



**2010 GROUNDWATER SAMPLING
FORMER GENERAL MOTORS POWERTRAIN WILLOW RUN**

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

**Prepared for:
Revitalizing Auto Communities Environmental
Response (RACER) Trust**

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1.0 INTRODUCTION

This report has been prepared to summarize the data acquired during the 2010 groundwater monitoring activities conducted at the former General Motors (GM) Powertrain Willow Run plant (Site) in Ypsilanti, Michigan (see Figure 1.1). The sampling was conducted on a voluntary basis to evaluate the presence of dissolved phase constituents of concern (COC) in groundwater and to assess the potential for off-site migration. Samples were collected between September 10 and September 17, 2010. Sample locations are identified on Plan 2.

CRA conducted this groundwater sampling event on behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust. This report compares the analytical results to the cleanup criteria identified by the Michigan Department of Environmental Quality (MDEQ) Part 201 Residential and Non-Residential Cleanup Criteria, updated 3/25/2011, pursuant to 1994 PA 451 as amended (Part 201 Criteria).

1.1 SITE LOCATION

The Site 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 hangars and parking lots, to the south-southwest by Tyler Pond, former 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 Site consists of approximately 4.8 million square feet of manufacturing area having various process operations over the years. These operations primarily included machining, cleaning, and painting of metal parts and products. Manufacturing operations officially ended December 31, 2010.

2.0 SCOPE OF WORK

The 2010 sampling event was conducted to evaluate the presence of dissolved phase COC at the Site and to assess the potential for off-site migration. Three groundwater monitoring wells were installed during this sampling event. Two monitoring wells (CRA-326M[10] and CRA-603M[10]) were replacement wells and one monitoring well (CRA-617M) was installed along the eastern Site perimeter where a data gap was identified.

The scope of work performed consisted of:

- Decommissioned 11 groundwater monitoring wells (CRA-14R, CRA-51M, CRA-53M, CRA-134M, CRA-242M, CRA-305M, CRA-326M, CRA-403M, CRA-404M, CRA-411M and CRA-603M).
- Installed three groundwater monitoring wells (CRA-326M[10], CRA-603M[10] and CRA-617M).
- Replaced or repaired flush mount protective casing for 11 monitoring wells (CRA-52M, CRA-59M, CRA-100M, CRA-133M, CRA-215M, CRA-325M, CRA-327M, CRA-602M, CRA-614M, CRA-615M and CRA-623M).
- Replaced or repaired stick up protective casing for 12 monitoring wells (CRA-6RA, CRA-118, CRA-122M, CRA-206M, CRA-212M, CRA-220M, CRA-235M, CRA-304M, CRA-321M, CRA-320M, CRA-613M and CRA-616M).
- Surveyed the locations and elevations of all new or repaired wells in addition to select existing wells that had not been surveyed by CRA's survey crew.
- Collected groundwater samples from 51 wells, including 2 new monitoring wells and 49 existing monitoring wells.
- Analyzed all groundwater samples for total compound list (TCL) volatile organic compounds (VOCs) plus trimethylbenzene isomers (TMBs), site-specific target analyte list (TAL) metals and amenable cyanide. Monitoring wells installed within the last 2 years were also analyzed for TCL semi-volatile organic compounds (SVOCs) and polychlorinated biphenyl (PCBs). Monitoring wells installed during the 2010 sampling event were analyzed for all parameters mentioned above plus pH, Hardness, Iron, Total Suspended Solids (TSS) and Total Dissolved Solids (TDS). Monitoring well CRA-317M was not sampled due to a storage cabinet covering the monitoring well location. See Table 2.1 for a sampling key.

- Measured the depth to water and depth to non-aqueous phase liquid, if present, from selected wells.

Section 3.0 describes the completed scope of work in more detail.

3.0 METHODS

3.1 MONITORING WELL INSTALLATION

Three monitoring well installations (CRA-326M[10], CRA-603M[10] and CRA-617M) were completed between September 2 and September 3, 2010.

The soil borings were advanced using hollow-stem auger drilling equipment to a maximum depth of approximately 15 feet bgs. Continuous soil samples were collected from each soil boring location using a split-spoon sampler. 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. Soils were described and classified in general accordance with the Unified Soil Classification System (USCS). The stratigraphic and instrumentation logs are included in Appendix A.

The monitoring wells were constructed of 2-inch diameter, 5-foot long, 0.01-inch slot, Schedule 40 polyvinyl chloride (PVC) screen threaded to a 2-inch diameter PVC riser pipe. The screens were set to straddle the groundwater table. Silica sand was placed in the annulus to a height of approximately 1 -2 feet above the screen. The remaining annulus was filled with bentonite chips to within approximately 0.5-foot of surface. A flush-mount or a stick-up protective casing (depending on location) and concrete surface seal secure the well at the surface. The monitoring well construction details are listed in Table 3.1. The new monitoring wells were developed according to CRA standard operating procedures prior to groundwater sampling.

3.2 GROUNDWATER SAMPLING

Collection of groundwater samples occurred from September 10 to September 17, 2010. 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 at timed intervals until stabilization occurred with three similar consecutive readings. 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.

During sample collection, monitoring wells CRA-603M (10), CRA-604M and CRA-606M were unable to maintain less than 0.3 feet of drawdown and went dry prior to sample collection. The wells were allowed to recover for 24-hours at which time wells

CRA-603M(10), and CRA-604M were sampled. CRA-606M was still dry so no sample was collected from this well.

Historical analytical results were reviewed prior to the 2010 sampling event. The goal of this sampling event was to evaluate the dissolved phase COCs in groundwater and to assess the potential for off-site migration. Based on a review of current and historical analytical results, 51 monitoring wells were analyzed for TCL VOCs plus TMBs, site-specific TAL metals and amenable cyanide except monitoring well CRA-604M, which contained insufficient recharge for full parameter analysis. TCL SVOC and PCBs were analyzed from 17 monitoring wells with one or less previous sampling event (CRA-600M series, CRA-326M [10] and CRA-603M [10]) installed in 2008 and 2010. Two monitoring wells (CRA-326M [10] and CRA-603M [10]), installed in 2010, were also sampled for general groundwater parameters consisting of pH, Hardness, Iron, TSS and TDS to better understand groundwater chemistry. Monitoring wells where light non-aqueous phase liquid (LNAPL) was detected 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 protocol. TestAmerica in North Canton, Ohio analyzed the samples.

3.3 FLUID LEVEL MONITORING

Groundwater and LNAPL levels were measured and recorded on August 24 and August 25, 2010. Well caps were unlocked and removed allowing the water levels in the wells to stabilize. Groundwater and LNAPL levels were measured using an interface probe. Groundwater levels and LNAPL thickness are listed in Table 3.2.

3.4 SITE SURVEYING

Each of the new and select existing monitoring wells was surveyed for location and elevation by CRA's surveying crew. The locations and elevations are included in Table 3.1.

3.5 WELL DECOMMISSIONING

Eleven monitoring wells (CRA-14R, CRA-51M, CRA-53M, CRA-134M, CRA-242M, CRA-305M, CRA-326M, CRA-403M, CRA-404M, CRA-411M and CRA-603M) were decommissioned between September 1 and September 8, 2010. Pressure grouting was

used according to CRA standard field method guidelines. The flush mount monitoring well cover and the top 1 to 2 feet of riser were removed and the well was pressure grouted to the surface. Monitoring wells were decommissioned due to insufficient water for analysis, inoperable conditions, or compromised state. See Table 3.3 for a table with well decommissioning details and abandonment rationale and Figure 3.1 for locations of decommissioned wells.

4.0 RESULTS

4.1 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.

4.1.1 SITE GEOLOGY

The geology for the western portion of the Site is most easily described by dividing the stratigraphy into four units. The uppermost unit typically extends 8 to 10 feet bgs, consists of fill and native soils composed of a mixture of silty sands, clayey sands, poorly graded sands, and silty clays with a trace of fine sub-rounded 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 appears to be the regionally extensive clay unit that is at least 50 feet thick.

The geology for the eastern portion of the Site consists of two units. The first unit is poorly graded sand that extends from the surface to approximately 15 feet bgs, thickening to the east. The second unit appears to be the regionally extensive clay unit beginning at approximately 15 feet bgs.

4.1.2 SITE HYDROGEOLOGY

The saturated zone for the western portion of the Site consists of a shallow and a deep unit. The shallow water-bearing unit consists of fill and native sandy soils to approximately 8 to 10 feet bgs. That saturated/perched zone is less than 3 feet thick. A clayey unit that is typically 2 to 5 feet thick separates the shallow and deep water-bearing units. The deep water-bearing unit consists of silty sands with some interbedded silts. This confined or semi-confined sandy unit is typically 4 to 6 feet thick and the entire section is saturated. The piezometric water level is approximately 8 to 9 feet bgs in the shallow unit and 9 to 11 feet bgs in the deep unit.

The saturated zone for the eastern portion of the Site consists of poorly graded sand that extends to approximately 15 feet bgs as described in Section 4.1.1. The depth to

groundwater for the eastern portion of the Site varies from approximately 4 to 8 feet bgs. The saturated thickness increases from approximately 5 feet beneath the plant to 10 feet at the eastern property boundary.

Groundwater contour maps were generated from groundwater levels measured on August 24 and August 25, 2010 (Figures 4.1 and 4.2). Measurements for the shallow groundwater contour figure were taken from wells with screened within the shallow unit and typically less than 10 feet bgs. The shallow unit is where LNAPL is present. The shallow unit is affected by plant operations (sumps, utility corridors, trenches, and pits). Wells that had LNAPL at the time of the measurement were not used for groundwater contouring. Measurements for the deep groundwater contour figure were taken from wells screened within the deep unit and are limited to the western portion of the Site at intervals generally below 10 feet bgs and up to 20 feet bgs. These wells are less affected by plant operations and may provide a more accurate picture of site-wide groundwater flow conditions. LNAPL is generally not detected in these wells.

The August 2010 groundwater contour maps are generally consistent with historical groundwater contour maps. Although groundwater has several localized groundwater flow directions, groundwater generally flows to the south.

4.2 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. The shallow water-bearing zones addressed in this sampling event are not used for water supply purposes.

Exposure pathways that are applicable based on current and foreseeable conditions are identified as follows:

- Residential and Non-Residential Drinking Water Criteria
- Groundwater Surface Water Interface (GSI) Criteria
- Residential and Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria
- Groundwater Contact Criteria
- Water Solubility Criteria

This report compares the analytical results to the MDEQ Part 201 Criteria. Analytical results are discussed in Section 4.4 and presented in Table 4.1 and Table 4.2. Plan 2 compares the analytical results to Part 201 Criteria and identifies any exceedences. The laboratory analytical report is available upon request.

4.3 DATA QUALITY ASSESSMENT AND VALIDATION

Upon receipt of the 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.

4.4 SEPTEMBER 2010 ANALYTICAL RESULTS - GROUNDWATER

Table 4.1 summarizes the detected parameters in groundwater for September 2010. Table 4.2 and Plan 2 summarize the current and historical analytical results of the groundwater samples. Several groundwater samples were detected above MDEQ Part 201 Criteria for one or more parameter.

TCL VOCs

Groundwater analysis detected VOCs at concentrations exceeding MDEQ Part 201 Criteria in 11 monitoring wells.

TCL SVOCs

Groundwater analysis did not detect SVOCs at concentrations exceeding MDEQ Part 201 Criteria.

Historically, samples from CRA-071M exceeded the Water Solubility Criteria. During the September 2010 sampling event, SVOCs were not analyzed from CRA-071M. Dissolved phase SVOCs are delineated on-Site and in the vicinity of CRA-071M.

PCBs

Groundwater analysis did not detect PCBs at concentrations exceeding MDEQ Part 201 Criteria.

Site Specific TAL Metals

Groundwater analysis detected site specific TAL metals at concentrations exceeding MDEQ Part 201 Criteria in 46 monitoring wells (see Table 4.1).

Cyanide (amenable)

Groundwater analysis detected cyanide (amenable) at concentrations exceeding MDEQ Part 201 Criteria in four monitoring wells.

4.4.1 DISCUSSION OF SEPTEMBER 2010 ANALYTICAL RESULTS

The VOC constituent trichloroethene (TCE) was detected above Residential and Industrial Drinking Water Criteria in monitoring well CRA-609M near the southern property boundary. Cyanide (amenable) was detected above GSI in three monitoring wells along the southern property boundary (CRA-325M, CRA-327M and CRA-140M). Several metals were detected above Residential and Non-Residential Drinking Water Criteria and/or GSI Criteria along the eastern and southern property boundaries. Metals exceedances are present in groundwater monitoring wells throughout the Site. Based on metals exceedances throughout the Site, the apparent exceedances of MDEQ Part 201 Criteria may be associated with naturally occurring background levels.

4.5 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 at CRA-617M during the September 2010 sampling event. CRA 617M is a monitoring well installed on September 2, 2010 along the eastern Site boundary.

LNAPL was detected in several of the wells monitored during fluid level measuring event on August 24 to 25, 2010. This data was used to generate LNAPL thickness contours as shown on Plan 1.

Dyno Area – Data from approximately 13 surrounding monitoring wells was used to delineate the extent of the Dyno Area LNAPL plume. This is the engine testing or dynamometer area (Dyno Area). Two recovery wells are active within this plume.

Central Manufacturing Area – Data from approximately 50 wells was used to delineate the extent of the Central Manufacturing Area plume. This plume is associated with historic manufacturing activities in the plant. It is an extensive plume, but its size and location have stayed relatively stable over the last 5 to 10 years. One recovery well is active within this plume.

Eastern Assembly/Heat Treat Area – Data from approximately 88 wells was used to delineate the extent of the Eastern Assembly/Heat Treat Area plume. The plume is associated with manufacturing activities in the plant. The fluid characterization varies across the plume but much of it is characterized as transmission fluid. This plume is the most closely monitored due to its proximity to the Site boundary with Willow Run Airport. Its size and location have remained relatively stable over the last 5 to 10 years. Five active recovery wells are located within this plume.

During the September 2010 sampling event, LNAPL was observed at the newly installed CRA-617M located along the eastern property boundary at a thickness of approximately 1/8-inch. Based on presence of LNAPL a Notice of Off-Site Migration was completed and filed with the MDEQ and the adjacent property owner. See Appendix D for a copy of the Notice.

4.6 CONCLUSIONS

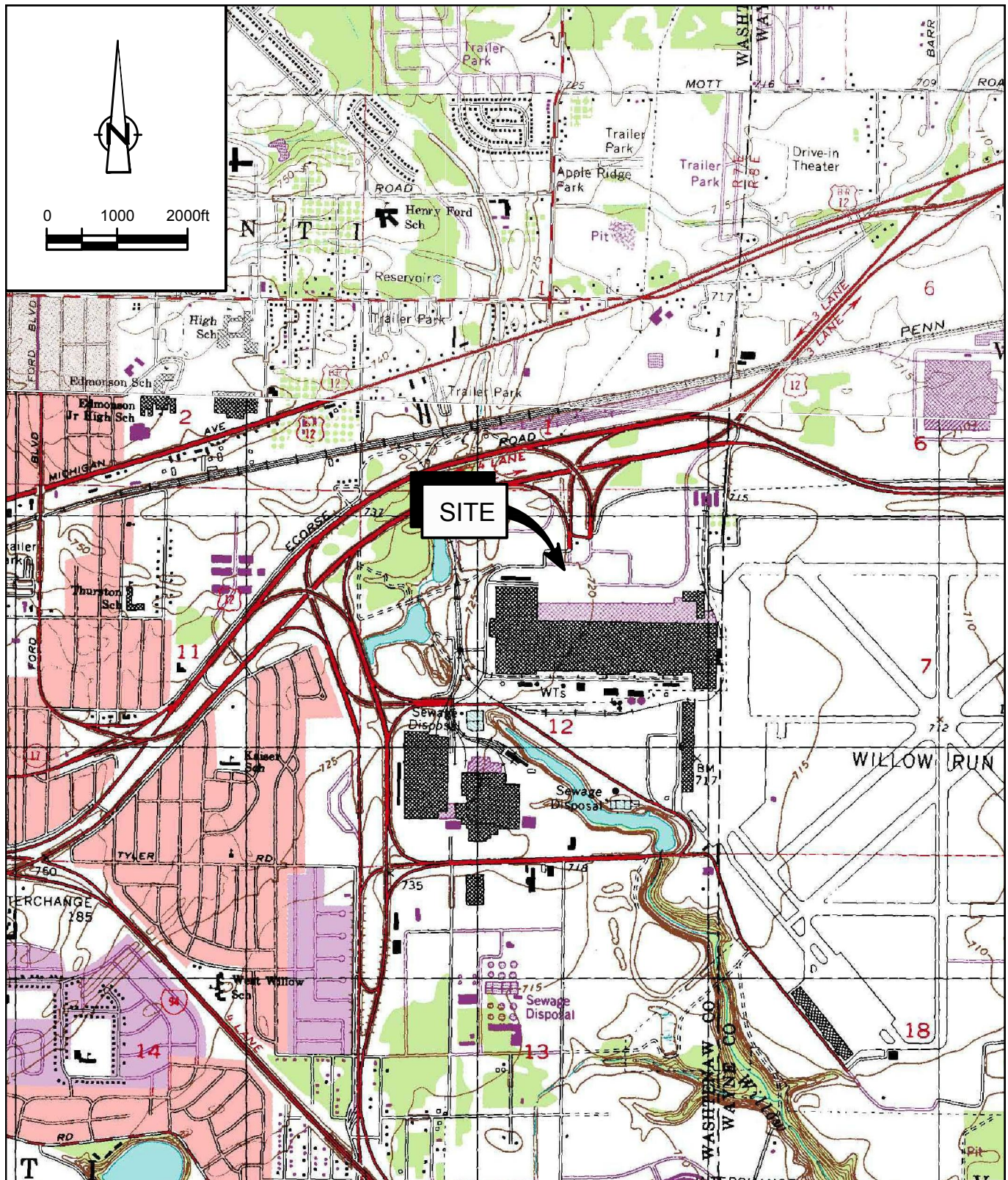
Based on the results of the September 2010 sampling event and historical data the presence of LNAPL beneath the plant is the primary concern to human health and the environment. The LNAPL plume locations beneath the building generally appear stable. The LNAPL plume located along the eastern boundary appears to extend off-Site, based on the data from newly installed monitoring well CRA-617M.

The results of groundwater monitoring conducted in September 2010 are generally similar to historical results. VOCs, metals, and cyanide (amenable) were detected above MDEQ Part 201 criteria. No exceedences of SVOCs or PCBs were detected above MDEQ Part 201 criteria.

4.7 RECOMMENDATIONS

Based on the results of this investigation, continued routine fluid level monitoring is recommended. Additionally, potential off-Site migration should be further evaluated. A RCRA Facility Investigation (RFI) Work Plan will be prepared in 2011. The Work Plan will provide the recommendations for future investigation activities.

FIGURES



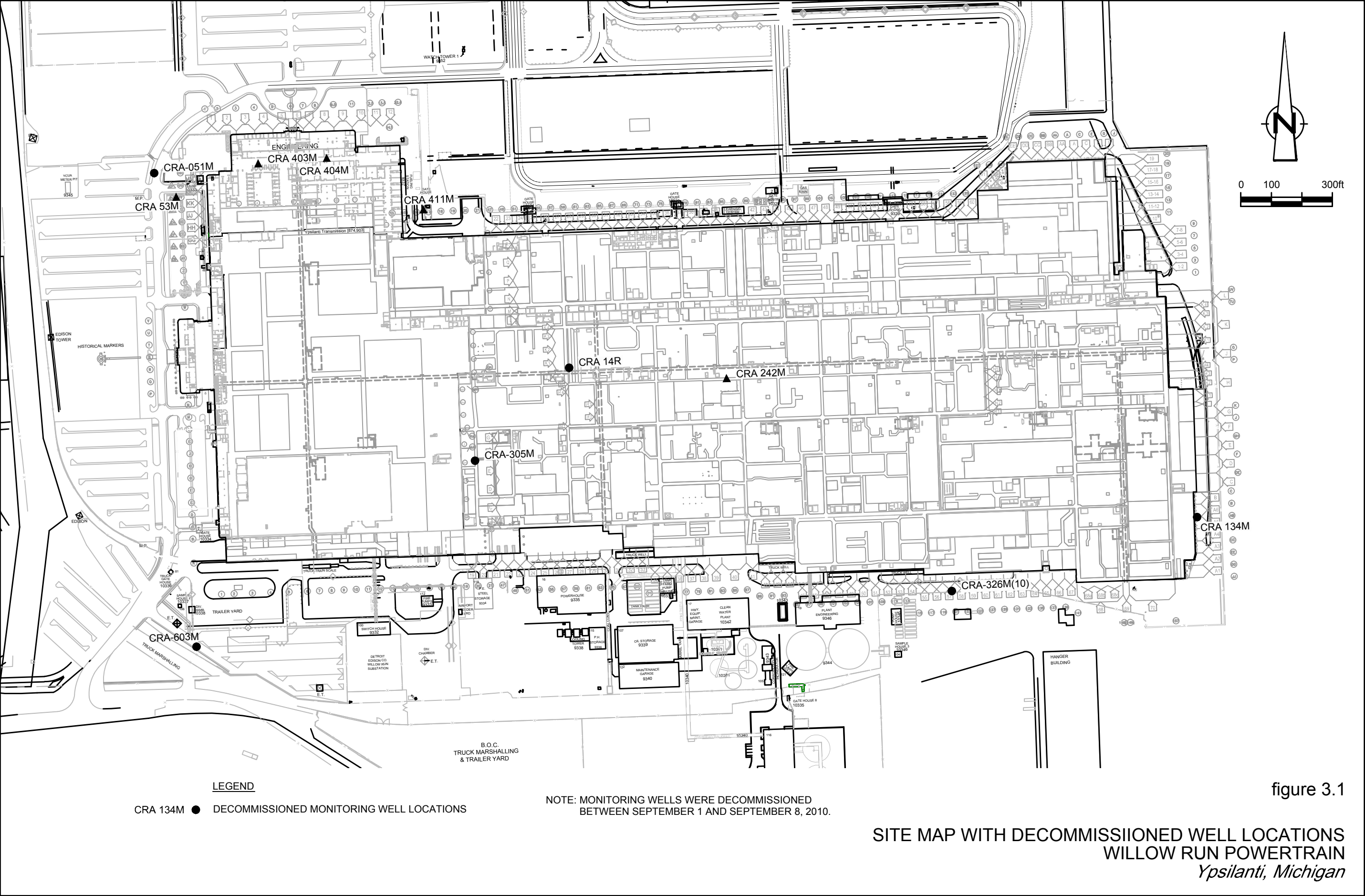
SOURCE: USGS QUADRANGLE MAP;
 EAST YPSILANTI, MICHIGAN
 DATE: 1996
 EAST DENTON, MICHIGAN
 DATE: 1969; REVISED: 1980

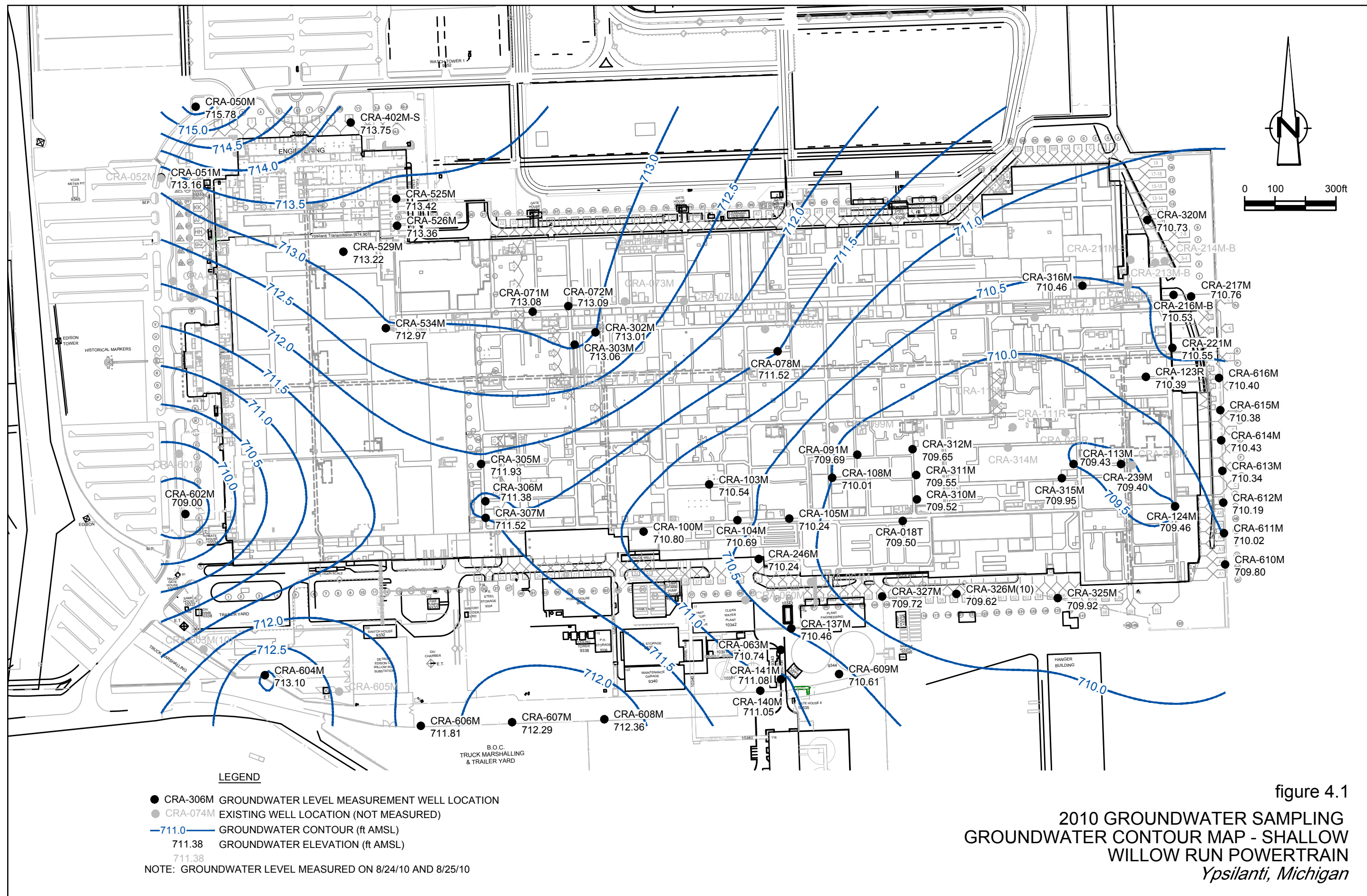
figure 1.1

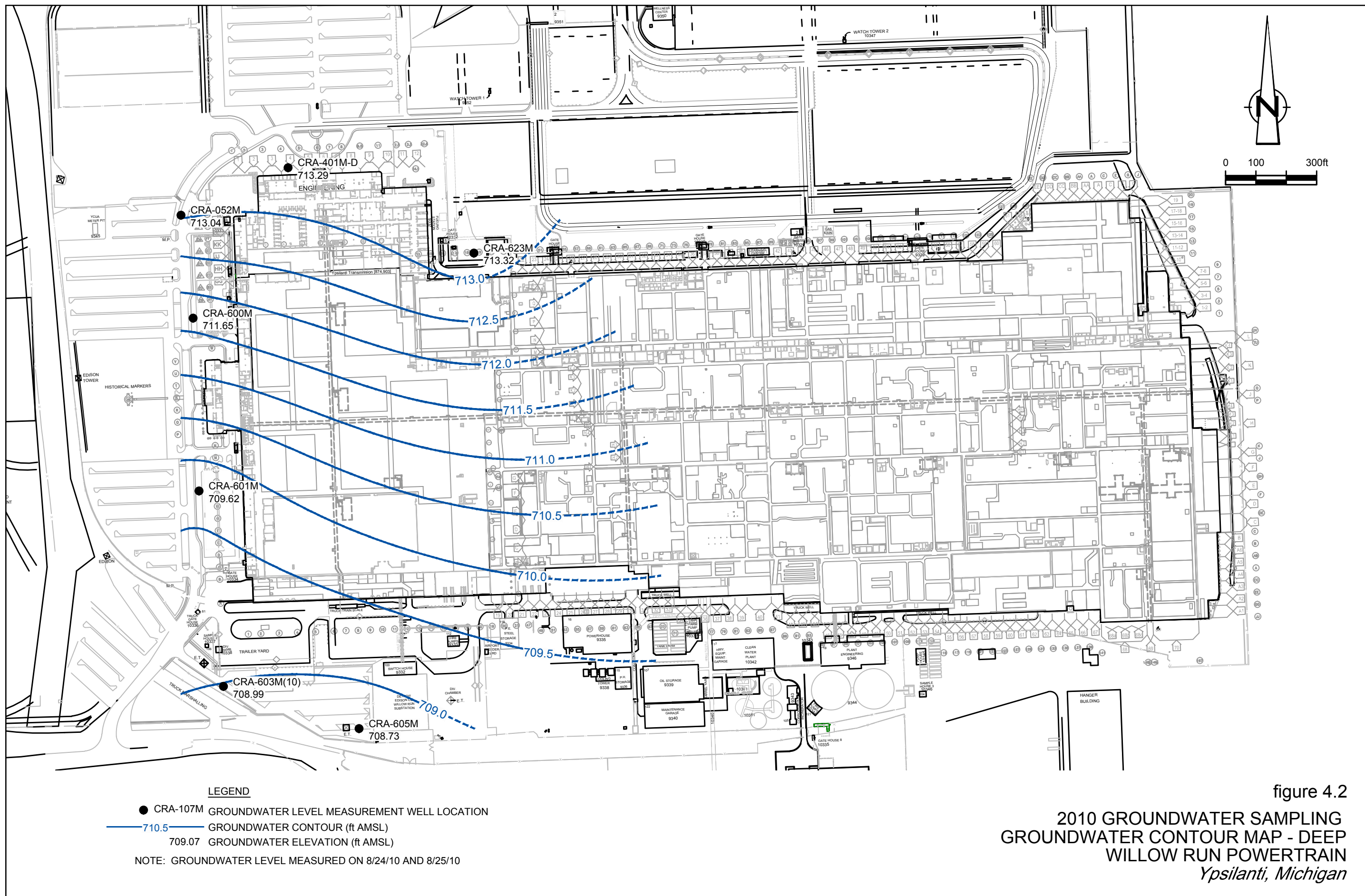
SITE LOCATION MAP WILLOW RUN POWERTRAIN *Ypsilanti, Michigan*

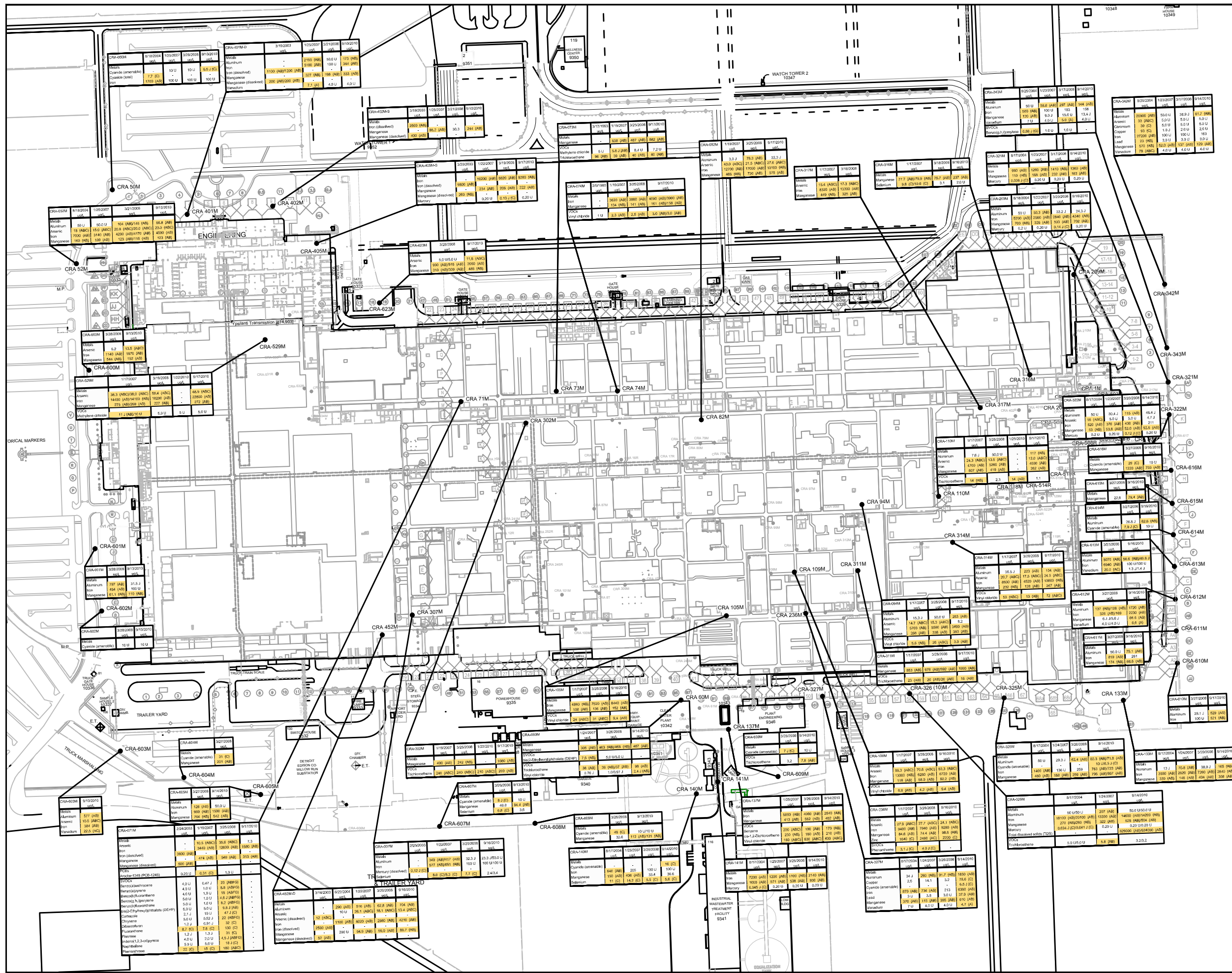


■ YPSILANTI









Revision

Date

Initial

0

50

150ft

LEGEND

FENCE

GUARDRAIL

● CRA-529M

● CRA-530R

WELLS SAMPLED IN SEPTEMBER 2010

EXISTING WELLS NOT SAMPLED IN SEPTEMBER 2010

DATABOXES SHOW CONSTITUENTS EXCEEDING CRITERIA AND HISTORICAL DATA ON CURRENT DATA ON THESE CONSTITUENTS ONLY. FOR INFORMATION ON CONSTITUENTS ANALYZED WITH NO CURRENT OR HISTORICAL EXCEEDANCES OR CRITERIA VALUES USED, SEE REPORT 12 TABLES.

DATABOX LEGEND IS AS FOLLOWS:

(A)

EXCEEDS RESIDENTIAL DRINKING WATER CRITERIA

(B)

EXCEEDS NON-RESIDENTIAL DRINKING WATER CRITERIA

(C)

EXCEEDS GROUNDWATER SURFACE WATER INTERFACE CRITERIA

(D)

EXCEEDS RESIDENTIAL GROUNDWATER VOLATILIZATION TO INDOOR AIR INHALATION CRITERIA

(E)

EXCEEDS NON-RESIDENTIAL GROUNDWATER VOLATILIZATION TO INDOOR AIR INHALATION CRITERIA

(F)

EXCEEDS GROUNDWATER CONTACT CRITERIA

(G)

EXCEEDS WATER SOLUBILITY CRITERIA

U

NON-DETECT AT SPECIFIED DETECTION LIMIT

J

DETECTED BELOW LIMIT AT SPECIFIED VALUE

-

SAMPLE NOT ANALYZED FOR CONSTITUENT

SCALE VERIFICATION

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

Approved

Status

Date

Initial

ANALYTICAL RESULTS

OF GROUNDWATER SAMPLES

YPSILANTI, MICHIGAN

2010 GROUNDWATER SAMPLING

WILLOW RUN POWERTRAIN

Source Reference:

Project Manager:

Reviewed By:

Date:

Scale:

Project N°:

Report N°:

Drawing N°:

S. ADAMOWSKI

B. LANDALE

MAY 2011

1:150

017358-T18

014

2

017358-T18(014)GN-DE006 MAY 11/2011

TABLES

TABLE 2.1
SAMPLE KEY
2010 GROUNDWATER MONITORING
POWERTRAIN WILLOW RUN

Location	Sample Identification	Type of Sampling	Date	QA/QC	Analyses
CRA-050M	GW-17358-091010-DR-003	GW	9/10/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-052M	GW-17358-091010-DR-004	GW	9/10/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-060M	GW-17358-091410-DR-015	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-071M	GW-17358-091710-JY-048	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-073M	GW-17358-091710-JY-047	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-074M	GW-17358-091710-JY-045	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-074M	GW-17358-091710-JY-046	QC	9/17/2010	Duplicate	TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-082M	GW-17358-091710-JY-050	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-094M	GW-17358-091710-JY-056	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-105M	GW-17358-091610-JY-042	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-109M	GW-17358-091610-JY-044	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-110M	GW-17358-091710-JY-055	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-133M	GW-17358-091410-DR-022	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-137M	GW-17358-091410-DR-014	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-140M	GW-17358-091410-DR-017	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-141M	GW-17358-091410-DR-016	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-209M	GW-17358-091610-JY-037	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-236M	GW-17358-091610-JY-043	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-302M	GW-17358-091710-JY-049	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-307M	GW-17358-091610-JY-039	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-307M	GW-17358-091610-JY-040	QC	9/16/2010	Duplicate	TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-311M	GW-17358-091710-JY-057	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-314M	GW-17358-091710-JY-054	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-316M	GW-17358-091610-JY-038	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-317M ¹	NA	NA	NA		NA
CRA-321M	GW-17358-091410-DR-024	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-322M	GW-17358-091410-DR-023	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-325M	GW-17358-091410-DR-020	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-325M	GW-17358-091410-DR-021	QC	9/14/2010	Duplicate	TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-326M(10)	GW-17358-091410-DR-018	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS, pH, Hardness, Iron, TSS, TDS
CRA-326M(10)	GW-17358-091410-DR-019	QC	9/14/2010	Duplicate	TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS, pH, Hardness, Iron, TSS, TDS
CRA-327M	GW-17358-091410-DR-025	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-342M	GW-17358-091410-DR-027	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-343M	GW-17358-091410-DR-026	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-401M-D	GW-17358-091010-DR-002	GW	9/10/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-402M-S	GW-17358-091010-DR-001	GW	9/10/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-405M-S	GW-17358-091710-JY-051	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-452M-D	GW-17358-091610-JY-041	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-529M	GW-17358-091710-JY-053	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide
CRA-600M	GW-17358-091310-DR-006	GW	9/13/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-601M	GW-17358-091310-DR-005	GW	9/13/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-602M	GW-17358-091310-DR-007	GW	9/13/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-603M(10)	GW-17358-091310-DR-011	GW	9/13/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS, pH, Hardness, Iron, TSS, TDS
CRA-604M ²	GW-17358-091410-DR-028	GW	9/14/2010		TCL-VOCs plus TMBs
CRA-605M	GW-17358-091410-DR-012	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-606M ³	NA	NA	NA		Dry
CRA-607M	GW-17358-091310-DR-008	GW	9/13/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-608M	GW-17358-091310-DR-009	GW	9/13/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-608M	GW-17358-091310-DR-010	QC	9/13/2010	Duplicate	TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-609M	GW-17358-091410-DR-013	GW	9/14/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-610M	GW-17358-091710-JY-036	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-611M	GW-17358-091610-JY-029	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-612M	GW-17358-091610-JY-030	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-613M	GW-17358-091610-JY-031	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-613M	GW-17358-091610-JY-032	QC	9/16/2010	Duplicate	TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-614M	GW-17358-091610-JY-035	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-615M	GW-17358-091610-JY-034	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-616M	GW-17358-091610-JY-033	GW	9/16/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS
CRA-617M ⁴	NA	NA	NA		LNAPL
CRA-623M	GW-17358-091710-JY-052	GW	9/17/2010		TCL-VOCs plus TMBs, Site TAL metals (totals), Amenable Cyanide, TCL SVOCs, PCBS

Note:

¹ - CRA-317M was not sampled due to a storage cabinet covering the monitoring well location.

