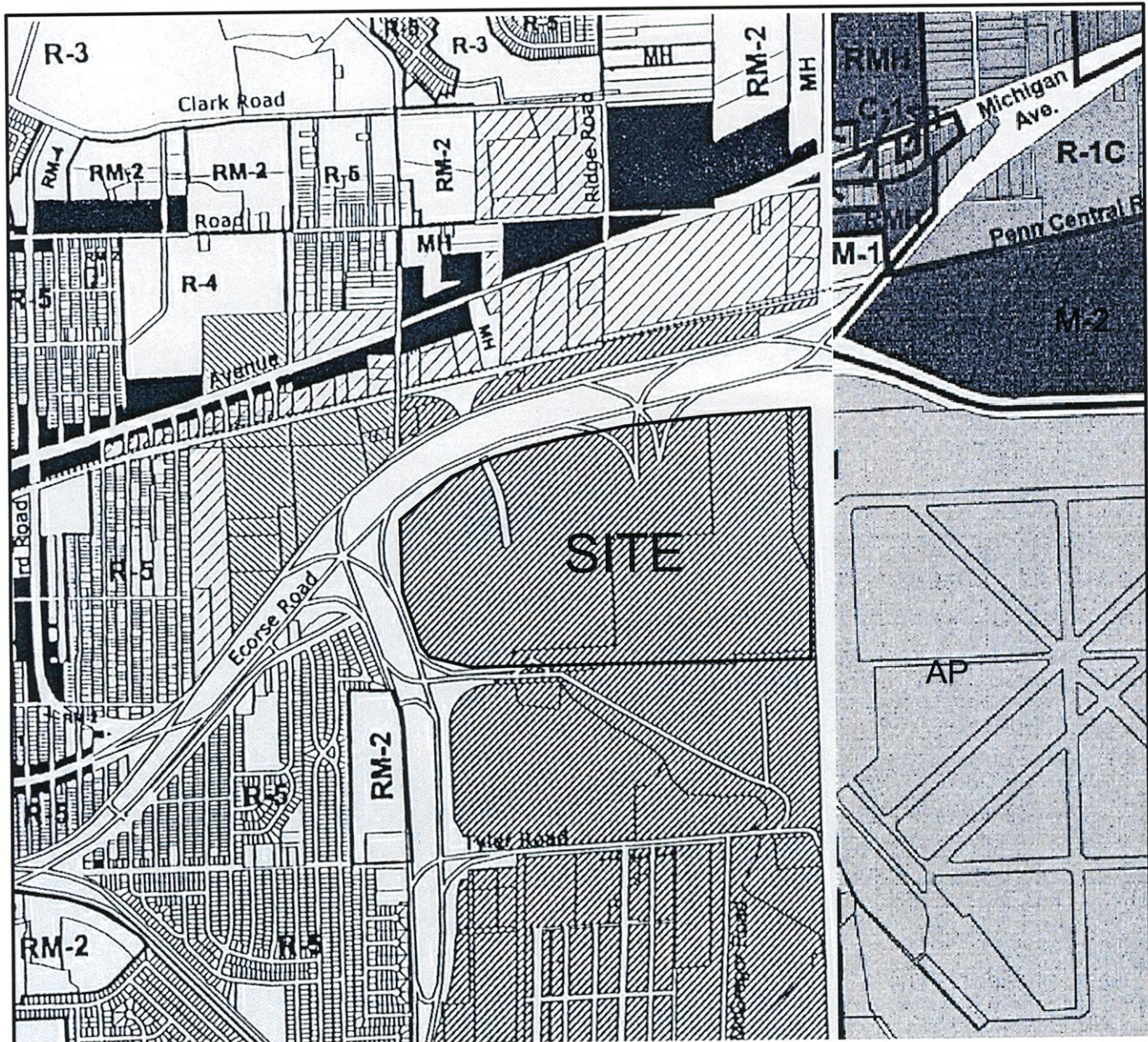


figure 1.3
RI SAMPLING LOCATIONS
AND CROSS SECTION LOCATIONS
GMPT WILLOW RUN
Ypsilanti, Michigan



REFERENCES: CHARTER TOWNSHIPS OF YPSILANTI AND VAN BUREN

R-2	R-2 One-Family Residential	R-1B	R-1B Single Family Residential
R-3	R-3 One-Family Residential	R-1C	R-1C Single Family Residential
R-4	R-4 One-Family Residential	RMH	RMH Mobile Home Park
R-5	R-5 One-Family Residential	M-1	M-1 Light Industrial
RM-2	RM-2 RM-2 Multi-Family Residential	M-T	M-T Industrial Transportation
RM-4	RM-4 RM-4 Multi-Family Residential	M-2	M-2 General Industrial
MH	MH Mobile Home Park	AP	AP Airport
I-1	I-1 Light Industrial		
I-2	I-2 General Industrial		
I-3	I-3 Heavy Industrial		
I-4	I-4 Industrial Commercial		

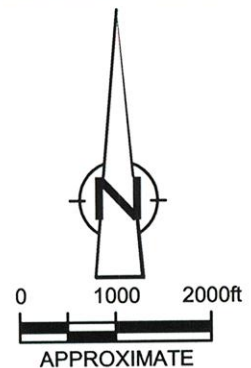
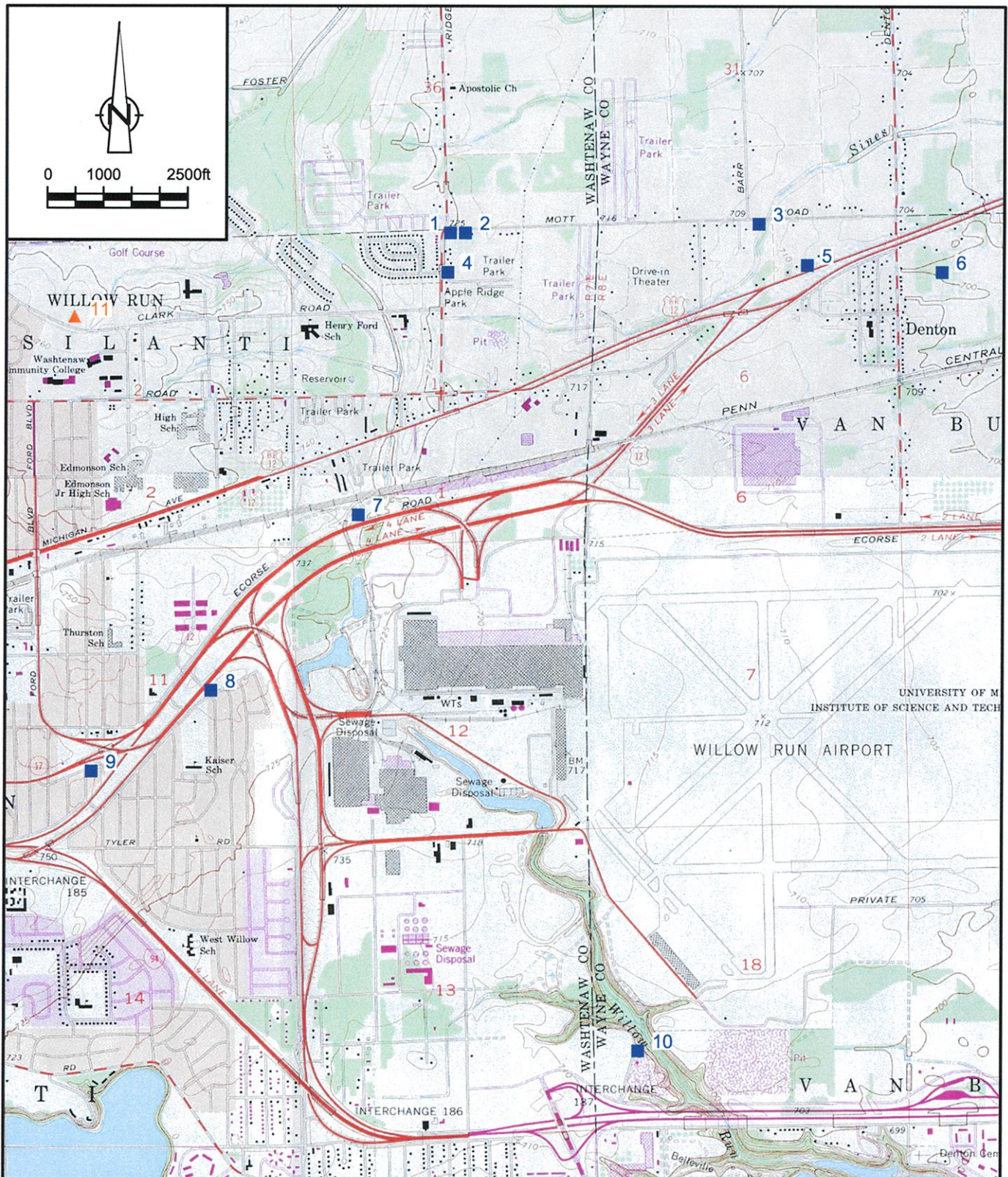


figure 1.4

LAND USE ZONING MAP
GMPT WILLOW RUN
Ypsilanti, Michigan





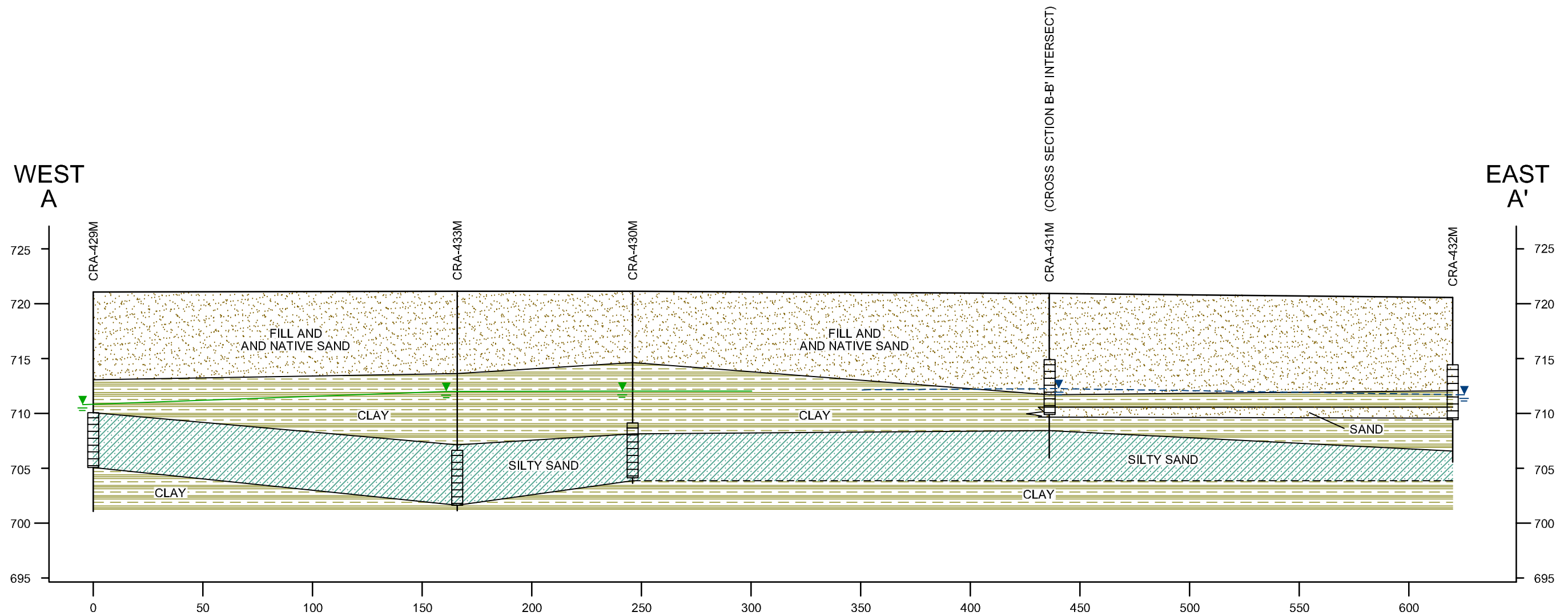
SOURCE: USGS QUADRANGLE MAPS;
EAST YPSILANTI & DENTON, MICHIGAN



LEGEND

- RESIDENTIAL WELL
- ▲ IRRIGATION WELL

figure 1.5
WATER SUPPLY WELLS
GMPT WILLOW RUN
Ypsilanti, Michigan



HORIZONTAL SCALE: 1"=50'
ELEVATION: 1"=10' (ft. AMSL)

LEGEND

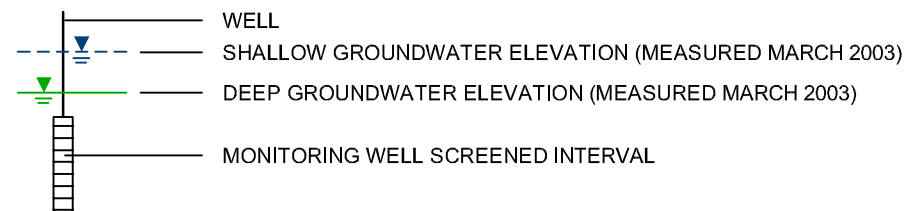
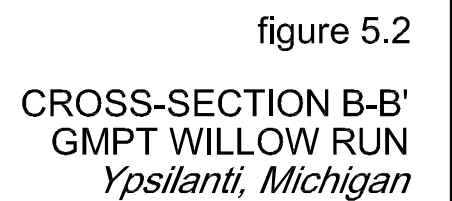


figure 5.1

CROSS-SECTION A-A'
GMPT WILLOW RUN
Ypsilanti, Michigan







LEGEND

712 ——— GROUNDWATER ELEVATION CONTOUR

712.5 GROUNDWATER ELEVATION (FEET MSL)

figure 5.3

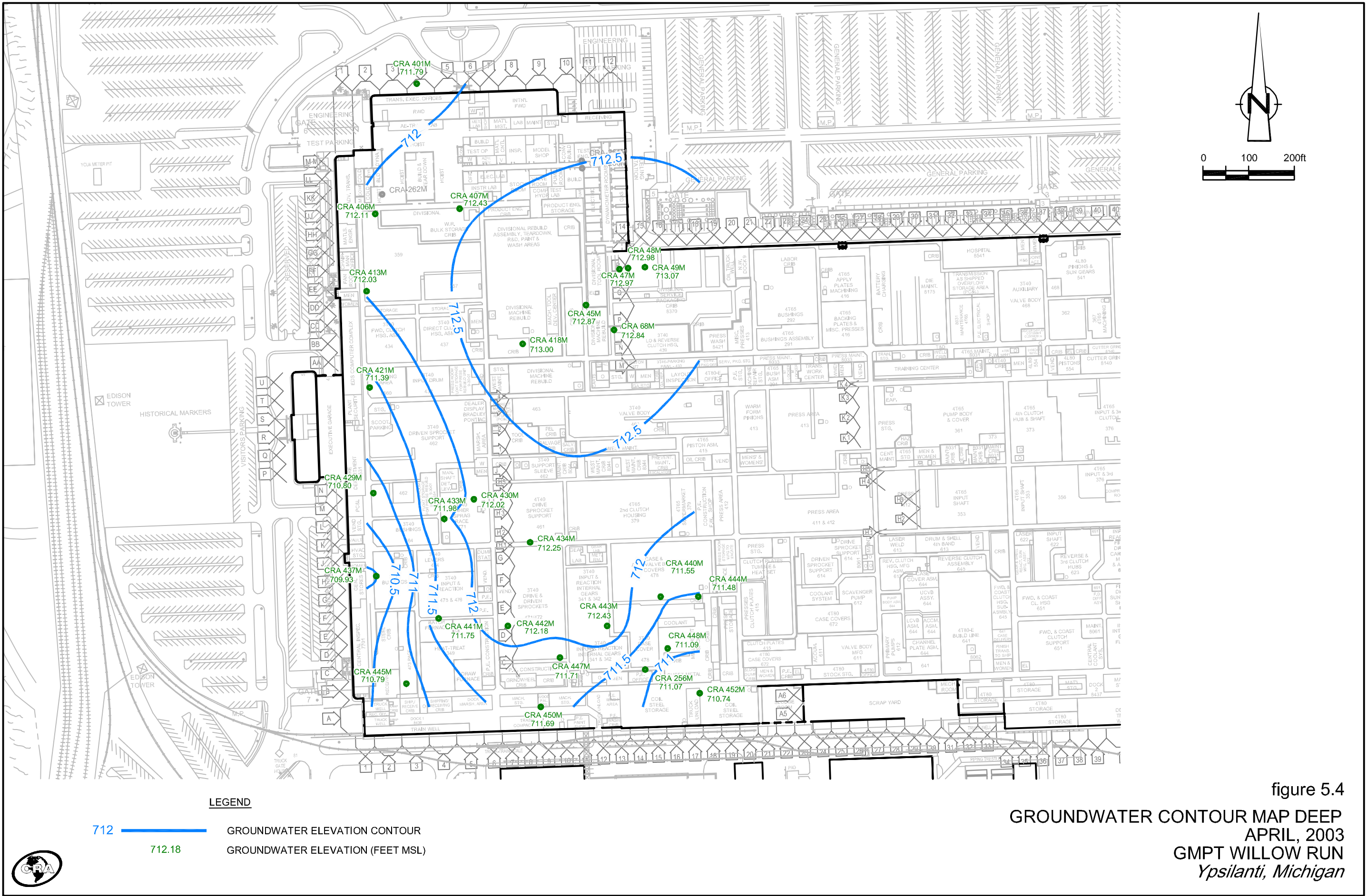
GROUNDWATER CONTOUR MAP SHALLOW

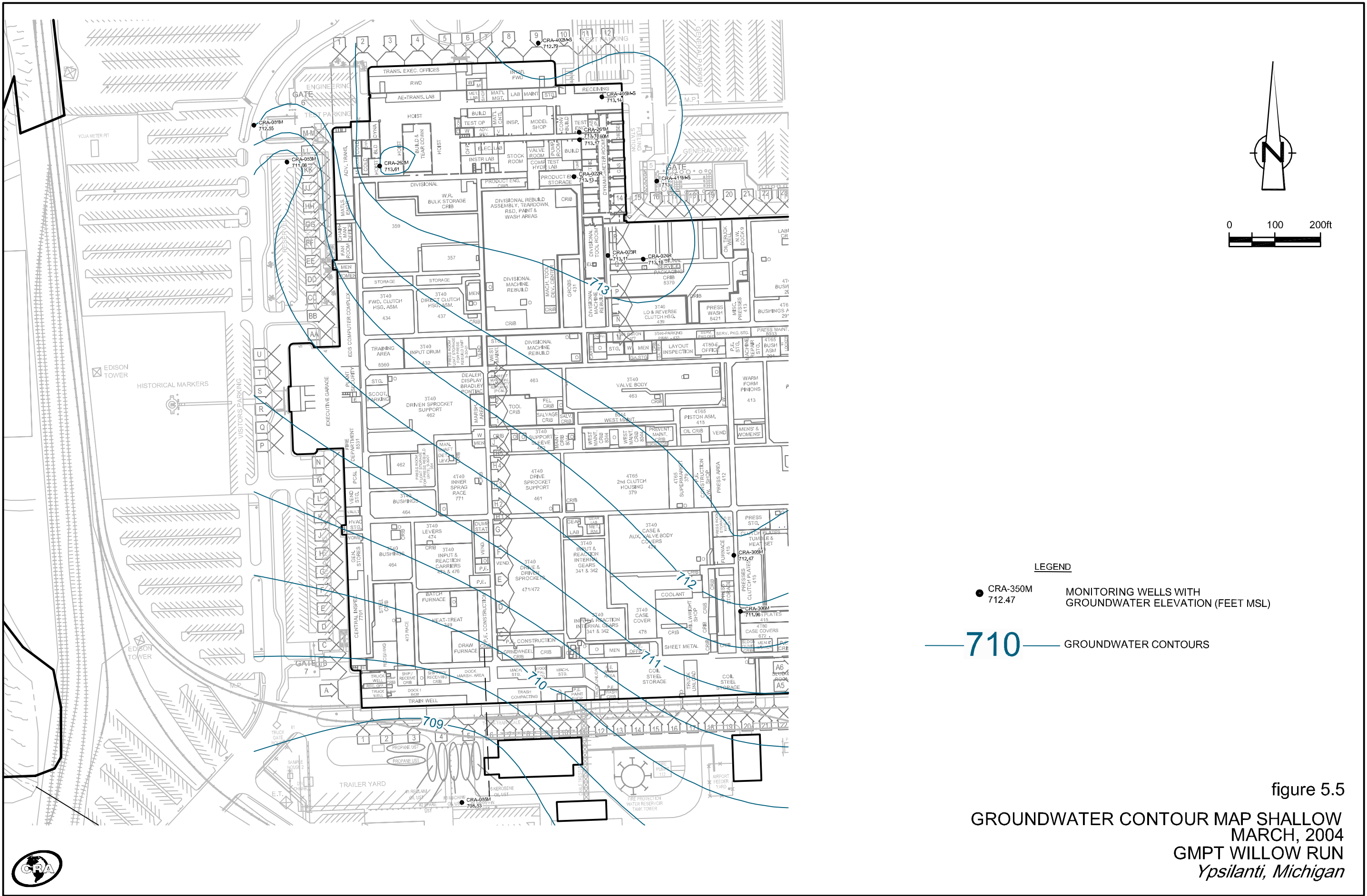
APRIL, 2003

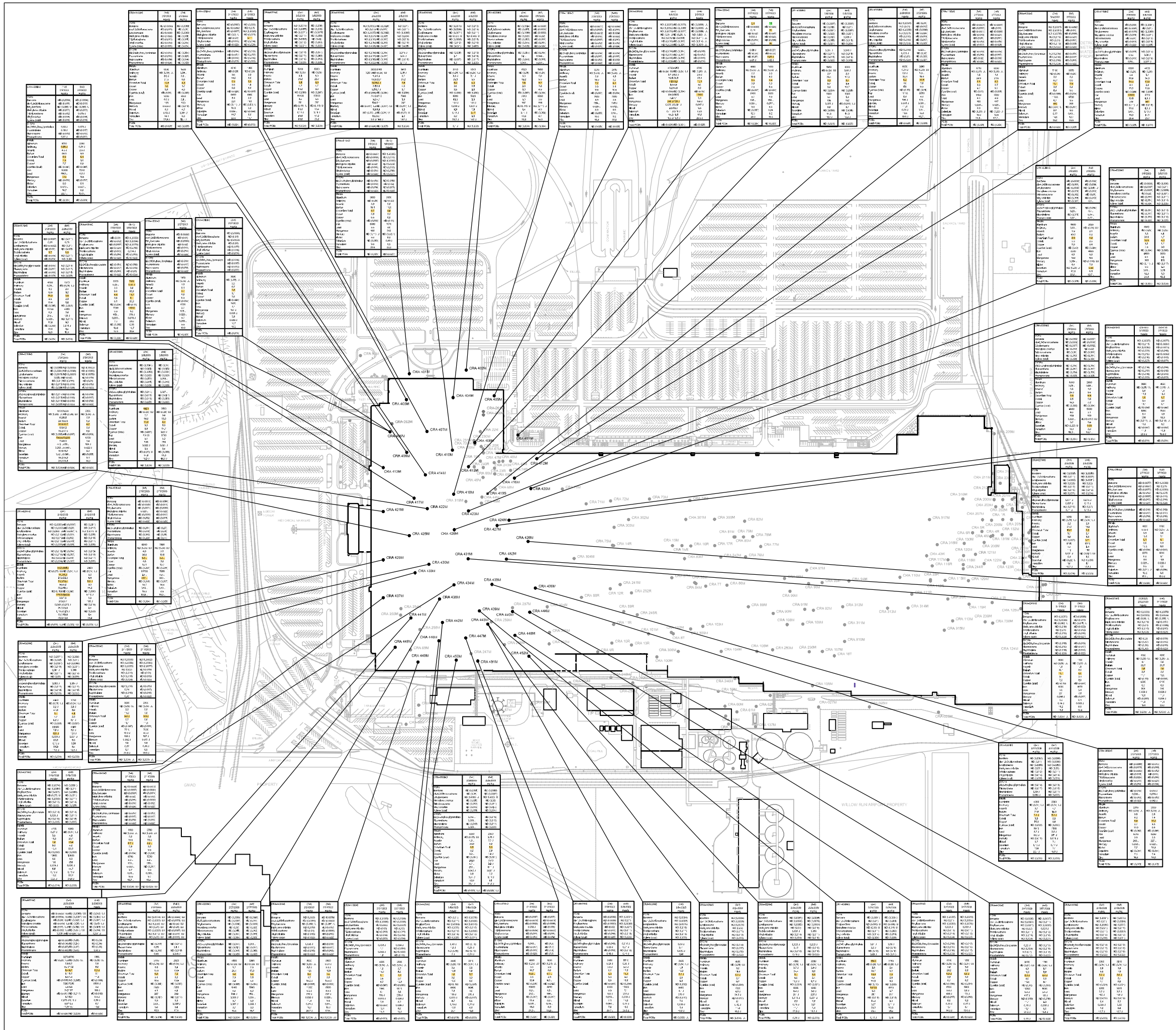
GMPT WILLOW RUN

Ypsilanti, Michigan









Revision

Date

1688

Legend

- CRA 420M MONITORING WELL LOCATOR (SAMPLED FOR THE RI)
- CRA 419S BOREHOLE LOCATION (SAMPLED FOR THE RI)
- CRA 311M MONITORING WELL LOCATOR (NOT SAMPLED FOR THE RI)
- CRA 118S RECOVERY WELL LOCATOR (NOT SAMPLED FOR THE RI)

Notes

- ND CONSTITUENT NOT ANALYZED FOR THIS SAMPLE
- R LABORATORY VALUE WAS REJECTED DURING DATA VALIDATION AND CRA QUALITY PROCEED
- J THE ASSOCIATED VALUE IS ESTIMATED QUANTITY
- U THE MATERIAL WAS ANALYZED FOR BUT WAS NOT DETECTED. THE ASSOCIATED VALUE IS EARLY DETECTION.
- EXCEEDS MICHIGAN ACT 451, PART 201 (NOT LIKELY TO BECOME COMPLETELY GROUNDWATER)
- EXCEEDS MICHIGAN ACT 451, PART 201 (OTHER) COMPLETE CRITERIA

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL, ADJUST SCALE ACCORDINGLY.

DRAWING STATUS

Approved

Drawn

1688

ANALYTICAL RESULTS OF SOIL SAMPLES RI OF WESTERN AREA

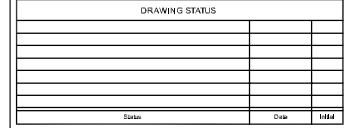
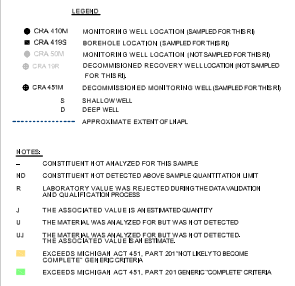
GMPT WILLOW RUN YPSILANTI, MICHIGAN

Source Reference

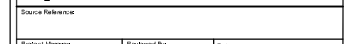
Project Manager: S.A. Reviewed By: T.K. Date: JULY 2008

Scale: 1"=150' Project #: 17358-23 Report #: 006 Plan #: PLAN 1

17358-23(06)04-CR007 JUL 2008



GMPT WILLOW RUN FACILITY
YPSILANTI, MICHIGAN



Project Manager: S.A.	Reviewed By: T.J.K	Date: JULY 2009	
Scale: 1"=150'	Project #: 17358-23	Report #: 006	Drawing #: PLAN 2

TABLE 1.1

**WATER WELL DETAILS
GMPT WILLOW RUN FACILITY
YPSILANTI, MICHIGAN**

<i>Well Number</i>	<i>Well Type</i>	<i>Location Description</i>	<i>Date Installed</i>	<i>Static Water Level (feet bgs)</i>	<i>Screen Interval (feet)</i>	<i>Max Depth (feet)</i>
1	Residential	51074 Mott Rd.	7/9/1994	11	64 - 68	68
2	Residential	3080 Mott Rd.	2/7/2003	12	72 - 76	76
3	Residential	400' E corner of Justine/Mott	8/31/1983	3	86 - 90	
4	Residential	East side of Ridge Rd., 200 yds north of Clark Rd.	10/4/2001	14	93 - 97	97
5	Residential	50290 Michigan Ave.	7/16/1991	17	87 - 107	107
6	Residential	6185 Hancock Rd.	10/22/1991	4	95 - 99	99
7	Residential	2225 Ecorse Rd.	no record	80	134 - 138	134
8	Residential	800' east Service Dr., 500' south Taylor	5/15/1972	40	81 - 85	85
9	Residential	570 Laverne Rd.	4/1/1977	58	127 - 131	131
10	Residential	1785 Rawsonville Rd.	10/18/1967	60	91 - 95	95
11	Irrigation	Green Oak Golf Course east of Prospect Rd. on Clark Rd.	3/21/1985	20.5	66 - 90	90

Sources - Washtenaw County Department of Environmental Health and Wayne
County Department of Public Health, Environmental Health Division.

DRAFT

TABLE 4.1
MONITORING WELL SCREEN ELEVATIONS
GMPT- WILLOW RUN
YPSILANTI, MICHIGAN

<i>Location</i>	<i>Ground Elevation (ft. AMSL)</i>	<i>Top of Screen (ft. BGS)</i>	<i>Bottom of Screen (ft. BGS)</i>	<i>Top Screen elevation (ft. AMSL)</i>	<i>Bottom Screen elevation (ft. AMSL)</i>
CRA-401M-D	720.60	13	18	707.6	702.60
CRA-402M-S	720.67	6	11	714.67	709.67
CRA-403M-S	721.11	6	11	715.11	710.11
CRA-404M-S	721.33	6.5	11.5	714.83	709.83
CRA-405M-S	721.28	6	11	715.28	710.28
CRA-406M-D	721.13	14	19	707.13	702.13
CRA-406M-S	721.13	5	10	716.13	711.13
CRA-407M-D	721.01	13.5	18.5	707.51	702.51
CRA-408M-S	720.97	5	10	715.97	710.97
CRA-409M-S	721.03	4.5	9.5	716.53	711.53
CRA-410M-S	721.02	4.5	9.5	716.52	711.52
CRA-411M-S	720.18	7	12	713.18	708.18
CRA-412M-S	720.31	6	11	714.31	709.31
CRA-413M-D	721.07	13	18	708.07	703.07
CRA-414M-S	721.06	5	10	716.06	711.06
CRA-415M-S	721.10	6.5	11.5	714.6	709.60
CRA-416M-S	720.48	6.5	11.5	713.98	708.98
CRA-417M-S	721.06	6	11	715.06	710.06
CRA-418M-D	721.02	12	17	709.02	704.02
CRA-420M-S	720.35	7	13	713.35	707.35
CRA-421M-D	721.10	11	16	710.1	705.10
CRA-422M-S	721.07	6	11	715.07	710.07
CRA-423M-S	721.08	7	12	714.08	709.08
CRA-424M-S	720.71	5	10	715.71	710.71
CRA-425M-S	720.78	11	16	709.78	704.78
CRA-426M-S	721.11	6	11	715.11	710.11
CRA-427M-S	720.71	5	10	715.71	710.71
CRA-428M-S	720.52	4	9	716.52	711.52
CRA-429M-D	721.06	11	16	710.06	705.06
CRA-430M-D	721.11	12	17	709.11	704.11
CRA-431M-S	720.94	6	11	714.94	709.94
CRA-432M-S	720.56	6	11	714.56	709.56
CRA-433M-D	721.11	14.5	19.5	706.61	701.61
CRA-434M-D	721.11	12	17	709.11	704.11
CRA-435M-S	720.70	5	10	715.7	710.70
CRA-436M-S	720.28	6	11	714.28	709.28
CRA-437M-D	720.98	10.5	15.5	710.48	705.48
CRA-438M-S	720.99	8	12	712.99	708.99
CRA-439M-S	720.88	5	10	715.88	710.88
CRA-440M-D	720.42	13	18	707.42	702.42
CRA-441M-D	721.13	9	14	712.13	707.13
CRA-442M-D	720.87	9.25	14.25	711.62	706.62
CRA-443M-D	720.82	15	20	705.82	700.82

DRAFT

TABLE 4.1
MONITORING WELL SCREEN ELEVATIONS
GMPT- WILLOW RUN
YPSILANTI, MICHIGAN

<i>Location</i>	<i>Ground Elevation (ft. AMSL)</i>	<i>Top of Screen (ft. BGS)</i>	<i>Bottom of Screen (ft. BGS)</i>	<i>Top Screen elevation (ft. AMSL)</i>	<i>Bottom Screen elevation (ft. AMSL)</i>
CRA-443M-S	720.82	6	11	714.82	709.82
CRA-444M-D	720.42	11.5	16.5	708.92	703.92
CRA-445M-D	721.11	9	14	712.11	707.11
CRA-446M-S	721.09	6	11	715.09	710.09
CRA-447M-D	720.82	13.5	18.5	707.32	702.32
CRA-448M-D	720.53	12.5	17.5	708.03	703.03
CRA-449M-S	721.04	10	15	711.04	706.04
CRA-450M-D	721.11	11.5	16.5	709.61	704.61
CRA-451M-S	720.86	5	10	715.86	710.86
CRA-452M-D	720.32	11.5	16.5	708.82	703.82

Notes:

R Recovery well
M Monitoring well
S Shallow well
D Deep well

TABLE 4.2
GROUNDWATER ELEVATIONS
APRIL 1 & 2, 2003
GMPT- WILLOW RUN
YPSILANTI, MICHIGAN

<i>Date</i>	<i>Monitoring Well Identification</i>	<i>Coordinates</i>		<i>Top of Inner Casing Elevation</i>	<i>Depth to Water (ft. below top of inner casing)</i>	<i>Groundwater Elevation (ft. AMSL)</i>
		<i>Northing</i>	<i>Easting</i>			
4/2/2003	CRA 45M	271501.59	13343314.41	720.77	7.9	712.87
4/2/2003	CRA 46M	271377.56	13343310.90	720.66	7.9	712.76
4/2/2003	CRA 47M	271580.23	13343387.72	720.30	7.33	712.97
4/2/2003	CRA 48M	271582.54	13343406.44	720.28	7.3	712.98
4/2/2003	CRA 49M	271584.44	13343443.41	720.35	7.28	713.07
4/2/2003	CRA 65M	270663.32	13342994.60	720.72	8.98	711.74
4/2/2003	CRA 68M	271447.16	13343375.81	720.48	7.64	712.84
4/2/2003	CRA 69M	271519.85	13343369.68	720.62	7.75	712.87
4/2/2003	CRA 70M	271458.93	13343696.86	719.35	6.77	712.58
4/2/2003	CRA 71M	271391.71	13343813.26	719.27	6.92	712.35
4/2/2003	CRA 230M	271677.31	13343264.80	720.80	6.68	714.12
4/2/2003	CRA 247M	270653.99	13343285.29	NM	8.96	NM
4/2/2003	CRA 255M	270828.09	13342941.72	NM	4.99	NM
4/2/2003	CRA 256M	270703.22	13343444.00	720.47	9.4	711.07
4/2/2003	CRA 257M	270881.54	13343476.95	NM	8.85	NM
4/2/2003	CRA 258M	270762.28	13343036.50	NM	8.89	NM
4/2/2003	CRA 259M	270810.21	13343377.76	NM	7.71	NM
4/2/2003	CRA 304M	271127.84	13343764.39	719.63	7.99	711.64
4/2/2003	CRA 305M	270891.50	13343643.77	719.93	8	711.93
4/2/2003	CRA 306M	270768.78	13343658.14	719.86	8.72	711.14
4/2/2003	CRA-401M-D	271986.48	13342943.89	720.57	8.78	711.79
4/2/2003	CRA-402M-S	272012.94	13343215.51	720.63	9.34	711.29
4/1/2003	CRA-403M-S	271861.81	13342933.53	720.81	7.79	713.02
4/1/2003	CRA-404M-S	271879.49	13343157.81	721.12	8.36	712.76
4/1/2003	CRA-405M-S	271895.28	13343354.78	721.11	8.2	712.91
4/1/2003	CRA-406M-D	271701.16	13342853.10	720.94	8.83	712.11
4/1/2003	CRA-406M-S	271701.03	13342853.17	720.87	7.29	713.58
4/1/2003	CRA-407M-D	271712.58	13343037.87	720.93	8.5	712.43
4/1/2003	CRA-408M-S	271667.36	13343269.49	720.88	8.27	712.61
4/1/2003	CRA-409M-S	271609.23	13342944.22	720.78	7.62	713.16
4/1/2003	CRA-410M-S	271627.71	13343163.35	720.87	8.12	712.75
4/1/2003	CRA-411M-S	271710.81	13343474.90	719.86	6.6	713.26
4/1/2003	CRA-412M-S	271600.25	13343569.03	720.09	7.08	713.01
4/2/2003	CRA-413M-D	271531.90	13342834.19	720.68	8.65	712.03
4/1/2003	CRA-414M-S	271504.07	13343037.29	720.91	7.82	713.09
4/1/2003	CRA-415M-S	271550.59	13343242.57	720.97	9.38	711.59
4/1/2003	CRA-416M-S	271503.27	13343465.04	720.05	7.24	712.81
4/2/2003	CRA-417M-S	271390.67	13342986.88	720.90	8.65	712.25
4/1/2003	CRA-418M-D	271416.56	13343175.85	720.95	7.95	713.00
4/1/2003	CRA-420M-S	271456.05	13343544.96	720.22	8.58	711.64
4/2/2003	CRA-421M-D	271321.01	13342840.82	720.71	9.32	711.39
4/1/2003	CRA-422M-S	271342.48	13343051.95	720.86	7.95	712.91
4/2/2003	CRA-423M-S	271338.32	13343250.19	720.83	8.28	712.55
4/1/2003	CRA-424M-S	271300.55	13343446.24	720.46	7.9	712.56
4/1/2003	CRA-425M-S	271210.33	13342969.62	720.60	8.91	711.69
4/1/2003	CRA-426M-S	271246.16	13343184.61	720.90	8.44	712.46

TABLE 4.2
GROUNDWATER ELEVATIONS
APRIL 1 & 2, 2003
GMPT- WILLOW RUN
YPSILANTI, MICHIGAN

<i>Date</i>	<i>Monitoring Well Identification</i>	<i>Coordinates</i>		<i>Top of Inner Casing Elevation</i>	<i>Depth to Water (ft. below top of inner casing)</i>	<i>Groundwater Elevation (ft. AMSL)</i>
		<i>Northing</i>	<i>Easting</i>			
4/1/2003	CRA-427M-S	271273.21	13343389.92	720.61	8.01	712.60
4/1/2003	CRA-428M-S	271201.74	13343540.95	720.34	8.03	712.31
4/1/2003	CRA-429M-D	271089.65	13342849.04	720.81	10.01	710.80
4/2/2003	CRA-430M-D	271076.30	13343069.08	720.92	8.9	712.02
4/1/2003	CRA-431M-S	271108.40	13343256.10	720.66	8.41	712.25
4/1/2003	CRA-432M-S	271113.98	13343440.27	720.43	8.75	711.68
4/1/2003	CRA-433M-D	271033.13	13343004.13	720.88	8.9	711.98
4/1/2003	CRA-434M-D	270981.86	13343192.19	720.80	8.55	712.25
4/1/2003	CRA-435M-S	270990.16	13343374.24	720.39	7.99	712.40
4/1/2003	CRA-436M-S	270980.02	13343583.70	720.14	8.4	711.74
4/1/2003	CRA-437M-D	270907.90	13342855.30	720.81	10.88	709.93
4/2/2003	CRA-438M-S	270911.04	13343125.35	721.01	8.5	712.51
4/1/2003	CRA-439M-S	270861.12	13343318.41	720.58	8.01	712.57
4/1/2003	CRA-440M-D	270862.89	13343477.79	720.28	8.73	711.55
4/1/2003	CRA-441M-D	270815.31	13342991.85	720.93	9.18	711.75
4/1/2003	CRA-442M-D	270798.81	13343143.41	720.53	8.35	712.18
4/1/2003	CRA-443M-D	270798.98	13343360.59	720.62	8.19	712.43
4/1/2003	CRA-443M-S	270798.92	13343360.64	720.26	8.55	711.71
4/1/2003	CRA-444M-D	270863.08	13343560.30	720.23	8.75	711.48
4/1/2003	CRA-445M-D	270672.35	13342921.26	721.00	10.21	710.79
4/1/2003	CRA-446M-S	270710.83	13343128.74	720.89	7.48	713.41
4/1/2003	CRA-447M-D	270729.47	13343257.48	720.59	8.88	711.71
4/1/2003	CRA-448M-D	270749.52	13343493.15	720.31	9.22	711.09
4/1/2003	CRA-449M-S	270605.46	13343032.94	720.84	9.9	710.94
4/1/2003	CRA-450M-D	270621.36	13343215.51	720.69	9	711.69
4/1/2003	CRA-451M-S	270620.78	13343319.32	720.73	8.43	712.30
4/2/2003	CRA-452M-D	270651.37	13343563.48	720.08	9.34	710.74

Notes:

NM	Not Measured
R	Recovery well
M	Monitoring well
S	Shallow well
D	Deep well

TABLE 4.3
SUMMARY OF LNAPL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

<i>Well ID</i>	<i>Date ⁽¹⁾</i>	<i>DTP ⁽²⁾</i> <i>(feet bgs)</i>	<i>DTW ⁽³⁾</i> <i>(feet bgs)</i>	<i>Thickness</i> <i>(feet)</i>
<u><i>Monitoring Wells</i></u>				
CRA-44M	4/2/2003	7.65	9.51	1.86
CRA-67M	4/2/2003	7.73	8.40	0.67
CRA-254M	4/2/2003	4.87	4.88	0.01
CRA-408M-S	4/1/2003	8.17	8.27	0.10
CRA-415M-S	4/1/2003	8.11	9.38	1.27
CRA-441M-D	4/1/2003	9.18	9.08	0.10
<u><i>Recovery Wells</i></u>				
CRA-19R	4/1/2003	Trace	10.14	Trace
CRA-20R	4/1/2003	11	11.07	0.07
CRA-20R	6/6/2003	10.86	10.89	0.03
CRA-22R	4/1/2003	9.86	10.02	0.16
CRA-22R	6/6/2003	10.75	11	0.25
CRA-240R	4/1/2003	10.16	10.35	0.19
CRA-240R	6/6/2003	10.97	11.12	0.15
CRA-243R	4/1/2003	6.71	7.03	0.32

Notes:

- (1) Date that LNAPL was observed in well
 (2) Depth to top of LNAPL layer
 (3) Depth to top of water
 bgs below ground surface
 R Recovery well
 M Monitoring well
 S Shallow well
 D Deep well

TABLE 4.4

**DECOMMISSIONED WELLS
GMPT- WILLOW RUN
YPSILANTI, MICHIGAN**

<i>Well Identification</i>	<i>Well Identification</i>	<i>Well Identification</i>
1. CRA-409M-S	42. CRA-46M	83. CRA-449M*
2. CRA-410M-S	43. CRA-47M	84. CRA-450M (6/23/04)
3. CRA-412M-S	44. CRA-48M	85. CRA-451M (6/23/04)
4. CRA-413M-D	45. CRA-49M	86. MW-9 (6/23/04)
5. CRA-414M-S	46. CRA-65M	
6. CRA-415M-S	47. CRA-66M	
7. CRA-416M-S	48. CRA-67M	
8. CRA-417M-S	49. CRA-68M	
9. CRA-418M-D	50. CRA-69M	
10. CRA-420M-S	51. CRA-70M	
11. CRA-421M-D	52. CRA-230M	
12. CRA-422M-S	53. CRA-231M	
13. CRA-423M-S	54. CRA-232M	
14. CRA-424M-S	55. CRA-233M	
15. CRA-425M-S	56. CRA-247M	
16. CRA-426M-S	57. CRA-254M	
17. CRA-427M-S	58. CRA-255M	
18. CRA-428M-S	59. CRA-256M	
19. CRA-429M-D	60. CRA-257M	
20. CRA-430M-D	61. CRA-258M	
21. CRA-431M-S	62. CRA-259M	
22. CRA-432M-S	63. CRA-319M	
23. CRA-433M-D	64. SW-1	
24. CRA-434M-D	65. SW-2	
25. CRA-435M-S	66. SW-3	
26. CRA-436M-S	67. SW-4	
27. CRA-437M-D	68. SW-5	
28. CRA-438M-S	69. SW-6	
29. CRA-439M-S	70. CRA-243R**	
30. CRA-440M-D	71. CRA-19R (8/29/03)	
31. CRA-441M-D	72. CRA-240R (8/28/03)	
32. CRA-443M-S	73. CRA-054M (3/29/04)	
33. CRA-443M-D	74. CRA-055M (3/29/04)	
34. CRA-444M-D	75. CRA-056M (3/29/04)	
35. CRA-445M-D	76. CRA-057M (3/29/04)	
36. CRA-446M-S	77. MW-2 (3/29/04)	
37. CRA-447M-D	78. CRA-23R (4/15/04)	
38. CRA-448M-D	79. CRA-24R (4/15/04)	
39. CRA-19M	80. CRA-20R (4/16/04)	
40. CRA-44M	81. CRA-22R (4/16/04)	
41. CRA-45M	82. R-1 (4/19/04)	

Notes:

TABLE 4.4

**DECOMMISSIONED WELLS
GMPT- WILLOW RUN
YPSILANTI, MICHIGAN**

Wells were decommissioned by pressure grouting and removing the upper 1 to 2 feet of the well casing.
Wells were decommissioned between April 9 and April 17, 2003 unless noted otherwise.

M	Monitoring well	*CRA-442M destroyed
R	Recovery well	*CRA-449M destroyed
S	Shallow well	**CRA-243R (abandoned by others in 2003)
D	Deep well	

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential: Soil											CRA-401M-D 030603-MM-506 (2-4) 3/6/2003	CRA-401M-D 030603-MM-507 (8-10) 3/6/2003	CRA-402M-S 030603-MM-504 (2-4) 3/6/2003	CRA-402M-S 030603-MM-505 (5-7) 3/6/2003	CRA-403M-S 031003-MM-508 (2-4) 3/10/2003	CRA-403M-S 031003-MM-509 (6-8) 3/10/2003	CRA-404M-S 030303-MM-494 (3-4) 3/3/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,900,000	460	460	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.011)	ND(0.011)	ND(0.012)	ND(0.0097)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.014)	ND(0.016)	ND(0.015)	ND(0.014)	ND(0.013)	ND(0.014)	ND(0.012)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.014)	ND(0.016)	ND(0.015)	ND(0.014)	ND(0.013)	ND(0.014)	ND(0.012)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.066)	ND(0.074)	ND(0.071)	ND(0.066)	ND(0.062)	ND(0.068)	ND(0.057)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.02)	ND(0.023)	ND(0.022)	ND(0.02)	ND(0.019)	ND(0.021)	ND(0.017)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.03)	ND(0.034)	ND(0.033)	ND(0.031)	ND(0.028)	ND(0.031)	ND(0.026)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.061)	ND(0.068)	ND(0.065)	ND(0.061)	ND(0.057)	ND(0.063)	ND(0.052)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.0087)	ND(0.0098)	ND(0.0094)	ND(0.0088)	ND(0.0082)	ND(0.009)	ND(0.0075)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0057)	ND(0.0064)	ND(0.0061)	ND(0.0057)	ND(0.0053)	ND(0.0059)	ND(0.0049)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.018)	ND(0.02)	ND(0.019)	ND(0.018)	ND(0.017)	ND(0.018)	ND(0.015)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.0098)	ND(0.011)	ND(0.011)	ND(0.0099)	ND(0.0093)	ND(0.01)	ND(0.0085)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0078)	ND(0.0088)	ND(0.0084)	ND(0.0079)	ND(0.0074)	ND(0.0081)	ND(0.0068)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0082)	ND(0.0092)	ND(0.0088)	ND(0.0083)	ND(0.0077)	ND(0.0085)	ND(0.0071)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.011)	ND(0.012)	ND(0.012)	ND(0.011)	ND(0.01)	ND(0.011)	ND(0.0093)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.03)	ND(0.034)	ND(0.033)	ND(0.031)	ND(0.028)	ND(0.031)	ND(0.026)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.011)	ND(0.013)	ND(0.012)	ND(0.011)	ND(0.011)	ND(0.012)	ND(0.0097)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.01)	ND(0.012)	ND(0.011)	ND(0.01)	ND(0.0097)	ND(0.011)	ND(0.009)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.02)	ND(0.023)	ND(0.022)	ND(0.02)	ND(0.3)U	ND(0.021)	ND(0.27)U
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.014)	ND(0.016)	ND(0.015)	ND(0.014)	ND(0.013)	ND(0.014)	ND(0.012)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0071)	ND(0.008)	ND(0.0076)	ND(0.0071)	ND(0.0066)	ND(0.0073)	ND(0.0061)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.013)	ND(0.014)	ND(0.014)	ND(0.013)	ND(0.012)	ND(0.013)	ND(0.011)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.011)	ND(0.012)	ND(0.012)	ND(0.011)	ND(0.01)	0.11	ND(0.0095)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.014)	ND(0.016)	ND(0.015)	ND(0.014)	ND(0.013)	ND(0.014)	ND(0.012)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.024)	ND(0.027)	ND(0.026)	ND(0.024)	ND(0.023)	ND(0.025)	ND(0.021)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.017)	ND(0.019)	ND(0.017)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.033)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.021)	ND(0.023)	ND(0.021)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.041)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.018)	ND(0.02)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.035)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.039)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.019)	ND(0.021)	ND(0.019)	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.037)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.016)	ND(0.017)	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.014)	0.15 J
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.019)	ND(0.021)	ND(0.019)	ND(0.018)	ND(0.018)	ND(0.018)	0.29 J
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.016)	ND(0.017)	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.014)	ND(0.031)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.026)	ND(0.028)	0.048 J	ND(0.025)	ND(0.025)	ND(0.024)	0.6 J
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.017)	ND(0.019)	0.044 J	0.017 J	ND(0.016)	ND(0.016)	0.51 J
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.022)	ND(0.025)	0.057 J	0.024 J	ND(0.022)	ND(0.021)	0.55 J
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.018)	ND(0.02)	0.023 J	ND(0.017)	ND(0.017)	ND(0.017)	0.23 J
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.018)	ND(0.02)	0.029 J	ND(0.017)	ND(0.017)	ND(0.017)	0.36 J
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.039)
bis(2-Ethylhexyl)phthal	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.015)	ND(0.016)	ND(0.014)	ND(0.014)	ND(0.014)	ND(0.013)	ND(0.028)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.021)	ND(0.023)	ND(0.021)	ND(0.02)	ND(0.02)	ND(0.02)	0.11 J
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.025)	ND(0.027)	0.056 J	0.024 J	ND(0.024)	ND(0.023)	0.64 J
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.019)	0.076 J
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.019)	ND(0.021)	ND(0.019)	ND(0.018)	ND(0.018)	ND(0.018)	0.058 J

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:																	
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
												CRA-401M-D 030603-MM-506 (2-4) 3/6/2003	CRA-401M-D 030603-MM-507 (8-10) 3/6/2003	CRA-402M-S 030603-MM-504 (2-4) 3/6/2003	CRA-402M-S 030603-MM-505 (5-7) 3/6/2003	CRA-403M-S 031003-MM-508 (2-4) 3/10/2003	CRA-403M-S 031003-MM-509 (6-8) 3/10/2003	CRA-404M-S 030303-MM-494 (3-4) 3/3/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	0.20 J	0.18 J	0.25	0.14 J	0.25	0.11 J	0.075 J
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.096	0.12	0.098	0.074	0.095	0.067	0.14
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	6.7	4.8	7.3	5.7	8.3	3.9	8.0
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	2.5	3.3	2.3	1.8	3.8	1.9	3.1
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	6.5	8.8	6.0	4.9	9.9	5.6	9.5
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.098)	ND(0.11)	ND(0.097)	ND(0.094)	ND(0.095)	ND(0.091)	ND(0.096)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	6,480	7,070	7,610	4,830	9,460	4,660	8,030
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	5.5	4.0	5.0	3.0	5.4	2.3	16.0
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	192	243	157	115	221	163	194 J
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	ND(0.11)U	ND(0.12)U	ND(0.11)U	ND(0.11)U	ND(0.11)U	ND(0.10)U	0.033 J
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	5.8	8.2	6.4	4.9	10.3	5.3	9.3
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	ND(0.058)	0.15 J	0.14 J	ND(0.056)	0.084 J	ND(0.054)	0.13 J
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.11)	ND(0.12)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.10)	ND(0.11)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.076 J	0.13	0.070 J	0.051 J	0.10 J	0.043 J	0.093 J
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	9.6	8.9	10.6	6.7	11.7	5.8	9.2
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	20.6	22.2	16.6	14.0	22.0	14.1	25.2 J
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.025)	ND(0.027)	ND(0.024)	ND(0.024)	ND(0.024)	ND(0.023)	0.1 J
Notes:																		
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																	
--	No Criteria available for this constituent																	
NA	Constituent not analyzed for this sample																	
ND	Constituent not detected above sample quantitation limit																	
NLV	Constituent is not likely to volatilize																	
ID	Inadequate data exists to develop criterion for constituent																	
R	Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable																	
J	The associated value is an estimated quantity																	
U	The material was analyzed for but was not detected																	
UJ	The material was analyzed for but was not detected. The associated value is an estimate																	
Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria																		
Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria																		
Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.																		

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:											CRA-404M-S 030303-MM-495 (6-8) 3/3/2003	CRA-405M-S 030303-MM-491 (2-4) 3/3/2003	CRA-405M-S 030303-MM-492 (2-4) 3/3/2003 (Dup.)	CRA-405M-S 030303-MM-493 (4-6) 3/3/2003	CRA-406M-S 022703-MM-477 (2-4) 2/27/2003	CRA-406M-D 022703-MM-478 (6-8) 2/27/2003	CRA-407M-D 030503-MM-496 (2-4) 3/5/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,900,000	460	460	ND(0.015)	ND(0.01)	ND(0.011)	ND(0.011)UJ	ND(0.011)	ND(0.011)	ND(0.0097)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.019)	ND(0.012)	ND(0.013)	ND(0.014)UJ	ND(0.014)	ND(0.014)	ND(0.012)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.019)	ND(0.012)	ND(0.013)	ND(0.014)UJ	ND(0.014)	ND(0.014)	ND(0.012)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.09)	ND(0.058)	ND(0.062)	ND(0.066)UJ	ND(0.066)	ND(0.066)	ND(0.057)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.028)	ND(0.018)	ND(0.019)	ND(0.02)UJ	ND(0.02)	ND(0.02)	ND(0.017)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.042)	ND(0.027)	ND(0.028)	ND(0.031)UJ	ND(0.031)	ND(0.031)	ND(0.026)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.083)	ND(0.054)	ND(0.057)	ND(0.061)UJ	ND(0.061)	ND(0.061)	ND(0.052)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.012)	ND(0.0078)	ND(0.0082)	ND(0.0088)UJ	ND(0.0088)	ND(0.0088)	ND(0.0075)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0078)	ND(0.0051)	ND(0.0053)	ND(0.0057)UJ	ND(0.0058)	ND(0.0057)	ND(0.0049)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.024)	ND(0.016)	ND(0.017)	ND(0.018)UJ	ND(0.018)	ND(0.018)	ND(0.015)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.014)	ND(0.0088)	ND(0.0092)	ND(0.0099)UJ	ND(0.01)	ND(0.01)	ND(0.0085)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	0.064 J	ND(0.007)	ND(0.0073)	ND(0.0079)UJ	ND(0.0079)	ND(0.0079)	ND(0.0068)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.011)	ND(0.0073)	ND(0.0077)	ND(0.0083)UJ	ND(0.0083)	ND(0.0083)	ND(0.0071)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.015)	ND(0.0096)	ND(0.01)	ND(0.011)UJ	ND(0.011)	ND(0.011)	ND(0.0093)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.042)	ND(0.027)	ND(0.028)	0.33 J	ND(0.031)	ND(0.031)	ND(0.026)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.015)	ND(0.01)	ND(0.011)	ND(0.011)UJ	ND(0.011)	ND(0.011)	ND(0.0097)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.014)	ND(0.0092)	ND(0.0097)	ND(0.01)UJ	ND(0.01)	ND(0.01)	ND(0.0089)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.43)U	ND(0.28)U	ND(0.3)U	ND(0.32)UJ	ND(0.02)	ND(0.02)	ND(0.017)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.019)	ND(0.012)	ND(0.013)	ND(0.014)UJ	ND(0.014)	ND(0.014)	ND(0.012)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0097)	ND(0.0063)	ND(0.0066)	ND(0.0071)UJ	ND(0.0072)	ND(0.0071)	ND(0.0061)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.017)	ND(0.011)	ND(0.012)	ND(0.013)UJ	ND(0.013)	ND(0.013)	ND(0.011)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.015)	ND(0.0098)	ND(0.01)	ND(0.011)UJ	ND(0.011)	ND(0.011)	ND(0.0095)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.019)	ND(0.012)	ND(0.013)	ND(0.014)UJ	ND(0.014)	ND(0.014)	ND(0.012)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.033)	ND(0.021)	ND(0.023)	ND(0.024)UJ	ND(0.024)	ND(0.024)	ND(0.021)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.015)	ND(0.016)	ND(0.016)	ND(0.017)	ND(0.016)	ND(0.016)	ND(0.016)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.02)	ND(0.021)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.017)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.018)	ND(0.019)	ND(0.019)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.02)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.019)	ND(0.018)	ND(0.018)	ND(0.019)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.014)	ND(0.015)	ND(0.015)	ND(0.016)	ND(0.015)	ND(0.015)	ND(0.015)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.019)	ND(0.018)	ND(0.018)	ND(0.019)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.014)	ND(0.015)	ND(0.015)	ND(0.016)	ND(0.015)	ND(0.015)	ND(0.015)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.024)	ND(0.025)	ND(0.025)	ND(0.026)	ND(0.025)	ND(0.024)	ND(0.025)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.015)	ND(0.016)	ND(0.016)	ND(0.017)	ND(0.016)	ND(0.016)	ND(0.016)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.021)	ND(0.021)	ND(0.022)	ND(0.023)	ND(0.021)	ND(0.021)	ND(0.022)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.017)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.017)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.018)	ND(0.019)	ND(0.019)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.02)
bis(2-Ethylhexyl)phthali	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.013)	ND(0.014)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.014)	ND(0.014)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.02)	ND(0.021)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.023)	ND(0.024)	ND(0.024)	ND(0.025)	ND(0.023)	ND(0.023)	ND(0.024)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.018)	ND(0.019)	ND(0.019)	ND(0.02)	ND(0.01		

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact	CRA-404M-S 030303-MM-495 (6-8) 3/3/2003	CRA-405M-S 030303-MM-491 (2-4) 3/3/2003	CRA-405M-S 030303-MM-492 (2-4) 3/3/2003 (Dup.)	CRA-405M-S 030303-MM-493 (4-6) 3/3/2003	CRA-406M-S 022703-MM-477 (2-4) 2/27/2003	CRA-406M-D 022703-MM-478 (6-8) 2/27/2003	CRA-407M-D 030503-MM-496 (2-4) 3/5/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	ND(0.070)	0.13 J	ND(0.073)	0.22 J	ND(0.072)	ND(0.072)	0.28
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.098	0.14	0.098	0.13	0.053	0.053	0.12
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	4.0	6.9	11.1	12.1	7.5	3.7	9.1
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	2.5	4.9	3.4	4.0	3.1	1.9	4.7
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	9.8	11.8	8.2	8.9	7.6	6.3	10.2
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.090)	ND(0.094)	ND(0.095)	ND(0.10)	ND(0.094)	ND(0.094)	ND(0.096)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	5,320	9,840	8,520	12,400	7,470	4,200	11,100
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	3.6	7.1	4.9	7.1	4.1	2.7	6.4
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	164 J	705 J	248 J	150 J	157 J	125 J	261
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	0.027 J	0.031 J	0.029 J	0.047 J	0.031 J	0.020 J	ND(0.11)U
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	7.3	10.0	9.6	9.5	7.5	5.7	10.2
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.47	0.16 J	0.11 J	0.23	0.060 J	0.058 J	0.14 J
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.10)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.11)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.090 J	0.096 J	0.081 J	0.057 J	0.046 J	0.038 J	0.084 J
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	6.3	11.2	13.5	18.8	10.7	5.5	13.8
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	14.2 J	19.3 J	16.2 J	26.0 J	16.2	10.0	18.6
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.023)	ND(0.024)	ND(0.024)	ND(0.025)	ND(0.023)	ND(0.023)	ND(0.024)
Notes:																		
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																	
--	No Criteria available for this constituent																	
NA	Constituent not analyzed for this sample																	
ND	Constituent not detected above sample quantitation limit																	
NLV	Constituent is not likely to volatilize																	
ID	Inadequate data exists to develop criterion for constituent																	
R	Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable																	
J	The associated value is an estimated quantity																	
U	The material was analyzed for but was not detected																	
UJ	The material was analyzed for but was not detected. The associated value is an estimate																	
	Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria																	
	Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria																	
	Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.																	

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:											CRA-407M-D 030503-MM-497 (4-6) 3/5/2003	CRA-408M-S 022703-MM-479 (2-4) 2/27/2003	CRA-408M-S 022703-MM-480 (7-9) 2/27/2003	CRA-409M-S 020403-MM-403 (1-3) 2/4/2003	CRA-409M-S 020403-MM-404 (6-8) 2/4/2003	CRA-410M-S 020503-MM-405 (2-4) 2/5/2003	CRA-410M-S 020503-MM-406 (2-4) 2/5/2003 (Dup.)
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,900,000	460	460	ND(0.01)	ND(0.011)	ND(0.028)	ND(0.012)	ND(0.012)	ND(0.013)	ND(0.012)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.013)	ND(0.014)	ND(0.035)	ND(0.015)	ND(0.015)	ND(0.016)	ND(0.015)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.013)	ND(0.014)	ND(0.035)	ND(0.015)	ND(0.015)	ND(0.016)	ND(0.015)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.06)	0.067 J	ND(0.17)	ND(0.071)	ND(0.071)	ND(1.1)U	ND(1)U
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.018)	ND(0.02)	ND(0.051)	ND(0.022)	ND(0.022)	ND(0.023)	ND(0.021)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.028)	0.16 J	ND(0.076)	ND(0.033)	ND(0.033)	ND(0.034)	ND(0.032)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.055)	1.7	ND(0.15)	ND(1)U	ND(1)U	ND(0.068)	ND(0.064)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.008)	2.4	15	ND(0.0094)	ND(0.0094)	ND(0.0098)	ND(0.0092)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0052)	ND(0.0057)	ND(0.014)	ND(0.0061)	ND(0.0061)	ND(0.0064)	ND(0.006)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.016)	ND(0.018)	ND(0.045)	ND(0.019)	ND(0.019)	ND(0.02)	ND(0.019)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.009)	ND(0.0099)	ND(0.025)	ND(0.011)	ND(0.011)	ND(0.011)	ND(0.01)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0072)	0.2 J	21	ND(0.0085)	ND(0.0085)	ND(0.0088)	ND(0.0083)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0075)	0.14	20	ND(0.068)U	ND(0.068)U	ND(0.0092)	ND(0.0087)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.0098)	ND(0.011)	1.9	ND(0.012)	ND(0.012)	ND(0.012)	ND(0.011)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.028)	0.26 J	ND(0.076)	ND(0.033)	ND(0.033)	ND(0.034)	ND(0.032)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.01)	0.038 J	15	ND(0.012)	ND(0.012)	ND(0.013)	ND(0.012)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.0095)	ND(0.01)	ND(0.026)	ND(0.011)	ND(0.011)	ND(0.012)	ND(0.011)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.018)	ND(0.02)	ND(0.051)	ND(0.022)	ND(0.022)	ND(0.023)	ND(0.021)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.013)	ND(0.014)	ND(0.035)	ND(0.015)	ND(0.015)	ND(0.016)	ND(0.015)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0065)	0.23	0.73	ND(0.0076)	ND(0.0076)	ND(0.0079)	ND(0.0075)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.012)	ND(0.013)	ND(0.032)	ND(0.014)	ND(0.014)	ND(0.014)	ND(0.013)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.01)	0.038 J	ND(0.028)	ND(0.012)	0.015 J	ND(0.012)	ND(0.012)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.013)	ND(0.014)	ND(0.035)	ND(0.015)	ND(0.015)	ND(0.016)	ND(0.015)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.022)	0.21	36	ND(0.026)	ND(0.026)	ND(0.027)	ND(0.025)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.016)	ND(0.33)	ND(0.31)	ND(0.016)	ND(0.015)	ND(0.016)	ND(0.016)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.021)	ND(0.42)	ND(0.39)	ND(0.021)	ND(0.02)	ND(0.02)	ND(0.02)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.018)	ND(0.35)	ND(0.33)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.017)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.02)	ND(0.4)	ND(0.37)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.019)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.019)	ND(0.37)	0.85 J	ND(0.019)	ND(0.018)	ND(0.018)	ND(0.018)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.015)	ND(0.31)	ND(0.29)	0.083 J	ND(0.014)	ND(0.015)	ND(0.015)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.019)	ND(0.37)	ND(0.35)	0.086 J	ND(0.018)	ND(0.018)	ND(0.018)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.015)	ND(0.31)	ND(0.29)	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.015)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.025)	ND(0.51)	ND(0.47)	0.12 J	ND(0.024)	ND(0.024)	ND(0.025)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.016)	ND(0.33)	ND(0.31)	0.045 J	ND(0.015)	ND(0.016)	ND(0.016)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.022)	ND(0.44)	ND(0.41)	0.062 J	ND(0.021)	ND(0.021)	ND(0.021)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.018)	ND(0.35)	ND(0.33)	0.032 J	ND(0.017)	ND(0.017)	ND(0.017)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.018)	ND(0.35)	ND(0.33)	0.081 J	ND(0.017)	ND(0.017)	ND(0.017)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.02)	ND(0.4)	ND(0.37)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.019)
bis(2-Ethylhexyl)phthali	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.014)	0.59 J	ND(0.27)	0.18 J	0.075 J	ND(0.014)	ND(0.014)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.021)	ND(0.42)	ND(0.39)	0.077 J	ND(0.02)	ND(0.02)	ND(0.02)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.024)	ND(0.48)	ND(0.45)	0.052 J	ND(0.023)	ND(0.023)	ND(0.024)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.02)	ND(0.4)	ND(0.37)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.019)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.019)	ND(0.37)	ND(0.35)	0.076 J	ND(0.018)	ND(0.018)	ND(0.018)
Diethyl phthalate	--	2.2	740	110	ID	NLV	NLV	3,300,000	1,500,000	740	740	ND(0.021)	ND(0.42)	ND(0.39)	ND(0.021)	ND(0.02)	ND(0.02)	ND(0.02)
Fluoranthene	--	5.5	730	730														

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:																	
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
												CRA-407M-D 030503-MM-497 (4-6) 3/5/2003	CRA-408M-S 022703-MM-479 (2-4) 2/27/2003	CRA-408M-S 022703-MM-480 (7-9) 2/27/2003	CRA-409M-S 020403-MM-403 (1-3) 2/4/2003	CRA-409M-S 020403-MM-404 (6-8) 2/4/2003	CRA-410M-S 020503-MM-405 (2-4) 2/5/2003	CRA-410M-S 020503-MM-406 (2-4) 2/5/2003 (Dup.)
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	0.26	0.11 J	ND(0.070)	0.22	ND(0.070)	0.11 J	0.093 J
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.11	0.078	0.084	0.18	0.062	0.073	0.081
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	8.9	9.5	3.4	6.9	6.4	6.0 J	6.0
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	4.7	3.5	2.3	7.5	3.0	2.8	2.5
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	8.3	7.5	6.5	7.7	8.9	6.7 J	5.8
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.097)	ND(0.097)	ND(0.091)	ND(0.097)	ND(0.091)	ND(0.094)	ND(0.094)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	10,800	8,100	3,920	10,800	7,310	6,740	7,410
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	5.5	5.7	1.9	69.0 J	4.0 J	4.7	5.2
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	257	135 J	158 J	770	184	211	196
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	ND(0.11)U	0.034 J	0.017 J	ND(0.018)	ND(0.017)	ND(0.017)UJ	ND(0.017)UJ
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	10.4	9.0	6.3	8.0	8.1	5.9	5.6
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.13 J	ND(0.057)	0.24	0.073 J	0.087 J	ND(0.21)U	ND(0.22)U
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.11)	ND(0.11)	ND(0.10)	ND(0.11)	ND(0.10)	ND(0.11)	ND(0.11)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.082 J	0.055 J	0.047 J	0.073 J	0.065 J	0.047 J	0.050 J
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	17.2	12.7	5.2	15.7	8.6	9.1	10.2
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	20.2	20.9	19.3	22.7 J	13.0 J	13.9 J	13.8 J
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.024)	ND(0.024)	ND(0.023)	ND(0.024)	ND(0.023)	ND(0.023)	ND(0.024)
Notes:																		
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																	
--	No Criteria available for this constituent																	
NA	Constituent not analyzed for this sample																	
ND	Constituent not detected above sample quantitation limit																	
NLV	Constituent is not likely to volatilize																	
ID	Inadequate data exists to develop criterion for constituent																	
R	Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable																	
J	The associated value is an estimated quantity																	
U	The material was analyzed for but was not detected																	
UJ	The material was analyzed for but was not detected. The associated value is an estimate																	
	Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria																	
	Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria																	
	Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.																	

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:											CRA-410M-S 020503-MM-407 (6-8) 2/5/2003	CRA-411M-S 022803-MM-489 (1-3) 2/28/2003	CRA-411M-S 022803-MM-490 (5-7) 2/28/2003	CRA-412M-S 030503-MM-500 (2-4) 3/5/2003	CRA-412M-S 030503-MM-501 (5-7) 3/5/2003	CRA-413M-D 022603-MM-468 (2-4) 2/26/2003	CRA-413M-D 022603-MM-469 (8-10) 2/26/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.013)	ND(0.012)	ND(0.013)	ND(0.01)	ND(0.012)	ND(0.013)	ND(0.011)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.016)	ND(0.015)	ND(0.017)	ND(0.013)	ND(0.015)	ND(0.016)	ND(0.013)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.016)	ND(0.015)	ND(0.017)	ND(0.013)	ND(0.015)	ND(0.016)	ND(0.013)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.076)	ND(0.069)	ND(0.078)	ND(0.061)	ND(0.069)	ND(0.077)	ND(0.063)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.019)	ND(0.021)	ND(0.024)	ND(0.019)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.035)	ND(0.032)	ND(0.036)	ND(0.028)	ND(0.032)	ND(0.036)	ND(0.029)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.071)	ND(0.064)	ND(0.072)	0.078 J	ND(0.064)	ND(0.071)	ND(0.058)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.01)	ND(0.0091)	ND(0.01)	ND(0.0081)	ND(0.0092)	ND(0.01)	ND(0.0083)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0066)	ND(0.006)	ND(0.0068)	ND(0.0053)	ND(0.006)	ND(0.0067)	ND(0.0054)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.021)	ND(0.019)	ND(0.021)	ND(0.016)	ND(0.019)	ND(0.021)	ND(0.017)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.011)	ND(0.01)	ND(0.012)	ND(0.0091)	ND(0.01)	ND(0.012)	ND(0.0094)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0091)	ND(0.0082)	ND(0.0093)	ND(0.0073)	ND(0.0082)	ND(0.0092)	ND(0.0075)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0096)	ND(0.0086)	ND(0.0098)	ND(0.0076)	ND(0.0086)	ND(0.0097)	ND(0.0079)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.012)	ND(0.011)	ND(0.013)	ND(0.0099)	ND(0.011)	ND(0.013)	ND(0.01)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.035)	ND(0.032)	ND(0.036)	0.06 J	ND(0.032)	ND(0.036)	ND(0.029)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.013)	ND(0.012)	ND(0.013)	ND(0.01)	ND(0.012)	ND(0.013)	ND(0.011)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.012)	ND(0.011)	ND(0.012)	ND(0.0096)	ND(0.011)	ND(0.012)	ND(0.0099)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.019)	ND(0.021)	ND(0.024)	ND(0.019)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.016)	ND(0.015)	ND(0.017)	ND(0.013)	ND(0.015)	ND(0.016)	ND(0.013)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0082)	ND(0.0074)	ND(0.0084)	ND(0.0066)	ND(0.0074)	ND(0.0083)	ND(0.0068)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.015)	ND(0.013)	ND(0.015)	ND(0.012)	ND(0.013)	ND(0.015)	ND(0.012)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.013)	ND(0.012)	ND(0.013)	ND(0.01)	ND(0.012)	ND(0.013)	0.014 J
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.016)	ND(0.015)	ND(0.017)	ND(0.013)	ND(0.015)	ND(0.016)	ND(0.013)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.028)	ND(0.025)	ND(0.029)	ND(0.022)	ND(0.025)	ND(0.028)	ND(0.023)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.016)	ND(0.018)	ND(0.019)	ND(0.017)	ND(0.016)	ND(0.016)	ND(0.018)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.021)	ND(0.022)	ND(0.024)	ND(0.021)	ND(0.02)	ND(0.02)	ND(0.023)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.017)	ND(0.019)	ND(0.02)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.019)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.019)	ND(0.021)	ND(0.023)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.022)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.018)	ND(0.02)	ND(0.022)	ND(0.019)	ND(0.018)	ND(0.018)	ND(0.02)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	0.015 J	ND(0.017)	ND(0.018)	ND(0.016)	ND(0.015)	ND(0.015)	ND(0.017)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	0.045 J	ND(0.02)	ND(0.022)	ND(0.019)	ND(0.018)	ND(0.018)	ND(0.02)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.015)	ND(0.017)	0.15 J	ND(0.016)	ND(0.015)	ND(0.015)	ND(0.017)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	0.11 J	ND(0.027)	ND(0.029)	ND(0.026)	ND(0.024)	ND(0.025)	ND(0.028)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	0.098 J	ND(0.018)	ND(0.019)	ND(0.017)	ND(0.016)	ND(0.016)	ND(0.018)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	0.11 J	ND(0.024)	ND(0.026)	ND(0.023)	ND(0.021)	ND(0.021)	ND(0.024)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	0.061 J	ND(0.019)	ND(0.02)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.019)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	0.069 J	ND(0.019)	ND(0.02)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.019)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.019)	ND(0.021)	ND(0.023)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.022)
bis(2-Ethylhexyl)phthali	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	0.015 J	ND(0.015)	0.023 J	ND(0.015)	ND(0.014)	ND(0.014)	ND(0.016)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.021)	ND(0.022)	ND(0.024)	ND(0.021)	ND(0.02)	ND(0.02)	ND(0.023)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	0.12 J	ND(0.026)	ND(0.028)	ND(0.025)	ND(0.023)	ND(0.024)	ND(0.026)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.019)	ND(0.021)	ND(0.023)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.022)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.018)	ND(0.02)	ND(0.022)	ND(0.019)	ND(0.018)	ND(0.018)	ND(0.02)
Diethyl phthalate	--																	

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:																	
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
													CRA-410M-S 020503-MM-407 (6-8) 2/5/2003	CRA-411M-S 022803-MM-489 (1-3) 2/28/2003	CRA-411M-S 022803-MM-490 (5-7) 2/28/2003	CRA-412M-S 030503-MM-500 (2-4) 3/5/2003	CRA-412M-S 030503-MM-501 (5-7) 3/5/2003	CRA-413M-D 022603-MM-468 (2-4) 2/26/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	ND(0.074)	0.086 J	ND(0.087)	0.29	0.17 J	ND(0.073)	0.28
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.072	0.13	0.067	0.23	0.062	0.063	0.21
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	7.8	9.2	10.5	10.1	7.9	6.4	14.7
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	4.3	4.0	2.9	3.5	3.4	2.8	8.1
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	6.7	8.9	6.3	8.4	9.8	8.1	20.3
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.095)	ND(0.10)	ND(0.11)	ND(0.099)	ND(0.094)	ND(0.094)	ND(0.11)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	7,690	10,100	8,010	11,900	9,720	7,230	16,800
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	3.9	8.4	4.8	6.7	3.5	8.0	9.2
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	237	156 J	129 J	450	265	153 J	379 J
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	ND(0.017)UJ	0.041 J	0.031 J	ND(0.11)U	ND(0.017)	0.030 J	0.028 J
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	9.3	11.6	8.2	8.7	9.0	7.8	23.2
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	ND(0.22)U	0.20 J	0.14 J	0.27	0.18 J	ND(0.056)	0.26
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.11)	ND(0.12)	ND(0.13)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.12)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.064 J	0.093 J	0.053 J	0.069 J	0.081 J	0.073 J	0.31
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	9.2	13.9	13.1	14.6	12.7	10.6	19.7
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	15.7 J	19.6 J	18.2 J	26.0	15.6	13.9	38.6
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.024)	ND(0.026)	ND(0.028)	ND(0.025)	ND(0.023)	ND(0.024)	ND(0.026)
Notes:																		
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																	
--	No Criteria available for this constituent																	
NA	Constituent not analyzed for this sample																	
ND	Constituent not detected above sample quantitation limit																	
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	Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria																	
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	Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.																	

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:											CRA-414M-S 020303-MM-401 (1-3) 2/3/2003	CRA-414M-S 020303-MM-402 (7-9) 2/3/2003	CRA-415M-S 020503-MM-408 (2-4) 2/5/2003	CRA-415M-S 020503-MM-409 (6-8) 2/5/2003	CRA-416M-S 030503-MM-502 (2-4) 3/5/2003	CRA-416M-S 030503-MM-503 (4-6) 3/5/2003	CRA-417M-S 022603-MM-473 (2-4) 2/26/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.012)	ND(0.011)	ND(0.012)	ND(0.012)	ND(0.01)	ND(0.012)	ND(0.011)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.015)	ND(0.013)	ND(0.015)	ND(0.014)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.015)	ND(0.013)	ND(0.015)	ND(0.014)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.072)	ND(0.067)	ND(1.1)U	ND(0.07)	ND(0.06)	ND(0.069)	ND(0.065)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.022)	ND(0.021)	ND(0.022)	ND(0.021)	ND(0.019)	ND(0.021)	ND(0.02)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.033)	ND(0.031)	ND(0.034)	ND(0.032)	ND(0.028)	ND(0.032)	ND(0.03)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.066)	ND(0.062)	ND(0.067)	ND(0.064)	ND(0.056)	ND(0.064)	ND(0.06)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.0095)	ND(0.0088)	ND(0.0097)	ND(0.0092)	ND(0.008)	ND(0.0091)	ND(0.0087)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0062)	ND(0.0058)	ND(0.0063)	ND(0.006)	ND(0.0052)	ND(0.006)	ND(0.0057)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.019)	ND(0.018)	ND(0.02)	ND(0.019)	ND(0.016)	ND(0.019)	ND(0.018)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.011)	ND(0.01)	ND(0.011)	ND(0.01)	ND(0.0091)	ND(0.01)	0.91
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0085)	ND(0.0079)	ND(0.0087)	ND(0.0083)	ND(0.0072)	ND(0.0082)	ND(0.0078)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.009)	ND(0.0083)	ND(0.0091)	ND(0.0087)	ND(0.0076)	ND(0.0086)	ND(0.0082)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.012)	ND(0.011)	ND(0.012)	ND(0.011)	ND(0.0099)	ND(0.011)	ND(0.011)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.033)	ND(0.031)	ND(0.034)	ND(0.032)	ND(0.028)	ND(0.032)	ND(0.03)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.012)	ND(0.011)	ND(0.012)	ND(0.012)	ND(0.01)	0.016 J	ND(0.011)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.011)	ND(0.011)	ND(0.012)	ND(0.011)	ND(0.0095)	ND(0.011)	ND(0.01)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.022)	ND(0.021)	ND(0.022)	ND(0.021)	ND(0.019)	ND(0.021)	ND(0.02)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.015)	ND(0.013)	ND(0.015)	ND(0.014)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0077)	ND(0.0072)	ND(0.0079)	ND(0.0075)	ND(0.0065)	ND(0.0074)	ND(0.007)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.014)	ND(0.013)	ND(0.014)	ND(0.013)	ND(0.012)	ND(0.013)	ND(0.013)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.012)	ND(0.011)	ND(0.012)	0.026 J	ND(0.01)	ND(0.012)	1.7
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.015)	ND(0.013)	ND(0.015)	ND(0.014)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.026)	ND(0.024)	ND(0.027)	ND(0.025)	ND(0.022)	ND(0.025)	ND(0.024)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.017)	ND(0.017)	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.016)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.022)	ND(0.021)	ND(0.02)	ND(0.021)	ND(0.021)	ND(0.021)	ND(0.02)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.018)	ND(0.018)	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.017)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.02)	ND(0.02)	ND(0.019)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.019)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.019)	ND(0.019)	ND(0.018)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.018)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.016)	ND(0.016)	ND(0.015)	ND(0.016)	0.018 J	ND(0.016)	ND(0.015)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.019)	ND(0.019)	ND(0.018)	ND(0.019)	0.032 J	ND(0.019)	ND(0.018)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.016)	ND(0.016)	ND(0.015)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.015)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.026)	ND(0.026)	ND(0.025)	ND(0.026)	0.18 J	0.032 J	ND(0.025)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.017)	ND(0.017)	ND(0.016)	ND(0.017)	0.21 J	0.035 J	ND(0.016)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.023)	ND(0.022)	ND(0.021)	ND(0.022)	0.25 J	0.052 J	ND(0.021)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.018)	ND(0.018)	ND(0.017)	ND(0.018)	0.14 J	0.036 J	ND(0.017)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.018)	ND(0.018)	ND(0.017)	ND(0.018)	0.11 J	0.026 J	ND(0.017)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.02)	ND(0.02)	ND(0.019)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.019)
bis(2-Ethylhexyl)phthal	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.015)	ND(0.014)	0.034 J	0.016 J	ND(0.015)	ND(0.014)	ND(0.014)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.022)	ND(0.021)	ND(0.02)	ND(0.021)	ND(0.021)	ND(0.021)	ND(0.02)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.025)	0.21 J	0.041 J	ND(0.024)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.02)	ND(0.02)	ND(0.019)	ND(0.02)	0.031 J	ND(0.02)	ND(0.019)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.019)	ND(0.019)	ND(0.018)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.018)
Diethyl phthalate</																		

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GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																			
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact								
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Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	0.12 J	ND(0.076)	0.11 J	0.10 J	0.37	0.29	0.12 J	
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.11	0.047 J	0.10	0.054 J	0.18	0.25	0.086	
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	10.5	4.3	8.6	8.4	14.0	10.6	11.0	
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	7.8	1.7	3.7	3.6	4.1	2.9	4.5	
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	9.6	4.0	8.8	12.7	11.1	10.6	13.4	
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.10)	ND(0.098)	ND(0.094)	ND(0.098)	ND(0.099)	ND(0.098)	ND(0.095)	
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	9,330	4,630	8,930	9,030	12,600	9,220	11,700	
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	6.2 J	2.1 J	5.4	5.3	10.5	8.6 J	6.3	
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	181	130	165	152	316	697	245 J	
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	0.039 J	ND(0.018)	0.022 J	ND(0.018)UJ	ND(0.11)U	ND(0.018)	0.028 J	
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	9.1	4.2	8.8	8.7	11.6	8.0 J	12.5	
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.13 J	0.081 J	ND(0.056)	ND(0.058)	0.19 J	0.13 J	ND(0.056)	
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.11)	
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.12	0.032 J	0.073 J	0.040 J	0.10 J	0.11	0.083 J	
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	14.1	6.0	14.6	14.9	16.0	14.1	13.0	
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	27.5 J	11.4 J	18.2 J	19.4 J	25.9	20.7	18.1	
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.024)	
Notes:																			
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																		
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GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential: Soil											CRA-417M-S 022603-MM-474 (6-8) 2/26/2003	CRA-418M-D 022603-MM-475 (2-4) 2/26/2003	CRA-418M-D 022603-MM-476 (8-10) 2/26/2003	CRA-419M-S 020703-MM-420 (2-4) 2/7/2003	CRA-419M-S 020703-MM-421 (4-6) 2/7/2003	CRA-420M-S 030503-MM-498 (2-4) 3/5/2003	CRA-420M-S 030503-MM-499 (6-8) 3/5/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.014)	ND(0.0099)	ND(0.012)	ND(0.01)	ND(0.012)	ND(0.011)	ND(0.012)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.017)	ND(0.012)	ND(0.015)	ND(0.013)	ND(0.015)	ND(0.014)	ND(0.014)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.017)	ND(0.012)	ND(0.015)	ND(0.013)	ND(0.015)	ND(0.014)	ND(0.014)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.081)	ND(0.058)	ND(0.072)	ND(0.88)U	ND(0.99)U	ND(0.065)	ND(0.068)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.025)	ND(0.018)	ND(0.022)	ND(0.019)	ND(0.021)	ND(0.02)	ND(0.021)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.037)	ND(0.027)	ND(0.033)	ND(0.028)	ND(0.032)	ND(0.03)	ND(0.031)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.075)	ND(0.053)	ND(0.067)	ND(0.057)	ND(0.064)	ND(0.06)	ND(0.063)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.011)	ND(0.0077)	ND(0.0096)	ND(0.0081)	ND(0.0091)	ND(0.0086)	ND(0.009)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.007)	ND(0.005)	ND(0.0062)	ND(0.0053)	ND(0.006)	ND(0.0056)	ND(0.0059)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.022)	ND(0.016)	ND(0.019)	ND(0.017)	ND(0.019)	ND(0.017)	ND(0.018)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	0.78	ND(0.0087)	ND(0.011)	ND(0.0092)	ND(0.01)	ND(0.0097)	ND(0.01)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0096)	ND(0.0069)	ND(0.0086)	ND(0.0073)	ND(0.0082)	ND(0.0077)	ND(0.0081)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.01)	ND(0.0072)	ND(0.009)	ND(0.0077)	ND(0.0086)	ND(0.0081)	ND(0.0085)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.013)	ND(0.0095)	ND(0.012)	ND(0.01)	ND(0.011)	ND(0.011)	ND(0.011)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.037)	0.03 J	ND(0.033)	ND(0.028)	ND(0.032)	0.056 J	ND(0.031)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.014)	ND(0.0099)	ND(0.012)	ND(0.01)	ND(0.012)	ND(0.011)	ND(0.012)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.013)	ND(0.0091)	ND(0.011)	ND(0.0097)	ND(0.011)	ND(0.01)	ND(0.011)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.025)	ND(0.018)	ND(0.022)	ND(0.019)	ND(0.021)	ND(0.02)	ND(0.021)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.017)	ND(0.012)	ND(0.015)	ND(0.013)	ND(0.015)	ND(0.014)	ND(0.014)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0087)	ND(0.0062)	ND(0.0078)	ND(0.0066)	ND(0.0074)	ND(0.007)	ND(0.0073)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.016)	ND(0.011)	ND(0.014)	ND(0.012)	ND(0.013)	ND(0.012)	ND(0.013)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	1.8	ND(0.0097)	ND(0.012)	ND(0.01)	ND(0.012)	ND(0.011)	ND(0.011)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.017)	ND(0.012)	ND(0.015)	ND(0.013)	ND(0.015)	ND(0.014)	ND(0.014)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.03)	ND(0.021)	ND(0.026)	ND(0.022)	ND(0.025)	ND(0.024)	ND(0.025)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.017)	ND(0.016)	ND(0.016)	ND(0.016)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.02)	ND(0.021)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.017)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.021)	ND(0.019)	ND(0.019)	ND(0.02)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.02)	ND(0.018)	ND(0.018)	ND(0.019)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.016)	ND(0.015)	ND(0.015)	ND(0.015)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.02)	ND(0.018)	ND(0.018)	ND(0.019)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.016)	ND(0.015)	ND(0.015)	ND(0.015)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.025)	ND(0.024)	ND(0.025)	ND(0.027)	ND(0.025)	ND(0.025)	ND(0.025)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.017)	ND(0.016)	ND(0.016)	ND(0.016)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.021)	ND(0.021)	ND(0.021)	ND(0.023)	ND(0.022)	ND(0.021)	ND(0.022)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.017)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.017)	ND(0.017)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.021)	ND(0.019)	ND(0.019)	ND(0.02)
bis(2-Ethylhexyl)phthal	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.014)	ND(0.014)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.014)	ND(0.014)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.02)	ND(0.021)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.024)	ND(0.023)	ND(0.023)	ND(0.025)	ND(0.024)	ND(0.024)	ND(0.024)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.021)	ND(0.019)	ND(0.019)	ND(0.02)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.02)	ND(0.018)	ND(0.018)	

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact	CRA-417M-S 022603-MM-474 (6-8) 2/26/2003	CRA-418M-D 022603-MM-475 (2-4) 2/26/2003	CRA-418M-D 022603-MM-476 (8-10) 2/26/2003	CRA-419M-S 020703-MM-420 (2-4) 2/7/2003	CRA-419M-S 020703-MM-421 (4-6) 2/7/2003	CRA-420M-S 030503-MM-498 (2-4) 3/5/2003	CRA-420M-S 030503-MM-499 (6-8) 3/5/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	ND(0.073)	ND(0.071)	ND(0.072)	0.11 J	0.10 J	0.25	ND(0.074)
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.051 J	0.097	0.096	0.17	0.069	0.14	0.061
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	3.5	7.2	6.1	8.1	9.3	12.5	4.0
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	2.1	3.3	3.4	3.3	3.7	3.1	1.7
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	5.1	9.9	10.6	6.7	9.7	7.5	3.6
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.094)	ND(0.092)	ND(0.094)	ND(0.10)	ND(0.095)	ND(0.094)	ND(0.096)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	4,380	7,680	7,930	9,400	7,800	9,530	3,820
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	2.3	4.5	3.6	6.1	4.9	6.1	2.1
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	123 J	259 J	245 J	193	117	365	126
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	ND(0.017)	0.024 J	0.019 J	0.038 J	0.026 J	ND(0.11)U	ND(0.017)
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	5.2	8.5	9.6	6.9	10.3	9.3	5.0
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.079 J	ND(0.055)	0.14 J	ND(0.23)U	ND(0.22)U	0.13 J	0.25
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.11)	ND(0.10)	ND(0.11)	ND(0.12)	ND(0.11)	ND(0.11)	ND(0.11)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.046 J	0.096 J	0.19	0.056 J	0.072 J	0.11	0.095 J
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	5.4	10.8	9.2	15.0	12.6	12.8	6.0
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	12.1	18.4	22.8	21.5 J	17.7 J	21.5	12.3
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.024)	ND(0.023)	ND(0.023)	ND(0.025)	ND(0.024)	ND(0.024)	ND(0.024)

Notes:

- (1)Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended
- No Criteria available for this constituent
- NAConstituent not analyzed for this sample
- NDConstituent not detected above sample quantitation limit
- NLVConstituent is not likely to volatilize
- IDInadequate data exists to develop criterion for constituent
- RLaboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
- JThe associated value is an estimated quantity
- UThe material was analyzed for but was not detected
- UJThe material was analyzed for but was not detected. The associated value is an estimate

Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria

Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria

Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:											CRA-421M-D 022603-MM-470 (2-4) 2/26/2003	CRA-421M-D 022603-MM-471 (2-4) 2/26/2003 (Dup.)	CRA-421M-D 022603-MM-472 (6-8) 2/26/2003	CRA-422M-S 020503-MM-410 (2-4) 2/5/2003	CRA-422M-S 020503-MM-411 (4-6) 2/5/2003	CRA-423M-S 020603-MM-412 (2-4) 2/6/2003	CRA-423M-S 020603-MM-413 (6-8) 2/6/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.011)	ND(0.011)	ND(0.011)	ND(0.012)	ND(0.013)	ND(0.013)	ND(0.01)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.013)	ND(0.014)	ND(0.013)	ND(0.015)	ND(0.016)	ND(0.016)	ND(0.013)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.013)	ND(0.014)	ND(0.013)	ND(0.015)	ND(0.016)	ND(0.016)	ND(0.013)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.062)	ND(0.065)	ND(0.062)	ND(0.071)	ND(0.075)	ND(1.1)U	ND(0.87)U
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.019)	ND(0.02)	ND(0.019)	ND(0.022)	ND(0.023)	ND(0.023)	ND(0.018)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.029)	ND(0.03)	ND(0.029)	ND(0.033)	ND(0.035)	ND(0.034)	ND(0.028)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.058)	ND(0.06)	ND(0.057)	ND(0.065)	ND(0.07)	0.13 J	0.061 J
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.0083)	ND(0.0086)	ND(0.0083)	ND(0.0094)	ND(0.01)	ND(0.0098)	ND(0.008)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0054)	ND(0.0056)	ND(0.0054)	ND(0.0061)	ND(0.0065)	ND(0.0064)	ND(0.0052)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.019)	ND(0.02)	ND(0.02)	ND(0.016)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.0094)	ND(0.0098)	ND(0.0093)	ND(0.011)	ND(0.011)	ND(0.011)	ND(0.009)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0075)	ND(0.0078)	ND(0.0074)	ND(0.0085)	ND(0.009)	ND(0.0088)	ND(0.0072)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0078)	ND(0.0081)	ND(0.0078)	ND(0.0089)	ND(0.0094)	ND(0.0092)	ND(0.058)U
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.01)	ND(0.011)	ND(0.01)	ND(0.012)	ND(0.012)	ND(0.012)	ND(0.0098)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.029)	ND(0.03)	ND(0.029)	ND(0.033)	ND(0.035)	0.24 J	ND(0.028)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.011)	ND(0.011)	ND(0.011)	ND(0.012)	ND(0.013)	ND(0.013)	0.46 J
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.0099)	ND(0.01)	ND(0.0098)	ND(0.011)	ND(0.012)	ND(0.012)	ND(0.0095)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	0.021 J	ND(0.02)	ND(0.019)	ND(0.022)	ND(0.023)	ND(0.023)	ND(0.018)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.013)	ND(0.014)	ND(0.013)	ND(0.015)	ND(0.016)	ND(0.016)	ND(0.013)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0067)	ND(0.007)	ND(0.0067)	ND(0.0076)	ND(0.0081)	ND(0.008)	ND(0.0065)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.012)	ND(0.013)	ND(0.012)	ND(0.014)	ND(0.014)	ND(0.014)	ND(0.012)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.01)	ND(0.011)	ND(0.01)	ND(0.012)	0.013 J	ND(0.012)	ND(0.01)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.013)	ND(0.014)	ND(0.013)	ND(0.015)	ND(0.016)	ND(0.016)	ND(0.013)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.023)	ND(0.024)	ND(0.023)	ND(0.026)	ND(0.028)	ND(0.027)	0.1 J
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.017)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)	R	R
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.021)	ND(0.021)	ND(0.02)	ND(0.021)	ND(0.02)	R	R
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.018)	ND(0.018)	ND(0.017)	ND(0.018)	ND(0.017)	R	R
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.02)	ND(0.02)	ND(0.019)	ND(0.02)	ND(0.019)	R	R
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.019)	ND(0.019)	ND(0.018)	ND(0.019)	ND(0.018)	0.081 J	0.12 J
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.016)	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.064)	0.15 J
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.019)	ND(0.019)	ND(0.018)	ND(0.019)	ND(0.018)	ND(0.078)	0.15 J
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.016)	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.015)	ND(1.5)U	ND(0.058)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.026)	ND(0.025)	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.11)	0.12 J
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.017)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.069)	ND(0.062)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.022)	ND(0.022)	ND(0.021)	ND(0.022)	ND(0.021)	ND(0.092)	ND(0.082)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.018)	ND(0.018)	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.073)	ND(0.066)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.018)	ND(0.018)	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.073)	ND(0.066)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.02)	ND(0.02)	ND(0.019)	ND(0.02)	ND(0.019)	ND(0.082)	ND(0.074)
bis(2-Ethylhexyl)phthali	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.014)	ND(0.014)	ND(0.014)	ND(0.014)	0.027 J	0.088 J	ND(0.054)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.021)	ND(0.021)	ND(0.02)	ND(0.021)	ND(0.02)	ND(0.087)	ND(0.078)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.024)	ND(0.024)	ND(0.023)	ND(0.024)	ND(0.023)	0.11 J	0.16 J
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.02)	ND(0.02)	ND(0.019)	ND(0.02)	ND(0.019)	ND(0.082)	ND(0.074)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.019)	ND(0.019)	ND(0.018)	ND(0.019)	ND(0.018)	ND(0.078)	0.16 J
Diethyl phthalate	--	2.2	740	110	ID	NLV	NLV	3,300,000	1,500,000	740	740	ND(0						

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential: Residential:																	

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:											CRA-424M-S 020703-MM-418 (2.5-4.5) 2/7/2003	CRA-424M-S 020703-MM-419 (5.5-7.5) 2/7/2003	CRA-425M-S 021803-MM-445 (3-5) 2/18/2003	CRA-425M-S 021803-MM-446 (6-8) 2/18/2003	CRA-426M-S 020603-MM-414 (2-4) 2/6/2003	CRA-426M-S 020603-MM-415 (6-8) 2/6/2003	CRA-427M-S 020603-MM-416 (2-4) 2/6/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential:	Industrial &	Residential:	Industrial &	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
						Soil Volatilization to Indoor Air Inhalation Criteria	Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Particulate Soil Inhalation Criteria	Commercial: Particulate Soil Inhalation Criteria									
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,900,000	460	460	ND(0.013)	ND(0.01)	ND(0.01)	ND(0.012)	ND(0.011)	ND(0.011)	ND(0.013)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.016)	ND(0.012)	ND(0.012)	ND(0.015)	ND(0.013)	ND(0.014)	ND(0.016)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.016)	ND(0.012)	ND(0.012)	ND(0.015)	ND(0.013)	ND(0.014)	ND(0.016)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.073)	ND(0.058)	ND(0.059)	ND(0.071)	ND(0.89)U	ND(0.94)U	ND(1.1)U
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.023)	ND(0.018)	ND(0.018)	ND(0.022)	ND(0.019)	ND(0.02)	ND(0.023)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.034)	ND(0.027)	ND(0.027)	ND(0.033)	ND(0.029)	ND(0.03)	0.074 J
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.068)	ND(0.054)	ND(0.054)	ND(0.065)	ND(0.057)	ND(0.06)	0.39 J
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.0097)	ND(0.0077)	ND(0.0078)	ND(0.0094)	ND(0.0082)	ND(0.0087)	ND(0.0098)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0063)	ND(0.005)	ND(0.0051)	ND(0.0061)	ND(0.0054)	ND(0.0056)	ND(0.0064)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.02)	ND(0.016)	ND(0.016)	ND(0.019)	ND(0.017)	ND(0.018)	ND(0.02)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.011)	ND(0.0087)	ND(0.0089)	ND(0.011)	ND(0.0093)	ND(0.0098)	ND(0.011)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0087)	ND(0.007)	ND(0.007)	ND(0.0084)	ND(0.0074)	ND(0.0078)	ND(0.0088)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0092)	ND(0.0073)	ND(0.0074)	ND(0.0088)	ND(0.0077)	ND(0.0082)	ND(0.0093)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.012)	ND(0.0095)	ND(0.0096)	ND(0.012)	ND(0.01)	ND(0.011)	ND(0.012)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.034)	ND(0.027)	ND(0.027)	ND(0.033)	ND(0.029)	ND(0.03)	ND(0.034)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.013)	ND(0.01)	ND(0.01)	ND(0.012)	ND(0.011)	ND(0.011)	ND(0.013)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.012)	ND(0.0092)	ND(0.0093)	ND(0.011)	ND(0.0098)	ND(0.01)	ND(0.012)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.023)	ND(0.018)	0.028 J	ND(0.022)	ND(0.019)	ND(0.02)	ND(0.023)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.016)	ND(0.012)	ND(0.012)	ND(0.015)	ND(0.013)	ND(0.014)	ND(0.016)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0079)	ND(0.0063)	ND(0.0064)	ND(0.0076)	ND(0.0067)	ND(0.007)	ND(0.008)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.014)	ND(0.011)	ND(0.011)	ND(0.014)	ND(0.012)	ND(0.013)	ND(0.014)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.012)	ND(0.0098)	ND(0.0099)	ND(0.012)	ND(0.01)	ND(0.011)	ND(0.012)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.016)	ND(0.012)	ND(0.012)	ND(0.015)	ND(0.013)	ND(0.014)	ND(0.016)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.027)	ND(0.021)	ND(0.022)	ND(0.026)	ND(0.023)	ND(0.024)	ND(0.027)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.31)	ND(0.016)	ND(0.016)	ND(0.016)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.021)	ND(0.021)	ND(0.021)	ND(0.39)	ND(0.021)	ND(0.02)	ND(0.021)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.33)	ND(0.017)	ND(0.017)	ND(0.018)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.37)	ND(0.02)	ND(0.019)	ND(0.02)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.35)	ND(0.019)	ND(0.018)	ND(0.019)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.015)	ND(0.016)	ND(0.015)	ND(0.29)	ND(0.015)	ND(0.015)	ND(0.015)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.35)	ND(0.019)	ND(0.018)	0.02 J
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.015)	ND(0.016)	ND(0.015)	ND(0.29)	ND(0.015)	ND(0.015)	ND(0.36)U
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.025)	ND(0.026)	ND(0.025)	ND(0.48)	ND(0.025)	ND(0.025)	ND(0.025)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.31)	ND(0.016)	ND(0.016)	ND(0.016)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.022)	ND(0.022)	ND(0.022)	ND(0.42)	ND(0.022)	ND(0.021)	ND(0.022)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.33)	ND(0.017)	ND(0.017)	ND(0.018)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.33)	ND(0.017)	ND(0.017)	ND(0.018)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.37)	ND(0.02)	ND(0.019)	ND(0.02)
bis(2-Ethylhexyl)phthal	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.014)	ND(0.014)	ND(0.014)	ND(0.27)	ND(0.014)	ND(0.014)	0.071 J
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.021)	ND(0.021)	ND(0.021)	ND(0.39)	ND(0.021)	ND(0.02)	ND(0.021)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.024)	ND(0.024)	ND(0.024)	ND(0.46)	ND(0.024)	ND(0.024)	ND(0.024)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.37)	ND(0.02)	ND(0.019)	ND(0.02)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.35)	ND(0.019)	ND(0.018)	ND(0.019)
Diethyl phthalate	--	2																

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:																	
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil	Industrial &	Residential:	Industrial &	Residential:	Industrial &							
						Volatilization to Indoor Air	Commercial: Soil	Particulate	Commercial: Soil	Direct	Commercial							
						Inhalation	Volatilization to Indoor Air	Soil	Particulate Soil	Contact	II: Direct							
					Criteria	Inhalation Criteria	Criteria	Inhalation Criteria	Criteria	Contact		CRA-424M-S 020703-MM-418 (2.5-4.5) 2/7/2003	CRA-424M-S 020703-MM-419 (5.5-7.5) 2/7/2003	CRA-425M-S 021803-MM-445 (3-5) 2/18/2003	CRA-425M-S 021803-MM-446 (6-8) 2/18/2003	CRA-426M-S 020603-MM-414 (2-4) 2/6/2003	CRA-426M-S 020603-MM-415 (6-8) 2/6/2003	CRA-427M-S 020603-MM-416 (2-4) 2/6/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	0.15 J	0.11 J	0.41	0.21	0.16 J	ND(0.073)	0.16 J
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.11	0.078	0.12	0.11	0.12	0.10	0.12
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	7.8	9.7	9.8 J	5.3 J	9.5	6.5	10.2
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	3.5	2.8	4.6	3.8	3.5	2.6	3.1
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	13.1	9.1	18.1	13.7	14.5	8.2	5.3
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.096)	ND(0.098)	ND(0.097)	ND(0.091)	ND(0.096)	ND(0.094)	ND(0.097)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	9,850	7,930	11,700	7,850	9,560	5,430	8,180
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	5.4	4.5	9.4 J	4.4 J	6.3	3.1	4.4
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	238	96.6	482 J	380 J	169	109	112
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	ND(0.017)UJ	ND(0.018)UJ	ND(0.018)	ND(0.017)	0.022 J	ND(0.017)UJ	0.031 J
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	10.0	8.2	14.7	14.4	9.7	7.6	6.4
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	ND(0.057)	ND(0.058)	0.16 J	0.13 J	ND(0.22)U	0.88	ND(0.22)U
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.10)	ND(0.11)	ND(0.11)	ND(0.11)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.10 J	0.059 J	0.20	0.14	0.079 J	0.13	0.039 J
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	11.5	12.5	15.3	8.5	13.1	8.3	13.1
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	23.9 J	15.6 J	30.3 J	15.0 J	18.2 J	16.7 J	16.7 J
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.024)	ND(0.024)	ND(0.024)	ND(0.023)	ND(0.024)	ND(0.024)	ND(0.024)

Notes:

- (1) Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended
- No Criteria available for this constituent
- NA Constituent not analyzed for this sample
- ND Constituent not detected above sample quantitation limit
- NLV Constituent is not likely to volatilize
- ID Inadequate data exists to develop criterion for constituent
- R Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
- J The associated value is an estimated quantity
- U The material was analyzed for but was not detected
- UJ The material was analyzed for but was not detected. The associated value is an estimate

Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria

Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria

Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:											CRA-427M-S 020603-MM-417 (4-6) 2/6/2003	CRA-428M-S 020703-MM-422 (2-4) 2/7/2003	CRA-428M-S 020703-MM-423 (4-6) 2/7/2003	CRA-429M-D 021203-MM-428 (2-4) 2/12/2003	CRA-429M-D 021203-MM-429 (2-4) 2/12/2003 (Dup.)	CRA-429M-D 021203-MM-430 (6-8) 2/12/2003	CRA-430M-D 022503-MM-466 (2-4) 2/25/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.011)	ND(0.0099)	ND(0.011)	ND(0.012)	ND(0.011)	ND(0.014)	ND(0.0092)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.014)	ND(0.012)	ND(0.014)	ND(0.015)	ND(0.013)	ND(0.017)	ND(0.011)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.014)	ND(0.012)	ND(0.014)	ND(0.015)	ND(0.013)	ND(0.017)	ND(0.011)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.93)U	ND(0.83)U	ND(0.067)	ND(0.069)	ND(0.062)	ND(0.08)	ND(0.054)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.02)	ND(0.018)	ND(0.021)	ND(0.021)	ND(0.019)	ND(0.025)	ND(0.016)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.03)	ND(0.027)	ND(0.031)	ND(0.032)	ND(0.028)	ND(0.037)	ND(0.025)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.06)	ND(0.053)	ND(0.062)	ND(0.064)	ND(0.057)	ND(0.074)	ND(0.049)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.0086)	ND(0.0077)	ND(0.0088)	ND(0.0092)	ND(0.0082)	ND(0.011)	ND(0.0071)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0056)	ND(0.005)	ND(0.0058)	ND(0.006)	ND(0.0053)	ND(0.0069)	ND(0.0046)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.017)	ND(0.016)	ND(0.018)	ND(0.019)	ND(0.017)	ND(0.022)	ND(0.014)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.0097)	ND(0.0087)	ND(0.01)	ND(0.01)	ND(0.0093)	ND(0.012)	ND(0.008)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0077)	ND(0.0069)	ND(0.008)	ND(0.0083)	ND(0.0074)	ND(0.0096)	ND(0.0064)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0081)	ND(0.0072)	ND(0.0083)	ND(0.067)U	ND(0.059)U	ND(0.077)U	ND(0.0067)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.011)	ND(0.0095)	ND(0.011)	ND(0.011)	ND(0.01)	ND(0.013)	ND(0.0088)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.03)	ND(0.027)	ND(0.031)	ND(0.032)	ND(0.028)	ND(0.037)	ND(0.025)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.011)	ND(0.0099)	ND(0.011)	ND(0.012)	ND(0.011)	ND(0.014)	ND(0.0092)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.01)	ND(0.0091)	ND(0.011)	ND(0.011)	ND(0.0097)	ND(0.013)	ND(0.0085)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.02)	ND(0.018)	ND(0.021)	ND(0.021)	ND(0.019)	ND(0.025)	ND(0.016)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.014)	ND(0.012)	ND(0.014)	ND(0.015)	ND(0.013)	ND(0.017)	ND(0.011)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0069)	ND(0.0062)	ND(0.0072)	ND(0.0075)	ND(0.0066)	ND(0.0086)	ND(0.0058)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.012)	ND(0.011)	ND(0.013)	ND(0.013)	ND(0.012)	ND(0.015)	ND(0.01)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.011)	ND(0.0097)	ND(0.011)	ND(0.012)	ND(0.01)	ND(0.013)	0.031 J
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.014)	ND(0.012)	ND(0.014)	ND(0.015)	ND(0.013)	ND(0.017)	ND(0.011)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.023)	ND(0.029)	ND(0.02)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	R	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.017)	ND(0.015)	ND(0.016)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	R	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.02)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	R	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.019)	ND(0.016)	ND(0.017)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	R	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.021)	ND(0.018)	ND(0.019)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.07)	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.02)	ND(0.017)	ND(0.018)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.058)	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.016)	ND(0.014)	ND(0.015)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.07)	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.02)	ND(0.017)	ND(0.018)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.058)	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.016)	ND(0.014)	ND(0.015)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.095)	ND(0.025)	ND(0.024)	ND(0.024)	ND(0.027)	ND(0.024)	ND(0.025)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.062)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.017)	ND(0.015)	ND(0.016)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.083)	ND(0.021)	ND(0.021)	ND(0.021)	ND(0.023)	ND(0.021)	ND(0.021)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.066)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.019)	ND(0.016)	ND(0.017)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.066)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.019)	ND(0.016)	ND(0.017)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.074)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.021)	ND(0.018)	ND(0.019)
bis(2-Ethylhexyl)phthali	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	0.075 J	ND(0.014)	ND(0.013)	ND(0.014)	ND(0.015)	ND(0.013)	0.062 J
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.079)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.02)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.091)	ND(0.024)	ND(0.023)	ND(0.023)	ND(0.026)	ND(0.023)	ND(0.024)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.074)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.021)	ND(0.018)	ND(0.019)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.07)	ND(0.018)</					

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:																	
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
												CRA-427M-S 020603-MM-417 (4-6) 2/6/2003	CRA-428M-S 020703-MM-422 (2-4) 2/7/2003	CRA-428M-S 020703-MM-423 (4-6) 2/7/2003	CRA-429M-D 021203-MM-428 (2-4) 2/12/2003	CRA-429M-D 021203-MM-429 (2-4) 2/12/2003 (Dup.)	CRA-429M-D 021203-MM-430 (6-8) 2/12/2003	CRA-430M-D 022503-MM-466 (2-4) 2/25/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	0.087 J	0.14 J	ND(0.070)	0.51	0.60	0.20 J	0.20 J
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.087	0.10	0.072	0.16	0.17	0.075	0.079
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	6.3	9.1	6.1	16.4	16.0	5.9 J	9.4
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	2.7	3.6	2.5	5.2	6.5	3.0	4.7
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	8.6	12.2	8.8	18.4	26.3	11.6	9.5 J
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	0.71	ND(0.094)	ND(0.091)	ND(0.093)	ND(0.10)	ND(0.090)	ND(0.095)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	6,310	9670	5,840	15,000	17,500	5,710 J	11,100
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	3.4	6.2	3.1	7.6	9.6	3.3	7.8 J
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	156	151	195	247	373	196 J	529 J
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	ND(0.017)UJ	0.021 J	0.026 J	0.070 J	0.063 J	ND(0.016)	0.033 J
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	8.0	9.5	7.9	20.6	21.7	9.1	10.8
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	ND(0.054)	ND(0.21)U	ND(0.054)	0.13 J	0.16 J	ND(0.053)	0.12 J
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.10)	ND(0.11)	ND(0.10)	ND(0.11)	ND(0.12)	ND(0.10)	ND(0.11)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.089 J	0.067 J	0.10	0.18	0.20	0.077 J	0.068 J
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	8.1	12.2	6.6	19.9	20.7	8.4	15.3
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	18.5 J	15.1 J	15.9 J	40.6	45.0	16.9	17.0 J
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.023)	ND(0.024)	ND(0.023)	ND(0.023)UJ	ND(0.026)UJ	ND(0.023)UJ	ND(0.024)
Notes:																		
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																	
--	No Criteria available for this constituent																	
NA	Constituent not analyzed for this sample																	
ND	Constituent not detected above sample quantitation limit																	
NLV	Constituent is not likely to volatilize																	
ID	Inadequate data exists to develop criterion for constituent																	
R	Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable																	
J	The associated value is an estimated quantity																	
U	The material was analyzed for but was not detected																	
UJ	The material was analyzed for but was not detected. The associated value is an estimate																	
	Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria																	
	Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria																	
Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.																		

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:											CRA-430M-D 022503-MM-467 (6-8) 2/25/2003	CRA-431M-S 021203-MM-426 (2-4) 2/12/2003	CRA-431M-S 021203-MM-427 (6-8) 2/12/2003	CRA-432M-S 021203-MM-424 (1.5-3.5) 2/12/2003	CRA-432M-S 021203-MM-425 (4-6) 2/12/2003	CRA-433M-D 021403-MM-433 (2-4) 2/14/2003	CRA-433M-D 021403-MM-434 (6-8) 2/14/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.012)	ND(0.011)	ND(0.013)	ND(0.011)	ND(0.0097)	ND(0.011)	ND(0.011)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.014)	ND(0.013)	ND(0.016)	ND(0.013)	ND(0.012)	ND(0.014)	ND(0.013)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.014)	ND(0.013)	ND(0.016)	ND(0.013)	ND(0.012)	ND(0.014)	ND(0.013)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.068)	ND(0.062)	ND(0.074)	ND(0.062)	ND(0.057)	ND(0.066)	ND(0.062)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.021)	ND(0.019)	ND(0.023)	ND(0.019)	ND(0.017)	ND(0.02)	ND(0.019)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.031)	ND(0.028)	ND(0.034)	ND(0.029)	ND(0.026)	ND(0.031)	ND(0.029)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.062)	ND(0.057)	ND(0.068)	ND(0.057)	ND(0.052)	ND(0.061)	ND(0.057)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.009)	ND(0.0082)	ND(0.0098)	ND(0.0083)	ND(0.0075)	ND(0.0088)	ND(0.0082)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0059)	ND(0.0053)	ND(0.0064)	ND(0.0054)	ND(0.0049)	ND(0.0057)	ND(0.0054)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.018)	ND(0.017)	ND(0.02)	ND(0.017)	ND(0.015)	ND(0.018)	ND(0.017)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.01)	ND(0.0093)	ND(0.011)	ND(0.0093)	ND(0.0085)	ND(0.0099)	ND(0.0093)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0081)	ND(0.0074)	ND(0.0088)	ND(0.0074)	ND(0.0068)	ND(0.0079)	ND(0.0074)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0085)	ND(0.059)U	ND(0.071)U	ND(0.06)U	ND(0.055)U	ND(0.0083)	ND(0.0077)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.011)	ND(0.01)	ND(0.012)	ND(0.01)	ND(0.0093)	ND(0.011)	ND(0.01)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.031)	ND(0.028)	ND(0.034)	ND(0.029)	ND(0.026)	ND(0.031)	ND(0.029)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.012)	ND(0.011)	ND(0.013)	ND(0.011)	ND(0.0097)	ND(0.011)	ND(0.011)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.011)	ND(0.0097)	ND(0.012)	ND(0.0098)	ND(0.009)	ND(0.01)	ND(0.0098)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.021)	ND(0.019)	ND(0.023)	ND(0.019)	ND(0.017)	ND(0.02)	ND(0.019)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	0.033 J	ND(0.013)	ND(0.016)	ND(0.013)	0.022 J	ND(0.014)	ND(0.013)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0073)	ND(0.0066)	ND(0.008)	ND(0.0067)	ND(0.0061)	ND(0.0071)	ND(0.0067)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.013)	ND(0.012)	ND(0.014)	ND(0.012)	ND(0.011)	ND(0.013)	ND(0.012)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	0.099	ND(0.01)	ND(0.012)	ND(0.01)	ND(0.0095)	ND(0.011)	ND(0.01)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.014)	ND(0.013)	ND(0.016)	ND(0.013)	ND(0.012)	ND(0.014)	ND(0.013)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.025)	ND(0.023)	ND(0.027)	ND(0.023)	ND(0.021)	ND(0.024)	ND(0.023)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.016)	ND(0.017)	ND(0.016)	ND(0.35)	ND(0.017)	ND(0.016)	ND(0.016)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.44)	ND(0.021)	ND(0.021)	ND(0.02)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.37)	ND(0.018)	ND(0.018)	ND(0.017)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.019)	ND(0.021)	ND(0.019)	ND(0.41)	ND(0.02)	ND(0.02)	ND(0.019)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.018)	ND(0.019)	ND(0.018)	ND(0.39)	ND(0.019)	ND(0.019)	ND(0.018)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.015)	ND(0.016)	ND(0.014)	ND(0.32)	ND(0.016)	0.054 J	ND(0.014)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.018)	ND(0.019)	ND(0.018)	ND(0.39)	ND(0.019)	0.11 J	ND(0.018)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.015)	ND(0.016)	ND(0.014)	ND(0.32)	ND(0.016)	ND(0.015)	ND(0.014)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.024)	ND(0.026)	ND(0.024)	ND(0.53)	ND(0.026)	0.39	ND(0.024)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.016)	ND(0.017)	ND(0.016)	ND(0.35)	ND(0.017)	0.38	ND(0.016)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.021)	ND(0.023)	ND(0.021)	ND(0.46)	ND(0.022)	0.36	ND(0.021)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.37)	ND(0.018)	0.26 J	ND(0.017)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.017)	ND(0.018)	ND(0.017)	ND(0.37)	ND(0.018)	0.26 J	ND(0.017)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.019)	ND(0.021)	ND(0.019)	ND(0.41)	ND(0.02)	ND(0.02)	ND(0.019)
bis(2-Ethylhexyl)phthal	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	0.064 J	ND(0.015)	ND(0.013)	ND(0.3)	ND(0.014)	ND(0.014)	ND(0.013)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.02)	ND(0.022)	ND(0.02)	ND(0.44)	ND(0.021)	0.075 J	ND(0.02)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.023)	ND(0.025)	ND(0.023)	ND(0.51)	ND(0.025)	0.39	ND(0.023)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.019)	ND(0.021)	ND(0.019)	ND(0.41)	ND(0.02)	0.08 J	ND(0.019)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.018)	ND(0.019)	ND(0.018)	ND(0.39)	ND(0.019)	0.021 J	ND(0.018)
Diethyl phthalate	--																	

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																			
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact								
												CRA-430M-D 022503-MM-467 (6-8) 2/25/2003	CRA-431M-S 021203-MM-426 (2-4) 2/12/2003	CRA-431M-S 021203-MM-427 (6-8) 2/12/2003	CRA-432M-S 021203-MM-424 (1.5-3.5) 2/12/2003	CRA-432M-S 021203-MM-425 (4-6) 2/12/2003	CRA-433M-D 021403-MM-433 (2-4) 2/14/2003	CRA-433M-D 021403-MM-434 (6-8) 2/14/2003	
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	ND(0.071)	0.37	0.16 J	0.31	0.30	0.27	0.19 J	
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.10	0.12	0.072	0.20	0.10	0.11	0.088	
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	4.1	10.1	5.0	7.8	7.8	8.8 J	5.9 J	
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	2.0	3.1	2.1	3.8	3.8	2.7	2.6	
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	6.1 J	7.2	5.9	11.1	13.0	13.1	11.6	
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.092)	ND(0.10)	ND(0.091)	ND(0.10)	ND(0.098)	ND(0.097)	ND(0.091)	
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	4,190	9,090	4,670	9,060	9,120	7,510	7,030	
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	5.2 J	7.0	2.4	6.2	8.3	10.0 J	4.3 J	
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	124 J	231	137	305	240	199 J	187 J	
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	0.021 J	0.056 J	ND(0.017)	0.029 J	0.026 J	0.092 J	0.017 J	
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	5.0	7.2	6.1	10.9	11.7	7.9	7.9	
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.38	0.14 J	0.083 J	ND(0.060)	0.084 J	0.32	0.16 J	
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.10)	ND(0.11)	ND(0.10)	ND(0.12)	ND(0.11)	ND(0.11)	ND(0.10)	
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.12	0.047 J	0.059 J	0.099 J	0.089 J	0.095 J	0.073 J	
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	5.4	15.2	6.0	11.8	11.4	9.7	8.0	
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	19.3 J	16.6	13.4	19.6	22.2	21.9 J	15.0 J	
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.023)	ND(0.025)UJ	ND(0.023)UJ	ND(0.025)UJ	ND(0.025)UJ	ND(0.024)UJ	ND(0.023)UJ	
Notes:																			
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																		
--	No Criteria available for this constituent																		
NA	Constituent not analyzed for this sample																		
ND	Constituent not detected above sample quantitation limit																		
NLV	Constituent is not likely to volatilize																		
ID	Inadequate data exists to develop criterion for constituent																		
R	Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable																		
J	The associated value is an estimated quantity																		
U	The material was analyzed for but was not detected																		
UJ	The material was analyzed for but was not detected. The associated value is an estimate																		
	Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria																		
	Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria																		
	Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.																		