² - CRA-604M contained insufficient recharge for full analysis of analytical parameters.

³ - CRA-606M contained insufficient recharge for groundwater sampling.

⁴ - CRA-617M contained LNAPL and was not sampled.

TABLE 3.1

**MONITORING WELL CONSTRUCTION DETAILS
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN**

<i>Well ID</i>	<i>Well Completion Date</i>	<i>Well Construction Material</i>	<i>Well Dia. (inch)</i>	<i>Ground Surface Elevation (ft. AMSL)</i>	<i>Top of Casing Elevation (ft. AMSL)</i>	<i>Total Well Depth (ft. BTOC)</i>	<i>Screened Depth (ft. BTOC)</i>	<i>Screened Elevation (ft. AMSL)</i>
CRA-326M(10)	9/2/10	PVC Schedule 40	2.00	716.87	716.57	10	5 to 10	711.57 to 706.57
CRA-603M(10)	9/3/10	PVC Schedule 40	2.00	719.62	719.24	14	9 to 14	710.24 to 705.24
CRA-617M	9/2/10	PVC Schedule 40	2.00	714.62	713.97	8	3 to 8	710.97 to 705.97

Notes:

Dia. Diameter
 Ft. Feet
 AMSL Above Mean Sea Level
 BTOC Below Top of Casing

TABLE 3.2

GROUNDWATER ELEVATIONS AND LNAPL THICKNESSES
AUGUST 24 AND 25, 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

<i>Date</i>	<i>Monitoring Well Identification</i>	<i>Top of Casing Elevation (ft. AMSL)</i>	<i>Depth to Water (ft. BTOC)</i>	<i>Groundwater Elevation (ft. AMSL)</i>	<i>Depth to Product (ft. BTOC)</i>	<i>Product Thickness (ft.)</i>
8/24/2010	CRA-001M	NM	7.72	NM	5.47	2.25
8/24/2010	CRA-002RA	715.22	4.81	710.41	--	--
8/24/2010	CRA-002RB	715.56	6.60	708.96	4.95	1.65
8/24/2010	CRA-004M	716.41	8.43	707.98	5.60	2.83
8/24/2010	CRA-006RA	716.36	6.00	710.36	--	--
8/24/2010	CRA-006RB	716.31	7.55	708.76	5.72	1.83
8/25/2010	CRA-007T	718.75	8.20	710.55	6.92	1.28
8/25/2010	CRA-008T	719.13	7.30	711.83	7.27	0.03
8/25/2010	CRA-009R	719.30	7.30	712.00	7.29	0.01
8/25/2010	CRA-010R	719.45	NM	NM	NM	NM
8/25/2010	CRA-011RA	719.50	6.72	712.78	--	--
8/25/2010	CRA-011RB	719.75	6.97	712.78	6.86	0.11
8/25/2010	CRA-012RA	719.33	7.56	711.77	7.04	0.52
8/25/2010	CRA-012RB	719.74	7.93	711.81	7.24	0.69
8/25/2010	CRA-013R	NM	8.17	NM	6.97	1.20
8/25/2010	CRA-015R	718.76	7.63	711.13	6.67	0.96
8/25/2010	CRA-016R	718.68	8.12	710.56	6.63	1.49
8/25/2010	CRA-017R	718.41	8.67	709.74	6.37	2.30
8/25/2010	CRA-018T	716.81	7.31	709.50	--	--
8/24/2010	CRA-025R	716.30	6.60	709.70	6.12	0.48
8/24/2010	CRA-026R	716.17	NM	NM	NM	NM
8/24/2010	CRA-027R	715.58	5.78	709.80	5.34	0.44
8/24/2010	CRA-041R	716.24	7.52	708.72	6.24	1.28
8/24/2010	CRA-050M	726.98	11.20	715.78	--	--
8/24/2010	CRA-051M	721.33	8.17	713.16	--	--
8/24/2010	CRA-052M	721.16	8.12	713.04	--	--
8/24/2010	CRA-063M	717.66	6.92	710.74	--	--
8/24/2010	CRA-064M	718.12	NM	NM	NM	NM
8/25/2010	CRA-071M	719.27	6.19	713.08	--	--
8/25/2010	CRA-072M	719.32	6.23	713.09	--	--
8/25/2010	CRA-075M	719.35	6.57	712.78	6.35	0.22
8/25/2010	CRA-078M	718.21	6.69	711.52	6.47	0.22
8/25/2010	CRA-079M	718.26	6.92	711.34	6.47	0.45
8/25/2010	CRA-080M	718.14	7.55	710.59	6.30	1.25
8/25/2010	CRA-081M	718.18	7.59	710.59	6.16	1.43
8/25/2010	CRA-083M	718.77	8.46	710.31	7.50	0.96
8/25/2010	CRA-086M-A	717.67	7.07	710.60	7.04	0.03
8/25/2010	CRA-086M-B	717.98	7.95	710.03	7.26	0.69
8/25/2010	CRA-087M-A	718.35	7.31	711.04	--	--
8/25/2010	CRA-087M-B	718.73	8.53	710.20	7.54	0.99
8/25/2010	CRA-088RA	719.31	6.94	712.37	--	--
8/25/2010	CRA-088RB	NM	8.30	NM	7.44	0.86
8/25/2010	CRA-089R	718.21	7.86	710.35	7.73	0.13
8/25/2010	CRA-090M	717.84	7.68	710.16	--	--
8/25/2010	CRA-091M	717.63	7.94	709.69	--	--
8/25/2010	CRA-092M	717.61	8.31	709.30	8.02	0.29
8/25/2010	CRA-094M	717.19	7.24	709.95	--	--
8/25/2010	CRA-096M	717.63	7.87	709.76	7.75	0.12
8/25/2010	CRA-098M	717.95	7.94	710.01	7.78	0.16
8/25/2010	CRA-100M	718.87	8.07	710.80	8.06	0.01
8/25/2010	CRA-101M	719.20	8.40	710.80	8.17	0.23
8/25/2010	CRA-102M	718.76	8.99	709.77	7.90	1.09
8/25/2010	CRA-103M	718.46	7.92	710.54	--	--
8/25/2010	CRA-104M	718.73	8.04	710.69	--	--
8/25/2010	CRA-105M	718.16	7.92	710.24	--	--
8/25/2010	CRA-106M	717.41	7.78	709.63	--	--
8/25/2010	CRA-107M	717.59	8.12	709.47	--	--
8/25/2010	CRA-108M	717.79	7.78	710.01	--	--
8/25/2010	CRA-109M	717.69	7.93	709.76	--	--
8/24/2010	CRA-111R	716.51	7.05	709.46	6.53	0.52
8/24/2010	CRA-113M	716.15	6.72	709.43	--	--
8/24/2010	CRA-116R	716.26	6.15	710.11	6.00	0.15
8/24/2010	CRA-118M-A	716.50	6.35	710.15	--	--
8/24/2010	CRA-118M-B	716.54	2.91	713.63	--	--
8/24/2010	CRA-119R	716.46	5.05	711.41	--	--
8/24/2010	CRA-120M-A	716.06	5.83	710.23	5.78	0.05
8/24/2010	CRA-120M-B	716.05	5.80	710.25	5.75	0.05
8/24/2010	CRA-121M-A	716.12	5.85	710.27	--	--
8/24/2010	CRA-121M-B	716.11	6.01	710.10	5.83	0.18
8/24/2010	CRA-123R	716.36	5.97	710.39	--	--
8/24/2010	CRA-124M	716.05	6.59	709.46	--	--
8/24/2010	CRA-125M	716.09	5.95	710.14	--	--
8/24/2010	CRA-130M-A	715.87	5.52	710.35	--	--
8/24/2010	CRA-130M-B	716.11	6.10	710.01	5.72	0.38
8/24/2010	CRA-131M-A	715.97	5.49	710.48	5.47	0.02
8/24/2010	CRA-131M-B	716.13	7.65	708.48	5.33	2.32

TABLE 3.2

GROUNDWATER ELEVATIONS AND LNAPL THICKNESSES
AUGUST 24 AND 25, 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

<i>Date</i>	<i>Monitoring Well Identification</i>	<i>Top of Casing Elevation (ft. AMSL)</i>	<i>Depth to Water (ft. BTOC)</i>	<i>Groundwater Elevation (ft. AMSL)</i>	<i>Depth to Product (ft. BTOC)</i>	<i>Product Thickness (ft.)</i>
8/24/2010	CRA-132M-A	716.15	5.59	710.56	--	--
8/24/2010	CRA-132M-B	716.32	7.31	709.01	5.45	1.86
8/24/2010	CRA-133M	717.68	5.45	712.23	--	--
8/24/2010	CRA-134M	716.37	6.35	710.02	--	--
8/24/2010	CRA-137M	718.79	8.33	710.46	--	--
8/24/2010	CRA-140M	717.57	6.52	711.05	--	--
8/24/2010	CRA-141M	720.17	9.09	711.08	--	--
8/24/2010	CRA-200M	716.25	5.05	711.20	--	--
8/24/2010	CRA-201M-A	715.60	5.05	710.55	--	--
8/24/2010	CRA-201M-B	715.82	6.90	708.92	5.05	1.85
8/24/2010	CRA-202M	716.33	6.25	710.08	5.58	0.67
8/24/2010	CRA-203M-A	716.14	5.78	710.36	--	--
8/24/2010	CRA-203M-B	716.33	6.22	710.11	5.41	0.81
8/24/2010	CRA-204M-A	715.91	5.36	710.55	--	--
8/24/2010	CRA-204M-B	716.10	7.20	708.90	5.30	1.90
8/24/2010	CRA-207M	716.04	7.52	708.52	5.28	2.24
8/24/2010	CRA-209M	716.61	NM	NM	NM	NM
8/24/2010	CRA-210M-A	715.68	4.86	710.82	4.79	0.07
8/24/2010	CRA-210M-B	715.86	5.11	710.75	5.04	0.07
8/24/2010	CRA-211M-A	715.65	4.84	710.81	--	--
8/24/2010	CRA-211M-B	715.78	4.94	710.84	--	--
8/24/2010	CRA-212M-A	NM	NM	NM	3.18	NM
8/24/2010	CRA-212M-B	NM	NM	NM	4.85	NM
8/24/2010	CRA-213M-A	716.13	5.60	710.53	--	--
8/24/2010	CRA-213M-B	716.27	5.72	710.55	5.71	0.01
8/24/2010	CRA-214M-A	719.19	3.85	715.34	--	--
8/24/2010	CRA-214M-B	719.34	9.01	710.33	--	--
8/24/2010	CRA-215M-A	716.77	6.33	710.44	--	--
8/24/2010	CRA-215M-B	716.93	6.91	710.02	6.33	0.58
8/24/2010	CRA-216M-A	716.27	5.75	710.52	--	--
8/24/2010	CRA-216M-B	716.55	6.02	710.53	--	--
8/24/2010	CRA-217M	715.60	4.84	710.76	--	--
8/24/2010	CRA-218M-A	718.46	7.88	710.58	--	--
8/24/2010	CRA-218M-B	718.61	8.78	709.83	7.94	0.84
8/24/2010	CRA-219M	717.71	8.22	709.49	6.94	1.28
8/24/2010	CRA-220M-A	718.26	5.40	712.86	--	--
8/24/2010	CRA-220M-B	NM	7.73	NM	--	--
8/24/2010	CRA-221M	718.65	8.10	710.55	--	--
8/24/2010	CRA-222M	715.96	7.68	708.28	4.59	3.09
8/24/2010	CRA-223M	715.95	6.60	709.35	5.21	1.39
8/24/2010	CRA-224M	715.78	NM	NM	NM	NM
8/24/2010	CRA-234M-A	715.82	5.38	710.44	--	--
8/24/2010	CRA-234M-B	716.00	6.92	709.08	5.35	1.57
8/24/2010	CRA-235RA	716.09	6.08	710.01	5.27	0.81
8/24/2010	CRA-235RB	715.98	6.45	709.53	5.07	1.38
8/25/2010	CRA-236M	717.50	7.84	709.66	--	--
8/24/2010	CRA-238M	715.96	6.61	709.35	--	--
8/24/2010	CRA-239M	715.85	6.45	709.40	--	--
8/25/2010	CRA-242M	718.17	NM	NM	NM	NM
8/25/2010	CRA-245R	719.30	8.63	710.67	8.10	0.53
8/24/2010	CRA-246M	717.82	7.58	710.24	--	--
8/25/2010	CRA-252R	719.30	9.72	709.58	7.43	2.29
8/25/2010	CRA-301M	718.73	6.27	712.46	6.22	0.05
8/25/2010	CRA-302M	719.13	6.12	713.01	--	--
8/25/2010	CRA-303M	719.51	6.45	713.06	--	--
8/25/2010	CRA-305M	719.93	8.00	711.93	--	--
8/25/2010	CRA-306M	719.86	8.48	711.38	--	--
8/25/2010	CRA-307M	720.00	8.48	711.52	--	--
8/25/2010	CRA-310M	717.29	7.77	709.52	--	--
8/25/2010	CRA-311M	717.33	7.78	709.55	--	--
8/25/2010	CRA-312M	717.17	7.52	709.65	--	--
8/24/2010	CRA-315M	716.79	6.84	709.95	--	--
8/24/2010	CRA-316M	716.27	5.81	710.46	--	--
8/24/2010	CRA-320M	716.87	6.14	710.73	--	--
8/24/2010	CRA-321M	714.25	3.66	710.59	--	--
8/24/2010	CRA-322M	714.24	3.67	710.57	--	--
8/24/2010	CRA-325M	716.48	6.56	709.92	--	--
8/24/2010	CRA-326(10)M	716.57	7.25	709.32	--	--
8/24/2010	CRA-327M	717.15	7.43	709.72	--	--
8/24/2010	CRA-342M	714.46	3.68	710.78	--	--
8/24/2010	CRA-343M	714.42	3.69	710.73	--	--
8/24/2010	CRA-401M-D	720.57	7.28	713.29	--	--
8/24/2010	CRA-401R	716.56	6.48	710.08	5.66	0.82
8/24/2010	CRA-402M-S	720.63	6.88	713.75	--	--
8/24/2010	CRA-402R	716.62	5.91	710.71	--	--
8/24/2010	CRA-403R	716.68	6.55	710.13	5.97	0.58

TABLE 3.2

GROUNDWATER ELEVATIONS AND LNAPL THICKNESSES
AUGUST 24 AND 25, 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

<i>Date</i>	<i>Monitoring Well Identification</i>	<i>Top of Casing Elevation (ft. AMSL)</i>	<i>Depth to Water (ft. BTOC)</i>	<i>Groundwater Elevation (ft. AMSL)</i>	<i>Depth to Product (ft. BTOC)</i>	<i>Product Thickness (ft.)</i>
8/25/2010	CRA-411M	NM	NM	NM	NM	NM
8/24/2010	CRA-501R	NM	7.82	NM	5.07	2.75
8/24/2010	CRA-502R	NM	7.90	NM	5.54	2.36
8/24/2010	CRA-503R	NM	7.59	NM	5.57	2.02
8/24/2010	CRA-504R	715.55	7.81	707.74	5.04	2.77
8/24/2010	CRA-505R	715.72	7.95	707.77	5.24	2.71
8/24/2010	CRA-506R	715.42	7.05	708.37	4.99	2.06
8/24/2010	CRA-507R	715.84	7.44	708.40	5.47	1.97
8/24/2010	CRA-508R	715.46	7.15	708.31	5.05	2.10
8/24/2010	CRA-509R	715.53	6.95	708.58	5.14	1.81
8/24/2010	CRA-510R	NM	6.47	NM	5.62	0.85
8/24/2010	CRA-511R	NM	6.34	NM	5.25	1.09
8/24/2010	CRA-512R	NM	5.49	NM	5.31	0.18
8/24/2010	CRA-513R	NM	6.44	NM	6.22	0.22
8/24/2010	CRA-514R	NM	6.30	NM	6.15	0.15
8/24/2010	CRA-515R	NM	6.10	NM	5.80	0.30
8/24/2010	CRA-516R	NM	6.68	NM	6.48	0.20
8/24/2010	CRA-517R	NM	6.25	NM	6.14	0.11
8/24/2010	CRA-518R	NM	6.32	NM	6.12	0.20
8/24/2010	CRA-519R	NM	6.47	NM	6.21	0.26
8/24/2010	CRA-520R	NM	6.60	NM	6.27	0.33
8/24/2010	CRA-521R	NM	5.14	NM	5.11	0.03
8/24/2010	CRA-522R	NM	5.98	NM	5.78	0.20
8/24/2010	CRA-523R	NM	6.12	NM	5.82	0.30
8/24/2010	CRA-524R	715.48	5.94	709.54	5.91	0.03
8/25/2010	CRA-525M	720.66	7.24	713.42	--	--
8/25/2010	CRA-526M	720.79	7.43	713.36	--	--
8/25/2010	CRA-527M	720.53	7.53	713.00	7.20	0.33
8/25/2010	CRA-528M	720.54	7.23	713.31	7.22	0.01
8/25/2010	CRA-529M	720.49	7.27	713.22	--	--
8/25/2010	CRA-530R	720.71	NM	NM	NM	NM
8/25/2010	CRA-531R	720.63	7.86	712.77	7.53	0.33
8/25/2010	CRA-532R	NM	NM	NM	NM	NM
8/25/2010	CRA-533M	720.48	NM	NM	NM	NM
8/25/2010	CRA-534M	720.52	7.55	712.97	--	--
8/24/2010	CRA-600M	720.42	8.77	711.65	--	--
8/24/2010	CRA-601M	720.60	10.98	709.62	--	--
8/24/2010	CRA-602M	721.20	12.20	709.00	--	--
8/24/2010	CRA-603(10)M	719.24	13.05	706.19	--	--
8/24/2010	CRA-604M	718.85	5.75	713.10	--	--
8/24/2010	CRA-605M	718.19	9.46	708.73	--	--
8/24/2010	CRA-606M	718.11	6.30	711.81	--	--
8/24/2010	CRA-607M	720.89	8.60	712.29	--	--
8/24/2010	CRA-608M	720.67	8.31	712.36	--	--
8/24/2010	CRA-609M	716.04	5.43	710.61	--	--
8/24/2010	CRA-610M	714.20	4.40	709.80	--	--
8/24/2010	CRA-611M	714.40	4.38	710.02	--	--
8/24/2010	CRA-612M	714.72	4.53	710.19	--	--
8/24/2010	CRA-613M	714.65	4.31	710.34	--	--
8/24/2010	CRA-614M	714.79	4.36	710.43	--	--
8/24/2010	CRA-615M	714.72	4.34	710.38	--	--
8/24/2010	CRA-616M	714.77	4.37	710.40	--	--
10/07/2010*	CRA-617M	713.97	4.34	709.63	3.98	0.36
8/25/2010	CRA-623M	719.94	6.62	713.32	--	--

Notes:

- NM Not Measured/Not Surveyed
- R Recovery well
- M Monitoring well
- S or B Shallow well
- D or A Deep well
- None Detected
- * LNAPL measured after new well installation
- Ft. Feet
- AMSL Above Mean Sea Level
- BTOC Below Top of Casing

TABLE 3.3

**WELL DECOMMISSION DETAILS
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN**

<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>LNAPL Present</i>	<i>Reason Well Abandoned/Comments</i>
<i>Northing</i>	<i>Easting</i>						
CRA-014R	NA	NA	NM	NM	NM	No	Inaccessible
CRA-051M	271833.04	13342593.2	721.33	8.17	713.16	No	Insufficient volume of groundwater to sample
CRA-053M	NA	NA	NM	NM	NM	No	Elevated pH in groundwater, well compromised
CRA-134M	270706.39	13346008.28	716.37	6.35	710.02	No	Well compromised and filled with sediment
CRA-242M	271158.33	13344467.93	718.17	NM	NM	No	Well compromised
CRA-305M	270891.5	13343643.77	719.93	8	711.93	No	Insufficient volume of groundwater to sample
CRA-326M	270464.77	13345205.18	716.92	NM	NM	No	Insufficient volume of groundwater to sample. Well replaced with CRA-326M(10).
CRA-403M	NA	NA	NM	NM	NM	No	Well compromised and filled with concrete
CRA-404M	NA	NA	NM	NM	NM	No	Well compromised and filled with concrete
CRA-411M	271710.81	13343474.9	NM	NM	NM	No	Well compromised and filled with sediment
CRA-603M	270286.3006	13342728.47	719.49	10.5	708.99	No	Insufficient volume of groundwater to sample. Well replaced with CRA-603M(10).

Notes:

NM	Not Measured
NA	Not Available
R	Recovery well
M	Monitoring well

Monitoring well were decommissioned between September 1 and September 8, 2010

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-050M GW-17358-091010-DR-003 9/10/2010	CRA-052M GW-17358-091010-DR-004 9/10/2010	CRA-060M GW-17358-091410-DR-015 9/14/2010	CRA-071M GW-17358-091710-JY-048 9/17/2010	CRA-073M GW-17358-091710-JY-047 9/17/2010	CRA-074M GW-17358-091710-JY-045 9/17/2010	CRA-074M GW-17358-091710-JY-046 9/17/2010 Duplicate	CRA-082M GW-17358-091710-JY-050 9/17/2010
Inorganics (ug/L)	a	b	c	d	e	f	g								
Aluminum	50	50	NA	NLV	NLV	6400000	NA	50.0 U	66.8 ^{ab}	50.0 U	29.6 J	39.9 J	50.0 U	50.0 U	22.3 J
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	7.3	5.0 U	5.0 U	5.0 U	5.0 U	27.6 ^{ac}
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	34.5 J	359	96.9 J	237	318	292	286	408
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.33 J	0.50 U	0.35 J	0.50 U	0.50 U	0.20 J
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	1.2 J	2.0 U	3.9 U	5.6	1.4 J	2.0 U	0.56 J	1.1 J
Iron	300	300	NA	NLV	NLV	58000000	NA	100 U	4590 ^{ab}	100 U	1580 ^{ab}	100 U	4090 ^{ab}	3960 ^{ab}	10100 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	15.0 U	123 ^{ab}	487 ^{ab}	313 ^{ab}	882 ^{ab}	161 ^{ab}	158 ^{ab}	575 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	11.2 J	5.6 J	3.3 J	5.1 J	4.2 J	4.9 J
Selenium	50	50	5	NLV	NLV	970000	NA	1.5 J	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	11000000	NA	10.0 U	8.6 J	14.6 U	2.9 J	3.9 J	2.4 J	5.1 J	5.1 J
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	--	--	--	--	--	--	--	--
Semi-Volatile Organic Compounds (ug/L)															
2,2-Diisobutyl- chloropropane) (bis(2- Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	2100	2100	5	NLV	NLV	170000	1200000	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	--	--	--	--	--	--	--	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	--	--	--	--	--	--	--	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	--	--	--	--	--	--	--	--
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	--	--	--	--	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	--	--	--	--	--	--	--	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4,6-Dinitro-2- methylphenol	20	20	NA	NLV	NLV	9500	200000	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	--	--	--	--	--	--	--	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	--	--	--	--	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	--	--	--	--	--	--	--	--
Acenaphthylene	52	150	ID	3900	3900	3900	3930	--	--	--	--	--	--	--	--
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	--	--	--	--	--	--	--	--
Anthracene	43	43	ID	43	43	43	43.4	--	--	--	--	--	--	--	--
Atrazine	3	3	7.3	NLV	NLV	54000	70000	--	--	--	--	--	--	--	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	--	--	--	--	--	--	--	--
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	--	--	--	--	--	--	--	--
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
bis(2- Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	--	--	--	--	--	--	--	--
bis(2- Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	--	--	--	--	--	--	--	--
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	--	--	--	--	--	--	--	--
Caprolactam	5800	17000	NA	NLV	NLV	390000000	525000000	--	--	--	--	--	--	--	--
Carbazole	85	350	10	NLV	NLV	7400	7480	--	--	--	--	--	--	--	--
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	--	--	--	--	--	--	--	--
Dibenzofuran	ID	ID	4	10000	ID	10000	10000	--	--	--	--	--	--	--	--
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	--	--	--	--	--	--	--	--
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	--	--	--	--	--	--	--	--
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	--	--	--	--	--	--	--	--
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	--	--	--	--	--	--	--	--
Fluoranthene	210	210	1.6	210	210	210	206	--	--	--	--	--	--	--	--
Fluorene	880	2000	12	2000	2000	2000	1980	--	--	--	--	--	--	--	--
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	--	--	--	--	--	--	--	--
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	--	--	--	--	--	--	--	--
Hexachlorocyclopentadie ne	50	50	ID	130	420	1600	1800	--	--	--	--	--	--	--	--
Hexachloroethane	7.3	21	6.7	27000	1900	50000	50000	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	--	--	--	--	--	--	--	--
Isoophorone	7700	13000	2	NLV	NLV	990000	12000000	--	--	--	--	--	--	--	--
Naphthalene	520	1500	11	31000	31000	31000	31000	--	--	--	--	--	--	--	--
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	--	--	--	--	--	--	--	--
N-Nitrosodi-n- propylamine	5	5	NA	NLV	NLV	360	9890000	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	--	--	--	--	--	--	--	--
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	--	--	--	--	--	--	--	--
Phenanthrene	52	150	2	1000	1000	1000	1000	--	--	--	--	--	--	--	--
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	--	--	--	--	--	--	--	--
Pyrene	140	140	ID	140	140	140	135	--	--	--	--	--	--	--	--

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater/ Volatilization to Indoor Air Inhalation	Residential Groundwater/ Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-050M GW-17358-091010-DR-003 9/10/2010	CRA-052M GW-17358-091010-DR-004 9/10/2010	CRA-060M GW-17358-091410-DR-015 9/14/2010	CRA-071M GW-17358-091710-JY-048 9/7/2010	CRA-073M GW-17358-091710-JY-047 9/7/2010	CRA-074M GW-17358-091710-JY-045 9/7/2010	CRA-074M GW-17358-091710-JY-046 9/7/2010 Duplicate	CRA-082M GW-17358-091710-JY-050 9/7/2010
	a	b	c	d	e	f	g								
Volatile Organic Compounds (ug/L)	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane								1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5960000	1.0 U	1.0 U	3.3 U	1.0 U	0.40 J	1.0 U	1.0 U	0.25 J
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	3.3 U	1.0 U	0.56 J	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	17 U	5.0 U	7.2 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3- chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	1.0 U	3.3 UJ	1.0 UJ	1.4 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	83 U	25 U	36 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	1500000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	170 U	50 U	72 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	170 U	50 U	72 U	50 U	50 U	50 U
Acetone	730	2100	1700	100000000	100000000	31000000	100000000	25 U	25 U	83 U	25 U	36 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 UJ	3.3 U	1.0 UJ	1.4 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 UJ	1.0 UJ	3.3 U	1.0 UJ	1.4 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	17 U	5.0 U	7.2 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 UJ	1.0 UJ	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.0 U	3.1 J	1.0 U	1.1 J	0.59 J	0.66 J	1.0 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 UJ	1.0 UJ	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 U	1.0 U	3.3 UJ	1.0 U	1.4 UJ	1.0 U	1.0 U	1.0 U
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	17 U	5.0 U	7.2 U	5.0 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	33 U	10 UJ	14 U	10 UJ	10 UJ	10 UJ
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	5.0 UJ	0.47 J	17 U	5.0 U	7.2 U	5.0 U	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	17 U	5.0 U	7.2 U	5.0 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
trans-1,3- Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 UJ	1.0 UJ	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Trifluoro-trichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	3.3 U	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	6.7 U	2.0 U	2.9 U	2.0 U	2.0 U	2.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	6.5 J ^a	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated CSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-094M GW-17358-091710-JY-056 9/17/2010	CRA-105M GW-17358-091610-JY-042 9/16/2010	CRA-109M GW-17358-091610-JY-044 9/16/2010	CRA-110M GW-17358-091710-JY-055 9/17/2010	CRA-133M GW-17358-091410-DR-022 9/14/2010	CRA-137M GW-17358-091410-DR-014 9/14/2010	CRA-140M GW-17358-091410-DR-017 9/14/2010	CRA-141M GW-17358-091410-DR-016 9/14/2010
Inorganics (ug/L)	a	b	c	d	e	f	g								
Aluminum	50	50	NA	NLV	NLV	6400000	NA	283 ^{ab}	21.7 J	50.0 U	117 ^{ab}	165 ^{ab}	50.0 U	50.0 U	50.0 U
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.30 J	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	8.2	3.7 J	83.3 ^{abc}	12.0 ^{ab}	8.3	5.0 U	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	161	164	484	225	193	149	74.4 J	194
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	2.1 J
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.6	2.0 U	2.0 U	0.79 J	9.2	2.0 U	2.0 U	2.0 U
Iron	300	300	NA	NLV	NLV	58000000	NA	3490 ^{ab}	8440 ^{ab}	6720 ^{ab}	4030 ^{ab}	2840 ^{ab}	2840 ^{ab}	100 U	2140 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	4.2 U	2.3 J	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	393 ^{ab}	152 ^{ab}	60.2 ^{ab}	36.2 ^{ab}	308 ^{ab}	482 ^{ab}	36.6	930 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	3.4 J	28.7	39.1	20.0 U	20.0 U	20.0 U	20.0 U	3.8 J
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	5.6 ^{ab}	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	1.6 J	4.0 U	0.76 J	0.67 J	4.0 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	11000000	NA	10.7	10.0 U	10.0 U	3.4 J	10.0 U	10.0 U	12.8 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	--	--	--	--	--	--	--	--
Semi-Volatile Organic Compounds (ug/L)															
2,2-Diisobutyl- chloropropane) (bis(2- Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	730	2100	5	NLV	NLV	170000	1200000	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	--	--	--	--	--	--	--	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	--	--	--	--	--	--	--	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	--	--	--	--	--	--	--	--
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	--	--	--	--	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	--	--	--	--	--	--	--	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4,6-Dinitro-2- methylphenol	20	20	NA	NLV	NLV	9500	200000	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	--	--	--	--	--	--	--	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	--	--	--	--	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	--	--	--	--	--	--	--	--
Acenaphthylene	52	150	ID	3900	3900	3900	3930	--	--	--	--	--	--	--	--
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	--	--	--	--	--	--	--	--
Anthracene	43	43	ID	43	43	43	43.4	--	--	--	--	--	--	--	--
Atrazine	NA	NA	7.3	NLV	NLV	5400	70000	--	--	--	--	--	--	--	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	--	--	--	--	--	--	--	--
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	--	--	--	--	--	--	--	--
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
bis(2- Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	--	--	--	--	--	--	--	--
bis(2- Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	--	--	--	--	--	--	--	--
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	--	--	--	--	--	--	--	--
Caprolactam	5800	17000	NA	NLV	NLV	390000000	525000000	--	--	--	--	--	--	--	--
Carbazole	85	350	10	NLV	NLV	7400	7480	--	--	--	--	--	--	--	--
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	--	--	--	--	--	--	--	--
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	--	--	--	--	--	--	--	--
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	--	--	--	--	--	--	--	--
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	--	--	--	--	--	--	--	--
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	--	--	--	--	--	--	--	--
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	--	--	--	--	--	--	--	--
Fluoranthene	210	210	1.6	210	210	210	206	--	--	--	--	--	--	--	--
Fluorene	880	2000	12	2000	2000	2000	1980	--	--	--	--	--	--	--	--
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	--	--	--	--	--	--	--	--
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	--	--	--	--	--	--	--	--
Hexachlorocyclopentadie ne	50	50	ID	130	420	1600	1800	--	--	--	--	--	--	--	--
Hexachloroethane	7.3	21	6.7	27000	1900	50000	50000	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	--	--	--	--	--	--	--	--
Isoophorone	770	13000	NA	NLV	NLV	990000	12000000	--	--	--	--	--	--	--	--
Naphthalene	520	1500	11	31000	31000	31000	31000	--	--	--	--	--	--	--	--
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	--	--	--	--	--	--	--	--
N-Nitrosodi-n- propylamine	5	5	NA	NLV	NLV	360	9890000	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	--	--	--	--	--	--	--	--
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	--	--	--	--	--	--	--	--
Phenanthrene	52	150	2	1000	1000	1000	1000	--	--	--	--	--	--	--	--
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	--	--	--	--	--	--	--	--
Pyrene	140	140	ID	140	140	140	135	--	--	--	--	--	--	--	--

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater/ Volatilization to Indoor Air Inhalation	Non-Residential Groundwater/ Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-094M GW-17358-091710-JY-056 9/12/2010	CRA-105M GW-17358-091610-JY-042 9/16/2010	CRA-109M GW-17358-091610-JY-044 9/16/2010	CRA-110M GW-17358-091710-JY-055 9/17/2010	CRA-133M GW-17358-091410-DR-022 9/14/2010	CRA-137M GW-17358-091410-DR-014 9/14/2010	CRA-140M GW-17358-091410-DR-017 9/14/2010	CRA-141M GW-17358-091410-DR-016 9/14/2010
	a	b	c	d	e	f	g								
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.2	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5960000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	62 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,2-Dibromo-3- chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	12 UJ	1.0 UJ	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	25 U	25 U	25 U	310 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U	50 U	50 U	620 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	50 U	50 U	50 U	620 U	50 U	50 U
Acetone	730	2100	1700	100000000	100000000	31000000	1000000000	25 U	25 U	25 U	25 U	25 U	20 J	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	170 ^{ab}	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	12 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 UJ	1.0 U	1.0 U	1.0 UJ	1.0 U	12 U	1.0 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	62 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	7.7	0.96 J	0.57 J	9.8	1.0 U	210 ^{ab}	1.0 U	0.27 J
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	12 UJ	1.0 UJ	1.0 UJ
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	62 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 UJ	10 UJ	10 UJ	10 UJ	10 U	120 U	10 U	10 U
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	2.5 J	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	62 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.1	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.4	1.0 U	1.0 U	12 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	1.0 U	0.47 J	1.0 U	20	1.0 U	1.0 U
trans-1,3- Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	1.0 U	1.1	1.0 U	12 U	2.4	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	3.0 ^{ab}	9.4 ^{ab}	9.4 ^{ab}	1.0 U	1.0 U	430 ^{abc}	1.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	25 U	2.0 U	2.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	10 U	10 U	10 U	10 U	10 U	10 U	16 ^c	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated CSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-209M GW-17358-091610-JY-037 9/16/2010	CRA-236M GW-17358-091610-JY-043 9/16/2010	CRA-302M GW-17358-091710-JY-049 9/17/2010	CRA-307M GW-17358-091610-JY-039 9/16/2010	CRA-307M GW-17358-091610-JY-040 9/16/2010 Duplicate	CRA-311M GW-17358-091710-JY-057 9/17/2010	CRA-314M GW-17358-091710-JY-054 9/17/2010	CRA-316M GW-17358-091610-JY-038 9/16/2010
Inorganics (ug/L)	a	b	c	d	e	f	g								
Aluminum	50	50	NA	NLV	NLV	6400000	NA	24.3 J	20.3 J	45.9 J	23.3 J	50.0 U		104 ^{ab}	24.8 J
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U		2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	8.5	24.1 ^{ac}	5.0 U	5.0 U	5.0 U		24.5 ^{ac}	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	331	251	243	75.7 J	77.7 J	81.6 J	304	33.4 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.19 J	0.50 U	0.50 U	0.50 U	0.37 J	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	2.9 J	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	2.0 J	3.2 J	7.0 U	7.0 U	7.0 U	7.0 U	2.1 J	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.0 U	2.0 U	3.5	2.0 U	2.0 U	4.1	0.36 J	2.0 U
Iron	300	300	NA	NLV	NLV	58000000	NA	4340 ^{ab}	9280 ^{ab}	100 U	100 U	100 U	173	10600 ^{ab}	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	910000	NA	702 ^{ab}	98.6 ^{ab}	1080 ^{ab}	3.6 J	15.0 U	1590 ^{ab}	247 ^{ab}	237 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	16.4 J	7.4 J	14.2 J	15.5 J	9.7 J	8.8 J	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	2.0 U	2.4	2.0 U	2.0 U	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1.1 J	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	11000000	NA	10.0 U	2200 ^c	10.6	10.0 U	10.0 U	8.7 J	9.4 J	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	--	--	--	--	--	--	--	--
Semi-Volatile Organic Compounds (ug/L)															
2,2-Diisopropyl (bis(2- chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	2100	2100	NA	NLV	NLV	170000	1200000	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	--	--	--	--	--	--	--	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	--	--	--	--	--	--	--	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	--	--	--	--	--	--	--	--
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	--	--	--	--	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	--	--	--	--	--	--	--	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4,6-Dinitro-2- methylphenol	20	20	NA	NLV	NLV	9500	200000	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	--	--	--	--	--	--	--	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	--	--	--	--	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	--	--	--	--	--	--	--	--
Acenaphthylene	52	150	ID	3900	3900	3900	3930	--	--	--	--	--	--	--	--
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	--	--	--	--	--	--	--	--
Anthracene	43	43	ID	43	43	43	43.4	--	--	--	--	--	--	--	--
Atrazine	3	3	7.3	NLV	NLV	5400	70000	--	--	--	--	--	--	--	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	--	--	--	--	--	--	--	--
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	--	--	--	--	--	--	--	--
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	--	--	--	--	--	--	--	--
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
bis(2- Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	--	--	--	--	--	--	--	--
bis(2- Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	--	--	--	--	--	--	--	--
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	--	--	--	--	--	--	--	--
Caprolactam	5800	17000	NA	NLV	NLV	390000000	525000000	--	--	--	--	--	--	--	--
Carbazole	85	350	10	NLV	NLV	7400	7480	--	--	--	--	--	--	--	--
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	--	--	--	--	--	--	--	--
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	--	--	--	--	--	--	--	--
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	--	--	--	--	--	--	--	--
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	--	--	--	--	--	--	--	--
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	--	--	--	--	--	--	--	--
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	--	--	--	--	--	--	--	--
Fluoranthene	210	210	1.6	210	210	210	206	--	--	--	--	--	--	--	--
Fluorene	880	2000	12	2000	2000	2000	1980	--	--	--	--	--	--	--	--
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	--	--	--	--	--	--	--	--
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	--	--	--	--	--	--	--	--
Hexachlorocyclopentadie ne	50	50	ID	130	420	1600	1800	--	--	--	--	--	--	--	--
Hexachloroethane	7.3	21	6.7	27000	1900	50000	50000	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	--	--	--	--	--	--	--	--
Isoophorone	770	13000	2	NLV	NLV	990000	12000000	--	--	--	--	--	--	--	--
Naphthalene	520	1500	11	31000	31000	31000	31000	--	--	--	--	--	--	--	--
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	--	--	--	--	--	--	--	--
N-Nitrosodi-n- propylamine	5	5	NA	NLV	NLV	360	9890000	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	--	--	--	--	--	--	--	--
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	--	--	--	--	--	--	--	--
Phenanthrene	52	150	2	1000	1000	1000	1000	--	--	--	--	--	--	--	--
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	--	--	--	--	--	--	--	--
Pyrene	140	140	ID	140	140	140	135	--	--	--	--	--	--	--	--