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential: Soil Industrial & Commercial: Soil Residential: Particulate Soil Industrial & Commercial: Particulate Soil Residential: Direct Contact Industrial & Commercial II: Direct Contact											CRA-434M-D 021403-MM-435 (2-4) 2/14/2003	CRA-434M-D 021403-MM-436 (4-6) 2/14/2003	CRA-435M-S 021703-MM-441 (2-4) 2/17/2003	CRA-435M-S 021703-MM-442 (5-7) 2/17/2003	CRA-436M-S 022703-MM-485 (2-4) 2/27/2003	CRA-436M-S 022703-MM-486 (4-6) 2/27/2003	CRA-437M-D 021303-MM-431 (2-4) 2/13/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Volatilization to Indoor Air Inhalation Criteria	Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.011)	ND(0.01)	ND(0.012)	ND(0.011)	ND(0.0086)	ND(0.017)	ND(0.0095)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.014)	ND(0.012)	ND(0.015)	ND(0.014)	ND(0.011)	ND(0.021)	ND(0.012)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.014)	ND(0.012)	ND(0.015)	ND(0.014)	ND(0.011)	ND(0.021)	ND(0.012)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.065)	ND(0.059)	ND(0.069)	ND(0.066)	ND(0.05)	ND(0.098)	ND(0.056)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.02)	ND(0.018)	ND(0.021)	ND(0.02)	ND(0.015)	ND(0.03)	ND(0.017)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.03)	ND(0.027)	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.045)	ND(0.026)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.06)	ND(0.055)	ND(0.064)	ND(0.061)	ND(0.046)	ND(0.09)	ND(0.051)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.0086)	ND(0.0078)	ND(0.0092)	ND(0.0088)	ND(0.0066)	ND(0.013)	ND(0.0074)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0056)	ND(0.0051)	ND(0.006)	ND(0.0057)	ND(0.0043)	ND(0.0085)	ND(0.0048)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.017)	ND(0.016)	ND(0.019)	ND(0.018)	ND(0.013)	ND(0.026)	ND(0.015)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.0097)	ND(0.0089)	ND(0.01)	ND(0.0099)	ND(0.0075)	ND(0.015)	ND(0.0084)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0077)	ND(0.007)	ND(0.0082)	ND(0.0079)	ND(0.006)	ND(0.012)	ND(0.0066)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0081)	ND(0.0074)	ND(0.0086)	ND(0.0083)	ND(0.0063)	ND(0.012)	ND(0.007)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.011)	ND(0.0097)	ND(0.011)	ND(0.011)	ND(0.0082)	ND(0.016)	ND(0.0091)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.03)	ND(0.027)	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.045)	ND(0.026)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.011)	ND(0.01)	ND(0.012)	ND(0.011)	ND(0.0086)	ND(0.017)	ND(0.0095)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.01)	ND(0.0093)	ND(0.011)	ND(0.01)	ND(0.0079)	ND(0.015)	ND(0.0088)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.02)	ND(0.018)	ND(0.021)	ND(0.02)	ND(0.015)	ND(0.03)	ND(0.027)U
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.014)	ND(0.012)	ND(0.015)	ND(0.014)	ND(0.011)	ND(0.021)	ND(0.012)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.007)	ND(0.0064)	ND(0.0074)	ND(0.0071)	ND(0.0054)	ND(0.011)	ND(0.006)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.012)	ND(0.011)	ND(0.013)	ND(0.013)	ND(0.0096)	ND(0.019)	ND(0.011)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.011)	ND(0.0099)	ND(0.012)	ND(0.011)	ND(0.0084)	ND(0.016)	ND(0.0093)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.014)	ND(0.012)	ND(0.015)	ND(0.014)	ND(0.011)	ND(0.021)	ND(0.012)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.024)	ND(0.022)	ND(0.025)	ND(0.024)	ND(0.018)	ND(0.036)	ND(0.02)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.016)	ND(0.015)	ND(0.016)	ND(0.015)	ND(0.016)	ND(0.015)	ND(0.016)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.021)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.018)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.018)	ND(0.019)	ND(0.019)	ND(0.02)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.018)	ND(0.018)	0.056 J	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.019)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.015)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.019)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.015)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.025)	ND(0.024)	ND(0.024)	ND(0.024)	ND(0.024)	0.028 J	ND(0.025)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.016)	ND(0.015)	ND(0.016)	ND(0.015)	ND(0.016)	0.024 J	ND(0.016)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.021)	ND(0.021)	ND(0.021)	ND(0.021)	ND(0.021)	0.026 J	ND(0.022)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.016)	ND(0.017)	0.018 J	ND(0.018)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.016)	ND(0.017)	0.021 J	ND(0.018)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.018)	ND(0.019)	ND(0.019)	ND(0.02)
bis(2-Ethylhexyl)phthali	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.014)	ND(0.013)	ND(0.014)	ND(0.013)	ND(0.014)	0.014 J	ND(0.014)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.021)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.024)	ND(0.023)	ND(0.023)	ND(0.023)	ND(0.023)	0.029 J	ND(0.024)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.018)	ND(0.019)	ND(0.019)	ND(0.02)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.018)						

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact	CRA-434M-D 021403-MM-435 (2-4) 2/14/2003	CRA-434M-D 021403-MM-436 (4-6) 2/14/2003	CRA-435M-S 021703-MM-441 (2-4) 2/17/2003	CRA-435M-S 021703-MM-442 (5-7) 2/17/2003	CRA-436M-S 022703-MM-485 (2-4) 2/27/2003	CRA-436M-S 022703-MM-486 (4-6) 2/27/2003	CRA-437M-D 021303-MM-431 (2-4) 2/13/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	0.27	0.21	0.28	0.18 J	ND(0.071)	ND(0.070)	0.085 J
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.071	0.085	0.10	0.065	0.11	0.068	0.10
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	6.7 J	8.2 J	7.4 J	5.4 J	5.5	12.3	7.9
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	2.5	3.1	3.3	2.6	2.7	3.8	3.2
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	6.7	9.9	11.0	6.8	11.0	8.6	10.4
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.094)	ND(0.091)	ND(0.093)	ND(0.090)	ND(0.092)	ND(0.091)	ND(0.096)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	6,740	7,210	8,510	7,360	6,810	6,250	10,600
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	4.8 J	4.2 J	5.7 J	3.5 J	3.5	3.3	6.0
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	120 J	258 J	352 J	281 J	263 J	227 J	190
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	0.033 J	ND(0.017)	ND(0.017)	0.019 J	0.032 J	0.022 J	0.025 J
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	6.7	9.9	9.7	7.4	7.7	13.3	8.8
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.13 J	0.086 J	0.12 J	0.17 J	ND(0.054)	ND(0.054)	0.12 J
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.11)	ND(0.10)	ND(0.11)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.11)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.078 J	0.11	0.13	0.088 J	0.11	0.11	0.11
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	10.6	9.7	10.5	7.1	7.3	7.4	12.0
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	16.7 J	16.4 J	22.1 J	18.5 J	16.4	14.0	22.0 J
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.024)UJ	ND(0.023)UJ	ND(0.023)	ND(0.023)	ND(0.023)	ND(0.023)	ND(0.024)
Notes:																		
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																	
--	No Criteria available for this constituent																	
NA	Constituent not analyzed for this sample																	
ND	Constituent not detected above sample quantitation limit																	
NLV	Constituent is not likely to volatilize																	
ID	Inadequate data exists to develop criterion for constituent																	
R	Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable																	
J	The associated value is an estimated quantity																	
U	The material was analyzed for but was not detected																	
UJ	The material was analyzed for but was not detected. The associated value is an estimate																	
	Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria																	
	Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria																	
Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.																		

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:											CRA-437M-D 021303-MM-432 (6-8) 2/13/2003	CRA-438M-S 022703-MM-483 (2-4) 2/27/2003	CRA-438M-S 022703-MM-484 (4-5) 2/27/2003	CRA-439M-S 022103-MM-458 (2-4) 2/21/2003	CRA-439M-S 022103-MM-459 (4-6) 2/21/2003	CRA-440M-D 021703-MM-439 (2-4) 2/17/2003	CRA-440M-D 021703-MM-440 (4-6) 2/17/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential:	Industrial &	Residential:	Industrial &	Residential:	Industrial &							
						Soil Volatilization to Indoor Air Inhalation Criteria	Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Particulate Soil Inhalation Criteria	Commercial: Particulate Soil Inhalation Criteria	Direct Contact Criteria	II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.012)	ND(0.011)	ND(0.012)	ND(0.012)	ND(0.012)	ND(0.011)	ND(0.013)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.014)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.016)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.014)	ND(0.014)	ND(0.015)	0.12 J	ND(0.015)	ND(0.014)	ND(0.016)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.068)	ND(0.064)	ND(0.07)	ND(0.068)	ND(0.071)	ND(0.065)	ND(0.073)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.021)	ND(0.02)	ND(0.022)	ND(0.021)	ND(0.022)	ND(0.02)	ND(0.023)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.032)	ND(0.03)	ND(0.032)	ND(0.032)	ND(0.033)	ND(0.03)	ND(0.034)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.063)	ND(0.059)	ND(0.065)	ND(0.063)	ND(0.065)	ND(0.06)	ND(0.068)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.0091)	ND(0.0085)	ND(0.0093)	ND(0.0091)	ND(0.0094)	ND(0.0086)	ND(0.0097)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0059)	ND(0.0056)	ND(0.0061)	ND(0.0059)	ND(0.0061)	ND(0.0056)	ND(0.0063)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.018)	ND(0.017)	ND(0.019)	ND(0.018)	ND(0.019)	ND(0.017)	ND(0.02)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.01)	ND(0.0097)	ND(0.011)	ND(0.01)	ND(0.011)	ND(0.0097)	ND(0.011)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0081)	ND(0.0077)	ND(0.0084)	ND(0.0082)	ND(0.0084)	ND(0.0077)	ND(0.0087)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0085)	ND(0.0081)	ND(0.0088)	ND(0.066)U	ND(0.068)U	ND(0.0081)	ND(0.0092)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.011)	ND(0.011)	ND(0.011)	ND(0.011)	ND(0.012)	ND(0.011)	ND(0.012)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.032)	ND(0.03)	ND(0.032)	ND(0.032)	ND(0.033)	ND(0.03)	ND(0.034)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.012)	ND(0.011)	ND(0.012)	ND(0.012)	ND(0.012)	ND(0.011)	ND(0.013)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.011)	ND(0.01)	ND(0.011)	ND(0.011)	ND(0.011)	ND(0.01)	ND(0.012)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.021)	ND(0.02)	ND(0.022)	ND(0.33)U	ND(0.34)U	ND(0.02)	0.024 J
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.014)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.016)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0074)	ND(0.0069)	ND(0.0075)	ND(0.0074)	ND(0.0076)	ND(0.007)	ND(0.0079)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.013)	ND(0.012)	ND(0.013)	ND(0.013)	ND(0.014)	ND(0.012)	ND(0.014)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.011)	ND(0.011)	ND(0.012)	ND(0.011)	ND(0.012)	ND(0.011)	ND(0.012)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.014)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.016)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.025)	ND(0.024)	ND(0.026)	ND(0.025)	ND(0.026)	ND(0.024)	ND(0.027)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.17)	ND(0.17)	ND(0.088)	ND(0.015)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.22)	ND(0.21)	ND(0.11)	ND(0.02)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.18)	ND(0.18)	ND(0.094)	ND(0.016)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.2)	ND(0.2)	ND(0.11)	ND(0.019)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.018)	ND(0.018)	ND(0.018)	0.56 J	ND(0.19)	ND(0.1)	ND(0.018)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.16)	ND(0.16)	ND(0.082)	ND(0.014)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.19)	ND(0.19)	ND(0.1)	ND(0.018)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.16)	ND(0.16)	ND(0.082)	ND(0.014)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.024)	ND(0.025)	ND(0.025)	ND(0.26)	ND(0.26)	ND(0.13)	ND(0.024)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.17)	ND(0.17)	ND(0.088)	ND(0.015)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.021)	ND(0.022)	ND(0.021)	ND(0.23)	ND(0.22)	ND(0.12)	ND(0.021)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.18)	ND(0.18)	ND(0.094)	ND(0.016)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.18)	ND(0.18)	ND(0.094)	ND(0.016)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.019)	ND(0.019)	ND(0.019)	0.43 J	ND(0.2)	ND(0.11)	ND(0.019)
bis(2-Ethylhexyl)phthali	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.014)	ND(0.014)	0.018 J	0.31 J	0.26 J	0.22 J	ND(0.013)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.22)	ND(0.21)	ND(0.11)	ND(0.02)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(0.023)	ND(0.024)	ND(0.024)	ND(0.25)	ND(0.25)	ND(0.13)	ND(0.023)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.2)	ND(0.2)	ND(0.11)	ND(0.019)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.19)	ND(0.19)	ND(0.1)	ND(0.018)
Diethyl phthalate	--	2.2	740	110	ID	NLV	NLV	3,300,000	1,500,000	740	74							

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
													CRA-437M-D 021303-MM-432 (6-8) 2/13/2003	CRA-438M-S 022703-MM-483 (2-4) 2/27/2003	CRA-438M-S 022703-MM-484 (4-5) 2/27/2003	CRA-439M-S 022103-MM-458 (2-4) 2/21/2003	CRA-439M-S 022103-MM-459 (4-6) 2/21/2003	CRA-440M-D 021703-MM-439 (2-4) 2/17/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	0.11 J	0.11 J	ND(0.073)	0.26	ND(0.076)	0.23	0.17 J
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.13	0.072	0.067	0.13	0.074	0.12	0.095
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	10.9	5.8	5.5	13.9	7.6	6.5 J	4.4 J
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	4.2	2.3	2.5	4.4	2.5	4.0	2.3
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	12.2	3.9	4.4	11.8	9.6	14.6	8.7
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.093)	ND(0.095)	ND(0.094)	ND(0.10)	ND(0.099)	ND(0.10)	ND(0.091)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	10,600	6,490	5,890	13,700	6,110	10,300	5,060
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	6.0	4.4	4.0	6.0	3.7	6.5 J	2.9 J
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	238	158 J	116 J	217	217	417 J	188 J
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	0.030 J	0.033 J	0.031 J	ND(0.018)	ND(0.018)	ND(0.019)	ND(0.016)
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	11.7	5.7	5.9	14.2	8.0	11.1	6.3
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.13 J	0.087 J	0.066 J	0.27	0.11 J	0.10 J	0.096 J
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.12)	ND(0.10)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.16	0.058 J	0.059 J	0.089 J	0.082 J	0.12	0.087 J
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	12.7	8.7	8.3	20.2	10.3	13.1	6.0
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	24.8 J	14.4	16.7	20.4	31.4	20.2 J	18.6 J
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.023)	ND(0.024)	ND(0.024)	0.15 J	0.48	0.11 J	ND(0.023)
Notes:																		
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																	
--	No Criteria available for this constituent																	
NA	Constituent not analyzed for this sample																	
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Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.																		

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:																	
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact							
													CRA-441M-D 022003-MM-455 (2-4) 2/20/2003	CRA-441M-D 022003-MM-456 (2-4) 2/20/2003 (Dup.)	CRA-441M-D 022003-MM-457 (4-6) 2/20/2003	CRA-442M-D 021903-MM-451 (2-4) 2/19/2003	CRA-442M-D 021903-MM-452 (5-7) 2/19/2003	CRA-443M-S 021403-MM-437 (2-4) 2/14/2003
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.011)UJ	ND(0.011)UJ	ND(0.015)UJ	ND(0.013)	ND(0.01)	ND(0.011)	ND(0.011)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.013)UJ	ND(0.014)UJ	ND(0.019)UJ	ND(0.016)	ND(0.012)	ND(0.013)	ND(0.013)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.013)UJ	ND(0.014)UJ	ND(0.019)UJ	ND(0.016)	ND(0.012)	ND(0.013)	ND(0.013)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.063)UJ	ND(0.064)UJ	ND(0.09)UJ	ND(0.076)	ND(0.059)	ND(0.063)	ND(0.063)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.019)UJ	ND(0.02)UJ	ND(0.028)UJ	ND(0.023)	ND(0.018)	ND(0.02)	ND(0.019)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.029)UJ	ND(0.03)UJ	ND(0.042)UJ	ND(0.035)	ND(0.027)	ND(0.029)	ND(0.029)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.9)UJ	ND(0.93)UJ	ND(1.3)UJ	ND(0.07)	ND(0.054)	ND(0.059)	ND(0.058)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.0083)UJ	ND(0.0086)UJ	ND(0.012)UJ	ND(0.01)	ND(0.0078)	ND(0.0084)	ND(0.0084)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0054)UJ	ND(0.0056)UJ	ND(0.0078)UJ	ND(0.0066)	ND(0.0051)	ND(0.0055)	ND(0.0055)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.017)UJ	ND(0.017)UJ	ND(0.024)UJ	ND(0.02)	ND(0.016)	ND(0.017)	ND(0.017)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.0094)UJ	ND(0.0097)UJ	ND(0.014)UJ	ND(0.011)	ND(0.0088)	ND(0.0095)	ND(0.0095)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0075)UJ	ND(0.0077)UJ	ND(0.011)UJ	ND(0.009)	ND(0.007)	ND(0.0076)	ND(0.0075)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.06)UJ	ND(0.062)UJ	ND(0.087)UJ	ND(0.0095)	ND(0.0073)	ND(0.0079)	ND(0.0079)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.01)UJ	ND(0.011)UJ	ND(0.015)UJ	ND(0.012)	ND(0.0096)	ND(0.01)	ND(0.01)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.029)UJ	ND(0.03)UJ	ND(0.042)UJ	ND(0.035)	ND(0.027)	ND(0.029)	ND(0.029)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.011)UJ	ND(0.011)UJ	ND(0.015)UJ	ND(0.013)	ND(0.01)	ND(0.011)	ND(0.011)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.0099)UJ	ND(0.01)UJ	ND(0.014)UJ	ND(0.012)	ND(0.0093)	ND(0.01)	ND(0.0099)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.019)UJ	ND(0.31)UJ	ND(0.43)UJ	ND(0.023)	ND(0.018)	ND(0.02)	ND(0.019)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.013)UJ	ND(0.014)UJ	ND(0.019)UJ	ND(0.016)	ND(0.012)	ND(0.013)	ND(0.013)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0067)UJ	ND(0.0069)UJ	ND(0.0097)UJ	ND(0.0082)	ND(0.0063)	ND(0.0068)	ND(0.0068)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.012)UJ	ND(0.012)UJ	ND(0.017)UJ	ND(0.015)	ND(0.011)	ND(0.012)	ND(0.012)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.01)UJ	ND(0.011)UJ	ND(0.015)UJ	ND(0.013)	ND(0.0098)	ND(0.011)	ND(0.011)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.013)UJ	ND(0.014)UJ	ND(0.019)UJ	ND(0.016)	ND(0.012)	ND(0.013)	ND(0.013)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	0.026 J	ND(0.024)UJ	0.041 J	ND(0.028)	ND(0.021)	ND(0.023)	ND(0.023)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.32)	ND(0.32)	ND(0.34)	ND(0.34)	ND(0.16)	ND(0.016)	ND(0.016)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.41)	ND(0.41)	ND(0.43)	ND(0.43)	ND(0.2)	ND(0.02)	ND(0.02)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.34)	ND(0.34)	ND(0.36)	ND(0.36)	ND(0.17)	ND(0.017)	ND(0.017)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.39)	ND(0.39)	ND(0.41)	ND(0.41)	ND(0.19)	ND(0.019)	ND(0.019)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.37)	ND(0.37)	ND(0.38)	ND(0.39)	ND(0.18)	ND(0.018)	0.062 J
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.3)	ND(0.3)	ND(0.32)	ND(0.32)	ND(0.14)	ND(0.015)	0.16 J
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.37)	ND(0.37)	ND(0.38)	0.39 J	ND(0.18)	ND(0.018)	0.068 J
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.3)	ND(0.3)	ND(0.32)	ND(0.32)	ND(0.14)	ND(0.015)	ND(0.015)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.49)	ND(0.5)	ND(0.52)	ND(0.52)	ND(0.24)	ND(0.025)	0.083 J
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.32)	ND(0.32)	ND(0.34)	ND(0.34)	ND(0.16)	ND(0.016)	ND(0.016)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.43)	ND(0.43)	ND(0.45)	ND(0.46)	ND(0.21)	ND(0.021)	ND(0.021)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.34)	ND(0.34)	ND(0.36)	ND(0.36)	ND(0.17)	ND(0.017)	ND(0.017)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.34)	ND(0.34)	ND(0.36)	ND(0.36)	ND(0.17)	ND(0.017)	ND(0.017)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.39)	ND(0.39)	ND(0.41)	ND(0.41)	ND(0.19)	ND(0.019)	0.041 J
bis(2-Ethylhexyl)phthalate	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.28)	ND(0.28)	ND(0.29)	0.43 J	ND(0.13)	ND(0.014)	0.04 J
Carbazole	--	1.1	820</															

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YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
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Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	ND(0.073)	ND(0.073)	ND(0.077)	ND(0.34)U	ND(0.21)U	0.27	0.20 J
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.091	0.080	0.076	0.072	0.065	0.051 J	0.085
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	9.7	8.4	6.3 J	7.6	5.7	8.3 J	5.2 J
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	3.2	3.1	3.1	3.0	2.3	2.7	2.9
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	7.4	8.5	11.6	10.0	9.0	6.7	9.8
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.095)	ND(0.095)	ND(0.099)	ND(0.10)	ND(0.091)	ND(0.094)	ND(0.092)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	7,250	7,230	8,530 J	8,530	6,080	7,320	6,400
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	4.6	4.5	4.5	7.5	4.0	4.5 J	4.1 J
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	187	243	199 J	139 J	230 J	71.7 J	243 J
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	ND(0.017)	ND(0.017)	ND(0.018)	0.023 J	ND(0.017)	ND(0.017)	ND(0.017)
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	8.3	8.7	9.5 J	8.7	6.9	8.1	7.9
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.19 J	0.073 J	0.16 J	0.15 J	0.11 J	0.12 J	0.099 J
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.10)	ND(0.11)	ND(0.10)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.077 J	0.069 J	0.071 J	0.087 J	0.077 J	0.068 J	0.14
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	10.5	9.6	8.7	12.5	6.5	11.6	7.4
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	17.5	15.1	15.8	20.1	13.8	18.0 J	19.8 J
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.024)	ND(0.024)	ND(0.025)	ND(0.025)	ND(0.023)	ND(0.024)UJ	ND(0.023)UJ
Notes:																		
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																	
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YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential:	Industrial &	Residential:	Industrial &	Residential:	Industrial &	CRA-444M-D 021803-MM-447 (2-4) 2/18/2003	CRA-444M-D 021803-MM-448 (6-8) 2/18/2003	CRA-445M-D 022003-MM-453 (2-4) 2/20/2003	CRA-445M-D 022003-MM-454 (8-10) 2/20/2003	CRA-446M-S 022703-MM-481 (2-4) 2/27/2003	CRA-446M-S 022703-MM-482 (6-8) 2/27/2003	CRA-447M-D 021803-MM-449 (3-5) 2/18/2003
						Soil	Commercial: Soil	Particulate	Commercial:	Direct	Commercial							
						Volatilization to Indoor Air Inhalation Criteria	Volatilization to Indoor Air Inhalation Criteria	Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Contact Criteria	II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.012)	ND(0.0096)	ND(0.0095)UJ	ND(0.0089)UJ	ND(0.011)	ND(0.011)	ND(0.0086)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.015)	ND(0.012)	ND(0.012)UJ	ND(0.011)UJ	ND(0.014)	ND(0.014)	ND(0.011)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.015)	ND(0.012)	ND(0.012)UJ	ND(0.011)UJ	ND(0.014)	ND(0.014)	ND(0.011)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.069)	ND(0.056)	ND(0.056)UJ	ND(0.052)UJ	ND(0.064)	ND(0.065)	ND(0.05)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.021)	ND(0.017)	ND(0.017)UJ	ND(0.016)UJ	ND(0.02)	ND(0.02)	ND(0.016)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.032)	ND(0.026)	ND(0.026)UJ	ND(0.024)UJ	ND(0.03)	ND(0.03)	ND(0.023)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.063)	ND(0.052)	ND(0.051)UJ	ND(0.75)UJ	ND(0.059)	ND(0.06)	ND(0.047)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.0091)	ND(0.0075)	ND(0.0074)UJ	ND(0.0069)UJ	ND(0.0085)	ND(0.0086)	ND(0.0067)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0059)	ND(0.0049)	ND(0.0048)UJ	ND(0.0045)UJ	ND(0.0056)	ND(0.0056)	ND(0.0044)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.018)	ND(0.015)	ND(0.015)UJ	ND(0.014)UJ	ND(0.017)	ND(0.018)	ND(0.014)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.01)	ND(0.0084)	ND(0.0083)UJ	ND(0.0078)UJ	ND(0.0096)	ND(0.0098)	ND(0.0076)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0082)	ND(0.0067)	ND(0.0066)UJ	ND(0.0062)UJ	ND(0.0077)	ND(0.0078)	ND(0.006)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0086)	ND(0.007)	ND(0.053)UJ	ND(0.05)UJ	ND(0.008)	ND(0.0081)	ND(0.0063)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.011)	ND(0.0092)	ND(0.0091)UJ	ND(0.0085)UJ	ND(0.011)	ND(0.011)	ND(0.0082)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.032)	ND(0.026)	ND(0.026)UJ	ND(0.024)UJ	ND(0.03)	ND(0.03)	ND(0.023)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.012)	ND(0.0096)	ND(0.0095)UJ	ND(0.0089)UJ	ND(0.011)	ND(0.011)	ND(0.0086)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.011)	ND(0.0089)	ND(0.0088)UJ	ND(0.0082)UJ	ND(0.01)	ND(0.01)	ND(0.0079)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.021)	ND(0.017)	ND(0.27)UJ	ND(0.25)UJ	ND(0.02)	ND(0.02)	0.018 J
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.015)	ND(0.012)	ND(0.012)UJ	ND(0.011)UJ	ND(0.014)	ND(0.014)	ND(0.011)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0074)	ND(0.0061)	ND(0.006)UJ	ND(0.0056)UJ	ND(0.0069)	ND(0.007)	ND(0.0054)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.013)	ND(0.011)	ND(0.011)UJ	ND(0.01)UJ	ND(0.012)	ND(0.013)	ND(0.0097)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.011)	ND(0.0094)	ND(0.0093)UJ	ND(0.0087)UJ	ND(0.011)	ND(0.011)	ND(0.0084)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.015)	ND(0.012)	ND(0.012)UJ	ND(0.011)UJ	ND(0.014)	ND(0.014)	ND(0.011)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.025)	ND(0.021)	ND(0.02)UJ	ND(0.019)UJ	ND(0.023)	ND(0.024)	ND(0.018)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.016)	ND(0.015)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.079)	ND(0.016)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.1)	ND(0.021)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.017)	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.084)	ND(0.017)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.095)	ND(0.02)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.018)	0.046 J	ND(0.089)	ND(0.019)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(0.015)	ND(0.014)	0.068 J	ND(0.015)	0.2 J	ND(0.074)	ND(0.015)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(0.018)	ND(0.018)	0.1 J	ND(0.018)	0.23 J	ND(0.089)	ND(0.019)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.074)	ND(0.015)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(0.024)	ND(0.024)	0.33 J	0.05 J	0.3 J	ND(0.12)	ND(0.025)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(0.016)	ND(0.015)	0.3 J	0.054 J	ND(0.016)	ND(0.079)	ND(0.016)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(0.021)	ND(0.021)	0.28 J	0.056 J	ND(0.021)	ND(0.11)	ND(0.022)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(0.017)	ND(0.016)	0.2 J	0.05 J	0.081 J	ND(0.084)	ND(0.017)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(0.017)	ND(0.016)	0.25 J	0.035 J	ND(0.017)	ND(0.084)	ND(0.017)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)	0.027 J	ND(0.095)	ND(0.02)
bis(2-Ethylhexyl)phthalate	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.014)	ND(0.013)	ND(0.013)	ND(0.014)	0.035 J	0.084 J	0.018 J
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(0.02)	ND(0.02)	0.07 J	ND(0.02)	0.047 J	ND(0.1)	ND(0.021)
Chrysene	--	NLL	NLL	NLL	39	ID	ID											

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact	CRA-444M-D 021803-MM-447 (2-4) 2/18/2003	CRA-444M-D 021803-MM-448 (6-8) 2/18/2003	CRA-445M-D 022003-MM-453 (2-4) 2/20/2003	CRA-445M-D 022003-MM-454 (8-10) 2/20/2003	CRA-446M-S 022703-MM-481 (2-4) 2/27/2003	CRA-446M-S 022703-MM-482 (6-8) 2/27/2003	CRA-447M-D 021803-MM-444 (3-5) 2/18/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	0.19 J	0.20 J	ND(0.070)	ND(0.071)	ND(0.071)	0.11 J	0.36
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.075	0.089	0.11	0.10	0.038 J	0.067	0.074
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	5.3 J	5.6 J	6.8	7.3	9.1	4.4	10.6 J
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	2.2	2.4	3.4	3.0	2.9	2.7	3.3
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	7.1	8.3	10.4	10.6	6.7	12.5	13.9
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.091)	ND(0.091)	ND(0.091)	ND(0.092)	ND(0.092)	ND(0.093)	ND(0.096)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	5,060	5,500	7,920	7,280	7,460	6,610	10,800
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	2.7 J	3.7 J	4.1	4.3	6.1	3.9	6.8 J
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	162 J	196 J	287	269	110 J	276 J	212 J
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	ND(0.017)	ND(0.016)	ND(0.017)	ND(0.017)	0.019 J	0.024 J	ND(0.017)
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	6.4	8.2	9.3	8.9	7.5	8.7	11.4
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.096 J	0.22	0.13 J	0.098 J	ND(0.054)	0.069 J	0.091 J
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.11)	ND(0.11)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.057 J	0.091 J	0.079 J	0.071 J	0.052 J	0.090 J	0.16
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	7.3	6.6	9.8	9.3	12.1	6.0	15.0
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	12.7 J	18.7 J	15.8	17.1	13.1	19.2	21.6 J
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.023)	ND(0.023)	ND(0.023)	ND(0.023)	ND(0.023)	ND(0.023)	ND(0.024)
Notes:																		
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																	
--	No Criteria available for this constituent																	
NA	Constituent not analyzed for this sample																	
ND	Constituent not detected above sample quantitation limit																	
NLV	Constituent is not likely to volatilize																	
ID	Inadequate data exists to develop criterion for constituent																	
R	Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable																	
J	The associated value is an estimated quantity																	
U	The material was analyzed for but was not detected																	
UJ	The material was analyzed for but was not detected. The associated value is an estimate																	
	Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria																	
	Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria																	
	Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.																	

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential:	Industrial &	Residential:	Industrial &	Residential:	Industrial &	CRA-447M-D 021803-MM-450 (6-8) 2/18/2003	CRA-448M-D 021703-MM-443 (2-4) 2/17/2003	CRA-448M-D 021703-MM-444 (6-8) 2/17/2003	CRA-449M-S 022403-MM-460 (2-4) 2/24/2003	CRA-449M-S 022403-MM-461 (6-8) 2/24/2003	CRA-450M-D 022403-MM-462 (2-4) 2/24/2003	CRA-450M-D 022403-MM-463 (6-8) 2/24/2003
						Soil	Commercial: Soil	Particulate	Commercial:	Direct	Commercial							
						Volatilization to Indoor Air Inhalation Criteria	Volatilization to Indoor Air Inhalation Criteria	Soil Inhalation Criteria	Particulate Soil Inhalation Criteria	Contact Criteria	II: Direct Contact							
VOCs (mg/Kg)																		
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,9000,000	460	460	ND(0.009)	ND(0.011)	ND(0.011)	ND(0.01)	ND(0.01)	ND(0.012)	ND(0.011)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.011)	ND(0.014)	ND(0.013)	ND(0.013)	ND(0.013)	ND(0.015)	ND(0.014)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.011)	ND(0.014)	ND(0.013)	ND(0.013)	ND(0.013)	ND(0.015)	ND(0.014)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.053)	ND(0.067)	ND(0.063)	ND(0.06)	ND(0.059)	ND(0.069)	ND(0.065)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.016)	ND(0.021)	ND(0.019)	ND(0.019)	ND(0.018)	ND(0.021)	ND(0.02)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.024)	ND(0.031)	ND(0.029)	ND(0.028)	ND(0.027)	ND(0.032)	ND(0.03)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	0.18 J	ND(0.062)	0.065 J	ND(0.056)	ND(0.055)	ND(0.063)	ND(0.06)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.007)	ND(0.0088)	ND(0.0084)	ND(0.008)	ND(0.0079)	ND(0.0091)	ND(0.0086)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0045)	ND(0.0058)	ND(0.0055)	ND(0.0052)	ND(0.0051)	ND(0.006)	ND(0.0056)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.014)	ND(0.018)	ND(0.017)	ND(0.016)	ND(0.016)	ND(0.019)	ND(0.017)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.0079)	ND(0.01)	ND(0.0095)	ND(0.0091)	ND(0.0089)	ND(0.01)	ND(0.0097)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0063)	ND(0.0079)	ND(0.0075)	ND(0.0072)	ND(0.0071)	ND(0.0082)	ND(0.0077)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0066)	ND(0.0083)	ND(0.0079)	ND(0.058)U	ND(0.057)U	ND(0.066)U	ND(0.062)U
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.0086)	ND(0.011)	ND(0.01)	ND(0.0099)	ND(0.0097)	ND(0.011)	ND(0.011)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	0.038 J	ND(0.031)	ND(0.029)	ND(0.028)	ND(0.027)	ND(0.032)	ND(0.03)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.009)	ND(0.011)	ND(0.011)	ND(0.01)	ND(0.01)	ND(0.012)	ND(0.011)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.0083)	ND(0.011)	ND(0.01)	ND(0.0095)	ND(0.0094)	ND(0.011)	ND(0.01)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.016)	0.028 J	0.033 J	ND(0.019)	ND(0.018)	ND(0.021)	ND(0.02)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.011)	ND(0.014)	ND(0.013)	ND(0.013)	ND(0.013)	ND(0.015)	ND(0.014)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0057)	ND(0.0072)	ND(0.0068)	ND(0.0065)	ND(0.0064)	ND(0.0074)	ND(0.007)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.01)	ND(0.013)	ND(0.012)	ND(0.012)	ND(0.011)	ND(0.013)	ND(0.012)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.0088)	ND(0.011)	ND(0.011)	ND(0.01)	ND(0.0099)	ND(0.012)	ND(0.011)
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.011)	ND(0.014)	ND(0.013)	ND(0.013)	ND(0.013)	ND(0.015)	ND(0.014)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.019)	ND(0.024)	ND(0.023)	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024)
SVOCs (mg/Kg)																		
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(1.6)	ND(0.016)	ND(0.015)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.015)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(2)	ND(0.021)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(1.7)	ND(0.017)	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.016)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(1.9)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(1.8)	ND(0.018)	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.017)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	ND(1.5)	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.014)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	ND(1.8)	ND(0.018)	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.017)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(1.5)	ND(0.015)	ND(0.014)	ND(0.015)	ND(0.015)	ND(0.015)	ND(0.014)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	ND(2.4)	ND(0.025)	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.025)	ND(0.024)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	ND(1.6)	ND(0.016)	ND(0.015)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.015)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	ND(2.1)	ND(0.022)	ND(0.021)	ND(0.022)	ND(0.021)	ND(0.021)	ND(0.021)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	ND(1.7)	ND(0.017)	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.016)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	ND(1.7)	ND(0.017)	ND(0.016)	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.016)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(1.9)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)
bis(2-Ethylhexyl)phthal	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(1.4)	ND(0.014)	ND(0.013)	0.058 J	ND(0.014)	0.014 J	ND(0.013)
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	ND(2)	ND(0.021)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	ND(2.3)	ND(0.024)	ND(0.023)	ND(0.024)	ND(0.023)	ND(0.023)	ND(0.023)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	ND(1.9)	ND(0.02)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(1.8)	ND(0.018)	ND(0.017)	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.017)
Diethyl phthalate	--	2.2	740	110	ID	NLV												

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾																		
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact	CRA-447M-D 021803-MM-450 (6-8) 2/18/2003	CRA-448M-D 021703-MM-443 (2-4) 2/17/2003	CRA-448M-D 021703-MM-444 (6-8) 2/17/2003	CRA-449M-S 022403-MM-460 (2-4) 2/24/2003	CRA-449M-S 022403-MM-461 (6-8) 2/24/2003	CRA-450M-D 022403-MM-462 (2-4) 2/24/2003	CRA-450M-D 022403-MM-463 (6-8) 2/24/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	0.19 J	0.31	0.17 J	0.10 J	0.096 J	0.19 J	0.075 J
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.087	0.060	0.074	0.15	0.11	0.12	0.17
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	6.7 J	6.9 J	4.8 J	9.2	7.5	8.5	5.8
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	2.5	3.8	2.2	4.7	3.5	3.2	2.9
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	9.2 J	6.7	6.5	16.2 J	10.5 J	9.0 J	7.9 J
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.092)	ND(0.096)	ND(0.091)	ND(0.095)	ND(0.093)	ND(0.094)	ND(0.091)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	5,510	8,200	5,500	11,300	8,630	9,690	7,570
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	4.8 J	5.4 J	3.6 J	6.2 J	4.4 J	4.7 J	3.3 J
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	166 J	439 J	173 J	212 J	237 J	211 J	311 J
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	ND(0.017)	ND(0.017)	ND(0.016)	0.030 J	0.026 J	0.042 J	0.021 J
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	8.0 J	8.6	6.3	11.4	9.4	9.5	7.2
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.16 J	0.13 J	0.17 J	0.11 J	0.11 J	0.14 J	0.14 J
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.10)	ND(0.11)	ND(0.10)	ND(0.11)	ND(0.11)	ND(0.11)	ND(0.10)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.072 J	0.055 J	0.056 J	0.15	0.084 J	0.11	0.14
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	6.3	12.1	6.1	16.7	10.7	12.9	8.1
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	13.9 J	14.2 J	13.0 J	24.7 J	17.6 J	23.1 J	21.0 J
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.023)	ND(0.024)	ND(0.023)	ND(0.024)UJ	ND(0.023)UJ	ND(0.023)UJ	ND(0.023)UJ
Notes:																		
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended																	
--	No Criteria available for this constituent																	
NA	Constituent not analyzed for this sample																	
ND	Constituent not detected above sample quantitation limit																	
NLV	Constituent is not likely to volatilize																	
ID	Inadequate data exists to develop criterion for constituent																	
R	Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable																	
J	The associated value is an estimated quantity																	
U	The material was analyzed for but was not detected																	
UJ	The material was analyzed for but was not detected. The associated value is an estimate																	
	Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria																	
	Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria																	
	Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.																	

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Residential:											CRA-451M-S 022803-MM-487 (2-4) 2/28/2003	CRA-451M-S 022803-MM-488 (4-6) 2/28/2003	CRA-452M-D 022503-MM-464 (2-4) 2/25/2003	CRA-452M-D 022503-MM-465 (6-8) 2/25/2003
	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil	Industrial &	Residential:	Industrial &	Residential:	Industrial &				
						Volatilization to Indoor Air Inhalation Criteria	Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Particulate Soil Inhalation Criteria	Commercial: Particulate Soil Inhalation Criteria	Direct Contact Criteria	Commercial II: Direct Contact				
VOCs (mg/Kg)															
1,1,1-Trichloroethane	--	4	460	4	4	250	460	67,000,000	2,900,000	460	460	ND(0.011)	ND(0.012)	ND(0.011)	ND(0.0087)
1,1-Dichloroethane	--	15	890	18	50	230	430	33,000,000	15,000,000	890	890	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.011)
1,2,4-Trichlorobenzene	--	1.8	1100	4.2	4.2	1,100	1,100	25,000,000	11,000,000	990	1,100	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.011)
2-Butanone	--	44	27,000	260	760	27,000	27,000	67,000,000	29,000,000	27,000	27,000	ND(0.066)	ND(0.069)	ND(0.065)	ND(0.051)
2-Hexanone	--	--	2,500	20	58	990	1,800	2,700,000	1,200,000	2,500	2,500	ND(0.02)	ND(0.021)	ND(0.02)	ND(0.016)
4-Methyl-2-pentanone	--	ID	2,700	36	100	2,700	2,700	140,000,000	60,000,000	2,700	2,700	ND(0.031)	ND(0.032)	ND(0.03)	ND(0.023)
Acetone	--	34	110,000	15	42	110,000	110,000	390,000,000	170,000,000	23,000	73,000	ND(0.061)	ND(0.063)	ND(0.06)	ND(0.047)
Benzene	--	4	220	0.1	0.1	1.6	8.4	380,000	470,000	180	400	ND(0.0088)	ND(0.0091)	ND(0.0087)	ND(0.0068)
Carbon disulfide	--	ID	280	16	46	76	140	47,000,000	21,000,000	280	280	ND(0.0057)	ND(0.0059)	ND(0.0057)	ND(0.0044)
Carbon tetrachloride	--	0.9	92	0.1	0.1	0.19	0.99	130,000	170,000	96	390	ND(0.018)	ND(0.018)	0.045 J	ND(0.014)
cis-1,2-Dichloroethene	--	12	640	1.4	1.4	22	41	2,300,000	1,000,000	640	640	ND(0.0099)	ND(0.01)	ND(0.0098)	ND(0.0076)
Cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.0079)	ND(0.0082)	ND(0.0078)	ND(0.0061)
Ethylbenzene	--	0.36	140	1.5	1.5	87	140	10,000,000	13,000,000	140	140	ND(0.0083)	ND(0.0086)	ND(0.0082)	ND(0.0064)
Isopropylbenzene	--	ID	390	91	260	390	390	5,800,000	2,600,000	390	390	ND(0.011)	ND(0.011)	ND(0.011)	ND(0.0083)
Methyl acetate	---	---	---	---	---	---	---	---	---	---	---	ND(0.031)	ND(0.032)	ND(0.03)	ND(0.023)
Methyl cyclohexane	---	---	---	---	---	---	---	---	---	---	---	ND(0.011)	ND(0.012)	ND(0.011)	ND(0.0087)
Methyl Tert Butyl Ether	--	15	5,900	0.8	0.8	5,900	5,900	200,000,000	88,000,000	1,500	5,900	ND(0.01)	ND(0.011)	ND(0.01)	ND(0.008)
Methylene chloride	--	19	2,300	0.1	0.1	45	240	6,600,000	8,300,000	1,300	2,300	ND(0.02)	ND(0.021)	ND(0.02)	ND(0.016)
Tetrachloroethene	--	0.9	88	0.1	0.1	11	60	5,400,000	6,800,000	88	88	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.011)
Toluene	--	2.8	250	16	16	250	250	27,000,000	12,000,000	250	250	ND(0.0071)	ND(0.0074)	ND(0.007)	ND(0.0055)
trans-1,2-Dichloroethen	--	30	1,400	2	2	23	43	4,700,000	2,100,000	1,400	1,400	ND(0.013)	ND(0.013)	ND(0.013)	ND(0.0098)
Trichloroethene	--	4	440	0.1	0.1	7.1	37	1,800,000	2,300,000	500	500	ND(0.011)	ND(0.011)	0.032 J	0.083
Vinyl chloride	--	0.3	20	0.04	0.04	0.27	2.8	350,000	890,000	3.8	34	ND(0.014)	ND(0.015)	ND(0.014)	ND(0.011)
Xylene (total)	--	0.7	150	5.6	5.6	150	150	290,000,000	130,000,000	150	150	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.019)
SVOCs (mg/Kg)															
2,4,5-Trichlorophenol	--	--	9,100	39	110	NLV	NLV	23,000,000	10,000,000	23,000	73,000	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.015)
2,4,6-Trichlorophenol	--	--	200	2.4	9.4	NLV	NLV	1,000,000	1,300,000	710	3,300	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)
2,4-Dichlorophenol	--	0.38	960	1.5	4.2	NLV	NLV	5,100,000	2,300,000	660	1,800	ND(0.017)	ND(0.017)	ND(0.017)	ND(0.016)
2,4-Dimethylphenol	--	7.6	10,000	7.4	20	NLV	NLV	4,700,000	2,100,000	11,000	36,000	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)
2-Methylnaphthalene	--	ID	5,500	57	170	ID	ID	ID	ID	8,100	26,000	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.018)
Acenaphthene	--	4.4	970	300	20	190,000	350,000	14,000,000	6,200,000	41,000	130,000	0.014 J	ND(0.015)	ND(0.015)	ND(0.014)
Anthracene	--	ID	41	41	880	1,000,000	1,000,000	67,000,000	29,000,000	230,000	730,000	0.03 J	0.022 J	0.032 J	ND(0.018)
Benzaldehyde	---	---	---	---	41	---	---	---	---	---	---	ND(0.014)	ND(0.015)	ND(0.015)	ND(0.014)
Benzo(a)anthracene	--	NLL	NLL	NLL	---	NLV	NLV	ID	ID	20	80	0.13 J	0.086 J	0.22 J	ND(0.024)
Benzo(a)pyrene	--	NLL	NLL	NLL	NLL	NLV	NLV	1,500	1,900	2	8	0.13 J	0.092 J	0.28 J	ND(0.015)
Benzo(b)fluoranthene	--	NLL	NLL	NLL	NLL	ID	ID	ID	ID	20	80	0.17 J	0.12 J	0.39	ND(0.021)
Benzo(g,h,i)perylene	--	NLL	NLL	NLL	NLL	NLV	NLV	800,000	350,000	2,500	7,000	0.11 J	0.087 J	0.21 J	ND(0.016)
Benzo(k)fluoranthene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	200	800	0.071 J	0.049 J	0.13 J	ND(0.016)
Biphenyl	---	---	---	---	NLL	---	---	---	---	---	---	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)
bis(2-Ethylhexyl)phthali	--	NLL	NLL	NLL	---	NLV	NLV	700,000	890,000	2,800	10,000	ND(0.013)	0.016 J	0.023 J	0.023 J
Carbazole	--	1.1	820	9.4	NLL	NLV	NLV	ID	ID	530	2,400	0.028 J	ND(0.02)	ND(0.02)	ND(0.02)
Chrysene	--	NLL	NLL	NLL	39	ID	ID	ID	ID	2,000	8,000	0.14 J	0.098 J	0.28 J	ND(0.023)
Dibenz(a,h)anthracene	--	NLL	NLL	NLL	NLL	NLV	NLV	ID	ID	2	8	0.028 J	0.021 J	0.043 J	ND(0.019)
Dibenzofuran	--	1.7	ID	ID	NLL	ID	ID	ID	ID	ID	ID	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.018)
Diethyl phthalate	--	2.2	740	110	ID	NLV	NLV	3,300,000	1,500,000	740	740	ND(0.02)	ND(0.02)	ND(0.02)	ND(0.02)
Fluoranthene	--	5.5	730	730	320	1,000,000	1,000,000	9,300,000	4,100,000	46,000	130,000	0.29 J	0.21 J	0.42	ND(0.016)
Fluorene	--	5.3	890	390	730	580,000	1,000,000	9,300,000	4,100,000	27,000	87,000	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.015)
Indeno(1,2,3-cd)pyrene	--	NLL	NLL	NLL	890	NLV	NLV	ID	ID	20	80	0.098 J	0.072 J	0.18 J	ND(0.02)
Methylphenols - Total	--	1.4	16,000	7.4	NLL	NLV	NLV	6,700,000	2,900,000	11,000	36,000	ND(0.022)	ND(0.023)	ND(0.022)	ND(0.022)
Naphthalene	--	0.87	2,100	35	100	250	470	200,000	88,000	16,000	52,000	ND(0.018)	ND(0.018)	ND(0.018)	ND(0.018)
Phenanthrene	--	5.3	1,100	56	160	2,800	5,100	6,700	2,900	1,600	5,200	0.18 J	0.14 J	0.16 J	ND(0.022)
Phenol	--	4.2	12,000	88	260	NLV	NLV	40,000,000	18,000,000	1,200	1,200	ND(0.019)	ND(0.019)	ND(0.019)	ND(0.019)
Pyrene	--	ID	480	480	480	1,000,000	1,000,000	6,700,000	2,900,000	29,000	84,000	0.21 J	0.15 J	0.54	ND(0.022)
Inorganics (mg/Kg)															
Aluminum	6900	--	1,000,000	1	1	NLV	NLV	ID	ID	50,000	370,000	2,450	5,510	4,360	2,280
Antimony	NA	94	49,000	0.5	4.3	NLV	NLV	13,000	5,900	180	670	0.24 J	0.30 J	ND(0.25)UJ	ND(0.24)UJ
Arsenic	5.8	70	2,000	23	23	NLV	NLV	720	910	7.6	37	3.0 J	5.2 J	3.7 J	2.8 J
Barium	75	290.00	1,000,000	1,300	1,300	NLV	NLV	330,000	150,000	37,000	130,000	9.2	17.5	24.4	8.8

TABLE 5.1
SUMMARY OF DETECTED PARAMETERS IN SOIL
GMPT - WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: S-17358- Sample Depth (feet) Sample Date	Statewide Default Background Levels	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Residential: Drinking Water Protection Criteria	Industrial & Commercial: Drinking Water Protection Criteria	Residential: Soil Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial: Soil Volatilization to Indoor Air Inhalation Criteria	Residential: Particulate Soil Inhalation Criteria	Industrial & Commercial: Particulate Soil Inhalation Criteria	Residential: Direct Contact Criteria	Industrial & Commercial II: Direct Contact	CRA-451M-S 022803-MM-487 (2-4) 2/28/2003	CRA-451M-S 022803-MM-488 (4-6) 2/28/2003	CRA-452M-D 022503-MM-464 (2-4) 2/25/2003	CRA-452M-D 022503-MM-465 (6-8) 2/25/2003
Beryllium	--	30.00	1,000,000	51	51	NLV	NLV	1,300	590	410	1,600	ND(0.070)	0.097 J	0.28	0.078 J
Cadmium	1.2	2.7	2,30,000	6	6	NLV	NLV	1,700	2,200	550	2,100	0.080	0.14	0.12	0.091
Chromium Total	--	3.3	140,000	30	30	NLV	NLV	260	240	2,500	9,200	5.3	15.4	8.4	6.9
Cobalt	6.8	2	48,000	0.8	2	NLV	NLV	13,000	5,900	2,600	9,000	2.3	4.2	3.0	2.4
Copper	32	52.00	1,000,000	5,800	5,800	NLV	NLV	130,000	59,000	20,000	73,000	8.9	16.6	10.2 J	9.7 J
Cyanide (total)	0.39	0.2	250	4	4	NLV	NLV	250	250	12	250	ND(0.091)	ND(0.094)	ND(0.094)	ND(0.091)
Iron	12000	--	1,000,000	6	6	NLV	NLV	ID	ID	160,000	580,000	6,330	12,000	8,260	5,960
Lead	21	1800.00	ID	700	700	NLV	NLV	100,000	44,000	400	900	5.3	7.1	9.4 J	3.8 J
Manganese	440	11.00	180,000	1	1	NLV	NLV	3,300	1,500	25,000	90,000	188 J	231 J	291 J	225 J
Mercury	0.13	0.1	47	1.7	1.7	48	89	20,000	8,800	160	580	0.026 J	0.028 J	0.018 J	0.031 J
Nickel	20	54.00	1,000,000	100	100	NLV	NLV	13,000	16,000	40,000	150,000	7.1	14.3	8.3	7.8
Selenium	0.41	0.4	78,000	4	4	NLV	NLV	130,000	59,000	2,600	9,600	0.061 J	0.11 J	0.16 J	0.21
Silver	1	0.5	200,000	4.5	13	NLV	NLV	6,700	2,900	2,500	9,000	ND(0.10)	ND(0.11)	ND(0.11)	ND(0.10)
Thallium	--	4.2	15,000	2.3	2.3	NLV	NLV	ID	ID	35	130	0.089 J	0.16	0.10 J	0.13
Vanadium	--	190	1,000,000	72	990	NLV	NLV	ID	ID	750	5,500	7.6	16.0	11.1	7.4
Zinc	47	120.00	1,000,000	2,400	5,000	NLV	NLV	ID	ID	170,000	630,000	20.7 J	25.3 J	27.5 J	18.2 J
Total PCB (mg/Kg)	--	NLL	NLL	NLL	NLL	3,000	16,000	5,200	6,500	4	16	ND(0.023)	ND(0.024)	0.29 J	ND(0.023)

Notes:

- (1)Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended
- No Criteria available for this constituent
- NAConstituent not analyzed for this sample
- NDConstituent not detected above sample quantitation limit
- NLVConstituent is not likely to volatilize
- IDInadequate data exists to develop criterion for constituent
- RLaboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
- JThe associated value is an estimated quantity
- UThe material was analyzed for but was not detected
- UJThe material was analyzed for but was not detected. The associated value is an estimate

Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria

Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria

Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

TABLE 5.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: GW-17358 Sample Date	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-45M	CRA-46M	CRA-47M	CRA-048M	CRA-49M	CRA-49M	CRA-065M	CRA-66M	CRA-68M
							022403-JD-640	022503-JD-644	022103-SP-635	022003-SP-631	022003-SP-629	022003-SP-630	022003-SP-628	022403-JD-639	022603-JD-648
								2/24/2003	2/25/2003	2/21/2003	2/20/2003	2/20/2003	2/20/2003 (Dup.)	2/20/2003	2/24/2003
VOC (mg/L)															
1,1,1-Trichloroethane	0.2	1,300	0.2	0.2	660	1,300	ND(0.00039)	ND(0.00039)	ND(0.0024)	ND(0.00039)UJ	ND(0.00065)UJ	ND(0.00065)UJ	ND(0.00039)UJ	ND(0.00039)	ND(0.00039)
1,1-Dichloroethane	0.74	2,400	0.88	2.5	1,000	2,300	ND(0.0003)	ND(0.0003)	ND(0.0019)	ND(0.0003)UJ	ND(0.0005)UJ	ND(0.0005)UJ	ND(0.0003)UJ	ND(0.0003)	ND(0.0003)
1,2,4-Trichlorobenzene	0.03	19	0.07	0.07	300	300	ND(0.0004)	ND(0.0004)	ND(0.0025)	ND(0.0004)UJ	ND(0.00067)UJ	ND(0.00067)UJ	ND(0.0004)UJ	ND(0.0004)	ND(0.0004)
2-Butanone	2.2	240,000	13	38	240,000	240,000	ND(0.00059)	ND(0.00059)	ND(0.0037)	ND(0.00059)UJ	ND(0.00099)UJ	ND(0.00099)UJ	ND(0.00059)UJ	ND(0.00059)	ND(0.025)U
2-Hexanone		5,200	1	2.9	4,200	8,700	ND(0.00058)	ND(0.00058)	ND(0.0036)	ND(0.00058)UJ	ND(0.00097)UJ	ND(0.00097)UJ	ND(0.00058)UJ	ND(0.00058)	ND(0.00058)
4-Methyl-2-pentanone	ID	13,000	1.8	5.2	20,000	20,000	ND(0.00026)	ND(0.00026)	ND(0.0016)	ND(0.00026)UJ	ND(0.00043)UJ	ND(0.00043)UJ	0.00093 J	ND(0.00026)	ND(0.00026)
Acetone	1.7	31,000	0.73	2.1	1,000,000	1,000,000	ND(0.0011)	0.0011 J	ND(0.0069)	ND(0.0011)UJ	ND(0.0018)UJ	ND(0.0018)UJ	0.0017 J	ND(0.0011)	0.0039 J
Benzene	0.2	11	0.005	0.005	5.6	35	ND(0.00037)	ND(0.00037)	0.0046 J	0.00056 J	ND(0.00062)UJ	ND(0.00062)UJ	0.00075 J	ND(0.00037)	ND(0.00037)
Carbon disulfide	ID	1200	0.8	2.3	250	550	ND(0.00024)	ND(0.00024)	ND(0.0015)	ND(0.00024)UJ	ND(0.0004)UJ	ND(0.0004)UJ	ND(0.00024)UJ	ND(0.00024)	ND(0.00024)
Carbon tetrachloride	0.045	4.6	0.005	0.005	0.37	2.4	ND(0.00037)	ND(0.00037)	ND(0.0023)	ND(0.00037)UJ	ND(0.00062)UJ	ND(0.00062)UJ	ND(0.00037)UJ	ND(0.00037)	ND(0.00037)
cis-1,2-Dichloroethene	0.62	200	0.07	0.07	93	210	ND(0.00035)	ND(0.00035)	ND(0.0022)	ND(0.00035)UJ	ND(0.00058)UJ	ND(0.00058)UJ	0.0011 J	ND(0.00035)	ND(0.00035)
Cyclohexane	---	---	---	---	---	---	ND(0.00033)	ND(0.00033)	0.014	0.0029 J	0.00067 J	0.0019 J	ND(0.00033)UJ	ND(0.00033)	ND(0.00033)
Ethylbenzene	0.018	170	0.074	0.074	110	170	ND(0.00041)	ND(0.00041)	0.06	0.013 J	0.011 J	0.011 J	0.00047 J	ND(0.00041)	ND(0.00041)
Isopropylbenzene	ID	56	0.8	2.3	56	56	ND(0.00039)	ND(0.00039)	0.024 J	0.0085 J	0.0053 J	0.0052 J	ND(0.00039)UJ	ND(0.00039)	ND(0.00039)
Methyl acetate	---	---	---	---	---	---	ND(0.00054)	ND(0.00054)	ND(0.0034)	ND(0.00054)UJ	ND(0.0009)UJ	ND(0.0009)UJ	ND(0.00054)UJ	ND(0.00054)	ND(0.00054)
Methyl cyclohexane	---	---	---	---	---	---	ND(0.00042)	ND(0.00042)	0.029	0.0026 J	0.0021 J	0.0022 J	ND(0.00042)UJ	ND(0.00042)	ND(0.00042)
Methyl Tert Butyl Ether	0.73	610	0.04	0.04	47,000	47,000	ND(0.00027)	ND(0.00027)	ND(0.0017)	ND(0.00027)UJ	ND(0.00045)UJ	ND(0.00045)UJ	ND(0.00027)UJ	ND(0.00027)	ND(0.00027)
Methylene chloride	0.94	220	0.005	0.005	220	1,400	ND(0.00029)	ND(0.00029)	ND(0.031)U	ND(0.00029)UJ	ND(0.00048)UJ	ND(0.00048)UJ	ND(0.00029)UJ	ND(0.00029)	ND(0.00029)
Tetrachloroethene	0.045	12	0.005	0.005	25	170	ND(0.00042)	ND(0.00042)	ND(0.0026)	ND(0.00042)UJ	ND(0.0007)UJ	ND(0.0007)UJ	ND(0.00042)UJ	ND(0.00042)	ND(0.00042)
Toluene	0.14	530	0.79	0.79	530	530	ND(0.00039)	ND(0.00039)	ND(0.0024)	ND(0.00039)UJ	ND(0.00065)UJ	ND(0.00065)UJ	ND(0.00039)UJ	ND(0.00039)	ND(0.00039)
trans-1,2-Dichloroethene	1.5	220	0.1	0.1	85	200	ND(0.00033)	ND(0.00033)	ND(0.0021)	ND(0.00033)UJ	ND(0.00055)UJ	ND(0.00055)UJ	ND(0.00033)UJ	ND(0.00033)	ND(0.00033)
Trichloroethene	0.2	22	0.005	0.005	15	97	ND(0.00042)	ND(0.00042)	ND(0.0026)	ND(0.00042)UJ	ND(0.0007)UJ	ND(0.0007)UJ	ND(0.00042)UJ	ND(0.00042)	ND(0.00042)
Vinyl chloride	0.015	1	0.002	0.002	1.1	13	ND(0.00036)	ND(0.00036)	ND(0.0022)	ND(0.00036)UJ	ND(0.0006)UJ	ND(0.0006)UJ	ND(0.00036)UJ	ND(0.00036)	ND(0.00036)
Xylene (total)	0.035	190	0.28	0.28	190	190	ND(0.00044)	ND(0.00044)	0.34	0.0062 J	0.0098 J	0.01 J	0.0009 J	ND(0.00044)	0.00092 J
SVOC (mg/L)															
2,4,5-Trichlorophenol		170	0.73	2.1	NLV	NLV	ND(0.0012)	ND(0.012)	ND(0.0012)	ND(0.0012)UJ	ND(0.0012)UJ	ND(0.0012)UJ	0.0026 J	ND(0.0012)	ND(0.0012)
2,4,6-Trichlorophenol	0.005	10	0.12	0.47	NLV	NLV	ND(0.0017)	ND(0.017)	ND(0.0017)	ND(0.0017)UJ	ND(0.0017)UJ	ND(0.0017)UJ	0.0018 J	ND(0.0017)	ND(0.0017)
2,4-Dichlorophenol	0.019	48	0.073	0.21	NLV	NLV	ND(0.00085)	ND(0.0085)	ND(0.00085)	ND(0.00085)UJ	ND(0.00085)UJ	ND(0.00085)UJ	0.00091 J	ND(0.00085)	ND(0.00085)
2,4-Dimethylphenol	0.38	520	0.37	1	NLV	NLV	ND(0.00085)	ND(0.0085)	0.0038 J	ND(0.00085)UJ	ND(0.00085)UJ	ND(0.00085)UJ	0.0023 J	ND(0.00085)	ND(0.00085)
2-Methylnaphthalene	ID	25	0.26	0.75	ID	ID	ND(0.00064)	ND(0.0064)	0.02	0.0061	0.0012 J	0.0013 J	ND(0.00064)UJ	ND(0.00064)	ND(0.00064)
Acenaphthene	0.019	4.2	1.3	3.8	4.2	4.2	ND(0.0008)	ND(0.008)	ND(0.0008)	ND(0.0008)UJ	ND(0.0008)UJ	ND(0.0008)UJ	0.014	ND(0.0008)	ND(0.0008)
Anthracene	ID	0.043	0.043	0.043	0.043	0.043	ND(0.00068)	ND(0.0068)	ND(0.00068)	ND(0.00068)UJ	ND(0.00068)UJ	ND(0.00068)UJ	ND(0.00068)UJ	ND(0.00068)	ND(0.00068)
Benzaldehyde	---	---	---	---	---	---	ND(0.0028)	ND(0.028)	ND(0.0028)	ND(0.0028)UJ	ND(0.0028)UJ	ND(0.0028)UJ	ND(0.0028)UJ	ND(0.0028)	ND(0.0028)
Benzo(a)anthracene	ID	0.0094	0.0021	0.0085	NLV	NLV	ND(0.0007)	ND(0.007)	ND(0.0007)	ND(0.0007)UJ	ND(0.0007)UJ	ND(0.0007)UJ	ND(0.0007)UJ	ND(0.0007)	ND(0.0007)
Benzo(a)pyrene	ID	0.002	0.005	0.005	NLV	NLV	ND(0.00073)	ND(0.0073)	ND(0.00073)	ND(0.00073)UJ	ND(0.00073)UJ	ND(0.00073)UJ	ND(0.00073)UJ	ND(0.00073)	ND(0.00073)
Benzo(b)fluoranthene	ID	0.002	0.002	0.002	ID	ID	ND(0.00094)	ND(0.0094)	ND(0.00094)	ND(0.00094)UJ	ND(0.00094)UJ	ND(0.00094)UJ	ND(0.00094)UJ	ND(0.00094)	ND(0.00094)
Benzo(g,h,i)perylene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00085)	ND(0.0085)	ND(0.00085)	ND(0.00085)UJ	ND(0.00085)UJ	ND(0.00085)UJ	ND(0.00085)UJ	ND(0.00085)	ND(0.00085)
Benzo(k)fluoranthene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00084)	ND(0.0084)	ND(0.00084)	ND(0.00084)UJ	ND(0.00084)UJ	ND(0.00084)UJ	ND(0.00084)UJ	ND(0.00084)	ND(0.00084)
Biphenyl	---	---	---	---	---	---	ND(0.0026)	ND(0.026)	ND(0.0026)	ND(0.0026)UJ	ND(0.0026)UJ	ND(0.0026)UJ	ND(0.0026)UJ	ND(0.0026)	ND(0.0026)
bis(2-Ethylhexyl)phthalate	0.032	0.32	0.006	0.006	NLV	NLV	ND(0.0027)	ND(0.027)	ND(0.0027)	ND(0.0027)UJ	ND(0.0027)UJ	ND(0.0027)UJ	ND(0.0027)UJ	ND(0.0027)	ND(0.0027)
Carbazole	0.01	7.4	0.085	0.35	NLV	NLV	ND(0.00082)	ND(0.0082)	ND(0.00082)	ND(0.00082)UJ	ND(0.00082)UJ	ND(0.00082)UJ	ND(0.00082)UJ	ND(0.00082)	0.00420

TABLE 5.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample ID: GW-17358 Sample Date	Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria										
							CRA-45M	CRA-46M	CRA-47M	CRA-048M	CRA-49M	CRA-49M	CRA-065M	CRA-66M	CRA-68M	
							022403-JD-640 2/24/2003	022503-JD-644 2/25/2003	022103-SP-635 2/21/2003	022003-SP-631 2/20/2003	022003-SP-629 2/20/2003	022003-SP-630 2/20/2003 (Dup.)	022003-SP-628 2/20/2003	022403-JD-639 2/24/2003	022603-JD-648 2/26/2003	
Cadmium (Dissolved)	0.0027	190	0.005	0.005	NLV	NLV	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)	NA	
Barium (Dissolved)	0.011	460	0.1	0.1	NLV	NLV	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	NA	
Cobalt (Dissolved)	0.1	2,400	0.04	0.1	NLV	NLV	ND(0.00074)	ND(0.00074)	ND(0.00074)	ND(0.00074)	ND(0.00074)	ND(0.00074)	ND(0.00074)	ND(0.00074)	NA	
Copper (Dissolved)	0.009	7,400	1	1	NLV	NLV	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	0.00066 J	0.00076 J	ND(0.0020)U	0.00065 J	ND(0.0020)U	NA	
Cyanide (total)	0.0052	57	0.2	0.2	NLV	NLV	ND(0.0018)	ND(0.0018)	ND(0.0018)	0.0020 J	0.0018 J	0.0032 J	0.0043 J	ND(0.0018)	ND(0.0018)	
Iron (Dissolved)	--	58,000	0.3	0.3	NLV	NLV	9.2	12.8	2.5 J	2.2 J	0.82 J	0.71 J	0.17 J	14.7	NA	
Lead (Dissolved)	0.01	ID	0.004	0.004	NLV	NLV	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	NA	
Manganese (Dissolved)	0.53	9,100	0.05	0.05	NLV	NLV	0.24	0.11	0.27	0.24	0.25	0.27	0.072	0.25	NA	
Mercury (Dissolved)	0.0000013	0.056	0.002	0.002	0.056	0.056	ND(0.000087)	ND(0.000087)	ND(0.000087)	ND(0.000087)UJ	ND(0.000087)UJ	ND(0.000087)UJ	ND(0.000087)UJ	ND(0.000087)UJ	NA	
Nickel (Dissolved)	0.52	74,000	0.1	0.1	NLV	NLV	ND(0.0029)	0.013 J	ND(0.0029)	ND(0.0029)	ND(0.0029)	ND(0.0029)	0.0039 J	ND(0.0029)	NA	
Selenium (Dissolved)	0.005	970	0.05	0.05	NLV	NLV	0.0012 J	ND(0.00030)	0.00071 J	0.00077 J	0.0020	0.00097 J	ND(0.00030)	0.00089 J	NA	
Barium (Dissolved)	0.0002	1,500	0.034	0.098	NLV	NLV	ND(0.00013)	ND(0.00013)	ND(0.00013)	ND(0.00013)	ND(0.00013)	ND(0.00013)	ND(0.00013)	ND(0.00013)	NA	
Thallium (Dissolved)	0.0037	13	0.002	0.002	NLV	NLV	ND(0.000033)	ND(0.000033)	ND(0.000033)	ND(0.000033)	ND(0.000033)	ND(0.000033)	ND(0.000033)	ND(0.000033)	NA	
Vanadium (Dissolved)	0.012	970	0.0045	0.062	NLV	NLV	ND(0.00067)	0.0065 J	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	NA	
Zinc (Dissolved)	0.12	110,000	2.4	5	NLV	NLV	ND(0.019)U	ND(0.013)U	0.013	0.020	0.019	0.011	0.0025 J	ND(0.019)U	NA	
Total PCB (mg/L)	0.0002	0.0033	0.0005	0.0005	0.045	0.045	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)UJ	ND(0.000082)UJ	ND(0.000082)UJ	ND(0.000082)UJ	ND(0.000082)	NA	

Notes:

- (1)Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amended
- No Criteria available for this constituent
- NAConstituent not analyzed for this sample
- NDConstituent not detected above sample quantitation limit
- NLVConstituent is not likely to volatilize
- IDInadequate data exists to develop criterion for constituent
- RLaboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
- JThe associated value is an estimated quantity
- UThe material was analyzed for but was not detected
- UJThe material was analyzed for but was not detected. The associated value is an estimate

Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria

Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria

Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location	Groundwater	Groundwater	Residential &	Industrial & Commercial	Residential & Commercial I	Industrial & Commercial II, III, & IV	CRA-68M	CRA-69M	CRA-70M	CRA-71M	CRA-247M	CRA-255M	CRA-257M	CRA-258M	CRA-260M
	Surface Water		Commercial I Drinking	II, III, & IV Drinking	Groundwater Volatilization to	Groundwater Volatilization to Indoor									
Sample ID: GW-17358	Interface Criteria	Contact Criteria	Water Criteria	Water Criteria	Indoor Inhalation Criteria	Inhalation Criteria	022703-JD-651	022103-SP-637	022403-JD-641	022403-JD-642	022003-SP-632	032603-JD-694	032603-JD-696	032603-JD-695	032603-JD-697
Sample Date							2/27/2003	2/21/2003	2/24/2003	2/24/2003	2/20/2003	3/26/2003	3/26/2003	3/26/2003	3/26/2003
VOC (mg/L)															
1,1,1-Trichloroethane	0.2	1,300	0.2	0.2	660	1,300	NA	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)
1,1-Dichloroethane	0.74	2,400	0.88	2.5	1,000	2,300	NA	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)
1,2,4-Trichlorobenzene	0.03	19	0.07	0.07	300	300	NA	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)
2-Butanone	2.2	240,000	13	38	240,000	240,000	NA	ND(0.00059)	ND(0.00059)	ND(0.00059)	ND(0.00059)	ND(0.00059)	ND(0.00059)	ND(0.00059)	ND(0.00059)
2-Hexanone		5,200	1	2.9	4,200	8,700	NA	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)
4-Methyl-2-pentanone	ID	13,000	1.8	5.2	20,000	20,000	NA	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)
Acetone	1.7	31,000	0.73	2.1	1,000,000	1,000,000	NA	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)
Benzene	0.2	11	0.005	0.005	5.6	35	NA	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)
Carbon disulfide	ID	1200	0.8	2.3	250	550	NA	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)
Carbon tetrachloride	0.045	4.6	0.005	0.005	0.37	2.4	NA	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)
cis-1,2-Dichloroethene	0.62	200	0.07	0.07	93	210	NA	ND(0.00035)	ND(0.00035)	ND(0.00035)	ND(0.00035)	ND(0.00035)	ND(0.00035)	0.005	ND(0.00035)
Cyclohexane	---	---	---	---	---	---	NA	0.00099 J	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	0.00048 J
Ethylbenzene	0.018	170	0.074	0.074	110	170	NA	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)
Isopropylbenzene	ID	56	0.8	2.3	56	56	NA	ND(0.005)U	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)
Methyl acetate	---	---	---	---	---	---	NA	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)
Methyl cyclohexane	---	---	---	---	---	---	NA	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)
Methyl Tert Butyl Ether	0.73	610	0.04	0.04	47,000	47,000	NA	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	0.011
Methylene chloride	0.94	220	0.005	0.005	220	1,400	NA	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)
Tetrachloroethene	0.045	12	0.005	0.005	25	170	NA	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)
Toluene	0.14	530	0.79	0.79	530	530	NA	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)
trans-1,2-Dichloroethene	1.5	220	0.1	0.1	85	200	NA	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	0.0036	ND(0.00033)
Trichloroethene	0.2	22	0.005	0.005	15	97	NA	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)
Vinyl chloride	0.015	1	0.002	0.002	1.1	13	NA	ND(0.00036)	ND(0.00036)	ND(0.00036)	ND(0.00036)	ND(0.00036)	0.024	0.0052	ND(0.00036)
Xylene (total)	0.035	190	0.28	0.28	190	190	NA	0.00096 J	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)
SVOC (mg/L)															
2,4,5-Trichlorophenol		170	0.73	2.1	NLV	NLV	NA	ND(0.0012)	ND(0.0012)	ND(0.0012)	ND(0.0012)	ND(0.0048)	ND(0.0012)	ND(0.0012)	ND(0.0012)
2,4,6-Trichlorophenol	0.005	10	0.12	0.47	NLV	NLV	NA	ND(0.0017)	ND(0.0017)	ND(0.0017)	ND(0.0017)	ND(0.0068)	ND(0.0017)	ND(0.0017)	ND(0.0017)
2,4-Dichlorophenol	0.019	48	0.073	0.21	NLV	NLV	NA	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.0034)	ND(0.00085)	ND(0.00085)	ND(0.00085)
2,4-Dimethylphenol	0.38	520	0.37	1	NLV	NLV	NA	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.0034)	ND(0.00085)	ND(0.00085)	ND(0.00085)
2-Methylnaphthalene	ID	25	0.26	0.75	ID	ID	NA	ND(0.00064)	ND(0.00064)	ND(0.00064)	ND(0.00064)	ND(0.0026)	ND(0.00064)	ND(0.00064)	ND(0.00064)
Acenaphthene	0.019	4.2	1.3	3.8	4.2	4.2	NA	ND(0.0008)	ND(0.0008)	0.00097 J	ND(0.0008)	ND(0.0032)	ND(0.0008)	ND(0.0008)	ND(0.0008)
Anthracene	ID	0.043	0.043	0.043	0.043	0.043	NA	ND(0.00068)	ND(0.00068)	0.0024 J	ND(0.00068)	ND(0.0027)	ND(0.00068)	ND(0.00068)	ND(0.00068)
Benzaldehyde	---	---	---	---	---	---	NA	ND(0.0028)	ND(0.0028)	ND(0.0028)	ND(0.0028)	ND(0.011)	ND(0.0028)	ND(0.0028)	ND(0.0028)
Benzo(a)anthracene	ID	0.0094	0.0021	0.0085	NLV	NLV	NA	ND(0.0007)	ND(0.0007)	ND(0.0007)	ND(0.0007)	ND(0.0028)	ND(0.0007)	ND(0.0007)	ND(0.0007)
Benzo(a)pyrene	ID	0.002	0.005	ID	NLV	NLV	NA	ND(0.00073)	ND(0.00073)	ND(0.00073)	ND(0.00073)	ND(0.0029)	ND(0.00073)	ND(0.00073)	ND(0.00073)
Benzo(b)fluoranthene	ID	0.002	0.002	0.002	ID	ID	NA	ND(0.00094)	ND(0.00094)	ND(0.00094)	ND(0.00094)	ND(0.0038)	ND(0.00094)	ND(0.00094)	ND(0.00094)
Benzo(g,h,i)perylene	--	0.005	0.005	0.005	NLV	NLV	NA	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.0034)	ND(0.00085)	ND(0.00085)	ND(0.00085)
Benzo(k)fluoranthene	--	0.005	0.005	0.005	NLV	NLV	NA	ND(0.00084)	ND(0.00084)	ND(0.00084)	ND(0.00084)	ND(0.0034)	ND(0.00084)	ND(0.00084)	ND(0.00084)
Biphenyl	---	---	---	---	---	---	NA	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.01)	ND(0.0026)	ND(0.0026)	ND(0.0026)
bis(2-Ethylhexyl)phthalate	0.032	0.32	0.006	0.006	NLV	NLV	NA	ND(0.0027)	ND(0.0027)	ND(0.0027)	ND(0.0027)	ND(0.011)	ND(0.0027)	ND(0.0027)	ND(0.0027)
Carbazole	0.01	7.4	0.085	0.35	NLV	NLV	NA	ND(0.00082)	ND(0.00082)	0.0021 J	ND(0.00082)	ND(0.0033)	ND(0.00082)	ND(0.00082)	ND(0.00082)
Chrysene	ID	0.005	0.005	0.005	ID	ID	NA	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.003)	ND(0.00075)	ND(0.00075)	ND(0.00075)
Dibenz(a,h)anthracene	ID	0.002	0.002	0.002	NLV	NLV	NA	ND(0.00079)	ND(0.00079)	ND(0.00079)	ND(0.00079)	ND(0.0032)	ND(0.00079)	ND(0.00079)	ND(0.00079)
Dibenzofuran	0.005	ID	ID	ID	ID	ID	NA	ND(0.0011)	ND(0.0011)	0.0012 J	ND(0.0011)	ND(0.0044)	ND(0.0011)	ND(0.0011)	ND(0.0011)
Diethyl phthalate	0.11	1,100	5.5	16	NLV	NLV	NA	ND(0.00065)	ND(0.00065)	ND(0.00065)	ND(0.00065)	ND(0.0026)	ND(0.00065)	ND(0.00065)	ND(0.00065)
Fluoranthene	0.005	0.21	0.21	0.21	0.21	0.21	NA	ND(0.00081)	ND(0.00081)	0.0087	ND(0.00081)	ND(0.0032)	ND(0.00081)	ND(0.00081)	ND(0.00081)
Fluorene	0.012	2	0.88	25	2	2	NA	ND(0.001)	ND(0.001)	0.0012 J	ND(0.001)	ND(0.004)	ND(0.001)	ND(0.001)	ND(0.001)
Indeno(1,2,3-cd)pyrene	ID	0.002	0.002	0.002	NLV	NLV	NA	ND(0.00063)	ND(0.00063)	ND(0.00063)	ND(0.00063)	ND(0.0025)	ND(0.00063)	ND(0.00063)	ND(0.00063)
Methylphenols-Total	0.071	810	0.37	1	NLV	NLV	NA	ND(0.0013)	ND(0.0013)	ND(0.0013)	ND(0.0013)	ND(0.0052)	ND(0.0013)	ND(0.0013)	ND(0.0013)
Naphthalene	0.013	31	0.52	1.5	31	31	NA	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.003)	ND(0.00075)	ND(0.00075)	ND(0.00075)
Phenanthrene	0.005	1	0.052	0.15	1	1	NA	ND(0.00082)	ND(0.00082)	0.022	ND(0.00082)	ND(0.0033)	ND(0.00082)	ND(0.00082)	ND(0.00082)
Phenol	0.21	29,000	4.4	13	NLV	NLV	NA	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.01)	ND(0.0026)	ND(0.0026)	ND(0.0026)
Pyrene	ID	0.14	0.14	0.14	0.14	0.14	NA	ND(0.0011)	ND(0.0011)	0.005	ND(0.0011)	ND(0.0044)	ND(0.0011)	ND(0.0011)	ND(0.0011)
Inorganics (mg/L)															
Aluminum (Dissolved)	--	64,000	0.05	0.05	NLV	NLV	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)
Antimony (Dissolved)	0.13	68	0.006	0.006	NLV	NLV	0.00019 J	ND(0.0020)U	0.00026 J	0.00017 J	ND(0.0020)U	0.00018 J	ND(0.00012)	ND(0.00012)	ND(0.00012)
Arsenic (Dissolved)	0.15	4.3	0.05	0.05	NLV	NLV	ND(0.0021)	ND(0.0021)	0.0088 J	0.0089 J	ND(0.0021)	0.0095 J	0.0055 J	0.0070 J	ND(0.0021)
Barium (Dissolved)	0.44	14,000	2	2	NLV	NLV	0.39	0.24	0.34	0.22	0.10	0.088 J	0.11	0.093 J	0.59
Barium (Dissolved)	0.0024	290	0.004	0.004	NLV	NLV	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: GW-17358 Sample Date	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-68M	CRA-69M	CRA-70M	CRA-71M	CRA-247M	CRA-255M	CRA-257M	CRA-258M	CRA-260M
							022703-JD-651	022103-SP-637	022403-JD-641	022403-JD-642	022003-SP-632	032603-JD-694	032603-JD-696	032603-JD-695	032603-JD-697
								2/27/2003	2/21/2003	2/24/2003	2/24/2003	2/20/2003	3/26/2003	3/26/2003	3/26/2003
Cadmium (Dissolved)	0.0027	190	0.005	0.005	NLV	NLV	ND(0.000075)	ND(0.000075)	0.00055	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)
Barium (Dissolved)	0.011	460	0.1	0.1	NLV	NLV	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)
Cobalt (Dissolved)	0.1	2,400	0.04	0.1	NLV	NLV	0.0034 J	ND(0.00074)	0.0020 J	0.00092 J	ND(0.00074)	ND(0.00074)	ND(0.00074)	ND(0.00074)	ND(0.00074)
Copper (Dissolved)	0.009	7,400	1	1	NLV	NLV	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U
Cyanide (total)	0.0052	57	0.2	0.2	NLV	NLV	--	ND(0.0018)	ND(0.0018)	ND(0.0018)	0.0019 J	ND(0.0018)	ND(0.0018)	ND(0.0018)	ND(0.0018)
Iron (Dissolved)	--	58,000	0.3	0.3	NLV	NLV	19.9	2.7 J	4.9	3.8	1.1 J	3.8	1.8	0.19	5.7
Lead (Dissolved)	0.01	ID	0.004	0.004	NLV	NLV	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)
Manganese (Dissolved)	0.53	9,100	0.05	0.05	NLV	NLV	0.49	0.16	1.3	0.50	0.030	0.20	0.042	0.063	0.077
Mercury (Dissolved)	0.0000013	0.056	0.002	0.002	0.056	0.056	ND(0.000087)UJ	ND(0.000087)	ND(0.000087)	ND(0.000087)	ND(0.000087)	ND(0.000087)UJ	ND(0.000087)UJ	ND(0.000087)UJ	ND(0.000087)UJ
Nickel (Dissolved)	0.52	74,000	0.1	0.1	NLV	NLV	0.043	ND(0.0029)	0.0049 J	0.0037 J	0.013 J	0.0045 J	0.0063 J	ND(0.0029)	0.0057 J
Selenium (Dissolved)	0.005	970	0.05	0.05	NLV	NLV	0.0013 J	0.0015 J	0.00030 J	ND(0.00030)	ND(0.00030)	ND(0.00030)	ND(0.00030)	ND(0.00030)	ND(0.00030)
Barium (Dissolved)	0.0002	1,500	0.034	0.098	NLV	NLV	ND(0.00013)UJ	ND(0.00013)	ND(0.00013)	ND(0.00013)	ND(0.00013)	ND(0.00013)UJ	ND(0.00013)UJ	ND(0.00013)UJ	ND(0.00013)UJ
Thallium (Dissolved)	0.0037	13	0.002	0.002	NLV	NLV	ND(0.000033)	ND(0.000033)	0.000074 J	ND(0.000033)	ND(0.000033)	ND(0.000033)	ND(0.000033)	ND(0.000033)	ND(0.000033)
Vanadium (Dissolved)	0.012	970	0.0045	0.062	NLV	NLV	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)
Zinc (Dissolved)	0.12	110,000	2.4	5	NLV	NLV	1.4	0.010	ND(0.013)U	ND(0.010)U	0.31	ND(0.010)U	ND(0.010)U	ND(0.010)U	ND(0.017)U
Total PCB (mg/L)	0.0002	0.0033	0.0005	0.0005	0.045	0.045	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)

Notes:

- (1) Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amen
- No Criteria available for this constituent
- NA Constituent not analyzed for this sample
- ND Constituent not detected above sample quantitation limit
- NLV Constituent is not likely to volatilize
- ID Inadequate data exists to develop criterion for constituent
- R Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
- J The associated value is an estimated quantity
- U The material was analyzed for but was not detected
- UJ The material was analyzed for but was not detected. The associated value is an estimate

Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria

Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria

Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

TABLE 5.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾														
	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-307M 022503-JD-645 2/25/2003	CRA-401M-D 031903-JD-686 3/19/2003	CRA-401M-D 031903-JD-688 3/19/2003 (Dup.)	CRA-402M-S 031903-KS-687 3/19/2003	CRA-403M-S 032003-BL-692 3/20/2003	CRA-403M-S 032003-BL-692 3/21/2003	CRA-404M-S 032003-KS-690 3/20/2003	CRA-404M-S 042303-SP-699 4/23/2003
Sample Location Sample ID: GW-17358 Sample Date														
VOC (mg/L)														
1,1,1-Trichloroethane	0.2	1,300	0.2	0.2	660	1,300	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.0052)	NA	ND(0.00039)	NA
1,1-Dichloroethane	0.74	2,400	0.88	2.5	1,000	2,300	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.004)	NA	ND(0.0003)	NA
1,2,4-Trichlorobenzene	0.03	19	0.07	0.07	300	300	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0053)	NA	ND(0.0004)	NA
2-Butanone	2.2	240,000	13	38	240,000	240,000	ND(0.00059)	ND(0.00059)	ND(0.00059)	ND(0.00059)	ND(0.0079)	NA	ND(0.00059)	NA
2-Hexanone		5,200	1	2.9	4,200	8,700	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.0077)	NA	ND(0.00058)	NA
4-Methyl-2-pentanone	ID	13,000	1.8	5.2	20,000	20,000	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.0035)	NA	ND(0.00026)	NA
Acetone	1.7	31,000	0.73	2.1	1,000,000	1,000,000	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.025)U	ND(0.015)	NA	ND(0.025)U	NA
Benzene	0.2	11	0.005	0.005	5.6	35	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.0049)	NA	ND(0.00037)	NA
Carbon disulfide	ID	1200	0.8	2.3	250	550	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.0032)	NA	ND(0.00024)	NA
Carbon tetrachloride	0.045	4.6	0.005	0.005	0.37	2.4	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.0049)	NA	ND(0.00037)	NA
cis-1,2-Dichloroethene	0.62	200	0.07	0.07	93	210	ND(0.00035)	0.0027	0.0029	ND(0.00035)	0.44	NA	ND(0.00035)	NA
Cyclohexane	---	---	---	---	---	---	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.0044)	NA	ND(0.00033)	NA
Ethylbenzene	0.018	170	0.074	0.074	110	170	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.0055)	NA	ND(0.00041)	NA
Isopropylbenzene	ID	56	0.8	2.3	56	56	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.0052)	NA	ND(0.00039)	NA
Methyl acetate	---	---	---	---	---	---	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.0072)	NA	ND(0.00054)	NA
Methyl cyclohexane	---	---	---	---	---	---	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.0056)	NA	ND(0.00042)	NA
Methyl Tert Butyl Ether	0.73	610	0.04	0.04	47,000	47,000	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.0036)	NA	ND(0.00027)	NA
Methylene chloride	0.94	220	0.005	0.005	220	1,400	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.0039)	NA	ND(0.00029)	NA
Tetrachloroethene	0.045	12	0.005	0.005	25	170	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.0056)	NA	ND(0.00042)	NA
Toluene	0.14	530	0.79	0.79	530	530	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.0052)	NA	ND(0.00039)	NA
trans-1,2-Dichloroethene	1.5	220	0.1	0.1	85	200	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	0.019	NA	ND(0.00033)	NA
Trichloroethene	0.2	22	0.005	0.005	15	97	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	0.044	NA	ND(0.00042)	NA
Vinyl chloride	0.015	1	0.002	0.002	1.1	13	ND(0.00036)	ND(0.00036)	ND(0.00036)	ND(0.00036)	ND(0.0048)	NA	ND(0.00036)	NA
Xylene (total)	0.035	190	0.28	0.28	190	190	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.0059)	NA	ND(0.00044)	NA
SVOC (mg/L)														
2,4,5-Trichlorophenol		170	0.73	2.1	NLV	NLV	ND(0.0012)	ND(0.0012)	ND(0.0012)	ND(0.0012)	NA	ND(0.0012)	ND(0.0012)	NA
2,4,6-Trichlorophenol	0.005	10	0.12	0.47	NLV	NLV	ND(0.0017)	ND(0.0017)	ND(0.0017)	ND(0.0017)	NA	ND(0.0017)	ND(0.0017)	NA
2,4-Dichlorophenol	0.019	48	0.073	0.21	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	NA
2,4-Dimethylphenol	0.38	520	0.37	1	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	NA
2-Methylnaphthalene	ID	25	0.26	0.75	ID	ID	ND(0.00064)	ND(0.00064)	ND(0.00064)	ND(0.00064)	NA	ND(0.00064)	ND(0.00064)	NA
Acenaphthene	0.019	4.2	1.3	3.8	4.2	4.2	ND(0.0008)	ND(0.0008)	ND(0.0008)	ND(0.0008)	NA	ND(0.0008)	ND(0.0008)	NA
Anthracene	ID	0.043	0.043	0.043	0.043	0.043	ND(0.00068)	ND(0.00068)	ND(0.00068)	ND(0.00068)	NA	ND(0.00068)	ND(0.00068)	NA
Benzaldehyde	---	---	---	---	---	---	ND(0.0028)	ND(0.0028)	ND(0.0028)	ND(0.0028)	NA	ND(0.0028)	ND(0.0028)	NA
Benzo(a)anthracene	ID	0.0094	0.0021	0.0085	NLV	NLV	ND(0.0007)	ND(0.0007)	ND(0.0007)	ND(0.0007)	NA	ND(0.0007)	ND(0.0007)	NA
Benzo(a)pyrene	ID	0.002	0.005	0.005	NLV	NLV	ND(0.00073)	ND(0.00073)	ND(0.00073)	ND(0.00073)	NA	ND(0.00073)	ND(0.00073)	NA
Benzo(b)fluoranthene	ID	0.002	0.002	0.002	ID	ID	ND(0.00094)	ND(0.00094)	ND(0.00094)	ND(0.00094)	NA	ND(0.00094)	ND(0.00094)	NA
Benzo(g,h,i)perylene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	NA
Benzo(k)fluoranthene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00084)	ND(0.00084)	ND(0.00084)	ND(0.00084)	NA	ND(0.00084)	ND(0.00084)	NA
Biphenyl	---	---	---	---	---	---	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.0026)	NA	ND(0.0026)	ND(0.0026)	NA
bis(2-Ethylhexyl)phthalate	0.032	0.32	0.006	0.006	NLV	NLV	ND(0.0027)	ND(0.0027)	ND(0.0027)	ND(0.0027)	NA	ND(0.0027)	ND(0.0027)	NA
Carbazole	0.01	7.4	0.085	0.35	NLV	NLV	ND(0.00082)	ND(0.00082)	ND(0.00082)	ND(0.00082)	NA	ND(0.00082)	ND(0.00082)	NA
Chrysene	ID	0.005	0.005	0.005	ID	ID	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.00075)	NA	ND(0.00075)	ND(0.00075)	NA
Dibenz(a,h)anthracene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00079)	ND(0.00079)	ND(0.00079)	ND(0.00079)	NA	ND(0.00079)	ND(0.00079)	NA
Dibenzofuran	0.005	ID	ID	ID	ID	ID	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)	NA	ND(0.0011)	ND(0.0011)	NA
Diethyl phthalate	0.11	1,100	5.5	16	NLV	NLV	ND(0.00065)	ND(0.00065)	ND(0.00065)	ND(0.00065)	NA	ND(0.00065)	ND(0.00065)	NA
Fluoranthene	0.005	0.21	0.21	0.21	0.21	0.21	ND(0.00081)	ND(0.00081)	ND(0.00081)	ND(0.00081)	NA	ND(0.00081)	ND(0.00081)	NA
Fluorene	0.012	2	0.88	25	2	2	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	NA	ND(0.001)	ND(0.001)	NA
Indeno(1,2,3-cd)pyrene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00063)	ND(0.00063)	ND(0.00063)	ND(0.00063)	NA	ND(0.00063)	ND(0.00063)	NA
Methylphenols-Total	0.071	810	0.37	1	NLV	NLV	ND(0.0013)	ND(0.0013)	ND(0.0013)	ND(0.0013)	NA	ND(0.0013)	ND(0.0013)	NA
Naphthalene	0.013	31	0.52	1.5	31	31	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.00075)	NA	ND(0.00075)	ND(0.00075)	NA
Phenanthrene	0.005	1	0.052	0.15	1	1	ND(0.00082)	ND(0.00082)	ND(0.00082)	ND(0.00082)	NA	ND(0.00082)	ND(0.00082)	NA
Phenol	0.21	29,000	4.4	13	NLV	NLV	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.0026)	NA	ND(0.0026)	ND(0.0026)	NA
Pyrene	ID	0.14	0.14	0.14	0.14	0.14	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)	NA	ND(0.0011)	ND(0.0011)	NA
Inorganics (mg/L)														
Aluminum (Dissolved)	--	64,000	0.05	0.05	NLV	NLV	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)	NA	ND(0.016)	NA
Antimony (Dissolved)	0.13	68	0.006	0.006	NLV	NLV	ND(0.00012)	0.0020	0.00041 J	0.00050 J	0.00036 J	NA	0.00054 J	NA
Arsenic (Dissolved)	0.15	4.3	0.05	0.05	NLV	NLV	ND(0.0021)	ND(0.0021)	ND(0.0021)	0.0029 J	ND(0.0021)	NA	0.0066 J	NA
Barium (Dissolved)	0.44	14,000	2	2	NLV	NLV	0.044 J	0.099 J	0.097 J	0.25	0.54	NA	0.097 J	NA
Barium (Dissolved)	0.0024	290	0.004	0.004	NLV	NLV	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)	NA	ND(0.00060)	NA

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾														
Sample Location Sample ID: GW-17358 Sample Date	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-307M 022503-JD-645 2/25/2003	CRA-401M-D 031903-JD-686 3/19/2003	CRA-401M-D 031903-JD-688 3/19/2003 (Dup.)	CRA-402M-S 031903-KS-687 3/19/2003	CRA-403M-S 032003-BL-692 3/20/2003	CRA-403M-S 032003-BL-692 3/21/2003	CRA-404M-S 032003-KS-690 3/20/2003	CRA-404M-S 042303-SP-699 4/23/2003
Cadmium (Dissolved)	0.0027	190	0.005	0.005	NLV	NLV	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)	0.00011 J	NA	ND(0.000075)	NA
Barium (Dissolved)	0.011	460	0.1	0.1	NLV	NLV	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	NA	ND(0.0015)	NA
Cobalt (Dissolved)	0.1	2,400	0.04	0.1	NLV	NLV	ND(0.00074)	0.00075 J	ND(0.00074)	0.0015 J	0.0023 J	NA	0.0077	NA
Copper (Dissolved)	0.009	7,400	1	1	NLV	NLV	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	0.0029	NA	ND(0.0025)U	NA
Cyanide (total)	0.0052	57	0.2	0.2	NLV	NLV	ND(0.0018)	ND(0.0018)	ND(0.0018)	ND(0.0018)	ND(0.0018)	NA	ND(0.0018)	NA
Iron (Dissolved)	--	58,000	0.3	0.3	NLV	NLV	0.28	1.2	1.1	2.5	0.82	NA	0.57	NA
Lead (Dissolved)	0.01	ID	0.004	0.004	NLV	NLV	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	NA	ND(0.0016)	NA
Manganese (Dissolved)	0.53	9,100	0.05	0.05	NLV	NLV	0.00094 J	0.20	0.20	0.40	0.58	NA	0.33	NA
Mercury (Dissolved)	0.0000013	0.056	0.002	0.002	0.056	0.056	0.00012 J	ND(0.000087)UJ	ND(0.000087)UJ	ND(0.000087)UJ	ND(0.000087)UJ	NA	ND(0.000087)UJ	NA
Nickel (Dissolved)	0.52	74,000	0.1	0.1	NLV	NLV	ND(0.0029)	ND(0.0029)	ND(0.0029)	0.0044 J	0.0076 J	NA	ND(0.0029)	NA
Selenium (Dissolved)	0.005	970	0.05	0.05	NLV	NLV	0.0041	ND(0.00030)	0.00032 J	ND(0.00030)	0.0078	NA	0.00071 J	NA
Barium (Dissolved)	0.0002	1,500	0.034	0.098	NLV	NLV	ND(0.00013)	ND(0.00013)UJ	ND(0.00013)UJ	ND(0.00013)UJ	ND(0.00013)UJ	NA	ND(0.00013)UJ	NA
Thallium (Dissolved)	0.0037	13	0.002	0.002	NLV	NLV	ND(0.000033)	0.000034 J	ND(0.000033)	0.000037 J	0.000075 J	NA	ND(0.000033)	NA
Vanadium (Dissolved)	0.012	970	0.0045	0.062	NLV	NLV	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	NA	0.0020 J	NA
Zinc (Dissolved)	0.12	110,000	2.4	5	NLV	NLV	ND(0.010)U	ND(0.010)U	ND(0.014)U	ND(0.012)U	0.020	NA	ND(0.010)U	NA
Total PCB (mg/L)	0.0002	0.0033	0.0005	0.0005	0.045	0.045	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)	NA	ND(0.000082)	0.0005	R

Notes:

(1)

Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amen

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No Criteria available for this constituent

NA

Constituent not analyzed for this sample

ND

Constituent not detected above sample quantitation limit

NLV

Constituent is not likely to volatilize

ID

Inadequate data exists to develop criterion for constituent

R

Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable

J

The associated value is an estimated quantity

U

The material was analyzed for but was not detected

UJ

The material was analyzed for but was not detected. The associated value is an estimate

Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria

Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria

Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

TABLE 5.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: GW-17358 Sample Date	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-405M-S 032003-BL-691 3/20/2003	CRA-406M-D 030603-JD-657 3/6/2003	CRA-406M-S 031103-JD-662 3/11/2003	CRA-407M-D 031403-MM-678 3/14/2003	CRA-409M-S 021203-SP-602 2/12/2003	CRA-409M-S 021303-SP-602 2/13/2003	CRA-410M-S 021203-SP-603 2/12/2003	CRA-410M-S 021303-SP-603 2/13/2003	CRA-411M-S 031803-KS-683 3/18/2003
Cadmium (Dissolved)	0.0027	190	0.005	0.005	NLV	NLV	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)	NA	0.00019 J	NA	ND(0.000075)	0.00020 J
Barium (Dissolved)	0.011	460	0.1	0.1	NLV	NLV	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	NA	ND(0.0015)	NA	ND(0.0015)	ND(0.0015)
Cobalt (Dissolved)	0.1	2,400	0.04	0.1	NLV	NLV	ND(0.00074)	ND(0.00074)	ND(0.00074)	ND(0.00074)	NA	ND(0.0070)U	NA	0.020	0.0054 J
Copper (Dissolved)	0.009	7,400	1	1	NLV	NLV	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	NA	0.0043	NA	ND(0.0020)U	0.0029
Cyanide (total)	0.0052	57	0.2	0.2	NLV	NLV	ND(0.0018)	ND(0.0018)	ND(0.0018)	ND(0.0018)	NA	ND(0.0018)	ND(0.0018)	NA	ND(0.0018)
Iron (Dissolved)	--	58,000	0.3	0.3	NLV	NLV	9.8	1.7	2.9 J	2.7	NA	0.39	NA	8.4	2.4
Lead (Dissolved)	0.01	ID	0.004	0.004	NLV	NLV	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	NA	0.0019 J	NA	ND(0.0016)	ND(0.0016)
Manganese (Dissolved)	0.53	9,100	0.05	0.05	NLV	NLV	0.26	0.030	0.11	0.074	NA	0.65	NA	0.47	1.0
Mercury (Dissolved)	0.0000013	0.056	0.002	0.002	0.056	0.056	ND(0.000087)UJ	ND(0.000087)	ND(0.00020)U	ND(0.000087)	NA	ND(0.000087)	NA	ND(0.000087)	ND(0.000087)
Nickel (Dissolved)	0.52	74,000	0.1	0.1	NLV	NLV	ND(0.0029)	ND(0.0029)	ND(0.0029)	ND(0.0029)	NA	0.017 J	NA	ND(0.0029)	0.017 J
Selenium (Dissolved)	0.005	970	0.05	0.05	NLV	NLV	ND(0.00030)	ND(0.00030)	0.00051 J	0.00053 J	NA	0.0010 J	NA	0.00069 J	0.0098
Barium (Dissolved)	0.0002	1,500	0.034	0.098	NLV	NLV	ND(0.00013)UJ	ND(0.00013)	ND(0.00013)UJ	ND(0.00013)UJ	NA	ND(0.00013)	NA	ND(0.00013)	ND(0.00013)UJ
Thallium (Dissolved)	0.0037	13	0.002	0.002	NLV	NLV	ND(0.000033)	ND(0.000033)	ND(0.000033)	ND(0.000033)	NA	0.000038 J	NA	ND(0.000033)	0.000093 J
Vanadium (Dissolved)	0.012	970	0.0045	0.062	NLV	NLV	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	NA	ND(0.00067)	NA	ND(0.00067)	ND(0.00067)
Zinc (Dissolved)	0.12	110,000	2.4	5	NLV	NLV	ND(0.019)U	0.0082 J	ND(0.012)U	0.0060 J	NA	0.023	NA	0.012	0.014
Total PCB (mg/L)	0.0002	0.0033	0.0005	0.0005	0.045	0.045	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)	NA	ND(0.000082)	ND(0.000082)UJ	NA	ND(0.000082)

Notes:

- (1)Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amen
- No Criteria available for this constituent
- NAConstituent not analyzed for this sample
- NDConstituent not detected above sample quantitation limit
- NLVConstituent is not likely to volatilize
- IDInadequate data exists to develop criterion for constituent
- RLaboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
- JThe associated value is an estimated quantity
- UThe material was analyzed for but was not detected
- UJThe material was analyzed for but was not detected. The associated value is an estimate

Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria

Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria

Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location	Groundwater		Residential &	Industrial & Commercial	Residential & Commercial I	Industrial & Commercial II, III, & IV	CRA-412M-S	CRA-413M-D	CRA-414M-S	CRA-414M-S	CRA-415M-S	CRA-416M-S	CRA-417M-S	CRA-418M-D	CRA-420M-S
	Surface Water	Groundwater	Commercial I Drinking	II, III, & IV Drinking	Groundwater Volatilization to	Groundwater Volatilization to Indoor									
Sample ID: GW-17358	Interface Criteria	Contact Criteria	Water Criteria	Water Criteria	Indoor Inhalation Criteria	Inhalation Criteria	031803-BL-682	022803-JD-652	021203-SP-601	021303-SP-601	021403-SP-610	031803-KS-684	031103-MM-661	030403-MM-656	031803-BL-681
Sample Date							3/18/2003	2/28/2003	2/12/2003	2/13/2003	2/14/2003	3/18/2003	3/11/2003	3/4/2003	3/18/2003
VOC (mg/L)															
1,1,1-Trichloroethane	0.2	1,300	0.2	0.2	660	1,300	ND(0.00039)	ND(0.00039)	ND(0.00039)UJ	NA	ND(0.00039)	ND(0.00039)	ND(0.02)	ND(0.00039)	ND(0.00039)
1,1-Dichloroethane	0.74	2,400	0.88	2.5	1,000	2,300	ND(0.0003)	ND(0.0003)	0.0019 J	NA	ND(0.0003)	ND(0.0003)	ND(0.015)	ND(0.0003)	ND(0.0003)
1,2,4-Trichlorobenzene	0.03	19	0.07	0.07	300	300	ND(0.0004)	ND(0.0004)	ND(0.0004)UJ	NA	ND(0.0004)	ND(0.0004)	ND(0.02)	ND(0.0004)	ND(0.0004)
2-Butanone	2.2	240,000	13	38	240,000	240,000	ND(0.00059)	ND(0.00059)	0.0012 J	NA	ND(0.00059)	ND(0.00059)	ND(0.03)	ND(0.00059)	ND(0.00059)
2-Hexanone		5,200	1	2.9	4,200	8,700	ND(0.00058)	ND(0.00058)	ND(0.00058)UJ	NA	ND(0.00058)	ND(0.00058)	ND(0.029)	ND(0.00058)	ND(0.00058)
4-Methyl-2-pentanone	ID	13,000	1.8	5.2	20,000	20,000	ND(0.00026)	ND(0.00026)	ND(0.00026)UJ	NA	ND(0.00026)	ND(0.00026)	ND(0.013)	ND(0.00026)	ND(0.00026)
Acetone	1.7	31,000	0.73	2.1	1,000,000	1,000,000	ND(0.0011)	ND(0.0011)	ND(0.0011)UJ	NA	ND(0.0011)	ND(0.0011)	ND(0.055)	ND(0.0011)	ND(0.0011)
Benzene	0.2	11	0.005	0.005	5.6	35	ND(0.00037)	ND(0.00037)	ND(0.00037)UJ	NA	ND(0.00037)	ND(0.00037)	ND(0.018)	ND(0.00037)	ND(0.00037)
Carbon disulfide	ID	1200	0.8	2.3	250	550	ND(0.00024)	ND(0.00024)	ND(0.00024)UJ	NA	ND(0.00024)	ND(0.00024)	ND(0.012)	ND(0.00024)	ND(0.00024)
Carbon tetrachloride	0.045	4.6	0.005	0.005	0.37	2.4	ND(0.00037)	ND(0.00037)	ND(0.00037)UJ	NA	ND(0.00037)	ND(0.00037)	ND(0.018)	ND(0.00037)	ND(0.00037)
cis-1,2-Dichloroethene	0.62	200	0.07	0.07	93	210	ND(0.00035)	ND(0.00035)	ND(0.00035)UJ	NA	ND(0.00035)	ND(0.00035)	1.8	ND(0.00035)	ND(0.00035)
Cyclohexane	---	---	---	---	---	---	ND(0.00033)	ND(0.00033)	ND(0.00033)UJ	NA	ND(0.00033)	ND(0.00033)	ND(0.016)	ND(0.00033)	ND(0.00033)
Ethylbenzene	0.018	170	0.074	0.074	110	170	ND(0.00041)	ND(0.00041)	ND(0.00041)UJ	NA	ND(0.00041)	ND(0.00041)	ND(0.02)	ND(0.00041)	ND(0.00041)
Isopropylbenzene	ID	56	0.8	2.3	56	56	ND(0.00039)	ND(0.00039)	ND(0.00039)UJ	NA	ND(0.00039)	ND(0.00039)	ND(0.02)	ND(0.00039)	ND(0.00039)
Methyl acetate	---	---	---	---	---	---	ND(0.00054)	ND(0.00054)	ND(0.00054)UJ	NA	ND(0.00054)	ND(0.00054)	ND(0.027)	ND(0.00054)	ND(0.00054)
Methyl cyclohexane	---	---	---	---	---	---	ND(0.00042)	ND(0.00042)	ND(0.00042)UJ	NA	ND(0.00042)	ND(0.00042)	ND(0.021)	ND(0.00042)	ND(0.00042)
Methyl Tert Butyl Ether	0.73	610	0.04	0.04	47,000	47,000	0.0003 J	ND(0.00027)	ND(0.00027)UJ	NA	ND(0.00027)	ND(0.00027)	ND(0.014)	ND(0.00027)	ND(0.00027)
Methylene chloride	0.94	220	0.005	0.005	220	1,400	ND(0.00029)	ND(0.00029)	ND(0.00029)UJ	NA	ND(0.00029)	ND(0.00029)	0.019 J	ND(0.00029)	ND(0.00029)
Tetrachloroethene	0.045	12	0.005	0.005	25	170	ND(0.00042)	ND(0.00042)	ND(0.00042)UJ	NA	ND(0.00042)	ND(0.00042)	ND(0.021)	ND(0.00042)	ND(0.00042)
Toluene	0.14	530	0.79	0.79	530	530	ND(0.00039)	ND(0.00039)	ND(0.00039)UJ	NA	ND(0.00039)	ND(0.00039)	ND(0.02)	ND(0.00039)	ND(0.00039)
trans-1,2-Dichloroethene	1.5	220	0.1	0.1	85	200	ND(0.00033)	ND(0.00033)	ND(0.00033)UJ	NA	ND(0.00033)	ND(0.00033)	ND(0.016)	ND(0.00033)	ND(0.00033)
Trichloroethene	0.2	22	0.005	0.005	15	97	ND(0.00042)	ND(0.00042)	ND(0.00042)UJ	NA	ND(0.00042)	ND(0.00042)	0.49	ND(0.00042)	ND(0.00042)
Vinyl chloride	0.015	1	0.002	0.002	1.1	13	ND(0.00036)	ND(0.00036)	ND(0.00036)UJ	NA	ND(0.00036)	ND(0.00036)	ND(0.018)	ND(0.00036)	ND(0.00036)
Xylene (total)	0.035	190	0.28	0.28	190	190	ND(0.00044)	ND(0.00044)	ND(0.00044)UJ	NA	ND(0.00044)	ND(0.00044)	ND(0.022)	ND(0.00044)	ND(0.00044)
SVOC (mg/L)															
2,4,5-Trichlorophenol		170	0.73	2.1	NLV	NLV	ND(0.0012)	ND(0.0012)	ND(0.0012)	NA	ND(0.0012)	ND(0.0012)	ND(0.0012)	ND(0.0012)	ND(0.0012)
2,4,6-Trichlorophenol	0.005	10	0.12	0.47	NLV	NLV	ND(0.0017)	ND(0.0017)	ND(0.0017)	NA	ND(0.0017)	ND(0.0017)	ND(0.0017)	ND(0.0017)	ND(0.0017)
2,4-Dichlorophenol	0.019	48	0.073	0.21	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)
2,4-Dimethylphenol	0.38	520	0.37	1	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)
2-Methylnaphthalene	ID	25	0.26	0.75	ID	ID	ND(0.00064)	ND(0.00064)	ND(0.00064)	NA	ND(0.00064)	ND(0.00064)	ND(0.00064)	ND(0.00064)	ND(0.00064)
Acenaphthene	0.019	4.2	1.3	3.8	4.2	4.2	ND(0.0008)	ND(0.0008)	ND(0.0008)	NA	ND(0.0008)	ND(0.0008)	ND(0.0008)	ND(0.0008)	ND(0.0008)
Anthracene	ID	0.043	0.043	0.043	0.043	0.043	ND(0.00068)	ND(0.00068)	ND(0.00068)	NA	ND(0.00068)	ND(0.00068)	ND(0.00068)	ND(0.00068)	ND(0.00068)
Benzaldehyde	---	---	---	---	---	---	ND(0.0028)	ND(0.0028)	ND(0.0028)	NA	ND(0.0028)	ND(0.0028)	ND(0.0028)	ND(0.0028)	ND(0.0028)
Benzo(a)anthracene	ID	0.0094	0.0021	0.0085	NLV	NLV	ND(0.0007)	ND(0.0007)	ND(0.0007)	NA	ND(0.0007)	ND(0.0007)	ND(0.0007)	ND(0.0007)	ND(0.0007)
Benzo(a)pyrene	ID	0.002	0.005		NLV	NLV	ND(0.00073)	ND(0.00073)	ND(0.00073)	NA	ND(0.00073)	ND(0.00073)	ND(0.00073)	ND(0.00073)	ND(0.00073)
Benzo(b)fluoranthene	ID	0.002	0.002	0.002	ID	ID	ND(0.00094)	ND(0.00094)	ND(0.00094)	NA	ND(0.00094)	ND(0.00094)	ND(0.00094)	ND(0.00094)	ND(0.00094)
Benzo(g,h,i)perylene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)
Benzo(k)fluoranthene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00084)	ND(0.00084)	ND(0.00084)	NA	ND(0.00084)	ND(0.00084)	ND(0.00084)	ND(0.00084)	ND(0.00084)
Biphenyl	---	---	---	---	---	---	ND(0.0026)	ND(0.0026)	ND(0.0026)	NA	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.0026)
bis(2-Ethylhexyl)phthalate	0.032	0.32	0.006	0.006	NLV	NLV	ND(0.0027)	ND(0.0027)	ND(0.0027)	NA	ND(0.0027)	ND(0.0027)	ND(0.0027)	ND(0.0027)	ND(0.0027)
Carbazole	0.01	7.4	0.085	0.35	NLV	NLV	ND(0.00082)	ND(0.00082)	ND(0.00082)	NA	ND(0.00082)	ND(0.00082)	ND(0.00082)	ND(0.00082)	ND(0.00082)
Chrysene	ID	0.005	0.005	0.005	ID	ID	ND(0.00075)	ND(0.00075)	ND(0.00075)	NA	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.00075)
Dibenz(a,h)anthracene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00079)	ND(0.00079)	ND(0.00079)	NA	ND(0.00079)	ND(0.00079)	ND(0.00079)	ND(0.00079)	ND(0.00079)
Dibenzofuran	0.005	ID	ID	ID	ID	ID	ND(0.0011)	ND(0.0011)	ND(0.0011)	NA	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)
Diethyl phthalate	0.11	1,100	5.5	16	NLV	NLV	ND(0.00065)	ND(0.00065)	ND(0.00065)	NA	ND(0.00065)	ND(0.00065)	ND(0.00065)	ND(0.00065)	ND(0.00065)
Fluoranthene	0.005	0.21	0.21	0.21	0.21	0.21	ND(0.00081)	ND(0.00081)	ND(0.00081)	NA	ND(0.00081)	ND(0.00081)	ND(0.00081)	ND(0.00081)	ND(0.00081)
Fluorene	0.012	2	0.88	25	2	2	ND(0.001)	ND(0.001)	ND(0.001)	NA	0.0027 J	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Indeno(1,2,3-cd)pyrene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00063)	ND(0.00063)	ND(0.00063)	NA	ND(0.00063)	ND(0.00063)	ND(0.00063)	ND(0.00063)	ND(0.00063)
Methylphenols-Total	0.071	810	0.37	1	NLV	NLV	ND(0.0013)	ND(0.0013)	ND(0.0013)	NA	ND(0.0013)	ND(0.0013)	ND(0.0013)	ND(0.0013)	ND(0.0013)
Naphthalene	0.013	31	0.52	1.5	31	31	ND(0.00075)	ND(0.00075)	ND(0.00075)	NA	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.00075)
Phenanthrene	0.005	1	0.052	0.15	1	1	ND(0.00082)	ND(0.00082)	ND(0.00082)	NA	ND(0.00082)	ND(0.00082)	ND(0.00082)	ND(0.00082)	ND(0.00082)
Phenol	0.21	29,000	4.4	13	NLV	NLV	ND(0.0026)	ND(0.0026)	ND(0.0026)	NA	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.0026)
Pyrene	ID	0.14	0.14	0.14	0.14	0.14	ND(0.0011)	ND(0.0011)	ND(0.0011)	NA	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)
Inorganics (mg/L)															
Aluminum (Dissolved)	--	64,000	0.05	0.05	NLV	NLV	ND(0.016)	ND(0.016)	NA	ND(0.016)	ND(0.016)	ND(0.016)	0.062	ND(0.016)	ND(0.016)
Antimony (Dissolved)	0.13	68	0.006	0.006	NLV	NLV	0.00045 J	ND(0.00012)	NA	0.00027 J	0.0018 J	ND(0.00012)	0.00090 J	0.00026 J	0.00025 J
Arsenic (Dissolved)	0.15	4.3	0.05	0.05	NLV	NLV	0.0072 J	0.042	NA	ND(0.0021)	0.0045 J	ND(0.0021)	0.0043 J	0.013	0.016
Barium (Dissolved)	0.44	14,000	2	2	NLV	NLV	0.75	0.26	NA	0.061 J	0.26	0.28	0.17	0.11	0.81
Barium (Dissolved)	0.0024	290	0.004	0.004	NLV	NLV	ND(0.00060)	ND(0.00060)	NA	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: GW-17358 Sample Date	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-412M-S 031803-BL-682 3/18/2003	CRA-413M-D 022803-JD-652 2/28/2003	CRA-414M-S 021203-SP-601 2/12/2003	CRA-414M-S 021303-SP-601 2/13/2003	CRA-415M-S 021403-SP-610 2/14/2003	CRA-416M-S 031803-KS-684 3/18/2003	CRA-417M-S 031103-MM-661 3/11/2003	CRA-418M-D 030403-MM-656 3/4/2003	CRA-420M-S 031803-BL-681 3/18/2003
Cadmium (Dissolved)	0.0027	190	0.005	0.005	NLV	NLV	ND(0.000075)	ND(0.000075)	NA	ND(0.000075)	ND(0.000075)	ND(0.000075)	0.00011 J	ND(0.000075)	ND(0.000075)
Barium (Dissolved)	0.011	460	0.1	0.1	NLV	NLV	ND(0.0015)	ND(0.0015)	NA	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)
Cobalt (Dissolved)	0.1	2,400	0.04	0.1	NLV	NLV	0.00083 J	ND(0.00074)	NA	ND(0.0070)U	ND(0.00074)	ND(0.00074)	0.0055 J	ND(0.00074)	0.0022 J
Copper (Dissolved)	0.009	7,400	1	1	NLV	NLV	ND(0.0020)U	ND(0.0020)U	NA	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U	0.011	ND(0.0020)U	ND(0.0020)U
Cyanide (total)	0.0052	57	0.2	0.2	NLV	NLV	ND(0.0018)	ND(0.0018)	ND(0.0018)	NA	ND(0.0018)	ND(0.0018)	ND(0.0018)	ND(0.0018)	ND(0.0018)
Iron (Dissolved)	--	58,000	0.3	0.3	NLV	NLV	7.7	3.5	NA	6.6	6.2	4.1	0.41	9.2	8.2
Lead (Dissolved)	0.01	ID	0.004	0.004	NLV	NLV	ND(0.0016)	ND(0.0016)	NA	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)
Manganese (Dissolved)	0.53	9,100	0.05	0.05	NLV	NLV	0.49	0.051	NA	0.20	0.19	0.29	0.82	0.18	0.66
Mercury (Dissolved)	0.0000013	0.056	0.002	0.002	0.056	0.056	ND(0.000087)	ND(0.000087)UJ	NA	ND(0.000087)	ND(0.000087)	ND(0.000087)	ND(0.000087)	ND(0.000087)UJ	ND(0.000087)
Nickel (Dissolved)	0.52	74,000	0.1	0.1	NLV	NLV	ND(0.0029)	ND(0.0029)	NA	0.035	0.0052 J	ND(0.0029)	0.091	0.014 J	0.0046 J
Selenium (Dissolved)	0.005	970	0.05	0.05	NLV	NLV	ND(0.00030)	0.00045 J	NA	ND(0.00030)	0.0011 J	0.0013 J	ND(0.00030)	0.00075 J	0.00045 J
Barium (Dissolved)	0.0002	1,500	0.034	0.098	NLV	NLV	ND(0.00013)UJ	ND(0.00013)UJ	NA	ND(0.00013)	ND(0.00013)	ND(0.00013)UJ	ND(0.00013)UJ	ND(0.00013)UJ	ND(0.00013)UJ
Thallium (Dissolved)	0.0037	13	0.002	0.002	NLV	NLV	ND(0.000033)	ND(0.000033)	NA	ND(0.000033)	ND(0.000033)	ND(0.000033)	0.000092 J	ND(0.000033)	ND(0.000033)
Vanadium (Dissolved)	0.012	970	0.0045	0.062	NLV	NLV	ND(0.00067)	ND(0.00067)	NA	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)
Zinc (Dissolved)	0.12	110,000	2.4	5	NLV	NLV	0.017	ND(0.015)U	NA	0.015	ND(0.010)U	0.012	0.025	ND(0.010)U	0.027
Total PCB (mg/L)	0.0002	0.0033	0.0005	0.0005	0.045	0.045	ND(0.000082)	NA	ND(0.000082)	NA	ND(0.000082)	ND(0.000082)	NA	ND(0.000082)	ND(0.000082)

Notes:	
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amen
--	No Criteria available for this constituent
NA	Constituent not analyzed for this sample
ND	Constituent not detected above sample quantitation limit
NLV	Constituent is not likely to volatilize
ID	Inadequate data exists to develop criterion for constituent
R	Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
J	The associated value is an estimated quantity
U	The material was analyzed for but was not detected
UJ	The material was analyzed for but was not detected. The associated value is an estimate
-----	Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria
-----	Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria
Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.	