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater/ Volatilization to Indoor Air Inhalation	Non-Residential Groundwater/ Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-209M GW-17358-091610-JY-037 9/16/2010	CRA-236M GW-17358-091610-JY-043 9/16/2010	CRA-302M GW-17358-091710-JY-049 9/17/2010	CRA-307M GW-17358-091610-JY-039 9/16/2010	CRA-307M GW-17358-091610-JY-040 9/16/2010 Duplicate	CRA-311M GW-17358-091710-JY-057 9/17/2010	CRA-314M GW-17358-091710-JY-054 9/17/2010	CRA-316M GW-17358-091610-JY-038 9/16/2010
a	b	c	d	e	f	g									
Volatile Organic Compounds (ug/L)	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,1,1-Trichloroethane								1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5960000	1.0 U	0.40 J	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	1.1 J	1.0 U	1.0 U	0.31 J	2.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	29 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.4	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,2-Dibromo-3- chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 UJ	1.0 UJ	5.7 UJ	1.0 UJ	1.0 UJ	1.0 UJ	2.0 UJ	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 UJ	1.0 UJ	5.7 U	1.0 UJ	1.0 UJ	1.0 U	2.0 U	1.0 UJ
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	140 U	25 U	25 U	25 U	50 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	290 U	50 U	50 U	50 U	100 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	1.2 J	290 U	50 U	50 U	50 U	100 U	50 U
Acetone	730	2100	1700	100000000	100000000	31000000	100000000	25 U	25 U	140 U	25 U	25 U	25 U	50 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	0.57 J	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	31000000	1.0 UJ	1.0 UJ	5.7 UJ	1.0 UJ	1.0 UJ	1.0 UJ	2.0 UJ	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 U	5.7 UJ	1.0 U	1.0 U	1.0 UJ	2.0 UJ	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	29 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	1.2	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.0 U	3.5 J	1.0 U	1.0 U	0.81 J	0.68 J	1.5
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 UJ	1.0 UJ	5.7 UJ	1.0 UJ	1.0 UJ	1.0 U	2.0 U	1.0 UJ
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	0.21 J	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	29 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 UJ	10 UJ	57 UJ	10 UJ	10 UJ	10 UJ	20 UJ	10 UJ
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 UJ	1.0 UJ	5.7 U	1.0 UJ	1.0 UJ	1.0 U	2.0 U	1.0 UJ
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	5.0 U	5.0 U	29 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	29 U	5.0 U	5.0 U	5.0 U	10 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	1.7 J	1.0 U
trans-1,3- Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	5.7 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	11 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated CSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater/ Volatilization to Indoor Air Inhalation	Residential Groundwater/ Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-321M GW-17358-091410-DR-024 9/14/2010	CRA-322M GW-17358-091410-DR-023 9/14/2010	CRA-325M GW-17358-091410-DR-020 9/14/2010	CRA-325M GW-17358-091410-DR-021 9/14/2010 Duplicate	CRA-326M GW-17358-091410-DR-018 9/14/2010	CRA-326M GW-17358-091410-DR-019 9/14/2010 Duplicate	CRA-327M GW-17358-091410-DR-025 9/14/2010	CRA-342M GW-17358-091410-DR-027 9/14/2010
a	b	c	d	e	f	g									
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	6400000	NA	25.4 J	46.4 J	82.3 ^h	71.8 ^h	50.0 U	50.0 U	1850 ^h	61.7 ^h
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	0.33 J	2.0 U	2.0 U	2.0 U	2.0 U	1.1 J	0.46 J
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	4.7 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	160	10.6 J	70.3 J	73.0 J	163	171	138	115
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.18 J	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	9.3	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	2.5 J	7.0 U	7.0 U	7.0 U	2.3 J	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.0 U	2.5 U	3.0 U	3.0 U	2.0 U	2.0 U	78.6 ^h	2.0 U
Iron	300	300	NA	NLV	NLV	58000000	NA	1360 ^h	211	783 ^h	723 ^h	14200 ^h	14600 ^h	6380 ^h	163
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	37.0 ^h	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	163 ^h	92.5 ^h	795 ^h	867 ^h	504 ^h	528 ^h	610 ^h	12.0 ^h
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	5.3 J	20.0 U	20.0 U	20.0 U	12.0 J	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	1.6 J	4.0 U	4.0 U	4.0 U	4.0 U	4.7 ^h	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	11000000	NA	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	111	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	0.20 U	0.20 U	--	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	0.20 U	0.20 U	--	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	0.20 U	0.20 U	--	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	0.20 U	0.20 U	--	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	0.20 U	0.20 U	--	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	0.20 U	0.20 U	--	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	0.20 U	0.20 U	--	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	--	--	--	--	ND	ND	--	--
Semi-Volatile Organic Compounds (ug/L)															
2,2-Oxybis(1-chloropropene) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	5.0 U	5.0 U	--	--
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	--	--	--	--	5.0 U	5.0 U	--	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	--	--	--	--	4.0 U	4.0 U	--	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	--	--	--	--	10 U	10 U	--	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	--	--	--	--	5.0 U	5.0 U	--	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	20 U	20 U	--	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	--	--	--	--	5.0 U	5.0 U	--	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	5.0 U	5.0 U	--	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	--	--	--	--	5.0 UJ	5.0 UJ	--	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	--	--	--	--	5.0 U	5.0 U	--	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	--	--	--	--	5.0 U	5.0 U	--	--
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	--	5.0 U	5.0 U	--	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	20 U	20 U	--	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	--	--	--	--	5.0 U	5.0 U	--	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	--	--	--	--	1.0 U	1.0 U	--	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	20 U	20 U	--	--
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	--	--	--	--	20 U	20 U	--	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	5.0 U	5.0 U	--	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	--	--	--	--	5.0 U	5.0 U	--	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	10 U	10 U	--	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	5.0 U	5.0 U	--	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	--	5.0 U	5.0 U	--	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	20 U	20 U	--	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	20 U	20 U	--	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	--	--	--	--	5.0 U	5.0 U	--	--
Acenaphthylene	52	150	ID	3900	3900	3900	3930	--	--	--	--	5.0 U	5.0 U	--	--
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	--	--	--	--	5.0 U	5.0 U	--	--
Anthracene	43	43	ID	43	43	43	43.4	--	--	--	--	5.0 U	5.0 U	--	--
Atrazine	3	3	7.3	NLV	NLV	5400	70000	--	--	--	--	3.0 U	3.0 U	--	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	10 U	10 U	--	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	--	--	--	--	1.0 U	1.0 U	--	--
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	--	--	--	--	1.0 U	1.0 U	--	--
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	--	--	--	--	1.0 U	1.0 U	--	--
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	--	--	--	--	1.0 U	1.0 U	--	--
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	--	--	--	--	1.0 U	1.0 U	--	--
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	10 UJ	10 UJ	--	--
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	5.0 U	5.0 U	--	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	--	--	--	--	1.0 U	1.0 U	--	--

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater/ Volatilization to Indoor Air Inhalation	Non-Residential Groundwater/ Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-321M GW-17358-091410-DR-024 9/14/2010	CRA-322M GW-17358-091410-DR-023 9/14/2010	CRA-325M GW-17358-091410-DR-020 9/14/2010	CRA-325M GW-17358-091410-DR-021 9/14/2010 Duplicate	CRA-326M GW-17358-091410-DR-018 9/14/2010	CRA-326M GW-17358-091410-DR-019 9/14/2010 Duplicate	CRA-327M GW-17358-091410-DR-025 9/14/2010	CRA-342M GW-17358-091410-DR-027 9/14/2010
	a	b	c	d	e	f	g								
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.0 U	0.28 J	0.28 J	0.26	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5960000	1.0 U	1.0 U	1.0 U	24	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	0.76 J	0.66 J	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	1.0 U	1.5	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3- chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.79	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	100000000	100000000	31000000	100000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.0 U	7.5	8.3	1.0 U	1.0 U	25	1.0 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	12	11	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	1.0 U
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U	0.36 J	0.36 J	5.0 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	4700000	4700000	610000	46800000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	0.97 J	1.0	1.0 U	1.0 U	2.6	1.0 U
trans-1,3- Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	0.33 J	0.31 J	3.2	3.2	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.57	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	10 U	10 U	10 U	6.5 J	10 U	10 U	6.5 J	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated CSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-343M GW-17358-091410-DR-026 9/14/2010	CRA-401M-D GW-17358-091010-DR-002 9/10/2010	CRA-402M-S GW-17358-091010-DR-001 9/10/2010	CRA-405M-S GW-17358-091710-JY-051 9/17/2010	CRA-452M-D GW-17358-091610-JY-041 9/16/2010	CRA-528M GW-17358-091710-JY-053 9/17/2010	CRA-600M GW-17358-091310-DR-006 9/13/2010	CRA-601M GW-17358-091310-DR-005 9/13/2010
Inorganics (ug/L)	a	b	c	d	e	f	g								
Aluminum	50	50	NA	NLV	NLV	6400000	NA	144 ^{ab}	172 ^{ab}	50.0 U	50.0 U	704 ^{ab}	49.7 J	50.0 U	31.5 J
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	0.43 J	2.0 U	2.0 U	2.0 U	2.0 U	0.30 J
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	5.3 U	5.0 U	13.4 ^{abc}	48.9 ^{abc}	13.5 ^{abc}	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	100 U	92.5 J	268	934	218	736	85.2 J	45.8 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	2.2 J	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	4.5 U	1.3 J	3.2	0.49 J	2.2 U	0.42 J	2.0 U	2.0 U
Iron	300	300	NA	NLV	NLV	58000000	NA	158	344 ^{ab}	100 U	8280 ^{ab}	4210 ^{ab}	22800 ^{ab}	1670 ^{ab}	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	910000	NA	13.4 J	333 ^{ab}	244 ^{ab}	222 ^{ab}	89.7 ^{ab}	272 ^{ab}	152 ^{ab}	110 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	4.3 J	20.0 U	30.0	4.2 J	20.0 U	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	2.0 J	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	11000000	NA	10.0 U	4.4 J	3.8 J	10.0 U	15.7 U	8.6 J	10.0 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	0.20 U	0.20 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	0.20 U	0.20 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	0.20 U	0.20 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	0.20 U	0.20 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	0.20 U	0.20 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	0.20 U	0.20 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	0.20 U	0.20 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	--	--	--	--	--	--	ND	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2-Dicybis(1- chloropropane) (bis(2- Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	5	NLV	NLV	170000	1200000	--	--	--	--	--	--	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	--	--	--	--	--	--	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	--	--	--	--	--	--	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	--	--	--	--	--	--	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	--	--	--	--	--	--	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	--	--	--	--	--	--	5.0 UJ	5.0 UJ
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	--	--	--	--	--	--	5.0 U	5.0 U
2-Methylnaphthalene	260	730	19	25000	25000	25000	24600	--	--	--	--	--	--	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	--	--	--	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	--	--	--	--	--	--	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	--	--	--	--	--	--	1.0 U	1.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	20 U	20 U
4,6-Dinitro-2- methylphenol	20	20	NA	NLV	NLV	9500	200000	--	--	--	--	--	--	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	--	--	--	--	--	--	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	--	--	--	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	--	--	--	--	--	--	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	--	--	--	--	--	--	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	--	--	--	--	--	--	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	--	--	--	--	--	--	5.0 U	5.0 U
Atrazine	NA	NA	7.3	NLV	NLV	54000	300000	--	--	--	--	--	--	3.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	--	--	--	--	--	--	1.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	--	--	--	--	--	--	1.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	--	--	--	--	--	--	1.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	--	--	--	--	--	--	1.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	--	--	--	--	--	--	1.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	10 UJ	10 UJ
bis(2- Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	--	--	--	--	--	--	1.0 U	1.0 U
bis(2- Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	--	--	--	--	--	--	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	--	--	--	--	--	--	5.0 U	5.0 U
Caprolactam	5800	17000	NA	NLV	NLV	390000000	525000000	--	--	--	--	--	--	10 UJ	10 UJ
Carbazole	85	350	10	NLV	NLV	7400	7480	--	--	--	--	--	--	10 U	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	--	--	--	--	--	--	1.0 U	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	--	--	--	--	--	--	2.0 U	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	--	--	--	--	--	--	4.0 U	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	--	--	--	--	--	--	5.0 U	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	--	--	--	--	--	--	5.0 U	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	--	--	--	--	--	--	5.0 U	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	--	--	--	--	--	--	5.0 U	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	--	--	--	--	--	--	1.0 U	1.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	--	--	--	--	--	--	5.0 U	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	--	--	--	--	--	--	0.20 U	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	--	--	--	--	--	--	1.0 U	1.0 U
Hexachlorocyclopentadie ne	50	50	ID	130	420	1600	1800	--	--	--	--	--	--	5.0 U	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	--	--	--	--	--	--	5.0 U	5.0 U
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	--	--	--	--	--	--	2.0 U	2.0 U
Isoophorone	770	13000	--	NLV	NLV	1900000	12000000	--	--	--	--	--	--	5.0 U	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	--	--	--	--	--	--	5.0 U	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	--	--	--	--	--	--	3.0 U	3.0 U
N-Nitrosodi-n- propylamine	5	5	NA	NLV	NLV	360	9890000	--	--	--	--	--	--	5.0 U	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	--	--	--	--	--	--	5.0 U	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	--	--	--	--	--	--	5.0 U	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	--	--	--	--	--	--	2.0 U	2.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	--	--	--	--	--	--	5.0 U	5.0 U
Pyrene	140	140	ID	140	140	140	135	--	--	--	--	--	--	5.0 U	5.0 U

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater/ Volatilization to Indoor Air Inhalation	Residential Groundwater/ Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-343M GW-17358-091410-DR-026 9/14/2010	CRA-401M-D GW-17358-091010-DR-002 9/10/2010	CRA-402M-S GW-17358-091010-DR-001 9/10/2010	CRA-405M-S GW-17358-091710-JY-051 9/7/2010	CRA-452M-D GW-17358-091610-JY-041 9/16/2010	CRA-528M GW-17358-091710-JY-053 9/17/2010	CRA-600M GW-17358-091310-DR-006 9/13/2010	CRA-601M GW-17358-091310-DR-005 9/13/2010
	a	b	c	d	e	f	g								
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5960000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3- chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 UJ	1.0 U	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	100000000	100000000	31000000	100000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 UJ	1.0 U	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	1.0 U
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.5	1.0 U	1.0 U	0.28 J	0.74 J	1.0 U	1.0 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 U
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	5.0 U	5.0 UJ	5.0 UJ	5.0 U	5.0 U	1.3 J	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	0.21 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3- Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	0.56 J	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluoro-trichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated CSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
ID Not analyzed
-- Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-602M GW-17358-091310-DR-007 9/13/2010	CRA-603M GW-17358-091410-DR-011 9/13/2010	CRA-604M GW-17358-091410-DR-028 9/14/2010	CRA-605M GW-17358-091410-DR-012 9/14/2010	CRA-607M GW-17358-091310-DR-008 9/13/2010	CRA-608M GW-17358-091310-DR-009 9/13/2010	CRA-608M GW-17358-091310-DR-010 9/13/2010 Duplicate
Inorganics (ug/L)	a	b	c	d	e	f	g							
Aluminum	50	50	NA	NLV	NLV	6400000	NA	32.0 J	577 ^{ab}	--	50.0 U	50.0 U	50.0 U	50.0 U
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	1.7 J	--	2.0 U	0.42 J	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	10.5 ^{bc}	--	5.0 U	5.0 U	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	27.1 J	102	--	74.8 J	138	23.9 J	24.8 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	--	0.50 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	--	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.0 U	1.3 J	--	2.0 U	1.3 J	0.51 J	0.54 J
Iron	300	300	NA	NLV	NLV	58000000	NA	100 U	136 / 384 ^{ab}	--	1500 ^{ab}	100 U	100 U	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	--	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	15.0 U	9.8 J	--	542 ^{ab}	84.4 ^{ab}	131 ^{ab}	112 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	--	20.0 U	20.0 U	20.0 U	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	--	2.0 U	3.6	1.3 J	1.3 J
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	22.5 ^{ac}	--	4.0 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	12.2 U	6.4 J	--	10.0 U	3.6 J	10.0 U	10.0 U
PCBs (ug/L)														
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	--	ND	ND	ND	ND
Semi-Volatile Organic Compounds (ug/L)														
2,2-Dicybis(1- chloropropane) (bis(2- Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	2100	2100	5	NLV	NLV	170000	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	--	4.0 U	4.0 U	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	--	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 UJ	5.0 UJ	--	5.0 UJ	5.0 UJ	5.0 UJ	5.0 UJ
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	20 U
4,6-Dinitro-2- methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	--	20 U	20 U	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	0.40 J	--	5.0 U	5.0 U	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 UJ	10 UJ	--	10 UJ	10 UJ	10 UJ	10 UJ
bis(2- Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
bis(2- Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Caprolactam	5800	17000	NA	NLV	NLV	390000000	525000000	10 UJ	10 UJ	--	10 UJ	10 UJ	10 UJ	10 UJ
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	10 U	--	10 U	10 U	10 U	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	2.0 U	--	2.0 U	2.0 U	2.0 U	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	4.0 U	--	4.0 U	4.0 U	4.0 U	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorocyclopentadie ne	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Hexachloroethane	7.3	21	6.7	27000	1900	50000	50000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	2.0 U	2.0 U	--	2.0 U	2.0 U	2.0 U	2.0 U
Isoophorene	770	3100	NA	NLV	NLV	990000	12000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	3.0 U	3.0 U	--	3.0 U	3.0 U	3.0 U	3.0 U
N-Nitrosodi-n- propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene	52	150												

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-602M GW-17358-091310-DR-007 9/13/2010	CRA-603M GW-17358-091310-DR-011 9/13/2010	CRA-604M GW-17358-091410-DR-028 9/14/2010	CRA-605M GW-17358-091410-DR-012 9/14/2010	CRA-607M GW-17358-091310-DR-008 9/13/2010	CRA-608M GW-17358-091310-DR-009 9/13/2010	CRA-608M GW-17358-091310-DR-010 9/13/2010 Duplicate
	a	b	c	d	e	f	g							
Volatile Organic Compounds (ug/L)														
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5960000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3- chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	1.5 J	1.7 J	25 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	1500000	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	25 U		13 J	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	0.42 J	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	0.21 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3- Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluoro-trichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
General Chemistry (ug/L)														
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	10 U	10 U	--	10 U	10 U	10 U	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated CSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater-on- Volatilization to Indoor Air Inhalation	Residential Groundwater-on- Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-609M GW-17358-091410-DR-013 9/14/2010	CRA-610M GW-17358-091710-JY-036 9/17/2010	CRA-611M GW-17358-091610-JY-029 9/16/2010	CRA-612M WG-17358-032708-DR-042 3/27/2008 Duplicate	CRA-612M GW-17358-091610-JY-030 9/16/2010	CRA-613M GW-17358-091610-JY-031 9/16/2010	CRA-613M GW-17358-091610-JY-032 9/16/2010 Duplicate	CRA-614M GW-17358-091610-JY-035 9/16/2010
Inorganics (ug/L)	a	b	c	d	e	f	g								
Aluminum	50	50	NA	NLV	NLV	64000000	NA	50.0 U	529 ^{ab}	75.1 ^{ab}	128 ^{ab}	1720 ^{ab}	56.6 ^{ab}	49.8 J	62.6 ^{ab}
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	0.59 J	0.41 J	2.0 U	0.83 J	0.63 J	0.60 J	0.62 J
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	76.0 J	10.7 J	15.2 J	5.9 J	10.6 J	100 U	100 U	21.0 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium VI	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	3.0 J	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	7.0 U	1.7 J	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.0 U	4.4	2.0 U	2.9	7.7	2.0 U	2.0 U	2.1 U
Iron	300	300	NA	NLV	NLV	58000000	NA	100 U	521 ^{ab}	261	169	2230 ^{ab}	100 U	100 U	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	48.5	13.1 J	68.6 ^{ab}	5.6 J	66.6 ^{ab}	15.0 U	15.0 U	7.4 J
Mercury	2	2	0.0013	NLV	NLV	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	20.0 U	20.0 U	3.4 J	20.0 U	20.0 U	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	5	2.4	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	2.2 J	4.0 U	4.0 U	6.6 ^e	1.3 J	1.4 J	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.0 U	4.7 J	10.0 U	10.0 U	27.3 U	10.0 U	10.0 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1- chloropropane) (bis(2- Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	120000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	NA	20 U	20 U	20 U	20 U	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	ID	ID	ID	6700	6740	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22500000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylnaphthalene	2500	7500	19	25000	25000	5000	25000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2550000	ID	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4,6-Dinitro-2- methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acenaphthylene	52	150	ID	2900	2900	5000	5000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetophenene	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Atrazine	3	7.3	7.3	NLV	NLV	5400	70000	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	5	1.62	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2- Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
bis(2- Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	5.0 U	5.0 U	1.2 J	5.0 U	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbazole	85	350	ID	NLV	NLV	7400	7400	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	0.67 J	5.0 U
Di-n-octyl phthalate															
(DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Fluoranthene	210	210	1.6	2000	2000	200	206	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorocyclopentadie ne	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Hexachloroethane	7.														

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater/ Volatilization to Indoor Air Inhalation	Non-Residential Groundwater/ Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-609M GW-17358-091410-DR-013 9/14/2010	CRA-610M GW-17358-091710-JY-036 9/17/2010	CRA-611M GW-17358-091610-JY-029 9/16/2010	CRA-612M WG-17358-032708-DR-042 3/27/2008 Duplicate	CRA-612M GW-17358-091610-JY-030 9/16/2010	CRA-613M GW-17358-091610-JY-031 9/16/2010	CRA-613M GW-17358-091610-JY-032 9/16/2010 Duplicate	CRA-614M GW-17358-091610-JY-035 9/16/2010
	a	b	c	d	e	f	g								
Volatile Organic Compounds (ug/L)	200	200	89	660000	1300000	1300000	1330000	1.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane								1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5960000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3- chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,2-Dibromoethane								1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	100000000	100000000	31000000	100000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 U	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ
Methyl tert butyl ether (MTBE)	40	40	7100	4700000	4700000	610000	46800000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3- Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluoro-trichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(l) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated CSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater/ Indoor Air Inhalation	Non-Residential Groundwater/ Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-615M GW-17358-091610-JY-034 9/16/2010	CRA-616M GW-17358-091610-JY-033 9/16/2010	CRA-623M GW-17358-091710-JY-052 9/17/2010
Inorganics (ug/L)	a	b	c	d	e	f	g			
Aluminum	50	50	NA	NLV	NLV	6400000	NA	44.4 J	27.8 J	19.2 J
Antimony	6	6	130	NLV	NLV	68000	NA	1.3 J	0.62 J	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	11.8 ^{abc}
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	28.2 J	68.9 J	184
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.7 U	2.0 U	0.58 J
Iron	300	300	NA	NLV	NLV	58000000	NA	100 U	260	2060 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	79.4 ^{ab}	703 ^{ab}	488 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	11.8 J
Selenium	50	50	5	NLV	NLV	970000	NA	1.6 J	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	26.8 U	10.0 U	3.4 J
PCBs (ug/L)										
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.20 U	0.20 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	ND
Semi-Volatile Organic Compounds (ug/L)										
2,2'-Oxybis(1- chloropropane) (bis(2- Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	1.0 U	1.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U
4,6-Dinitro-2- methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3900	5.0 U	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	5.0 U
Atrazine	3	3	3	NLV	NLV	5400	70000	3.0 U	3.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U
bis(2- Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	1.0 U
bis(2- Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	5.0 U
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	10 U	4.4 J	10 U
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	10 U	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	1.0 U	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	2.0 U	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	4.0 U	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	1.0 U	1.0 U	1.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	5.0 U	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	0.20 U	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	1.0 U	1.0 U
Hexachlorocyclopentadie ne	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	5.0 U
Hexachloroethane	7.3	21	6.7	27000	1900	50000	50000	5.0 U	5.0 U	5.0 U
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	2.0 U	2.0 U	2.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	3.0 U	3.0 U	3.0 U
N-Nitrosodi-n- propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	5.0 U	5.0 U	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	2.0 U	2.0 U	2.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	5.0 U
Pyrene	140	140	ID	140	140	140	135	5.0 U	5.0 U	5.0 U

TABLE 4.1
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - SEPTEMBER 2010
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater/ Indoor Air Inhalation	Non-Residential Groundwater/ Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-615M GW-17358-091610-JY-034 9/16/2010	CRA-616M GW-17358-091610-JY-033 9/16/2010	CRA-623M GW-17358-091710-JY-052 9/17/2010
	a	b	c	d	e	f	g			
Volatle Organic Compounds (ug/L)										
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5960000	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3- chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 UJ	1.0 UJ	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 UJ	1.0 UJ	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone)								50 U	50 U	50 U
1800		5200	ID	20000000	20000000	13000000	20000000			
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	4700000	31000000	1400000	31000000	1.0 UJ	1.0 UJ	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 U	1.0 UJ
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	4400000	5740000	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 UJ	1.0 UJ	1.0 U
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 UJ	10 UJ	10 UJ
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 UJ	1.0 UJ	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	5.0 U	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	220000	220000	6300000	1.0 U	1.0 U	1.0 U
trans-1,3- Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	2.0 U
General Chemistry (ug/L)										
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	10 U	10 U	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--

Notes:
ug/L micrograms per Liter
(l) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated GSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed

Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-050M GW-17358-081804-DCR-713 8/18/2004	CRA-050M WG-17358-012507-DR-070 1/23/2007	CRA-050M GW-17358-032808-EV-059 3/28/2008	CRA-050M GW-17358-091010-DR-003 9/10/2010	CRA-052M GW-17358-081804-DCR-714 8/18/2004	CRA-052M WG-17358-012507-DR-073 1/23/2007
	a	b	c	d	e	f	g						
Inorganics (ug/L)													
Aluminum	50	50	NA	NLV	NLV	64000000	NA	50 U	50.0 U	50.0 U	50.0 U	50 U	50.0 U
Antimony	6	6	130	NLV	NLV	68000	NA	0.15 J	2.0 U	2.0 U	2.0 U	0.13 J	0.15 J
Arsenic	10	10	10	NLV	NLV	4300	NA	10 U	5.0 U	5.0 U	5.0 U	18 ^{abc}	15.0 ^{abc}
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	100	19.9 J	101	34.5 J	360	318
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1 U	1.0 U	1.0 U	1.0 U	1 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.08 J	0.50 U	0.50 U	0.50 U	0.5 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	10 U	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5 U	5.0 U	5.0 U	5.0 U	5 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	10 U	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7 U	7.0 U	7.0 U	7.0 U	7 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2 U	2.0 U	0.64 J	1.2 J	2 U	2.0 U
Iron	300	300	NA	NLV	NLV	58000000	NA	1700 ^{ab}	100 U	100 U	100 U	7000 ^{ab}	3140 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA		3 U	3.0 U	3.0 U	3 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	15 U	15.0 U	15.0 U	15.0 U	160 ^{ab}	109 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.2 U	0.20 U	0.20 U	0.20 U	0.2 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	25 U	20.0 U	20.0 U	20.0 U	25 U	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	2 U	2.3	1.5 J	1.5 J	2 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.5 U	0.20 U	0.20 U	0.20 U	0.5 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1 U	1.0 U	1.0 U	1.0 U	0.15 J	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	7 U	4.0 U	4.0 U	4.0 U	7 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10 U	10.0 U	10.0 U	10.0 U	18 U	11.7 U
PCBs (ug/L)													
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.20 U	0.10 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.20 U	0.10 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.40 U	0.10 U	0.10 U	--	0.40 U	0.10 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.20 U	0.10 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.20 U	0.10 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.20 U	0.10 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.20 U	0.10 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	ND	--	ND	ND
Semi-Volatile Organic Compounds (ug/L)													
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	4.0 U	--	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	10 U	--	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	4.0 U	4.0 U	1.0 U	--	4.0 U	4.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	20 U	--	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	10 U	10 U	--	20 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	5.0 U	3.0 U	3.0 U	--	5.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	--	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	--	10 U	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	2.3 J	--	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U

TABLE 4.2

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

Sample Location	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-050M	CRA-050M	CRA-050M	CRA-050M	CRA-052M	CRA-052M
Sample Identification	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	GW-17358-081804-DCR-713	WG-17358-012507-DR-070	GW-17358-032808-EV-059	GW-17358-091010-DR-003	GW-17358-081804-DCR-714	WG-17358-012507-DR-073
Sample Date			Interface	Indoor Air Inhalation	Indoor Air Inhalation			8/18/2004	1/25/2007	3/28/2008	9/10/2010	8/18/2004	1/25/2007
	a	b	c	d	e	f	g						
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	10 U	0.74 J	10 U	--	10 U	0.97 J
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	10 U	10 U	--	10 U	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	4.0 U	2.0 U	2.0 U	--	4.0 U	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	5.0 U	4.0 U	4.0 U	--	5.0 U	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U
Fluorene	880	2000	12	2000	1980	2000	1980	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	5.0 U	0.20 U	0.20 U	--	5.0 U	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Indeno[1,2,3-cd]pyrene	2	2	ID	NLV	NLV	2	0.022	4.0 U	2.0 U	2.0 U	--	4.0 U	2.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	4.0 U	3.0 U	3.0 U	--	4.0 U	3.0 U
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	20 U	5.0 U	5.0 U	--	20 U	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	5.0 U	2.0 U	2.0 U	--	5.0 U	2.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Pyrene	140	140	ID	140	140	140	135	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Volatile Organic Compounds (ug/L)													
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	11000	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	--	1.0 U	1.0 U	1.0 U	--	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	0.020 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	0.020 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	--	1.0 U	1.0 U	1.0 U	--	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	24000000	24000000	24000000	24000000	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	--	1500000	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	420000	870000	520000	1600000	50 U	50 UJ	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	2000000	2000000	13000000	20000000	50 U	50 UJ	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	100000000	100000000	3100000	100000000	25 U	25 U	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	175000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	674000	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ
Bromoform	80	80	ID	470000	310000	140000	310000	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	1450000	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	792000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	634000	0.14 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	350000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	260000	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ
Dibromomethane	80	230	NA	ID	ID	530000	1100000	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U	5.0 U	0.54 J	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 U	10 UJ	10 U	10 U	10 U	10 UJ
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	4700000	4700000	610000	4680000	5.0 U	5.0 U	5.0 U	5.0 UJ	1.2 J	0.76 J
Methylene chloride	5	5	1500	220000	1400000	220000	1700000	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 UJ	5.0 UJ
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	630000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ
Trichloroethene	5	5	200	15000	97000	22000	110000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	276000	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	3.0 U	2.0 UJ	2.0 U	2.0 U	3.0 U	2.0 U
General Chemistry (ug/L)													
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	--	10 U	10 U	6.5 J ^f		--
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	7.7 ^f	--	--	--		--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated GSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-052M GW-17358-032108-DR-019 3/21/2008	CRA-052M GW-17358-032108-DR-020 3/21/2008 Duplicate	CRA-052M GW-17358-091010-DR-004 9/10/2010	CRA-060M WG-17358-012407-DR-059 1/24/2007	CRA-060M GW-17358-032608-DS-028 3/26/2008	CRA-060M GW-17358-032608-DS-029 3/26/2008 Duplicate	CRA-060M GW-17358-091410-DR-015 9/14/2010
a	b	c	d	e	f	g								
Inorganics (ug/L)														
Aluminum	50	50	NA	NLV	NLV	64000000	NA	148 ^{ab}	104 ^{ab}	66.8 ^{ab}	50.0 U	50.0 U	50.0 U	50.0 U
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	2.0 U	0.28 J	2.0 U	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	20.0 ^{abc}	20.8 ^{abc}	23.0 ^{abc}	5.0 U	5.0 U	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	312	334	359	106	99.5 J	97.5 J	96.9 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.36 J	0.32 J	0.32 J	0.33 J
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	0.46 J	0.54 J	2.0 U	5.7	3.4	3.3	3.9 U
Iron	300	300	NA	NLV	NLV	58000000	NA	4170 ^{ab}	4200 ^{ab}	4590 ^{ab}	53.2 U	100 U	100 U	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	118 ^{ab}	123 ^{ab}	123 ^{ab}	305 ^{ab}	468 ^{ab}	463 ^{ab}	487 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	11.2 J
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	2.0 U	2.9	2.0 U	2.0 U	1.4 J
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	0.23 J	0.22 J	0.22 J	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.0 U	10.0 U	8.6 J	37.8	23.5	22.3	14.6 U
PCBs (ug/L)														
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	--	ND	ND	ND	--
Semi-Volatile Organic Compounds (ug/L)														
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	--	4.0 U	4.0 U	4.0 U	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	--	10 U	10 U	10 U	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	--	20 U	20 U	20 U	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	10 U	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	3.0 U	--	3.0 U	3.0 U	3.0 U	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	10 U	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	10 U	--
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	--	7.6 ^{ab}	5.0 U	5.0 U	--
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--