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location	Groundwater	Groundwater	Residential &	Industrial & Commercial	Residential & Commercial I	Industrial & Commercial II, III, & IV	CRA-421M-D	CRA-422M-S	CRA-423M-S	CRA-423M-S	CRA-424M-S	CRA-424M-S	CRA-425M-S	CRA-426M-S	CRA-426M-S
	Surface Water														
Sample ID: GW-17358	Interface Criteria	Contact Criteria	Commercial I Drinking	II, III, & IV Drinking	Groundwater Volatilization to	Groundwater Volatilization to Indoor	022803-JD-654	021403-SP-611	021303-SP-607	021303-SP-608	021303-SP-605	021403-SP-605	021903-SP-624	031203-MM-668	031203-MM-668
Sample Date			Water Criteria	Water Criteria	Indoor Inhalation Criteria	Inhalation Criteria	2/28/2003	2/14/2003	2/13/2003	2/13/2003 (Dup.)	2/13/2003	2/14/2003	2/19/2003	3/12/2003	3/13/2003
VOC (mg/L)															
1,1,1-Trichloroethane	0.2	1,300	0.2	0.2	660	1,300	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	NA	ND(0.00039)	ND(0.0013)	NA
1,1-Dichloroethane	0.74	2,400	0.88	2.5	1,000	2,300	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	NA	ND(0.0003)	ND(0.001)	NA
1,2,4-Trichlorobenzene	0.03	19	0.07	0.07	300	300	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	NA	ND(0.0004)	ND(0.0013)	NA
2-Butanone	2.2	240,000	13	38	240,000	240,000	ND(0.00059)	0.0013 J	0.00084 J	ND(0.00059)	0.01 J	NA	ND(0.00059)	0.012 J	NA
2-Hexanone		5,200	1	2.9	4,200	8,700	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	0.00096 J	NA	ND(0.00058)	ND(0.0019)	NA
4-Methyl-2-pentanone	ID	13,000	1.8	5.2	20,000	20,000	ND(0.00026)	ND(0.00026)	0.00041 J	0.00027 J	0.0008 J	NA	ND(0.00026)	0.0065 J	NA
Acetone	1.7	31,000	0.73	2.1	1,000,000	1,000,000	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)	0.034	NA	ND(0.0011)	0.028 J	NA
Benzene	0.2	11	0.005	0.005	5.6	35	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	NA	ND(0.00037)	ND(0.0012)	NA
Carbon disulfide	ID	1200	0.8	2.3	250	550	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	NA	ND(0.00024)	ND(0.0008)	NA
Carbon tetrachloride	0.045	4.6	0.005	0.005	0.37	2.4	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	NA	ND(0.00037)	ND(0.0012)	NA
cis-1,2-Dichloroethene	0.62	200	0.07	0.07	93	210	ND(0.00035)	0.02	ND(0.00035)	ND(0.00035)	ND(0.00035)	NA	ND(0.00035)	ND(0.0012)	NA
Cyclohexane	---	---	---	---	---	---	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	NA	ND(0.00033)	ND(0.0011)	NA
Ethylbenzene	0.018	170	0.074	0.074	110	170	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	NA	ND(0.00041)	ND(0.0014)	NA
Isopropylbenzene	ID	56	0.8	2.3	56	56	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	NA	ND(0.00039)	ND(0.0013)	NA
Methyl acetate	---	---	---	---	---	---	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	NA	ND(0.00054)	ND(0.0018)	NA
Methyl cyclohexane	---	---	---	---	---	---	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	NA	ND(0.00042)	ND(0.0014)	NA
Methyl Tert Butyl Ether	0.73	610	0.04	0.04	47,000	47,000	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	NA	ND(0.00027)	ND(0.0009)	NA
Methylene chloride	0.94	220	0.005	0.005	220	1,400	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	NA	ND(0.00029)	ND(0.00097)	NA
Tetrachloroethene	0.045	12	0.005	0.005	25	170	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	NA	ND(0.00042)	ND(0.0014)	NA
Toluene	0.14	530	0.79	0.79	530	530	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	NA	ND(0.00039)	ND(0.0013)	NA
trans-1,2-Dichloroethene	1.5	220	0.1	0.1	85	200	ND(0.00033)	0.00077 J	ND(0.00033)	ND(0.00033)	ND(0.00033)	NA	ND(0.00033)	ND(0.0011)	NA
Trichloroethene	0.2	22	0.005	0.005	15	97	ND(0.00042)	0.0087	ND(0.00042)	ND(0.00042)	ND(0.00042)	NA	ND(0.00042)	ND(0.0014)	NA
Vinyl chloride	0.015	1	0.002	0.002	1.1	13	0.00082 J	ND(0.00036)	ND(0.00036)	ND(0.00036)	ND(0.00036)	NA	ND(0.00036)	ND(0.0012)	NA
Xylene (total)	0.035	190	0.28	0.28	190	190	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	NA	ND(0.00044)	ND(0.0015)	NA
SVOC (mg/L)															
2,4,5-Trichlorophenol		170	0.73	2.1	NLV	NLV	ND(0.0012)	ND(0.0012)	ND(0.06)	ND(0.06)	ND(0.0012)	NA	ND(0.0012)	ND(0.12)	NA
2,4,6-Trichlorophenol	0.005	10	0.12	0.47	NLV	NLV	ND(0.0017)	ND(0.0017)	ND(0.085)	ND(0.085)	ND(0.0017)	NA	ND(0.0017)	ND(0.17)	NA
2,4-Dichlorophenol	0.019	48	0.073	0.21	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.042)	ND(0.042)	ND(0.00085)	NA	ND(0.00085)	ND(0.085)	NA
2,4-Dimethylphenol	0.38	520	0.37	1	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.042)	ND(0.042)	ND(0.00085)	NA	ND(0.00085)	ND(0.085)	NA
2-Methylnaphthalene	ID	25	0.26	0.75	ID	ID	ND(0.00064)	ND(0.00064)	ND(0.032)	ND(0.032)	ND(0.00064)	NA	ND(0.00064)	ND(0.064)	NA
Acenaphthene	0.019	4.2	1.3	3.8	4.2	4.2	ND(0.0008)	ND(0.0008)	ND(0.04)	ND(0.04)	ND(0.0008)	NA	ND(0.0008)	ND(0.08)	NA
Anthracene	ID	0.043	0.043	0.043	0.043	0.043	ND(0.00068)	ND(0.00068)	ND(0.034)	ND(0.034)	ND(0.00068)	NA	ND(0.00068)	ND(0.068)	NA
Benzaldehyde	---	---	---	---	---	---	ND(0.0028)	ND(0.0028)	ND(0.14)	ND(0.14)	ND(0.0028)	NA	ND(0.0028)	ND(0.28)	NA
Benzo(a)anthracene	ID	0.0094	0.0021	0.0085	NLV	NLV	ND(0.0007)	ND(0.0007)	ND(0.035)	ND(0.035)	ND(0.0007)	NA	ND(0.0007)	ND(0.07)	NA
Benzo(a)pyrene	ID	0.002	0.005	0.005	NLV	NLV	ND(0.00073)	ND(0.00073)	ND(0.036)	ND(0.036)	ND(0.00073)	NA	ND(0.00073)	ND(0.073)	NA
Benzo(b)fluoranthene	ID	0.002	0.002	0.002	ID	ID	ND(0.00094)	ND(0.00094)	ND(0.047)	ND(0.047)	ND(0.00094)	NA	ND(0.00094)	ND(0.094)	NA
Benzo(g,h,i)perylene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.042)	ND(0.042)	ND(0.00085)	NA	ND(0.00085)	ND(0.085)	NA
Benzo(k)fluoranthene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00084)	ND(0.00084)	ND(0.042)	ND(0.042)	ND(0.00084)	NA	ND(0.00084)	ND(0.084)	NA
Biphenyl	---	---	---	---	---	---	ND(0.0026)	ND(0.0026)	ND(0.13)	ND(0.13)	ND(0.0026)	NA	ND(0.0026)	ND(0.26)	NA
bis(2-Ethylhexyl)phthalate	0.032	0.32	0.006	0.006	NLV	NLV	ND(0.0027)	ND(0.0027)	ND(0.14)	ND(0.14)	ND(0.0027)	NA	ND(0.0027)	ND(0.27)	NA
Carbazole	0.01	7.4	0.085	0.35	NLV	NLV	ND(0.00082)	ND(0.00082)	ND(0.041)	ND(0.041)	ND(0.00082)	NA	ND(0.00082)	ND(0.082)	NA
Chrysene	ID	0.005	0.005	0.005	ID	ID	ND(0.00075)	ND(0.00075)	ND(0.038)	ND(0.038)	ND(0.00075)	NA	ND(0.00075)	ND(0.075)	NA
Dibenz(a,h)anthracene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00079)	ND(0.00079)	ND(0.04)	ND(0.04)	ND(0.00079)	NA	ND(0.00079)	ND(0.079)	NA
Dibenzofuran	0.005	ID	ID	ID	ID	ID	ND(0.0011)	ND(0.0011)	ND(0.055)	ND(0.055)	ND(0.0011)	NA	ND(0.0011)	ND(0.11)	NA
Diethyl phthalate	0.11	1,100	5.5	16	NLV	NLV	ND(0.00065)	ND(0.00065)	ND(0.032)	ND(0.032)	ND(0.00065)	NA	ND(0.00065)	ND(0.065)	NA
Fluoranthene	0.005	0.21	0.21	0.21	0.21	0.21	ND(0.00081)	ND(0.00081)	ND(0.04)	ND(0.04)	ND(0.00081)	NA	ND(0.00081)	ND(0.081)	NA
Fluorene	0.012	2	0.88	25	2	2	ND(0.001)	ND(0.001)	ND(0.05)	ND(0.05)	ND(0.001)	NA	ND(0.001)	ND(0.1)	NA
Indeno(1,2,3-cd)pyrene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00063)	ND(0.00063)	ND(0.032)	ND(0.032)	ND(0.00063)	NA	ND(0.00063)	ND(0.063)	NA
Methylphenols-Total	0.071	810	0.37	1	NLV	NLV	ND(0.0013)	ND(0.0013)	ND(0.065)	ND(0.065)	0.0049 J	NA	ND(0.0013)	ND(0.13)	NA
Naphthalene	0.013	31	0.52	1.5	31	31	ND(0.00075)	ND(0.00075)	ND(0.038)	ND(0.038)	ND(0.00075)	NA	ND(0.00075)	ND(0.075)	NA
Phenanthrene	0.005	1	0.052	0.15	1	1	ND(0.00082)	ND(0.00082)	ND(0.041)	ND(0.041)	0.0025 J	NA	ND(0.00082)	ND(0.082)	NA
Phenol	0.21	29,000	4.4	13	NLV	NLV	ND(0.0026)	ND(0.0026)	ND(0.13)	ND(0.13)	0.0048 J	NA	ND(0.0026)	ND(0.26)	NA
Pyrene	ID	0.14	0.14	0.14	0.14	0.14	ND(0.0011)	ND(0.0011)	ND(0.055)	ND(0.055)	ND(0.0011)	NA	ND(0.0011)	ND(0.11)	NA
Inorganics (mg/L)															
Aluminum (Dissolved)	--	64,000	0.05	0.05	NLV	NLV	ND(0.016)	0.15	ND(0.016)	0.041 J	NA	0.14	ND(0.016)	NA	ND(0.016)
Antimony (Dissolved)	0.13	68	0.006	0.006	NLV	NLV	0.00025 J	0.00052 J	ND(0.00012)	ND(0.00012)	NA	0.0012 J	ND(0.00012)	NA	0.00057 J
Arsenic (Dissolved)	0.15	4.3	0.05	0.05	NLV	NLV	0.036	0.0077 J	0.0033 J	0.0029 J	NA	ND(0.0021)	0.070	NA	0.020
Barium (Dissolved)	0.44	14,000	2	2	NLV	NLV	0.11	0.097 J	0.48	0.50	NA	0.11	0.047 J	NA	0.22
Barium (Dissolved)	0.0024	290	0.004	0.004	NLV	NLV	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)	NA	ND(0.00060)	ND(0.00060)	NA	ND(0.00060)

TABLE 5.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-421M-D 022803-JD-654 2/28/2003	CRA-422M-S 021403-SP-611 2/14/2003	CRA-423M-S 021303-SP-607 2/13/2003	CRA-423M-S 021303-SP-608 2/13/2003 (Dup.)	CRA-424M-S 021303-SP-605 2/13/2003	CRA-424M-S 021403-SP-605 2/14/2003	CRA-425M-S 021903-SP-624 2/19/2003	CRA-426M-S 031203-MM-668 3/12/2003	CRA-426M-S 031203-MM-668 3/13/2003
Sample ID: GW-17358															
Sample Date															
Cadmium (Dissolved)	0.0027	190	0.005	0.005	NLV	NLV	ND(0.000075)	ND(0.000075)	ND(0.000075)	ND(0.000075)	NA	ND(0.000075)	ND(0.000075)	NA	ND(0.000075)
Barium (Dissolved)	0.011	460	0.1	0.1	NLV	NLV	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)	NA	ND(0.0015)	ND(0.0015)	NA	ND(0.0015)
Cobalt (Dissolved)	0.1	2,400	0.04	0.1	NLV	NLV	ND(0.00074)	0.0017 J	ND(0.00074)	ND(0.00074)	NA	ND(0.00074)	ND(0.0070)U	NA	0.0061 J
Copper (Dissolved)	0.009	7,400	1	1	NLV	NLV	ND(0.0020)U	0.0056	ND(0.0020)U	ND(0.0020)U	NA	0.010	ND(0.0020)U	NA	0.0033
Cyanide (total)	0.0052	57	0.2	0.2	NLV	NLV	ND(0.0018)	ND(0.0018)	ND(0.0018)	ND(0.0018)	NA	ND(0.0018)	ND(0.0018)	ND(0.0018)	NA
Iron (Dissolved)	--	58,000	0.3	0.3	NLV	NLV	2.4	0.66	9.2	8.5	NA	0.31	3.4	NA	4.3
Lead (Dissolved)	0.01	ID	0.004	0.004	NLV	NLV	ND(0.0016)	ND(0.0016)	ND(0.0016)	ND(0.0016)	NA	ND(0.0016)	ND(0.0016)	NA	ND(0.0016)
Manganese (Dissolved)	0.53	9,100	0.05	0.05	NLV	NLV	0.045	0.35	0.11	0.086	NA	ND(0.015)U	0.080	NA	0.26
Mercury (Dissolved)	0.0000013	0.056	0.002	0.002	0.056	0.056	ND(0.000087)UJ	ND(0.000087)	ND(0.000087)	ND(0.000087)	NA	ND(0.000087)	ND(0.000087)	NA	ND(0.000087)
Nickel (Dissolved)	0.52	74,000	0.1	0.1	NLV	NLV	0.0054 J	0.046	ND(0.0029)	ND(0.0029)	NA	0.0067 J	0.0067 J	NA	0.12
Selenium (Dissolved)	0.005	970	0.05	0.05	NLV	NLV	ND(0.00030)	ND(0.0015)	0.0017 J	0.0019 J	NA	0.0011 J	0.0011 J	NA	0.0058
Barium (Dissolved)	0.0002	1,500	0.034	0.098	NLV	NLV	ND(0.00013)UJ	ND(0.00013)	ND(0.00013)	ND(0.00013)	NA	ND(0.00013)	ND(0.00013)	NA	ND(0.00013)UJ
Thallium (Dissolved)	0.0037	13	0.002	0.002	NLV	NLV	ND(0.000033)	0.000035 J	ND(0.000033)	ND(0.000033)	NA	ND(0.000033)	ND(0.000033)	NA	ND(0.000033)
Vanadium (Dissolved)	0.012	970	0.0045	0.062	NLV	NLV	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)	NA	0.00071 J	ND(0.00067)	NA	0.0012 J
Zinc (Dissolved)	0.12	110,000	2.4	5	NLV	NLV	ND(0.010)U	ND(0.010)U	0.013	0.011	NA	ND(0.010)U	ND(0.010)U	NA	0.034
Total PCB (mg/L)	0.0002	0.0033	0.0005	0.0005	0.045	0.045	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)	NA	ND(0.000082)	ND(0.000082)	NA	ND(0.000082)

Notes:

- (1)
- Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amen
-
- No Criteria available for this constituent
- NA
- Constituent not analyzed for this sample
- ND
- Constituent not detected above sample quantitation limit
- NLV
- Constituent is not likely to volatilize
- ID
- Inadequate data exists to develop criterion for constituent
- R
- Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
- J
- The associated value is an estimated quantity
- U
- The material was analyzed for but was not detected
- UJ
- The material was analyzed for but was not detected. The associated value is an estimate

Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria

Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria

Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: GW-17358 Sample Date	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-427M-S 021303-SP-606 2/13/2003	CRA-427M-S 021403-SP-606 2/14/2003	CRA-428M-S 021403-SP-612 2/14/2003	CRA-429M-D 021703-SP-614 2/17/2003	CRA-430M-D 030603-JD-659 3/6/2003	CRA-431M-S 021803-SP-620 2/18/2003	CRA-431M-S 021903-SP-620 2/19/2003	CRA-432M-S 021803-SP-621 2/18/2003	CRA-433M-D 021803-SP-619 2/18/2003
VOC (mg/L)															
1,1,1-Trichloroethane	0.2	1,300	0.2	0.2	660	1,300	ND(0.00098)	NA	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	NA	ND(0.00039)	ND(0.00039)
1,1-Dichloroethane	0.74	2,400	0.88	2.5	1,000	2,300	ND(0.00075)	NA	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	NA	ND(0.0003)	ND(0.0003)
1,2,4-Trichlorobenzene	0.03	19	0.07	0.07	300	300	ND(0.001)	NA	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	NA	ND(0.0004)	ND(0.0004)
2-Butanone	2.2	240,000	13	38	240,000	240,000	0.04 J	NA	0.0015 J	ND(0.00059)	ND(0.00059)	ND(0.00059)	NA	ND(0.00059)	ND(0.00059)
2-Hexanone		5,200	1	2.9	4,200	8,700	0.012 J	NA	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	NA	ND(0.00058)	ND(0.00058)
4-Methyl-2-pentanone	ID	13,000	1.8	5.2	20,000	20,000	0.069 J	NA	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)	NA	ND(0.00026)	ND(0.00026)
Acetone	1.7	31,000	0.73	2.1	1,000,000	1,000,000	0.1	NA	ND(0.0011)	0.0015 J	ND(0.0011)	ND(0.0011)	NA	ND(0.0011)	ND(0.0011)
Benzene	0.2	11	0.005	0.005	5.6	35	ND(0.00092)	NA	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	NA	ND(0.00037)	ND(0.00037)
Carbon disulfide	ID	1200	0.8	2.3	250	550	ND(0.0006)	NA	ND(0.00024)	ND(0.00024)	ND(0.00024)	0.00069 J	NA	ND(0.00024)	ND(0.00024)
Carbon tetrachloride	0.045	4.6	0.005	0.005	0.37	2.4	ND(0.00092)	NA	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	NA	ND(0.00037)	ND(0.00037)
cis-1,2-Dichloroethene	0.62	200	0.07	0.07	93	210	ND(0.00088)	NA	ND(0.00035)	ND(0.00035)	0.015	ND(0.00035)	NA	ND(0.00035)	0.00074 J
Cyclohexane	---	---	---	---	---	---	ND(0.00082)	NA	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	NA	ND(0.00033)	ND(0.00033)
Ethylbenzene	0.018	170	0.074	0.074	110	170	ND(0.001)	NA	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	NA	ND(0.00041)	ND(0.00041)
Isopropylbenzene	ID	56	0.8	2.3	56	56	ND(0.00098)	NA	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	NA	ND(0.00039)	ND(0.00039)
Methyl acetate	---	---	---	---	---	---	ND(0.0014)	NA	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	NA	ND(0.00054)	ND(0.00054)
Methyl cyclohexane	---	---	---	---	---	---	ND(0.001)	NA	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	NA	ND(0.00042)	ND(0.00042)
Methyl Tert Butyl Ether	0.73	610	0.04	0.04	47,000	47,000	ND(0.00068)	NA	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	NA	ND(0.00027)	ND(0.00027)
Methylene chloride	0.94	220	0.005	0.005	220	1,400	ND(0.00072)	NA	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	NA	ND(0.00029)	ND(0.00029)
Tetrachloroethene	0.045	12	0.005	0.005	25	170	ND(0.001)	NA	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	NA	ND(0.00042)	ND(0.00042)
Toluene	0.14	530	0.79	0.79	530	530	ND(0.00098)	NA	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	NA	ND(0.00039)	ND(0.00039)
trans-1,2-Dichloroethene	1.5	220	0.1	0.1	85	200	ND(0.00082)	NA	ND(0.00033)	ND(0.00033)	0.0008 J	ND(0.00033)	NA	ND(0.00033)	ND(0.00033)
Trichloroethene	0.2	22	0.005	0.005	15	97	ND(0.001)	NA	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	NA	ND(0.00042)	ND(0.00042)
Vinyl chloride	0.015	1	0.002	0.002	1.1	13	ND(0.0009)	NA	ND(0.00036)	ND(0.00036)	0.0048	ND(0.00036)	NA	ND(0.00036)	0.0015
Xylene (total)	0.035	190	0.28	0.28	190	190	ND(0.0011)	NA	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	NA	ND(0.00044)	ND(0.00044)
SVOC (mg/L)															
2,4,5-Trichlorophenol		170	0.73	2.1	NLV	NLV	NA	NA	NA	ND(0.0012)	ND(0.0012)	NA	ND(0.0012)	NA	ND(0.0012)UJ
2,4,6-Trichlorophenol	0.005	10	0.12	0.47	NLV	NLV	NA	NA	NA	ND(0.0017)	ND(0.0017)	NA	ND(0.0017)	NA	ND(0.0017)UJ
2,4-Dichlorophenol	0.019	48	0.073	0.21	NLV	NLV	NA	NA	NA	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	NA	ND(0.00085)UJ
2,4-Dimethylphenol	0.38	520	0.37	1	NLV	NLV	NA	NA	NA	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	NA	ND(0.00085)UJ
2-Methylnaphthalene	ID	25	0.26	0.75	ID	ID	NA	NA	NA	ND(0.00064)	ND(0.00064)	NA	ND(0.00064)	NA	ND(0.00064)UJ
Acenaphthene	0.019	4.2	1.3	3.8	4.2	4.2	NA	NA	NA	ND(0.0008)	ND(0.0008)	NA	ND(0.0008)	NA	ND(0.0008)UJ
Anthracene	ID	0.043	0.043	0.043	0.043	0.043	NA	NA	NA	ND(0.00068)	ND(0.00068)	NA	ND(0.00068)	NA	ND(0.00068)UJ
Benzaldehyde	---	---	---	---	---	---	NA	NA	NA	ND(0.0028)	ND(0.0028)	NA	ND(0.0028)	NA	ND(0.0028)UJ
Benzo(a)anthracene	ID	0.0094	0.0021	0.0085	NLV	NLV	NA	NA	NA	ND(0.0007)	ND(0.0007)	NA	ND(0.0007)	NA	ND(0.0007)UJ
Benzo(a)pyrene	ID	0.002	0.005	0.005	NLV	NLV	NA	NA	NA	ND(0.00073)	ND(0.00073)	NA	ND(0.00073)	NA	ND(0.00073)UJ
Benzo(b)fluoranthene	ID	0.002	0.002	0.002	ID	ID	NA	NA	NA	ND(0.00094)	ND(0.00094)	NA	ND(0.00094)	NA	ND(0.00094)UJ
Benzo(g,h,i)perylene	--	0.005	0.005	0.005	NLV	NLV	NA	NA	NA	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	NA	ND(0.00085)UJ
Benzo(k)fluoranthene	--	0.005	0.005	0.005	NLV	NLV	NA	NA	NA	ND(0.00084)	ND(0.00084)	NA	ND(0.00084)	NA	ND(0.00084)UJ
Biphenyl	---	---	---	---	---	---	NA	NA	NA	ND(0.0026)	ND(0.0026)	NA	ND(0.0026)	NA	ND(0.0026)UJ
bis(2-Ethylhexyl)phthalate	0.032	0.32	0.006	0.006	NLV	NLV	NA	NA	NA	ND(0.0027)	ND(0.0027)	NA	ND(0.0027)	NA	ND(0.0027)UJ
Carbazole	0.01	7.4	0.085	0.35	NLV	NLV	NA	NA	NA	ND(0.00082)	ND(0.00082)	NA	ND(0.00082)	NA	ND(0.00082)UJ
Chrysene	ID	0.005	0.005	0.005	ID	ID	NA	NA	NA	ND(0.00075)	ND(0.00075)	NA	ND(0.00075)	NA	ND(0.00075)UJ
Dibenz(a,h)anthracene	ID	0.002	0.002	0.002	NLV	NLV	NA	NA	NA	ND(0.00079)	ND(0.00079)	NA	ND(0.00079)	NA	ND(0.00079)UJ
Dibenzofuran	0.005	ID	ID	ID	ID	ID	NA	NA	NA	ND(0.0011)	ND(0.0011)	NA	ND(0.0011)	NA	ND(0.0011)UJ
Diethyl phthalate	0.11	1,100	5.5	16	NLV	NLV	NA	NA	NA	0.0011 J	ND(0.00065)	NA	ND(0.00065)	NA	ND(0.00065)UJ
Fluoranthene	0.005	0.21	0.21	0.21	0.21	0.21	NA	NA	NA	ND(0.00081)	ND(0.00081)	NA	ND(0.00081)	NA	ND(0.00081)UJ
Fluorene	0.012	2	0.88	25	2	2	NA	NA	NA	ND(0.001)	ND(0.001)	NA	ND(0.001)	NA	ND(0.001)UJ
Indeno(1,2,3-cd)pyrene	ID	0.002	0.002	0.002	NLV	NLV	NA	NA	NA	ND(0.00063)	ND(0.00063)	NA	ND(0.00063)	NA	ND(0.00063)UJ
Methylphenols-Total	0.071	810	0.37	1	NLV	NLV	NA	NA	NA	ND(0.0013)	ND(0.0013)	NA	ND(0.0013)	NA	ND(0.0013)UJ
Naphthalene	0.013	31	0.52	1.5	31	31	NA	NA	NA	ND(0.00075)	ND(0.00075)	NA	ND(0.00075)	NA	ND(0.00075)UJ
Phenanthrene	0.005	1	0.052	0.15	1	1	NA	NA	NA	ND(0.00082)	ND(0.00082)	NA	ND(0.00082)	NA	ND(0.00082)UJ
Phenol	0.21	29,000	4.4	13	NLV	NLV	NA	NA	NA	ND(0.0026)	ND(0.0026)	NA	ND(0.0026)	NA	ND(0.0026)UJ
Pyrene	ID	0.14	0.14	0.14	0.14	0.14	NA	NA	NA	ND(0.0011)UJ	ND(0.0011)	NA	ND(0.0011)	NA	ND(0.0011)UJ
Inorganics (mg/L)															
Aluminum (Dissolved)	--	64,000	0.05	0.05	NLV	NLV	NA	NA	NA	ND(0.016)	0.035 J	NA	NA	NA	ND(0.016)
Antimony (Dissolved)	0.13	68	0.006	0.006	NLV	NLV	NA	NA	NA	0.00019 J	0.00027 J	NA	NA	NA	0.00040 J
Arsenic (Dissolved)	0.15	4.3	0.05	0.05	NLV	NLV	NA	NA	NA	0.036	0.062	NA	NA	NA	0.035
Barium (Dissolved)	0.44	14,000	2	2	NLV	NLV	NA	NA	NA	0.14	0.038 J	NA	NA	NA	0.056 J
Barium (Dissolved)	0.0024	290	0.004	0.004	NLV	NLV	NA	NA	NA	ND(0.00060)	ND(0.00060)	NA	NA	NA	ND(0.00060)

TABLE 5.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: GW-17358 Sample Date	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-427M-S 021303-SP-606 2/13/2003	CRA-427M-S 021403-SP-606 2/14/2003	CRA-428M-S 021403-SP-612 2/14/2003	CRA-429M-D 021703-SP-614 2/17/2003	CRA-430M-D 030603-JD-659 3/6/2003	CRA-431M-S 021803-SP-620 2/18/2003	CRA-431M-S 021903-SP-620 2/19/2003	CRA-432M-S 021803-SP-621 2/18/2003	CRA-433M-D 021803-SP-619 2/18/2003
Cadmium (Dissolved)	0.0027	190	0.005	0.005	NLV	NLV	NA	NA	NA	ND(0.000075)	ND(0.000075)	NA	NA	NA	ND(0.000075)
Barium (Dissolved)	0.011	460	0.1	0.1	NLV	NLV	NA	NA	NA	ND(0.0015)	ND(0.0015)	NA	NA	NA	ND(0.0015)
Cobalt (Dissolved)	0.1	2,400	0.04	0.1	NLV	NLV	NA	NA	NA	ND(0.00074)	0.00075 J	NA	NA	NA	ND(0.0070)U
Copper (Dissolved)	0.009	7,400	1	1	NLV	NLV	NA	NA	NA	ND(0.0020)U	ND(0.0020)U	NA	NA	NA	ND(0.0020)U
Cyanide (total)	0.0052	57	0.2	0.2	NLV	NLV	NA	ND(0.0018)	ND(0.0018)	ND(0.0018)	ND(0.0018)	NA	NA	NA	ND(0.0018)UJ
Iron (Dissolved)	--	58,000	0.3	0.3	NLV	NLV	NA	NA	NA	2.9 J	6.5	NA	NA	NA	3.7
Lead (Dissolved)	0.01	ID	0.004	0.004	NLV	NLV	NA	NA	NA	ND(0.0016)	ND(0.0016)	NA	NA	NA	ND(0.0016)
Manganese (Dissolved)	0.53	9,100	0.05	0.05	NLV	NLV	NA	NA	NA	0.10	0.093	NA	NA	NA	0.072
Mercury (Dissolved)	0.0000013	0.056	0.002	0.002	0.056	0.056	NA	NA	NA	ND(0.000087)	ND(0.000087)	NA	NA	NA	ND(0.000087)UJ
Nickel (Dissolved)	0.52	74,000	0.1	0.1	NLV	NLV	NA	NA	NA	0.034	ND(0.0029)	NA	NA	NA	0.0085 J
Selenium (Dissolved)	0.005	970	0.05	0.05	NLV	NLV	NA	NA	NA	0.00097 J	0.00087 J	NA	NA	NA	0.00074 J
Barium (Dissolved)	0.0002	1,500	0.034	0.098	NLV	NLV	NA	NA	NA	ND(0.00013)UJ	ND(0.00013)	NA	NA	NA	ND(0.00013)
Thallium (Dissolved)	0.0037	13	0.002	0.002	NLV	NLV	NA	NA	NA	ND(0.000033)	ND(0.000033)	NA	NA	NA	ND(0.000033)
Vanadium (Dissolved)	0.012	970	0.0045	0.062	NLV	NLV	NA	NA	NA	ND(0.00067)	ND(0.00067)	NA	NA	NA	ND(0.00067)
Zinc (Dissolved)	0.12	110,000	2.4	5	NLV	NLV	NA	NA	NA	0.0076 J	0.0050 J	NA	NA	NA	ND(0.010)U
Total PCB (mg/L)	0.0002	0.0033	0.0005	0.0005	0.045	0.045	NA	NA	NA	ND(0.000082)UJ	ND(0.000082)	NA	NA	NA	ND(0.000082)UJ

Notes:

- (1)Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amen
- No Criteria available for this constituent
- NAConstituent not analyzed for this sample
- NDConstituent not detected above sample quantitation limit
- NLVConstituent is not likely to volatilize
- IDInadequate data exists to develop criterion for constituent
- RLaboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
- JThe associated value is an estimated quantity
- UThe material was analyzed for but was not detected
- UJThe material was analyzed for but was not detected. The associated value is an estimate

Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria

Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria

Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: GW-17358 Sample Date	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-434M-D 021803-SP-618 2/18/2003	CRA-435M-S 021903-SP-625 2/19/2003	CRA-436M-S 031303-JD-671 3/13/2003	CRA-437M-D 030603-JD-658 3/6/2003	CRA-438M-S 031203-TK-664 3/12/2003	CRA-439M-S 031303-JD-672 3/13/2003	CRA-440M-D 021803-SP-622 2/18/2003	CRA-441M-D 031203-TK-665 3/12/2003	CRA-442M-D 022103-SP-636 2/21/2003
VOC (mg/L)															
1,1,1-Trichloroethane	0.2	1,300	0.2	0.2	660	1,300	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00098)	ND(0.00039)
1,1-Dichloroethane	0.74	2,400	0.88	2.5	1,000	2,300	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.00075)	ND(0.0003)
1,2,4-Trichlorobenzene	0.03	19	0.07	0.07	300	300	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.001)	ND(0.0004)
2-Butanone	2.2	240,000	13	38	240,000	240,000	ND(0.00059)	ND(0.00059)	ND(0.00059)	ND(0.00059)	ND(0.00059)	ND(0.025)U	ND(0.00059)	ND(0.0015)	ND(0.00059)
2-Hexanone		5,200	1	2.9	4,200	8,700	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.0014)	ND(0.00058)
4-Methyl-2-pentanone	ID	13,000	1.8	5.2	20,000	20,000	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00065)	ND(0.00026)
Acetone	1.7	31,000	0.73	2.1	1,000,000	1,000,000	ND(0.0011)	0.0037 J	ND(0.025)U	ND(0.0011)	ND(0.0011)	ND(0.025)U	ND(0.0011)	ND(0.0028)	ND(0.0011)
Benzene	0.2	11	0.005	0.005	5.6	35	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00092)	ND(0.00037)
Carbon disulfide	ID	1200	0.8	2.3	250	550	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.0006)	ND(0.00024)
Carbon tetrachloride	0.045	4.6	0.005	0.005	0.37	2.4	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00092)	ND(0.00037)
cis-1,2-Dichloroethene	0.62	200	0.07	0.07	93	210	ND(0.00035)	ND(0.00035)	ND(0.00035)	0.008	ND(0.00035)	ND(0.00035)	ND(0.00035)	0.019	0.0006 J
Cyclohexane	---	---	---	---	---	---	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00082)	ND(0.00033)
Ethylbenzene	0.018	170	0.074	0.074	110	170	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.001)	ND(0.00041)
Isopropylbenzene	ID	56	0.8	2.3	56	56	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00098)	ND(0.00039)
Methyl acetate	---	---	---	---	---	---	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.0014)	ND(0.00054)
Methyl cyclohexane	---	---	---	---	---	---	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.001)	ND(0.00042)
Methyl Tert Butyl Ether	0.73	610	0.04	0.04	47,000	47,000	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00068)	ND(0.00027)
Methylene chloride	0.94	220	0.005	0.005	220	1,400	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00072)	ND(0.00029)
Tetrachloroethene	0.045	12	0.005	0.005	25	170	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.001)	ND(0.00042)
Toluene	0.14	530	0.79	0.79	530	530	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00098)	ND(0.00039)
trans-1,2-Dichloroethene	1.5	220	0.1	0.1	85	200	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	0.0042	ND(0.00033)
Trichloroethene	0.2	22	0.005	0.005	15	97	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	0.013	ND(0.00042)
Vinyl chloride	0.015	1	0.002	0.002	1.1	13	ND(0.00036)	ND(0.00036)	ND(0.00036)	0.013	ND(0.00036)	ND(0.00036)	0.00062 J	0.08	ND(0.00036)
Xylene (total)	0.035	190	0.28	0.28	190	190	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.0011)	0.00066 J
SVOC (mg/L)															
2,4,5-Trichlorophenol		170	0.73	2.1	NLV	NLV	ND(0.0012)UJ	ND(0.0012)	NA	ND(0.0012)	ND(0.0012)	NA	ND(0.0012)	ND(0.0012)	ND(0.003)
2,4,6-Trichlorophenol	0.005	10	0.12	0.47	NLV	NLV	ND(0.0017)UJ	ND(0.0017)	NA	ND(0.0017)	ND(0.0017)	NA	ND(0.0017)	ND(0.0017)	ND(0.0042)
2,4-Dichlorophenol	0.019	48	0.073	0.21	NLV	NLV	ND(0.00085)UJ	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	ND(0.0021)
2,4-Dimethylphenol	0.38	520	0.37	1	NLV	NLV	ND(0.00085)UJ	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	ND(0.0021)
2-Methylnaphthalene	ID	25	0.26	0.75	ID	ID	ND(0.00064)UJ	ND(0.00064)	NA	ND(0.00064)	ND(0.00064)	NA	ND(0.00064)	ND(0.00064)	ND(0.0016)
Acenaphthene	0.019	4.2	1.3	3.8	4.2	4.2	ND(0.0008)UJ	ND(0.0008)	NA	ND(0.0008)	ND(0.0008)	NA	ND(0.0008)	ND(0.0008)	ND(0.002)
Anthracene	ID	0.043	0.043	0.043	0.043	0.043	ND(0.00068)UJ	ND(0.00068)	NA	ND(0.00068)	ND(0.00068)	NA	ND(0.00068)	ND(0.00068)	ND(0.0017)
Benzaldehyde	---	---	---	---	---	---	ND(0.0028)UJ	ND(0.0028)	NA	ND(0.0028)	ND(0.0028)	NA	ND(0.0028)	ND(0.0028)	ND(0.007)
Benzo(a)anthracene	ID	0.0094	0.0021	0.0085	NLV	NLV	ND(0.0007)UJ	ND(0.0007)	NA	ND(0.0007)	ND(0.0007)	NA	ND(0.0007)	ND(0.0007)	ND(0.0018)
Benzo(a)pyrene	ID	0.002	0.005	0.005	NLV	NLV	ND(0.00073)UJ	ND(0.00073)	NA	ND(0.00073)	ND(0.00073)	NA	ND(0.00073)	ND(0.00073)	ND(0.0018)
Benzo(b)fluoranthene	ID	0.002	0.002	0.002	ID	ID	ND(0.00094)UJ	ND(0.00094)	NA	ND(0.00094)	ND(0.00094)	NA	ND(0.00094)	ND(0.00094)	ND(0.0024)
Benzo(g,h,i)perylene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00085)UJ	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	ND(0.0021)
Benzo(k)fluoranthene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00084)UJ	ND(0.00084)	NA	ND(0.00084)	ND(0.00084)	NA	ND(0.00084)	ND(0.00084)	ND(0.0021)
Biphenyl	---	---	---	---	---	---	ND(0.0026)UJ	ND(0.0026)	NA	ND(0.0026)	ND(0.0026)	NA	ND(0.0026)	ND(0.0026)	ND(0.0065)
bis(2-Ethylhexyl)phthalate	0.032	0.32	0.006	0.006	NLV	NLV	ND(0.0027)UJ	ND(0.0027)	NA	ND(0.0027)	ND(0.0027)	NA	ND(0.0027)	ND(0.0027)	ND(0.0068)
Carbazole	0.01	7.4	0.085	0.35	NLV	NLV	ND(0.00082)UJ	ND(0.00082)	NA	ND(0.00082)	ND(0.00082)	NA	ND(0.00082)	ND(0.00082)	ND(0.002)
Chrysene	ID	0.005	0.005	0.005	ID	ID	ND(0.00075)UJ	ND(0.00075)	NA	ND(0.00075)	ND(0.00075)	NA	ND(0.00075)	ND(0.00075)	ND(0.0019)
Dibenz(a,h)anthracene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00079)UJ	ND(0.00079)	NA	ND(0.00079)	ND(0.00079)	NA	ND(0.00079)	ND(0.00079)	ND(0.002)
Dibenzofuran	0.005	ID	ID	ID	ID	ID	ND(0.0011)UJ	ND(0.0011)	NA	ND(0.0011)	ND(0.0011)	NA	ND(0.0011)	ND(0.0011)	ND(0.0028)
Diethyl phthalate	0.11	1,100	5.5	16	NLV	NLV	ND(0.00065)UJ	ND(0.00065)	NA	ND(0.00065)	ND(0.00065)	NA	ND(0.00065)	ND(0.00065)	ND(0.0016)
Fluoranthene	0.005	0.21	0.21	0.21	0.21	0.21	ND(0.00081)UJ	ND(0.00081)	NA	ND(0.00081)	ND(0.00081)	NA	ND(0.00081)	ND(0.00081)	ND(0.002)
Fluorene	0.012	2	0.88	25	2	2	ND(0.001)UJ	ND(0.001)	NA	ND(0.001)	ND(0.001)	NA	ND(0.001)	ND(0.001)	ND(0.0025)
Indeno(1,2,3-cd)pyrene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00063)UJ	ND(0.00063)	NA	ND(0.00063)	ND(0.00063)	NA	ND(0.00063)	ND(0.00063)	ND(0.0016)
Methylphenols-Total	0.071	810	0.37	1	NLV	NLV	ND(0.0013)UJ	ND(0.0013)	NA	ND(0.0013)	ND(0.0013)	NA	ND(0.0013)	ND(0.0013)	ND(0.0032)
Naphthalene	0.013	31	0.52	1.5	31	31	ND(0.00075)UJ	ND(0.00075)	NA	ND(0.00075)	ND(0.00075)	NA	ND(0.00075)	ND(0.00075)	ND(0.0

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: GW-17358 Sample Date	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-434M-D 021803-SP-618 2/18/2003	CRA-435M-S 021903-SP-625 2/19/2003	CRA-436M-S 031303-JD-671 3/13/2003	CRA-437M-D 030603-JD-658 3/6/2003	CRA-438M-S 031203-TK-664 3/12/2003	CRA-439M-S 031303-JD-672 3/13/2003	CRA-440M-D 021803-SP-622 2/18/2003	CRA-441M-D 031203-TK-665 3/12/2003	CRA-442M-D 022103-SP-636 2/21/2003
Cadmium (Dissolved)	0.0027	190	0.005	0.005	NLV	NLV	ND(0.000075)	ND(0.000075)	NA	ND(0.000075)	ND(0.000075)	NA	ND(0.000075)	ND(0.000075)	ND(0.000075)
Barium (Dissolved)	0.011	460	0.1	0.1	NLV	NLV	ND(0.0015)	ND(0.0015)	NA	ND(0.0015)	ND(0.0015)	NA	ND(0.0015)	ND(0.0015)	ND(0.0015)
Cobalt (Dissolved)	0.1	2,400	0.04	0.1	NLV	NLV	ND(0.00074)	ND(0.0070)U	NA	ND(0.00074)	0.0015 J	NA	ND(0.00074)	ND(0.00074)	0.0016 J
Copper (Dissolved)	0.009	7,400	1	1	NLV	NLV	ND(0.0020)U	ND(0.0020)U	NA	ND(0.0020)U	ND(0.0020)U	NA	ND(0.0020)U	ND(0.0020)U	ND(0.0020)U
Cyanide (total)	0.0052	57	0.2	0.2	NLV	NLV	ND(0.0018)UJ	ND(0.0018)	NA	0.0020 J	ND(0.0018)	NA	ND(0.0018)	ND(0.0018)	ND(0.0018)
Iron (Dissolved)	--	58,000	0.3	0.3	NLV	NLV	3.9	1.4	NA	1.8	2.1	NA	2.2 J	3.5	5.8 J
Lead (Dissolved)	0.01	ID	0.004	0.004	NLV	NLV	ND(0.0016)	ND(0.0016)	NA	ND(0.0016)	ND(0.0016)	NA	ND(0.0016)	ND(0.0016)	ND(0.0016)
Manganese (Dissolved)	0.53	9,100	0.05	0.05	NLV	NLV	0.040	0.25	NA	0.16	0.95	NA	0.037	0.068	0.15
Mercury (Dissolved)	0.0000013	0.056	0.002	0.002	0.056	0.056	ND(0.000087)UJ	ND(0.000087)	NA	ND(0.000087)	ND(0.000087)	NA	ND(0.000087)	ND(0.000087)	ND(0.000087)
Nickel (Dissolved)	0.52	74,000	0.1	0.1	NLV	NLV	0.0067 J	0.018 J	NA	0.0086 J	0.0097 J	NA	0.0046 J	0.0080 J	0.055
Selenium (Dissolved)	0.005	970	0.05	0.05	NLV	NLV	0.0010 J	0.0012 J	NA	0.0016 J	ND(0.00030)	NA	ND(0.00030)	0.0017 J	ND(0.00030)
Barium (Dissolved)	0.0002	1,500	0.034	0.098	NLV	NLV	ND(0.00013)	ND(0.00013)	NA	ND(0.00013)	ND(0.00013)UJ	NA	ND(0.00013)UJ	ND(0.00013)UJ	ND(0.00013)
Thallium (Dissolved)	0.0037	13	0.002	0.002	NLV	NLV	ND(0.000033)	ND(0.000033)	NA	ND(0.000033)	ND(0.000033)	NA	ND(0.000033)	ND(0.000033)	ND(0.000033)
Vanadium (Dissolved)	0.012	970	0.0045	0.062	NLV	NLV	ND(0.00067)	ND(0.00067)	NA	ND(0.00067)	0.0011 J	NA	ND(0.00067)	ND(0.00067)	ND(0.00067)
Zinc (Dissolved)	0.12	110,000	2.4	5	NLV	NLV	ND(0.011)U	ND(0.019)U	NA	0.0057 J	0.014	NA	0.0049 J	0.0061 J	0.016
Total PCB (mg/L)	0.0002	0.0033	0.0005	0.0005	0.045	0.045	ND(0.000082)UJ	ND(0.000082)	NA	ND(0.000082)	ND(0.000082)	NA	ND(0.000082)	ND(0.000082)	ND(0.000082)UJ

- Notes:
- (1)

Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amen
- No Criteria available for this constituent
- NA

Constituent not analyzed for this sample
- ND

Constituent not detected above sample quantitation limit
- NLV

Constituent is not likely to volatilize
- ID

Inadequate data exists to develop criterion for constituent
- R

Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
- J

The associated value is an estimated quantity
- U

The material was analyzed for but was not detected
- UJ

The material was analyzed for but was not detected. The associated value is an estimate
- Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria
- Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria
- Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location	Groundwater		Residential &	Industrial & Commercial	Residential & Commercial I	Industrial & Commercial II, III, & IV	CRA-443M-D	CRA-443M-S	CRA-443M-S	CRA-444M-D	CRA-445M-D	CRA-446M-S	CRA-447M-D	CRA-448M-D	CRA-449M-S
	Surface Water	Groundwater	Commercial I Drinking	II, III, & IV Drinking	Groundwater Volatilization to	Groundwater Volatilization to Indoor									
Sample ID: GW-17358	Interface Criteria	Contact Criteria	Water Criteria	Water Criteria	Indoor Inhalation Criteria	Inhalation Criteria	021703-SP-615	021703-SP-616	021803-SP-616	021903-SP-626	031203-KH-666	031303-JD-673	022103-SP-634	031203-JD-669	031203-KH-667
Sample Date							2/17/2003	2/17/2003	2/18/2003	2/19/2003	3/12/2003	3/13/2003	2/21/2003	3/12/2003	3/12/2003
VOC (mg/L)															
1,1,1-Trichloroethane	0.2	1,300	0.2	0.2	660	1,300	ND(0.00039)	ND(0.00039)	NA	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)
1,1-Dichloroethane	0.74	2,400	0.88	2.5	1,000	2,300	ND(0.0003)	ND(0.0003)	NA	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)
1,2,4-Trichlorobenzene	0.03	19	0.07	0.07	300	300	ND(0.0004)	ND(0.0004)	NA	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)
2-Butanone	2.2	240,000	13	38	240,000	240,000	ND(0.00059)	ND(0.00059)	NA	ND(0.00059)	ND(0.00059)	ND(0.025)U	ND(0.00059)	ND(0.00059)	ND(0.00059)
2-Hexanone		5,200	1	2.9	4,200	8,700	ND(0.00058)	ND(0.00058)	NA	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)
4-Methyl-2-pentanone	ID	13,000	1.8	5.2	20,000	20,000	ND(0.00026)	0.0014 J	NA	ND(0.00026)	ND(0.00026)	0.002 J	ND(0.00026)	ND(0.00026)	ND(0.00026)
Acetone	1.7	31,000	0.73	2.1	1,000,000	1,000,000	ND(0.0011)	0.028	NA	ND(0.0011)	ND(0.0011)	ND(0.025)U	ND(0.0011)	ND(0.0011)	ND(0.0011)
Benzene	0.2	11	0.005	0.005	5.6	35	ND(0.00037)	ND(0.00037)	NA	ND(0.00037)	ND(0.00037)	0.00047 J	ND(0.00037)	ND(0.00037)	ND(0.00037)
Carbon disulfide	ID	1200	0.8	2.3	250	550	ND(0.00024)	ND(0.00024)	NA	ND(0.00024)	ND(0.00024)	0.00029 J	ND(0.00024)	ND(0.00024)	0.0024 J
Carbon tetrachloride	0.045	4.6	0.005	0.005	0.37	2.4	ND(0.00037)	ND(0.00037)	NA	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)
cis-1,2-Dichloroethene	0.62	200	0.07	0.07	93	210	ND(0.00035)	ND(0.00035)	NA	ND(0.00035)	0.0029	ND(0.00035)	ND(0.00035)	0.00038 J	0.007
Cyclohexane	---	---	---	---	---	---	ND(0.00033)	ND(0.00033)	NA	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)
Ethylbenzene	0.018	170	0.074	0.074	110	170	ND(0.00041)	ND(0.00041)	NA	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)
Isopropylbenzene	ID	56	0.8	2.3	56	56	ND(0.00039)	ND(0.00039)	NA	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)
Methyl acetate	---	---	---	---	---	---	ND(0.00054)	ND(0.00054)	NA	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)
Methyl cyclohexane	---	---	---	---	---	---	ND(0.00042)	ND(0.00042)	NA	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)
Methyl Tert Butyl Ether	0.73	610	0.04	0.04	47,000	47,000	ND(0.00027)	ND(0.00027)	NA	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)
Methylene chloride	0.94	220	0.005	0.005	220	1,400	ND(0.00029)	ND(0.00029)	NA	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)
Tetrachloroethene	0.045	12	0.005	0.005	25	170	ND(0.00042)	ND(0.00042)	NA	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)
Toluene	0.14	530	0.79	0.79	530	530	ND(0.00039)	ND(0.00039)	NA	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)
trans-1,2-Dichloroethene	1.5	220	0.1	0.1	85	200	ND(0.00033)	ND(0.00033)	NA	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)	0.0028
Trichloroethene	0.2	22	0.005	0.005	15	97	ND(0.00042)	ND(0.00042)	NA	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)
Vinyl chloride	0.015	1	0.002	0.002	1.1	13	ND(0.00036)	ND(0.00036)	NA	ND(0.00036)	0.0051	ND(0.00036)	ND(0.00036)	ND(0.00036)	0.0056
Xylene (total)	0.035	190	0.28	0.28	190	190	ND(0.00044)	0.0013 J	NA	ND(0.00044)	ND(0.00044)	ND(0.00044)	0.00066 J	ND(0.00044)	ND(0.00044)
SVOC (mg/L)															
2,4,5-Trichlorophenol		170	0.73	2.1	NLV	NLV	ND(0.0012)	NA	ND(0.012)UJ	ND(0.0012)	ND(0.0012)	NA	ND(0.0012)	ND(0.0012)	ND(0.0012)
2,4,6-Trichlorophenol	0.005	10	0.12	0.47	NLV	NLV	ND(0.0017)	NA	ND(0.017)UJ	ND(0.0017)	ND(0.0017)	NA	ND(0.0017)	ND(0.0017)	ND(0.0017)
2,4-Dichlorophenol	0.019	48	0.073	0.21	NLV	NLV	ND(0.00085)	NA	ND(0.00085)UJ	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	ND(0.00085)
2,4-Dimethylphenol	0.38	520	0.37	1	NLV	NLV	ND(0.00085)	NA	ND(0.00085)UJ	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	ND(0.00085)
2-Methylnaphthalene	ID	25	0.26	0.75	ID	ID	ND(0.00064)	NA	ND(0.0064)UJ	ND(0.00064)	ND(0.00064)	NA	ND(0.00064)	ND(0.00064)	ND(0.00064)
Acenaphthene	0.019	4.2	1.3	3.8	4.2	4.2	ND(0.0008)	NA	ND(0.008)UJ	ND(0.0008)	ND(0.0008)	NA	ND(0.0008)	ND(0.0008)	ND(0.0008)
Anthracene	ID	0.043	0.043	0.043	0.043	0.043	ND(0.00068)	NA	ND(0.0068)UJ	ND(0.00068)	ND(0.00068)	NA	ND(0.00068)	ND(0.00068)	ND(0.00068)
Benzaldehyde	---	---	---	---	---	---	ND(0.0028)	NA	ND(0.028)UJ	ND(0.0028)	ND(0.0028)	NA	ND(0.0028)	ND(0.0028)	ND(0.0028)
Benzo(a)anthracene	ID	0.0094	0.0021	0.0085	NLV	NLV	ND(0.0007)	NA	ND(0.007)UJ	ND(0.0007)	ND(0.0007)	NA	ND(0.0007)	ND(0.0007)	ND(0.0007)
Benzo(a)pyrene	ID	0.002	0.005		NLV	NLV	ND(0.00073)	NA	ND(0.0073)UJ	ND(0.00073)	ND(0.00073)	NA	ND(0.00073)	ND(0.00073)	ND(0.00073)
Benzo(b)fluoranthene	ID	0.002	0.002	0.002	ID	ID	ND(0.00094)	NA	ND(0.0094)UJ	ND(0.00094)	ND(0.00094)	NA	ND(0.00094)	ND(0.00094)	ND(0.00094)
Benzo(g,h,i)perylene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00085)	NA	ND(0.0085)UJ	ND(0.00085)	ND(0.00085)	NA	ND(0.00085)	ND(0.00085)	ND(0.00085)
Benzo(k)fluoranthene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00084)	NA	ND(0.0084)UJ	ND(0.00084)	ND(0.00084)	NA	ND(0.00084)	ND(0.00084)	ND(0.00084)
Biphenyl	---	---	---	---	---	---	ND(0.0026)	NA	ND(0.0026)UJ	ND(0.0026)	ND(0.0026)	NA	ND(0.0026)	ND(0.0026)	ND(0.0026)
bis(2-Ethylhexyl)phthalate	0.032	0.32	0.006	0.006	NLV	NLV	ND(0.0027)	NA	ND(0.027)UJ	ND(0.0027)	0.0068	NA	ND(0.0027)	0.0041 J	ND(0.0027)
Carbazole	0.01	7.4	0.085	0.35	NLV	NLV	ND(0.00082)	NA	ND(0.0082)UJ	ND(0.00082)	ND(0.00082)	NA	ND(0.00082)	ND(0.00082)	ND(0.00082)
Chrysene	ID	0.005	0.005	0.005	ID	ID	ND(0.00075)	NA	ND(0.0075)UJ	ND(0.00075)	ND(0.00075)	NA	ND(0.00075)	ND(0.00075)	ND(0.00075)
Dibenz(a,h)anthracene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00079)	NA	ND(0.0079)UJ	ND(0.00079)	ND(0.00079)	NA	ND(0.00079)	ND(0.00079)	ND(0.00079)
Dibenzofuran	0.005	ID	ID	ID	ID	ID	ND(0.0011)	NA	ND(0.011)UJ	ND(0.0011)	ND(0.0011)	NA	ND(0.0011)	ND(0.0011)	ND(0.0011)
Diethyl phthalate	0.11	1,100	5.5	16	NLV	NLV	ND(0.00065)	NA	ND(0.0065)UJ	ND(0.00065)	ND(0.00065)	NA	ND(0.00065)	ND(0.00065)	ND(0.00065)
Fluoranthene	0.005	0.21	0.21	0.21	0.21	0.21	ND(0.00081)	NA	ND(0.0081)UJ	ND(0.00081)	ND(0.00081)	NA	ND(0.00081)	ND(0.00081)	ND(0.00081)
Fluorene	0.012	2	0.88	25	2	2	ND(0.001)	NA	ND(0.01)UJ	ND(0.001)	ND(0.001)	NA	ND(0.001)	ND(0.001)	ND(0.001)
Indeno(1,2,3-cd)pyrene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00063)	NA	ND(0.0063)UJ	ND(0.00063)	ND(0.00063)	NA	ND(0.00063)	ND(0.00063)	ND(0.00063)
Methylphenols-Total	0.071	810	0.37	1	NLV	NLV	ND(0.0013)	NA	ND(0.013)UJ	ND(0.0013)	ND(0.0013)	NA	ND(0.0013)	ND(0.0013)	ND(0.0013)
Naphthalene	0.013	31	0.52	1.5	31	31	ND(0.00075)	NA	ND(0.0075)UJ	ND(0.00075)	ND(0.00075)	NA	ND(0.00075)	ND(0.00075)	ND(0.00075)
Phenanthrene	0.005	1	0.052	0.15	1	1	ND(0.00082)	NA	ND(0.0082)UJ	ND(0.00082)	ND(0.00082)	NA	ND(0.00082)	ND(0.00082)	ND(0.00082)
Phenol	0.21	29,000	4.4	13	NLV	NLV	ND(0.0026)	NA	ND(0.026)UJ	ND(0.0026)	ND(0.0026)	NA	ND(0.0026)	ND(0.0026)	ND(0.0026)
Pyrene	ID	0.14	0.14	0.14	0.14	0.14	ND(0.0011)UJ	NA	ND(0.011)UJ	ND(0.0011)	ND(0.0011)	NA	ND(0.0011)	ND(0.0011)	ND(0.0011)
Inorganics (mg/L)															
Aluminum (Dissolved)	--	64,000	0.05	0.05	NLV	NLV	0.10	NA	NA	ND(0.016)	ND(0.016)	NA	ND(0.016)	ND(0.016)	ND(0.016)
Antimony (Dissolved)	0.13	68	0.006	0.006	NLV	NLV	ND(0.00012)	NA	NA	ND(0.00012)	0.00055 J	NA	ND(0.0020)U	0.00016 J	0.00020 J
Arsenic (Dissolved)	0.15	4.3	0.05	0.05	NLV	NLV	0.022	NA	NA	0.049	ND(0.0021)	NA	0.0081 J	0.0062 J	ND(0.0021)
Barium (Dissolved)	0.44	14,000	2	2	NLV	NLV	0.16	NA	NA	0.10	0.023 J	NA	0.14	0.15	0.061 J
Barium (Dissolved)	0.0024	290	0.004	0.004	NLV	NLV	ND(0.00060)	NA	NA	ND(0.00060)	ND(0.00060)	NA	ND(0.00060)	ND(0.00060)	ND(0.00060)

TABLE 5.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾															
Sample Location Sample ID: GW-17358 Sample Date	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-443M-D 021703-SP-615 2/17/2003	CRA-443M-S 021703-SP-616 2/17/2003	CRA-443M-S 021803-SP-616 2/18/2003	CRA-444M-D 021903-SP-626 2/19/2003	CRA-445M-D 031203-KH-666 3/12/2003	CRA-446M-S 031303-JD-673 3/13/2003	CRA-447M-D 022103-SP-634 2/21/2003	CRA-448M-D 031203-JD-669 3/12/2003	CRA-449M-S 031203-KH-667 3/12/2003
Cadmium (Dissolved)	0.0027	190	0.005	0.005	NLV	NLV	ND(0.000075)	NA	NA	ND(0.000075)	0.000082 J	NA	ND(0.000075)	ND(0.000075)	ND(0.000075)
Barium (Dissolved)	0.011	460	0.1	0.1	NLV	NLV	ND(0.0015)	NA	NA	ND(0.0015)	ND(0.0015)	NA	ND(0.0015)	ND(0.0015)	ND(0.0015)
Cobalt (Dissolved)	0.1	2,400	0.04	0.1	NLV	NLV	ND(0.00074)	NA	NA	ND(0.00074)	0.0024 J	NA	ND(0.00074)	ND(0.00074)	ND(0.00074)
Copper (Dissolved)	0.009	7,400	1	1	NLV	NLV	ND(0.0020)U	NA	NA	ND(0.0020)U	0.0041	NA	ND(0.0020)U	ND(0.0020)U	ND(0.00033)
Cyanide (total)	0.0052	57	0.2	0.2	NLV	NLV	ND(0.0018)	--	ND(0.0018)UJ	ND(0.0018)	ND(0.0018)	NA	ND(0.0018)	ND(0.0018)	ND(0.0018)
Iron (Dissolved)	--	58,000	0.3	0.3	NLV	NLV	2.1 J	NA	NA	5.4	0.081	NA	1.9 J	3.0	0.57
Lead (Dissolved)	0.01	ID	0.004	0.004	NLV	NLV	ND(0.0016)	NA	NA	ND(0.0016)	ND(0.0016)	NA	ND(0.0016)	ND(0.0016)	ND(0.0016)
Manganese (Dissolved)	0.53	9,100	0.05	0.05	NLV	NLV	0.033	NA	NA	0.083	0.25	NA	0.040	0.029	0.085
Mercury (Dissolved)	0.0000013	0.056	0.002	0.002	0.056	0.056	ND(0.000087)	NA	NA	ND(0.000087)	ND(0.000087)	NA	ND(0.000087)	ND(0.000087)	ND(0.000087)
Nickel (Dissolved)	0.52	74,000	0.1	0.1	NLV	NLV	ND(0.0029)	NA	NA	0.16	0.031	NA	0.0082 J	0.013 J	ND(0.0029)
Selenium (Dissolved)	0.005	970	0.05	0.05	NLV	NLV	ND(0.00030)	NA	NA	ND(0.00030)	0.0045	NA	ND(0.00030)	ND(0.00030)	0.00068 J
Barium (Dissolved)	0.0002	1,500	0.034	0.098	NLV	NLV	ND(0.00013)UJ	NA	NA	ND(0.00013)	ND(0.00013)UJ	NA	ND(0.00013)	ND(0.00013)UJ	ND(0.00013)UJ
Thallium (Dissolved)	0.0037	13	0.002	0.002	NLV	NLV	ND(0.000033)	NA	NA	ND(0.000033)	ND(0.000033)	NA	ND(0.000033)	ND(0.000033)	ND(0.000033)
Vanadium (Dissolved)	0.012	970	0.0045	0.062	NLV	NLV	ND(0.00067)	NA	NA	ND(0.00067)	0.0018 J	NA	ND(0.00067)	ND(0.00067)	ND(0.00067)
Zinc (Dissolved)	0.12	110,000	2.4	5	NLV	NLV	0.0065 J	NA	NA	ND(0.010)U	0.0070 J	NA	0.0087 J	0.0079 J	0.0027 J
Total PCB (mg/L)	0.0002	0.0033	0.0005	0.0005	0.045	0.045	ND(0.000082)UJ	NA	NA	ND(0.000082)	ND(0.000082)	NA	ND(0.000082)UJ	ND(0.000082)	ND(0.000082)

Notes:

- (1)Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amen
- No Criteria available for this constituent
- NAConstituent not analyzed for this sample
- NDConstituent not detected above sample quantitation limit
- NLVConstituent is not likely to volatilize
- IDInadequate data exists to develop criterion for constituent
- RLaboratory value was rejected during the Data Validation and Qualification Process because the data is unusable
- JThe associated value is an estimated quantity
- UThe material was analyzed for but was not detected
- UJThe material was analyzed for but was not detected. The associated value is an estimate

Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria

Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria

Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.

Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾										
	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria	CRA-450M-D 031303-JD-674 3/13/2003	CRA-451M-S 031303-JD-675 3/13/2003	CRA-451M-S 031303-JD-676 3/13/2003 (Dup.)	CRA-452M-D 031403-JD-679 3/14/2003
Sample Location										
Sample ID: GW-17358										
Sample Date										
VOC (mg/L)										
1,1,1-Trichloroethane	0.2	1,300	0.2	0.2	660	1,300	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)
1,1-Dichloroethane	0.74	2,400	0.88	2.5	1,000	2,300	ND(0.0003)	ND(0.0003)	ND(0.0003)	ND(0.0003)
1,2,4-Trichlorobenzene	0.03	19	0.07	0.07	300	300	ND(0.0004)	ND(0.0004)	ND(0.0004)	ND(0.0004)
2-Butanone	2.2	240,000	13	38	240,000	240,000	ND(0.025)U	ND(0.00059)	ND(0.00059)	ND(0.00059)
2-Hexanone		5,200	1	2.9	4,200	8,700	ND(0.00058)	ND(0.00058)	ND(0.00058)	ND(0.00058)
4-Methyl-2-pentanone	ID	13,000	1.8	5.2	20,000	20,000	ND(0.00026)	ND(0.00026)	ND(0.00026)	ND(0.00026)
Acetone	1.7	31,000	0.73	2.1	1,000,000	1,000,000	ND(0.025)U	ND(0.0011)	ND(0.025)U	ND(0.0011)
Benzene	0.2	11	0.005	0.005	5.6	35	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)
Carbon disulfide	ID	1200	0.8	2.3	250	550	ND(0.00024)	ND(0.00024)	ND(0.00024)	ND(0.00024)
Carbon tetrachloride	0.045	4.6	0.005	0.005	0.37	2.4	ND(0.00037)	ND(0.00037)	ND(0.00037)	ND(0.00037)
cis-1,2-Dichloroethene	0.62	200	0.07	0.07	93	210	0.00061 J	0.0028	0.0031	ND(0.00035)
Cyclohexane	---	---	---	---	---	---	ND(0.00033)	ND(0.00033)	ND(0.00033)	ND(0.00033)
Ethylbenzene	0.018	170	0.074	0.074	110	170	ND(0.00041)	ND(0.00041)	ND(0.00041)	ND(0.00041)
Isopropylbenzene	ID	56	0.8	2.3	56	56	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)
Methyl acetate	---	---	---	---	---	---	ND(0.00054)	ND(0.00054)	ND(0.00054)	ND(0.00054)
Methyl cyclohexane	---	---	---	---	---	---	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)
Methyl Tert Butyl Ether	0.73	610	0.04	0.04	47,000	47,000	ND(0.00027)	ND(0.00027)	ND(0.00027)	ND(0.00027)
Methylene chloride	0.94	220	0.005	0.005	220	1,400	ND(0.00029)	ND(0.00029)	ND(0.00029)	ND(0.00029)
Tetrachloroethene	0.045	12	0.005	0.005	25	170	ND(0.00042)	ND(0.00042)	ND(0.00042)	ND(0.00042)
Toluene	0.14	530	0.79	0.79	530	530	ND(0.00039)	ND(0.00039)	ND(0.00039)	ND(0.00039)
trans-1,2-Dichloroethene	1.5	220	0.1	0.1	85	200	ND(0.00033)	0.00081 J	0.00092 J	ND(0.00033)
Trichloroethene	0.2	22	0.005	0.005	15	97	ND(0.00042)	0.0058	0.008	0.00059 J
Vinyl chloride	0.015	1	0.002	0.002	1.1	13	ND(0.00036)	0.00083 J	0.00068 J	ND(0.00036)
Xylene (total)	0.035	190	0.28	0.28	190	190	ND(0.00044)	ND(0.00044)	ND(0.00044)	ND(0.00044)
SVOC (mg/L)										
2,4,5-Trichlorophenol		170	0.73	2.1	NLV	NLV	ND(0.0012)	ND(0.0012)	ND(0.0012)	ND(0.0012)
2,4,6-Trichlorophenol	0.005	10	0.12	0.47	NLV	NLV	ND(0.0017)	ND(0.0017)	ND(0.0017)	ND(0.0017)
2,4-Dichlorophenol	0.019	48	0.073	0.21	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)
2,4-Dimethylphenol	0.38	520	0.37	1	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)
2-Methylnaphthalene	ID	25	0.26	0.75	ID	ID	ND(0.00064)	ND(0.00064)	ND(0.00064)	ND(0.00064)
Acenaphthene	0.019	4.2	1.3	3.8	4.2	4.2	ND(0.0008)	ND(0.0008)	ND(0.0008)	ND(0.0008)
Anthracene	ID	0.043	0.043	0.043	0.043	0.043	ND(0.00068)	ND(0.00068)	ND(0.00068)	ND(0.00068)
Benzaldehyde	---	---	---	---	---	---	ND(0.0028)	ND(0.0028)	ND(0.0028)	ND(0.0028)
Benzo(a)anthracene	ID	0.0094	0.0021	0.0085	NLV	NLV	ND(0.0007)	ND(0.0007)	ND(0.0007)	ND(0.0007)
Benzo(a)pyrene	ID	0.002	0.005	0.005	NLV	NLV	ND(0.00073)	ND(0.00073)	ND(0.00073)	ND(0.00073)
Benzo(b)fluoranthene	ID	0.002	0.002	0.002	ID	ID	ND(0.00094)	ND(0.00094)	ND(0.00094)	ND(0.00094)
Benzo(g,h,i)perylene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00085)	ND(0.00085)	ND(0.00085)	ND(0.00085)
Benzo(k)fluoranthene	--	0.005	0.005	0.005	NLV	NLV	ND(0.00084)	ND(0.00084)	ND(0.00084)	ND(0.00084)
Biphenyl	---	---	---	---	---	---	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.0026)
bis(2-Ethylhexyl)phthalate	0.032	0.32	0.006	0.006	NLV	NLV	ND(0.0027)	ND(0.0027)	ND(0.0027)	ND(0.0027)
Carbazole	0.01	7.4	0.085	0.35	NLV	NLV	ND(0.00082)	ND(0.00082)	ND(0.00082)	ND(0.00082)
Chrysene	ID	0.005	0.005	0.005	ID	ID	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.00075)
Dibenz(a,h)anthracene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00079)	ND(0.00079)	ND(0.00079)	ND(0.00079)
Dibenzofuran	0.005	ID	ID	ID	ID	ID	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)
Diethyl phthalate	0.11	1,100	5.5	16	NLV	NLV	ND(0.00065)	ND(0.00065)	ND(0.00065)	ND(0.00065)
Fluoranthene	0.005	0.21	0.21	0.21	0.21	0.21	ND(0.00081)	ND(0.00081)	ND(0.00081)	ND(0.00081)
Fluorene	0.012	2	0.88	25	2	2	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Indeno(1,2,3-cd)pyrene	ID	0.002	0.002	0.002	NLV	NLV	ND(0.00063)	ND(0.00063)	ND(0.00063)	ND(0.00063)
Methylphenols-Total	0.071	810	0.37	1	NLV	NLV	ND(0.0013)	ND(0.0013)	ND(0.0013)	ND(0.0013)
Naphthalene	0.013	31	0.52	1.5	31	31	ND(0.00075)	ND(0.00075)	ND(0.00075)	ND(0.00075)
Phenanthrene	0.005	1	0.052	0.15	1	1	ND(0.00082)	ND(0.00082)	ND(0.00082)	ND(0.00082)
Phenol	0.21	29,000	4.4	13	NLV	NLV	ND(0.0026)	ND(0.0026)	ND(0.0026)	ND(0.0026)
Pyrene	ID	0.14	0.14	0.14	0.14	0.14	ND(0.0011)	ND(0.0011)	ND(0.0011)	ND(0.0011)
Inorganics (mg/L)										
Aluminum (Dissolved)	--	64,000	0.05	0.05	NLV	NLV	ND(0.016)	ND(0.016)	ND(0.016)	ND(0.016)
Antimony (Dissolved)	0.13	68	0.006	0.006	NLV	NLV	0.00050 J	0.0013 J	0.00060 J	0.00016 J
Arsenic (Dissolved)	0.15	4.3	0.05	0.05	NLV	NLV	ND(0.0021)	0.0030 J	ND(0.0021)	0.012
Barium (Dissolved)	0.44	14,000	2	2	NLV	NLV	0.18	0.25	0.25	0.18
Barium (Dissolved)	0.0024	290	0.004	0.004	NLV	NLV	ND(0.00060)	ND(0.00060)	ND(0.00060)	ND(0.00060)

SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER
GMPT-WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample ID: GW-17358 Sample Date	Michigan Act 451, Part 201 Generic Residential & Industrial Criteria ⁽¹⁾						CRA-450M-D 031303-JD-674 3/13/2003	CRA-451M-S 031303-JD-675 3/13/2003	CRA-451M-S 031303-JD-676 3/13/2003 (Dup.)	CRA-452M-D 031403-JD-679 3/14/2003
	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III, & IV Drinking Water Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Inhalation Criteria	Industrial & Commercial II, III, & IV Groundwater Volatilization to Indoor Inhalation Criteria				
Cadmium (Dissolved)	0.0027	190	0.005	0.005	NLV	NLV	0.00075	ND(0.000075)	ND(0.000075)	ND(0.000075)
Barium (Dissolved)	0.011	460	0.1	0.1	NLV	NLV	ND(0.0015)	ND(0.0015)	ND(0.0015)	ND(0.0015)
Cobalt (Dissolved)	0.1	2,400	0.04	0.1	NLV	NLV	0.011	0.0025 J	0.0024 J	ND(0.00074)
Copper (Dissolved)	0.009	7,400	1	1	NLV	NLV	0.018	0.0056	0.0050	ND(0.0020)U
Cyanide (total)	0.0052	57	0.2	0.2	NLV	NLV	ND(0.0018)	0.0028 J	0.0028 J	ND(0.0018)
Iron (Dissolved)	--	58,000	0.3	0.3	NLV	NLV	0.27	0.45	0.42	2.5
Lead (Dissolved)	0.01	ID	0.004	0.004	NLV	NLV	0.0020 J	ND(0.0016)	ND(0.0016)	ND(0.0016)
Manganese (Dissolved)	0.53	9,100	0.05	0.05	NLV	NLV	0.39	0.61	0.60	0.052
Mercury (Dissolved)	0.0000013	0.056	0.002	0.002	0.056	0.056	ND(0.000087)	ND(0.000087)	ND(0.000087)	ND(0.000087)
Nickel (Dissolved)	0.52	74,000	0.1	0.1	NLV	NLV	0.071	0.017 J	0.017 J	0.031
Selenium (Dissolved)	0.005	970	0.05	0.05	NLV	NLV	0.0018 J	0.0013 J	0.00093 J	ND(0.00030)
Barium (Dissolved)	0.0002	1,500	0.034	0.098	NLV	NLV	ND(0.00013)UJ	ND(0.00013)UJ	ND(0.00013)UJ	ND(0.00013)UJ
Thallium (Dissolved)	0.0037	13	0.002	0.002	NLV	NLV	0.00032 J	0.00011 J	0.00012 J	ND(0.000033)
Vanadium (Dissolved)	0.012	970	0.0045	0.062	NLV	NLV	ND(0.00067)	ND(0.00067)	ND(0.00067)	ND(0.00067)
Zinc (Dissolved)	0.12	110,000	2.4	5	NLV	NLV	0.021	0.015	0.010	0.0078 J
Total PCB (mg/L)	0.0002	0.0033	0.0005	0.0005	0.045	0.045	ND(0.000082)	ND(0.000082)	ND(0.000082)	ND(0.000082)
Notes:										
(1)	Cleanup Criteria established in Part 7 of the Administrative Rules, effective December 21, 2002, pursuant to Part 201 Environmental Remediation, 1994 PA 451, as amen									
--	No Criteria available for this constituent									
NA	Constituent not analyzed for this sample									
ND	Constituent not detected above sample quantitation limit									
NLV	Constituent is not likely to volatilize									
ID	Inadequate data exists to develop criterion for constituent									
R	Laboratory value was rejected during the Data Validation and Qualification Process because the data is unusable									
J	The associated value is an estimated quantity									
U	The material was analyzed for but was not detected									
UJ	The material was analyzed for but was not detected. The associated value is an estimate									
	Exceeds Michigan Act 451, Part 201 "Not Likely to Become Complete" Generic Criteria									
	Exceeds Michigan Act 451, Part 201 Generic "Complete" Criteria									
Bolded Criteria are those that have been determined to be applicable to the Site based on Site conditions and utilization.										

APPENDIX A

INSTRUMENTATION AND STRATIGRAPHIC LOGS



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-401M-D

DATE COMPLETED: March 6, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISE	720.60 720.57						
2	SP-SANDS, trace vegetation (rootlets and grass), trace silts, dense/frozen, poorly graded, fine grained, trace coarse grained, dark brown, moist - brown, no vegetation, loose at 1.5ft BGS		CONCRETE SEAL	1AL 2-4'		80		0.6
4	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, moist CL-CLAYS, trace silts, firm, low plasticity, brown/orange mottled, moist	717.10 716.60 716.35	1" PVC WELL CASING					
6	SW-SANDS, trace silts, trace fine subangular gravel, loose, well graded, fine, medium, and coarse grained, brown with black, white and red grains, moist		3-1/4" BOREHOLE	2AL 8-10'		90		1.2
8	- damp at 5.0ft BGS	712.60 712.35	SAND PACK					
10	CL-SILTY CLAYS, firm, low plasticity, olive brown, moist ML-SILTS, compact, poorly graded, fine grained, dark brown, very moist		1" PVC WELL SCREEN					
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	709.60		3AL				0.0
14	SM/ML-SILTS AND SILTY SANDS, compact, poorly graded, fine grained, dark brown, very moist	706.60						
16								
18	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	703.10		4AL				0.5
20	END OF BOREHOLE @ 20.0ft BGS	700.60	NATURAL COLLAPSE 2-1/4" BOREHOLE					
22			WELL DETAILS Screened interval: 707.60 to 702.60ft AMSL 13.00 to 18.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 709.60 to 702.60ft AMSL 11.00 to 18.00ft BGS Material: Silica Sand					
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ☒

CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA CORP GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-402M-S

DATE COMPLETED: March 6, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISE	720.67 720.63						
2	SP-SANDS, trace fine subrounded gravels, trace vegetation (rootlets & grass), frozen/dense, poorly graded, dark brown, moist - no vegetation, brown, loose at 1.0ft BGS		CONCRETE SEAL BENTONITE CHIPS 1" PVC WELL CASING	1AL 2-4'		75		200
4								
6	SM/ML-SILTS AND SILTY SANDS, compact, poorly graded, fine grained, brown, very moist	714.67	3-1/4" BOREHOLE SAND PACK	2AL 6-8'		100		95
8								
10			1" PVC WELL SCREEN					
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	709.67	NATURAL COLLAPSE	3AL		90		280
14			2-1/4" BOREHOLE					
16	END OF BOREHOLE @ 15.0ft BGS	705.67						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS

Screened interval:

714.67 to 709.67ft AMSL

6.00 to 11.00ft BGS

Length: 5ft

Diameter: 1in

Slot Size: 0.010

Material: PVC Schedule 40

Sand Pack:

716.67 to 709.67ft AMSL

4.00 to 11.00ft BGS

Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇
CHEMICAL ANALYSIS $\bigcirc$

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-403M-S

DATE COMPLETED: March 10, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.11 720.81						
	CONCRETE		CONCRETE SEAL					
2	SP-SANDS, trace silts, trace fine subangular gravels, loose, poorly graded, fine grained, trace medium and coarse grained, orangey brown, moist	720.03	BENTONITE CHIPS	1AL 2-4'				11.1
4	- beige at 5.0ft BGS		1" PVC WELL CASING					
6			3-1/4" BOREHOLE					
8	- very moist to damp at 8.0ft BGS		SAND PACK	2AL 6-8'				14.5
10	SW-SANDS, trace silts, trace fine subangular gravels, loose, well graded, fine, medium, and coarse grained, beige with white and black, moist	712.61 712.11	1" PVC WELL SCREEN					
12	SM/ML-SILTS AND SILTY SANDS, compact, poorly graded, fine grained, dark brown, very moist	710.61						
14	CH-CLAYS, trace silts, firm, high plasticity, dark greensih gray to light olive gray, moist		BENTONITE CHIPS	3AL				10.7
16	ML-SILTS, compact, poorly graded, fine grained, dark brown, very moist	706.36 706.11	2-1/4" BOREHOLE NATURAL COLLAPSE					
18	END OF BOREHOLE @ 15.0ft BGS							
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS

Screened interval:
715.11 to 710.11ft AMSL
6.00 to 11.00ft BGS

Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40

Sand Pack:
717.11 to 709.11ft AMSL
4.00 to 12.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-404M-S
DATE COMPLETED: March 3, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	TOP OF RISER	721.33						
	GROUND SURFACE	721.12						
	TILE	721.08						
	GROUT	720.68						
	CONCRETE							
2	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, fine grained, trace course grained, brown, moist	719.43	CONCRETE SEAL	1AL	3-5'	80		12
4			BENTONITE CHIPS					
			1" PVC WELL CASING					
6	ROCK FRAGMENTS, possibly concrete, grey	716.12						
			3-1/4" BOREHOLE					
8	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, trace course grained, beige with white and black, moist	715.12		2AL	6-8'			12.5
	- very moist, brown at 8.5ft BGS - damp to wet at 9.0ft BGS		SAND PACK					
10			1" PVC WELL SCREEN					
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish grey to light olive grey, moist	709.62		3AL				NA
14			NATURAL COLLAPSE					
			2-1/4" BOREHOLE					
16	END OF BOREHOLE @ 15.0ft BGS	706.12						
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS

Screened interval:

714.62 to 709.62ft AMSL

6.50 to 11.50ft BGS

Length: 5ft

Diameter: 1in

Slot Size: 0.010

Material: PVC Schedule 40

Sand Pack:

716.62 to 709.62ft AMSL

4.50 to 11.50ft BGS

Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND 
CHEMICAL ANALYSIS 

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-405M-S
DATE COMPLETED: March 3, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	TOP OF RISER GROUND SURFACE	721.28 721.11						
	CONCRETE		CONCRETE SEAL					
2	SP-SANDS, trace clays, compact, poorly graded, fine grained, dark brown, very moist (from coring fluids)	720.21	BENTONITE CHIPS	1AL 2-4 4-6		80		15.6
4	- loose, moist, beige/light brown at 2.3ft BGS	718.61	1" PVC WELL CASING					
6	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, fine grained, trace course grained, brown, moist		3-1/4" BOREHOLE					
8	- dark brown/black, slight petroleum-like odor at 4.0ft BGS		SAND PACK	2AL		75		16
10	- brown at 4.5ft BGS	714.11	1" PVC WELL SCREEN					
12	SM-SILTY SANDS, loose, poorly graded, fine grained, beige, moist		BENTONITE CHIPS	3AL		75		15.8
14	- brown, very moist to damp at 7.5ft BGS		2-1/4" BOREHOLE NATURAL COLLAPSE					
16	- dark brown/olive tint, wet at 7.8ft BGS	709.61						
18	CH-CLAYS, trace silts, firm, high plasticity, dark greenish grey to light olive grey, moist	707.11						
20	SM/ML-SILTS AND SILTY SANDS, compact, poorly graded, fine grained, dark brown, very moist	706.11						
22	END OF BOREHOLE @ 15.0ft BGS							
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
715.11 to 710.11ft AMSL
6.00 to 11.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.01
Material: PVC
Sand Pack:
717.11 to 709.11ft AMSL
4.00 to 12.00ft BGS

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-406M-S/CRA-406M-D
DATE COMPLETED: February 27, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.13 720.94						
	WOOD BLOCK	720.88						
	CONCRETE	720.16						
2	SP-SANDS, trace silts, loose, poorly graded, fine grained, orangy brown, moist		CONCRETE SEAL BENTONITE CHIPS	1AL 2-4				0.9
4	SC-CLAYEY SANDS, trace fine subrounded gravels, firm, poorly graded, fine grained, orangy dark brown, moist	717.63 717.43 716.63	1" PVC WELL CASING					
6	SW-SANDS, trace silts, trace fine subangular gravels, loose, well graded, fine, medium, and coarse grained, beige with white and black, moist		3-1/4" BOREHOLE					
8	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace coarse grained, beige with black and white, moist	712.88 712.13		2AL 6-8 8-10				1.7
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	711.13						
12	ML-SILTS, compact, poorly graded, fine grained, dark brown, very moist			3AL				11
14	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist							
16	CL/ML-SILTY CLAYS, soft, medium plasticity, sticky, gray, wet	707.13	SAND PACK					
18			1" PVC WELL SCREEN	4AL				0.0
20	END OF BOREHOLE @ 19.0ft BGS	702.13						
22	NOTE: NESTED SECOND MONITORING WELL SCREENED 5-10ft BGS, SAND BACK 3-11ft BGS, BENTONITE CHIPS 11'-13ft BGS, 3-11ft. TOP OF RISER ELEVATION 720.87ft AMSL		WELL DETAILS Screened interval: 707.13 to 702.13ft AMSL 14.00 to 19.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 708.13 to 702.13ft AMSL 13.00 to 19.00ft BGS Material: Silica Sand					
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-407M-D

DATE COMPLETED: March 5, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.01 720.93						
	WOOD BLOCKS	720.76	CONCRETE SEAL					
	CONCRETE	720.08	BENTONITE CHIPS	1AL 2-4' 4-6'				12.1
2	SC-CLAYEY SANDS, trace fine subangular gravels, compact, poorly graded, fine and medium grained, brown, moist		1" PVC WELL CASING					
4			3-1/4" BOREHOLE					
6	SP-SANDS, trace silts, loose, poorly graded, fine grained, with medium grained, brown, damp to wet	715.01		2AL				11.5
8								
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	712.51						
12								
14			SAND PACK	3AL				10.4
16	SM/ML-SILTY SANDS AND SILTS, trace clay throughout, compact, poorly graded, fine grained, dark brown, wet - trace clays throughout at 16.0ft BGS	706.01	1" PVC WELL SCREEN					
18				4AL				11.6
20	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist END OF BOREHOLE @ 19.5ft BGS	702.51 701.51	NATURAL COLLAPSE 2-1/4" BOREHOLE					
22			WELL DETAILS Screened interval: 707.51 to 702.51ft AMSL 13.50 to 18.50ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 709.51 to 701.51ft AMSL 11.50 to 19.50ft BGS Material: Silica Sand					
24								
26								
28								
30								
32								
34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼
CHEMICAL ANALYSIS ○

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-408M-S

DATE COMPLETED: February 27, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.97 720.88						
	CONCRETE		CONCRETE SEAL					
2	SM-SILTY SANDS, compact, poorly graded, fine grained, dark brown, moist	720.29	BENTONITE CHIPS	1AL 2-4'				1051
4	SC-CLAYEY SANDS, trace fine subrounded gravels, firm, poorly graded, fine with medium grained, dark brown, moist	718.97 718.17	1" PVC WELL CASING					
6	SP-SANDS, trace fine subangular gravels, loose to compact, poorly graded, fine with medium grained, brown, moist, petroleum-like odor	717.17 716.47	3-1/4" BOREHOLE					
8	ML/SM-SILTY SANDS AND SILTS, dense, poorly graded, fine grained, brown, moist, petroleum-like odor - black at 4.3ft BGS	714.47	1" PVC WELL SCREEN	2AL 7-9'				1823
10	SC-CLAYEY SANDS, trace fine subrounded gravels, firm, poorly graded, fine with medium grained, dark brown, moist, petroleum-like odor	711.47 710.97	SAND PACK					
12	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace medium grained, beige, moist, petroleum-like odor - moist to wet at 9.0ft BGS		BENTONITE CHIPS	3AL				6.4
14	SW-SANDS, trace silts, loose, poorly graded, fine, medium, and coarse grained, brown with black, white grains, wet, petroleum-like odor		NATURAL COLLAPSE 2-1/4" BOREHOLE					
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	706.97						
18	END OF BOREHOLE @ 14.0ft BGS							
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24								
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28								
30								
32								
34								

WELL DETAILS

Screened interval:

715.97 to 710.97ft AMSL

5.00 to 10.00ft BGS

Length: 5ft

Diameter: 1in

Slot Size: 0.010

Material: PVC Schedule 40

Sand Pack:

717.97 to 709.97ft AMSL

3.00 to 11.00ft BGS

Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND

CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 8/5/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-409M-S

DATE COMPLETED: February 4, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.03 720.78						
	CONCRETE							
-2	SP-SANDS (FILL), with fine subrounded gravels, trace silts, trace plastic sheeting, loose, poorly graded, fine grained, trace medium grained, brown, moist	720.12	CONCRETE SEAL	1AL 1-3'		60		15.1
-4	- light brown, no gravels, no medium grained at 4.5ft BGS		BENTONITE CHIPS					
-6	- trace medium grained, dark brown, trace fine subrounded gravels at 5.5ft BGS		1" PVC WELL CASING					
-8	- wet at 8.0ft BGS		3-1/4" BOREHOLE					
-10	CH-CLAYS, trace silts, firm, high plasticity, olive gray, moist	711.73	1" PVC WELL SCREEN	2AL 6-8'		80		14.6
-12			SAND PACK					
-14			NATURAL COLLAPSE					
-16	END OF BOREHOLE @ 16.0ft BGS	705.03	2-1/4" BOREHOLE	3AL				17.2
-18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
-20								
-22								
-24								
-26								
-28								
-30								
-32								
-34								

WELL DETAILS
Screened interval:
716.53 to 711.53ft AMSL
4.50 to 9.50ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
718.03 to 711.53ft AMSL
3.00 to 9.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-410M-S

DATE COMPLETED: February 5, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.02 720.87						
	CONCRETE	720.27	CONCRETE SEAL					
	VOID SPACE	720.11	BENTONITE CHIPS					
2	SP-SANDS (FILL), trace fine subrounded gravels, with silts, loose, poorly graded, fine grained, brown, moist	719.02	1" PVC WELL CASING	24 1AL		50		16.7
4	SM-SILTY SANDS, trace fine subrounded gravels, loose, poorly graded, fine grained, brown, moist		3-1/4" BOREHOLE					
6			SAND PACK	24 6-8		75		19.4
8	- 2mm dark brown band at 8.5ft BGS - wet at 8.5ft BGS	712.02	1" PVC WELL SCREEN					
10	SP-SANDS, trace silts, loose, poorly graded, fine and medium grained, coarsening downward, medium grained are well rounded (white and black), dark brown, wet	711.02						
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	709.02	2-1/4" BOREHOLE NATURAL COLLAPSE	3AL		95		20.9
14	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, very moist to wet	708.02						
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	705.52 705.02						
18	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, moist to damp							
20	END OF BOREHOLE @ 16.0ft BGS							
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
24								
26								
28								
30								
32								
34								

WELL DETAILS
Screened interval:
716.52 to 711.52ft AMSL
4.50 to 9.50ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
718.02 to 710.02ft AMSL
3.00 to 11.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

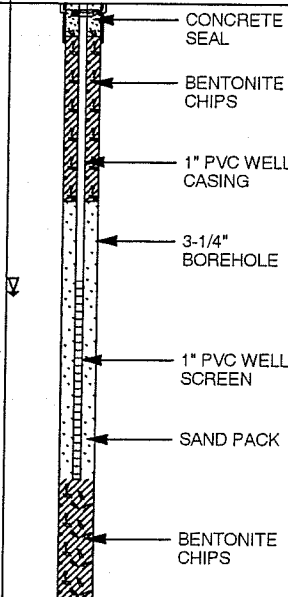
HOLE DESIGNATION: CRA-411M-S

DATE COMPLETED: February 28, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE	720.18						
	TOP OF RISER	719.86						
	COBBLE FILL (DECORATIVE)	719.85						
2	SP-SANDS, trace silts, loose, poorly graded, fine grained with medium grained, brown, very moist (from melted snow)	718.18						
	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	717.68		1AL 2-4		100		8.8
4	CL-CLAYS, with sands, trace fine subangular gravels, soft, light brown, moist							
6	- dark brown/black at 2.7ft BGS - with fine subrounded gravels, brown and orange mottled at 4.0ft BGS	714.18						
8	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace medium grained, light brown/beige, moist			2AL 5-7		100		11.9
	- very moist at 7.0ft BGS	711.18						
10	- wet at 7.3ft BGS	710.68						
	ML-SILTS, trace fine sands, compact, poorly graded, fine grained, brown, damp			3AL		100		13.4
12	ML/SM-SILTS and SILTY SANDS, compact, poorly graded, fine grained, brown, wet							
	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	707.18						
14	ML/SM-SILTS and SILTY SANDS, compact, poorly graded, fine grained, brown, wet	706.18		4AL				11.2
	END OF BOREHOLE @ 15.0ft BGS	705.18						
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WELL DETAILS

Screened interval:

713.18 to 708.18ft AMSL

7.00 to 12.00ft BGS

Length: 5ft

Diameter: 2in

Slot Size: 0.010

Material: PVC

Sand Pack:

715.18 to 708.18ft AMSL

5.00 to 12.00ft BGS

Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▼

CHEMICAL ANALYSIS ○

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-412M-S
DATE COMPLETED: March 5, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.31 720.09						
	WOOD BLOCK	720.06						
	CONCRETE	719.44						
2	SC-CLAYEY SANDS, trace fine subangular to angular gravels, compact, poorly graded, fine with medium grained, brown, moist - black at 2.8ft BGS - brown at 3.5ft BGS		CONCRETE SEAL BENTONITE CHIPS	1AL 2-4		100		211
4	SP-SANDS, trace silts, loose, poorly graded, fine with medium grained, trace coarse grained, brown with black and white grains, moist	716.31	1" PVC WELL CASING					
6	SW-SANDS, trace silts, loose, well graded, fine, medium, and coarse grained, brown with black and white grains, moist - wet at 7.0ft BGS	713.81 712.81	3-1/4" BOREHOLE	2AL 5-7		90		260
8	ML/SM-SILTY SANDS AND SILTS, trace clay nodules, compact, poorly graded, fine grained, dark brown, wet		SAND PACK					
10	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, wet	708.81 708.56	1" PVC WELL SCREEN					
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		2-1/4" BOREHOLE	3AL		80		10
14	END OF BOREHOLE @ 15.0ft BGS	705.31	NATURAL COLLAPSE					
16	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
18	WELL DETAILS Screened interval: 714.31 to 709.31ft AMSL 6.00 to 11.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 716.31 to 709.31ft AMSL 4.00 to 11.00ft BGS Material: Silica Sand							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-413M-D
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.07 720.68						
	CONCRETE		CONCRETE SEAL					
2	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace coarse grained, brown, wet from coring - moist at 2.0ft BGS	720.37	BENTONITE CHIPS	1AL 2-4'		100		10.9
4	- beige at 5.0ft BGS		1" PVC WELL CASING					
6			3-1/4" BOREHOLE					
8	SW-SANDS, trace silts, loose, well graded, fine, medium, and coarse grained, brown with white and black grains, damp	713.07 712.57		2AL 8-10'		95		12.4
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	711.07 710.57						
12	SW-SANDS, trace silts, loose, well graded, fine, medium, and coarse grained, brown with white and black grains, wet			3AL		125		8.7
14	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		SAND PACK					
16	ML/SM-SANDS AND SILTY SANDS, dense, poorly graded, fine grained, dark brown, wet	707.07	1" PVC WELL SCREEN					
18	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	703.07		4AL		100		8.9
20	END OF BOREHOLE @ 19.0ft BGS	702.07	NATURAL COLLAPSE 2-1/4" BOREHOLE					
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
24	WELL DETAILS Screened interval: 708.07 to 703.07ft AMSL 13.00 to 18.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 710.07 to 703.07ft AMSL 11.00 to 18.00ft BGS Material: Silica Sand							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE								
WATER FOUND ▾								
CHEMICAL ANALYSIS ○								

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-414M-S

DATE COMPLETED: February 26, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.06 720.91						
	CONCRETE		CONCRETE SEAL					
2	SP-SANDS, trace silts and fine subrounded gravels, compact, poorly graded, fine with medium grained, brown, moist	720.15	BENTONITE CHIPS					
4	SC-CLAYEY SANDS, trace gravels, firm to compact, poorly graded, dark brown, moist	718.56 718.06	1" PVC WELL CASING	1AL 1-3	60			10
6	SP-SANDS, trace fine subrounded gravels, trace silts, loose, poorly graded, fine grained, brown/beige, moist - saturated, dark brown at 6.0ft BGS		3-1/4" BOREHOLE					
8	SW-SANDS, trace silts, loose, well graded, fine, medium, and coarse grained, dark brown, moist to damp	714.06 713.56	SAND PACK	2AL 7-9	100			11
10	SP-SANDS, with silts, loose, poorly graded, fine grained, brown, damp	712.06	1" PVC WELL SCREEN					
12	ML-SILTS, trace fine sands, compact, poorly graded, brown, damp	710.16	NATURAL COLLAPSE					
14	- wet at 9.25ft BGS CH-CLAYS, trace silts, firm, high plasticity, dark gray, moist		2-1/4" BOREHOLE	3AL	90			3.8
16	END OF BOREHOLE @ 16.0ft BGS	705.06						
18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS
Screened interval:
716.06 to 711.06ft AMSL
5.00 to 10.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
717.06 to 711.06ft AMSL
4.00 to 10.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-415M-S
DATE COMPLETED: February 5, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.10 720.97						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, with fine subrounded gravels, trace silts, compact, poorly graded, fine grained, trace medium grained, dark brown, moist	720.02	BENTONITE CHIPS					
4	- 3-inch very dark brown to black layer at 4.8ft BGS		1" PVC WELL CASING	1AL 2-4		75		14.9
6	SP-SANDS, with fine subrounded gravels, trace silts, compact, poorly graded, fine grained, trace medium grained, dark brown, moist	716.10	3-1/4" BOREHOLE					
8	- no gravels, fine grained, beige, loose at 7.0ft BGS		1" PVC WELL SCREEN	2AL 6-8		95		14.5
10	- very moist to damp at 8.8ft BGS							
12	- wet, with medium grained at 9.5ft BGS	711.10	SAND PACK					
14	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, moist to very moist	709.85	NATURAL COLLAPSE	3AL		75		13.8
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		2-1/4" BOREHOLE					
18	END OF BOREHOLE @ 15.0ft BGS	706.10						
20	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS
Screened interval:
714.60 to 709.60ft AMSL
6.50 to 11.50ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.01
Material: PVC
Sand Pack:
716.60 to 709.60ft AMSL
4.50 to 11.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-416M-S
DATE COMPLETED: February 5, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.48 720.05						
	WOOD BLOCKS	720.23						
	CONCRETE	719.48						
2	SC-CLAYEY SANDS, trace find subangular to angular gravels, compact, poorly graded, fine with medium grained, brown, moist							
4								
6								
8	SW-SANDS, trace silts, loose, well graded, fine, medium, and coarse grained, brown with black and white grains, moist	713.48 712.98						
10	- wet at 7.25ft BGS							
12	SP-SANDS, trace silts, loose, poorly graded, fine with medium grained, trace coarse grained, brown with black and white grains, moist	710.98						
14	SM/ML-SILTY SANDS AND SILTS, trace clay nodules throughout, compact, poorly graded, fine grained, dark brown, wet	708.98						
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist							
18	END OF BOREHOLE @ 15.0ft BGS	705.48						
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NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.

WELL DETAILS
Screened interval:
713.98 to 708.98ft AMSL
6.50 to 11.50ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC
Sand Pack:
715.98 to 708.98ft AMSL
4.50 to 11.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼
CHEMICAL ANALYSIS ○

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-417M-S

DATE COMPLETED: February 26, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.06 720.90						
	WOOD BLOCK	720.81						
	CONCRETE	720.19						
2	SP-SANDS, trace silts, trace fine subangular gravels, loose, poorly graded, fine grained, trace medium grained, brown, wet from coring - moist, light brown at 1.5ft BGS	718.81	CONCRETE SEAL	1AL 2-4'				15.1
4	SC-CLAYEY SANDS, trace fine subrounded gravels, firm, poorly graded, fine grained with medium grained, dark brown, moist	717.06	BENTONITE CHIPS					
6	SW-SANDS, trace silts, loose, well graded, fine, medium, and coarse grained, beige with black and white grains, moist	715.06	1" PVC WELL CASING					
8	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace medium grained, beige, moist - very moist/damp at 7.0ft BGS	713.76 713.06	3-1/4" BOREHOLE	2AL 6-8'				18
10	ML-SILTS, compact, poorly graded, fine grained, brown, wet	711.06	1" PVC WELL SCREEN					
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	710.06	SAND PACK					
14	ML/SM-SANDS AND SILTY SANDS, dense, poorly graded, fine grained, dark brown, wet	708.06	BENTONITE CHIPS	3AL				10
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		NATURAL COLLAPSE					
18	ML/SM-SANDS AND SILTY SANDS, dense, poorly graded, fine grained, dark brown, wet		2-1/4" BOREHOLE	4AL				12.5
20	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	703.31						
22	END OF BOREHOLE @ 19.0ft BGS	702.06						
24	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
26	WELL DETAILS Screened interval: 715.06 to 710.06ft AMSL 6.00 to 11.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 717.06 to 709.06ft AMSL 4.00 to 12.00ft BGS Material: Silica Sand							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇
CHEMICAL ANALYSIS ○

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-418M-D

DATE COMPLETED: February 26, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.02 720.95						
	CONCRETE		CONCRETE SEAL					
2	SW-SANDS, trace fine subangular gravels, trace silts, compact, well graded, fine, medium, and coarse grained, dark brown, wet from coring	719.98	BENTONITE CHIPS	1AL 2-4'		80		9.1
4	- moist, beige with black and white grains at 2.0ft BGS	717.02	1" PVC WELL CASING					
6	CL-CLAYS, trace coarse sands, firm, low plasticity, dark gray to black, moist - light brown at 4.8ft BGS	716.02	3-1/4" BOREHOLE	2AL 8-10'		100		9.7
8	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, with medium and coarse grained, beige with black and white grained, moist - very moist/damp at 9.0ft BGS							
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	711.27						
12				3AL		90		8.3
14	ML/SM-SANDS AND SILTY SANDS, dense, poorly graded, fine grained, dark brown, wet	707.27	SAND PACK					
16			1" PVC WELL SCREEN					
18	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	704.02	NATURAL COLLAPSE	4AL		100		9
20	END OF BOREHOLE @ 19.0ft BGS	702.02	2-1/4" BOREHOLE					
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS
Screened interval:
709.02 to 704.02ft AMSL
12.00 to 17.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
711.02 to 704.02ft AMSL
10.00 to 17.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼
CHEMICAL ANALYSIS ○

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-419S

DATE COMPLETED: February 7, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE INSTALLATION	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE	721.01						
	CONCRETE							
2	SP-SANDS (FILL), trace silts, trace fine subrounded to subangular gravels, loose, poorly graded, fine grained, brown, moist	720.10 720.01	CONCRETE SEAL					
4	SC-CLAYEY SANDS, trace fine gravels, firm, poorly graded, fine grained, trace medium grained, dark brown, moist, slight odor - brown, no apparent odor at 3.5ft BGS		BENTONITE CHIPS	1AL 2-4 4-6				18.8
6	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, with medium grained, brown, moist	716.26	3" BOREHOLE					
8				2AL				18.5
10	- medium grained, well rounded black and white, very moist at 9.0ft BGS - wet, petroleum-like odor at 9.3ft BGS - trace medium grained at 9.5ft BGS - with medium grained at 9.8ft BGS - no medium grained, with silts at 9.8ft BGS	711.16 711.01						
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist							
14	END OF BOREHOLE @ 10.0ft BGS							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▼

CHEMICAL ANALYSIS ○

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-420M-S

DATE COMPLETED: February 5, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.35 720.22						
	WOOD BLOCK							
	CONCRETE							
2	SC-CLAYEY SANDS, trace fine subangular to angular gravels, compact, poorly graded, fine with medium grained, brown, moist - black, slight odor at 2.4ft BGS	719.60 719.44	CONCRETE SEAL BENTONITE CHIPS	1AL 2-4		100		476
4	- brown at 3.0ft BGS		1" PVC WELL CASING					
6	SP-SANDS, trace silts, loose to compact, poorly graded, fine and medium grained, trace coarse grained, beige with white and black grained, moist - trace medium grained, very moist at 7.0ft BGS	716.85	3-1/4" BOREHOLE					
8	- wet at 8.5ft BGS		SAND PACK	2AL 5-8		100		600
10	SM/ML-SILTY SANDS AND SILTS, trace clay nodules, compact, poorly graded, fine grained, dark brown, wet	711.55	1" PVC WELL SCREEN					
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	708.15		3AL		80		417
14			BENTONITE CHIPS					
16	SM/ML-SILTY SANDS AND SILTS, trace clay nodules, compact, poorly graded, fine grained, dark brown, wet END OF BOREHOLE @ 15.0ft BGS	705.55 705.35						
18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
20			WELL DETAILS Screened interval: 713.35 to 707.35ft AMSL 7.00 to 13.00ft BGS Length: 6ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 715.35 to 707.35ft AMSL 5.00 to 13.00ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-421M-D
DATE COMPLETED: February 26, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: M. MATHÉ

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.10 720.71						
	CONCRETE		CONCRETE SEAL					
2	SP-SANDS, trace silts, trace fine subangular gravels, loose, poorly graded, fine grained, trace medium grained, brown, wet from coring - moist, light brown at 1.5ft BGS	720.27 719.10	BENTONITE CHIPS	1AL 2-4'		100		6.8
4	SC-CLAYEY SANDS, trace fine subrounded gravels, firm, poorly graded, fine grained with medium grained, dark brown, moist	717.10	1" PVC WELL CASING					
6	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, with medium grained, beige, moist	715.10	3-1/4" BOREHOLE	2AL 6-8'		80		9.2
8	SW-SANDS, trace silts, loose, well graded, fine, medium, and coarse grained, beige with black and white grains, moist - damp at 8.5ft BGS	712.35						
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		SAND PACK	3AL		80		16
12	ML/SM-SANDS AND SILTY SANDS, dense, poorly graded, fine grained, dark brown, wet	709.10	1" PVC WELL SCREEN					
14								
16				4AL				11.5
18	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	703.60	NATURAL COLLAPSE					
20	END OF BOREHOLE @ 19.0ft BGS	702.10	2-1/4" BOREHOLE					
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
24			WELL DETAILS Screened interval: 710.10 to 705.10ft AMSL 11.00 to 16.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 712.10 to 705.10ft AMSL 9.00 to 16.00ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-422M-S

DATE COMPLETED: February 5, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.07 720.86						
	CONCRETE							
2	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, fine grained, trace medium grained, brown, slight orange hue, moist	720.14	CONCRETE SEAL BENTONITE CHIPS	1AL 2-4 4-6		60		16.1
4	SP-SANDS, trace silts and fine subrounded gravels, loose, poorly graded, fine grained with medium grained, dark brown, moist	717.07	1" PVC WELL CASING					
6	- light brown, very moist at 7.0ft BGS		3-1/4" BOREHOLE					
8	- fine grained and medium grained (medium grained are black and white, well rounded), wet at 8.0ft BGS		SAND PACK	2AL		90		15.2
10	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, moist to very moist	711.57	1" PVC WELL SCREEN					
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	710.07	NATURAL COLLAPSE	3AL		75		12.5
14			2-1/4" BOREHOLE					
16	END OF BOREHOLE @ 15.0ft BGS	706.07						
18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS

Screened interval:

715.07 to 710.07ft AMSL

6.00 to 11.00ft BGS

Length: 5ft

Diameter: 1in

Slot Size: 0.010

Material: PVC Schedule 40

Sand Pack:

717.07 to 710.07ft AMSL

4.00 to 11.00ft BGS

Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ∇

CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-423M-S

DATE COMPLETED: February 6, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.08 720.83						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, trace fine subrounded gravels, firm, poorly graded, fine grained, trace medium grained, dark brown, moist	719.88	BENTONITE CHIPS					
4	- very dark brown, very slight petroleum-like odor at 2.5ft BGS		1" PVC WELL CASING	1AL 2-4		75		95
	- dark brown at 3.5ft BGS	716.58	3-1/4" BOREHOLE					
6	SP-SANDS, trace silts, trace fine subangular gravels, loose, poorly graded, fine grained with medium grained, trace coarse grained, brown (larger grains are white and black, well rounded), moist		SAND PACK	2AL 6-8		100		92
8	- fewer medium and coarse grained, very moist to damp at 8.0ft BGS		1" PVC WELL SCREEN					
10	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, wet	711.58		3AL		100		66.6
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	709.08						
14			NATURAL COLLAPSE 2-1/4" BOREHOLE					
16	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, moist	706.28 706.08						
	END OF BOREHOLE @ 15.0ft BGS							
18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
20			WELL DETAILS Screened interval: 714.08 to 709.08ft AMSL 7.00 to 12.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 716.08 to 708.08ft AMSL 5.00 to 13.00ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-424M-S

DATE COMPLETED: February 7, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.71 720.46						
	CONCRETE	720.01	CONCRETE SEAL					
2	SP-SANDS, trace silts, trace fine subangular gravels, loose, poorly graded, fine grained, dark brown, moist	719.71	BENTONITE CHIPS					
	CONCRETE	718.71	1" PVC WELL CASING	1AL 2.5-4.5				18.5
4	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, fine grained with medium grained, dark brown, moist		3-1/4" BOREHOLE					
6	- light brown at 3.0ft BGS		1" PVC WELL SCREEN	2AL 5.5-7.5				18.9
	- dark brown at 4.0ft BGS		SAND PACK					
8	- increased clay content, no medium grained at 6.0ft BGS	713.21 712.86						
	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, very moist to damp							
10	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine and medium grained, brown (medium grained, well rounded, black and white), wet	710.96 710.86 710.71						
12	- black, chemical odor (maybe petroleum-like) at 9.0ft BGS							
	- brown with black and white grains at 9.3ft BGS							
14	- trace medium grained at 9.4ft BGS							
	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, wet							
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist							
	END OF BOREHOLE @ 10.0ft BGS							
18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ☒

CHEMICAL ANALYSIS ☐



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-425M-S

DATE COMPLETED: February 18, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.78 720.60						
	CONCRETE		CONCRETE SEAL					
2	SW-SILTY SANDS, trace fine subangular gravels, firm, poorly graded, fine grained, trace medium grained, brown, moist	718.87 718.53	BENTONITE CHIPS					
4	CL-CLAYS, trace fine subrounded gravels, firm, low plasticity, brown, moist	716.78	1" PVC WELL CASING	1AL 3-5'				25.9
6	SW-SANDS, trace fine subrounded gravels, loose, well graded, fine, medium, and coarse grained, brown (black and white grains), moist		3-1/4" BOREHOLE					
8	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	713.28		2AL 6-8'				0.9
10	SP-SANDS, trace silts, trace fine subangular gravels, loose, poorly graded, fine and medium grained, brown, very moist	710.78 710.58						
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	708.58		3AL				0.6
14	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, moist to wet	707.78 707.28	SAND PACK					
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		1" PVC WELL SCREEN					
18	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, wet	705.03		4AL				
20	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	703.78 703.58	BENTONITE CHIPS					
22	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, saturated		NATURAL COLLAPSE 2-1/4" BOREHOLE					
24	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	700.78						
26	END OF BOREHOLE @ 20.0ft BGS							
28	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS
Screened interval:
709.78 to 704.78ft AMSL
11.00 to 16.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
711.78 to 703.78ft AMSL
9.00 to 17.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-426M-S

DATE COMPLETED: February 5, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.11 720.90						
	CONCRETE							
2	SC-CLAYEY SANDS, trace fine subangular to subrounded gravels, compact, poorly graded, fine grained, trace medium grained, light brown, moist	720.11	CONCRETE SEAL					
4	- yellowish orange at 1.5ft BGS - beige at 2.0ft BGS - 2mm low plasticity clay lense at 2.5ft BGS		BENTONITE CHIPS	1AL 2-4		75		21
6	- dark brown at 4.0ft BGS - yellowish brown at 5.5ft BGS - light brown at 5.8ft BGS		1" PVC WELL CASING					
8	SP-SANDS, trace silts and fine subrounded gravels, loose, poorly graded, fine grained, trace medium grained are beige (medium grained are well rounded, black and white), moist	714.11	3-1/4" BOREHOLE					
10	- 2" dark brown, clayey layer at 9.0ft BGS - black, very moist at 10.0ft BGS - brown, wet at 10.2ft BGS		SAND PACK	2AL 6-8		90		21.5
12	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, very moist	710.11 709.61	1" PVC WELL SCREEN					
14	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		NATURAL COLLAPSE 2-1/4" BOREHOLE	3AL				
16	END OF BOREHOLE @ 15.0ft BGS	706.11						
18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS

Screened interval:

715.11 to 710.11ft AMSL

6.00 to 11.00ft BGS

Length: 5ft

Diameter: 1in

Slot Size: 0.010

Material: PVC Schedule 40

Sand Pack:

717.11 to 709.11ft AMSL

4.00 to 12.00ft BGS

Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ☒

CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-427M-S

DATE COMPLETED: February 6, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISE	720.71 720.61						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, fine grained, dark brown, moist, petroleum-like odor	719.65	BENTONITE CHIPS	1AL 2-4 4-6				40.2
4	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace medium grained, brown (medium grained, rounded, black and white), moist	716.71	1" PVC WELL CASING					
6	CL-CLAYS, trace fine sands and silts, firm, medium plasticity, brown, moist	714.71 714.21	3-1/4" BOREHOLE					
8	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace medium grained, brown (medium grained, rounded, black and white), moist		1" PVC WELL SCREEN	2AL				27.2
10	- fine grained (no medium grained) at 8.25ft BGS - fine grained, trace medium grained at 8.5ft BGS - trace coarse grained, dark brown, very moist at 8.75ft BGS - wet at 8.8ft BGS	711.71 710.71	SAND PACK					
14	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist							
16	END OF BOREHOLE @ 10.0ft BGS							
18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS

Screened interval:

715.71 to 710.71ft AMSL

5.00 to 10.00ft BGS

Length: 5ft

Diameter: 1in

Slot Size: 0.010

Material: PVC Schedule 40

Sand Pack:

717.71 to 710.71ft AMSL

3.00 to 10.00ft BGS

Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ☒

CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-428M-S

DATE COMPLETED: February 7, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.52 720.34						
	CONCRETE							
2	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, fine grained, trace medium and coarse grained, dark brown, moist	719.44	CONCRETE SEAL	1AL 2-4 4-6		50		18.6
4	SM-SILTY SANDS, trace fine subrounded gravels, loose, poorly graded, fine grained, trace medium grained, light brown, moist	716.52	BENTONITE CHIPS					
6	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, with medium grained, brown, moist	715.52	1" PVC WELL CASING					
8	- 2-inch clayey layer at 6.0ft BGS - dark brown, very moist at 7.5ft BGS - wet at 8.0ft BGS		3-1/4" BOREHOLE	2AL		80		15.3
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	711.52	1" PVC WELL SCREEN					
12	END OF BOREHOLE @ 10.0ft BGS	710.52	SAND PACK					
14	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
16			WELL DETAILS Screened interval: 716.52 to 711.52ft AMSL 4.00 to 9.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 718.52 to 710.52ft AMSL 2.00 to 10.00ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE								
WATER FOUND ∇								
CHEMICAL ANALYSIS								

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-429M-D

DATE COMPLETED: February 12, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.06 720.81						
	CONCRETE		CONCRETE SEAL					
2	SM-SILTY SANDS, loose, poorly graded, fine grained, trace medium grained, light brown, moist	720.23	BENTONITE CHIPS	1AL 2-4'				6.7
4	CL-SANDY CLAYS, trace fine gravels, firm, low plasticity, fine grained sands, trace medium grained, orangy brown, moist	719.06	1" PVC WELL CASING					
6	SW-SANDS, trace silts, loose, poorly graded, fine, medium, and coarse grained, light gray (medium grained are black and white), moist	716.06	3-1/4" BOREHOLE	2AL 6-8'				6.5
8	- damp at 7.9ft BGS							
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	713.06	SAND PACK					
12	SM-SILTY SANDS, compact, poorly graded, fine grained, dark gray, wet	710.06	1" PVC WELL SCREEN	3AL				
14								
16	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, wet	706.16						
18	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	705.06		4AL				
20	END OF BOREHOLE @ 20.0ft BGS	701.06	BENTONITE CHIPS NATURAL COLLAPSE 2-1/4" BOREHOLE					
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.		WELL DETAILS Screened interval: 710.06 to 705.06ft AMSL 11.00 to 16.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 712.06 to 704.06ft AMSL 9.00 to 17.00ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND

CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

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PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-430M-D

DATE COMPLETED: February 25, 2003

DRILLING METHOD: DUAL TUBE

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.11 720.92						
	CONCRETE	721.05	CONCRETE SEAL					
2	SP-SANDS, trace silts, trace fine subangular gravels, loose, poorly graded, fine grained, brown, moist	719.61	BENTONITE CHIPS	1AL 2-4'		100		13.8
4	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, fine grained with medium grained, trace coarse grained, brown, moist	717.36 717.11	1" PVC WELL CASING					
6	SM-SILTY SANDS, compact, poorly graded, fine grained, beige, moist	715.11	3-1/4" BOREHOLE	2AL 8-8'		100		12.7
8	SP-SANDS, trace silts, trace subangular gravels, loose, poorly graded, fine grained with medium grained, brown/beige, moist	714.86 714.61						
10	CL-CLAYS, with sands, trace fine subrounded gravels, firm, low plasticity, brown, moist							
12	SW-SANDS, trace silts, trace fine subrounded gravels, loose, well graded, fine, medium, and coarse grained, brown with rounded black and white grains, moist		SAND PACK	3AL		167		13.8
14	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		1" PVC WELL SCREEN	4AL		167		13.5
16	SM/ML-SILTS AND SILTY SANDS, dense, poorly graded, fine grained, brown, damp	708.11						
18	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	703.86 703.61						
20	END OF BOREHOLE @ 17.5ft BGS							
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS
Screened interval:
709.11 to 704.11ft AMSL
12.00 to 17.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
711.11 to 703.61ft AMSL
10.00 to 17.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-431M-S

DATE COMPLETED: February 12, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.94 720.66						
	CONCRETE		CONCRETE SEAL					
2	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, trace medium grained, brown, moist	720.03	BENTONITE CHIPS	1AL 2-4				1.7
4	SC-CLAYEY SANDS, trace silts, trace fine subrounded gravels, firm/compact, poorly graded, fine grained, trace medium grained, dark brown, moist	718.94	1" PVC WELL CASING					
6	SM-SILTY SANDS, loose, poorly graded, fine grained, light brown, moist	716.94	3-1/4" BOREHOLE					
8	- 2mm layer with medium grained at 7.0ft BGS		SAND PACK	2AL 6-8				2.6
10	SP-SANDS, trace silts, loose, poorly graded, fine with medium grained, dark brown (medium grained, black and white, well rounded), very moist to wet	712.94	1" PVC WELL SCREEN					
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	711.69						
14	SP-SANDS, trace silts, loose, poorly graded, fine with medium grained, dark brown (medium grained, black and white, well rounded), very moist to wet	710.94 710.44						
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	708.44	BENTONITE CHIPS	3AL				3.9
18	SM/ML-SILTS AND SILTY SANDS, compact, poorly graded, fine grained, brown to dark brown, wet	705.94	NATURAL COLLAPSE					
20	END OF BOREHOLE @ 15.0ft BGS		2-1/4" BOREHOLE					
22	WELL DETAILS Screened interval: 714.94 to 709.94ft AMSL 6.00 to 11.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Sand Pack: 714.94 to 708.94ft AMSL 6.00 to 12.00ft BGS Material: Silica Sand							
24	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-432M-S
DATE COMPLETED: February 12, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.56 720.43						
	CONCRETE							
2	SP-SANDS (FILL), trace silts, trace fine subangular gravels, compact, poorly graded, fine grained, trace medium grained, brown, moist	719.65 719.06	CONCRETE SEAL	1AL 1.5-3.5 4-6		75		4.1
4	SC-CLAYEY SANDS, trace silts, trace fine subrounded gravels, firm/compact, poorly graded, very dark brown, moist, slight petroleum-like odor		BENTONITE CHIPS					
6	- dark brown, no odor at 2.0ft BGS - light brown at 6.0ft BGS - brown, very moist to wet at 6.5ft BGS		1" PVC WELL CASING					
8	- sands, trace silts, trace fine rounded gravel, loose, well graded, fine, medium, and coarse grained, dark brown, wet at 8.4ft BGS	712.06	3-1/4" BOREHOLE	2AL		75		2.2
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	710.56	SAND PACK					
12	SW-SANDS, trace silts, trace fine rounded gravels, loose, well graded, fine, medium, and coarse grained, dark brown, wet	709.56	1" PVC WELL SCREEN					
14	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	706.56	BENTONITE CHIPS	3AL		90		4.11
16	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, wet	705.56	NATURAL COLLAPSE 2-1/4" BOREHOLE					
18	END OF BOREHOLE @ 15.0ft BGS							
20	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
22			WELL DETAILS Screened Interval: 714.56 to 709.56ft AMSL 6.00 to 11.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 716.56 to 708.56ft AMSL 4.00 to 12.00ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-433M-D