TABLE 4.2

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

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-052M GW-17358-032108-DR-019 3/21/2008	CRA-052M GW-17358-032108-DR-020 3/21/2008 Duplicate	CRA-052M GW-17358-091010-DR-004 9/10/2010	CRA-060M WG-17358-012407-DR-059 1/24/2007	CRA-060M GW-17358-032608-DS-028 3/26/2008	CRA-060M GW-17358-032608-DS-029 3/26/2008 Duplicate	CRA-060M GW-17358-091410-DR-015 9/14/2010
	a	b	c	d	e	f	g							
Caprolactam	5800	17000	NA	NLV	NLV	39000000	525000000	10 UJ	10 UJ	--	10 U	10 U	10 U	--
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	10 U	--	10 U	10 U	10 U	--
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	2.0 U	--	2.0 U	2.0 U	2.0 U	--
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	4.0 U	--	4.0 U	4.0 U	4.0 U	--
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Fluoranthene	210	210	1.6	210	210	210	206	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U	--
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Indeno[1,2,3-cd]pyrene	2	2	ID	NLV	NLV	2	0.022	2.0 U	2.0 U	--	2.0 U	2.0 U	2.0 U	--
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	3.0 U	3.0 U	--	3.0 U	3.0 U	3.0 U	--
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Phenanthrene	52	150	2	1000	1000	1000	1000	2.0 U	2.0 U	--	2.0 U	2.0 U	2.0 U	--
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Pyrene	140	140	ID	140	140	140	135	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Volatile Organic Compounds (ug/L)														
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.2 U	0.26 J	0.28 J	3.3 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.2 UJ	1.0 U	1.0 U	3.3 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
1,1-Dichloroethene	7	7	130	200	11000	11000	2250000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	6.2 U	5.0 U	5.0 U	17 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	3.3 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	3.3 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	24000000	24000000	24000000	24000000	25 UJ	25 UJ	25 U	31 U	25 UJ	25 UJ	83 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	--	1500000	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	420000	870000	520000	1600000	50 UJ	50 UJ	50 U	62 U	50 UJ	50 UJ	170 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	2000000	2000000	13000000	20000000	50 UJ	50 UJ	50 U	62 U	50 UJ	50 UJ	170 U
Acetone	730	2100	1700	100000000	100000000	3100000	100000000	25 U	25 U	25 U	31 U	25 U	25 U	83 U
Benzene	5	5	200	5600	35000	11000	175000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.2 UJ	1.0 U	1.0 U	3.3 U
Bromoform	80	80	ID	470000	310000	140000	3100000	1.0 U	1.0 U	1.0 U	1.2 UJ	1.0 U	1.0 U	3.3 U
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 UJ	1.0 UJ	1.0 UJ	1.2 U	1.0 UJ	1.0 UJ	3.3 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	6.2 U	5.0 U	5.0 U	17 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 UJ	1.2 U	1.0 U	1.0 U	3.3 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	--	--	1.0 U	1.2 U	--	--	3.3 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U	0.22 J	0.24 J	0.23 J	3.3 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.0 U	1.0 U	4.1	3.6	3.5	3.1 J
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 UJ	1.2 UJ	1.0 U	1.0 U	3.3 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	1.0 U	1.2 UJ	1.0 U	1.0 U	3.3 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 UJ	1.0 UJ	1.0 U	1.2 UJ	1.0 UJ	1.0 UJ	3.3 UJ
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U	6.2 U	5.0 U	5.0 U	17 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	12 UJ	10 U	10 U	33 U
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	0.83 J	0.84 J	0.47 J	6.2 U	5.0 U	5.0 U	17 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	5.0 U	6.2 UJ	5.0 U	5.0 U	17 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	1.0 U	0.62 J	0.57 J	0.57 J	3.3 U
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 UJ	1.2 UJ	1.0 U	1.0 U	3.3 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	1.0 U				
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U	1.2 U	1.0 U	1.0 U	3.3 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	1.0 U	0.76 J	0.97 J	1.0	2.4 J ^{ab}
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	2.0 U	2.5 U	2.0 U	2.0 U	6.7 U
General Chemistry (ug/L)														
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	--	--	10 U	--	--	--	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated GSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-071M GW-17358-022403-JD-642 2/24/2003	CRA-071M WG-17358-011907-JJ-023 1/19/2007	CRA-071M GW-17358-032508-LJ-025 3/25/2008	CRA-071M GW-17358-091710-JY-048 9/17/2010	CRA-073M K-35-MW-206 3/17/1993	CRA-073M WG-17358-011907-EV-024 1/19/2007	CRA-073M GW-17358-032508-LJ-023 3/25/2008	CRA-073M GW-17358-091710-JY-047 9/17/2010
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	--	3.9 J	50.0 U	29.6 J	--	3.4 J	50.0 U	39.9 J
Antimony	6	6	130	NLV	NLV	68000	NA	--	2.0 U	2.0 U	2.0 U	--	2.0 U	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	--	10.5 ^{abc}	35.6 ^{abc}	7.3	--	5.0 U	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	--	296	409	237	--	228	159	318
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	--	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	--	0.50 U	0.50 U	0.50 U	--	0.27 J	0.18 J	0.35 J
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	--	7.0 U	7.0 U	7.0 U	--	1.3 J	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	--	2.4	1.8 J	5.6	--	2.8	1.3 J	1.4 J
Iron	300	300	NA	NLV	NLV	58000000	NA	--	3440 ^{ab}	12600 ^{ab}	1580 ^{ab}	--	100 U	100 U	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	--	3.0 U	3.0 U	3.0 U	--	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	--	474 ^{ab}	549 ^{ab}	313 ^{ab}	--	638 ^{ab}	487 ^{ab}	882 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	--	0.20 U	0.20 U	0.20 U	--	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	--	10.7 J	20.0 U	5.6 J	--	6.3 J	20.0 U	3.3 J
Selenium	50	50	5	NLV	NLV	970000	NA	--	2.0 U	2.0 U	2.0 U	--	1.8 J	1.3 J	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	--	0.20 UJ	0.20 U	0.20 U	--	0.20 UJ	0.20	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	--	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	--	4.0 U	4.0 U	4.0 U	--	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	--	11.4 U	10.0 U	2.9 J	--	11.0 U	10.0 U	3.9 J
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	1.0 U	--	--	0.10 U	0.10 U	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	1.0 U	--	--	0.10 U	0.10 U	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.40 U	0.10 U	1.0 U	--	--	0.10 U	0.10 U	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	1.0 U	--	--	0.10 U	0.10 U	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.31	1.0 U	--	--	0.10 U	0.10 U	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	1.0 U	--	--	0.10 U	0.10 U	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	1.0 U	--	--	0.10 U	0.10 U	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	0.31 ^c	ND	--	--	ND	ND	--
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	5.0 U	4.0 U	20 U	--	--	4.0 U	4.0 U	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	50 U	--	--	10 U	10 U	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	100 U	--	--	20 U	20 U	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	6.4 J	--	--	5.0 U	5.0 U	--
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	100 U	--	--	20 U	20 U	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	4.0 U	4.0 U	5.0 U	--	--	4.0 U	1.0 U	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	100 U	--	--	20 U	20 U	--
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	100 U	--	--	20 U	20 U	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	10 U	50 U	--	--	10 U	10 U	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	17 J #	--	--	5.0 U	5.0 U	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	100 U	--	--	20 U	20 U	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	100 U	--	--	20 U	20 U	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	0.97 J	1.3 J	30	--	--	5.0 U	5.0 U	--
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Anthracene	43	43	ID	43	43	43	43.4	2.4 J	2.1 J	25 U	--	--	5.0 U	5.0 U	--
Atrazine	3	3	7.3	NLV	NLV	5400	70000	5.0 U	3.0 U	15 U	--	--	3.0 U	3.0 U	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	50 U	--	--	10 U	10 U	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	4.0 U	0.47 J	23 ^{abfg}	--	--	1.0 U	1.0 U	--
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	4.0 U	1.0 U	8.8 ^{abfg}	--	--	1.0 U	1.0 U	--
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	4.0 U	1.0 U	18 ^{abfg}	--	--	1.0 U	1.0 U	--
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	5.0 U	1.0 U	4.6 J ^{abfg}	--	--	1.0 U	1.0 U	--
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	5.0 U	1.0 U	8.2 ^{abfg}	--	--	1.0 U	1.0 U	--
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	3.4 J	--	--	10 U	10 U	--
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	4.0 U	1.0 U	5.0 U	--	--	1.0 U	1.0 U	--
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	9.8 J ^{ab}	--	--	5.0 U	5.0 U	--
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	3.3 J	--	--	5.0 U	5.0 U	--

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-071M	CRA-071M	CRA-071M	CRA-071M	CRA-073M	CRA-073M	CRA-073M	CRA-073M
Sample Identification	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	GW-17358-022403-JD-642	WG-17358-011907-JJ-023	GW-17358-032508-LJ-025	GW-17358-091710-JY-048	K-35-MW-206	WG-17358-011907-EV-024	GW-17358-032508-LJ-023	GW-17358-091710-JY-047
Sample Date			Interface	Indoor Air Inhalation	Indoor Air Inhalation			2/24/2003	1/19/2007	3/25/2008	9/17/2010	3/17/1993	1/19/2007	3/25/2008	9/17/2010
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	10 U	10 U	50 U	--	--	10 U	10 U	--
Carbazole	85	350	10	NLV	NLV	7400	7480	2.1 J	10 U	47 J ^f	--	--	10 U	10 U	--
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	5.0 U	0.52 J	22 ^{ahg}	--	--	1.0 U	1.0 U	--
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	4.0 U	2.0 U	10 U	--	--	2.0 U	2.0 U	--
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	1.2 J	0.91 J	32 ^c	--	--	4.0 U	4.0 U	--
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Fluoranthene	210	210	1.6	210	210	210	206	8.7 ^c	7.8 ^c	130 ^f	--	--	1.0 U	1.0 U	--
Fluorene	880	2000	12	2000	2000	2000	1980	1.2 J	1.3 J	31 ^f	--	--	5.0 U	5.0 U	--
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	5.0 U	0.20 U	1.0 U	--	--	0.20 U	0.20 U	--
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	5.0 U	1.0 U	5.0 U	--	--	1.0 U	1.0 U	--
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	4.0 U	2.0 U	4.5 J ^{ahg}	--	--	2.0 U	2.0 U	--
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	18 J ^c	--	--	5.0 U	5.0 U	--
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	4.0 U	3.0 U	15 U	--	--	3.0 U	3.0 U	--
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	20 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Phenanthrene	52	150	2	1000	1000	1000	1000	22 ^c	15 ^c	180 ^{ahc}	--	--	2.0 U	2.0 U	--
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	25 U	--	--	5.0 U	5.0 U	--
Pyrene	140	140	ID	140	140	140	135	5.0	4.4 J	87	--	--	5.0 U	5.0 U	--
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.7 U	1.7 U	0.40 J
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	0.30 J	0.48 J	0.56 J
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	12 U	5.0 U	--	7.2 U	8.4 U	7.2 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	--	1.0 U	2.5 U	1.0 U	--	1.4 U	1.7 U	1.4 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	0.020 U	2.5 U	1.0 UJ	--	0.020 U	1.7 U	1.4 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	0.020 U	2.5 U	1.0 U	--	0.020 U	1.7 U	1.4 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	1 U	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	--	1.0 U	2.5 U	1.0 U	--	1.4 U	1.7 U	1.4 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	3.4 J	25 U	--	36 U	42 U	36 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	1 U	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	1.3 J	50 U	--	7.2 U	8.4 U	7.2 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	120 U	50 U	--	7.2 U	8.4 U	7.2 U
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	25 U	25 U	190 J	25 U	--	36 U	42 UJ	36 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 U	2.5 U	1.0 UJ	5 U	1.4 U	1.7 U	1.4 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 U	2.5 U	1.0 UJ	1 U	1.4 U	1.7 U	1.4 UJ
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	12 U	5.0 U	--	7.2 U	8.4 U	7.2 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	2.5 U	1.0 U	1 U	1.4 U	1.7 U	1.4 U
Chloroethane	430	1700	1100	5700000	5700000	4400									

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-074M K-35-MW-201 9/17/1992	CRA-074M K-35-MW-201DUP 9/17/1992 Duplicate	CRA-074M K-35-MW-201 2/5/1993	CRA-074M WG-17358-011907-DR-025 1/19/2007	CRA-074M GW-17358-032508-DS-022 3/25/2008	CRA-074M GW-17358-091710-JY-045 9/17/2010	CRA-074M GW-17358-091710-JY-046 9/17/2010 Duplicate	CRA-082M WG-17358-011907-JJ-026 1/19/2007
a	b	c	d	e	f	g									
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	--	--	--	13.8 J	50.0 U	50.0 U	50.0 U	3.0 J
Antimony	6	6	130	NLV	NLV	68000	NA	--	--	--	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	--	--	--	5.0 U	5.0 U	5.0 U	5.0 U	43.0 ^{abc}
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	--	--	--	181	199	292	286	367
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	--	--	--	0.087 J	0.50 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	--	--	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	--	--	--	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	--	--	--	3.2	2.0 U	2.0 U	0.56 J	1.7 J
Iron	300	300	NA	NLV	NLV	58000000	NA	--	--	--	3620 ^{ab}	3860 ^{ab}	4090 ^{ab}	3960 ^{ab}	12700 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	--	--	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	--	--	--	134 ^{ab}	141 ^{ab}	161 ^{ab}	158 ^{ab}	466 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	--	--	--	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	--	--	--	5.1 J	20.0 U	5.1 J	4.2 J	8.4 J
Selenium	50	50	5	NLV	NLV	970000	NA	--	--	--	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	--	--	--	0.20 UJ	0.20 U	0.20 U	0.20 U	0.20 UJ
Thallium	2	2	3.7	NLV	NLV	13000	NA	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	--	--	--	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	--	--	--	12.7 U	10.0 U	2.4 J	5.1 J	14.8
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	--	--	--	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	--	--	--	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	--	--	--	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	--	--	--	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	--	--	--	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	--	--	--	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	--	--	--	0.10 U	0.10 U	--	--	0.10 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	--	--	--	ND	ND	--	--	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	--	--	--	5.0 U	5.0 U	--	--	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	--	--	--	4.0 U	4.0 U	--	--	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	--	--	--	10 U	10 U	--	--	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	20 U	20 U	--	--	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	--	--	--	5.0 U	5.0 U	--	--	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	--	--	--	5.0 U	5.0 U	--	--	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	--	--	--	5.0 U	5.0 U	--	--	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	20 U	20 U	--	--	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	--	--	--	4.0 U	--	--	--	4.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	20 U	20 U	--	--	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	--	--	--	20 U	20 U	--	--	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	5.0 U	5.0 U	--	--	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	10 U	10 U	--	--	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	--	--	5.0 U	5.0 U	--	--	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	--	--	20 U	20 U	--	--	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	--	--	--	20 U	20 U	--	--	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5 U	5 U	--	5.0 U	5.0 U	--	--	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5 U	5 U	--	5.0 U	5.0 U	--	--	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5 U	5 U	--	5.0 U	5.0 U	--	--	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	--	--	--	3.0 U	3.0 U	--	--	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	--	--	--	10 U	10 U	--	--	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	5 U	5 U	--	1.0 U	1.0 U	--	--	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	5 U	5 U	--	1.0 U	1.0 U	--	--	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	5 U	5 U	--	1.0 U	1.0 U	--	--	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	5 U	5 U	--	1.0 U	1.0 U	--	--	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	5 U	5 U	--	1.0 U	1.0 U	--	--	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	--	--	--	10 U	10 U	--	--	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	--	--	--	5.0 U	5.0 U	--	--	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	--	--	--	1.0 U	1.0 U	--	--	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	--	--	--	5.0 U	1.2 J	--	--	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	--	--	--	5.0 U	5.0 U	--	--	5.0 U

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POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-074M K-35-MW-201 9/17/1992	CRA-074M K-35-MW-201DUP 9/17/1992	CRA-074M K-35-MW-201 2/5/1993	CRA-074M WG-17358-011907-DR-025 1/19/2007	CRA-074M GW-17358-032508-DS-022 3/25/2008	CRA-074M GW-17358-091710-JY-045 9/17/2010	CRA-074M GW-17358-091710-JY-046 9/17/2010	CRA-082M WG-17358-011907-JJ-026 1/19/2007
	a	b	c	d	e	f	g		Duplicate					Duplicate	
Caprolactam	5800	17000	NA	NLV	NLV	39000000	525000000	--	--	--	10 U	10 U	--	--	10 U
Carbazole	85	350	10	NLV	NLV	7400	7480	--	--	--	10 U	10 U	--	--	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	5 U	5 U	--	1.0 U	1.0 U	--	--	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	5 U	5 U	--	2.0 U	2.0 U	--	--	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	--	--	--	4.0 U	4.0 U	--	--	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	5 U	5 U	--	1.0 U	1.0 U	--	--	1.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	5 U	5 U	--	5.0 U	5.0 U	--	--	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	--	--	--	0.20 U	0.20 U	--	--	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	--	--	--	1.0 U	1.0 U	--	--	1.0 U
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	5 U	5 U	--	2.0 U	2.0 U	--	--	2.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5 U	5 U	--	5.0 U	5.0 U	--	--	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	--	--	--	3.0 U	3.0 U	--	--	3.0 U
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	5 U	5 U	--	2.0 U	2.0 U	--	--	2.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	--	--	--	5.0 U	5.0 U	--	--	5.0 U
Pyrene	140	140	ID	140	140	140	135	5 U	5 U	--	5.0 U	5.0 U	--	--	5.0 U
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	0.51 J
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	--	--	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	--	--	--	0.020 U	1.0 U	1.0 UJ	1.0 UJ	0.020 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	--	--	--	0.020 U	1.0 U	1.0 U	1.0 U	0.020 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	1 U	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	24000000	24000000	24000000	24000000	--	--	--	25 U	25 UJ	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	1500000	--	--	1 U	--	--	--	--	--
2-Hexanone	1000	2900	ID	420000	870000	5200000	16000000	--	--	--	50 U	50 UJ	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	--	--	--	50 U	50 UJ	50 U	50 U	50 U
Acetone	730	2100	1700	100000000	100000000	31000000	100000000	--	--	--	25 U	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	175000	1 U	1 U	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	--	--	2 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	1.0 U
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	--	--	1 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	--	--	--	0.32 J	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	--	--	1 U	1.0 U	--	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	--	--	--	1.0 U	0.33 J	0.59 J	0.66 J	1.0 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	1 U	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	--	--	1 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 UJ
Ethylbenzene	74	74	18	110000	170000	170000	169000	1 U	1 U	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	--	--	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	--	--	--	10 U	10 U	10 UJ	10 UJ	10 U
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	--	--	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	--	--	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	0.59 J
Toluene	790	790	270	530000	530000	530000	526000	1 U	1 U	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	--	--	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	--	--	1 U	2.5 ^{ab}		3.0 ^{ab}		1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	1 U	1 U	3 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	10 U	10 U	--
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated GSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.2

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

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-082M GW-17358-032508-DS-026 3/25/2008	CRA-082M GW-17358-091710-JY-050 9/17/2010	CRA-094M WG-17358-011807-DR-018 1/17/2007	CRA-094M GW-17358-032808-DR-055 3/28/2008	CRA-094M GW-17358-091710-JY-056 9/17/2010	CRA-105M WG-17358-011807-EV-012 1/17/2007	CRA-105M GW-17358-032808-DS-050 3/28/2008	CRA-105M GW-17358-091610-JY-042 9/16/2010
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	78.3 ^{ab}	22.3 J	15.3 J	50.0 U	283 ^{ab}	5.1 J	50.0 U	21.7 J
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.22 J	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	21.5 ^{abc}	27.6 ^{bc}	14.7 ^{abc}	15.3 ^{abc}	8.2	5.0 U	5.0 U	3.7 J
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	304	408	210	156	161	96.0 J	140	164
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.20 J	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	5.3	1.1 J	2.4	0.78 J	2.6	1.3 J	2.0 U	2.0 U
Iron	300	300	NA	NLV	NLV	58000000	NA	17000 ^{ab}	10100 ^{ab}	5700 ^{ab}	5590 ^{ab}	3490 ^{ab}	4860 ^{ab}	7520 ^{ab}	8440 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	730 ^{ab}	575 ^{ab}	266 ^{ab}	338 ^{ab}	393 ^{ab}	108 ^{ab}	136 ^{ab}	152 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	14.7 J	4.9 J	18.0 J	4.8 J	3.4 J	17.4 J	16.4 J	28.7
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	1.6 J	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.0 U	5.1 J	10.0 U	2.4 J	10.7	10.0 U	10.0 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	--	ND	ND	--	ND	ND	--
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	--	4.0 U	4.0 U	--	4.0 U	10 U	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	--	10 U	10 U	--	10 U	25 U	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	--	20 U	50 U	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	--	20 U	50 U	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	--	4.0 U	1.0 U	--	4.0 U	2.5 U	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	--	20 U	50 U	--
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	--	20 U	20 U	--	20 U	50 U	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	--	10 U	25 U	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	--	20 U	50 U	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	--	20 U	50 U	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	--	3.0 U	3.0 U	--	3.0 U	7.5 U	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	--	10 U	25 U	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	--	1.0 U	1.0 U	--	1.0 U	2.5 U	--
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	--	1.0 U	1.0 U	--	1.0 U	2.5 U	--
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	--	1.0 U	1.0 U	--	1.0 U	2.5 U	--
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	--	1.0 U	1.0 U	--	1.0 U	2.5 U	--
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	--	1.0 U	1.0 U	--	1.0 U	2.5 U	--
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	--	10 U	25 U	--
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	--	1.0 U	1.0 U	--	1.0 U	2.5 U	--
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	--	5.0 U	0.88 J	--	5.0 U	12 U	--
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-082M	CRA-082M	CRA-094M	CRA-094M	CRA-094M	CRA-105M	CRA-105M	CRA-105M
Sample Identification	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	GW-17358-032508-DS-026	GW-17358-091710-JY-050	WG-17358-011807-DR-018	GW-17358-032808-DR-055	GW-17358-091710-JY-056	WG-17358-032808-EV-012	GW-17358-032808-DS-050	GW-17358-091610-JY-042
Sample Date	a	b	c	d	e	f	g	3/25/2008	9/17/2010	1/17/2007	3/28/2008	9/17/2010	1/17/2007	3/28/2008	9/16/2010
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	10 U	--	10 U	10 U	--	10 U	25 U	--
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	--	10 U	10 U	--	10 U	25 U	--
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	--	1.0 U	1.0 U	--	1.0 U	2.5 U	--
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	--	2.0 U	2.0 U	--	2.0 U	5.0 U	--
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	--	4.0 U	4.0 U	--	4.0 U	10 U	--
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Fluoranthene	210	210	1.6	210	210	210	206	1.0 U	--	1.0 U	1.0 U	--	1.0 U	2.5 U	--
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	--	0.20 U	0.20 U	--	0.20 U	0.50 U	--
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	--	1.0 U	1.0 U	--	1.0 U	2.5 U	--
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	2.0 U	--	2.0 U	2.0 U	--	2.0 U	5.0 U	--
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	3.0 U	--	3.0 U	3.0 U	--	3.0 U	7.5 U	--
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Phenanthrene	52	150	2	1000	1000	1000	1000	2.0 U	--	2.0 U	2.0 U	--	2.0 U	5.0 U	--
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Pyrene	140	140	ID	140	140	140	135	5.0 U	--	5.0 U	5.0 U	--	5.0 U	12 U	--
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	2.0 UJ	1.0 U	1.0 U	2.0 UJ	1.4 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	0.33 J	0.25 J	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	10 U	5.0 U	5.0 U	10 U	7.2 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	1.0 UJ	0.020 U	1.0 U	1.0 UJ	0.020 U	1.4 U	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	0.020 U	1.4 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 UJ
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 UJ	25 U	50 U	25 U	25 U	50 U	36 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 UJ	50 U	100 U	50 U	50 U	100 U	72 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 UJ	50 U	100 U	50 U	50 U	100 U	72 U	50 U
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	25 U	25 U	50 U	25 U	25 U	50 U	36 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 UJ	2.0 U	1.0 U	1.0 UJ	2.0 U	1.4 U	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 UJ	1.0 UJ	2.0 U	1.0 UJ	1.0 UJ	2.0 U	1.4 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	10 U	5.0 U	5.0 U	10 U	7.2 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	1.4 U	1.0 U
Chloroethane	430	1700	1100	570.											

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-109M WG-17358-011707-NRS-006 1/17/2007	CRA-109M GW-17358-032808-EV-052 3/28/2008	CRA-109M GW-17358-091610-JY-044 9/16/2010	CRA-110M WG-17358-011807-DR-019 1/17/2007	CRA-110M GW-17358-032808-EV-056 3/28/2008	CRA-110M GW-17358-091710-JY-055 9/17/2010	CRA-133M CHIPHOUSE-MW-610 3/26/1992	CRA-133M CHIPHOUSE-MW-610 3/19/1997
a	b	c	d	e	f	g									
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	9.5 J	50.0 U	50.0 U	7.6 J	50.0 U	117 ^{ab}	--	--
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	--	--
Arsenic	10	10	10	NLV	NLV	4300	NA	86.3 ^{abc}	70.6 ^{abc}	83.3 ^{abc}	24.3 ^{abc}	13.5 ^{abc}	12.0 ^{abc}	--	--
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	438	536	484	114	196	225	--	--
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	--
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	--	--
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	--
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	--	--
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.0 U	0.89 J	2.0 U	4.3	0.37 J	0.79 J	--	--
Iron	300	300	NA	NLV	NLV	58000000	NA	13000 ^{ab}	6280 ^{ab}	6720 ^{ab}	4700 ^{ab}	5260 ^{ab}	4030 ^{ab}	--	--
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--	--
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	118 ^{ab}	58.0 ^{ab}	60.2 ^{ab}	607 ^{ab}	419 ^{ab}	362 ^{ab}	--	--
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	--	--
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	34.6	41.0	39.1	2.2 J	20.0 U	20.0 U	--	--
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	--	--
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 U	--	--
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	--
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	0.76 J	4.0 U	4.0 U	0.67 J	--	--
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	15.9 U	2.8 J	10.0 U	10.0 U	10.0 U	3.4 J	--	--
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	--	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	--	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	--	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	--	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	--	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	--	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 J	--	--	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	--	ND	0.054 J	--	--	--
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	12 U	50 U	--	5.0 U	5.0 U	--	--	--
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	10 U	40 U	--	4.0 U	4.0 U	--	--	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	25 U	100 U	--	10 U	10 U	--	--	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	50 U	200 U	--	20 U	20 U	--	--	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	12 U	50 U	--	5.0 U	5.0 U	--	--	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	12 U	50 U	--	5.0 U	5.0 U	--	--	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	12 U	50 U	--	5.0 U	5.0 U	--	--	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	50 U	200 U	--	20 U	20 U	--	--	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	10 U	10 U	--	4.0 U	1.0 U	--	--	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	50 U	200 U	--	20 U	20 U	--	--	--
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	50 U	200 U	--	20 U	20 U	--	--	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	12 U	50 U	--	5.0 U	5.0 U	--	--	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	25 U	100 U	--	10 U	10 U	--	--	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	12 U	50 U	--	5.0 U	5.0 U	--	--	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	50 U	200 U	--	20 U	20 U	--	--	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	50 U	200 U	--	20 U	20 U	--	--	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	12 U	50 U	--	5.0 U	5.0 U	--	--	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	12 U	50 U	--	5.0 U	5.0 U	--	--	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Anthracene	43	43	ID	43	43	43	43.4	12 U	50 U	--	5.0 U	5.0 U	--	--	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	7.5 U	30 U	--	3.0 U	3.0 U	--	--	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	25 U	100 U	--	10 U	10 U	--	--	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	2.5 U	10 U	--	1.0 U	1.0 U	--	--	5.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	2.5 U	10 U	--	1.0 U	1.0 U	--	--	5.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	2.5 U	10 U	--	1.0 U	1.0 U	--	--	5.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	2.5 U	10 U	--	1.0 U	1.0 U	--	--	5.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	2.5 U	10 U	--	1.0 U	1.0 U	--	--	5.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	25 U	100 U	--	10 U	10 U	--	--	--
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	12 U	50 U	--	5.0 U	5.0 U	--	--	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	2.5 U	10 U	--	1.0 U	1.0 U	--	--	--
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	12 U	50 U	--	5.0 U	1.7 J	--	--	--
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	12 U	50 U	--	5.0 U	5.0 U	--	--	--

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-109M WG-17358-011707-NRS-006 1/17/2007	CRA-109M GW-17358-032808-EV-052 3/28/2008	CRA-109M GW-17358-091610-JY-044 9/16/2010	CRA-110M WG-17358-011807-DR-019 1/17/2007	CRA-110M GW-17358-032808-EV-056 3/28/2008	CRA-110M GW-17358-091710-JY-055 9/17/2010	CRA-133M CHIPHOUSE-MW-610 3/26/1992	CRA-133M CHIPHOUSE-MW-610 3/19/1997
	a	b	c	d	e	f	g								
Caprolactam	5800	17000	NA	NLV	NLV	39000000	525000000	25 U	100 U	--	10 U	10 U	--	--	--
Carbazole	85	350	10	NLV	NLV	7400	7480	25 U	100 U	--	10 U	10 U	--	--	--
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	2.5 U	10 U	--	1.0 U	1.0 U	--	--	5.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	5.0 U	20 U	--	2.0 U	2.0 U	--	--	5.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	10 U	40 U	--	4.0 U	4.0 U	--	--	--
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Fluoranthene	210	210	1.6	210	210	210	206	2.5 U	10 U	--	1.0 U	1.0 U	--	--	5.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	12 U	50 U	--	5.0 U	5.0 U	--	--	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.50 UJ	2.0 U	--	0.20 U	0.20 U	--	--	--
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	2.5 U	10 U	--	1.0 U	1.0 U	--	--	--
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Indeno[1,2,3-cd]pyrene	2	2	ID	NLV	NLV	2	0.022	5.0 U	20 U	--	2.0 U	2.0 U	--	--	5.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Naphthalene	520	1500	11	31000	31000	31000	31000	12 U	50 U	--	5.0 U	5.0 U	--	--	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	7.5 U	30 U	--	3.0 U	3.0 U	--	--	--
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Phenanthrene	52	150	2	1000	1000	1000	1000	1.1 J	20 U	--	2.0 U	2.0 U	--	--	5.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	12 U	50 U	--	5.0 U	5.0 U	--	--	--
Pyrene	140	140	ID	140	140	140	135	12 U	50 U	--	5.0 U	5.0 U	--	--	5.0 U
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	2.0 UJ	1.0 U	1.0 U	2.0 UJ	1.0 U	1.0 U	--	--
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
1,1-Dichloroethene	7	7	130	200	11000	11000	2250000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	10 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	--	--
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	0.020 U	1.0 U	1.0 UJ	0.020 U	1.0 U	1.0 UJ	--	--
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	0.020 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	--	--
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1 U	--
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	2.0 U	1.0 U	1.0 UJ	2.0 U	1.0 U	1.0 U	--	--
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1 U	--
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1 U	--
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	24000000	24000000	24000000	24000000	50 U	0.58 J	25 U	50 U	25 U	25 U	--	--
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	1500000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	100 U	50 U	50 U	100 U	50 U	50 U	--	--
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	100 U	50 U	50 U	100 U	50 U	50 U	--	--
Acetone	730	2100	1700	100000000	100000000	31000000	100000000	50 U	4.7 J	25 U	50 U	25 U	25 U	--	--
Benzene	5	5	200	5600	35000	11000	1750000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1 U	5.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Bromoform	80	80	ID	470000	3100000	140000	3100000	2.0 U	1.0 U	1.0 UJ	2.0 U	1.0 U	1.0 UJ	--	--
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	2.0 U	1.0 UJ	1.0 U	2.0 UJ	1.0 UJ	1.0 UJ	--	--
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	10 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	--	--
Carbon tetrachloride	5	5	45	370	2400	4600	793000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Chlorobenzene	100	100	25	210000	470000	86000	472000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1 U	--
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	2.0 U	1.0 UJ	1.0 U	2.0 U	1.0 UJ	1.0 U	--	--
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	0.61 J	0.29 J	0.57 J	21	8.7	9.8	--	--
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	2.0 U	1.0 UJ	1.0 UJ	2.0 U	1.0 UJ	1.0 U	--	--
Ethylbenzene	74	74	18	110000	170000	170000	169000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	10 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	--	--
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	20 U	10 U	10 UJ	20 U	10 U	10 UJ	--	--
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	2.0 U	1.0 U	1.0 UJ	2.0 U	1.0 U	1.0 U	--	--
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	10 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	--	--
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	10 U	5.0 U	5.0 U	10 U	5.0 U	5.0 U	--	--
Styrene	100	100	80	170000	310000	9700	310000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Tetrachloroethene	5	5	60	25000	170000	12000	200000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Toluene	790	790	270	530000	530000	530000	526000	1.1 J	1.3	1.4	2.0 U	1.0 U	1.0 U	1 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	2.0 U	1.0 U	1.0 U	0.94 J	0.57 J	0.47 J	--	--
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Trichloroethene	5	5	200	15000	97000	22000	1100000	2.0 U	1.0 U	1.0 U	14 ^{ab}		1.1	--	--
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	2.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	--	--
Vinyl chloride	2	2	13	1100	13000	1000	2760000	6.9 ^{ab}	4.2 ^{ab}	9.4 ^{ab}	2.0 U	1.0 U	1.0 U	--	--
Xylenes (total)	280	280	41	190000	190000	190000	186000	4.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	1 U	3.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	--	--	10 U	--	--	10 U	--	--
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated GSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-133M GW-17358-081704-MM-703 8/17/2004	CRA-133M WG-17358-0812407-JJ-057 1/24/2007	CRA-133M GW-17358-032008-DR-011 3/29/2008	CRA-133M GW-17358-091410-DR-022 9/14/2010	CRA-137M WG-17358-032507-JY-064 1/25/2007	CRA-137M GW-17358-032608-DR-030 3/26/2008	CRA-137M GW-17358-091410-DR-014 9/14/2010	CRA-140M GW-17358-081704-MM-700 8/17/2004
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	13 J	70.8 ^{ab}	38.9 J	165 ^{ab}	50.0 U	50.0 U	50.0 U	50 U
Antimony	6	6	130	NLV	NLV	68000	NA	2 U	2.0 U	2.0 U	2.0 U	2.0 U	--	2.0 U	0.23 J
Arsenic	10	10	10	NLV	NLV	4300	NA	5.2 J	7.5 U	11.0 U	8.3	5.0 U	5.0 U	5.0 U	10 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	140	38.3 J	131	193	157	117	149	72 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.5 U	0.50 U	0.50 U	0.50 U	1.6	0.50 U	0.50 U	0.5 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	1.7 J	3.6	2.0 U	9.2	2.0 U	--	2.0 U	1.9 J
Iron	300	300	NA	NLV	NLV	58000000	NA	3500 ^{ab}	2620 ^{ab}	7260 ^{ab}	2840 ^{ab}	5850 ^{ab}	4060 ^{ab}	2840 ^{ab}	640 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3 U	3.0 U	3.0 U	4.2 U	3.0 U	3.0 U	2.3 J	3 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	330 ^{ab}	148 ^{ab}	404 ^{ab}	308 ^{ab}	413 ^{ab}	562 ^{ab}	482 ^{ab}	150 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.2 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.2 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	25 U	20.0 U	20.0 U	20.0 U	1.9 J	20.0 U	20.0 U	25 U
Selenium	50	50	5	NLV	NLV	970000	NA	2 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	11 ^f
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.5 UJ	0.20 UJ	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.5 UJ
Thallium	2	2	3.7	NLV	NLV	13000	NA	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.062 J
Vanadium	4.5	62	12	NLV	NLV	970000	NA	7 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	7 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10	10.0 U	10.0 U	10.0 U	11.3 U	10.0 U	10.0 U	13
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.20 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.20 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.40 U	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.40 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.20 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.20 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 UJ	--	0.10 U	0.10 U	--	0.20 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 UJ	--	0.10 U	0.10 U	--	0.20 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	ND	--	ND	ND	--	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	4.0 U	--	4.0 U	4.0 U	--	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	10 U	--	10 U	10 U	--	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U	--	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U	--	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	4.0 U	4.0 U	--	--	4.0 U	1.0 U	--	4.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U	--	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	20 U	--	20 U	20 U	--	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	10 U	10 U	--	10 U	10 U	--	20 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U	--	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U	--	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	5.0 U	3.0 U	3.0 U	--	3.0 U	3.0 U	--	5.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	--	10 U	10 U	--	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	4.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	4.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	4.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	4.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	4.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	4.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	5.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	5.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	5.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	5.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	--	10 U	10 U	--	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	4.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	4.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-133M GW-17358-081704-MM-703 8/17/2004	CRA-133M WG-17358-012407-JJ-057 1/24/2007	CRA-133M GW-17358-032008-DR-011 3/29/2008	CRA-133M GW-17358-091410-DR-022 9/14/2010	CRA-137M WG-17358-012507-JY-064 1/25/2007	CRA-137M GW-17358-032608-DR-030 3/26/2008	CRA-137M GW-17358-091410-DR-014 9/14/2010	CRA-140M GW-17358-081704-MM-700 8/17/2004
	a	b	c	d	e	f	g								
Caprolactam	5800	17000	NA	NLV	NLV	39000000	525000000	10 U	10 U	10 U	--	10 U	10 U	--	10 U
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	10 U	10 U	--	10 U	10 U	--	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	5.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	5.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	4.0 U	2.0 U	2.0 U	--	2.0 U	2.0 U	--	4.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	5.0 U	4.0 U	4.0 U	--	4.0 U	4.0 U	--	5.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	5.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	5.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	5.0 U	0.20 U	0.20 U	--	0.20 U	0.20 U	--	5.0 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	5.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	--	5.0 U
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Indeno[1,2,3-cd]pyrene	2	2	ID	NLV	NLV	2	0.022	4.0 U	2.0 U	2.0 U	--	2.0 U	2.0 U	--	4.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	4.0 U	3.0 U	3.0 U	--	3.0 U	3.0 U	--	4.0 U
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	20 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	20 U
Phenanthrene	52	150	2	1000	1000	1000	1000	5.0 U	2.0 U	2.0 U	--	2.0 U	2.0 U	--	5.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Pyrene	140	140	ID	140	140	140	135	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U		11 U	20 U	12 U	1.9
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 UJ	1.0 UJ		1.0 U	20 U	12 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U		1.0 U	20 U	12 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U		11 U	20 U	12 U	0.67 J
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	1.0 U		1.0 U	20 U	12 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U		5.0 U	100 U	62 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	--	1.0 U	1.0 U		1.0 U	20 U	12 U	--
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	0.020 U	1.0 U		0.020 U	20 U	12 UJ	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	0.020 U	1.0 U		0.020 U	20 U	12 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U		1.0 U	20 U	12 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U		1.0 U	20 U	12 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--		--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U		1.0 U	20 U	12 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--		--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	--	1.0 U	1.0 U		1.0 U	20 U	12 U	--
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U		1.0 U	20 U	12 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U		1.0 U	20 U	12 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	24000000	24000000	24000000	24000000	0.89 J	25 U	25 U		25 U	280 U	310 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	--	1500000	--	--	--		--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U		50 U	560 U	1000 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	50 U		50 U	560 U	1000 U	50 U
Acetone	730	2100	1700	100000000	100000000	31000000	100000000	25 U	25 U	25 U		25 U	280 UJ	20 J	25 U
Benzene	5	5	200	5600	35000	11000	175000	1.0 U	1.0 U	1.0 U		1.0 U			1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 UJ	1.0 U		1.0 U	20 U	12 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 UJ	1.0 U		1.0 U	20 U	12 U	1.0 U
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 U	1.0 U		1.0 U	20 U	12 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U		5.0 U	100 U	62 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U		1.0 U	11 U	12 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U		1.0 U	11 U	20 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	1.0 U	--		1.0 U	11 U	--	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U		1.0 U	11 U	20 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	1.0 UJ		1.0 U	11 U	20 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.0 U	1.0 U		1.0 U			0.57 J
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 UJ	1.0 U		1.0 U	11 UJ	20 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U		1.0 U	8.4 J	9.7 J	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 UJ	1.0 U		1.0 U	11 UJ	20 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--		--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 U	1.0 UJ	1.0 U		1.0 UJ	11 UJ	20 U	1.0 U
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U		1.0 U	11 U	20 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U		5.0 U	100 U	62 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 U	10 UJ	10 U		10 U	110 UJ	200 U	10 U
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U		1.0 U	11 U	20 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	5.0 U	5.0 U	5.0 U		5.0 U	7.5 J	100 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 UJ	5.0 U		5.0 U	56 UJ	100 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U		1.0 U	11 U	20 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U		1.0 U	11 U	20 U	0.53 J
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.0 U		1.0 U	11 U	20 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	1.0 U		1.0 U	11	13 J	20
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 UJ	1.0 UJ		1.0 U	11 UJ	20 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	1.0 U		1.0 U	11 U	20 U	3.3
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U		1.0 U	11 U	20 U	1.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U		1.0 U	11 U	20 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	1.0 U		1.0 U			0.63 J
Xylenes (total)	280	280	41	190000	190000	190000	186000	3.0 U	2.0 U	2.0 U		2.0 U	22 U	40 U	3.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	--	--	--		10 U	--	10 U	--
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	5 U	--	--		--	--	--	5 U

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated GSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
U

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-140M WG-17358-012507-EV-066 1/25/2007	CRA-140M GW-17358-032608-DR-032 3/26/2008	CRA-140M GW-17358-091410-DR-017 9/14/2010	CRA-141M GW-17358-081704-MM-701 8/17/2004	CRA-141M WG-17358-012507-DR-065 1/25/2007	CRA-141M GW-17358-032608-DR-031 3/26/2008	CRA-141M GW-17358-091410-DR-016 9/14/2010	CRA-209M GW-17358-081804-CB-721 8/18/2004						
	a	b	c	d	e	f	g														
Inorganics (ug/L)																					
Aluminum	50	50	NA	NLV	NLV	64000000	NA	50.0 U	50.0 U	50.0 U	50 U	50.0 U	50.0 U	50.0 U	50 U						
Antimony	6	6	130	NLV	NLV	68000	NA	0.14 J	2.0 U	0.30 J	2 U	2.0 U	2.0 U	2.0 U	2 U						
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	5.0 U	6.9 J	5.0 U	5.0 U	5.0 U	9.4 J						
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	105	80.3 J	74.4 J	110	123	107	194	300						
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1.0 U	1 U						
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.5 U	0.093 J	0.50 U	0.50 U	0.5 U						
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--						
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5 U	5.0 U	5.0 U	5.0 U	5 U						
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--						
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	2.3 J	7.0 U	7.0 U	2.1 J	1.8 J						
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.0 U	0.58 J	2.0 U	3.9	2.5 U	0.53 J	2.0 U	2 U						
Iron	300	300	NA	NLV	NLV	58000000	NA	205	100 U	100 U	7200 ^{ab}		1200 ^{ab}		1100 ^{ab}		2140 ^{ab}		5700 ^{ab}		
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3 U		3.0 U		3.0 U		3 U				
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	406 ^{ab}		33.4	36.6	1000 ^{ab}		571 ^{ab}		538 ^{ab}		930 ^{ab}		700 ^{ab}	
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.045 J ^c		0.20 U		0.20 U		0.20 U		0.2 U		
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	3.9 J	20.0 U	20.0 U	4.6 J	1.5 J	20.0 U	3.8 J	25 U						
Selenium	50	50	5	NLV	NLV	970000	NA	14.3 ^c		5.5 ^c	5.6 ^c	2 U	2.0 U	2.0 U	1.3 J						
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.5 UJ	0.20 U	0.20 U	0.20 U	0.5 U						
Thallium	2	2	3.7	NLV	NLV	13000	NA	0.032 J	1.0 U	1.0 U	0.1 J	0.059 J	1.0 U	1.0 U	1 U						
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	7 U	4.0 U	4.0 U	4.0 U	7 U						
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	12.7 U	10.0 U	12.8 U	8.3 J	10.0 U	10.0 U	10.0 U	15 U						
PCBs (ug/L)																					
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--	0.20 U						
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--	0.20 U						
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.40 U	0.10 U	0.10 U	--	0.40 U						
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--	0.20 U						
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--	0.20 U						
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--	0.20 U						
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--	0.20 U						
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	--	ND	ND	ND	--	ND						
Semi-Volatile Organic Compounds (ug/L)																					
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	--	4.0 U	4.0 U	4.0 U	--	4.0 U						
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	--	10 U	10 U	10 U	--	10 U						
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--	20 U						
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--	20 U						
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	4.0 U	1.0 U	--	4.0 U	4.0 U	1.0 U	--	4.0 U						
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--	20 U						
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	--	20 U	20 U	20 U	--	20 U						
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	10 U	--	10 U						
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--	20 U						
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--	20 U						
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	3.0 U	--	5.0 U	3.0 U	3.0 U	--	5.0 U						
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	10 U	--	10 U						
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U						
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U						
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U						
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U						
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U						
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	10 U	--	10 U						
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U						
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	--	5.0 U	0.97 J	5.0 U	--	5.0 U						
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U						

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-140M	CRA-140M	CRA-140M	CRA-141M	CRA-141M	CRA-141M	CRA-141M	CRA-209M
Sample Identification	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	WG-17358-012507-EV-066	GW-17358-032608-DR-032	GW-17358-091410-DR-017	GW-17358-081704-MM-701	WG-17358-012507-DR-065	GW-17358-032608-DR-031	GW-17358-091410-DR-016	GW-17358-081804-CB-721
Sample Date	a	b	c	d	e	f	g	1/25/2007	3/26/2008	9/14/2010	8/17/2004	1/25/2007	3/26/2008	9/14/2010	8/18/2004
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	0.84 J	10 U	--	10 U	1.0 J	10 U	--	10 U
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	10 U	--	10 U	10 U	10 U	--	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	2.0 U	--	4.0 U	2.0 U	2.0 U	--	4.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	4.0 U	--	5.0 U	4.0 U	4.0 U	--	5.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	0.20 U	--	5.0 U	0.20 U	0.20 U	--	5.0 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	2.0 U	2.0 U	--	4.0 U	2.0 U	2.0 U	--	4.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	3.0 U	3.0 U	--	4.0 U	3.0 U	3.0 U	--	4.0 U
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	2.0 U	2.0 U	--	5.0 U	2.0 U	2.0 U	--	5.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Pyrene	140	140	ID	140	140	140	135	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	0.83 J	0.95 J	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	0.020 U	1.0 U	1.0 UJ	1.0 U	0.020 U	1.0 U	1.0 UJ	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	0.020 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 UJ	25 U	25 U	25 U	25 UJ	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 UJ	50 U	50 U	50 U	50 UJ	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 UJ	50 U	50 U	50 U	50 UJ	50 U	50 U
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 U	1.			