DATE COMPLETED: February 14, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.11 720.88						
	CONCRETE							
2	SP-SANDS, trace silts, trace fine subrounded gravels, trace pockets of medium plasticity, clays, compact, poorly graded, fine grained, trace medium grained, brown, moist	720.20	CONCRETE SEAL	1AL 2-4		50		1.7
4			BENTONITE CHIPS					
6	RED BRICK FRAGMENT	716.11 716.01	1" PVC WELL CASING					
8	SP-SANDS, trace silts, trace fine and coarse subangular to subrounded gravels, loose, poorly graded, fine grained with medium grained, trace coarse grained, light gray, medium and coarse grained are well rounded black and white, moist	713.61	3-1/4" BOREHOLE	2AL 6-8		100		3.0
10	- with coarse grained at 5.3ft BGS							
12	- trace coarse grained, trace medium grained, damp at 7.0ft BGS	711.11 710.86						
14	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist							
16	- dark brown at 8.0ft BGS							
18	SC-CLAYEY SANDS, trace silts, trace fine and coarse subangular gravel, loose, poorly graded, fine grained with medium grained, trace coarse grained, light gray, medium and coarse grained are well rounded brown, moist	707.11 706.11	SAND PACK	3AL		100		2.0
20	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		1" PVC WELL SCREEN					
22	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, wet							
24	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, saturated	701.61 701.11	NATURAL COLLAPSE 2-1/4" BOREHOLE					
26	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist							
28	END OF BOREHOLE @ 20.0ft BGS							
30	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND ▽

CHEMICAL ANALYSIS ○

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-434M-D
DATE COMPLETED: February 14, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.11 720.80						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, trace silts, trace fine subangular gravels, loose to compact, poorly graded, fine grained, with medium grained, brown, moist	720.03	BENTONITE CHIPS	1AL 2-4 4-6				23
4			1" PVC WELL CASING					
6	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, with medium grained, trace coarse grained, brown, moist	716.61	3-1/4" BOREHOLE					
8	- with coarse grained at 5.0ft BGS - trace medium and coarse grained at 7.0ft BGS	713.11		2AL				24.2
10	- with coarse and medium grained, wet, petroleum-like odor at 7.8ft BGS							
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	711.11 710.61						
14	SC-CLAYEY SANDS, trace silts, trace fine subangular gravels, loose to compact, poorly graded, fine grained, with medium grained, brown, wet		SAND PACK	3AL				22.8
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	707.61	1" PVC WELL SCREEN					
18	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, wet	706.11						
20	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, saturated	704.11						
22	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist							
24	END OF BOREHOLE @ 20.0ft BGS	701.11						
26	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS
Screened interval:
709.11 to 704.11ft AMSL
12.00 to 17.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
710.11 to 701.11ft AMSL
11.00 to 20.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND
CHEMICAL ANALYSIS



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-435M-S

DATE COMPLETED: February 17, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.70 720.39						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, brown, moist	719.87	BENTONITE CHIPS	1AL 2-4'		100		23.8
4			1" PVC WELL CASING					
6			3-1/4" BOREHOLE					
8	SP-SANDS, trace silts, trace fine subrounded gravel, loose, poorly graded, fine grained, with medium grained, trace coarse grained, brown, moist - very moist at 7.5ft BGS	714.70 712.70 712.50	SAND PACK	2AL 6-8'		100		24.3
10	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, wet	710.80	1" PVC WELL SCREEN					
12	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, wet		BENTONITE CHIPS					
14	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	708.50	NATURAL COLLAPSE					
	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, wet		2-1/4" BOREHOLE	3AL		100		24.1
16	END OF BOREHOLE @ 15.0ft BGS	705.70						
18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
20			WELL DETAILS Screened interval: 715.70 to 710.70ft AMSL 5.00 to 10.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 717.70 to 709.70ft AMSL 3.00 to 11.00ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-436M-S

DATE COMPLETED: February 27, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.28 720.14						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, trace fine subangular gravels, compact, poorly graded, fine grained with medium grained, brown, very moist from coring	719.20	BENTONITE CHIPS	1AL 2-4 4-6				16.5
4	SW-SANDS, trace silts, trace fine subrounded gravels, loose, well graded, fine, medium, and coarse grained, beige with black and white grains, moist	717.28	1" PVC WELL CASING					
6			3-1/4" BOREHOLE					
8	- very moist at 7.8ft BGS CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	712.28	SAND PACK	2AL				32
10	- 2" SW layer, wet at 8.25ft BGS SW-SANDS, trace silts, trace fine subrounded gravels, loose, well graded, fine, medium, and coarse grained, beige with black and white grains, wet	710.28 709.28	1" PVC WELL SCREEN					
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		BENTONITE CHIPS	3AL				20
14	SM/ML-SILTY SANDS AND SILTS, compact, poorly graded, fine grained, dark brown, damp to wet	706.28	NATURAL COLLAPSE 2-1/4" BOREHOLE					
16	END OF BOREHOLE @ 15.0ft BGS	705.28						
18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
20			WELL DETAILS Screened interval: 714.28 to 709.28ft AMSL 6.00 to 11.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 716.28 to 708.28ft AMSL 4.00 to 12.00ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼
CHEMICAL ANALYSIS ○

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-437M-D
DATE COMPLETED: February 13, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.98 720.81						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, trace fine subangular gravels, compact, poorly graded, fine grained, trace medium grained, brown, moist	719.82	BENTONITE CHIPS	1AL 2-4'				5.8
4	SM-SILTY SANDS, loose, poorly graded, fine grained, beige, moist	716.98 716.78	1" PVC WELL CASING					
6	SW-SANDS, trace silts, trace fine subangular gravels, loose, poorly graded, fine and medium grained, trace coarse grained, brown, moist - 2" clayey layer at 6.0ft BGS		3-1/4" BOREHOLE	2AL 6-8'				4.2
8	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, fine grained, brown, moist	712.48 712.28						
10	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace medium grained, brown, moist	710.98						
12	SM-SILTY SANDS, dense, poorly graded, fine grained, dark brown, very moist to wet - saturated to wet at 12.0ft BGS		SAND PACK	3AL				4.0
14			1" PVC WELL SCREEN					
16	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, dry	705.98 705.83						
18	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist		NATURAL COLLAPSE					
20	END OF BOREHOLE @ 20.0ft BGS	700.98	2-1/4" BOREHOLE					
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.			WELL DETAILS Screened interval: 710.48 to 705.48ft AMSL 10.50 to 15.50ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 712.48 to 705.48ft AMSL 8.50 to 15.50ft BGS Material: Silica Sand				
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE WATER FOUND  CHEMICAL ANALYSIS 								

OVERBURDEN LOG 17958-32.GPJ CRA_CORP.GDT 7/21/03

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-438M-S
DATE COMPLETED: February 27, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.01 720.99						
	CONCRETE							
2	SP-SANDS, trace silts, compact, poorly graded, fine grained, trace medium and coarse grained, brown, wet from coring - moist at 2.0ft BGS	720.06	CONCRETE SEAL BENTONITE CHIPS 1" PVC WELL CASING 3-1/4" BOREHOLE	1AL 2-4' 4-5'		90		20.7
4								
6								
8								
10	- wet, with medium grained, dark brown at 10.0ft BGS		SAND PACK 1" PVC WELL SCREEN	2AL		15		20.5
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	709.01						
14								
16	END OF BOREHOLE @ 15.0ft BGS	706.01	NATURAL COLLAPSE 2-1/4" BOREHOLE	3AL		90		20.4
18	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS
Screened interval:
713.01 to 709.01ft AMSL
8.00 to 12.00ft BGS
Length: 4ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
715.01 to 709.01ft AMSL
6.00 to 12.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-439M-S

DATE COMPLETED: February 21, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.88 720.58						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, fine and medium grained, dark brown, moist - black, petroleum-like odor, sheen at 2.8ft BGS	719.76	BENTONITE CHIPS	1AL 2-4 4-6				10.7
4	- dark brown at 4.0ft BGS		1" PVC WELL CASING					
6	SW-SANDS, trace fine subrounded gravels, loose, well graded, fine, medium, and coarse grained, dark brown with rounded white and black grains, very moist, petroleum-like odor	715.88 714.88	3-1/4" BOREHOLE	2AL				10.4
8	SM/ML-SILTY SANDS AND SILTS, dense, poorly graded, slight plasticity, very dark brown/black, wet - dark brown at 6.5ft BGS		SAND PACK	3AL				8.4
10			1" PVC WELL SCREEN					
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	709.88	BENTONITE CHIPS	4AL				1.5
14	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, very moist to wet END OF BOREHOLE @ 13.5ft BGS	708.38 707.38						
16	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
18			WELL DETAILS Screened interval: 715.88 to 710.88ft AMSL 5.00 to 10.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.01 Material: PVC Sand Pack: 717.88 to 709.88ft AMSL 3.00 to 11.00ft BGS					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ∇
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-440M-D

DATE COMPLETED: February 17, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.42 720.28						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, trace fine subangular-subrounded gravels, compact, poorly graded, fine grained, trace medium grained, dark brown, moist	719.30 717.67	BENTONITE CHIPS	1AL 2-4' 4-6'				30.2
4	SW-SANDS, trace silts, trace fine subrounded gravels, loose, well graded, fine, medium, and coarse grained, greenish to olive gray, moist	715.92 715.42	1" PVC WELL CASING					
6	SM-SILTY SANDS, loose, poorly graded, fine grained, light brown, moist		3-1/4" BOREHOLE	2AL				26.9
8	SW-SANDS, trace silts, trace fine subrounded gravels, loose, well graded, fine, medium, and coarse grained, greenish to olive gray, moist	713.42						
10	SM-SILTY SANDS, loose, poorly graded, fine grained, light brown, moist	711.92 711.82 710.92						
12	CH-CLAYS, trace fine subrounded gravels, firm, high plasticity, brown, moist			3AL				27.3
14	ML-SILTS, trace fine sands, compact, slight plasticity, poorly graded, brown, very moist	706.92	SAND PACK					
16	SM-SILTY SANDS, loose, poorly graded, fine grained, light brown, wet	705.42	1" PVC WELL SCREEN					
18	CH-CLAYS, firm, high plasticity, olive gray, moist	702.42	NATURAL COLLAPSE 2-1/4" BOREHOLE	4AL				
20	END OF BOREHOLE @ 20.0ft BGS	700.42						
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
24			WELL DETAILS Screened interval: 707.42 to 702.42ft AMSL 13.00 to 18.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 709.42 to 702.42ft AMSL 11.00 to 18.00ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-441M-D

DATE COMPLETED: February 17, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.13 720.93						
	CONCRETE							
2	SC-CLAYEY SANDS, trace fine subangular and subrounded gravels, firm, poorly graded, slight plasticity; fine grained, brown, moist - dark brown, petroleum-like odor at 3.0ft BGS	720.26	CONCRETE SEAL BENTONITE CHIPS	1AL 2-4 4-6				11.6
4	SW-SANDS, trace silts, trace fine subrounded gravels, loose, well graded, fine, medium, and coarse grained, brown with white grains, moist, slight petroleum-like odor	717.13	1" PVC WELL CASING					
6	SM/ML-SILTS AND SILTY SANDS, trace fine subangular gravels, dense, poorly graded, fine grained, brown, moist to very moist	715.13	3-1/4" BOREHOLE					
8	CL/ML-CLAYS AND SILTS, firm, low plasticity, poorly graded, brown, moist	713.63		2AL				9.2
10	ML-SILTS, trace fine sands, dense, poorly graded, slight plasticity, brown, moist	712.88						
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	711.13						
14	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, wet	710.13	SAND PACK	3AL				5.0
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	707.13	1" PVC WELL SCREEN	4AL				8.8
18	END OF BOREHOLE @ 15.0ft BGS	706.13						
20	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS
Screened interval:
712.13 to 707.13ft AMSL
9.00 to 14.00ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
714.13 to 706.13ft AMSL
7.00 to 15.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-442M-D

DATE COMPLETED: February 19, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.87 720.53						
	CONCRETE							
2	SC-CLAYEY SANDS, trace fine subrounded gravels, firm, poorly graded, fine grained, trace medium and coarse grained, dark brown, moist	720.29	CONCRETE SEAL					
	SP-SANDS, trace silts, loose, poorly graded, fine grained, brown, moist	718.87	BENTONITE CHIPS	1AL 2-4'		100		22.1
4	CL-CLAYS, trace fine sands and fine subrounded gravels, firm, low plasticity, brown, moist, slight petroleum-like odor	717.87	1" PVC WELL CASING					
	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained with medium grained, brown (medium grained are white and black), moist	716.87	3-1/4" BOREHOLE					
6	SW-SANDS, trace silts, loose, poorly graded, fine, medium, and coarse grained, brown, with black and white grains, moist	716.12		2AL 6-8'		100		19.4
8	- very moist, slight petroleum-like odor at 6.3ft BGS	714.12						
10	CH-CLAYS, trace silts, firm, high plasticity, olive gray, moist	710.87	SAND PACK					
12	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, wet		1" PVC WELL SCREEN	3AL				17.3
14	CH-CLAYS, trace silts, firm, high plasticity, olive gray, moist	706.87						
16	END OF BOREHOLE @ 15.0ft BGS	705.87						
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WELL DETAILS

Screened interval:
711.62 to 706.62ft AMSL
9.25 to 14.25ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40

Sand Pack:
713.62 to 705.87ft AMSL
7.25 to 15.00ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-443M/CRA-443M-D

DATE COMPLETED: February 14, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	*N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.82 720.62						
	CONCRETE							
-2	SC-CLAYEY SANDS, trace silts, trace fine subangular gravels, firm, poorly graded, fine grained, trace medium grained, dark brown, moist	719.80	CONCRETE SEAL					
		718.32	BENTONITE CHIPS					
-4	SP-SANDS, trace silts, trace fine subangular/subrounded gravels, loose, poorly graded, fine grained with medium grained, trace coarse grained, brown, moist		1" PVC WELL CASING	1AL 2-4 4-6				27.8
-6	- light gray at 5.0ft BGS		3-1/4" BOREHOLE					
-8	- damp, petroleum-like odor, oily sheen (29.3 ppm) at 8.0ft BGS			2AL				27.9
-10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	712.07						
-12	SC-CLAYEY SANDS, trace silts, trace fine subangular gravels, firm, poorly graded, fine grained, trace medium grained, dark brown, wet	710.82						
-14	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	709.82		3AL				27.7
-16	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, wet	707.82						
-18	SM-SILTY SANDS, compact, poorly graded, fine grained, light brown, wet	705.82	SAND PACK					
-20	ML-SILTS, trace fine sands, compact, poorly graded, dark brown, wet	701.82	1" PVC WELL SCREEN	4AL				
-22	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	700.92						
-24	END OF BOREHOLE @ 20.0ft BGS	700.82						
-26	NOTE: NESTED SECOND MONITORING WELL SCREENED 6 TO 11ft BGS, SAND PACK 4 TO 12ft BGS, BENTONITE CHIPS 12-13ft BGS, TOP OF RISER ELEVATION 720.26ft AMSL							
-28								
-30								
-32								
-34								

WELL DETAILS

Screened interval:

705.82 to 700.82ft AMSL

15.00 to 20.00ft BGS

Length: 5ft

Diameter: 1in

Slot Size: 0.010

Material: PVC Schedule 40

Sand Pack:

707.82 to 700.82ft AMSL

13.00 to 20.00ft BGS

Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

WATER FOUND

CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA CORP GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-444M-D

DATE COMPLETED: February 18, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: DAVID RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.42 720.23						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, trace fine subrounded gravels, firm, poorly graded, fine grained, trace medium grained, dark brown, moist - brown at 2.3ft BGS	719.34 717.67 717.42	BENTONITE CHIPS	1AL 2-4				28.2
4	CL-SILTY CLAYS, with sands, soft, low to medium plasticity, fine to medium grained sands, dark brown, moist		1" PVC WELL CASING					
6	SP-SANDS, trace silts, loose, poorly graded, fine grained, light brown, moist - trace fine subangular gravels/coarse sands and medium grained sands at 4.0ft BGS		3-1/4" BOREHOLE	2AL 6-8				29.6
8	- dark brown at 8.5ft BGS							
10	ML-SILTS, trace fine sands, trace silty clay nodules, compact, non plastic, gray, moist CH-SILTY CLAYS, firm to stiff, high plasticity, gray, moist	711.42 711.09						
12			SAND PACK	3AL				27.7
14	SM-SILTY SANDS, competent to dense, poorly graded, fine grained, gray, saturated	707.42	1" PVC WELL SCREEN					
16								
18	CH-SILTY CLAYS, firm to stiff, high plasticity, gray, moist	703.22		4AL				27.4
20	ML-SILTS, trace fine sands, trace silty clay nodules, compact, non plastic, gray, moist CH-SILTY CLAYS, firm to stiff, high plasticity, gray, moist	701.67 701.42 700.42	BENTONITE CHIPS					
22	END OF BOREHOLE @ 20.0ft BGS							
24	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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WELL DETAILS
Screened interval:
708.92 to 703.92ft AMSL
11.50 to 16.50ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
710.92 to 702.92ft AMSL
9.50 to 17.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-445M-D
DATE COMPLETED: February 20, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.11 721.00						
	CONCRETE		CONCRETE SEAL					
2	SW-SANDS, trace silts, trace fine subrounded gravels, loose, well graded, fine, medium, and coarse grained, brown with white grains, moist	720.11	BENTONITE CHIPS	1AL 2-4				12.1
4			1" PVC WELL CASING					
6			3-1/4" BOREHOLE	2AL 8-10				12.0
8								
10	- wet at 10.0ft BGS		SAND PACK	3AL				13.8
12			1" PVC WELL SCREEN					
14								
16			BENTONITE CHIPS	4AL				10.8
18								
20	- wood fragment at 20.0ft BGS END OF BOREHOLE @ 20.0ft BGS	701.11	BENTONITE CHIPS AND NATURAL COLLAPSE					
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.		WELL DETAILS Screened interval: 712.11 to 707.11ft AMSL 9.00 to 14.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 714.11 to 706.11ft AMSL 7.00 to 15.00ft BGS Material: Silica Sand					
24								
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34								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼
CHEMICAL ANALYSIS ○

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-446M-S

DATE COMPLETED: February 27, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISE	721.09 720.89						
	CONCRETE		CONCRETE SEAL					
2	SP-SANDS, trace silts, trace fine subangular gravels, loose, poorly graded, fine grained, brown, moist	720.20	BENTONITE CHIPS	1AL 2-4		75		20.4
4	CL-CLAYS, trace fine subrounded gravels, firm, low plasticity, dark brown, moist	717.59	1" PVC WELL CASING					
6	SW-SANDS, trace silts, trace fine subrounded-rounded gravels, loose, well graded, fine, medium, and coarse grained, beige with white and black grains, moist	716.34	3-1/4" BOREHOLE					
8	- wet, petroleum-like odor at 8.0ft BGS		SAND PACK	2AL 6-8		66		23.6
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	712.09	1" PVC WELL SCREEN					
12	SW-SANDS, trace silts, trace fine subrounded-rounded gravels, loose, well graded, fine, medium, and coarse grained, beige with white and black grains, wet	711.09 710.59						
14	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	708.59	BENTONITE CHIPS NATURAL COLLAPSE 2-1/4" BOREHOLE	3AL		100		19
16	SM/ML-SILTY SANDS AND SILTS, compact, poorly graded, fine grained, dark brown, damp to wet	707.09						
18	END OF BOREHOLE @ 14.0ft BGS							
20	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND 
CHEMICAL ANALYSIS 

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-447M-D

DATE COMPLETED: February 18, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE AND DAVID RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.82 720.59						
	CONCRETE		CONCRETE SEAL					
2	SP-SANDS (FILL), trace silts, compact, poorly graded, fine grained, light brown, moist	719.82	BENTONITE CHIPS	1AL 2-4'				10.3
4	- trace coarse rounded sands at 3.5ft BGS CI-SILTY CLAYS, trace sands, stiff, medium plasticity, medium to coarse sands, dark brown, moist	717.07 716.32	1" PVC WELL CASING					
6	SP-SANDS, trace silts and fine subrounded/subangular gravels, loose, poorly graded, fine to coarse grained, gray to brown, moist		3-1/4" BOREHOLE	2AL 6-8'				12.0
8	- fine to medium grained, trace coarse sands, very moist, diesel like odor (moderate to strong) at 7.3ft BGS	712.82						
10	CH-SILTY CLAYS, firm, high plasticity, gray, moist							
12	SM-SILTY SANDS, compact, poorly graded, fine grained, brown, saturated - moist to very moist at 12.5ft BGS	709.82		3AL				8.5
14			SAND PACK					
16			1" PVC WELL SCREEN	4AL				5.5
18	CH-SILTY CLAYS, firm, high plasticity, gray, moist	702.57 702.32						
20	END OF BOREHOLE @ 20.0ft BGS							
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
24								
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WELL DETAILS
Screened interval:
707.32 to 702.32ft AMSL
13.50 to 18.50ft BGS
Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
709.32 to 702.32ft AMSL
11.50 to 18.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND
CHEMICAL ANALYSIS

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-448M-D
DATE COMPLETED: February 17, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.53 720.31						
	CONCRETE		CONCRETE SEAL					
2	SC-CLAYEY SANDS, trace silts, trace fine subangular gravels, firm, poorly graded, fine grained with medium grained, brown, moist	719.53	BENTONITE CHIPS	1AL 2-4'				20.5
4	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, light brown, moist	717.03	1" PVC WELL CASING					
6	- with medium grained (white and black) at 4.0ft BGS		3-1/4" BOREHOLE					
8	- very moist at 8.0ft BGS			2AL 6-8'				22.7
10	ML/SM-SILTS/SILTY SANDS, compact, poorly graded, fine grained, brown, very moist to wet, slight petroleum-like odor	712.03 711.33						
12	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist							
14	SM-SILTY SANDS, firm to compact, poorly graded, fine grained, dark brown, moist	708.53	SAND PACK	3AL				21
16	- wet at 15.0ft BGS		1" PVC WELL SCREEN					
18	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	703.03	NATURAL COLLAPSE 2-1/4" BOREHOLE	4AL				
20	END OF BOREHOLE @ 20.0ft BGS	700.53						
22	NOTE: WELL WAS DECOMMISSIONED IN APRIL 2003 BY PRESSURE GROUTING AND REMOVING THE UPPER 1 TO 2ft OF CASING.							
24			WELL DETAILS Screened interval: 708.03 to 703.03ft AMSL 12.50 to 17.50ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 710.03 to 703.03ft AMSL 10.50 to 17.50ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ▼
CHEMICAL ANALYSIS ○

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-449M-S

DATE COMPLETED: February 24, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.04 720.84						
	CONCRETE		CONCRETE SEAL					
2	SP-SANDS, trace silts, loose, poorly graded, fine grained, with medium grained, brown, moist	720.02 719.04	BENTONITE CHIPS	1AL 2-4'		90		1.7
4	SC-CLAYEY SANDS, trace silts, with fine subangular and subrounded gravels, firm to soft, poorly graded, low plasticity, fine grained, with medium grained, trace coarse grained, brown, moist	715.84	1" PVC WELL CASING					
6	- dark brown at 4.0ft BGS		3-1/4" BOREHOLE					
8	SP-SANDS, trace silts, loose, poorly graded, fine grained, trace medium grained, light brown, moist	713.54		2AL 6-8'		100		2.4
	- with rounded white and black medium grained at 6.5ft BGS							
10	- very moist to damp at 7.0ft BGS		1" PVC WELL SCREEN					
	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	710.04	SAND PACK	3AL		100		1.7
12	SM-SILTY SANDS, firm to compact, poorly graded, fine grained, dark brown, wet			4AL		150		0.3
14	- increase in silt content, very moist to damp at 14.0ft BGS			5AL		200		0.0
16	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	705.04						
18	END OF BOREHOLE @ 17.5ft BGS	703.54						
20			WELL DETAILS Screened interval: 711.04 to 706.04ft AMSL 10.00 to 15.00ft BGS Length: 5ft Diameter: 1in Slot Size: 0.010 Material: PVC Schedule 40 Sand Pack: 713.04 to 703.54ft AMSL 8.00 to 17.50ft BGS Material: Silica Sand					
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NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG - 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-450M-D
DATE COMPLETED: February 24, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	721.11 720.69						
	WOOD BLOCK	720.91	CONCRETE SEAL					
	CONCRETE	720.20	BENTONITE CHIPS	1AL 2-4		50		0.0
2	SP-SANDS, trace silts, loose, poorly graded, fine with medium grained, dark brown, moist - orangy brown at 1.4ft BGS		1" PVC WELL CASING					
4	SC-CLAYEY SANDS, trace silts and fine subrounded gravels; compact, poorly graded, fine with medium grained, brown, moist	717.11 716.61	3-1/4" BOREHOLE	2AL 6-8		100		0.0
6	SW-SANDS, with fine subrounded gravels, trace silts, loose, well graded, fine, medium, and coarse grained, brown-beige, moist		SAND PACK	3AL		200		0.0
8	- dark brown, very moist to damp at 8.0ft BGS		1" PVC WELL SCREEN	4AL		200		0.0
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	712.11		5AL		200		0.0
12								
14	SM-SILTY SANDS, firm to compact, poorly graded, fine grained, dark brown, wet	708.61						
16								
18	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist END OF BOREHOLE @ 17.5ft BGS	704.61 703.61						
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS

Screened interval:
709.61 to 704.61ft AMSL
11.50 to 16.50ft BGS

Length: 5ft
Diameter: 1in
Slot Size: 0.010
Material: PVC Schedule 40
Sand Pack:
711.61 to 703.61ft AMSL
9.50 to 17.50ft BGS
Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

PROJECT NUMBER: 17358-32

CLIENT: ENCORE

LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-451M-S

DATE COMPLETED: February 28, 2003

DRILLING METHOD: DIRECT PUSH

FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.86 720.73						
	CONCRETE	720.14	CONCRETE SEAL					
2	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, trace coarse grained, brown, moist		BENTONITE CHIPS	1AL 2-4 4-6		50		11.9
4			1" PVC WELL CASING					
6	SW-SANDS, trace silts, trace fine subangular gravels, loose, well graded, fine, medium, and coarse grained, brown, moist	715.86	3-1/4" BOREHOLE					
8	SP-SANDS, trace silts, trace fine subrounded gravels, loose, poorly graded, fine grained, trace coarse grained, beige, moist - wet at 8.5ft BGS	713.86	SAND PACK	2AL		100		12.9
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist END OF BOREHOLE @ 10.0ft BGS	711.16 710.86	1" PVC WELL SCREEN					
12								
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

WELL DETAILS

Screened interval:

715.86 to 710.86ft AMSL

5.00 to 10.00ft BGS

Length: 5ft

Diameter: 1in

Slot Size: 0.010

Material: PVC Schedule 40

Sand Pack:

717.86 to 710.86ft AMSL

3.00 to 10.00ft BGS

Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN
PROJECT NUMBER: 17358-32
CLIENT: ENCORE
LOCATION: YPSILANTI, MICHIGAN

HOLE DESIGNATION: CRA-452M-D
DATE COMPLETED: February 25, 2003
DRILLING METHOD: DIRECT PUSH
FIELD PERSONNEL: MARIE MATHE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	"N" VALUE	PID (ppm)
	GROUND SURFACE TOP OF RISER	720.32 720.08						
	CONCRETE							
2	SC-CLAYEY SANDS, trace fine subangular gravels, firm, poorly graded, fine grained with medium grained, trace coarse grained, brown, moist	719.49	CONCRETE SEAL	1AL 2-4		50		10.2
4			BENTONITE CHIPS					
6	SW-SANDS, trace silts, trace fine subrounded gravels, loose, well graded, fine, medium, and coarse grained, brown with rounded black and white grains, moist	715.82	1" PVC WELL CASING					
8			3-1/4" BOREHOLE	2AL 6-8		100		11.3
10	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	712.32						
12				3AL		200		11.9
14	ML/SM-SILTS AND SILTY SANDS, dense, poorly graded, fine grained, brown, damp	708.82	SAND PACK					
16			1" PVC WELL SCREEN	4AL		200		12.6
18	SM-SILTY SANDS, dense, poorly graded, fine grained, brown, wet	705.32						
20	CH-CLAYS, trace silts, firm, high plasticity, dark greenish gray to light olive gray, moist	703.82		5AL				12.5
22	END OF BOREHOLE @ 17.5ft BGS	702.82						
24								
26								
28								
30								
32								
34								

WELL DETAILS

Screened interval:

708.82 to 703.82ft AMSL

11.50 to 16.50ft BGS

Length: 5ft

Diameter: 1in

Slot Size: 0.010

Material: PVC Schedule 40

Sand Pack:

710.82 to 702.82ft AMSL

9.50 to 17.50ft BGS

Material: Silica Sand

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE
WATER FOUND ☒
CHEMICAL ANALYSIS ☐

OVERBURDEN LOG 17358-32.GPJ CRA_CORP.GDT 7/21/03

APPENDIX B

DEVELOPMENT OF SITE-SPECIFIC SOIL CRITERIA



MEMORANDUM

TO: Tom Kinney REF. NO.: 17358-23

FROM: Steve Harris/Martinus Brouwers DATE: August 19, 2003

RE: Development of Site-Specific Soil Criteria for Soil Volatilization to Indoor Air
GMPT Willow Run
Ypsilanti, Michigan

1.0 INTRODUCTION

This memorandum presents the development of Site-specific soil criteria for soil volatilization to indoor air conducted for GMPT Willow Run facility located in Ypsilanti Michigan (Site). Benzene concentrations are detected in soil at the location of monitoring well CRA-408M-S above the Michigan Department of Environmental Quality (MDEQ) Part 201 Industrial/Commercial generic soil volatilization to indoor air inhalation criteria for benzene of 8,400 micrograms per kilogram ($\mu\text{g}/\text{kg}$). For benzene, the generic soil volatilization to indoor air inhalation criteria corresponds to an acceptable indoor air concentration of 12 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) under the Industrial/Commercial exposure scenario, consistent with MDEQs Part 201/213 Acceptable Indoor Air Concentrations. A Site-specific soil criterion is developed for benzene using the default assumptions applied by MDEQ in the development of the generic criteria, with the exception of the building dimensions, which are specified consistent with existing Site conditions.

2.0 METHODOLOGY

A Site-specific soil criterion for soil volatilization to indoor air is developed for benzene. The Site-specific soil criterion is developed using the Johnson and Ettinger (1991) modeling approach as implemented by the U.S. EPA (2000). Johnson and Ettinger (1991) present a conservative screening level model for estimating the degree of attenuation occurring as volatile contaminants in soil vapor migrate upward through the vadose zone, enter an overlying building, and mix with building indoor air. The degree of attenuation is quantified through calculation of an attenuation factor, α , after Johnson and Ettinger (1991; Equation 21). The modeling approach, as implemented herein, is based on Site-specific soil criterion for soil volatilization to indoor air that is protective of human health for the indoor air inhalation exposure scenario. This allowable indoor air concentration is used to determine an allowable soil gas concentration beneath a building that would not cause an exceedence of the allowable indoor air concentration, as follows:

$$C_{sg} = \frac{C_{air}}{\alpha} \quad (1)$$

Where:

- C_{air} - the Site-specific indoor air concentration, resulting from a soil gas concentration of C_{sg} ($\mu\text{g}/\text{m}^3$);
- C_{sg} - the allowable soil gas concentration that would not result in an indoor air concentration greater than C_{air} ($\mu\text{g}/\text{m}^3$); and
- α - the Site-specific calculated soil gas attenuation factor which relates the indoor air concentration to the concentration in soil gas based on the heuristic model developed by Johnson and Ettinger (1991; Equation 21) and accounts for the advective-diffusive migration of contaminants in soil gas through the vadose zone soil and building foundation, followed by the mixing of the intruding vapors with building indoor air.

The allowable soil gas concentration, C_{sg} , is then converted to an allowable total soil concentration, C_{soil} , using equilibrium partitioning relationships through applying Equations (2) and (3) as follows [after U.S. EPA (1996; Equation 22)]:

$$C_{sp} = C_{sg} \times \frac{k_d}{H} \times C \quad (2)$$

and,

$$C_{soil} = \frac{C_{sp}}{k_d} \times [k_d + (\varepsilon_w + \varepsilon_v \times H) / \rho_{db}] \quad (3)$$

Where:

- C_{sp} - concentration sorbed to soil particles [micrograms per gram ($\mu\text{g}/\text{g}$)];
- C_{soil} - total soil concentration ($\mu\text{g}/\text{g}$);
- k_d - soil-water partitioning coefficient equal to $K_{oc} \times f_{oc}$ [milliliters per gram (mL/g)];
- K_{oc} - organic carbon partitioning coefficient (mL/g);
- f_{oc} - fraction of organic carbon content (dimensionless);
- H - dimensionless Henry's Law constant;
- ε_m - water-filled soil porosity;
- ε_v - air-filled soil porosity;
- ρ_{db} - dry bulk soil density (g/cm^3); and
- C - units conversion factor of 10^6 milliliters per cubic meter (mL/m^3).

The calculation of the Site-specific soil gas attenuation factor is conducted through the application of the Johnson and Ettinger (1991) solution incorporated into a Microsoft Excel™ spreadsheet model developed by the U.S. EPA (U.S. EPA, 2000; "SL-ADV.xls Version 2.3"). The U.S. EPA implementation of the Johnson and Ettinger (1991) model has undergone extensive peer review and is widely accepted by regulatory

agencies throughout the United States, and is the model recommended by the U.S. EPA in the Subsurface Vapor Intrusion Guidance (U.S. EPA, 2002) for site-specific evaluations of vapor intrusion to indoor air.

Site-specific soil criterion for soil volatilization to indoor air was evaluated in accordance with the generic parameters stipulated in Part 201, Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria Document: Technical Support Document (MDEQ, 1998) along with Site-specific building properties and temperature adjusted chemical properties. The degree of attenuation occurring is related to the depth of the soil impact beneath a building. Benzene concentrations were detected beneath the Site at the 2 to 4 foot BGS and 7 to 9 foot BGS intervals for monitoring well CRA-408M-S. The default source-building separation distance of 15 cm (MDEQ, 1998) was applied as it would provide a conservative soil gas attenuation factor.

3.0 APPLIED INPUT PARAMETERS

The input parameters applied in the development of Site-specific soil criterion consist of chemical properties, vadose zone properties, and building properties. The applied input parameters are described below.

Chemical Properties

Values for the chemical properties of benzene are applied as incorporated into the chemical property database implemented in U.S. EPA (2000). The chemical properties of Henry's Law constant and the air diffusion coefficient were corrected to a temperature of 10 degrees Celsius corresponding to the annual average soil temperature in Michigan (MDEQ, 1998).

Vadose Zone Soil Physical Properties

The vadose zone consists of a sandy loam that extends approximately 8.4 feet beneath the Site. The vadose zone soil physical properties applied in the development of the Site-specific criterion are based on the default values applied by the MDEQ in the development of the generic criteria, as described in MDEQ's Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document (August 1998):

- porosity, ε_T :
The vadose zone consists of sand and fine sediments that are poorly graded. Typically, these soil types vary substantially with respect to porosity (Fetter 2001, Table 3.4). Accordingly, a default porosity value of 43 percent is applied consistent with MDEQ (1998);
- dry bulk soil density, δ_{db} :
The default dry bulk soil density value of 1.50 grams per cubic centimeter (g/cm^3) is applied consistent with MDEQ (1998);
- faction of organic carbon content, f_{oc} :
The default fraction of organic carbon content, 0.002 is applied consistent with MDEQ (1998); and
- vapor permeability, k_v :
The default vapor permeability value $5 \times 10^{-9} \text{ cm}^2$ is applied consistent with MDEQ (1998). This vapor permeability value is considered to be conservative yet representative of a sandy loam by the MDEQ and was deemed appropriate for the Site.

Building Properties

The Site-specific soil criterion is developed using the dimensions of the industrial building existing at the Site. The remainder of the applied industrial building properties, apart from its dimensions, are consistent with the default industrial building properties applied by MDEQ in the development of the MDEQ generic soil criteria for an industrial setting (MDEQ, 1998). The following building properties are applied:

- below grade building surface area, A_B :

An estimated 339,504 square meter below-grade building area is used. This area is based on the approximate dimensions of the existing Site with an estimated building length of 3,187 feet (971 meters) and estimated width of 1,147 feet (350 meters) with slab on grade construction;

- building volume, V_B :

A 3,106,464 cubic meter building volume is used which is based on the product of the footprint area and the estimated height of 30 feet (9 meters) for the existing site building;

- building indoor air exchange rate, T_{air} :

The default industrial indoor air exchange rate of 2 building volumes per hour is applied consistent with MDEQ (1998);

- foundation thickness, L_{crack} :

The default industrial foundation thickness of 15 cm is applied consistent with MDEQ (1998) as a conservative approach. The Site-foundation slab thickness is estimated to be 21.3 cm (8 inches), which would provide additional attenuation to the intruding contaminant vapor;

- distance from the building floor to the soil impact, L_T :

The default source-building separation distance of 15 cm is applied consistent with MDEQ (1998). This is considered conservative as benzene concentrations were detected beneath the Site at 2 to 4 feet BGS and 7 to 9 feet BGS;

- ratio of building crack area to building below-grade area, η :

A default building crack area to building below-grade area ratio of 0.01 percent is applied consistent with MDEQ (1998); and

- vadose zone/building pressure differential, ΔP :

The pressure differential between the building and the vadose zone can vary considerably depending on the building ventilation and seasonal fluctuations in temperature. A default value of 1 Pascal (Pa) is applied consistent with MDEQ (1998) to preclude exaggerating the impact of this variable on the calculated criteria. The Site-specific attenuation factor calculated is based on a 1 Pa pressure differential.

4.0 RESULTS

The input parameters, described above, were applied to the Johnson and Ettinger (1991) model to evaluate the Johnson and Ettinger (1991) soil gas attenuation factor. The calculated Site-specific soil gas attenuation factor for benzene was applied to the Industrial/Commercial acceptable indoor air concentration ($12 \mu\text{g}/\text{m}^3$), and phase partitioning relationships, to estimate the Site-specific soil volatilization criterion. The calculation of the Site-specific soil criterion is presented in Table 1 and is summarized below in comparison to maximum detected levels.

<i>Chemical</i>	<i>Maximum Detected Soil Concentration (mg/kg)</i>	<i>Site-specific Soil Volatilization Criteria (mg/kg)</i>
Benzene	15	114.4

The calculated Site-specific soil volatilization criteria value is an order of magnitude greater than the maximum detected soil concentration. This indicates that the Site-specific building properties in conjunction with the generic parameters applied by MDEQ (1998) are sufficient to preserve acceptable indoor quality under an Industrial/Commercial exposure scenario.

REFERENCES

- Fetter, C.W., 2001, Applied Hydrogeology, Third Edition, Prentice Hall, Upper Saddle River, N.J.
- Howe, G.B., Mullins, M.E., and Rogers, T.N. 1987. Evaluation and Prediction of Henry's Law Constants and Aqueous Solubilities for Solvents and Hydrocarbon Fuel Components, Volume 1: Technical Discussion – Final Report. Research Triangle Institute.
- Johnson, P.C. and R.A. Ettinger, 1991. Heuristic Model for Predicting the Intrusion Rate of Contaminant Vapors into Buildings, Environmental Science and Technology, 25(8), pp. 1445-145.
- MDEQ. Part 201, Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document. Environmental Response Division. August, 1998.
- USEPA, 2000. User's Guide for the Johnson and Ettinger (1991) Model for Subsurface Intrusion into Buildings (Revised), Office of Emergency and Remedial Response, Washington, DC, December.
- U.S. EPA, 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance), EPA Report No. EPA530-F-02-052, November.

TABLE 1

DEVELOPMENT OF SITE-SPECIFIC CRITERIA FOR SOIL VOLATILIZATION TO INDOOR AIR
GMPT WILLOW RUN
YPSILANTI, MICHIGAN

Constituent of Human Concern (COHC)	Chemical Properties (1)				Johnson & Ettinger Attenuation Factor, α (2)	Acceptable Indoor Air Concentration	Soil Gas Concentration at	Concentration Sorbed to Soil Particles,	Site-Specific Soil Volatilization Criteria	
	Henry's Law Constant, H_L	Water Diffusion Coefficient, D^{H_2O}	Air Diffusion Coefficient, D^{air}	Organic Carbon Partitioning Coefficient, K_{oc}		C_{air} (3)	Source, C_{sg} (4)	C_{sp} (5)	C_{soil} (6)	C_{soil}
	(atm m ³ /mol)	(cm ² /s)	(cm ² /s)	(mL/g)		(μ g/m ³)	(μ g/m ³)	(μ g/g)	(μ g/g)	(mg/kg)
VOCs										
Benzene	2.690E-03 b. (10° C)	9.800E-06 a. (25° C)	3.174E+00 b. (10° C)	5.890E+01 b.	2.97124E-07	1.20E+01	4.039E+07	4.110E+01	114.4	114.4

Notes:

- (1) The applied chemical properties are obtained from the following references. The Henry's Law constants are corrected to the default vadose zone temperature of 10 °C.
- a. The chemical properties database implemented in USEPA's "User's Guide for the Johnson and Ettinger (1991) Model for Subsurface Vapor Intrusion into Buildings (Revised)" (USEPA, December 2000).
- b. Parameter adjusted to reflect the generic criteria as applied "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document"
- (2) The soil gas attenuation factor α is based on the solution for soil gas migration to building indoor air presented in Johnson and Ettinger (1991; Equation (21)), the vadose zone and building properties listed below, and a 1 Pa pressure difference between the vadose zone and the building (ΔP) consistent with the default ΔP value applied in (1)a. The calculation of the soil gas attenuation factor was conducted using the Excel spreadsheet "SL-ADV.xls" developed by USEPA (December 2000) and the following vadose zone and building properties.

Vadose Zone Soil Physical Properties (Comprised of the Upper Silty Sand):

Total Porosity, E_T	0.43	Default porosity as applied in MDEQ's "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" (August, 1998).
Water-Filled Porosity, E_w	0.30	Default water-filled porosity as applied in MDEQ's "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" (August, 1998).
Vapor-Filled Porosity, E_v	0.13	Default vapor-filled porosity as applied in MDEQ's "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" (August, 1998).
Dry Bulk Soil Density, ρ_{db} (g/cm ³)	1.50	Default dry bulk soil density as applied in MDEQ's "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" (August, 1998).
Effective Vapor Permeability, k_v (cm ²)	5.00E-09	Default effective vapor permeability as applied in MDEQ's "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" (August, 1998).
Vadose Zone Temperature (°C)	10	Default vadose zone temperature as applied in MDEQ's "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" (August, 1998).
Fraction of Organic Carbon Content, f_{oc}	0.002	Default fraction of organic content as applied in MDEQ's "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" (August, 1998).
Distance from Source to Building, L_T (m)	0.91	Mid-point to shallower soil samples where benzene exceedance occurs (ie 3 ft BCS).
Vapor Viscosity of Air, μ_a at 10°C (g/cm s)	1.75E-04	Vapor viscosity of air adjusted to a vadose zone temperature.

Building Properties (Typical Industrial Building with Slab-on-Grade Construction):

Below-Grade Area of Building Surfaces, A_B (m ²)	339,504	Based on approximate dimensions of existing Site building length of 971m, width of 350m, with slab on grade construction
Building Volume, V_B (m ³)	3,106,464	Based on approximate dimensions of existing Site building length of 971m, width of 350m, and height of 9m.
Building Air Exchange Rate, T_{air} (1/hr)	2.00	Default building air exchange rate as applied in MDEQ's "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" (August, 1998).
Ratio of Crack Area to Below-Grade Area, η (%)	0.01	Default ratio of crack area to below-grade area as applied in MDEQ's "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" (August, 1998).
Foundation Thickness, L_{crack} (cm)	15	Default foundation thickness as applied in MDEQ's "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" (August, 1998).

- (3) Acceptable Industrial/Commercial indoor air concentration (μ g/m³) as stipulated in the generic criterion as applied in "Part 201 Generic Groundwater and Soil Volatilization to Indoor Air Inhalation Criteria: Technical Support Document" Michigan Department of Environmental Quality, August 31, 1998.

- (4) Soil gas concentration determined from $C_{sg} = C_{air} / \alpha$.

- (5) Concentration sorbed to soil particles assuming equilibrium conditions between the gas, aqueous, and sorbed phases and determined from C_{sp} using soil phase relationships as follows: $C_{sp} = C_{sg} \cdot (K_{oc} \cdot f_{oc}) / H$ where the dimensionless Henry's Law Constant $H = H_L / (R \cdot T)$ where the universal gas constant R is $8.21 \cdot 10^{-5}$ atm-m³/mol K and T is the vadose zone temperature in degrees Kelvin.

- (6) Allowable soil concentration calculated from $C_{soil} = C_{sp} / \rho_{db} \cdot (E_m / k_d + H \cdot E_v / k_d + \rho_{db})$ where E_m and E_v are the moisture-filled and air-filled porosities, respectively, and $k_d = K_{oc} \cdot f_{oc}$.

APPENDIX C

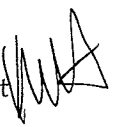
DATA QUALITY ASSESSMENT AND VALIDATION



**CONESTOGA-ROVERS
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MEMORANDUM

TO: Scott Adamowski
FROM: Kathy Hasenfratz/tl/22/Det 
RE: Data Quality Assessment and Validation
Remedial Investigation
GM Powertrain Willow Run Plant Site – Ypsilanti, Michigan

REF. NO.: 17358-32
DATE: June 16, 2003

The following details a quality assessment and validation of the analytical data resulting from the February through April 2003, collection of 83 groundwater, 104 soil, and 31 quality control samples from the GM Powertrain Willow Run Plant Site in Ypsilanti, Michigan. The sample summary detailing sample identification, sample location, quality control samples, and analytical parameters is presented in Table 1. Sample analysis was completed at Severn Trent Laboratory in North Canton, Ohio (STL) in accordance with the methodologies presented in Table 2. The quality control criteria used to assess the data were established by the methods and the quality assurance project plan (QAPP).¹

Sample Quantitation

The volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), polychlorinated biphenyl (PCB), and metals were reported with sample specific reporting limits (RL) and sample specific method detection limits (reporting MDL). Samples reported as non detect (ND) may be considered as ND above the reporting MDL. The VOC, PCB and SVOC sample analyses resulted in a number of concentrations reported by the laboratory with a "J" flag; and the metals and cyanide were reported with "B" flags. These results are below the laboratories RL but above the laboratories reporting MDL therefore, these concentrations should be qualified as estimated (J) values unless otherwise qualified in this memorandum. The laboratory flags may be disregarded.

Sample GW-17358-021403-SP-611 required laboratory dilution due to dissolved selenium matrix effects and was flagged by the laboratory with an "G", no qualification was required. The "G" flag may be disregarded.

Sample Preservation

Samples collected for all organic, mercury, and cyanide analyses are to be maintained at a temperature of 4 ± 2 degrees Celsius ($^{\circ}$ C) during shipment and laboratory storage. The samples were received by the laboratory at a temperature greater than 6° C. The samples summarized in Table 3 should be qualified due to violation of sample preservation requirements. The remaining samples were shipped and maintained in accordance with the sample preservation requirements.

¹ Application of quality assurance criteria was consistent with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-99/008, October 1999 and "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Review", EPA-540/R-94/013, February 1994.

Holding Time Period and Sample Analysis

The holding time periods are presented in Table 4. Samples that should be qualified due to VOC holding time period violations are summarized in Table 5. The remaining samples, as indicated by the sample collection, extraction and analysis dates on the chain-of-custody forms and analytical reports provided by STL, were prepared and analyzed within the required holding time periods.

Method Blank Samples

Contamination of samples contributed by laboratory conditions or procedures was monitored by concurrent preparation and analysis of method blank samples. The samples presented in Table 6 should be qualified due to laboratory contamination. The laboratory identified these concentrations with a "B" flag for organic analyses and a "J" flag for inorganic analyses, both may be disregarded. The remaining method blank samples were reported to be free from detectable levels of target analytes, indicating no additional laboratory-attributable contamination occurred.

Laboratory Control Sample / Laboratory Control Sample Duplicate Analysis

The laboratory control sample and laboratory sample duplicate (LCS/LCSD) analyses serve as a monitor of the overall performance in all steps of the sample analysis. The LCS percent recoveries were within the laboratory control limits, indicating that an acceptable level of overall performance was achieved.

Laboratory precision was verified by the relative percent difference (RPD) of the LCS/LCSD when a matrix spike/matrix spike duplicate was not analyzed. The sample concentrations that should be qualified due to violation of RPD criteria are identified and qualified in Table 7. The remaining LCS/LCD percent recoveries were within the acceptance criteria.

Surrogate Compound Percent Recoveries (Surrogate Recoveries)

Individual sample performance for the organic analyses was monitored by assessing the results of surrogate compound percent recoveries. The sample analyses that violated surrogate acceptance criteria are identified and qualified in Table 8. The SVOC and PCB surrogate recoveries could not be measured in several samples due to dilutions required to successfully analyze the samples; no further qualification was required. The surrogate recovery acceptance criteria was met for the remaining samples.

Matrix Spike/Matrix Spike Duplicate Percent Recoveries - Inorganic Analyses

Matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the RPD of the concentrations were monitored to determine the effects of sample matrix on the laboratory digestion and measurement methods. The samples selected for MS/MSD analysis are identified in Table 1. The samples that should be qualified due to violation of MS/MSD percent recovery criteria are outlined in Table 9. The remaining MS/MSD percent recoveries and associated RPDs were within the acceptance criteria.

Matrix Spike/Matrix Spike Duplicate Percent Recoveries - Organic Analyses

To assess the long term accuracy and precision of the analytical methods on various matrices, MS/MSD percent recoveries and the RPD of the concentrations were determined. The samples selected for MS/MSD analysis are identified in Table 1. The samples that should be qualified due to violation of MS/MSD percent recovery criteria are outlined in Table 11. The MS/MSD percent recoveries and associated RPD acceptance criteria were met for the remaining analyses.

Serial Dilution – Inorganic Analyses

The percent difference (D) between serial dilutions of a sample for various matrices were monitored to determine physical or chemical interference. The samples that should be qualified due to violation of percent D acceptance criteria are summarized in Table 10. The laboratory flagged these results with a "E" flag, which may be disregarded. The remaining percent D acceptance criteria were met.

Internal Standard Summaries – Organics

Overall instrument stability and performance for the VOC and SVOC analyses was monitored using internal standard peak area and retention time (RT) data. Internal standard peak areas of the sample were required to fall within method-specific percent recovery of their respective internal standard areas in the continuing calibration standard. The RT for each internal standard in the samples were required to be within method-specific time intervals of their respective internal standard RT in the continuing calibration standard. Based on information provided in the laboratory report case narrative, sample S-17358-021403-MM-438 should be qualified due to violation of the percent internal standard recovery requirement as summarized in Table 12.

Field Quality Assurance/Quality Control

The field quality assurance/quality control consisted of two (2) field blanks (rinsate) samples, nine (9) field duplicate sample sets, and 20 trip blank samples.

To assess the efficiency of field decontamination procedures, two (2) rinsate samples identified in Table 1 were collected and analyzed for all parameters. Metals were reported as detected in the rinsate blank samples, since there were no samples associated with the metals rinsate blanks no qualification was required. No additional targeted analytes were reported as detected in the rinsate samples.

Overall precision for the sampling event and laboratory procedures was monitored using the results of the field duplicate sample sets. Table 13 summarizes the results of the detected analytes in the field duplicate sample sets. The RPD between the investigative sample and the duplicate sample collected is greater than 100 percent for antimony, which represents a significant difference. Although the data does not require qualification, the data should be used with caution. The remainder of the data indicates that an adequate level of precision was achieved for the sampling event.

To monitor potential cross-contamination of VOC during aqueous sample transportation and storage, a trip blank was submitted to the laboratory for VOC analysis with each shipping cooler containing multiple samples. The samples that should be qualified due to trip blank contamination are summarized in Table 14. No additional target analytes were reported as detected in the trip blank samples.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision, based on the provided information, and may be used with the qualifications noted with the following exceptions:

- One PCB result was qualified as rejected due to a low LCS percent recovery.
- Several SVOC results were qualified as rejected due to low surrogate percent recoveries.
- Several SVOC results were qualified as rejected due to low MS/MSD percent recoveries.