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-209M WG-17358-012207-EV-038 1/22/2007	CRA-209M GW-17358-032008-DR-014 3/20/2008	CRA-209M GW-17358-091610-JY-037 9/16/2010	CRA-236M WG-17358-011707-EV-008 1/17/2007	CRA-236M GW-17358-032808-EV-051 3/28/2008	CRA-236M GW-17358-091610-JY-043 9/16/2010	CRA-302M WG-17358-011907-DR-028 1/19/2007	CRA-302M GW-17358-032508-DS-024 3/25/2008
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	50.3 ^{ab}	33.2 J	24.3 J	8.6 J	50.0 U	20.3 J	24.9 J	50.0 U
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	4.5 J	5.0 U	8.5	27.9 ^{abc}	27.7 ^{abc}	24.1 ^{abc}	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	181	156	331	259	246	251	211	114
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.22 J	0.20 J	0.19 J	0.18 J	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	2.0 J	2.7 J	7.0 U	3.2 J	3.6 J	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.0 U	2.0 U	2.0 U	2.0 U	0.80 J	2.0 U	7.4	3.7
Iron	300	300	NA	NLV	NLV	58000000	NA	2560 ^{ab}	2840 ^{ab}	4340 ^{ab}	9400 ^{ab}	7840 ^{ab}	9280 ^{ab}	77.6 J	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	326 ^{ab}	503 ^{ab}	702 ^{ab}	84.6 ^{ab}	74.4 ^{ab}	98.6 ^{ab}	490 ^{ab}	242 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.14 J ^c	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	20.0 U	19.1 J	14.9 J	16.4 J	22.6	17.4 J
Selenium	50	50	5	NLV	NLV	970000	NA	1.3 J	2.0 U	2.0 U	0.89 J	2.0 U	2.0 U	0.65 J	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	0.16 J	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.2 U	10.0 U	10.0 U	1640 ^c	2460 ^{cc}	2200 ^c	12.5 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 UJ	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 UJ	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	--	ND	ND	--	ND	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	--	16 U	16 U	--	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	--	40 U	40 U	--	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 UJ	20 U	--	80 U	80 U	--	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	--	7.3 J	8.3 J	--	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	80 U	80 U	--	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	4.0 U	1.0 U	--	16 U	4.0 U	--	4.0 U	1.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	80 U	80 U	--	20 U	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	--	80 U	80 U	--	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	40 U	40 U	--	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	80 U	80 U	--	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	80 U	80 U	--	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	--	2.3 J	20 U	--	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	3.0 U	--	12 U	12 U	--	3.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	40 U	40 U	--	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	--	4.0 U	4.0 U	--	1.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	--	4.0 U	4.0 U	--	1.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	--	4.0 U	4.0 U	--	1.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	--	4.0 U	4.0 U	--	1.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	--	4.0 U	4.0 U	--	1.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	40 U	40 U	--	10 U	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	--	4.0 U	4.0 U	--	1.0 U	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	--	20 U	20 U	--	5.0 U	5.0 U

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-302M GW-17358-091710-JY-049 9/17/2010	CRA-307M LW-17358-022503-JD-645 2/25/2003	CRA-307M WG-17358-012207-DR-034 1/22/2007	CRA-307M WG-17358-012207-DR-035 1/22/2007 Duplicate	CRA-307M GW-17358-032008-LJ-010 3/20/2008	CRA-307M GW-17358-091610-JY-039 9/16/2010	CRA-307M GW-17358-091610-JY-040 9/16/2010 Duplicate	CRA-311M WG-17358-011707-EV-007 1/17/2007
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	45.9 J	--	417 ^{ab}	349 ^{ab}	32.3 J	23.3 J	50.0 U	11.6 J
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	--	0.59 J	0.31 J	2.0 U	2.0 U	2.0 U	0.35 J
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	243	--	76.6 J	77.9 J	86.1 J	75.7 J	77.7 J	61.1 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.27 J
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	--	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	3.5	--	2.0 U	2.3 U	2.0 U	2.0 U	2.0 U	5.1
Iron	300	300	NA	NLV	NLV	58000000	NA	100 U	--	691 ^{ab}	577 ^{ab}	100 U	100 U	100 U	135
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	1080 ^{ab}	--	23.0	19.2	15.0 U	3.6 J	15.0 U	853 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	7.4 J	--	9.2 J	8.9 J	7.8 J	14.2 J	15.5 J	15.2 J
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	--	8.3 ^c	8.0 ^c	7.7 ^c	2.4	3.4	0.93 J
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.22 J
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	--	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.6	--	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.7 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.10 U	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.10 U	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	--	0.40 U	0.10 U	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.10 U	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.10 U	0.10 U	0.10 U	--	--	0.10 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.10 U	0.10 U	0.10 UJ	--	--	0.10 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.10 U	0.10 U	0.10 UJ	--	--	0.10 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7		ND	ND	ND	ND	--	--	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	--	4.0 U	4.0 U	4.0 U	4.0 U	--	--	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	--	10 U	10 U	10 U	10 U	--	--	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 UJ	20 UJ	20 U	--	--	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 U	20 U	20 U	--	--	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	--	4.0 U	4.0 U	4.0 U	1.0 U	--	--	4.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 U	20 U	20 U	--	--	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	--	20 U	20 U	20 U	20 U	--	--	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	10 U	10 U	10 U	--	--	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 U	20 U	20 U	--	--	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 U	20 U	20 U	--	--	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	--	5.0 U	3.0 U	3.0 U	3.0 U	--	--	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	--	10 U	10 U	10 U	10 U	--	--	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	--	4.0 U	1.0 U	1.0 U	1.0 U	--	--	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	--	4.0 U	1.0 U	1.0 U	1.0 U	--	--	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	--	4.0 U	1.0 U	1.0 U	1.0 U	--	--	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	--	5.0 U	1.0 U	1.0 U	1.0 U	--	--	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	--	5.0 U	1.0 U	1.0 U	1.0 U	--	--	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	--	10 U	10 U	10 U	10 U	--	--	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	--	4.0 U	1.0 U	1.0 U	1.0 U	--	--	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U

TABLE 4.2

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

Sample Location	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-302M	CRA-307M	CRA-307M	CRA-307M	CRA-307M	CRA-307M	CRA-307M	CRA-311M
Sample Identification	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	GW-17358-091710-JY-049	LW-17358-022503-JD-645	WG-17358-012207-DR-034	WG-17358-012207-DR-035	GW-17358-032008-LJ-010	GW-17358-091610-JY-039	GW-17358-091610-JY-040	WG-17358-011707-EV-007
Sample Date	a	b	c	Indoor Air Inhalation	Indoor Air Inhalation	f	g	9/17/2010	2/25/2003	1/22/2007	1/22/2007	3/20/2008	9/16/2010	9/16/2010	1/17/2007
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	--	10 U	10 U	Duplicate	10 U	--	--	10 U
Carbazole	85	350	10	NLV	NLV	7400	7480	--	10 U	10 U	10 U	10 U	--	--	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	--	5.0 U	5.0 U	1.0 U	1.0 U	--	--	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	--	4.0 U	2.0 U	2.0 U	2.0 U	--	--	2.0 U
Dibenzofuran	ID	ID	4	10000	ID	10000	ID	--	5.0 U	4.0 U	4.0 U	4.0 U	--	--	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	11000000	10800000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	--	5.0 U	1.0 U	1.0 U	1.0 U	--	--	1.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	--	5.0 U	0.20 U	0.20 U	0.20 U	--	--	0.20 UJ
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	--	5.0 U	1.0 U	1.0 U	1.0 U	--	--	1.0 U
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	--	4.0 U	2.0 U	2.0 U	2.0 U	--	--	2.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	--	4.0 U	3.0 U	3.0 U	3.0 U	--	--	3.0 U
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	--	20 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	--	5.0 U	2.0 U	2.0 U	2.0 U	--	--	2.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Pyrene	140	140	ID	140	140	140	135	--	5.0 U	5.0 U	5.0 U	5.0 U	--	--	5.0 U
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	5.7 U	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	2.0 UJ
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.1 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	29 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	5.7 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	390	1230	5.7 UJ	1.0 U	0.020 U	0.020 U	0.020 U	1.0 U	1.0 UJ	1.0 UJ	0.020 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	5.7 U	1.0 U	0.020 U	0.020 U	1.0 U	1.0 U	1.0 U	0.020 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	2.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	5.7 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	140 U	25 U	25 U	25 U	25 U	25 U	25 U	50 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	290 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	290 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	140 U	25 U	25 U	25 U	25 U	25 U	25 U	50 U
Benzene	5	5	200	5600	35000	11000	1750000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	5.7 U	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	2.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	5.7 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	2.0 U
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	5.7 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	29 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	5.7 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	2.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	2.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	3.5 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.93 J
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	5.7 U	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	2.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	5.7 U	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 U	1.0 U	2.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	5.7 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	2.0 U
Ethylbenzene	74	74	18	110000	170000	170000	169000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	29 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	57 UJ	10 U	10 U	10 U	10 U	10 UJ	10 UJ	20 U
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	2.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	29 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	29 U	5.0 U	5.0 UJ	5.0 UJ	5.0 U	5.0 U	5.0 U	0.74 J
Styrene	100	100	80	170000	310000	9700	310000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Toluene	790	790	270	530000	530000	530000	526000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	5.7 U	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	1.0 U	2.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	200 ^h	1.0 U	0.32 J	0.31 J	0.36 J	1.0 U	1.0 U	23 ^h
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	5.7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	11 U	3.0 U	2.0 UJ	2.0 UJ	2.0 U	2.0 U	2.0 U	4.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	10 U	--	--	--	--	10 U	10 U	--
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	5 U	--	--	--	--	--	--

Notes:

ug/L

(1)

h

ID

NA

U

J

UJ

—

micrograms per Liter

Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended

Calculated GSI

Insufficient data to develop criterion

No criteria applicable

Not present at or above the associated value.

Estimated concentration.

Estimated reporting limit

Not analyzed

Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.2

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

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-311M GW-17358-032808-DS-053 3/28/2008	CRA-311M GW-17358-032808-DS-054 3/28/2008 Duplicate	CRA-311M GW-17358-091710-JY-057 9/17/2010	CRA-314M WG-17358-011807-DR-020 1/17/2007	CRA-314M GW-17358-032808-DR-057 3/28/2008	CRA-314M GW-17358-091710-JY-054 9/17/2010	CRA-316M WG-17358-011807-DR-013 1/17/2007	CRA-316M WG-17358-011807-DR-014 1/17/2007 Duplicate
a	b	c	d	e	f	g									
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	50.0 U	50.0 U	50.0 U	35.5 J	223 ^{ab}	104 ^{ab}	3.0 J	50.0 U
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	0.23 J	0.11 J
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	3.8 J	5.0 U	20.7 ^{abc}	17.5 ^{abc}	24.5 ^{abc}	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	58.6 J	57.4 J	81.6 J	466	170	304	44.1 J	43.6 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.23 J	0.21 J	0.37 J	0.50 U	0.50 U	0.50 U	0.12 J	0.11 J
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	2.9 J	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	2.1 J	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	4.1	3.4	4.1	0.81 J	0.96 J	0.36 J	1.1 J	0.84 J
Iron	300	300	NA	NLV	NLV	58000000	NA	151	127	173	8830 ^{ab}	4520 ^{ab}	10600 ^{ab}	100 U	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	992 ^{ab}	976 ^{ab}	1590 ^{ab}	232 ^{ab}	128 ^{ab}	247 ^{ab}	79.9 ^{ab}	77.7 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	10.5 J	9.9 J	9.7 J	3.4 J	3.5 J	8.8 J	20.0 U	2.1 J
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10.6 ^c	9.8 ^c
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 U	0.20 UJ	0.20 UJ
Thallium	2	2	3.7	NLV	NLV	13000	NA	0.26 J	0.22 J	1.0 U	1.0 U	1.0 U	1.0 U	0.12 J	0.11 J
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	1.1 J	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	57.3 J	4.6 J	8.7 J	17.1	6.0 J	9.4 J	10.0 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.057 J	0.10 U	--	0.10 U	0.10 U	--	0.10 U	0.10 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	0.057 J	ND	--	ND	ND	--	ND	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	--	4.0 U	4.0 U	--	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	--	10 U	10 U	--	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	--	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	--	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	1.0 U	--	4.0 U	1.0 U	--	4.0 U	4.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	--	20 U	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	--	20 U	20 U	--	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	--	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	--	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	--	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	3.0 U	--	3.0 U	3.0 U	--	3.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	--	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	--	1.0 U	1.0 U	--	1.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	--	1.0 U	1.0 U	--	1.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	--	1.0 U	1.0 U	--	1.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	--	1.0 U	1.0 U	--	1.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	--	1.0 U	1.0 U	--	1.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	--	10 U	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	--	1.0 U	1.0 U	--	1.0 U	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	--	5.0 U	5.0 U	--	5.0 U	5.0 U

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-316M GW-17358-031808-LJ-004 3/18/2008	CRA-316M GW-17358-091610-JY-038 9/16/2010	CRA-317M WG-17358-011807-DR-015 1/17/2007	CRA-317M GW-17358-031808-LJ-005 3/18/2008	CRA-321M GW-17358-081704-MM-709 8/17/2004	CRA-321M WG-17358-012307-EV-043 1/23/2007	CRA-321M GW-17358-031708-DR-003 3/17/2008	CRA-321M GW-17358-091410-DR-024 9/14/2010
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	50.0 U	24.8 J	10.4 J	50.0 U	30 J	20.6 J	48.1 J	25.4 J
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	0.17 J	2.0 U	2 U	1.5 J	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	15.4 ^{abc}		17.3 ^{abc}		5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	34.4 J	33.4 J	139	205	68 J	205	311	160
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.50 U	0.5 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	2.0 J	2.3 J	7 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.0 U	2.0 U	1.7 J	2.0 U	2.1	1.3 J	0.88 J	2.0 U
Iron	300	300	NA	NLV	NLV	58000000	NA	100 U	100 U	8320 ^{ab}		13300 ^{ab}		1410 ^{ab}	
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U		3 U		3.0 U	
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	76.7 ^{ab}		237 ^{ab}		449 ^{ab}		325 ^{ab}	
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.038 J ^c		0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	1.8 J	20.0 U	25 U	20.0 U	20.0 U	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	3.1	2.0 U	1.2 J	2.0 U	2 U	2.0 U	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 UJ	0.20 U	0.5 UJ	0.20 UJ	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	0.64 J	1.0 U	1 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	7 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.0 U	10.0 U	10.0 U	10.0 U	6.8 J	10.0 U	10.0 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	0.40 U	0.10 U	0.10 U	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 UJ	--	0.10 U	0.10 UJ	0.20 U	0.10 U	0.10 UJ	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 UJ	--	0.10 U	0.10 UJ	0.20 U	0.10 U	0.10 UJ	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	--	ND	ND	ND	DN	DN	--
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	--	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	--	10 U	10 U	10 U	10 U	10 U	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 UJ	20 U	20 UJ	20 U	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 UJ	20 U	20 U	20 U	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	--	4.0 U	1.0 U	4.0 U	4.0 U	1.0 U	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	20 U	--
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	--	20 U	20 UJ	20 U	20 U	20 U	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 UJ	20 U	10 U	10 U	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 UJ	20 U	20 U	20 U	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 UJ	20 U	20 U	20 U	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	10 U	10 U	10 U	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	--	1.0 U	1.0 U	4.0 U	1.0 U	1.0 U	--
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	--	1.0 U	1.0 U	4.0 U	1.0 U	1.0 U	--
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	--	1.0 U	1.0 U	4.0 U	1.0 U	1.0 U	--
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	--	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	--
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	--	1.0 U	1.0 U	5.0 U	1.0 U	1.0 U	--
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	10 U	10 U	10 U	--
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	--	1.0 U	1.0 U	4.0 U	1.0 U	1.0 U	--
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--

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

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-322M GW-17358-081704-MM-708 8/17/2004	CRA-322M WG-17358-012307-JJ-045 1/23/2007	CRA-322M GW-17358-032008-DR-012 3/29/2008	CRA-322M GW-17358-091410-DR-023 9/14/2010	CRA-325M GW-17358-081704-MM-702 8/17/2004	CRA-325M WG-17358-012407-DR-058 1/24/2007	CRA-325M GW-17358-032008-DR-016 3/29/2008	CRA-325M GW-17358-091410-DR-020 9/14/2010
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	50 U	30.4 J	115 ^{ab}	46.4 J	50 U	29.3 J	62.4 ^{ab}	82.3 ^{ab}
Antimony	6	6	130	NLV	NLV	68000	NA	0.15 J	0.46 J	4.0	0.33 J	2 U	0.29 J	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	16 ^{abc}	5.0 U	5.0 U	4.7 J	10 U	5.0 U	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	17 J	12.6 J	50.6 J	10.6 J	75 J	57.7 J	61.1 J	70.3 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1 U	1.0 U	1.0 U	1.0 U	1 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.5 U	0.50 U	0.50 U	0.50 U	0.37 J	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5 U	5.0 U	5.0 U	5.0 U	5 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7 U	7.0 U	7.0 U	7.0 U	7 U	7.0 U	7.0 U	2.5 J
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	1.2 J	0.80 J	7.3	2.5 U	1.3 J	1.5 J	2.0 U	3.0 U
Iron	300	300	NA	NLV	NLV	58000000	NA	520 ^{ab}	376 ^{ab}	430 ^{ab}	211	1400 ^{ab}	136 U	259	783 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3 U	3.0 U	3.2 U	3.0 U	3 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	53 ^{ab}	53.8 ^{ab}	52.0 ^{ab}	92.5 ^{ab}	480 ^{ab}	188 ^{ab}	259 ^{ab}	795 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.2 U	0.20 U	0.12 J ^f	0.20 U	0.2 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	25 U	20.0 U	5.3 J	20.0 U	4.8 J	20.0 U	20.0 U	5.3 J
Selenium	50	50	5	NLV	NLV	970000	NA	2 U	0.66 J	2.0 U	2.0 U	2 U	1.6 J	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.5 UJ	0.20 UJ	0.20 U	0.20 U	0.5 UJ	0.20 UJ	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1 U	1.0 U	1.0 U	1.0 U	0.05 J	0.043 J	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	0.97 J	4.0 U	4.0 U	1.6 J	7 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	5.3 J	10.0 U	18.7 U	10.0 U	5.6 J	10.0 U	10.0 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.40 U	0.10 U	0.10 U	--	0.40 U	0.10 U	0.10 U	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 UJ	--	0.20 U	0.10 U	0.10 UJ	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.10 UJ	--	0.20 U	0.10 U	0.10 UJ	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	DN	ND	ND	--	ND	ND	ND	--
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	4.0 U	--	4.0 U	4.0 U	4.0 U	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	10 U	--	10 U	10 U	10 U	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 UJ	20 U	--	20 U	20 U	20 U	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U	20 U	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	4.0 U	4.0 U	1.0 U	--	4.0 U	4.0 U	1.0 U	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U	20 U	--
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	20 U	--	20 U	20 U	20 U	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	10 U	10 U	--	20 U	10 U	10 U	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 UJ	5.0 U	--	5.0 U	5.0 U	5.0 U	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U	20 U	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	--	20 U	20 U	20 U	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Atrazine	3	3	7.3	NLV	NLV	5400	70000	5.0 U	3.0 U	3.0 U	--	5.0 U	3.0 U	3.0 U	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	--	10 U	10 U	10 U	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--
Biphenyl (1,1'-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	--	10 U	10 U	10 U	--
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--

TABLE 4.2

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

Sample Location	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-322M	CRA-322M	CRA-322M	CRA-322M	CRA-325M	CRA-325M	CRA-325M	CRA-325M
Sample Identification	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	GW-17358-081704-MM-708	WG-17358-012307-JJ-045	GW-17358-032008-DR-012	GW-17358-091410-DR-023	GW-17358-081704-MM-702	WG-17358-012407-DR-058	GW-17358-032008-DR-016	GW-17358-091410-DR-020
Sample Date			Interface	Indoor Air Inhalation	Indoor Air Inhalation			8/17/2004	1/23/2007	3/20/2008	9/14/2010	8/17/2004	1/24/2007	3/20/2008	9/14/2010
Caprolactam	a	b	c	d	e	f	g								
Carbazole	5800	17000	NA	NLV	NLV	390000000	5250000000	10 U	10 U	10 U	--	10 U	10 U	10 U	--
Chrysene	85	350	10	NLV	NLV	7400	7480	10 U	10 U	10 U	--	10 U	10 U	10 U	--
Dibenz(a,h)anthracene	1.6	1.6	ID	ID	ID	1.6	1.6	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--
Dibenzofuran	2	2	ID	NLV	NLV	2	2.49	4.0 U	2.0 U	2.0 U	--	4.0 U	2.0 U	2.0 U	--
Diethyl phthalate	ID	ID	4	10000	ID	10000	ID	5.0 U	4.0 U	5.0 U	--	5.0 U	4.0 U	4.0 U	--
Dimethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Di-n-butylphthalate (DBP)	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Di-n-octyl phthalate (DnOP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Fluoranthene	130	380	ID	NLV	NLV	400	3000	5.0 U	0.40 J	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Fluorene	210	210	1.6	210	210	210	206	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--
Hexachlorobenzene	880	2000	12	2000	2000	2000	1980	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Hexachlorobutadiene	1	1	0.2	440	3000	4.6	6200	5.0 U	0.20 U	5.0 U	--	5.0 U	0.20 U	0.20 U	--
Hexachlorocyclopentadiene	15	42	0.053	1600	3200	400	3230	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--
Hexachloroethane	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Indeno(1,2,3-cd)pyrene	7.3	21	6.7	27000	50000	1900	50000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Isophorone	2	2	ID	NLV	NLV	2	0.022	4.0 U	2.0 U	2.0 U	--	4.0 U	2.0 U	2.0 U	--
Naphthalene	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Nitrobenzene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
N-Nitrosodi-n-propylamine	3.4	9.6	180	280000	550000	11000	2090000	4.0 U	3.0 U	3.0 U	--	4.0 U	3.0 U	3.0 U	--
N-Nitrosodiphenylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Pentachlorophenol	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Phenanthrene	1	1	2.8 ^h	NLV	NLV	200	1850000	20 U	5.0 U	5.0 U	--	20 U	5.0 U	5.0 U	--
Phenol	52	150	2	1000	1000	1000	1000	5.0 U	2.0 U	2.0 U	--	5.0 U	2.0 U	2.0 U	--
Pyrene	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
	140	140	ID	140	140	140	135	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U	1.0 U	4.4	13	9.9	24
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.78 J	0.88 J	0.76 J
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	--	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	62	72	45	61000	61000	61000	61150	--	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	7.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	0.82 J	25 U	25 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	10	29	35	4000	70000	70000	14500000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	1.0 U	--	1.0 U	5.6	1.0 U	--	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	1.0 U	1.0 U	0.37 J	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.0 U	1.0 U	1.0 U	0.35 J	7.4	7.2	7.5
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	5.0 U	5.0 U	5.0 U	5.0 U	0.25 J	5.0 U	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.94 J	1.1	0.97 J
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	0.31 J	1.0 U	1.0 U	0.33 J
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	3.0 U	2.0 U	2.0 U	2.0 U	3.0 U	2.0 U	2.0 U	2.0 U
General Chemistry (ug/L)															
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	10 U	--	--	--	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	5 U	--	--	--	5 U	--	--	--

Notes:	
ug/L	micrograms per Liter
(I)	Cleanup criteria identified by MDEQ RRD OP Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h	Calculated CSI
ID	Insufficient data to develop criterion
NA	No criteria applicable
U	Not present at or above the associated value.
J	Estimated concentration.
UJ	Estimated reporting limit.
--	Not analyzed
	Exceeds MDEQ Part 201 Generic Criteria

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-325M GW-17358-091410-DR-021 9/14/2010 Duplicate	CRA-326M GW-17358-081704-MM-704 8/17/2004	CRA-326M GW-17358-081704-MM-705 8/17/2004 Duplicate	CRA-326M WG-17358-012407-JJ-061 1/24/2007	CRA-326M GW-17358-081410-DR-018 9/14/2010	CRA-326M GW-17358-091410-DR-019 9/14/2010 Duplicate	CRA-327M GW-17358-081704-MM-706 8/17/2004	CRA-327M WG-17358-012407-EV-060 1/24/2007
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	71.8 ^{ab}	50 U	50 U	207 ^{ab}	50.0 U	50.0 U	34 J	290 ^{ab}
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2 U	2 U	0.15 J	2.0 U	2.0 U	0.26 J	0.41 J
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	6.5 J	6.9 J	5.0 U	5.0 U	5.0 U	10 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	73.0 J	180	170	107	163	171	120	122
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1 U	1 U	1.0 U	1.0 U	1.0 U	1 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.5 U	0.5 U	0.50 U	0.50 U	0.50 U	0.42 J	0.10 J
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5 U	5 U	5.0 U	5.0 U	5.0 U	5 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7 U	7 U	7.0 U	7.0 U	7.0 U	7 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.0 U	0.51 J	0.38 J	10.0	2.0 U	2.0 U	2.5	14.1
Iron	300	300	NA	NLV	NLV	58000000	NA	723 ^{ab}	20100 ^{ab}	18100 ^{ab}	13300 ^{ab}	14200 ^{ab}	14600 ^{ab}	870 ^{ab}	734 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3 U	3 U	3.0	3.0 U	3.0 U	3 U	3.8
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	867 ^{ab}	290 ^{ab}	270 ^{ab}	322 ^{ab}	504 ^{ab}	528 ^{ab}	370 ^{ab}	115 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.041 J ^c	0.034 J ^c	0.20 U	0.20 U	0.20 U	0.2 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	25 U	25 U	20.0 U	20.0 U	20.0 U	2.5 J	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2 U	2 U	2.0 U	2.0 U	2.0 U	2 U	1.5 J
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.5 UJ	0.5 UJ	0.20 UJ	0.20 U	0.20 U	0.5 UJ	0.20 UJ
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1 U	1 U	1.0 U	1.0 U	1.0 U	0.028 J	0.056 J
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	7 U	7 U	4.0 U	4.0 U	4.0 U	7 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.0 U	8.3 J	11	29.4	10.0 U	10.0 U	15	27.1 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	--	0.40 U	0.40 U	0.10 U	0.20 U	0.20 U	0.40 U	0.10 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	--	0.20 U	0.20 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	--	DN	ND	ND	ND	ND	ND	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	--	4.0 U	4.0 U	16 U	4.0 U	4.0 U	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	--	10 U	10 U	40 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 U	80 U	20 U	20 U	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	--	5.0 U	5.0 U	20 U	5.0 UJ	5.0 UJ	5.0 U	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	54000	24600	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 U	80 U	20 U	20 U	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	--	4.0 U	4.0 U	16 U	1.0 U	1.0 U	4.0 U	4.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 U	80 U	20 U	20 U	20 U	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	--	20 U	20 U	80 U	20 U	20 U	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 U	40 U	10 U	10 U	20 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 U	80 U	20 U	20 U	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	--	20 U	20 U	80 U	20 U	20 U	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	--	5.0 U	5.0 U	12 U	3.0 U	3.0 U	5.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	--	10 U	10 U	40 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	--	4.0 U	4.0 U	4.0 U	1.0 U	1.0 U	4.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	--	4.0 U	4.0 U	4.0 U	1.0 U	1.0 U	4.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	--	4.0 U	4.0 U	4.0 U	1.0 U	1.0 U	4.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	--	5.0 U	5.0 U	4.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	--	5.0 U	5.0 U	4.0 U	1.0 U	1.0 U	5.0 U	1.0 U
Biphenyl (1,1'-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	--	10 U	10 U	40 U	10 UJ	10 UJ	10 U	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	--	4.0 U	4.0 U	4.0 U	1.0 U	1.0 U	4.0 U	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	--	5.0 U	5.0 U	20 U	5.0 U	5.0 U	5.0 U	5.0 U

TABLE 4.2

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

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-327M GW-17358-032608-DS-034 3/26/2008	CRA-327M GW-17358-091410-DR-025 9/14/2010	CRA-342M GW-17358-082504-CB-741 8/25/2004	CRA-342M WG-17358-012307-DR-041 1/23/2007	CRA-342M GW-17358-031708-DR-001 3/17/2008	CRA-342M GW-17358-091410-DR-027 9/14/2010	CRA-343M GW-17358-082504-MM-740 8/25/2004	CRA-343M WG-17358-012307-JJ-042 1/23/2007
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	91.7 ^{ab}	1850 ^{ab}	20900 ^{ab}	50.0 U	38.9 J	61.7 ^{ab}	50 U	58.6 ^{ab}
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	1.1 J	0.9 J	0.80 J	2.0 U	0.46 J	0.5 J	0.38 J
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	33 ^{abc}	5.0 U	5.0 U	5.0 U	10 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	925	138	140	31.3 J	47.5 J	115	31 J	4.4 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.9 U	1.0 U	1.0 U	1.0 U	1 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.34 J	0.18 J	0.73	0.50 U	0.50 U	0.50 U	0.5 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	10 U	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	9.3	39 ^c	5.0 U	5.0 U	5.0 U	5 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	10 U	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	2.3 J	17	7.0 U	7.0 U	7.0 U	7 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	3.2	78.6 ^c	93 ^c	1.0 J	2.0 U	2.0 U	2 U	3.6
Iron	300	300	NA	NLV	NLV	58000000	NA	213	6380 ^{ab}	27200 ^{ab}	100 U	100 U	163	580 ^{ab}	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	37.0 ^{ab}	23 ^{ab}	3.0 U	3.0 U	3.0 U	3 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	395 ^{ab}	610 ^{ab}	570 ^{ab}	52.0 ^{ab}	137 ^{ab}	129 ^{ab}	120 ^{ab}	9.0 J
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.2 U	0.20 U	0.20 U	0.20 U	0.2 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	12.0 J	46	20.0 U	20.0 U	20.0 U	25 U	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	2.0	2.0 U	2.8 U	2.5	2.0 U	2.0 U	2 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.15 J	0.20 UJ	0.20 U	0.20 U	0.5 UJ	0.20 UJ
Thallium	2	2	3.7	NLV	NLV	13000	NA	0.25 J	1.0 U	0.71 J	0.062 J	1.0 U	1.0 U	1 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.7 ^a	78 ^{abc}	4.0 U	4.0 U	4.0 U	7 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.0 U	111	140	10.0 U	10.0 U	10.0 U	10 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.20 UJ	0.10 U	0.10 U	--	0.20 U	0.10 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.20 UJ	0.10 U	0.10 U	--	0.20 U	0.10 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.40 UJ	0.10 U	0.10 U	--	0.40 U	0.10 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.20 UJ	0.10 U	0.10 U	--	0.20 U	0.10 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.20 UJ	0.10 U	0.10 U	--	0.20 U	0.10 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.20 UJ	0.10 U	0.10 UJ	--	0.20 U	0.10 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.20 UJ	0.10 U	0.10 UJ	--	0.20 U	0.10 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	--	ND	ND	ND	--	ND	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	--	4.0 U	4.0 U	4.0 U	--	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	--	10 U	10 U	10 U	--	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 UJ	20 U	--	20 U	20 UJ
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	--	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	--	4.0 U	4.0 U	1.0 U	--	4.0 U	R
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	--	20 U	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	--	20 U	20 U	20 U	--	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	--	20 UJ	10 U	10 U	--	20 UJ	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 UJ	5.0 U	--	5.0 U	5.0 UJ
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	--	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	--	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	--	5.0 U	3.0 U	3.0 U	--	5.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	10 U	--	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U
Biphenyl (1,1'-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	10 U	--	10 U	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	1.7 J	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-327M	CRA-327M	CRA-342M	CRA-342M	CRA-342M	CRA-342M	CRA-343M	CRA-343M
Sample Identification	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	GW-17358-032608-DS-034	GW-17358-091410-DR-025	GW-17358-082504-CB-741	WG-17358-012307-DR-041	GW-17358-031708-DR-001	GW-17358-012307-DR-027	GW-17358-082504-MM-740	WG-17358-012307-JJ-042
Sample Date	a	b	c	d	e	f	g	3/26/2008	9/14/2010	8/25/2004	1/23/2007	3/17/2008	9/14/2010	8/25/2004	1/23/2007
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	10 U	--	10 U	10 U	10 U	--	10 U	10 U
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	--	10 U	10 U	10 U	--	10 U	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	--	4.0 U	2.0 U	2.0 U	--	4.0 U	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	--	5.0 U	4.0 U	4.0 U	--	5.0 U	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	--	5.0 U	0.20 U	0.20 U	--	5.0 U	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U	1.0 U
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	2.0 U	--	4.0 U	2.0 U	2.0 U	--	4.0 U	2.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	3.0 U	--	4.0 U	3.0 U	3.0 U	--	4.0 U	3.0 U
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	20 U	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	2.0 U	--	5.0 U	2.0 U	2.0 U	--	5.0 U	2.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Pyrene	140	140	ID	140	140	140	135	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	0.26	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	11000	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 UJ	1.0 U	0.020 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	0.020 U	1.0 U	1.0 U	1.0 U	0.020 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	0.79	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	25 U	25 U	25 U	25 U	25 UJ	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	0.34 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U			