TABLE 1

FIELD SAMPLE KEY
GM POWERTRIAN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

Sample Identification	Sample Location	Sample Date	Chain of Custody Number	CRA SDG No.	STL Lot No.	Sample Matrix	QC Sample	Parameters					
								TCL VOC	TCL SVOC	TAL Metals-D	TAL Metals-T	PCB	Cyanide
S-17358-020303-MM-401	CRA-414M	02/03/03	22400	7	A3B040211	Soil		X	X		X	X	
S-17358-020303-MM-402	CRA-414M	02/03/03	22400	7	A3B040211	Soil		X	X		X	X	
S-17358-020403-MM-403	CRA-409M	02/04/03	18629	8	A3B050116	Soil		X	X		X	X	
S-17358-020403-MM-404	CRA-409M	02/04/03	18629	8	A3B050116	Soil		X	X		X	X	
S-17358-020503-MM-405	CRA-410M	02/05/03	22282	9	A3B060122	Soil		X	X		X	X	
S-17358-020503-MM-406	CRA-410M	02/05/03	22282	9	A3B060122	Soil	Duplicate (405)	X	X		X	X	
S-17358-020503-MM-407	CRA-410M	02/05/03	22282	9	A3B060122	Soil		X	X		X	X	
S-17358-020503-MM-408	CRA-415M	02/05/03	22282	9	A3B060122	Soil		X	X		X	X	
S-17358-020503-MM-409	CRA-415M	02/05/03	22282	9	A3B060122	Soil		X	X		X	X	
S-17358-020503-MM-410	CRA-422M	02/05/03	22282	9	A3B060122	Soil		X	X		X	X	
S-17358-020503-MM-411	CRA-422M	02/05/03	22282	9	A3B060122	Soil	MS/MSD	X	X		X	X	
S-17358-020603-MM-412	CRA-423M	02/06/03	22283	10	A3B070125	Soil		X	X		X	X	
S-17358-020603-MM-413	CRA-423M	02/06/03	22283	10	A3B070125	Soil		X	X		X	X	
S-17358-020603-MM-414	CRA-426M	02/06/03	22283	10	A3B070125	Soil		X	X		X	X	
S-17358-020603-MM-415	CRA-426M	02/06/03	22283	10	A3B070125	Soil		X	X		X	X	
S-17358-020603-MM-416	CRA-427M	02/06/03	22283	10	A3B070125	Soil		X	X		X	X	
S-17358-020603-MM-417	CRA-427M	02/06/03	22283	10	A3B070125	Soil		X	X		X	X	
S-17358-020703-MM-418	CRA-424M	02/07/03	22284	11	A3B100116	Soil		X	X		X	X	
S-17358-020703-MM-419	CRA-424M	02/07/03	22284	11	A3B100116	Soil		X	X		X	X	
S-17358-020703-MM-420	CRA-419S	02/07/03	22284	11	A3B100116	Soil		X	X		X	X	
S-17358-020703-MM-421	CRA-419S	02/07/03	22284	11	A3B100116	Soil		X	X		X	X	
S-17358-020703-MM-422	CRA-428M	02/07/03	22284	11	A3B100116	Soil		X	X		X	X	
S-17358-020703-MM-423	CRA-428M	02/07/03	22284	11	A3B100116	Soil		X	X		X	X	
GW-17358-021203-SP-601*	CRA-414M	02/12/03	18628	12	A3B130132	Water		X	X		X	X	
GW-17358-021203-SP-602*	CRA-409M	02/12/03	18628	12	A3B130132	Water		X				X	X
GW-17358-021203-SP-603*	CRA-410M	02/12/03	18628	12	A3B130132	Water		X	X			X	X
S-17358-021203-MM-424	CRA-432M	02/12/03	18630	12	A3B130132	Soil		X	X			X	X
S-17358-021203-MM-425	CRA-432M	02/12/03	18630	12	A3B130132	Soil		X	X		X	X	
S-17358-021203-MM-426	CRA-431M	02/12/03	18630	12	A3B130132	Soil		X	X		X	X	
S-17358-021203-MM-427	CRA-431M	02/12/03	18630	12	A3B130132	Soil		X	X		X	X	
S-17358-021203-MM-428	CRA-429M	02/12/03	18630	12	A3B130132	Soil		X	X		X	X	
S-17358-021203-MM-429	CRA-429M	02/12/03	18630	12	A3B130132	Soil	Duplicate (428)	X	X		X	X	
S-17358-021203-MM-430	CRA-429M	02/12/03	18630	12	A3B130132	Soil		X	X		X	X	
TB-17358-021203-SP-604	--	02/12/03	18628	12	A3B130132	Water	Trip Blank	X					

TABLE 1

FIELD SAMPLE KEY
GM POWERTRIAN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

Sample Identification	Sample Location	Sample Date	Chain of Custody Number	CRA SDG No.	STL Lot No.	Sample Matrix	QC Sample	Parameters					
								TCL VOC	TCL SVOC	TAL Metals-D	TAL Metals-T	PCB	Cyanide
GW-17358-021303-SP-601*	CRA-414M	02/13/03	22094	13	A3B140164	Water				X			
GW-17358-021303-SP-602*	CRA-409M	02/13/03	22094	13	A3B140164	Water				X			
GW-17358-021303-SP-603*	CRA-410M	02/13/03	22094	13	A3B140164	Water			X	X		X	X
GW-17358-021303-SP-605*	CRA-424M	02/13/03	22796	13	A3B140164	Water				X			
GW-17358-021303-SP-606*	CRA-427M	02/13/03	22796	13	A3B140164	Water		X	X				
GW-17358-021303-SP-607	CRA-423M	02/13/03	22796	13	A3B140164	Water		X					
GW-17358-021303-SP-608	CRA-423M	02/13/03	22796	13	A3B140164	Water	Duplicate (607) MS/MSD	X	X	X		X	X
S-17358-021303-MM-431	CRA-437M	02/13/03	22794	13	A3B140164	Soil		X	X		X	X	
S-17358-021303-MM-432	CRA-437M	02/13/03	22794	13	A3B140164	Soil		X	X		X	X	
TB-17358-021303-SP-609	--	02/13/03	22796	13	A3B140164	Water	Trip Blank	X					
GW-17358-021403-SP-605*	CRA-424M	02/14/03	22088	14	A3B150123	Water				X		X	X
GW-17358-021403-SP-610	CRA-415M	02/14/03	22088	14	A3B150123	Water		X	X	X		X	X
GW-17358-021403-SP-611	CRA-422M	02/14/03	22088	14	A3B150123	Water		X	X	X		X	X
GW-17358-021403-SP-612	CRA-428M	02/14/03	22088	14	A3B150123	Water		X					
S-17358-021403-MM-433	CRA-433M	02/14/03	22087	14	A3B150123	Soil		X	X		X	X	
S-17358-021403-MM-434	CRA-433M	02/14/03	22087	14	A3B150123	Soil		X	X		X	X	
S-17358-021403-MM-435	CRA-434M	02/14/03	22087	14	A3B150123	Soil		X	X		X	X	
S-17358-021403-MM-436	CRA-434M	02/14/03	22087	14	A3B150123	Soil		X	X		X	X	
S-17358-021403-MM-437	CRA-443M	02/14/03	22087	14	A3B150123	Soil		X	X		X	X	
S-17358-021403-MM-438	CRA-443M	02/14/03	22087	14	A3B150123	Soil		X	X		X	X	
TB-17358-021403-SP-613	--	02/14/03	22088	14	A3B150123	Water	Trip Blank	X			X	X	
GW-17358-021403-SP-606*	CRA-427M	02/14/03	22088	15	A3B180134	Water							
GW-17358-021403-SP-612	CRA-428M	01/00/00	22088	15	A3D180134	Water							X
GW-17358-021703-SP-614	CRA-429M	02/17/03	22811	15	A3B180134	Water							X
GW-17358-021703-SP-615	CRA-443M D	02/17/03	22811	15	A3B180134	Water		X	X	X		X	X
GW-17358-021703-SP-616*	CRA-443M S	02/17/03	22811	15	A3B180134	Water		X	X	X		X	X
S-17358-021703-MM-439	CRA-440M	02/17/03	22812	15	A3B180134	Soil		X					
S-17358-021703-MM-440	CRA-440M	02/17/03	22812	15	A3B180134	Soil		X	X		X	X	
S-17358-021703-MM-441	CRA-435M	02/17/03	22812	15	A3B180134	Soil		X	X		X	X	
S-17358-021703-MM-442	CRA-435M	02/17/03	22812	15	A3B180134	Soil		X	X		X	X	
S-17358-021703-MM-443	CRA-448M	02/17/03	22812	15	A3B180134	Soil		X	X		X	X	
S-17358-022703-MM-444	CRA-448M	02/17/03	22812	15	A3B180134	Soil		X	X		X	X	
GW-17358-021803-SP-616*	CRA-443M S	02/18/03	22089/22795	16	A3B190137	Water			X				X
GW-17358-021803-SP-618	CRA-434M D	02/18/03	22089/22795	16	A3B190137	Water		X	X	X		X	X

TABLE 1

FIELD SAMPLE KEY
GM POWERTRIAN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

Sample Identification	Sample Location	Sample Date	Chain of Custody Number	CRA SDG No.	STL Lot No.	Sample Matrix	QC Sample	Parameters					
								TCL VOC	TCL SVOC	TAL Metals-D	TAL Metals-T	PCB	Cyanide
GW-17358-021803-SP-619	CRA-433M	02/18/03	22089/22795	16	A3B190137	Water		X	X	X		X	X
GW-17358-021803-SP-620*	CRA-431M	02/18/03	22795	16	A3B190137	Water		X					
GW-17358-021803-SP-621*	CRA-432M	02/18/03	22795	16	A3B190137	Water		X					
GW-17358-021803-SP-622	CRA-440M	02/18/03	22795	16	A3B190137	Water		X	X	X		X	X
S-17358-021803-MM-445	CRA-425M	02/18/03	22797	16	A3B190137	Soil		X	X		X	X	
S-17358-021803-MM-446	CRA-425M	02/18/03	22797	16	A3B190137	Soil		X	X		X	X	
S-17358-021803-MM-447	CRA-444M	02/18/03	22797	16	A3B190137	Soil		X	X		X	X	
S-17358-021803-MM-448	CRA-444M	02/18/03	22797	16	A3B190137	Soil		X	X		X	X	
S-17358-021803-MM-449	CRA-447M	02/18/03	22797	16	A3B190137	Soil		X	X		X	X	
S-17358-021803-MM-450	CRA-447M	02/18/03	22797	16	A3B190137	Soil		X	X		X	X	
TB-17358-021803-SP-623	--	02/18/03	22795	16	A3B190137	Water	Trip Blank	X					
GW-17358-021903-SP-620*	CRA-431M	02/19/03	22810	17	A3B200249	Water			X				
GW-17358-021903-SP-624	CRA-425M	02/19/03	22810	17	A3B200249	Water		X	X	X		X	X
GW-17358-021903-SP-625	CRA-435M	02/19/03	22810	17	A3B200249	Water		X	X	X		X	X
GW-17358-021903-SP-626	CRA-444M	02/19/03	22810/22809	17	A3B200249	Water	MS/MSD	X	X	X		X	X
S-17358-021903-MM-451	CRA-442M	02/19/03	22800	17	A3B200249	Soil	MS/MSD	X	X		X	X	
S-17358-021903-MM-452	CRA-442M	02/19/03	22800	17	A3B200249	Soil		X	X		X	X	
TB-17358-021903-SP-627	--	02/19/03	22810	17	A3B200249	Water	Trip Blank	X					
GW-17358-022003-SP-628	CRA-65M	02/20/03	22807	18	A3B240150	Water		X	X	X		X	X
GW-17358-022003-SP-629	CRA-49M	02/20/03	22807/22808	18	A3B240150	Water		X	X	X		X	X
GW-17358-022003-SP-630	CRA-49M	02/20/03	22807/22808	18	A3B240150	Water	Duplicate (629)	X	X	X		X	X
GW-17358-022003-SP-631	CRA-48M	02/20/03	22807	18	A3B240150	Water		X	X	X		X	X
GW-17358-022003-SP-632	CRA-247M	02/20/03	22807/22801	18	A3B240150	Water		X	X	X		X	X
S-17358-022003-MM-453	CRA-445M	02/20/03	22802	18	A3B240150	Soil		X	X		X	X	
S-17358-022003-MM-454	CRA-445M	02/20/03	22802	18	A3B240150	Soil		X	X		X	X	
S-17358-022003-MM-455	CRA-441M	02/20/03	22802	18	A3B240150	Soil		X	X		X	X	
S-17358-022003-MM-456	CRA-441M	02/20/03	22802	18	A3B240150	Soil	Duplicate (455)	X	X		X	X	
S-17358-022003-MM-457	CRA-441M	02/20/03	22802	18	A3B240150	Soil		X	X		X	X	
Trip Blank	--	02/20/03	22807	18	A3B240150	Water		X					
GW-17358-022103-SP-634	CRA-447M	02/21/03	22806/22805	19	A3B220144	Water		X	X	X		X	X
GW-17358-022103-SP-635	CRA-47M	02/21/03	22806	19	A3B220144	Water		X	X	X		X	X
GW-17358-022103-SP-636	CRA-442M	02/21/03	22806/22805	19	A3B220144	Water		X	X	X		X	X
GW-17358-022103-SP-637	CRA-69M	02/21/03	22806/22804	19	A3B220144	Water	MS/MSD	X	X	X		X	X
S-17358-022103-MM-458	CRA-439M	02/21/03	22806	19	A3B220144	Soil		X	X		X	X	

TABLE 1

FIELD SAMPLE KEY
GM POWERTRIAN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

Sample Identification	Sample Location	Sample Date	Chain of Custody Number	CRA SDG No.	STL Lot No.	Sample Matrix	QC Sample	Parameters					
								TCL VOC	TCL SVOC	TAL Metals-D	TAL Metals-T	PCB	Cyanide
S-17358-022103-MM-459	CRA-439M	02/21/03	22806	19	A3B220144	Soil		X	X		X	X	
TB-17358-022103-SP-638	--	02/21/03	22806	19	A3B220144	Water	Trip Blank	X					
GW-17358-022403-JD-639	CRA-66M	02/24/03	23616	20	A3B250202	Water		X	X	X		X	X
GW-17358-022403-JD-640	CRA-45M	02/24/03	23616	20	A3B250202	Water		X	X	X		X	X
GW-17358-022403-JD-641	CRA-70M	02/24/03	23615/23616	20	A3B250202	Water		X	X	X		X	X
GW-17358-022403-JD-642	CRA-71M	02/24/03	23615/23616	20	A3B250202	Water		X	X	X		X	X
S-17358-022403-MM-460	CRA-449M	02/24/03	22803	20	A3B250202	Soil		X	X		X	X	X
S-17358-022403-MM-461	CRA-449M	02/24/03	22803	20	A3B250202	Soil		X	X		X	X	
S-17358-022403-MM-462	CRA-450M	02/24/03	22803	20	A3B250202	Soil		X	X		X	X	
S-17358-022403-MM-463	CRA-450M	02/24/03	22803	20	A3B250202	Soil		X	X		X	X	
TB-17358-022403-JD-643	--	02/24/03	23616	20	A3B250202	Water	Trip Blank	X					
GW-17358-022503-JD-644	CRA-46M	02/25/03	23612	21	A3B260134	Water		X	X	X		X	X
LW-17358-022503-JD-645	CRA-307M	02/25/03	23612	21	A3B260134	Water		X	X	X		X	X
S-17358-022503-MM-464	CRA-452M	02/25/03	23613	21	A3B260134	Soil		X	X		X	X	
S-17358-022503-MM-465	CRA-452M	02/25/03	23613	21	A3B260134	Soil		X	X		X	X	
S-17358-022503-MM-466	CRA-430M	02/25/03	23613	21	A3B260134	Soil		X	X		X	X	
S-17358-022503-MM-467	CRA-430M	02/25/03	23613	21	A3B260134	Soil		X	X		X	X	
TB-17358-022503-JD-646	--	02/25/03	23612	21	A3B260134	Water	Trip Blank	X					
GW-17358-022603-JD-647	--	02/26/03	23610/23611	22	A3B270206	Water	Rinsate Blank	X	X	X		X	X
GW-17358-022603-JD-648*	CRA-68M	02/26/03	23611	22	A3B270206	Water		X	X				X
GW-17358-022603-JD-649	--	02/26/03	23610/23611	22	A3B270206	Water	Rinsate Blank	X	X	X		X	X
S-17358-022603-MM-468	CRA-413M	02/26/03	23611	22	A3B270206	Soil	MS/MSD	X	X		X	X	
S-17358-022603-MM-469	CRA-413M	02/26/03	23611	22	A3B270206	Soil		X	X		X	X	
S-17358-022603-MM-470	CRA-421M	02/26/03	23611	22	A3B270206	Soil		X	X		X	X	
S-17358-022603-MM-471	CRA-421M	02/26/03	23611	22	A3B270206	Soil	Duplicate (470)	X	X		X	X	
S-17358-022603-MM-472	CRA-421M	02/26/03	23611	22	A3B270206	Soil		X	X		X	X	
S-17358-022603-MM-473	CRA-417M	02/26/03	23611	22	A3B270206	Soil		X	X		X	X	
S-17358-022603-MM-474	CRA-417M	02/26/03	23611	22	A3B270206	Soil		X	X		X	X	
S-17358-022603-MM-475	CRA-418M	02/26/03	23611	22	A3B270206	Soil		X	X		X	X	
S-17358-022603-MM-476	CRA-418M	02/26/03	23611	22	A3B270206	Soil		X	X		X	X	
TB-17358-022603-JD-650	--	02/26/03	23611	22	A3B270206	Water	Trip Blank	X					
GW-17358-022703-JD-651*	CRA-68M	02/27/03	22798	23	A3B280158	Water				X		X	
S-17358-022703-MM-477	CRA-406M	02/27/03	22798	23	A3B280158	Soil		X	X		X	X	
S-17358-022703-MM-478	CRA-406M	02/27/03	22798	23	A3B280158	Soil		X	X		X	X	

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GM POWERTRIAN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

Sample Identification	Sample Location	Sample Date	Chain of Custody Number	CRA SDG No.	STL Lot No.	Sample Matrix	QC Sample	Parameters					
								TCL VOC	TCL SVOC	TAL Metals-D	TAL Metals-T	PCB	Cyanide
S-17358-022703-MM-479	CRA-408M	02/27/03	22798	23	A3B280158	Soil		X	X		X	X	
S-17358-022703-MM-480	CRA-408M	02/27/03	22798	23	A3B280158	Soil		X	X		X	X	
S-17358-022703-MM-481	CRA-446M	02/27/03	22798	23	A3B280158	Soil		X	X		X	X	
S-17358-022703-MM-482	CRA-446M	02/27/03	22798	23	A3B280158	Soil		X	X		X	X	
S-17358-022703-MM-483	CRA-438M	02/27/03	22798	23	A3B280158	Soil		X	X		X	X	
S-17358-022703-MM-484	CRA-438M	02/27/03	22798	23	A3B280158	Soil		X	X		X	X	
S-17358-022703-MM-485	CRA-436M	02/27/03	22798	23	A3B280158	Soil		X	X		X	X	
S-17358-022703-MM-486	CRA-436M	02/27/03	22798	23	A3B280158	Soil		X	X		X	X	
GW-17358-022803-JD-652	CRA-413M	02/28/03	23609	24	A3C010147	Water		X	X	X		X	X
GW-17358-022803-JD-654	CRA-421M	02/28/03	23609	24	A3C010147	Water		X	X	X		X	X
S-17358-022803-MM-487	CRA-451M	02/28/03	23609	24	A3C010147	Soil		X	X		X	X	
S-17358-022803-MM-488	CRA-451M	02/28/03	23609	24	A3C010147	Soil		X	X		X	X	
S-17358-022803-MM-489	CRA-411M	02/28/03	23609	24	A3C010147	Soil	MS/MSD	X	X		X	X	
S-17358-022803-MM-490	CRA-411M	02/28/03	23609	24	A3C010147	Soil		X	X		X	X	
TB-17358-022803-JD-653	--	02/28/03	23609	24	A3C010147	Water	Trip Blank	X					
S-17358-030303-MM-491	CRA-405M	03/03/03	22093	25	A3C040145	Soil		X	X		X	X	
S-17358-030303-MM-492	CRA-405M	03/03/03	22093	25	A3C040145	Soil	Duplicate (491)	X	X		X	X	
S-17358-030303-MM-493	CRA-405M	03/03/03	22093	25	A3C040145	Soil		X	X		X	X	
S-17358-030303-MM-494	CRA-404M	03/03/03	22093	25	A3C040145	Soil		X	X		X	X	
S-17358-030303-MM-495	CRA-404M	03/03/03	22093	25	A3C040145	Soil		X	X		X	X	
GW-17358-030403-MM-656	CRA-418M	03/04/03	22799	26	A3C050258	Water		X	X	X		X	X
TB-17358-030403-MM-655	--	03/04/03	22799	26	A3C050258	Water	Trip Blank	X					
S-17358-030503-MM-496	CRA-407M	03/05/03	22412	27	A3C060152	Soil		X	X		X	X	
S-17358-030503-MM-497	CRA-407M	03/05/03	22412	27	A3C060152	Soil		X	X		X	X	
S-17358-030503-MM-498	CRA-420M	03/05/03	22412	27	A3C060152	Soil		X	X		X	X	
S-17358-030503-MM-499	CRA-420M	03/05/03	22412	27	A3C060152	Soil		X	X		X	X	
S-17358-030503-MM-500	CRA-412M	03/05/03	22412	27	A3C060152	Soil		X	X		X	X	
S-17358-030503-MM-501	CRA-412M	03/05/03	22412	27	A3C060152	Soil		X	X		X	X	
S-17358-030503-MM-502	CRA-416M	03/05/03	22412	27	A3C060152	Soil		X	X		X	X	
S-17358-030503-MM-503	CRA-416M	03/05/03	22412	27	A3C060152	Soil		X	X		X	X	
GW-17358-030603-JD-657	CRA-406M D	03/06/03	22828/22827	28	A3C070149	Water		X	X	X		X	X
GW-17358-030603-JD-658	CRA-437M	03/06/03	22828/22827	28	A3C070149	Water		X	X	X		X	X
GW-17358-030603-JD-659	CRA-430M	03/06/03	22828	28	A3C070149	Water		X	X	X		X	X
S-17358-030603-MM-504	CRA-402M	03/06/03	22828	28	A3C070149	Soil		X	X		X	X	

TABLE 1

FIELD SAMPLE KEY
GM POWERTRIAN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

Sample Identification	Sample Location	Sample Date	Chain of Custody Number	CRA SDG No.	STL Lot No.	Sample Matrix	QC Sample	Parameters					
								TCL VOC	TCL SVOC	TAL Metals-D	TAL Metals-T	PCB	Cyanide
S-17358-030603-MM-505	CRA-402M	03/06/03	22828	28	A3C070149	Soil		X	X		X	X	
S-17358-030603-MM-506	CRA-401M	03/06/03	22828	28	A3C070149	Soil		X	X		X	X	
S-17358-030603-MM-507	CRA-401M	03/06/03	22828	28	A3C070149	Soil		X	X		X	X	
TB-17358-030603-JD-660	--	03/06/03	22828	28	A3C070149	Water	Trip Blank	X			X	X	
S-17358-031003-MM-508	CRA-403M	03/10/03	22090	29	A3C110207	Soil		X	X		X	X	
S-17358-031003-MM-509	CRA-403M	03/10/03	22090	29	A3C110207	Soil		X	X		X	X	
GW-17358-031103-JD-662	CRA-406M S	03/11/03	23646	30	A3C120277	Water		X	X	X		X	
GW-17358-031103-MM-661*	CRA-417M	03/11/03	23646	30	A3C120277	Water		X	X				X
TB-17358-031103-JD-663	--	03/11/03	23646	30	A3C120277	Water	Trip Blank	X					X
GW-17358-031103-MM-661*	CRA-417M	03/12/03	23608	31	A3C130189	Water				X			
GW-17358-031203-JD-669	CRA-448M	03/12/03	23608	31	A3C130189	Water		X	X	X		X	X
GW-17358-031203-KH-666	CRA-445M	03/12/03	23608/22825	31	A3C130189	Water		X	X	X		X	X
GW-17358-031203-KH-667	CRA-449M	03/12/03	23608/22825	31	A3C130189	Water		X	X	X		X	X
GW-17358-031203-MM-668*	CRA-426M	03/12/03	23608	31	A3C130189	Water		X	X				X
GW-17358-031203-TK-664	CRA-438M	03/12/03	23608/22826	31	A3C130189	Water		X	X	X		X	X
GW-17358-031203-TK-665	CRA-441M	03/12/03	23608/22826	31	A3C130189	Water		X	X	X		X	X
TB-17358-031203-MM-670	--	03/12/03	23608	31	A3C130189	Water	Trip Blank	X					
GW-17358-031203-MM-668*	CRA-426M	03/13/03	22830	32	A3C140235	Water				X		X	
GW-17358-031303-JD-671	CRA-436M	03/13/03	22830	32	A3C140235	Water		X					
GW-17358-031303-JD-672	CRA-439M	03/13/03	22830	32	A3C140235	Water		X					
GW-17358-031303-JD-673	CRA-446M	03/13/03	22830	32	A3C140235	Water		X					
GW-17358-031303-JD-674	CRA-450M	03/13/03	22830/22832	32	A3C140235	Water	MS/MSD	X	X	X		X	X
GW-17358-031303-JD-675	CRA-451M	03/13/03	22830/22829	32	A3C140235	Water		X	X	X		X	X
GW-17358-031303-JD-676	CRA-451M	03/13/03	22830/22829	32	A3C140235	Water	Duplicate (675)	X	X	X		X	X
TB-17358-031303-MM-677	--	03/13/03	22830	32	A3C140235	Water	Trip Blank	X					
GW-17358-031403-JD-679	CRA-452M	03/14/03	22835	34	A3C170116	Water		X	X	X		X	X
GW-17358-031403-MM-678	CRA-407M	03/14/03	22835	34	A3C170116	Water		X	X	X		X	X
TB-17358-031403-MM-680	--	03/14/03	22835	34	A3C170116	Water	Trip Blank	X					
GW-17358-031803-BL-681	CRA-420M	03/18/03	22920	35	A3C190243	Water		X	X	X		X	X
GW-17358-031803-BL-682	CRA-412M	03/18/03	22920	35	A3C190243	Water		X	X	X		X	X
GW-17358-031803-KS-683	CRA-411M	03/18/03	22920/22914	35	A3C190243	Water		X	X	X		X	X
GW-17358-031803-KS-684	CRA-416M	03/18/03	22920/22914	35	A3C190243	Water		X	X	X		X	X
TB-17358-031803-BL-685	--	03/18/03	22920	35	A3C190243	Water	Trip Blank	X					
GW-17358-031903-JD-686	CRA-401M	03/19/03	22922/22906	36	AC3200145	Water		X	X	X		X	X

TABLE 1

FIELD SAMPLE KEY
GM POWERTRIAN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

Sample Identification	Sample Location	Sample Date	Chain of Custody Number	CRA SDG No.	STL Lot No.	Sample Matrix	QC Sample	Parameters					
								TCL VOC	TCL SVOC	TAL Metals-D	TAL Metals-T	PCB	Cyanide
GW-17358-031903-JD-688	CRA-401M	03/19/03	22922/22906	36	AC3200145	Water	Duplicate (686)	X	X	X		X	X
GW-17358-031903-KS-687	CRA-402M	03/19/03	22922/22906	36	AC3200145	Water		X	X	X		X	X
TB-17358-031903--689	--	03/19/03	22906	36	AC3200145	Water	Trip Blank	X					
GW-17358-032003-BL-691	CRA-405M	03/20/03	18333	37	A3C210261	Water		X	X	X		X	X
GW-17358-032003-BL-692*	CRA-403M	03/20/03	18333	37	A3C210261	Water		X		X			X
GW-17358-032003-KS-690*	CRA-404M	03/20/03	18333/22029	37	A3C210261	Water	MS/MSD	X	X			X	X
TB-17358-032003-BL-693	--	03/20/03	18333	37	A3C210261	Water	Trip Blank	X					
GW-17358-032003-BL-692*	CRA-403M	03/21/03	22917	38	A3C220184	Water			X			X	
GW-17358-032003-KS-690*	CRA-404M	03/21/03	22917	38	A3C220184	Water	MS/MSD			X			
GW-17358-032603-JD-694	CRA-255M	03/26/03	22909	39	A3C270271	Water		X	X	X		X	X
GW-17358-032603-JD-695	CRA-258M	03/26/03	22909	39	A3C270271	Water		X	X	X		X	X
GW-17358-032603-JD-696	CRA-257M	03/26/03	22909/22908	39	A3C270271	Water		X	X	X		X	X
GW-17358-032603-JD-697	CRA-260M	03/26/03	22909/22908	39	A3C270271	Water		X	X	X		X	X
TB-17358-032603-JD-698	--	03/26/03	22909	39	A3C270271	Water	Trip Blank	X					
GW-17358-042303-SP-699	CRA-404M	04/23/03	22483	41	A3D240336	Water						X	

NOTE: * indicates sample location collected over several days

TCL - Target Compound List

VOC - Volatile Organic Compounds

SVOC - Semi-Volatile Organic Compounds

TAL - Target Analyte List - Earth Metals (Ca, Mg, K, Na)

PCB - Polychlorinated biphenyls

T&D - Total and Dissolved

QC - Quality Control

MS/MSD - Matrix Spike /Matrix Spike Duplicate

TABLE 2
SUMMARY OF ANALYTICAL METHODS
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Method</i>
TCL VOC	SW-846 8260B ¹
TCL SVOC	SW-846 8270C
PCB	SW-846 8082
TAL Metals - T & D	
Aluminum	SW-846 6010B/6020
Antimony	SW-846 6010B/6020
Arsenic	SW-846 6010B/6020
Barium	SW-846 6010B
Beryllium	SW-846 6010B
Cadmium	SW-846 6020
Chromium	SW-846 6010B
Cobalt	SW-846 6010B
Copper	SW-846 6010B/6020
Iron	SW-846 6010B/6020
Lead	SW-846 6010B
Manganese	SW-846 6010B
Mercury	SW-846 7470A/7471A
Nickel	SW-846 6010B
Selenium	SW-846 6020
Silver	SW-846 6010B/6020
Thallium	SW-846 6020
Vanadium	SW-846 6010B
Zinc	SW-846 6020
Total Cyanide	SW-846 9010

¹ SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, 3rd Edition, and Promulgated updates, November 1986

TABLE 3

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
SAMPLE PRESERVATION
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifier</i> ¹
TAL Metals - Dissolved	Mercury	GW-17358-021803-SP-618	UJ
		GW-17358-021803-SP-619	
		GW-17358-022003-SP-628	
		GW-17358-022003-SP-630	
		GW-17358-022003-SP-631	
		GW-17358-022003-SP-629	
PCB	All Parameters	GW-17358-021803-SP-618	UJ
		GW-17358-021803-SP-619	
		GW-17358-022003-SP-630	
		GW-17358-022003-SP-631	
		GW-17358-022003-SP-628	
		GW-17358-022003-SP-629	
TCL VOC	All Parameters	GW-17358-022003-SP-630	UJ/J
		GW-17358-022003-SP-631	
		GW-17358-022003-SP-628	
		GW-17358-022003-SP-629	
TCL SVOC	All Parameters	GW-17358-021803-SP-616	UJ/J
		GW-17358-021803-SP-618	
		GW-17358-021803-SP-619	
		GW-17358-022003-SP-630	
		GW-17358-022003-SP-631	
		GW-17358-022003-SP-628	
		GW-17358-022003-SP-629	

TABLE 3

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
SAMPLE PRESERVATION
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Associated Samples</i>	<i>Qualifier</i> ¹
Cyanide - Total	GW-17358-021803-SP-616	UJ/J
	GW-17358-021803-SP-618	
	GW-17358-021803-SP-619	
	GW-17358-022003-SP-630	
	GW-17358-022003-SP-631	
	GW-17358-022003-SP-628	
	GW-17358-022003-SP-629	

¹ The analyte should be qualified for the listed samples as:

- J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample (for detected parameters).
- UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample (for non-detected parameters).

TABLE 4

HOLDING TIME PERIODS
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Holding Time Period</i>
TCL VOC	- 14 days (water) from sample collection to completion of analysis
TCL VOC	- 48 hours (soil) from sample collection to preservation - 14 days from sample preservation to completion of analysis
TCL SVOC, PCB	- 7 days (water), 14 days (soil) from sample collection to extraction - 40 days from extraction to completion of analysis
TAL Metals – T&D (except Mercury)	- 180 days from sample collection to completion of analysis
Mercury – T&D	- 28 days from sample collection to completion of analysis
Total Cyanide	- 14 days from sample collection to completion of analysis

TABLE 5

SUMMARY OF QUALIFIED SAMPLE DATA
DUE TO HOLDING TIME PERIOD VIOLATIONS
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Associated Samples</i>	<i>Qualifier¹</i>
TCL VOC	GW-17358-021203-SP-601 S-17358-022003-MM-453 S-17358-022003-MM-454 S-17358-022003-MM-455 S-17358-022003-MM-456 S-17358-022003-MM-457	J/UJ

¹The sample parameter results should be qualified as:

J - The analyte was positively identified; the associated numerical value is the estimated concentration of the analyte in the sample (for detected parameters).

UJ -The analyte was not detected above the reported sample quantitation limit.
However, the reported quantitation limit is estimated and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample (for non-detected parameters).

TABLE 6

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
METHOD BLANK CONTAMINATION
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Analyte</i>	<i>Associated Samples</i>	<i>Qualified Sample Result</i> ¹
TAL Metals (mg/kg)	Selenium	S-17358-020503-MM-407	ND (0.22) U
		S-17358-020603-MM-412	ND (0.23) U
		S-17358-020603-MM-414	ND (0.22) U
		S-17358-020603-MM-416	ND (0.22) U
		S-17358-020503-MM-410	ND (0.22) U
		S-17358-020503-MM-405	ND (0.21) U
		S-17358-020503-MM-406	ND (0.22) U
		S-17358-020703-MM-420	ND (0.23) U
		S-17358-020703-MM-421	ND (0.22) U
		S-17358-020703-MM-422	ND (0.21) U
TAL Metals - Dissolved (mg/L)	Cobalt	GW-17358-021303-SP-601	ND (0.0070) U
		GW-17358-021303-SP-602	ND (0.0070) U
		GW-17358-021803-SP-619	ND (0.0070) U
		GW-17358-021903-SP-624	ND (0.0070) U
		GW-17358-021903-SP-625	ND (0.0070) U
TAL Metals (mg/kg)	Beryllium	S-17358-021903-MM-451	ND (0.34) U
		S-17358-021903-MM-452	ND (0.21) U
TAL Metals - Dissolved (mg/L)	Manganese	GW-17358-021403-SP-605	ND (0.015) U
TAL Metals - Dissolved (mg/L)	Copper	GW-17358-021303-SP-601	ND (0.0020) U
		GW-17358-021303-SP-603	ND (0.0020) U
		GW-17358-021303-SP-607	ND (0.0020) U
		GW-17358-021303-SP-608	ND (0.0020) U
		GW-17358-021703-SP-614	ND (0.0020) U
		GW-17358-021703-SP-615	ND (0.0020) U
		GW-17358-021803-SP-622	ND (0.0020) U
		GW-17358-021803-SP-618	ND (0.0020) U
		GW-17358-021803-SP-619	ND (0.0020) U
		GW-17358-021903-SP-624	ND (0.0020) U
		GW-17358-021903-SP-625	ND (0.0020) U
		GW-17358-021903-SP-626	ND (0.0020) U

TABLE 6

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
METHOD BLANK CONTAMINATION
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Analyte</i>	<i>Associated Samples</i>	<i>Qualified Sample Result</i> ¹
TAL Metals - Dissolved (mg/L)	Copper	GW-17358-022003-SP-632	ND (0.0020) U
		GW-17358-022103-SP-634	ND (0.0020) U
		GW-17358-022103-SP-635	ND (0.0020) U
		GW-17358-022003-SP-630	ND (0.0020) U
		GW-17358-022103-SP-636	ND (0.0020) U
		GW-17358-022103-SP-637	ND (0.0020) U
		GW-17358-022403-JD-639	ND (0.0020) U
		GW-17358-022403-JD-640	ND (0.0020) U
		GW-17358-022403-JD-641	ND (0.0020) U
		GW-17358-022403-JD-642	ND (0.0020) U
		GW-17358-022503-JD-644	ND (0.0020) U
		LW-17358-022503-JD-645	ND (0.0020) U
		GW-17358-021403-SP-610	ND (0.0020) U
		GW-17358-022703-JD-651	ND (0.0020) U
		GW-17358-022803-JD-652	ND (0.0020) U
		GW-17358-022803-JD-654	ND (0.0020) U
		GW-17358-030403-MM-656	ND (0.0020) U
		GW-17358-030603-JD-657	ND (0.0020) U
		GW-17358-030603-JD-658	ND (0.0020) U
		GW-17358-030603-JD-659	ND (0.0020) U
		GW-17358-031103-JD-662	ND (0.0020) U
		GW-17358-031203-JD-669	ND (0.0020) U
		GW-17358-031203-TK-664	ND (0.0020) U
		GW-17358-031203-TK-665	ND (0.0020) U
		GW-17358-031403-JD-679	ND (0.0020) U
		GW-17358-031403-MM-678	ND (0.0020) U
		GW-17358-031803-BL-681	ND (0.0020) U
		GW-17358-031803-BL-682	ND (0.0020) U
		GW-17358-031803-KS-684	ND (0.0020) U
		GW-17358-031903-JD-688	ND (0.0020) U
		GW-17358-031903-KS-687	ND (0.0020) U
		GW-17358-032003-BL-691	ND (0.0020) U
		GW-17358-032003-KS-690	ND (0.0025) U
		GW-17358-031903-JD-686	ND (0.0020) U
		GW-17358-032603-JD-694	ND (0.0020) U

TABLE 6

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
METHOD BLANK CONTAMINATION
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Analyte</i>	<i>Associated Samples</i>	<i>Qualified Sample Result</i> ¹
TAL Metals - Dissolved (mg/L)	Copper	GW-17358-032603-JD-695	ND (0.0020) U
		GW-17358-032603-JD-696	ND (0.0020) U
		GW-17358-032603-JD-697	ND (0.0020) U
TAL Metals - Dissolved (mg/L)	Antimony	GW-17358-022003-SP-631	ND (0.0020) U
		GW-17358-022003-SP-632	ND (0.0020) U
		GW-17358-022103-SP-634	ND (0.0020) U
		GW-17358-022103-SP-635	ND (0.0020) U
		GW-17358-022003-SP-629	ND (0.0020) U
		GW-17358-022003-SP-630	ND (0.0020) U
		GW-17358-022103-SP-636	ND (0.0020) U
		GW-17358-022103-SP-637	ND (0.0020) U
TAL Metals - Dissolved (mg/L)	Zinc	GW-17358-021803-SP-618	ND (0.011) U
		GW-17358-021803-SP-619	ND (0.010) U
		GW-17358-021903-SP-624	ND (0.010) U
		GW-17358-021903-SP-625	ND (0.019) U
		GW-17358-021903-SP-626	ND (0.010) U
		GW-17358-022403-JD-639	ND (0.019) U
		GW-17358-022403-JD-640	ND (0.019) U
		GW-17358-022403-JD-641	ND (0.013) U
		GW-17358-022403-JD-642	ND (0.010) U
		GW-17358-022503-JD-644	ND (0.013) U
		LW-17358-022503-JD-645	ND (0.010) U
		GW-17358-021403-SP-605	ND (0.010) U
		GW-17358-021403-SP-610	ND (0.010) U
		GW-17358-021403-SP-611	ND (0.010) U
		GW-17358-022803-JD-652	ND (0.015) U
		GW-17358-022803-JD-654	ND (0.010) U
		GW-17358-030403-MM-656	ND (0.010) U
		GW-17358-031103-JD-662	ND (0.012) U
		GW-17358-031903-JD-688	ND (0.014) U
		GW-17358-031903-KS-687	ND (0.012) U
		GW-17358-032003-BL-691	ND (0.019) U
		GW-17358-032003-KS-690	ND (0.010) U

TABLE 6

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
METHOD BLANK CONTAMINATION
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Analyte</i>	<i>Associated Samples</i>	<i>Qualified Sample Result</i> ¹
TAL Metals - Dissolved (mg/L)	Zinc	GW-17358-031903-JD-686	ND (0.010) U
		GW-17358-032603-JD-694	ND (0.010) U
		GW-17358-032603-JD-695	ND (0.010) U
		GW-17358-032603-JD-696	ND (0.010) U
		GW-17358-032603-JD-697	ND (0.017) U
TAL Metals - Dissolved (mg/L)	Mercury	GW-17358-031103-JD-662	ND (0.00020) U
TAL Metals (mg/kg)	Mercury	S-17358-030503-MM-496	ND (0.11) U
		S-17358-030503-MM-497	ND (0.11) U
		S-17358-030503-MM-498	ND (0.11) U
		S-17358-030603-MM-505	ND (0.11) U
		S-17358-030603-MM-506	ND (0.11) U
		S-17358-030603-MM-507	ND (0.12) U
		S-17358-031003-MM-508	ND (0.11) U
		S-17358-031003-MM-509	ND (0.10) U
		S-17358-030503-MM-500	ND (0.11) U
		S-17358-030503-MM-502	ND (0.11) U
		S-17358-030603-MM-504	ND (0.11) U
TCL VOC (µg/L)	2-Butanone	GW-17358-022603-JD-648	ND (25) U
		S-17358-020503-MM-408	ND (1100) U
		S-17358-020603-MM-412	ND (1100) U
		S-17358-020603-MM-413	ND (870) U
		S-17358-020603-MM-414	ND (890) U
		S-17358-020603-MM-415	ND (940) U
		S-17358-020603-MM-416	ND (1100) U
		S-17358-020603-MM-417	ND (930) U
		S-17358-020503-MM-405	ND (1100) U
		S-17358-020503-MM-406	ND (1000) U
		S-17358-020703-MM-420	ND (880) U
		S-17358-020703-MM-421	ND (990) U
		S-17358-020703-MM-422	ND (830) U

TABLE 6

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
METHOD BLANK CONTAMINATION
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Analyte</i>	<i>Associated Samples</i>	<i>Qualified Sample Result</i> ¹
TCL VOC (µg/L)	Acetone	GW-17358-031103-JD-662	ND (25) U
TCL VOC (µg/kg)	Acetone	S-17358-020403-MM-403	ND (1000) U
		S-17358-020403-MM-404	ND (1000) U
		S-17358-022003-MM-454	ND (750) UJ
		S-17358-022003-MM-455	ND (900) UJ
		S-17358-022003-MM-456	ND (930) UJ
		S-17358-022003-MM-457	ND (1300) UJ
TCL VOC (µg/kg)	Ethylbenzene	S-17358-020603-MM-413	ND (58) U
		S-17358-020403-MM-403	ND (68) U
		S-17358-020403-MM-404	ND (68) U
		S-17358-021203-MM-424	ND (60) U
		S-17358-021203-MM-425	ND (55) U
		S-17358-021203-MM-426	ND (59) U
		S-17358-021203-MM-427	ND (71) U
		S-17358-021203-MM-430	ND (77) U
		S-17358-021203-MM-428	ND (67) U
		S-17358-021203-MM-429	ND (59) U
		S-17358-022403-MM-460	ND (58) U
		S-17358-022403-MM-461	ND (57) U
		S-17358-022403-MM-462	ND (66) U
		S-17358-022403-MM-463	ND (62) U
		S-17358-022003-MM-453	ND (53) UJ
		S-17358-022003-MM-454	ND (50) UJ
		S-17358-022003-MM-455	ND (60) UJ
		S-17358-022003-MM-456	ND (62) UJ
		S-17358-022003-MM-457	ND (87) UJ
		S-17358-022103-MM-458	ND (66) U
		S-17358-022103-MM-459	ND (68) U
TCL VOC (µg/L)	Methylene chloride	TB-17358-021903-SP-627	ND (5.0) U
		GW-17358-022103-SP-635	ND (31) U
		TB-17358-022503-JD-646	ND (5.0) U
		TB-17358-022603-JD-650	ND (5.0) U

TABLE 6

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
METHOD BLANK CONTAMINATION
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Analyte</i>	<i>Associated Samples</i>	<i>Qualified Sample Result</i> ¹
TCL VOC (µg/L)	Methylene chloride	TB-17358-031203-MM-670	ND (5.0) U
		TB-17358-031303-MM-677	ND (5.0) U
		TB-17358-031403-MM-680	ND (5.0) U
TCL VOC (µg/kg)	Methylene chloride	S-17358-030303-MM-491	ND (280) U
		S-17358-030303-MM-492	ND (300) U
		S-17358-021303-MM-431	ND (270) U
		S-17358-022003-MM-453	ND (270) UJ
		S-17358-022003-MM-454	ND (250) UJ
		S-17358-022003-MM-456	ND (310) UJ
		S-17358-022003-MM-457	ND (430) UJ
		S-17358-022103-MM-458	ND (330) U
		S-17358-022103-MM-459	ND (340) U
		S-17358-030303-MM-493	ND (320) U
		S-17358-030303-MM-494	ND (270) U
		S-17358-030303-MM-495	ND (430) U
TCL SVOC (µg/kg)	Benzaldehyde	S-17358-020603-MM-412	ND (1500) U
		S-17358-020603-MM-416	ND (360) U

¹The analyte should be qualified for the listed samples as:

ND () U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit in parenthesis.

TABLE 7

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
LABORATORY CONTROL SAMPLE PERCENT RECOVERY VIOLATION
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers</i> ¹
PCB	Aroclor-1260	GW-17358-042303-SP-699	R

¹ The parameter results should be qualified for the listed samples as:

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

TABLE 8

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
VIOLATION OF SURROGATE PERCENT RECOVERY CRITERIA
GM POWERTRIAN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers</i> ¹
PCB	All Analytes	GW-17358-021203-SP-603	UJ
		GW-17358-021703-SP-614	
		GW-17358-021703-SP-615	
		GW-17358-022103-SP-634	
		GW-17358-022103-SP-636	
		GW-17358-022003-SP-628	
TCL SVOC	2-Nitrophenol	S-17358-020603-MM-413	R
	4,6-Dinitro-2-methylphenol	S-17358-020603-MM-417	R
	2,4-Dinitrophenol		R
	4-Chloro-3-methylphenol		R
	2-Methylphenol		R
	2-Chlorophenol		R
	2,4,5-Trichlorophenol		R
	2,4,6-Trichlorophenol		R
	Pentachlorophenol		R
	2,4-Dimethylphenol		R
	4-Nitrophenol		R
	4-Methylphenol		R
	Phenol		R
	2,4-Dichlorophenol		R
TCL VOC	All Analytes	S-17358-030303-MM-493	UJ/J

¹ The sample parameter results should be qualified as:

UJ - The analyte was not detected above the reported sample quantitation limit.

However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample (non-detected parameters).

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample (for detected parameters).

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TAL Metals	Antimony, Lead	S-17358-020303-MM-401	UJ/J
		S-17358-020303-MM-402	J
		S-17358-020403-MM-403	
TAL Metals	Antimony	S-17358-020503-MM-407	UJ/J
		S-17358-020503-MM-408	
		S-17358-020503-MM-409	
		S-17358-020603-MM-412	
		S-17358-020603-MM-413	
		S-17358-020603-MM-414	
		S-17358-020603-MM-415	
		S-17358-020603-MM-416	
		S-17358-020603-MM-417	
		S-17358-020503-MM-410	
		S-17358-020503-MM-411	
		S-17358-020503-MM-405	
		S-17358-020503-MM-406	
		S-17358-020703-MM-418	
		S-17358-020703-MM-419	
		S-17358-020703-MM-420	
		S-17358-020703-MM-421	
		S-17358-020703-MM-422	
		S-17358-020703-MM-423	
		S-17358-021203-MM-424	
		S-17358-021203-MM-425	
		S-17358-021203-MM-426	

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TAL Metals	Antimony	S-17358-021203-MM-427	UJ/J
		S-17358-021203-MM-428	
		S-17358-021203-MM-430	
		S-17358-021203-MM-429	
		S-17358-022003-MM-453	
		S-17358-022003-MM-454	
		S-17358-022003-MM-455	
		S-17358-022003-MM-456	
		S-17358-022003-MM-457	
		S-17358-022103-MM-458	
		S-17358-022103-MM-459	
		S-17358-021303-MM-431	
		S-17358-021303-MM-432	
		S-17358-022803-MM-490	
		S-17358-030303-MM-491	
		S-17358-030303-MM-492	
		S-17358-030303-MM-493	
		S-17358-030303-MM-494	
		S-17358-030303-MM-495	
		S-17358-022803-MM-487	
		S-17358-022803-MM-488	
		S-17358-022803-MM-489	

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TAL Metals	Chromium Total,	S-17358-021403-MM-433	J
	Antimony,	S-17358-021403-MM-434	UJ
	Manganese,	S-17358-021403-MM-435	J
	Lead	S-17358-021403-MM-436	J
		S-17358-021403-MM-437	
		S-17358-021403-MM-438	
		S-17358-021703-MM-439	
		S-17358-021703-MM-440	
		S-17358-021703-MM-441	
		S-17358-021703-MM-442	
		S-17358-021703-MM-443	
		S-17358-021703-MM-444	
		S-17358-021803-MM-445	
		S-17358-021803-MM-446	
		S-17358-021803-MM-447	
		S-17358-021803-MM-450	
		S-17358-021803-MM-448	
		S-17358-021803-MM-449	
TAL Metals	Antimony,	S-17358-021903-MM-451	UJ
	Manganese	S-17358-021903-MM-452	J
		S-17358-022703-MM-477	
		S-17358-022703-MM-478	
		S-17358-022703-MM-479	
		S-17358-022703-MM-480	
		S-17358-022703-MM-481	

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TAL Metals	Antimony, Manganese	S-17358-022703-MM-482	UJ
		S-17358-022703-MM-483	J
		S-17358-022703-MM-484	
		S-17358-022703-MM-485	
		S-17358-022603-MM-468	
		S-17358-022603-MM-469	
		S-17358-022603-MM-470	
		S-17358-022603-MM-471	
		S-17358-022603-MM-472	
		S-17358-022603-MM-473	
		S-17358-022603-MM-474	
		S-17358-022603-MM-475	
		S-17358-022603-MM-476	
		S-17358-022703-MM-486	
TAL Metals	Copper, Manganese, Lead, Antimony	S-17358-022403-MM-460	J
		S-17358-022403-MM-461	J
		S-17358-022403-MM-462	J
		S-17358-022403-MM-463	UJ/J
		S-17358-022503-MM-464	
		S-17358-022503-MM-465	
		S-17358-022503-MM-467	
		S-17358-022503-MM-466	

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TAL Metals	Arsenic, Zinc	S-17358-020303-MM-401	J
		S-17358-020303-MM-402	J
		S-17358-020403-MM-403	
		S-17358-020403-MM-404	
		S-17358-022403-MM-460	
		S-17358-022403-MM-461	
		S-17358-022403-MM-462	
		S-17358-022403-MM-463	
		S-17358-022503-MM-464	
		S-17358-022503-MM-465	
		S-17358-022503-MM-467	
		S-17358-022503-MM-466	
		S-17358-022803-MM-490	
		S-17358-030303-MM-491	
		S-17358-030303-MM-492	
		S-17358-030303-MM-493	
		S-17358-030303-MM-494	
		S-17358-030303-MM-495	
		S-17358-022803-MM-487	
		S-17358-022803-MM-488	
		S-17358-022803-MM-489	
TAL Metals	Zinc	S-17358-020503-MM-407	J
		S-17358-020503-MM-408	
		S-17358-020503-MM-409	
		S-17358-020603-MM-412	

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TAL Metals	Zinc	S-17358-020603-MM-413	J
		S-17358-020603-MM-414	
		S-17358-020603-MM-415	
		S-17358-020603-MM-416	
		S-17358-020603-MM-417	
		S-17358-020503-MM-410	
		S-17358-020503-MM-411	
		S-17358-020503-MM-405	
		S-17358-020503-MM-406	
		S-17358-020703-MM-418	
		S-17358-020703-MM-419	
		S-17358-020703-MM-420	
		S-17358-020703-MM-421	
		S-17358-020703-MM-422	
		S-17358-020703-MM-423	
		S-17358-021403-MM-433	
		S-17358-021403-MM-434	
		S-17358-021403-MM-435	
		S-17358-021403-MM-436	
		S-17358-021403-MM-437	
		S-17358-021403-MM-438	
		S-17358-021703-MM-439	
		S-17358-021703-MM-440	
		S-17358-021703-MM-441	
		S-17358-021703-MM-442	
		S-17358-021703-MM-443	

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TAL Metals	Zinc	S-17358-021703-MM-444	J
		S-17358-021803-MM-445	
		S-17358-021803-MM-446	
		S-17358-021803-MM-447	
		S-17358-021803-MM-450	
		S-17358-021803-MM-448	
		S-17358-021803-MM-449	
		S-17358-021303-MM-431	
		S-17358-021303-MM-432	
TAL Metals - Dissolved	Silver , Iron	GW-17358-021703-SP-614	UJ
		GW-17358-021703-SP-615	J
		GW-17358-021803-SP-622	
		GW-17358-031103-JD-662	
TAL Metals - Dissolved	Iron	GW-17358-022003-SP-628	J
		GW-17358-022003-SP-631	
		GW-17358-022003-SP-632	
		GW-17358-022103-SP-634	
		GW-17358-022103-SP-635	
		GW-17358-022003-SP-629	
		GW-17358-022003-SP-630	
		GW-17358-022103-SP-636	
		GW-17358-022103-SP-637	

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TAL Metals - Dissolved	Silver	GW-17358-022703-JD-651 GW-17358-022803-JD-652 GW-17358-022803-JD-654 GW-17358-030403-MM-656 GW-17358-031103-MM-661 GW-17358-031203-JD-669 GW-17358-031203-KH-666 GW-17358-031203-KH-667 GW-17358-031203-MM-668 GW-17358-031203-TK-664 GW-17358-031203-TK-665 GW-17358-031303-JD-674 GW-17358-031303-JD-675 GW-17358-031303-JD-676 GW-17358-031403-JD-679 GW-17358-031403-MM-678 GW-17358-031803-BL-681 GW-17358-031803-BL-682 GW-17358-031803-KS-683 GW-17358-031803-KS-684 GW-17358-031903-JD-688 GW-17358-031903-KS-687 GW-17358-032003-BL-691 GW-17358-032003-BL-692 GW-17358-032003-KS-690 GW-17358-031903-JD-686	UJ

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TAL Metals - Dissolved	Silver	GW-17358-032603-JD-694	UJ
		GW-17358-032603-JD-695	
		GW-17358-032603-JD-696	
		GW-17358-032603-JD-697	
TAL Metals - Dissolved	Mercury	GW-17358-022703-JD-651	UJ
		GW-17358-022803-JD-652	
		GW-17358-022803-JD-654	
		GW-17358-030403-MM-656	
		GW-17358-031903-JD-686	
		GW-17358-031903-JD-688	
		GW-17358-031903-KS-687	
		GW-17358-032003-BL-691	
		GW-17358-032003-BL-692	
		GW-17358-032003-KS-690	
		GW-17358-032603-JD-694	
		GW-17358-032603-JD-695	
TAL Metals	Mercury	GW-17358-032603-JD-696	UJ/J
		GW-17358-032603-JD-697	
		S-17358-020503-MM-407	
		S-17358-020503-MM-408	
		S-17358-020503-MM-409	
		S-17358-020603-MM-412	
		S-17358-020603-MM-413	
		S-17358-020603-MM-414	

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TAL Metals	Mercury	S-17358-020603-MM-415 S-17358-020603-MM-416 S-17358-020603-MM-417 S-17358-020503-MM-410 S-17358-020503-MM-411 S-17358-020503-MM-405 S-17358-020503-MM-406 S-17358-020703-MM-418 S-17358-020703-MM-419 S-17358-020703-MM-420 S-17358-020703-MM-421 S-17358-020703-MM-422 S-17358-020703-MM-423	UJ/J

¹ The parameter results should be qualified for the listed samples as:

J - The associated value is an estimated quantity (for detected parameters).

UJ - The material was analyzed for, but was not detected.

The sample associated value is an estimate and may be inaccurate or imprecise (for non-detected parameters).

TABLE 10

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
INORGANIC SERIAL DILUTION ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers</i> ¹
TAL Metals	Copper	S-17358-020503-MM-405	J
	Chromium Total		J
TAL Metals	Chromium Total	S-17358-021203-MM-430	J
	Manganese		J
	Iron		J
TAL Metals	Copper	S-17358-021803-MM-450	J
	Nickel		J
TAL Metals	Chromium Total	S-17358-022003-MM-457	J
	Nickel		J
	Manganese		J
	Iron		J
TAL Metals	Nickel	S-17358-030503-MM-503	J
	Lead		J

¹ The parameter results should be qualified for the listed samples as:

J - The associated value is an estimated quantity (for detected parameters).

TABLE 11

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
ORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers¹</i>
TCL SVOC	4-Nitrophenol	S-17358-020503-MM-411	R
	4-Chloro-3-methylphenol		R
TCL SVOC	4-Chloro-3-methylphenol	S-17358-020603-MM-412	R
	2,4-Dinitrophenol		R
	4,6-Dinitro-2-methylphenol		R
	2,4-Dimethylphenol		R
	Phenol		R
	4-Nitrophenol		R
	4-Methylphenol		R
	2,4-Dichlorophenol		R
	2,4,6-Trichlorophenol		R
	2-Chlorophenol		R
	2-Nitrophenol		R
	2-Methylphenol		R
	2,4,5-Trichlorophenol		R
	Pentachlorophenol		R
TCL SVOC	Pyrene	S-17358-021303-MM-431	J

¹ The parameter results should be qualified for the listed samples as:

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample (for detected parameters).

TABLE 12

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
OUTLYING ORGANIC INTERNAL STANDARD PERCENT RECOVERY DATA
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers</i> ¹
TCL SVOC	Benzo(a)anthracene	S-17358-021403-MM-438	J
	bis(2-Ethylhexyl)phthalate		J
	Chrysene		J
	Pyrene		J

¹ The parameter results should be qualified for the listed samples as:

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample (for detected parameter).

TABLE 13

SUMMARY OF DETECTED ANALYTES IN FIELD DUPLICATE SAMPLE SETS
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Investigative Sample</i>	<i>Duplicate Sample</i>	<i>RPD</i> ¹
	S-17358-020503-MM-405	S-17358-020503-MM-406	
TAL Metals (mg/kg)			
Aluminum	3,790	3,830	1.0
Antimony	ND (0.53) U ²	0.32 J ³	NC ⁴
Arsenic	1.6	1.9	17
Barium	20.7	19.6	5.5
Beryllium	0.11 J	0.093 J	17
Cadmium	0.073	0.081	10
Chromium	6.0 J	6.0	0
Cobalt	2.8	2.5	11
Copper	6.7 J	5.8	14
Iron	6,740	7,410	9.5
Lead	4.7	5.2	10
Manganese	211	196	7.4
Nickel	5.9	5.6	5.2
Thallium	0.047 J	0.050 J	6.2
Vanadium	9.1	10.2	11
Zinc	13.9 J	13.8 J	0.72
	S-17358-021203-MM-428	S-17358-021203-MM-429	
TAL Metals (mg/kg)			
Aluminum	9,120	8,510	6.9
Arsenic	8.0	11.0	32
Barium	33.0	32.9	0.30
Beryllium	0.51	0.60	16
Cadmium	0.16	0.17	6.1
Chromium	16.4	16.0	2.5
Cobalt	5.2	6.5	22
Copper	18.4	26.3	35
Iron	15,000	17,500	15
Lead	7.6	9.6	23
Manganese	247	373	41
Mercury	0.070 J	0.063 J	11
Nickel	20.6	21.7	5.2

TABLE 13

**SUMMARY OF DETECTED ANALYTES IN FIELD DUPLICATE SAMPLE SETS
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN**

<i>Parameter</i>	<i>Investigative Sample</i>	<i>Duplicate Sample</i>	<i>RPD¹</i>
	S-17358-021203-MM-428	S-17358-021203-MM-429	
TAL Metals (mg/kg) Cont'd			
Selenium	0.13 J	0.16 J	21
Thallium	0.18	0.20	11
Vanadium	19.9	20.7	3.9
Zinc	40.6	45.0	65
	GW-17358-021303-SP-607	GW-17358-021303-SP-608	
TCL VOC (µg/L)			
2-Butanone	0.84 J	ND (0.59)	NC
4-Methyl-2-pentanone	0.41 J	0.27 J	41
TAL Metals - Dissolved (mg/L)			
Aluminum	ND (0.050) U	0.041 J	NC
Arsenic	0.0033 J	0.0029 J	13
Barium	0.48	0.50	4.1
Iron	9.2	8.5	7.9
Manganese	0.11	0.086	24
Selenium	0.0017 J	0.0019 J	11
Zinc	0.013	0.011	17
	GW-17358-022003-SP-629	GW-17358-022003-SP-630	
TAL Metals - Dissolved (mg/L)			
Barium	0.36	0.39	8.0
Copper	0.00076 J	ND (0.00033) U	NC
Iron	0.82 J	0.71 J	14
Manganese	0.25	0.27	7.7
Selenium	0.0020	0.00097 J	69
Zinc	0.019	0.011	53
Cyanide (total) (mg/L)	0.0018 J	0.0032 J	56
TCL VOC (µg/L)			
Cyclohexane	0.67 J	1.9 J	96
Ethylbenzene	11 J	11 J	0

TABLE 13

SUMMARY OF DETECTED ANALYTES IN FIELD DUPLICATE SAMPLE SETS
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Investigative Sample</i>	<i>Duplicate Sample</i>	<i>RPD¹</i>
	GW-17358-022003-SP-629	GW-17358-022003-SP-630	
TCL VOC (µg/L) Cont'd			
Isopropylbenzene	5.3 J	5.2 J	1.9
Methyl cyclohexane	2.1 J	2.2 J	4.7
Xylene (total)	9.8 J	10 J	2.0
TCL SVOC (µg/L)			
2-Methylnaphthalene	1.2 J	1.3 J	8.0
	S-17358-022003-MM-455	S-17358-022003-MM-456	
TAL Metals (mg/kg)			
Aluminum	3,760	3,270	14
Arsenic	3.2	2.3	33
Barium	14.9	15.4	3.3
Cadmium	0.091	0.080	13
Chromium	9.7	8.4	14
Cobalt	3.2	3.1	3.2
Copper	7.4	8.5	14
Iron	7,250	7,230	0.28
Lead	4.6	4.5	2.2
Manganese	187	243	26
Nickel	8.3	8.7	4.7
Selenium	0.19 J	0.073 J	89
Thallium	0.077 J	0.069 J	11
Vanadium	10.5	9.6	9.0
Zinc	17.5	15.1	15
TCL VOC (µg/kg)			
Xylene (total)	26 J	ND (24)	NC
	S-17358-022603-MM-470	S-17358-022603-MM-471	
TAL Metals (mg/kg)			
Aluminum	6,770	5,880	14
Arsenic	6.3	5.5	14
Barium	24.1	30.5	23
Beryllium	0.18 J	0.20 J	11

TABLE 13

SUMMARY OF DETECTED ANALYTES IN FIELD DUPLICATE SAMPLE SETS
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Investigative Sample</i>	<i>Duplicate Sample</i>	<i>RPD¹</i>
	S-17358-022603-MM-470	S-17358-022603-MM-471	
TAL Metals (mg/kg) Cont'd			
Cadmium	0.10	0.13	26
Chromium	10.9	10.7	1.9
Cobalt	5.5	4.2	27
Copper	19.2	17.5	9.3
Iron	13,800	13,200	4.4
Lead	7.4	6.9	7.0
Manganese	440 J	438 J	0.46
Mercury	0.060 J	0.046 J	26
Nickel	16.5	15.2	8.2
Selenium	0.12 J	0.091 J	27
Thallium	0.13	0.16	21
Vanadium	16.2	14.9	8.4
Zinc	31.2	28.5	9.0
TCL VOC (µg/kg)			
Methylene chloride	21 J	ND (20) U	NC
	S-17358-030303-MM-491	S-17358-030303-MM-492	
TAL Metals (mg/kg)			
Aluminum	4,760	4,310	9.9
Arsenic	5.0 J	3.7 J	30
Barium	26.5	16.1	49
Beryllium	0.13 J	ND (0.073) U	NC
Cadmium	0.14	0.098	35
Chromium	6.9	11.1	47
Cobalt	4.9	3.4	36
Copper	11.8	8.2	36
Iron	9,840	8,520	14
Lead	7.1	4.9	37
Manganese	705 J	248 J	96
Mercury	0.031 J	0.029 J	6.7
Nickel	10.0	9.6	4.1
Selenium	0.16 J	0.11 J	37

TABLE 13

SUMMARY OF DETECTED ANALYTES IN FIELD DUPLICATE SAMPLE SETS
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Investigative Sample</i>	<i>Duplicate Sample</i>	<i>RPD¹</i>
	S-17358-030303-MM-491	S-17358-030303-MM-492	
TAL Metals (mg/kg) Cont'd			
Thallium	0.096 J	0.081 J	17
Vanadium	11.2	13.5	19
Zinc	19.3 J	16.2 J	17
	GW-17358-031303-JD-675	GW-17358-031303-JD-676	
TAL Metals - Dissolved (mg/L)			
Antimony	0.0013 J	0.00060 J	74
Arsenic	0.0030 J	ND (0.0021) U	NC
Barium	0.25	0.25	0
Cobalt	0.0025 J	0.0024 J	4.1
Copper	0.0056	0.0050	11
Iron	0.45	0.42	6.9
Manganese	0.61	0.60	1.7
Nickel	0.017 J	0.017 J	0
Selenium	0.0013 J	0.00093 J	33
Thallium	0.00011 J	0.00012 J	8.7
Zinc	0.015	0.010	40
Cyanide - Total (mg/L)	0.0028 J	0.0028 J	0
TCL VOC (µg/L)			
cis-1,2-Dichloroethene	2.8	3.1	10
trans-1,2-Dichloroethene	0.81 J	0.92 J	13
Trichloroethene	5.8	8.0	32
Vinyl chloride	0.83 J	0.68 J	20
	GW-17358-031903-JD-686	GW-17358-031903-JD-688	
TAL Metals - Dissolved (mg/L)			
Antimony	0.0020	0.00041 J	130
Barium	0.099 J	0.097 J	2.0
Cobalt	0.00075 J	ND (0.00074) U	NC
Iron	1.2	1.1	8.7
Manganese	0.20	0.20	0

TABLE 13

SUMMARY OF DETECTED ANALYTES IN FIELD DUPLICATE SAMPLE SETS
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Investigative Sample</i>	<i>Duplicate Sample</i>	<i>RPD</i> ¹
	GW-17358-031903-JD-686	GW-17358-031903-JD-688	
TAL Metals - Dissolved (mg/L) Cont'd			
Thallium	0.000034 J	ND (0.000033) U	NC
Selenium	ND (0.00030) U	0.00032 J	NC
TCL VOC (µg/L)			
cis-1,2-Dichloroethene	2.7	2.9	7.1

¹ RPD - Relative Percent Difference

² ND() - Not detected at the quantitation limit stated in parentheses.

³ J - The associated numerical value is an estimated quantity.

⁴ NC - Not calculable.

TABLE 14

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
TRIP BLANK
GM POWERTRAIN WILLOW RUN PLANT SITE
YPSILANTI, MICHIGAN

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualified Sample Results ($\mu\text{g/L}$)¹</i>
TCL VOC	2-Butanone	GW-17358-031303-JD-672	ND (25) U
		GW-17358-031303-JD-673	ND (25) U
		GW-17358-031303-JD-674	ND (25) U
		GW-17358-031803-KS-683	ND (25) U
TCL VOC	Acetone	GW-17358-021203-SP-602	ND (50) U
		GW-17358-021203-SP-603	ND (25) U
		GW-17358-031903-KS-687	ND (25) U
		GW-17358-032003-KS-690	ND (25) U
		GW-17358-031303-JD-671	ND (25) U
		GW-17358-031303-JD-672	ND (25) U
		GW-17358-031303-JD-673	ND (25) U
		GW-17358-031303-JD-674	ND (25) U
		GW-17358-031303-JD-676	ND (25) U
		GW-17358-031803-KS-683	ND (25) U
TCL VOC	Isopropylbenzene	GW-17358-022103-SP-637	ND (5.0) U

¹ The analyte should be qualified for the listed samples as:

ND () U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit in parenthesis.