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-343M GW-17358-031708-LJ-002 3/17/2008	CRA-343M GW-17358-091410-DR-026 9/14/2010	CRA-401M-D GW-17358-031903-JD-686 3/19/2003	CRA-401M-D GW-17358-031903-JD-688 3/19/2003 Duplicate	CRA-401M-D WG-17358-032507-JY-071 1/25/2007	CRA-401M-D GW-17358-032108-DR-018 3/21/2008	CRA-401M-D GW-17358-091010-DR-002 9/10/2010	CRA-402M-S GW-17358-031903-KS-687 3/19/2003
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	297 ^{ab}	144 ^{ab}	--	--	2190 ^{ab}	50.0 U	173 ^{ab}	--
Antimony	6	6	130	NLV	NLV	68000	NA	0.39 J	2.0 U	--	--	1.1 J	2.0 U	2.0 U	--
Arsenic	10	10	10	NLV	NLV	4300	NA	6.2 U	5.0 U	--	--	5.0 U	5.0 U	5.0 U	--
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	100 U	100 U	--	--	124	141	92.5 J	--
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	--	--	1.0 U	1.0 U	1.0 U	--
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	--	--	0.50 U	0.50 U	0.50 U	--
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	--	--	10.4	5.0 U	5.0 U	--
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	--	--	2.1 J	7.0 U	7.0 U	--
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	12.4	4.5 U	--	--	7.9	0.68 J	1.3 J	--
Iron	300	300	NA	NLV	NLV	58000000	NA	183	158	--	--	5180 ^{ab}	100 U	344 ^{ab}	--
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	--	--	2.1 J	3.0 U	3.0 U	--
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	15.0 U	13.4 J	--	--	327 ^{ab}	198 ^{ab}	333 ^{ab}	--
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	--	--	0.20 U	0.20 U	0.20 U	--
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	--	--	6.3 J	20.0 U	20.0 U	--
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	--	--	2.0 U	2.0 U	2.0 U	--
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	--	--	0.20 U	0.20 U	0.20 U	--
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	--	--	0.13 J	0.23 J	1.0 U	--
Vanadium	4.5	62	12	NLV	NLV	970000	NA	5.9 ^a	4.0 U	--	--	7.1 ^a	4.0 U	4.0 U	--
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.0 U	10.0 U	--	--	25.3 U	10.0 U	4.4 J	--
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.20 U	0.20 U	0.10 U	0.10 U	--	0.20 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.20 U	0.20 U	0.10 U	0.10 U	--	0.20 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.40 U	0.40 U	0.10 U	0.10 U	--	0.40 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.20 U	0.20 U	0.10 U	0.10 U	--	0.20 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	--	0.20 U	0.20 U	0.10 U	0.10 U	--	0.20 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 UJ	--	0.20 U	0.20 U	0.10 U	0.10 U	--	0.20 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 UJ	--	0.20 U	0.20 U	0.10 U	0.10 U	--	0.20 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	--	ND	ND	ND	ND	--	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	--	4.0 U	4.0 U	4.0 U	4.0 U	--	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	--	10 U	10 U	10 U	10 U	--	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	--	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	--	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	--	4.0 U	4.0 U	4.0 U	1.0 U	--	4.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	--	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	--	20 U	20 U	20 U	20 U	--	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	--	20 U	20 U	10 U	10 U	--	20 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	--	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	--	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	--	5.0 U	5.0 U	3.0 U	3.0 U	--	5.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	10 U	10 U	--	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	--	4.0 U	4.0 U	1.0 U	1.0 U	--	4.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	--	4.0 U	4.0 U	1.0 U	1.0 U	--	4.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	--	4.0 U	4.0 U	1.0 U	1.0 U	--	4.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	--	5.0 U	5.0 U	1.0 U	1.0 U	--	5.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	--	5.0 U	5.0 U	1.0 U	1.0 U	--	5.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	10 U	10 U	--	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	--	4.0 U	4.0 U	1.0 U	1.0 U	--	4.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.6	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-402M-S WG-17358-012507-EV-072 1/25/2007	CRA-402M-S GW-17358-032108-DR-017 3/21/2008	CRA-402M-S GW-17358-091010-DR-001 9/10/2010	CRA-405M-S GW-17358-032003-BL-691 3/20/2003	CRA-405M-S WG-17358-012207-EV-032 1/22/2007	CRA-405M-S GW-17358-031908-LJ-008 3/19/2008	CRA-405M-S GW-17358-091710-JY-051 9/17/2010	CRA-452M-D GW-17358-031403-JD-679 3/14/2003
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	50.0 U	50.0 U	50.0 U	--	50.0 U	31.6 J	50.0 U	--
Antimony	6	6	130	NLV	NLV	68000	NA	0.73 J	2.0 U	0.43 J	--	1.4 J	2.0 U	2.0 U	--
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	152	104	268	--	817	626	934	--
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U	--
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	--	0.50 U	0.50 U	0.50 U	--
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	--	7.0 U	7.0 U	7.0 U	--
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	3.7 U	2.9	3.2	--	0.88 J	2.0 U	0.49 J	--
Iron	300	300	NA	NLV	NLV	58000000	NA	100 U	100 U	100 U	--	10200 ^{ab}		6820 ^{ab}	
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	--	3.0 U		3.0 U	
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	85.2 ^{ab}		244 ^{ab}		234 ^{ab}		206 ^{ab}	
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	--	0.20 U		0.20 U	
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	2.7 J	20.0 U	4.3 J	--	20.0 U	20.0 U	20.0 U	--
Selenium	50	50	5	NLV	NLV	970000	NA	4.8	3.1	2.0 U	--	1.1 J	2.0 U	2.0 U	--
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	--	0.20 UJ	0.20 U	0.20 U	--
Thallium	2	2	3.7	NLV	NLV	13000	NA	0.058 J	0.16 J	1.0 U	--	1.0 U	1.0 U	1.0 U	--
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	--	--	4.0 U	4.0 U	4.0 U	--
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.0 U	10.0 U	3.8 J	--	12.7 U	10.0 U	10.0 U	--
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--	0.20 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--	0.20 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.40 U	0.10 U	0.10 U	--	0.40 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--	0.20 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 U	--	0.20 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 UJ	0.10 UJ	--	0.20 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	--	0.20 U	0.10 U	0.10 UJ	--	0.20 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	--	ND	ND	ND	--	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	--	4.0 U	4.0 U	4.0 U	--	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	--	10 U	10 U	10 U	--	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 UJ	20 UJ	--	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 UJ	--	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	4.0 U	1.0 U	--	4.0 U	4.0 U	1.0 U	--	4.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 U	20 U	--	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	--	20 U	20 U	20 UJ	--	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	20 U	10 UJ	10 UJ	--	20 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 UJ	20 UJ	--	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	--	20 U	20 UJ	20 UJ	--	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	3.0 U	--	5.0 U	3.0 U	3.0 U	--	5.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	10 U	--	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	--	5.0 U	1.0 U	1.0 U	--	5.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	--	10 U	10 U	10 U	--	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	--	4.0 U	1.0 U	1.0 U	--	4.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	--	5.0 U	2.0 J	5.0 U	--	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	--	5.0 U	5.0 U	5.0 U	--	5.0 U

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-452M-D	CRA-452M-D	CRA-452M-D	CRA-452M-D	CRA-529M	CRA-529M	CRA-529M	CRA-529M
	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	GW-17358-062204-MM-563	WG-17358-012207-EV-033	GW-17358-032008-LJ-013	GW-17358-091610-JY-041	WG-17358-011707-DR-004	WG-17358-011707-DR-005	GW-17358-031908-LJ-007	GW-17358-091710-JY-053
	a	b	c	d	e	f	g	6/22/2004	1/22/2007	3/29/2008	9/16/2010	1/17/2007	Duplicate	3/19/2008	9/17/2010
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	290 ^{ab}	516 ^{ab}	62.8 ^{ab}	704 ^{ab}	50.0 U	50.0 U	32.3 J	49.7 J
Antimony	6	6	130	NLV	NLV	68000	NA	2 U	1.6 J	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	10 U	26.1 ^{abc}	18.1 ^{abc}	13.4 ^{abc}	38.3 ^{abc}	38.0 ^{abc}	59.4 ^{abc}	48.9 ^{abc}
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	90 J	149	157	218	370	363	558	736
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.5 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	10 U	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	2.5 J	1.8 J	5.0 U	2.2 J	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	10 U	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	3.4 J	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	3.4 U	2.0 U	2.0 U	2.2 U	2.0 U	2.0 U	2.0 U	0.42 J
Iron	300	300	NA	NLV	NLV	58000000	NA	1100 ^{ab}	4020 ^{ab}	2980 ^{ab}	4210 ^{ab}	14400 ^{ab}	14100 ^{ab}	18200 ^{ab}	22800 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	290 U	94.9 ^{ab}	59.0 ^{ab}	89.7 ^{ab}	275 ^{ab}	269 ^{ab}	227 ^{ab}	272 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.2 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	23 J	15.6 J	29.3	30.0	6.4 J	6.4 J	3.5 J	4.2 J
Selenium	50	50	5	NLV	NLV	970000	NA	2 U	2.0 U	2.0 U	2.0 U	2.0 U	0.65 J	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.5 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1 U	0.040 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	7 U	4.0 U	4.0 U	2.0 J	4.0 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	15 U	14.7 U	10.0 U	15.7 U	11.4 U	12.1 U	10.0 U	8.6 J
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	--	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	--	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	--	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	--	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	--	0.10 U	0.10 U	--	0.10 U	0.10 U	0.10 U	--
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	--	0.10 U	0.10 UJ	--	0.10 U	0.10 U	0.10 UJ	--
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	--	0.10 U	0.10 UJ	--	0.10 U	0.10 U	0.10 UJ	--
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	--	ND	ND	--	ND	ND	ND	--
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	--	4.0 U	16 U	--	4.0 U	4.0 U	4.0 U	--
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	--	10 U	40 U	--	10 U	10 U	10 U	--
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	--	20 UJ	80 U	--	20 U	20 U	20 U	--
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	80 U	--	20 U	20 U	20 U	--
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	--	4.0 U	4.0 U	--	4.0 U	4.0 U	1.0 U	--
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	80 U	--	20 U	20 U	20 U	--
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	--	20 U	80 U	--	20 U	20 U	20 U	--
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	--	10 U	40 U	--	10 U	10 U	10 U	--
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	--	20 U	80 U	--	20 U	20 U	20 U	--
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	--	20 U	80 U	--	20 U	20 U	20 U	--
Acenaphthene	1300	3800	38	4200	4200	4200	4240	--	5.0 U	20 U	--	0.50 J	0.47 J	5.0 U	--
Acenaphthylene	52	150	ID	3900	3900	3900	3930	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Anthracene	43	43	ID	43	43	43	43.4	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Atrazine	3	3	7.3	NLV	NLV	5400	70000	--	3.0 U	12 U	--	3.0 U	3.0 U	3.0 U	--
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	--	10 U	40 U	--	10 U	10 U	10 U	--
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	--	1.0 U	4.0 U	--	1.0 U	1.0 U	1.0 U	--
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	--	1.0 U	4.0 U	--	1.0 U	1.0 U	1.0 U	--
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	--	1.0 U	4.0 U	--	1.0 U	1.0 U	1.0 U	--
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	--	1.0 U	4.0 U	--	1.0 U	1.0 U	1.0 U	--
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	--	1.0 U	4.0 U	--	1.0 U	1.0 U	1.0 U	--
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	--	10 U	40 U	--	10 U	10 U	10 U	--
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	--	1.0 U	4.0 U	--	1.0 U	1.0 U	1.0 U	--
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	--	3.3 J	20 U	--	5.0 U	5.0 U	5.0 U	--
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-452M-D	CRA-452M-D	CRA-452M-D	CRA-452M-D	CRA-529M	CRA-529M	CRA-529M	CRA-529M
Sample Identification	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	GW-17358-062204-MM-563	WG-17358-012207-EV-033	GW-17358-032008-LJ-013	GW-17358-091610-JY-041	WG-17358-011707-DR-004	WG-17358-091707-DR-005	GW-17358-031908-LJ-007	GW-17358-091710-JY-053
Sample Date			Interface	Indoor Air Inhalation	Indoor Air Inhalation			6/22/2004	1/22/2007	3/20/2008	9/16/2010	1/17/2007	1/17/2007	3/19/2008	9/17/2010
	a	b	c	d	e	f	g						Duplicate		
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	--	10 U	40 U	--	10 U	10 U	10 U	--
Carbazole	85	350	10	NLV	NLV	7400	7480	--	10 U	40 U	--	10 U	10 U	10 U	--
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	--	1.0 U	4.0 U	--	1.0 U	1.0 U	1.0 U	--
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	--	2.0 U	8.0 U	--	2.0 U	2.0 U	2.0 U	--
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	--	4.0 U	16 U	--	4.0 U	4.0 U	4.0 U	--
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Fluoranthene	210	210	1.6	210	210	210	206	--	1.0 U	4.0 U	--	1.0 U	1.0 U	1.0 U	--
Fluorene	880	2000	12	2000	2000	2000	1980	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	--	0.20 U	0.80 U	--	0.20 UJ	0.20 UJ	0.20 U	--
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	--	1.0 U	4.0 U	--	1.0 U	1.0 U	1.0 U	--
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	--	2.0 U	8.0 U	--	2.0 U	2.0 U	2.0 U	--
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Naphthalene	520	1500	11	31000	31000	31000	31000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	--	3.0 U	12 U	--	3.0 U	3.0 U	3.0 U	--
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Phenanthrene	52	150	2	1000	1000	1000	1000	--	2.0 U	8.0 U	--	2.0 U	2.0 U	2.0 U	--
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Pyrene	140	140	ID	140	140	140	135	--	5.0 U	20 U	--	5.0 U	5.0 U	5.0 U	--
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 UJ	1.0 U	1.0 U	10 UJ	2.0 UJ	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	11000	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	50 U	10 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	--	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	0.020 U	1.0 U	1.0 UJ	0.020 U	0.020 U	1.0 U	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	0.020 U	1.0 U	1.0 U	0.020 U	0.020 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.0 UJ	10 U	2.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	--	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	25 U	25 U	250 U	50 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U	50 U	500 U	100 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	50 U	50 U	500 U	100 U	50 U	50 U
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	25 U	25 U	25 U	25 U	250 U	50 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 UJ	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 UJ	1.0 U	1.0 UJ	10 U	2.0 U	1.0 U	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	--	1.0 UJ
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	5.0 U	50 U	10 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 U	10 U	2.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25												

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-600M GW-17358-032808-EV-058 3/28/2008	CRA-600M GW-17358-091310-DR-006 9/13/2010	CRA-601M GW-17358-032808-DR-061 3/28/2008	CRA-601M GW-17358-091310-DR-005 9/13/2010	CRA-602M GW-17358-032808-DR-060 3/28/2008	CRA-602M GW-17358-091310-DR-007 9/13/2010	CRA-603M WG-17358-032708-DR-048 3/27/2008	CRA-603M GW-17358-091310-DR-011 9/13/2010
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	28.2 J	50.0 U	797 ^{ab}	31.5 J	50.0 U	32.0 J	--	572 ^{ab}
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	1.1 J	0.30 J	2.0 U	2.0 U	--	1.7 J
Arsenic	10	10	10	NLV	NLV	4300	NA	6.2	13.5 ^{abc}	5.0 U	5.0 U	5.0 U	5.0 U	--	10.5 ^{abc}
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	129	85.2 J	114	45.8 J	96.6 J	27.1 J	--	102
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	--	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	--	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	0.34 J	2.0 U	2.5	2.0 U	0.66 J	2.0 U	--	1.3 J
Iron	300	300	NA	NLV	NLV	58000000	NA	1140 ^{ab}	1670 ^{ab}	454 ^{ab}	100 U	100 U	100 U	--	136 / 384 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	544 ^{ab}	152 ^{ab}	61.1 ^{ab}	110 ^{ab}	7.0 J	15.0 U	--	9.8 J
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	--	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	--	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	--	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	--	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	--	22.5 ^{ac}
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	4.5 J	10.0 U	4.7 J	10.0 U	10.0 U	12.2 U	--	6.4 J
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	--	0.20 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	--	0.20 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	--	0.20 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	--	0.20 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	--	0.20 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	--	0.20 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	--	0.20 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	ND	ND	ND	ND	--	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	--	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	--	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 UJ	5.0 U	5.0 UJ	5.0 U	5.0 UJ	--	5.0 UJ
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	24000	24600	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	--	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	--	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	20 U	20 U	20 U	20 U	--	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	--	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	--	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	0.40 J
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	--	10 UJ
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-600M GW-17358-032808-EV-058 3/28/2008	CRA-600M GW-17358-091310-DR-006 9/13/2010	CRA-601M GW-17358-032808-DR-061 3/28/2008	CRA-601M GW-17358-091310-DR-005 9/13/2010	CRA-602M GW-17358-032808-DR-060 3/28/2008	CRA-602M GW-17358-091310-DR-007 9/13/2010	CRA-603M WG-17358-032708-DR-048 3/27/2008	CRA-603M GW-17358-091310-DR-011 9/13/2010
	a	b	c	d	e	f	g								
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ	--	10 UJ
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	10 U	10 U	10 U	10 U	10 U	--	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	--	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	--	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	--	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Indeno[1,2,3-cd]pyrene	2	2	ID	NLV	NLV	2	0.022	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	--	2.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--	3.0 U
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	--	2.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0
Pyrene	140	140	ID	140	140	140	135	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	5.0 U
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	11000	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	24000000	24000000	240000000	240000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	1.5 J
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	100000000	100000000	31000000	1000000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	9.0 J
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	0.53 J	0.74 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.38 J	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.21 J
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
General Chemistry (ug															

TABLE 4.2

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

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-604M WG-17358-032708-DR-047 3/27/2008	CRA-604M GW-17358-091410-DR-028 9/14/2010	CRA-605M WG-17358-032708-DR-046 3/27/2008	CRA-605M GW-17358-091410-DR-012 9/14/2010	CRA-607M GW-17358-032608-DR-036 3/26/2008	CRA-607M GW-17358-091310-DR-008 9/13/2010	CRA-608M GW-17358-032608-DR-035 3/26/2008	CRA-608M GW-17358-091310-DR-009 9/13/2010
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	50.0 U	--	126 ^{ab}	50.0 U	50.0 U	50.0 U	21.0 J	50.0 U
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	--	2.0 U	2.0 U	2.0 U	0.42 J	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	124	--	87.3 J	74.8 J	46.7 J	138	4.6 J	23.9 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	--	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	--	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	0.82 J	--	0.68 J	2.0 U	0.83 J	1.3 J	0.46 J	0.51 J
Iron	300	300	NA	NLV	NLV	58000000	NA	100 U	--	969 ^{ab}	1500 ^{ab}	100 U	100 U	100 U	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	201 ^{ab}	--	704 ^{ab}	542 ^{ab}	46.8	84.4 ^{ab}	32.6	131 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	--	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	--	2.0 U	2.0 U	6.8 ^c	3.6	1.6 J	1.3 J
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	--	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	--	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	9.2 J	--	3.1 J	10.0 U	10.0 U	3.6 J	10.0 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.50 U	--	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.50 U	--	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.50 U	--	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.50 U	--	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.50 U	--	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.50 U	--	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.50 U	--	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	--	ND	ND	ND	ND	ND	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	--	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	--	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	--	5.0 U	5.0 UJ	5.0 U	5.0 UJ	5.0 U	5.0 UJ
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	20 U	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	--	20 U	20 U	20 U	20 U	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	--	20 U	20 U	20 U	20 U	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	--	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	--	10 U	10 UJ	10 U	10 UJ	10 U	10 UJ
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	--	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

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

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-608M GW-17358-091310-DR-010 9/13/2010 Duplicate	CRA-609M GW-17358-032608-DR-033 3/26/2008	CRA-609M GW-17358-091410-DR-013 9/14/2010	CRA-610M WG-17358-032708-DS-045 3/27/2008	CRA-610M GW-17358-091710-JY-036 9/17/2010	CRA-611M WG-17358-032708-DR-043 3/27/2008	CRA-611M GW-17358-091610-JY-029 9/16/2010	CRA-612M WG-17358-032708-DR-041 3/27/2008
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	50.0 U	50.0 U	50.0 U	29.1 J	529 ^{ab}	50.0 U	75.1 ^{ab}	137 ^{ab}
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	2.0 U	2.0 U	2.0 U	0.59 J	2.0 U	0.41 J	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	3.7 J
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	24.8 J	70.0 J	76.0 J	44.9 J	10.7 J	59.6 J	15.2 J	5.7 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	0.54 J	0.41 J	2.0 U	1.3 J	4.4	0.58 J	2.0 U	3.3
Iron	300	300	NA	NLV	NLV	58000000	NA	100 U	100 U	100 U	100 U	521 ^{ab}	819 ^{ab}	261	328 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	112 ^{ab}	44.0	48.5	0.73 J	13.1 J	174 ^{ab}	68.6 ^{ab}	6.1 J
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	1.3 J	4.2	2.4	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	2.2 J	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.0 U	11.1 U	10.0 U	10.0 U	4.7 J	10.0 U	10.0 U	10.0 U
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U	0.20 U	0.10 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 UJ	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 UJ	10 U	10 UJ	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

TABLE 4.2

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

Sample Location	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-608M	CRA-609M	CRA-609M	CRA-610M	CRA-610M	CRA-611M	CRA-611M	CRA-612M
Sample Identification	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	GW-17358-091310-DR-010	GW-17358-032608-DR-033	GW-17358-091410-DR-013	WG-17358-032708-DS-045	GW-17358-091710-JY-036	WG-17358-032708-DR-043	GW-17358-091610-JY-029	WG-17358-032708-DR-041
Sample Date	a	b	c	d	e	f	g	9/13/2010	3/26/2008	9/14/2010	3/27/2008	9/17/2010	3/27/2008	9/16/2010	3/27/2008
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	10 UJ	10 U	10 UJ	10 UJ	10 U	10 UJ	10 U	10 UJ
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Pyrene	140	140	ID	140	140	140	135	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	0.99 J	1.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	1300	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 UJ	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 UJ	50 U	50 U	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-612M WG-17358-032708-DR-042 3/27/2008 Duplicate	CRA-612M GW-17358-091610-JY-030 9/16/2010	CRA-613M WG-17358-032708-DR-044 3/27/2008	CRA-613M GW-17358-091610-JY-031 9/16/2010	CRA-613M GW-17358-091610-JY-032 9/16/2010 Duplicate	CRA-614M WG-17358-032708-DR-040 3/27/2008	CRA-614M GW-17358-091610-JY-035 9/16/2010	CRA-615M WG-17358-032708-DR-039 3/27/2008
	a	b	c	d	e	f	g								
Inorganics (ug/L)															
Aluminum	50	50	NA	NLV	NLV	64000000	NA	128 ^{ab}	1720 ^{ab}	5070 ^{ab}	56.6 ^{ab}	49.8 J	26.8 J	62.6 ^{ab}	25.4 J
Antimony	6	6	130	NLV	NLV	68000	NA	2.0 U	0.83 J	2.0 U	0.63 J	0.60 J	2.0 U	0.62 J	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	3.8 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	5.9 J	10.6 J	13.9 J	100 U	100 U	32.7 J	21.0 J	14.2 J
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NLV	5.0 U	3.0 J	2.8 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	1.7 J	2.5 J	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.9	7.7	13.9	2.0 U	2.0 U	0.93 J	2.1 U	1.8 J
Iron	300	300	NA	NLV	NLV	58000000	NA	169	2230 ^{ab}	6940 ^{ab}	100 U	100 U	100 U	100 U	100 U
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.9 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	5.6 J	66.6 ^{ab}	48.8	15.0 U	15.0 U	21.0	7.4 J	22.6
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	3.4 J	6.6 J	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
Selenium	50	50	5	NLV	NLV	970000	NA	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.4
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	0.16 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.18 J
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	6.6 ^a	20.0 ^{ac}	1.3 J	1.4 J	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	10.0 U	27.3 U	27.1	10.0 U	10.0 U	10.0 U	10.0 U	2.5 J
PCBs (ug/L)															
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.20 U	0.10 U	0.20 U	0.10 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.20 U	0.10 U	0.20 U	0.20 U	0.10 U	0.20 U	0.10 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatile Organic Compounds (ug/L)															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	1.2 J	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

TABLE 4.2

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

Sample Location	Residential	Non-Residential	Groundwater	Residential Groundwater	Non-Residential Groundwater	Groundwater	Water	CRA-612M	CRA-612M	CRA-613M	CRA-613M	CRA-613M	CRA-614M	CRA-614M	CRA-615M
Sample Identification	Drinking Water	Drinking Water	Surface Water	Volatilization to	Volatilization to	Contact	Solubility	WG-17358-032708-DR-042	GW-17358-091610-JY-030	WG-17358-032708-DR-044	GW-17358-091610-JY-031	GW-17358-091610-JY-032	WG-17358-032708-DR-040	GW-17358-091610-JY-035	WG-17358-032708-DR-039
Sample Date	a	b	c	d	e	f	g	3/27/2008	9/16/2010	3/27/2008	9/16/2010	9/16/2010	3/27/2008	9/16/2010	3/27/2008
Caprolactam	5800	17000	NA	NLV	NLV	390000000	5250000000	10 UJ	10 U	10 UJ	10 U	10 U	10 UJ	10 U	10 UJ
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene	880	2000	12	2000	2000	2000	1980	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Indeno(1,2,3-cd)pyrene	2	2	ID	NLV	NLV	2	0.022	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Pyrene	140	140	ID	140	140	140	135	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Volatile Organic Compounds (ug/L)															
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	11000	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 U
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	240000000	240000000	240000000	240000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	15000000	--	--	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	4200000	8700000	5200000	16000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	20000000	20000000	13000000	20000000	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	1000000000	1000000000	31000000	1000000000	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	1750000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 U
Bromomethane (Methyl bromide)	10	29	35	4000	70000	9000	14500000	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ</

TABLE 4.2
SUMMARY OF DETECTED PARAMETERS IN GROUNDWATER - HISTORICAL
POWERTRAIN WILLOW RUN
YPSILANTI, MICHIGAN

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-615M GW-17358-091610-JY-034 9/16/2010	CRA-616M WG-17358-032708-DR-038 3/27/2008	CRA-616M GW-17358-091610-JY-033 9/16/2010	CRA-623M GW-17358-032808-DS-062 3/28/2008	CRA-623M GW-17358-032808-DS-063 3/28/2008	CRA-623M GW-17358-091710-JY-052 9/17/2010
	a	b	c	d	e	f	g					Duplicate	
Inorganics (ug/L)													
Aluminum	50	50	NA	NLV	NLV	64000000	NA	44.4 J	50.0 U	27.8 J	50.0 U	50.0 U	19.2 J
Antimony	6	6	130	NLV	NLV	68000	NA	1.3 J	2.0 U	0.62 J	2.0 U	2.0 U	2.0 U
Arsenic	10	10	10	NLV	NLV	4300	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	11.8 ^{abc}
Barium	2000	2000	1870 ^h	NLV	NLV	14000000	NA	28.2 J	385	68.9 J	164	162	184
Beryllium	4	4	75 ^h	NLV	NLV	290000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	5	5	6 ^h	NLV	NLV	190000	NA	0.50 U	0.50 U	0.50 U	0.16 J	0.18 J	0.50 U
Chromium III (trivalent)	100	100	230 ^h	NLV	NLV	290000000	NA	--	--	--	--	--	--
Chromium	100	100	11	NLV	NLV	460000	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chromium VI (hexavalent)	100	100	11	NLV	NLV	460000	NA	--	--	--	--	--	--
Cobalt	40	100	100	NLV	NLV	2400000	NA	7.0 U	7.0 U	7.0 U	2.1 J	2.0 J	7.0 U
Copper	1000	1000	29 ^h	NLV	NLV	7400000	NA	2.7 U	0.75 J	2.0 U	0.63 J	0.68 J	0.58 J
Iron	300	300	NA	NLV	NLV	58000000	NA	100 U	129	260	900 ^{ab}		2060 ^{ab}
Lead	4	4	44 ^h	NLV	NLV	ID	NA	3.0 U	3.0 U	3.0 U	3.0 U		3.0 U
Manganese	50	50	6400 ^h	NLV	NLV	9100000	NA	79.4 ^{ab}	1220 ^{ab}	703 ^{ab}	309 ^{ab}	310 ^{ab}	488 ^{ab}
Mercury	2	2	0.0013	56	56	56	56	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	100	100	160 ^h	NLV	NLV	74000000	NA	20.0 U	20.0 U	20.0 U	20.3	19.2 J	11.8 J
Selenium	50	50	5	NLV	NLV	970000	NA	1.6 J	2.0 U	2.0 U	1.7 J	1.8 J	2.0 U
Silver	34	98	0.2	NLV	NLV	1500000	NA	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Thallium	2	2	3.7	NLV	NLV	13000	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vanadium	4.5	62	12	NLV	NLV	970000	NA	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Zinc	2400	5000	380 ^h	NLV	NLV	110000000	NA	26.8 U	5.4 J	10.0 U	9.3 J	9.8 J	3.4 J
PCBs (ug/L)													
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	NA	0.20 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U
Total PCBs	0.5	0.5	0.2	45	45	3.3	44.7	ND	ND	ND	ND	ND	ND
Semi-Volatile Organic Compounds (ug/L)													
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,5-Trichlorophenol	730	2100	NA	NLV	NLV	170000	1200000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4,6-Trichlorophenol	120	470	5	NLV	NLV	10000	800000	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
2,4-Dichlorophenol	73	210	11	NLV	NLV	48000	4500000	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	370	1000	380	NLV	NLV	520000	7870000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
2,4-Dinitrotoluene	7.7	32	NA	NLV	NLV	8600	270000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chloronaphthalene	1800	5200	NA	ID	ID	6700	6740	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Chlorophenol	45	130	18	ID	ID	94000	22000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylnaphthalene	260	750	19	25000	25000	25000	24600	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
2-Nitrophenol	20	58	ID	NLV	NLV	79000	2500000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
3,3'-Dichlorobenzidine	1.1	4.3	0.3	NLV	NLV	180	3110	1.0 U	--	1.0 U	1.0 U	1.0 U	1.0 U
3-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
4,6-Dinitro-2-methylphenol	20	20	NA	NLV	NLV	9500	200000	20 U	20 U	20 U	20 U	20 U	20 U
4-Bromophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloro-3-methylphenol	150	420	7.4	NLV	NLV	79000	3900000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Chloroaniline	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methylphenol	370	1000	30	NLV	NLV	810000	28000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Nitroaniline	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	20 U	20 U	20 U	20 U	20 U	20 U
Acenaphthene	1300	3800	38	4200	4200	4200	4240	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acenaphthylene	52	150	ID	3900	3900	3900	3930	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Acetophenone	1500	4400	NA	6100000	6100000	6100000	6100000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Anthracene	43	43	ID	43	43	43	43.4	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Atrazine	3	3	7.3	NLV	NLV	5400	70000	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	2.1	8.5	ID	NLV	NLV	9.4	9.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)pyrene	5	5	ID	NLV	NLV	1	1.62	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(b)fluoranthene	1.5	1.5	ID	ID	ID	1.5	1.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(g,h,i)perylene	1	1	NA	NLV	NLV	1	0.26	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(k)fluoranthene	1	1	NA	NLV	NLV	1	0.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Biphenyl (1,1-Biphenyl)	NA	NA	NA	NA	NA	NA	NA	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
bis(2-Chloroethyl)ether	2	8.3	1	38000	210000	5700	17200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
bis(2-Ethylhexyl)phthalate (DEHP)	6	6	25	NLV	NLV	320	340	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Butyl benzylphthalate (BBP)	1200	2700	67	NLV	NLV	2700	2690	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U

TABLE 4.2

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

Sample Location Sample Identification Sample Date	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	Residential Groundwater Volatilization to Indoor Air Inhalation	Non-Residential Groundwater Volatilization to Indoor Air Inhalation	Groundwater Contact	Water Solubility	CRA-615M GW-17358-091610-JY-034 9/16/2010	CRA-616M WG-17358-032708-DR-038 3/27/2008	CRA-616M GW-17358-091610-JY-033 9/16/2010	CRA-623M GW-17358-032808-DS-062 3/28/2008	CRA-623M GW-17358-032808-DS-063 3/28/2008	CRA-623M GW-17358-091710-JY-052 9/17/2010
	a	b	c	d	e	f	g					Duplicate	
Caprolactam	5800	17000	NA	NLV	NLV	39000000	525000000	10 U	10 UJ	4.4 J	10 U	10 U	10 U
Carbazole	85	350	10	NLV	NLV	7400	7480	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	1.6	1.6	ID	ID	ID	1.6	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenz(a,h)anthracene	2	2	ID	NLV	NLV	2	2.49	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibenzofuran	ID	ID	4	10000	10000	ID	10000	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Diethyl phthalate	5500	16000	110	NLV	NLV	1100000	1080000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Dimethyl phthalate	73000	210000	NA	NLV	NLV	4200000	4190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Di-n-butylphthalate (DBP)	880	2500	9.7	NLV	NLV	11000	11200	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Di-n-octyl phthalate (DnOP)	130	380	ID	NLV	NLV	400	3000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Fluoranthene	210	210	1.6	210	210	210	206	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene	880	2000	12	2000	1980	2000	1980	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Hexachlorobenzene	1	1	0.2	440	3000	4.6	6200	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Hexachlorobutadiene	15	42	0.053	1600	3200	400	3230	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorocyclopentadiene	50	50	ID	130	420	1600	1800	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Hexachloroethane	7.3	21	6.7	27000	50000	1900	50000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Indeno[1,2,3-cd]pyrene	2	2	ID	NLV	NLV	2	0.022	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Isophorone	770	3100	1300	NLV	NLV	990000	12000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Naphthalene	520	1500	11	31000	31000	31000	31000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Nitrobenzene	3.4	9.6	180	280000	550000	11000	2090000	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
N-Nitrosodi-n-propylamine	5	5	NA	NLV	NLV	360	9890000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
N-Nitrosodiphenylamine	270	1100	NA	NLV	NLV	35000	35100	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Pentachlorophenol	1	1	2.8 ^h	NLV	NLV	200	1850000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene	52	150	2	1000	1000	1000	1000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Phenol	4400	13000	450	NLV	NLV	29000000	82800000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Pyrene	140	140	ID	140	140	140	135	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Volatile Organic Compounds (ug/L)													
1,1,1-Trichloroethane	200	200	89	660000	1300000	1300000	1330000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	8.5	35	78	12000	77000	4700	2970000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	5	5	330	17000	110000	21000	4420000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	880	2500	740	1000000	2300000	2400000	5060000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	7	130	200	11000	11000	2250000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	70	70	99	300000	300000	19000	300000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2,4-Trimethylbenzene	63	63	17	56000	56000	56000	55890	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane (DBCP)	0.2	0.2	NA	1200	1200	390	1230	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 UJ
1,2-Dibromoethane (Ethylene dibromide)	0.05	0.05	5.7	2400	15000	25	4200000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	600	600	13	160000	160000	160000	156000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5	5	360	9600	59000	19000	8520000	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--
1,2-Dichloropropane	5	5	230	16000	36000	16000	2800000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropylene	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--
1,3,5-Trimethylbenzene	72	72	45	61000	61000	61000	61150	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	6.6	19	28	18000	41000	2000	111000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	75	75	17	16000	74000	6400	73800	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl ethyl ketone) (MEK)	13000	38000	2200	24000000	24000000	24000000	240000000	25 U	25 U	25 U	25 U	25 U	25 U
2-Chloroethyl vinyl ether	ID	ID	NA	ID	ID	ID	1500000	--	--	--	--	--	--
2-Hexanone	1000	2900	ID	420000	870000	520000	1600000	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	1800	5200	ID	2000000	2000000	13000000	20000000	50 U	50 U	50 U	50 U	50 U	50 U
Acetone	730	2100	1700	100000000	100000000	31000000	1000000000	25 U	25 U	25 U	25 U	25 U	25 U
Benzene	5	5	200	5600	35000	11000	175000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	80	80	ID	4800	37000	14000	6740000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	80	80	ID	470000	3100000	140000	3100000	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 UJ
Bromomethane (Methyl bromide)	10	29	35	4000	9000	70000	14500000	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 UJ	1.0 UJ
Carbon disulfide	800	2300	ID	250000	550000	1200000	1190000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	5	5	45	370	2400	4600	793000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	100	100	25	210000	470000	86000	472000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	430	1700	1100	5700000	5700000	440000	5740000	1.0 U	--	1.0 U	1.0 UJ	1.0 UJ	1.0 U
Chloroform (Trichloromethane)	80	80	350	28000	180000	150000	7920000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl chloride)	260	1100	ID	8600	45000	490000	6340000	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70	70	620	93000	210000	200000	3500000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	80	80	ID	14000	110000	18000	2600000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	80	230	NA	ID	ID	530000	11000000	--	--	--	--	--	--
Dichlorodifluoromethane (CFC-12)	1700	4800	ID	220000	300000	300000	300000	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 UJ	1.0 U
Ethylbenzene	74	74	18	110000	170000	170000	169000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl benzene	800	2300	28	56000	56000	56000	56000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methyl acetate	NA	NA	NA	NA	NA	NA	NA	10 UJ	10 U	10 UJ	10 U	10 UJ	10 UJ
Methyl cyclohexane	NA	NA	NA	NA	NA	NA	NA	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
Methyl tert butyl ether (MTBE)	40	40	7100	47000000	47000000	610000	46800000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methylene chloride	5	5	1500	220000	1400000	220000	17000000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Styrene	100	100	80	170000	310000	9700	310000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	5	60	25000	170000	12000	200000	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	790	790	270	530000	530000	530000	526000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	100	100	1500	85000	200000	220000	6300000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	5	200	15000	97000	22000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane (CFC-11)	2600	7300	NA	1100000	1100000	1100000	1100000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trifluorotrichloroethane (Freon 113)	170000	170000	32	170000	170000	170000	170000	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	2	13	1100	13000	1000	2760000	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	280	280	41	190000	190000	190000	186000	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
General Chemistry (ug/L)													
Cyanide (amenable)	200	200	5.2	NLV	NLV	57000	NA	10 U	29 ^g	10 U	10 U	10 U	10 U
Cyanide (total)	200	200	5.2	NLV	NLV	57000	NA	--	--	--	--	--	--

Notes:
ug/L micrograms per Liter
(I) Cleanup criteria identified by MDEQ RRD Op Memo No. 1, updated 3/25/2011, pursuant to 1994 PA 451 as amended.
h Calculated GSI
ID Insufficient data to develop criterion
NA No criteria applicable
U Not present at or above the associated value.
J Estimated concentration.
UJ Estimated reporting limit.
-- Not analyzed
Exceeds MDEQ Part 201 Generic Criteria

APPENDIX A

INSTRUMENTATION AND STRATIGRAPHIC LOGS



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

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

HOLE DESIGNATION: CRA-326M (10)
DATE COMPLETED: September 2, 2010
DRILLING METHOD: GEOPROBE/HSA
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft FT. BGS	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	GROUND SURFACE TOP OF CASING	716.87 716.57						
	ASPHALT	716.67	CONCRETE					
	CONCRETE	716.37	BENTONITE CHIPS					
2	SP-SAND, trace silt and fine subangular gravel, compact, fine grained, poorly graded, brown, moist	715.67	2" PVC WELL CASING	1MC		75		0.1
4	ML-SANDY SILT, with organics (rootlets), compact, fine grained sand, dark brown to black, moist	715.47	8-1/2" BOREHOLE					0.8
6	SM-SILTY SAND, compact, fine grained, poorly graded, brown, moist - brown with orange mottling at 3.8ft BGS	712.47						0.8
8	SP-SAND, trace silt, compact, fine grained, trace medium grained, poorly graded, brown, moist - brown/gray, slight petroleum-like odor, gray, wet at 7.0ft BGS		SAND PACK	2MC		85		189
10	END OF BOREHOLE @ 10.0ft BGS	706.87	2" PVC WELL SCREEN					
12			WELL DETAILS Screened Interval: 711.87 to 706.87ft FT. BGS 5.00 to 10.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Schedule 40 Seal: 715.87 to 713.87ft FT. BGS 1.00 to 3.00ft BGS Material: Bentonite Chips Sand Pack: 713.87 to 706.87ft FT. BGS 3.00 to 10.00ft BGS Material: Silica Sand					
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

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

OVERBURDEN LOG 17358.GPJ CRA_CORP-SPANISH.GDT 12/17/10



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GMPT - WILLOW RUN

HOLE DESIGNATION: CRA-603M (10)

PROJECT NUMBER: 17358

DATE COMPLETED: September 3, 2010

CLIENT: ENCORE

DRILLING METHOD: GEOPROBE/HSA

LOCATION: YPSILANTI, MICHIGAN

FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft FT. BGS	MONITORING WELL	SAMPLE					
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)	
	GROUND SURFACE TOP OF CASING	719.62 719.24							
	ASPHALT	719.32	CONCRETE	1MC		85		0.5	
2	CL-CLAY, with silt, fine grained sand and gravel, firm, low plasticity, brown, moist	717.62	BENTONITE CHIPS						
	SP-SAND, trace silt, compact, fine grained, poorly graded, light brown, moist	716.62	2" PVC WELL CASING						
4	CL/SM-INTERBEDDED SILTY CLAY AND SILTY SAND, firm clay, low plasticity, brown, moist, compact sand, fine to coarse grained, trace fine grained gravel, poorly graded, brown to orange brown, moist		8-1/2" BOREHOLE	2MC		70		0.3	
6									
8									
10			709.62	2" PVC WELL SCREEN	3MC		80		0.4
12	SC-CLAYEY SAND, trace silt and fine grained, compact, fine grained, trace medium to coarse grained, poorly graded, brown gray, moist to wet		SAND PACK						
14									
16	END OF BOREHOLE @ 15.0ft BGS	704.62						0.2	
18			<u>WELL DETAILS</u> Screened Interval: 710.62 to 705.62ft FT. BGS 9.00 to 14.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Schedule 40 Seal: 718.62 to 712.62ft FT. BGS 1.00 to 7.00ft BGS Material: Bentonite Chips Sand Pack: 712.62 to 704.62ft FT. BGS 7.00 to 15.00ft BGS Material: Silica Sand					0.1	
20									
22									
24									
26									
28									
30									
32									
34								0.0	

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

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

OVERBURDEN LOG 17358.GPJ CRA_CORP-SPANISH.GDT 11/19/10



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

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

HOLE DESIGNATION: CRA-617M
DATE COMPLETED: September 2, 2010
DRILLING METHOD: GEOPROBE/HSA
FIELD PERSONNEL: D. RIVERS

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft FT. BGS	MONITORING WELL	SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
	GROUND SURFACE TOP OF CASING	714.62 713.97						
	ASPHALT							
	CONCRETE	713.82 713.62 713.12						2.1
2	SP/GP-CRUSHED SAND AND GRAVEL, loose, fine grained sand to fine grained angular gravel, brown and light brown, moist		CONCRETE BENTONITE CHIPS 2" PVC WELL CASING 8-1/2" BOREHOLE	1MC		75		
4	SP-SAND, trace silt, compact, fine grained, trace medium grained, poorly graded, brown gray, moist		2" PVC WELL SCREEN					49.8
6	- gray, wet, moderate petroleum-like odor at 4.4ft BGS		SAND PACK	2MC		85		25.7
8	- sheen to water, strong petroleum-like odor at 5.0ft BGS		2-1/2" BOREHOLE NATURAL COLLAPSE					6.1
10	- no sheen, slight petroleum-like odor at 7.0ft BGS							
10	END OF BOREHOLE @ 10.0ft BGS	704.62						
12			<u>WELL DETAILS</u> Screened Interval: 711.62 to 706.62ft FT. BGS 3.00 to 8.00ft BGS Length: 5ft Diameter: 2in Slot Size: 0.010 Material: PVC Schedule 40 Seal: 713.62 to 712.62ft FT. BGS 1.00 to 2.00ft BGS Material: Bentonite Chips Sand Pack: 712.62 to 704.62ft FT. BGS 2.00 to 10.00ft BGS Material: Silica Sand					
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
34								

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

OVERBURDEN LOG 17358.GPJ CRA_CORP-SPANISH.GDT 11/19/10

APPENDIX B

LABORATORY ANALYTICAL REPORT (AVAILABLE UPON REQUEST)

APPENDIX C

DATA QUALITY ASSESSMENT AND VALIDATION



**CONESTOGA-ROVERS
& ASSOCIATES**

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MEMORANDUM

TO: Scott Adamowski

REF. NO.: 17358

FROM: Rawa Fleisher /rr/93/Det

DATE: December 23, 2010

RE: Data Quality Assessment and Full Validation
Groundwater Monitoring – September 2010
Willow Run Plant, Ypsilanti, Michigan

The following details a quality assessment and validation of the analytical data resulting from the September 2010 collection of 50 groundwater samples, one (1) oil sample and 11 quality control samples from the 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 TestAmerica in North Canton, Ohio (TA-NC) in accordance 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). Application of quality assurance criteria was consistent with following guidance documents:

- i. "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-99/008, October 1999;
- ii. "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Review", EPA-540/R-94/013, February 1994.

These guidelines are collectively referred to as "NFGs" in this Memorandum.

Sample Quantitation

The laboratory reported detected concentrations of volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), polychlorinated biphenyls (PCB) and inorganics below the laboratory's report limit (RL) but above the laboratory's method detection limit (MDL). The laboratory flagged these sample concentrations with a "J" or a "B" for organics and inorganics, respectively. These concentrations should be qualified as estimated (J) values unless qualified otherwise in this memorandum. The laboratory "B" flags may be disregarded.

Sample Preservation and Holding Times

Sample holding time periods and preservation requirements are presented in Table 2.

Sample Preservation and Holding Times – (continued)

The remaining samples were prepared and/or analyzed within the specified holding time periods.

The samples were shipped and maintained in accordance with the sample preservation requirements.

Gas Chromatography/Mass Spectrometer (GC/MS) – Tuning and Mass Calibration (Instrument Performance Check) – Organic Analyses

To ensure adequate mass resolution, identification, and to some degree, sensitivity; the performance of each GC/MS instrument used for volatile organic compounds (VOC) and semi-volatile organic compounds (SVOC) analyses was checked at the beginning of each 12-hour period using bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP), respectively. The resulting spectra must meet the criteria cited in the NFGs before initiating an analysis sequence.

Instrument performance check data were reviewed. These tuning compounds were analyzed at the required frequency throughout the VOC and SVOC analyses. The results of all instrument performance checks were within the acceptance criteria, indicating acceptable instrument performance.

Initial Calibration – Organic Analyses

Initial calibration data are used to demonstrate that each instrument is capable of generating acceptable quantitative data. A five point calibration curve containing all compounds of interest is analyzed to characterize instrument response for each over a specific concentration range.

Initial calibration criteria for organic analyses are evaluated against the following criteria:

- i. GC/MS (all compounds) – must meet a minimum mean relative response factor (RRF) of 0.05 ;
- ii. GC/MS (all compounds) – the percent relative standard deviation (RSD) values must not exceed 30.0 percent or a minimum coefficient of determination of 0.99 if quadratic equation calibration curves are used; and
- iii. GC (all compounds using an average for multi-response compounds) – the percent RSD must not exceed 20 percent or a correlation coefficient of 0.995 when linear regression calibration curves are used.

Calibration standards were analyzed at the required frequency and the results met the above criteria for linearity and sensitivity.

Continuing Calibration – Organic Analyses

To ensure that each instrument was capable of producing acceptable quantitative data over the analysis period, continuing calibration standards must be analyzed every 12 hours for GC/MS analyses and every 10 samples by GC. The following criteria are employed to evaluate the continuing calibration data:

- i. GC/MS (all compounds) – must meet a minimum mean RRF of 0.05 ;
- ii. GC/MS (all compounds) – the percent difference between the mean initial calibration RRF and the continuing calibration RRF must not exceed 25 percent;

Continuing Calibration – Organic Analyses – (continued)

- iii. GC/MS (compounds determined by quadratic curve) – the percent drift between the true value and the continuing calibration value must not exceed 25 percent;
- iv. GC (all compounds using average for multi-response compounds) – the percent difference between mean initial calibration factor and the continuing calibration factor must not exceed 15 percent; and
- v. GC (compounds determined by linear regression) – the percent drift between the true value and the continuing calibration value must not exceed 15 percent.

Calibration standards were analyzed at the required frequency and the results met the above criteria for instrument sensitivity and linearity of response and sensitivity with the exception of the qualified samples presented in Table 4.

Inductively Coupled Plasma/Mass Spectrometer (ICP/MS) –
Mass Calibration and Resolution Checks – Metal Analyses

To ensure adequate mass resolution, identification, and to some degree, sensitivity; the performance of each ICP/MS instrument used for metals analyses was checked prior to calibration before initiating an analysis sequence through the analysis of a tuning solution. The results of the tuning solution analysis were reviewed against the following criteria:

- i. Analyze tuning solution a minimum of four times with a percent RSD of less than or equal to five for the analytes contained in the tuning solution; and
- ii. The mass resolution must be within 0.1 amu of the true value over the analytical range

Instrument performance check data were reviewed. The tuning solution was analyzed at the required frequency throughout the analyses. The results of all instrument performance checks were within the acceptance criteria, indicating acceptable instrument performance.

Initial Calibration – Inorganic Analyses

The initial calibration includes a blank and at least one standard for inductively coupled plasma (ICP) and ICP/MS to establish the analytical curve. Mercury analysis by cold vapor atomic absorption spectroscopy (CVAA) and cyanide analysis by spectrophotometry requires the analysis of a calibration blank and a minimum of five standards to establish the calibration curve. The coefficient of variation for calibration curves must exceed 0.995.

Initial calibration is verified with an initial calibration verification (ICV) standard which must recover within 90 to 110 percent for metals by ICP and ICP/MS, 80 to 120 percent for mercury by CVAA and 85 to 115 percent for cyanide by spectrophotometry.

A review of the laboratory data showed that the inorganic initial calibration curves and ICVs were analyzed at the appropriate frequency and were within the acceptance criteria.

Continuing Calibration – Inorganic Analyses

Continuing calibration verification (CCV) standards are analyzed at method specified frequency (one every 10 samples). The CCVs must meet the percent recovery control limits specified above for the ICVs. Criteria for inorganic analyses are the same criteria as used for assessing the initial calibration data.

A review of the laboratory data showed that CCVs were analyzed at the appropriate frequency and the data were within the acceptance criteria.

Method Blank Samples

Method blank samples are prepared from a purified sample matrix and are processed concurrently with investigative samples to assess the presence and the magnitude of sample contamination introduced during sample analysis. Method blank samples are analyzed at a minimum frequency of one per analytical batch and target analytes should be non-detect.

The samples presented in Table 5 should be qualified due to laboratory contamination. The laboratory flagged the organic concentrations with a "B" and the inorganics with a "J", both of which may be disregarded. The remaining method blank samples did not contain target compounds with concentrations that impacted the investigative samples.

Laboratory Blank Samples – Inorganic Analyses

Metals analyses include the analysis of initial calibration blanks (ICB) and continuing calibration blanks (CCB) to assess the presence and the magnitude of sample contamination introduced during sample analysis. The CCBs are analyzed at a minimum frequency of one every 10 samples and target analytes should be non-detect.

Several ICB and CCBs were reported with detectable concentrations of target analytes. The samples presented in Table 6 should be qualified due to ICB and CCB contamination above the laboratory MDLs. The remaining ICB and CCBs did not contain elements with concentrations that impacted the investigative samples.

Surrogate Compounds – Organic Analyses

Individual sample performance for organic analyses was monitored by assessing the results of surrogate compound percent recoveries. Surrogate percent recoveries are reviewed against the laboratory developed control limits provided in the analytical report.

The VOC and SVOC surrogate recoveries could not be measured or evaluated in several samples due to dilutions required to successfully analyze the samples. No qualification of these samples was required. The surrogate recovery acceptance criteria were met for all samples that could be evaluated.

Matrix Spike/Matrix Spike Duplicate Analyses

To assess the long term accuracy and precision of the analytical methods on various matrices, matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the relative percent difference (RPD) of the concentrations were determined. The organic MS/MSD percent recovery and RPD control limits are

Matrix Spike/Matrix Spike Duplicate Analyses – (continued)

established by the laboratory. The inorganic control limits are defined by the methods or the laboratory and the NFG. The samples selected for MS/MSD analysis are identified in Table 1.

In some sample batches, non-Site-specific samples were utilized as MS/MSDs. Qualification of samples associated with these MS/MSDs was not performed. If MS/MSD analyses could not be completed in an analytical batch due to insufficient sample volume; precision and accuracy were verified by the analysis of the laboratory control sample/laboratory control duplicate (LCS/LCD). The samples that should be qualified due to violation of MS/MSD percent recovery criteria and/or RPD are outlined in Table 7. The MS/MSD percent recoveries and associated RPD acceptance criteria were met in the remaining sample analyses.

Laboratory Control Sample/Laboratory Control Duplicate Analyses

The LCS/LCD analyses serve as a monitor of the overall performance in all steps of the sample analysis and are analyzed with each sample batch. The LCS/LCD percent recoveries were evaluated against method and laboratory established control limits.

The LCS/LCD percent recoveries were within the laboratory control limits or did not warrant qualification, indicating that an acceptable level of overall performance was achieved with the exception of the qualified samples presented in Table 8.

Laboratory precision was verified by the RPD of the LCS/LCD when a matrix spike/matrix spike duplicate was not analyzed.

The RPDs were within the laboratory control limits, indicating that an acceptable level of overall laboratory precision was achieved with the exception of the qualified samples presented in Table 8.

Inductively Coupled Plasma (ICP) Interference Check Sample Analysis – Inorganic Analyses

To verify that proper inter-element and background correction factors had been established by the laboratory for metals analyses, the ICP interference check samples (ICS) are analyzed. The ICSs are evaluated against recovery control limits of 80 to 120 percent.

The ICS analysis results were evaluated for all samples and were within the control limits.

Internal Standard Summaries – Organic Analyses

To correct for variability in the GC/MS response and sensitivity, internal standard (IS) compounds are added to all samples. All results are calculated as a ratio of the compound and associated IS response. Overall instrument stability and performance for VOC and SVOC analyses were monitored using IS peak area and retention time (RT) data. The IS peak areas and RTs of the samples are required to meet the following criteria:

- i. IS area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated continuing calibration standard IS area counts; and

Internal Standard Summaries – Organic Analyses – (continued)

- ii. The RT of the IS must not vary by more than plus or minus 30 seconds from the associated continuing calibration standard.

A review of the VOC and SVOC internal standard data showed that the IS area counts and retention time data were within the acceptance criteria.

Internal Standard Summaries – Inorganic Analyses

To correct for variability in the ICP/MS response and sensitivity, internal standards (IS) are added to all samples. All results are calculated as a ratio of the IS response to the response of the sample. Overall instrument stability and performance for metals analyses was monitored using the IS intensity data which are evaluated against the following criteria:

- i. The IS intensities in samples must recover between 30 and 120 percent of the true value; and
- ii. The IS intensities in instrument calibration checks (CCVs and CCBs) must recover between 60 and 125 percent of the true value.

A review of the ICP/MS metals IS data showed that the IS intensities were within the acceptance criteria.

Serial Dilution – Inorganic Analyses

The percent difference (D) between a serial dilution of a sample for each matrix was monitored to determine physical or chemical interference. A minimum of one sample per 20 investigative samples is analyzed at a five-fold dilution. The serial dilution results must agree within 10 percent D of the original results for samples with detected concentrations greater than 50 times the instrument detection limit.

The percent D acceptance criteria was met.

Duplicate Sample Analyses – Inorganic Analyses

The laboratory precision of matrix-specific metals methods was monitored by the analyses of duplicate samples.

The duplicate RPD, were within the acceptance criteria.

Contract Required Detection Limit (CRDL) Analyses – Inorganic Analyses

The instrument calibration near the Contract Required Detection Limit (CRDL) must be verified for each analyte reported. An ICP standard solution at the CRDL (CRI) is evaluated against the control limits provided.

The CRI analysis results were evaluated for all samples and were within the control limits.

Target Compound Identification

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time and mass spectra (if applicable) were evaluated according to identification criteria established by the methods. The sample(s) identified in Table 1 were reviewed. The organic compounds reported adhered to the specified identification criteria.

Target Compound Quantitation

The reported quantitation results and detection limits were checked to ensure results reported were accurate. The samples identified in Table 1 were reviewed. No discrepancies were found between the raw data and the sample results reported by the laboratory.

Field Quality Assurance/Quality Control

The field quality assurance/quality control consisted of six (6) field duplicate sample sets and five (5) trip blank samples.

Field Duplicate Samples

Overall precision for the sampling event and laboratory procedures was monitored using the results of the field duplicate sample sets. The RPDs associated with these duplicate samples must be less than 50 and 100 percent for water and oil samples, respectively. If the reported concentration in either the investigative sample or its duplicate is less than five times the RL, the evaluation criteria is one or two times the RL value for water and oil samples, respectively.

The data indicate that an adequate level of precision was achieved for the sampling event.

Trip Blank Samples

To monitor potential cross-contamination of VOC during 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 9. No additional target analytes were reported as detected in the trip blank sample(s).

System Performance

System performance between various quality control checks was evaluated to monitor for changes that may have caused the degradation of data quality. No technical problems or chromatographic anomalies were observed which would require qualification of the data.

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.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

						Analysis / Parameters								
Sample Identification	Location	Matrix	QC Samples	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	TCL VOC	TCL SVOC	TCL PCB	Metals	Ammenable Cyanide	Hardness	TDS	TSS	pH
CRA SDG No.: 18-01	TA-NC Lot No.: A0I130407													
GW-17358-091010-DR-001	CRA-402M-S	water	MS/MSD-P	09/10/2010	9:50:00 AM	X			X	X				
GW-17358-091010-DR-002	CRA-401M-D	water		09/10/2010	11:05:00 AM	X			X	X				
GW-17358-091010-DR-003	CRA-050M	water		09/10/2010	12:05:00 PM	X			X	X				
GW-17358-091010-DR-004	CRA-052M	water		09/10/2010	1:00:00 PM	X			X	X				
TB-17358-091010	Trip Blank	water	Trip Blank	09/10/2010	---	X								
CRA SDG No.: 18-02	TA-NC Lot No.: A0I140417		TA-NC SDG No.: 0I14417											
GW-17358-091310-DR-005	CRA-601M	water	DUP (-009)	09/13/2010	10:50:00 AM	X	X	X	X	X				
GW-17358-091310-DR-006	CRA-600M	water		09/13/2010	11:05:00 AM	X	X	X	X	X				
GW-17358-091310-DR-007	CRA-602M	water		09/13/2010	12:00:00 PM	X	X	X	X	X				
GW-17358-091310-DR-008	CRA-607M	water		09/13/2010	1:50:00 PM	X	X	X	X	X				
GW-17358-091310-DR-009	CRA-608M	water		09/13/2010	1:55:00 PM	X	X	X	X	X				
GW-17358-091310-DR-010	CRA-608M	water		09/13/2010	2:15:00 PM	X	X	X	X	X				
GW-17358-091310-DR-011	CRA-603M	water		09/13/2010	3:00:00 PM	X			X	X				
TB-17358-091310	Trip Blank	water	Trip Blank	09/13/2010	---	X								

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

Sample Identification	Location	Matrix	QC Samples	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis / Parameters								
						TCL VOC	TCL SVOC	TCL PCB	Metals	Ammonable Cyanide	Hardness	TDS	TSS	pH
CRA SDG No.: 18-03	TA-NC Lot No.: A0I150423		TA-NC SDG No.: 0I14417											
GW-17358-091310-DR-011	CRA-603M	water		09/13/2010	3:00:00 PM		X	X	X		X			X
GW-17358-091410-DR-012	CRA-605M	water		09/14/2010	10:10:00 AM	X	X	X	X	X				
GW-17358-091410-DR-013	CRA-609M	water		09/14/2010	11:40:00 AM	X	X	X	X	X				
GW-17358-091410-DR-014	CRA-137M	water		9/14/2010	11:45:00 AM	X			X	X				
GW-17358-091410-DR-015	CRA-060M	water	MS/MSD-P	9/14/2010	12:30:00 PM	X			X	X				
GW-17358-091410-DR-016	CRA-141M	water		9/14/2010	1:15:00 PM	X			X	X				
GW-17358-091410-DR-017	CRA-140M	water		9/14/2010	2:15:00 PM	X			X	X				
GW-17358-091410-DR-018	CRA-326M	water		9/14/2010	2:20:00 PM	X	X	X	X	X	X	X	X	X
GW-17358-091410-DR-019	CRA-326M	water	DUP (-018)	9/14/2010	2:40:00 PM	X	X	X	X	X	X	X	X	X
GW-17358-091410-DR-020	CRA-325M	water		9/14/2010	2:25:00 PM	X			X	X				
GW-17358-091410-DR-021	CRA-325M	water	DUP (-020)	9/14/2010	2:35:00 PM	X			X	X				
GW-17358-091410-DR-022	CRA-133M	water		9/14/2010	3:50:00 PM	X			X	X				
GW-17358-091410-DR-023	CRA-322M	water		9/14/2010	3:40:00 PM	X			X	X				
GW-17358-091410-DR-024	CRA-321M	water		9/14/2010	4:25:00 PM	X			X	X		X		
GW-17358-091410-DR-025	CRA-327M	water		9/14/2010	4:30:00 PM	X			X	X				
GW-17358-091410-DR-026	CRA-343M	water		9/14/2010	4:55:00 PM	X			X	X				
GW-17358-091410-DR-027	CRA-342M	water		9/14/2010	5:05:00 PM	X			X	X				
GW-17358-091410-DR-028	CRA-604M	water		9/14/2010	6:15:00 PM	X								
TB-17358-091410	Trip Blank	water	Trip Blank	9/14/2010	---	X								

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

						Analysis / Parameters								
Sample Identification	Location	Matrix	QC Samples	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	TCL VOC	TCL SVOC	TCL PCB	Metals	Ammenable Cyanide	Hardness	TDS	TSS	pH
CRA SDG No.: 18-04	TA-NC Lot No.: A0I170442		TA-NC SDG No.: 0I14417											
TB-17358-091610	Trip Blank	water	Trip Blank	9/16/2010	---	X								
GW-17358-091610-JY-029	CRA-611M	water	MS/MSD-P	9/16/2010	9:55:00 AM	X	X	X	X	X				
GW-17358-091610-JY-030	CRA-612M	water		9/16/2010	10:20:00 AM	X	X	X	X	X				
GW-17358-091610-JY-031	CRA-613M	water		9/16/2010	1:05:00 PM	X	X	X	X	X				
GW-17358-091610-JY-032	CRA-613M	water	DUP (-031)	9/16/2010	1:15:00 PM	X	X	X	X	X				
GW-17358-091610-JY-033	CRA-616M	water		9/16/2010	10:06:00 AM	X	X	X	X	X				
GW-17358-091610-JY-034	CRA-615M	water		9/16/2010	11:01:00 AM	X	X	X	X	X				
GW-17358-091610-JY-035	CRA-614M	water		9/16/2010	12:06:00 PM	X	X	X	X	X				
GW-17358-091610-JY-037	CRA-209M	water		9/16/2010	2:16:00 PM	X				X	X			
GW-17358-091610-JY-038	CRA-316M	water		9/16/2010	3:21:00 PM	X				X	X			
GW-17358-091610-JY-039	CRA-307M	water		9/16/2010	2:20:00 PM	X				X	X			
GW-17358-091610-JY-040	CRA-307M	water	DUP (-039)	9/16/2010	2:30:00 PM	X				X	X			
GW-17358-091610-JY-041	CRA-452M-D	water		9/16/2010	3:50:00 PM	X				X	X			
GW-17358-091610-JY-042	CRA-105M	water		9/16/2010	4:55:00 PM	X				X	X			
GW-17358-091610-JY-043	CRA-236M	water		9/16/2010	5:06:00 PM	X				X	X			
GW-17358-091610-JY-044	CRA-109M	water		9/16/2010	4:55:00 PM	X				X	X			

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

						Analysis / Parameters									
Sample Identification		Location	Matrix	QC Samples	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	TCL VOC	TCL SVOC	TCL PCB	Metals	Ammenable Cyanide	Hardness	TDS	TSS	pH
CRA SDG No.: 18-05		TA-NC Lot No.: A0I180472		TA-NC SDG No.: 0I14417											
TB-17358-091710		Trip Blank	water	Trip Blank	9/17/2010	---	X								
GW-17358-091710-JY-045		CRA-074M	water	MS/MSD-P	9/17/2010	8:25:00 AM	X			X	X				
GW-17358-091710-JY-046		CRA-074M	water	DUP (-045)	9/17/2010	8:35:00 AM	X			X	X				
GW-17358-091710-JY-047		CRA-073M	water		9/17/2010	8:26:00 AM	X			X	X				
GW-17358-091710-JY-048		CRA-071M	water		9/17/2010	8:55:00 AM	X			X	X				
GW-17358-091710-JY-049		CRA-302M	water	MS/MSD-P	9/17/2010	9:25:00 AM	X			X	X				
GW-17358-091710-JY-050		CRA-082M	water		9/17/2010	9:26:00 AM	X			X	X				
GW-17358-091710-JY-051		CRA-405M-S	water		9/17/2010	8:55:00 AM	X			X	X				
GW-17358-091710-JY-052		CRA-623M	water		9/17/2010	9:35:00 AM	X	X	X	X	X				
GW-17358-091710-JY-053		CRA-529M	water		9/17/2010	10:30:00 AM	X			X	X				
GW-17358-091710-JY-054		CRA-314M	water		9/17/2010	10:50:00 AM	X			X	X				
GW-17358-091710-JY-055		CRA-110M	water		9/17/2010	11:16:00 AM	X			X	X				
GW-17358-091710-JY-056		CRA-094M	water		9/17/2010	11:45:00 AM	X			X	X				
GW-17358-091710-JY-057		CRA-311M	water		9/17/2010	12:01:00 PM	X			X	X				
GW-17358-091710-JY-036		CRA-610M	water		9/17/2010	2:55:00 PM	X	X	X	X	X				

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

						Analysis / Parameters									
Sample Identification		Location	Matrix	QC Samples	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	TCL VOC	TCL SVOC	TCL PCB	Metals	Ammenable Cyanide	Hardness	TDS	TSS	pH
CRA SDG No.: 18-06		TA-NC Lot No.: A0I200418													
LNAPL-17358-091710-JY-001		CRA-617M	oil	MS/MSD-P	09/17/2010	12:30	X	X	X	X					

Notes:

- DUP - Field Duplicate Sample of sample in parenthesis
- MS/MSD-P - Matrix Spike/Matrix Spike Duplicate (Partial parameters)
- PCB - Polychlorinated biphenyls
- QC - Quality Control
- SVOC - Semivolatile Organic Compounds
- TCL - Target Compound List
- VOC - Volatile Organic Compounds
- TDS - Total Dissolved Solids
- TSS - Total Suspended Solids

TABLE 2

SUMMARY OF ANALYTICAL METHODS, HOLDING TIME PERIODS, AND PRESERVATIVES
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Method</i> ¹	<i>Matrix</i>	<i>Holding Time</i>	<i>Preservation</i> ²
TCL VOC	SW-846 8260	Water	- 14 days from sample collection to completion of analysis.	pH < 2 and Iced, 4 ± 2° C
	SW-846 8260B	Oil	- 14 days from sample collection to completion of analysis	Iced, 4 ± 2° C
TCL SVOC	SW-846 8270C	Water	- 7 days from sample collection to extraction - 40 days from extraction to completion of analysis	Iced, 4 ± 2° C
	SW-846 8270C	Oil	- 14 days from sample collection to extraction - 40 days from extraction to completion of analysis	Iced, 4 ± 2° C
TCL PCB	SW-846 8082	Water	- 7 days from sample collection to extraction - 40 days from extraction to completion of analysis	Iced, 4 ± 2° C
	SW-846 8082	Oil	- 14 days from sample collection to extraction - 40 days from extraction to completion of analysis	Iced, 4 ± 2° C
Metals		Water/oil	- 180 days from sample collection to completion of analysis	pH < 2 and Iced, 4 ± 2° C
Aluminum	SW-846 6010B/6020			
Antimony	SW-846 6010B/6020			
Arsenic	SW-846 6010B			
Barium	SW-846 6010B			
Beryllium	SW-846 6010B			
Cadmium	SW-846 6010B/6020			
Calcium	SW-846 6010B			
Chromium	SW-846 6010B			
Cobalt	SW-846 6010B			
Copper	SW-846 6010B/6020			
Iron	SW-846 6010B			
Lead	SW-846 6010B			
Magnesium	SW-846 6010B			
Manganese	SW-846 6010B			
Nickel	SW-846 6010B			

TABLE 2

SUMMARY OF ANALYTICAL METHODS, HOLDING TIME PERIODS, AND PRESERVATIVES
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Method</i> ¹	<i>Matrix</i>	<i>Holding Time</i>	<i>Preservation</i> ²
Metals (Continued)		Water/oil	- 180 days from sample collection to completion of analysis	pH < 2 and Iced, 4 ± 2° C
Selenium	SW-846 6010B/6020			
Silver	SW-846 6010B/6020			
Thallium	SW-846 6010B/6020			
Vanadium	SW-846 6010B			
Zinc	SW-846 6010B/6020			
Mercury	SW-846 7470A/7471A	Water/oil	- 28 days from sample collection to completion of analysis	pH < 2 and Iced, 4 ± 2° C
General Chemistry				
Cyanide (Amenable)	SW-846 9012	Water	- 14 days from sample collection to analysis	Iced, 4 ± 2° C
Hardness	SM 2340	Water	- 180 days from sample collection to completion of analysis	pH < 2 and Iced, 4 ± 2° C (HN0 ₃)
TDS	SM 2540C	Water	- 7 days from sample collection to completion of analysis.	Iced, 4 ± 2° C
TSS	SM 2540C	Water	- 7 days from sample collection to completion of analysis.	Iced, 4 ± 2° C
pH	SW-846 9040	Water	- Analyze immediately	Iced, 4 ± 2° C

Notes

² pH preservativation is not required in soil samples.

¹ Method References:

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

SM - "Standards Methods for the Examination of Water and Wastewater," APHA, 19th Edition, 1995

TABLE 3

SUMMARY OF QUALIFIED SAMPLE RESULTS DUE TO VIOLATION OF HOLDING TIME PERIOD
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>Holding Time</i>	<i>Holding Time Criteria</i>	<i>Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
General Chemistry	pH	2 days	Immediately	GW-17358-091310-DR-011	11.3 J	std unit.
		1 day	Immediately	GW-17358-091410-DR-018	6.9 J	std unit.
		1 day	Immediately	GW-17358-091410-DR-019	6.9 J	std unit.

Notes:

J - Estimated Concentration

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO VIOLATION OF CONTINUING CALIBRATION REQUIREMENTS
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>Calibration Date (mm/dd/yyyy)</i>	<i>RRF</i>	<i>% Recovery or %D</i>	<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
TCL VOC	Bromomethane	09/20/2010	---	-29.03	GW-17358-091010-DR-001	1.0 UJ	µg/l
					GW-17358-091010-DR-002	1.0 UJ	µg/l
					GW-17358-091010-DR-003	1.0 UJ	µg/l
					GW-17358-091010-DR-004	1.0 UJ	µg/l
					TB-17358-091010	1.0 UJ	µg/l
TCL VOC	Methyl tert butyl ether	09/20/2010	---	60.28	GW-17358-091010-DR-001	5.0 UJ	µg/l
					GW-17358-091010-DR-002	5.0 UJ	µg/l
					GW-17358-091010-DR-003	5.0 UJ	µg/l
					GW-17358-091010-DR-004	0.47 J	µg/l
					TB-17358-091010	5.0 UJ	µg/l
TCL VOC	1,2-Dibromo-3-chloropropane	09/21/2010	---	-30.09	GW-17358-091310-DR-005	1.0 UJ	µg/l
					GW-17358-091310-DR-006	1.0 UJ	µg/l
					GW-17358-091310-DR-007	1.0 UJ	µg/l
					GW-17358-091310-DR-008	1.0 UJ	µg/l
					GW-17358-091310-DR-009	1.0 UJ	µg/l
					GW-17358-091310-DR-010	1.0 UJ	µg/l
					GW-17358-091310-DR-011	1.0 UJ	µg/l
					GW-17358-091410-DR-012	1.0 UJ	µg/l
					GW-17358-091410-DR-013	1.0 UJ	µg/l
					GW-17358-091410-DR-014	12 UJ	µg/l
					GW-17358-091410-DR-015	3.3 UJ	µg/l
					GW-17358-091410-DR-016	1.0 UJ	µg/l
					GW-17358-091410-DR-017	1.0 UJ	µg/l
					GW-17358-091410-DR-018	1.0 UJ	µg/l
					GW-17358-091410-DR-019	1.0 UJ	µg/l
					GW-17358-091410-DR-020	1.0 UJ	µg/l
					GW-17358-091410-DR-021	1.0 UJ	µg/l
					GW-17358-091410-DR-022	1.0 UJ	µg/l
					GW-17358-091410-DR-023	1.0 UJ	µg/l
					TB-17358-091310	1.0 UJ	µg/l

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO VIOLATION OF CONTINUING CALIBRATION REQUIREMENTS
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>Calibration Date (mm/dd/yyyy)</i>	<i>RRF</i>	<i>% Recovery or %D</i>	<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
TCL VOC	1,2-Dibromo-3-chloropropane Bromoform	09/23/2010	---	-27.60 27.85	GW-17358-091410-DR-026	1.0 UJ	µg/l
					GW-17358-091410-DR-027	1.0 UJ	µg/l
					GW-17358-091410-DR-028	1.0 UJ	µg/l
					TB-17358-091410	1.0 UJ	µg/l
TCL VOC	1,2-Dibromo-3-chloropropane Bromoform	09/25/2010	---	-36.84 28.42	GW-17358-091710-JY-036	1.0 UJ	µg/l
					GW-17358-091710-JY-045	1.0 UJ	µg/l
					GW-17358-091710-JY-046	1.0 UJ	µg/l
					GW-17358-091710-JY-048	1.0 UJ	µg/l
					GW-17358-091710-JY-049	5.7 UJ	µg/l
					GW-17358-091710-JY-050	1.0 UJ	µg/l
					GW-17358-091710-JY-051	1.0 UJ	µg/l
					GW-17358-091710-JY-052	1.0 UJ	µg/l
					GW-17358-091710-JY-053	1.0 UJ	µg/l
					GW-17358-091710-JY-054	2.0 UJ	µg/l
					GW-17358-091710-JY-055	1.0 UJ	µg/l
					GW-17358-091710-JY-056	1.0 UJ	µg/l
					GW-17358-091710-JY-057	1.0 UJ	µg/l
					TB-17358-091710	1.0 UJ	µg/l
TCL VOC	Methyl acetate	09/25/2010	---	-26.39	GW-17358-091710-JY-036	10 UJ	µg/l
					GW-17358-091710-JY-045	10 UJ	µg/l
					GW-17358-091710-JY-046	10 UJ	µg/l
					GW-17358-091710-JY-048	10 UJ	µg/l
					GW-17358-091710-JY-049	57 UJ	µg/l
					GW-17358-091710-JY-050	10 UJ	µg/l
					GW-17358-091710-JY-051	10 UJ	µg/l
					GW-17358-091710-JY-052	10 UJ	µg/l
					GW-17358-091710-JY-053	10 UJ	µg/l
					GW-17358-091710-JY-054	20 UJ	µg/l
					GW-17358-091710-JY-055	10 UJ	µg/l
					GW-17358-091710-JY-056	10 UJ	µg/l
					GW-17358-091710-JY-057	10 UJ	µg/l
					TB-17358-091710	10 UJ	µg/l

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO VIOLATION OF CONTINUING CALIBRATION REQUIREMENTS
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>Calibration Date (mm/dd/yyyy)</i>	<i>RRF</i>	<i>% Recovery or %D</i>	<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
TCL VOC	1,2-Dibromo-3-chloropropane	09/23/2010	---	-48.38	GW-17358-091610-JY-029	1.0 UJ	µg/l
	1,2-Dichloroethane		---	-26.26	GW-17358-091610-JY-030	1.0 UJ	µg/l
	Methyl cyclohexane		---	27.94	GW-17358-091610-JY-031	1.0 UJ	µg/l
					GW-17358-091610-JY-032	1.0 UJ	µg/l
					GW-17358-091610-JY-033	1.0 UJ	µg/l
					GW-17358-091610-JY-034	1.0 UJ	µg/l
					GW-17358-091610-JY-035	1.0 UJ	µg/l
					GW-17358-091610-JY-037	1.0 UJ	µg/l
					GW-17358-091610-JY-038	1.0 UJ	µg/l
					GW-17358-091610-JY-039	1.0 UJ	µg/l
					GW-17358-091610-JY-040	1.0 UJ	µg/l
					GW-17358-091610-JY-041	1.0 UJ	µg/l
					GW-17358-091610-JY-042	1.0 UJ	µg/l
					GW-17358-091610-JY-043	1.0 UJ	µg/l
					GW-17358-091610-JY-044	1.0 UJ	µg/l
					TB-17358-091610	1.0 UJ	µg/l
TCL VOC	Methyl acetate	09/23/2010	---	-29.81	GW-17358-091610-JY-029	10 UJ	µg/l
					GW-17358-091610-JY-030	10 UJ	µg/l
					GW-17358-091610-JY-031	10 UJ	µg/l
					GW-17358-091610-JY-032	10 UJ	µg/l
					GW-17358-091610-JY-033	10 UJ	µg/l
					GW-17358-091610-JY-034	10 UJ	µg/l
					GW-17358-091610-JY-035	10 UJ	µg/l
					GW-17358-091610-JY-037	10 UJ	µg/l
					GW-17358-091610-JY-038	10 UJ	µg/l
					GW-17358-091610-JY-039	10 UJ	µg/l
					GW-17358-091610-JY-040	10 UJ	µg/l
					GW-17358-091610-JY-041	10 UJ	µg/l
					GW-17358-091610-JY-042	10 UJ	µg/l
					GW-17358-091610-JY-043	10 UJ	µg/l
					GW-17358-091610-JY-044	10 UJ	µg/l
					TB-17358-091610	10 UJ	µg/l

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO VIOLATION OF CONTINUING CALIBRATION REQUIREMENTS
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>Calibration Date (mm/dd/yyyy)</i>	<i>RRF</i>	<i>% Recovery or %D</i>	<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
TCL VOC	Bromomethane	09/28/2010	---	42.27	GW-17358-091710-JY-047	1.4 UJ	µg/l
	Bromoform		---	33.66		1.4 UJ	µg/l
	1,2-Dibromo-3-chloropropane		---	-43.91		1.4 UJ	µg/l
TCL VOC	Acetone	09/26/2010	---	25.99	LNAPL-17358-091710-JY-001	5900 UJ	µg/kg
	Dichlorodifluoromethane		---	30.65		2800 UJ	µg/kg

Notes:

J - Estimated Concentration

UJ - Non-detect with an Estimated Report Limit

RRF - Relative Response Factor

%D - Percent Difference

TCL - Target Compound List

VOC - Volatile Organic Compounds

TABLE 5

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO METHOD BLANK CONTAMINATION
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>Analysis Date (mm/dd/yyyy)</i>	<i>Blank Result</i>	<i>Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
TCL VOC	Methylene chloride	09/21/2010	0.97	GW-17358-091410-DR-014	62 U	µg/L
				GW-17358-091410-DR-015	17 U	µg/L
				GW-17358-091410-DR-018	5.0 U	µg/L
				GW-17358-091410-DR-019	5.0 U	µg/L
TCL VOC	Methylene chloride	09/25/2010	0.9	GW-17358-091710-JY-049	29 U	µg/L
				GW-17358-091710-JY-054	10 U	µg/L
TCL SVOC	Di-n-butylphthalate	09/21/2010	1.2	GW-17358-091310-DR-005	5.0 U	µg/L
TCL SVOC	bis(2-Ethylhexyl)phthalate	09/21/2010	1.2	GW-17358-091310-DR-008	5.0 U	µg/L
Metals	Barium	09/28/2010	1.4	GW-17358-091410-DR-026	100 U	µg/L
Metals	Barium	09/27/2010	1.7	GW-17358-091610-JY-031	100 U	µg/L
				GW-17358-091610-JY-032	100 U	µg/L
Metals	Copper	09/29/2010	0.92	GW-17358-091310-DR-005	2.0 U	µg/L
				GW-17358-091310-DR-006	2.0 U	µg/L
				GW-17358-091310-DR-007	2.0 U	µg/L
				GW-17358-091410-DR-012	2.0 U	µg/L
				GW-17358-091410-DR-013	2.0 U	µg/L
				GW-17358-091410-DR-015	3.9 U	µg/L
				GW-17358-091410-DR-016	2.0 U	µg/L
				GW-17358-091410-DR-017	2.0 U	µg/L
				GW-17358-091410-DR-019	2.0 U	µg/L
				GW-17358-091410-DR-020	3.0 U	µg/L
				GW-17358-091410-DR-021	2.0 U	µg/L
				GW-17358-091410-DR-023	2.5 U	µg/L

TABLE 5

**SUMMARY OF QUALIFIED SAMPLE DATA DUE TO METHOD BLANK CONTAMINATION
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN**

<i>Parameter</i>	<i>Analyte</i>	<i>Analysis Date (mm/dd/yyyy)</i>	<i>Blank Result</i>	<i>Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
Metals (continued)	Copper	09/29/2010	0.92	GW-17358-091410-DR-024	2.0 U	µg/L
				GW-17358-091410-DR-026	4.5 U	µg/L
				GW-17358-091410-DR-027	2.0 U	µg/L
Metals	Copper	10/01/2010	1.1	GW-17358-091610-JY-029	2.0 U	µg/L
				GW-17358-091610-JY-031	2.0 U	µg/L
				GW-17358-091610-JY-032	2.0 U	µg/L
				GW-17358-091610-JY-033	2.0 U	µg/L
				GW-17358-091610-JY-034	2.7 U	µg/L
				GW-17358-091610-JY-035	2.1 U	µg/L
				GW-17358-091610-JY-038	2.0 U	µg/L
				GW-17358-091610-JY-039	2.0 U	µg/L
				GW-17358-091610-JY-040	2.0 U	µg/L
				GW-17358-091610-JY-041	2.2 U	µg/L
				GW-17358-091610-JY-043	2.0 U	µg/L
				GW-17358-091610-JY-044	2.0 U	µg/L
Metals	Magnesium	09/28/2010	89.3	GW-17358-091310-DR-011	1000 U	µg/L
Metals	Manganese	09/27/2010	0.57	GW-17358-091610-JY-031	15.0 U	µg/L
				GW-17358-091610-JY-032	15.0 U	µg/L
				GW-17358-091610-JY-040	15.0 U	µg/L
Metals	Thallium	09/29/2010	0.33	GW-17358-091310-DR-005	1.0 U	µg/L
				GW-17358-091310-DR-006	1.0 U	µg/L
				GW-17358-091310-DR-008	1.0 U	µg/L
				GW-17358-091310-DR-009	1.0 U	µg/L
				GW-17358-091310-DR-010	1.0 U	µg/L
				GW-17358-091310-DR-011	1.0 U	µg/L

TABLE 5

**SUMMARY OF QUALIFIED SAMPLE DATA DUE TO METHOD BLANK CONTAMINATION
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN**

<i>Parameter</i>	<i>Analyte</i>	<i>Analysis Date (mm/dd/yyyy)</i>	<i>Blank Result</i>	<i>Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
Metals (continued)	Thallium	09/29/2010	0.33	GW-17358-091410-DR-015	1.0 U	µg/L
				GW-17358-091410-DR-016	1.0 U	µg/L
				GW-17358-091410-DR-017	1.0 U	µg/L
Metals	Thallium	10/01/2010	0.28	GW-17358-091710-JY-036	1.0 U	µg/L
				GW-17358-091710-JY-046	1.0 U	µg/L
				GW-17358-091710-JY-047	1.0 U	µg/L
				GW-17358-091710-JY-048	1.0 U	µg/L
				GW-17358-091710-JY-049	1.0 U	µg/L
				GW-17358-091710-JY-050	1.0 U	µg/L
				GW-17358-091710-JY-052	1.0 U	µg/L
Metals	Zinc	09/29/2010	7.6	GW-17358-091310-DR-005	10.0 U	µg/L
				GW-17358-091310-DR-006	10.0 U	µg/L
				GW-17358-091310-DR-007	12.2 U	µg/L
				GW-17358-091410-DR-012	10.0 U	µg/L
				GW-17358-091410-DR-013	10.0 U	µg/L
				GW-17358-091410-DR-015	14.6 U	µg/L
				GW-17358-091410-DR-016	10.0 U	µg/L
				GW-17358-091410-DR-017	12.8 U	µg/L
				GW-17358-091410-DR-020	10.0 U	µg/L
				GW-17358-091410-DR-021	10.0 U	µg/L
				GW-17358-091410-DR-022	10.0 U	µg/L
				GW-17358-091410-DR-023	10.0 U	µg/L
				GW-17358-091410-DR-024	10.0 U	µg/L
				GW-17358-091410-DR-026	10.0 U	µg/L
				GW-17358-091410-DR-027	10.0 U	µg/L

TABLE 5

**SUMMARY OF QUALIFIED SAMPLE DATA DUE TO METHOD BLANK CONTAMINATION
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN**

<i>Parameter</i>	<i>Analyte</i>	<i>Analysis Date (mm/dd/yyyy)</i>	<i>Blank Result</i>	<i>Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
Metals	Zinc	10/01/2010	12.8	GW-17358-091610-JY-029	10.0 U	µg/L
				GW-17358-091610-JY-030	27.3 U	µg/L
Metals	Zinc	10/01/2010	12.8	GW-17358-091610-JY-031	10.0 U	µg/L
				GW-17358-091610-JY-032	10.0 U	µg/L
				GW-17358-091610-JY-033	10.0 U	µg/L
				GW-17358-091610-JY-034	26.8 U	µg/L
				GW-17358-091610-JY-035	10.0 U	µg/L
				GW-17358-091610-JY-037	10.0 U	µg/L
				GW-17358-091610-JY-038	10.0 U	µg/L
				GW-17358-091610-JY-039	10.0 U	µg/L
				GW-17358-091610-JY-040	10.0 U	µg/L
				GW-17358-091610-JY-041	15.7 U	µg/L
				GW-17358-091610-JY-042	10.0 U	µg/L
				GW-17358-091610-JY-044	10.0 U	µg/L

Notes:

U - Qualified as Not Detected at the report limit

SVOC - Semivolatile Organic Compounds

TCL - Target Compound List

VOC - Volatile Organic Compounds

TABLE 6

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO LABORATORY BLANK CONTAMINATION
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>Analysis Date (mm/dd/yyyy)</i>	<i>Blank Result</i>	<i>Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
Metals	Cadmium	10/01/2010	0.038	GW-17358-091710-JY-049	0.50 U	µg/L
Metals	Cadmium	09/23/2010	0.043	GW-17358-091010-DR-001	0.50 U	µg/L
Metals	Antimony	10/01/2010	0.074	GW-17358-091610-JY-038	2.0 U	µg/L
Metals	Cadmium	10/01/2010	0.3	GW-17358-091610-JY-038	0.50 U	µg/L
Metals	Manganese	09/15/2010	0.4	GW-17358-091010-DR-003	15.0 U	µg/L
Metals	Manganese	09/28/2010	0.4	GW-17358-091310-DR-007	15.0 U	µg/L
Metals	Thallium	10/01/2010	0.47	GW-17358-091610-JY-042	1.0 U	µg/L
				GW-17358-091610-JY-043	1.0 U	µg/L
Metals	Thallium	10/01/2010	0.48	GW-17358-091610-JY-029	1.0 U	µg/L
				GW-17358-091610-JY-030	1.0 U	µg/L
				GW-17358-091610-JY-031	1.0 U	µg/L
				GW-17358-091610-JY-032	1.0 U	µg/L
				GW-17358-091610-JY-033	1.0 U	µg/L
				GW-17358-091610-JY-034	1.0 U	µg/L
				GW-17358-091610-JY-035	1.0 U	µg/L
				GW-17358-091610-JY-038	1.0 U	µg/L
Metals	Beryllium	09/27/2010	0.5	GW-17358-091610-JY-030	1.0 U	µg/L
				GW-17358-091610-JY-035	1.0 U	µg/L
				GW-17358-091610-JY-038	1.0 U	µg/L
				GW-17358-091610-JY-040	1.0 U	µg/L
				GW-17358-091610-JY-041	1.0 U	µg/L
				GW-17358-091610-JY-043	1.0 U	µg/L
Metals	Beryllium	09/27/2010	0.7	GW-17358-091610-JY-029	1.0 U	µg/L
Metals	Lead	09/30/2010	1.7	GW-17358-091410-DR-022	4.2 U	µg/L

TABLE 6

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO LABORATORY BLANK CONTAMINATION
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>Analysis Date (mm/dd/yyyy)</i>	<i>Blank Result</i>	<i>Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
Metals	Antimony	09/23/2010	0.047	GW-17358-091010-DR-003	2.0 U	µg/L
Metals	Antimony	09/23/2010	0.068	GW-17358-091010-DR-002	2.0 U	µg/L
Metals	Antimony	10/01/2010	0.054	GW-17358-091710-JY-046	2.0 U	µg/L
				GW-17358-091710-JY-047	2.0 U	µg/L
				GW-17358-091710-JY-048	2.0 U	µg/L
				GW-17358-091710-JY-049	2.0 U	µg/L
				GW-17358-091710-JY-052	2.0 U	µg/L
Metals	Antimony	10/01/2010	0.074	GW-17358-091310-DR-010	2.0 U	µg/L
				GW-17358-091710-JY-057	2.0 U	µg/L
Metals	Antimony	10/01/2010	0.074	GW-17358-091310-DR-009	2.0 U	µg/L
Metals	Antimony	09/29/2010	0.057	GW-17358-091310-DR-007	2.0 U	µg/L
				GW-17358-091410-DR-013	2.0 U	µg/L
				GW-17358-091410-DR-015	2.0 U	µg/L
				GW-17358-091410-DR-016	2.0 U	µg/L
Metals	Thallium	09/23/2010	0.25	GW-17358-091010-DR-001	1.0 U	µg/L
				GW-17358-091010-DR-002	1.0 U	µg/L
				GW-17358-091010-DR-003	1.0 U	µg/L

Notes:

U - Qualified as Not Detected at the report limit

TABLE 7

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO OUTLYING
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERIES AND/OR RELATIVE PERCENT DIFFERENCE
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>MS %Rec</i>	<i>MSD %Rec</i>	<i>RPD</i>	<i>Control Limits</i>		<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
					<i>%Rec</i>	<i>RPD</i>			
TCL VOC	Vinyl chloride	83	87	3.9	88-126	30	GW-17358-091410-DR-015	2.4 J	µg/L
	Dichlorodifluoromethane	61	61	0.51	70-130	30		3.3 UJ	µg/L
TCL VOC	Dichlorodifluoromethane	65	68	4.3	70-130	30	GW-17358-091710-JY-049	5.7 UJ	µg/L
TCL VOC	cis-1,3-Dichloropropene	79	78	2.1	82-130	30	GW-17358-091610-JY-029	1.0 UJ	µg/L
	Vinyl chloride	80	84	4.4	88-126	30		1.0 UJ	µg/L
	Methylene chloride	79	78	1.3	82-115	30		5.0 UJ	µg/L

Notes:

J - Estimated Concentration
UJ - Non-detect with an Estimated Report Limit

%Rec - Percent Recovery
MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference
TCL - Target Compound List
VOC - Volatile Organic Compounds

TABLE 8

SUMMARY OF QUALIFIED SAMPLE RESULTS DUE TO OUTLYING
 LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE RESULTS
 GROUNDWATER MONITORING - SEPTEMBER 2010
 WILLOW RUN PLANT
 YPSILANTI, MICHIGAN

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS %Rec	LCD %Rec	RPD	Control Limits		Associated Sample ID	Qualified Result	Units
						%Rec	RPD			
TCL VOC	Caprolactam	09/21/2010	48	54	13	50-130	30	GW-17358-091310-DR-005	10 UJ	µg/L
	2-Chloronaphthalene		56	35	46	39-110	30	GW-17358-091310-DR-006	5.0 UJ	µg/L
	Biphenyl (1,1-Biphenyl)		53	47	12	50-130	30	GW-17358-091310-DR-007	10 UJ	µg/L
								GW-17358-091310-DR-008		
								GW-17358-091310-DR-009		
								GW-17358-091310-DR-010		
								GW-17358-091310-DR-011		
								GW-17358-091410-DR-012		
								GW-17358-091410-DR-013		
								GW-17358-091410-DR-018		
								GW-17358-091410-DR-019		
TCL VOC	cis-1,3-Dichloropropene	09/20/2010	76	77	1.3	84-130	30	GW-17358-091010-DR-001	1.0 UJ	µg/L
	trans-1,3-Dichloropropene		73	78	5.8	84-130	30	GW-17358-091010-DR-002	1.0 UJ	µg/L
	Carbon tetrachloride		71	72	0.85	75-149	30	GW-17358-091010-DR-003	1.0 UJ	µg/L
								GW-17358-091010-DR-004		
TCL VOC	Methyl tert butyl ether	09/20/2010	44	45	2.7	70-130	30	TB-17358-091010		
								GW-17358-091010-DR-001	5.0 UJ	µg/L
								GW-17358-091010-DR-002	5.0 UJ	µg/L
								GW-17358-091010-DR-003	5.0 UJ	µg/L
								GW-17358-091010-DR-004	0.47 J	µg/L
TCL VOC	Dichlorodifluoromethane	09/21/2010	64	66	3.1	70-130	30	TB-17358-091010	5.0 UJ	µg/L
								GW-17358-091310-DR-005	1.0 UJ	µg/L
								GW-17358-091310-DR-006	1.0 UJ	µg/L
								GW-17358-091310-DR-007	1.0 UJ	µg/L
								GW-17358-091310-DR-008	1.0 UJ	µg/L
								GW-17358-091310-DR-009	1.0 UJ	µg/L
								GW-17358-091310-DR-010	1.0 UJ	µg/L
								GW-17358-091310-DR-011	1.0 UJ	µg/L
								GW-17358-091410-DR-012	1.0 UJ	µg/L

TABLE 8

SUMMARY OF QUALIFIED SAMPLE RESULTS DUE TO OUTLYING
 LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE RESULTS
 GROUNDWATER MONITORING - SEPTEMBER 2010
 WILLOW RUN PLANT
 YPSILANTI, MICHIGAN

Parameter	Analyte	LCS	LCS	LCD	RPD	Control Limits		Associated Sample ID	Qualified Result	Units
		Date (mm/dd/yyyy)	%Rec	%Rec		%Rec	RPD			
TCL VOC	Dichlorodifluoromethane	09/21/2010	64	66	3.1	70-130	30	GW-17358-091410-DR-013	1.0 UJ	µg/L
								GW-17358-091410-DR-014	12 UJ	µg/L
								GW-17358-091410-DR-015	3.3 UJ	µg/L
								GW-17358-091410-DR-016	1.0 UJ	µg/L
								GW-17358-091410-DR-017	1.0 UJ	µg/L
								GW-17358-091410-DR-018	1.0 UJ	µg/L
								GW-17358-091410-DR-019	1.0 UJ	µg/L
								GW-17358-091410-DR-020	1.0 UJ	µg/L
								GW-17358-091410-DR-021	1.0 UJ	µg/L
								GW-17358-091410-DR-022	1.0 UJ	µg/L
								GW-17358-091410-DR-023	1.0 UJ	µg/L
								TB-17358-091310	1.0 UJ	µg/L
TCL VOC	Bromoform	09/23/2010	75	79	5.3	76-150	30	GW-17358-091410-DR-026	1.0 UJ	µg/L
								GW-17358-091410-DR-027	1.0 UJ	µg/L
								GW-17358-091410-DR-028	1.0 UJ	µg/L
								TB-17358-091410	1.0 UJ	µg/L
TCL VOC	Bromomethane	09/25/2010	60	64	6.6	64-129	30	GW-17358-091710-JY-036	1.0 UJ	µg/L
			70	73	3.9	76-150	30	GW-17358-091710-JY-045	1.0 UJ	µg/L
	Bromoform		GW-17358-091710-JY-046					GW-17358-091710-JY-048		
			GW-17358-091710-JY-050					GW-17358-091710-JY-051		
			GW-17358-091710-JY-052					GW-17358-091710-JY-053		
			GW-17358-091710-JY-055					GW-17358-091710-JY-056		
			GW-17358-091710-JY-057					TB-17358-091710		

TABLE 8

SUMMARY OF QUALIFIED SAMPLE RESULTS DUE TO OUTLYING
 LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE RESULTS
 GROUNDWATER MONITORING - SEPTEMBER 2010
 WILLOW RUN PLANT
 YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>LCS Date (mm/dd/yyyy)</i>	<i>LCS %Rec</i>	<i>LCD %Rec</i>	<i>RPD</i>	<i>Control Limits</i>		<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
						<i>%Rec</i>	<i>RPD</i>			
TCL VOC	Bromomethane	09/25/2010	60	64	6.6	64-129	30	GW-17358-091710-JY-049	5.7 UJ	µg/L
	Bromoform		70	73	3.9	76-150	30		5.7 UJ	µg/L
TCL VOC	Bromomethane	09/25/2010	60	64	6.6	64-129	30	GW-17358-091710-JY-054	2.0 UJ	µg/L
	Bromoform		70	73	3.9	76-150	30		2.0 UJ	µg/L
TCL VOC	Bromoform Dichlorodifluoromethane	09/24/2010	75	75	0.16	76-150	30	GW-17358-091610-JY-029	1.0 UJ	µg/L
			54	55	1.6	70-130	30	GW-17358-091610-JY-030	1.0 UJ	µg/L
								GW-17358-091610-JY-031		
								GW-17358-091610-JY-032		
								GW-17358-091610-JY-033		
								GW-17358-091610-JY-034		
								GW-17358-091610-JY-035		
								GW-17358-091610-JY-037		
								GW-17358-091610-JY-038		
								GW-17358-091610-JY-039		
								GW-17358-091610-JY-040		
								GW-17358-091610-JY-041		
								GW-17358-091610-JY-042		
								GW-17358-091610-JY-043		

TABLE 8

SUMMARY OF QUALIFIED SAMPLE RESULTS DUE TO OUTLYING
LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE RESULTS
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

Parameter	Analyte	LCS Date (mm/dd/yyyy)	LCS %Rec	LCD %Rec	RPD	Control Limits		Associated Sample ID	Qualified Result	Units
						%Rec	RPD			
TCL VOC	Bromoform	09/24/2010	75	75	0.16	76-150	30	GW-17358-091610-JY-044 TB-17358-091610	1.0 UJ	µg/L
	Dichlorodifluoromethane	(continued)	54	55	1.6	70-130	30		1.0 UJ	µg/L
TCL VOC	Bromomethane	09/28/2010	56	58	2.8	64-129	30	GW-17358-091710-JY-047	1.4 UJ	µg/L
	Bromoform		70	68	2.6	76-150	30		1.4 UJ	µg/L
	Dichlorodifluoromethane		58	62	6.7	70-130	30		1.4 UJ	µg/L
TCL VOC	Acetone	09/26/2010	52	59	13	58-130	30	LNAPL-17358-091710-JY-001	5900 UJ	µg/L
	1,1,1-Trichloroethane		62	68	8.4	67-123	30		1500 UJ	µg/L
	Dichlorodifluoromethane		35	35	1.4	50-150	30		2800 UJ	µg/L

Notes:

J - Estimated Concentration
UJ - Non-detect with an Estimated Report Limit

%Rec - Percent Recovery
LCD - Laboratory Control Spike Duplicate
LCS - Laboratory Control Spike
RPD - Relative Percent Difference
TCL - Target Compound List
VOC - Volatile Organic Compounds

TABLE 9

SUMMARY OF QUALIFIED SAMPLE DATA DUE TO TRIP BLANK CONTAMINATION
GROUNDWATER MONITORING - SEPTEMBER 2010
WILLOW RUN PLANT
YPSILANTI, MICHIGAN

<i>Parameter</i>	<i>Analyte</i>	<i>Blank Date (mm/dd/yyyy)</i>	<i>Blank Result</i>	<i>Associated Sample ID</i>	<i>Qualified Result</i>	<i>Units</i>
TCL VOC	Carbon disulfide	09/13/2010	0.47	GW-17358-091310-DR-011	5.0 U	µg/L
TCL VOC	Acetone	09/16/2010	1.3	GW-17358-091610-JY-043	25 U	µg/L
TCL VOC	Acetone	09/16/2010	1.3	GW-17358-091610-JY-044	25 U	µg/L

Notes:

U - Qualified as Not Detected at the report limit

TCL - Target Compound List

VOC - Volatile Organic Compounds

APPENDIX D

NOTICE OF OFF-SITE MIGRATION



Motors Liquidation Company
500 Renaissance Center
Suite 1400
Detroit, MI 48243

Phone: 313.486.4044
Fax: 313.486.4258

October 30, 2010

Vicki Katko
Michigan Department of Natural Resources and the Environment
Environmental Response Division
4th Floor, State Office Building
301 East Louis Glick Hwy.
Jackson, Michigan 49201

Willow Run Airport
801 Willow Run Airport
Ypsilanti, Michigan 48198-0899

Re: Notice of Migration of Contamination (Rule 1017 Notice)
PowerTrain Willow Run Site (U.S. EPA ID: MID 980587893)
Ypsilanti, Michigan

This Rule 1017 Notice is being submitted for the Motors Liquidation Company, PowerTrain Willow Run Site located at 2930 Ecorse Road, of Ypsilanti Township in Washtenaw County, Michigan (Site) pursuant to Section 20107a of Michigan Act 451, Part 201, and Part 10 of the Part 201 Administrative Rules.

Based on investigations conducted by Motors Liquidation Company (MLC) in September/October 2010, there is reason to believe that free phase petroleum on the groundwater may have migrated onto the adjacent Willow Run Airport property located east of the Site.

In accordance with Rule 1017(1), an owner or operator of a property who has reason to believe that a hazardous substance is emanating from, or has emanated from, and is present beyond boundaries of the property in excess of applicable Part 201 Generic Residential Criteria is to notify the Michigan Department of Natural Resources and Environment (MDNRE) and potentially affected adjacent property owners. To satisfy this requirement, MLC has completed the MDNRE form – “*Notice of Migration of Contamination*” and associated tables/figures and has included them with this letter. Please note that groundwater is not currently being used for drinking water purposes in this area and therefore does not present an imminent exposure issue.

Should you have any questions regarding this document, please do not hesitate to contact the writer at 248-225-3277.

Sincerely,

Robert W. Hare, P.E.
Motors Liquidation Company

Robert
W. Hare

Digitally signed by Robert W.
Hare
DN: cn=Robert W. Hare,
o=Motors Liquidation Company,
ou=Environmental,
email=rhare@alixpartners.com,
c=US
Date: 2010.10.30 10:31:24 -04'00'

C (electronic): James Redwine, V.P. Environmental, MLC
Kevin Lund, MDNRE, Jackson, MI
Scott Adamowski, CRA



NOTICE OF MIGRATION OF CONTAMINATION

(Under the authority of Part 201, Natural Resources and Environmental Protection Act, 1994 Act 451, as amended, (NREPA) and the Rules promulgated thereunder)

An owner or operator of property that is a facility, and/or who is subject to MCL 324.20114, and who has reason to believe that a hazardous substance is emanating from, has emanated from, or is likely to be emanating from the property and migrating beyond the boundaries of the property that he or she owns or operates is required under R 299.5522 and R 299.51017(1) to notify the Michigan Department of Environmental Quality ("DEQ") and affected property owners, unless he or she is exempt from MCL 324.20107a (see MCL 324.20107a(4) for exemptions), or unless he or she has provided the notice required by MCL 324.21309a. Submission of this notice does not fulfill the notification requirements of MCL 324.21309a.

The notice must be provided within 45 days after the owner or operator has reason to believe that hazardous substances have migrated, or are likely to have migrated, to or beyond the boundary of his or her property (see R 299.51017 and R 299.5522 for exceptions). If a person is required to provide additional notice as a result of the changes in R 299.51017 that took effect on December 21, 2002, then that additional notice shall be provided not later than September 21, 2003.

Use of this form is mandatory for the notice required by R 299.51017(1) and may also be used by parties subject to MCL 324.20114 to provide notice required by R 299.5522. This form may also be used to provide notice to affected property owners as required by those rules.

If a person holds a permit for an oil and gas well under Part 615, Supervisor of Wells, of the NREPA and there is a release from the oil and gas exploration or production activities, that person shall give notice to the DEQ and to the owner of the surface rights of the property.

If a person holds an easement and there is a release from the easement holder's activities, that person shall provide notice to the DEQ and to the grantor of the easement, or the grantor's successor in interest, if any.

Completing this notice in no way relieves a person who is subject to MCL 324.20114 from the responsibility to undertake required response activities.

This notice must be sent to the DEQ office that serves the county in which the property is located. A list of DEQ offices is available at www.michigan.gov/bea, or by calling the Remediation and Redevelopment's Lansing office at 517-373-9837. The DEQ will not prepare acknowledgement of receipt of these notices. The sender is responsible for sending the report using a method that provides proof of delivery if such proof is desired. Please label the outside of the envelope "Migration Notice." Additional guidelines for the compliance with the requirements of R 200.51017(1) or R 299.5522 are available at www.michigan.gov/bea.

THIS NOTICE IS PROVIDED PURSUANT TO:

R 299.5522



R 299.51017



(check both, if applicable)

Please provide the following information as completely as possible.

1. Name and location of the property that hazardous substances are emanating from:

2. Status relative to the property:

(Check one or both, as applicable.)

Name: MLC Willow Run Transmission

Address: 2930 Ecorse Road

Location: East Property Boundary

City/County: Ypsilanti, Wayne County

Property Tax Identification Number, or if applicable, the ward and item number: K-11-12-100-003

Owner



Operator



Provide any additional ID numbers associated with the property (e.g., EPA ID No., BEA No., Part 213 facility ID No., etc.):

EPA ID No. MID980587893

3. Name, address, and telephone number of the property owner, operator, or other party submitting the notice:

Name: Motors Liquidation Company
Address: 500 Renaissance Dr. Suite 1400
City/State: Detroit, MI
Telephone number: 313-486-4044

4. Name, address and telephone number of a contact person familiar with the content of the notice:

Name: Robert W. Hare
Address: 500 Renaissance Dr., Suite 1400
City/State: Detroit, MI 48243
Telephone: 248-225-3277 (cell)

5. If this Notice is provided pursuant to R 299.51017, provide the address and other location information for the *adjacent* property(s) onto which contamination is migrating, has migrated, or is likely to migrate. If this Notice is provided pursuant to R 299.5522, provide the address and other location information for *each* property onto which contamination has migrated. Notice should be sent to the property owner of record. If the impacted property is owned by the State of Michigan, notice should be sent to the department managing the property (i.e. a prison, state park, etc.). Notices to the Michigan Department of Transportation (MDOT) for state owned roadways should be sent to Contamination Specialist, Environmental Section, Project Planning Division, MDOT, 425 W. Ottawa Street, P.O. Box 30050, Lansing, MI 48989. If it isn't readily apparent what state department manages the property, notices should be sent to Mr. Thomas Saxton, Tenant and Land Services, Department of Management and Budget, 1st Floor Lewis-Cass Building, P.O. Box 30026, Lansing, MI 48909.

Address: Willow Run Airport
City/State: Belleville, MI
Property Tax ID number: 83-025-99-0001-000
Other: mailing address is 801 Willow Run Airport,
Ypsilanti, MI 48198, attn: David E. DiMariea, Director

Notified? No ☐ Yes ☒ Date: 10/30/10

6. Complete the Table on Page 4 of this Form for each hazardous substance which has migrated, or is likely to have migrated, beyond the property boundary at a concentration that exceeds a Generic Residential Cleanup Criterion developed by the DEQ pursuant to MCL 324.20120a(1). Complete and attach additional copies of Page 4, if necessary, to list all hazardous substances that must be reported. Include a scaled map or drawing that shows the location of sampling points identified on the Table on Page 4, the property boundaries, and the adjacent property owners if providing notice pursuant to R 299.1017(1) or all impacted property owners if providing notice pursuant to Rule 299.5522.

See below.

7. Provide a summary of the information which shows that contamination is emanating from, or has emanated from, and is present beyond the boundary of the source property at a concentration which exceeds that allowed by MCL 324.20120a(1)(a). This summary shall identify the environmental media affected, specific hazardous substances, and the concentrations of those hazardous substances in all affected environmental media at the property boundary and in any sample locations beyond the property boundary. The summary shall also describe the basis for the conclusion that the contamination is emanating, has emanated, or is present beyond the boundary of the source property, including whether the conclusion is based on groundwater analytical data or fate and transport modeling, both, or neither.

Separate phase petroleum equal to or greater than 1/8" thick was observed in groundwater monitoring well CRA-617M, located on PowerTrain Willow Run property approximately one-foot from the east fence line between MLC and the Willow Run Airport. Based on this proximity, and as a precaution, it is assumed that the product has migrated to the east beyond the MLC property line.

8. If the person making this notice has reason to believe that a migrating hazardous substance has affected, or is likely to affect, a private or public water supply, then that water supply must be identified here:

There is no reason to believe that a water supply has been or will be affected.

- | | YES | NO |
|--|-------------------------------------|-------------------------------------|
| 9. Is this notice being submitted within the timeframes established under R 299.5522 and/or R 299.51017, as applicable? | ☒ | ☐ |
| 10. Is this notice in addition to a notice submitted prior to <i>December 21, 2002</i> ? (R 299.51017(4)(c)) | ☐ | ☒ |
| 11. Is this notice related to an oil and gas well permit (R 299.51017(2))? Permit #: | ☐ | ☒ |
| 12. Is this notice related to an easement (R 299.51017(3))? (NOTE: All easement grantors <i>must</i> receive this notice.) | ☐ | ☒ |
| 13. Has surface water been affected (R 299.51017(1) and R 299.5522(2))? (If yes, please identify the affected surface water body.) | ☐ | ☒ |

CERTIFICATION:

With my signature below, I certify that I am the owner of the facility or that I am legally authorized to execute this notice on behalf of the owner or operator named on this form, and that to the best of my knowledge and belief the above representations are complete and accurate. I understand that intentionally submitting false information to the DEQ is a felony and may result in fines up to \$25,000 for each violation.

Signature _____
(Owner or person legally authorized to bind the person making this report)

Date October 30, 2010

Name (Typed or Printed) Robert W. Hare

Title (Typed or Printed) Director, Environmental

Robert
W. Hare

Digitally signed by Robert W. Hare
DN: cn=Robert W. Hare, o=Motors
Liquidation Company,
ou=Environmental,
email=rhare@alixpartners.com,
c=US
Date: 2010.10.30 11:02:14 -04'00'

See Item 6 on Page 2 of this Form for instructions to be used in completing this Table. Attach additional pages if necessary. The information to be included in each column of the Table is:

- Column A Name of hazardous substance.
 Column B Chemical Abstract Service (CAS) Number for the hazardous substance.
 Column C Maximum hazardous substance concentration measured on the property, expressed in parts per billion (e.g., ug/L or ug/Kg). Report maximum concentration separately for each environmental medium.
 Column D Sample location for Column C (relate to label on map).
 Column E Environmental medium in which concentration reported in Column C was measured (e.g., soil or groundwater).
 Column F Distance from point of maximum measured concentration (Column D) to property boundary, in direction of contaminant migration, if direction is known or can reasonably be inferred. If direction is unknown, list distance to nearest property boundary.
 Column G Direction of contaminant migration, if known.
 Column H Concentration closest to property boundary, if known. If a concentration lower than the maximum concentration reported in Column C has been measured at a point closer to the property boundary in the direction of contaminant migration, use Column I to list the concentration that was measured closest to the property boundary in the direction of contaminant migration.
 Column I Sample location for Column H (relate to label on map).
 Column J Environmental medium for measurement reported in Column H, if applicable.

A Hazardous Substance	B CAS Number	C Maximum Concentration	D Sample Location for "C"	E Environmental Medium for "C"	F Distance to Property Boundary	G Direction of Migration	H Boundary Concentration	I Sample Location for "H"	J Environmental Medium for "H"
Butyl benzyl phthalate	85687	65,000 ppb	CRA-617M	LNAPL	1'		same		
Phenol	10895 2	50,000 ppb	CRA-617M	LNAPL	1'		same		
Iron	74398 96	6800 ppb	CRA-617M	LNAPL	1'		same		
Selenium	77824 92	480 ppb	CRA-617M	LNAPL	1'		same		

Total Number Samples Collected: 1 (Petroleum only) Total Number of Samples Exceeding Criteria: Note 1

Note 1: The results noted above are for the petroleum sampled from the well. These data do not relate directly to applicable soil or groundwater criteria

A scaled map or drawing showing these locations and the property boundaries must be submitted with this Notice

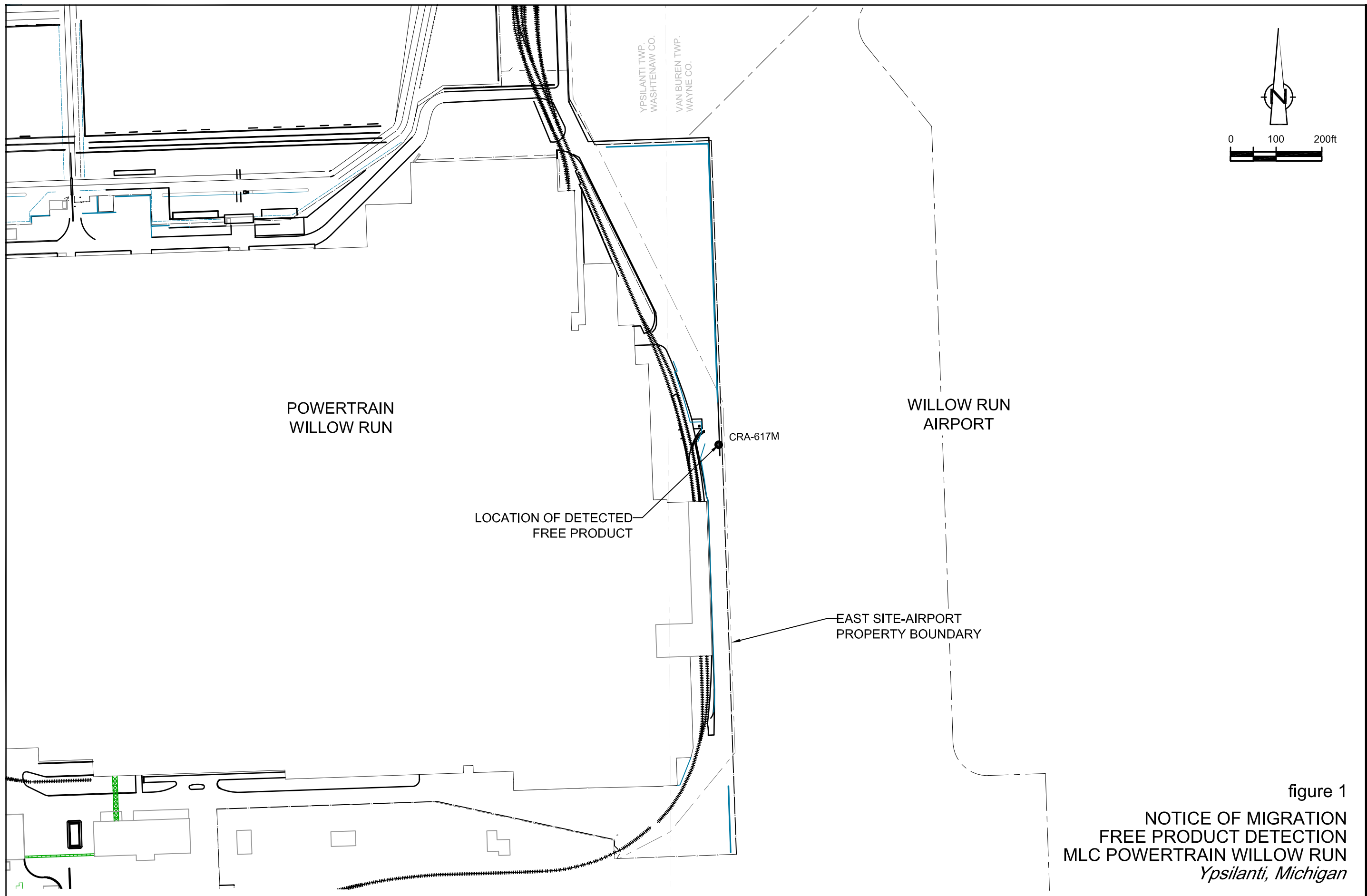


figure 1
NOTICE OF MIGRATION
FREE PRODUCT DETECTION
MLC POWERTRAIN WILLOW RUN
Ypsilanti, Michigan