RCRA FACILITY INVESTIGATION REPORT
FORMER ROMULUS ENGINEERING CENTER
37350 ECORSE ROAD, ROMULUS, MICHIGAN

USEPA ID # MID000809905

by

Haley & Aldrich of Michigan, Inc.
Ann Arbor, Michigan

for

Revitalizing Auto Communities
Environmental Response Trust
Ypsilanti, Michigan

File No. 37515-010
19 April 2013

HALEY & ALDRICH

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19 April 2013
File No. 37515-011

Michigan Department of Environmental Quality
525 West Allegan Street
Lansing, MI 48933-1502

Attention: Ms. Ronda Blayer

Subject: RFI Report and Environmental Indicator Forms for the
Former GM Romulus Engineering Center
37350 Ecorse Road, Romulus, Michigan
USEPA ID #MID000809905

Dear Ms. Blayer:

Enclosed on behalf of Revitalizing Auto Communities Environmental Response Trust, please find a compact disk containing Adobe® Acrobat® Reader files for the following documents involving the referenced property:

1. RCRA Facility Investigation Report;
2. Documentation of Environmental Indicator Determination, RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA725) – Current Human Exposures Under Control; and
3. Documentation of Environmental Indicator Determination, RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA750) – Migration of Contaminated Groundwater Under Control.

Two hard copies of each of these documents are also enclosed.

If you have any questions concerning this information, or would like to discuss these matters in more detail, please do not hesitate to call us.

Sincerely yours,
HALEY & ALDRICH OF MICHIGAN, INC.

Derek C. Kaiding, P.E.
Senior Project Manager | Vice President

Enclosures:

RCRA Facility Investigation Report, Former Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan, USEPA ID #MID000809905

Documentation of Environmental Indicator Determination, RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA725) – Current Human Exposures Under Control, Former Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan, USEPA ID #MID000809905

Documentation of Environmental Indicator Determination, RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA750) – Migration of Contaminated Groundwater Under Control, Former Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan, USEPA ID #MID000809905

c: Romulus Public Library; Attn.: Ms. Patty Braden
RACER Trust; Attn.: Mr. Grant Trigger
RACER Trust; Attn.: Mr. David Favero
Haley & Aldrich, Inc.: Attn.: Mr. James Little
Haley & Aldrich, Inc.: Attn.: Ms. Susan Hoertt

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LIST OF ACRONYMS AND ABBREVIATIONS

AOI	Area of Interest
BGS	Below Ground Surface
CCS	Current Conditions Summary
Due Care Report	Documentation of Due Care Compliance under Section 20107a of Michigan's Natural Resources and Environmental Protection Act of 1994 (as amended)
GM	General Motors
GM CET Facility	General Motors Romulus Casting, Engine, Transmission Facility, Romulus MI
GMPT	General Motors Powertrain
GSI	Groundwater to Surface Water Interface Criteria
GSIP	Groundwater to Surface Water Interface Protection Criteria
Haley & Aldrich	Haley & Aldrich of Michigan, Inc.
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
mL/min	Milliliters per minute
ug/L	Micrograms per Liter
MDEQ	Michigan Department of Environmental Quality
MI	Michigan
Michigan 10 Metals	Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Selenium, Silver, and Zinc
MNREPA	Natural Resources and Environmental Protection Act Public Act 451 Of 1994
NTU	Nephelometric Turbidity Units
Part 201	Part 201 of Michigan's Natural Resources and Environmental Protection Act of 1994 (as amended)
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
RCRA	Resource Conservation and Recovery Act
QAPP	Quality Assurance Project Plan
RFI	RCRA Facility Investigation
SVOCs	Semi-Volatile Organic Compounds
TCL	Target Compound List
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

1. INTRODUCTION

1.1 General

Haley & Aldrich, of Michigan Inc. (Haley & Aldrich) has prepared this *Resource Conservation and Recovery Act (RCRA) Facility Investigation Report* (RFI Report) on behalf of Revitalizing Auto Communities Environmental Response Trust (RACER) of Ypsilanti, Michigan. This RFI Report covers work performed earlier this year at the former Romulus Engineering Center property located at 37350 Ecorse Road, Romulus, Wayne County, Michigan (the Site) (Figure 1). The Site owner is referred to as RACER in this document, regardless of the time frame discussed.

This RFI Report describes the procedures, methods and results of the field investigations conducted during implementation of the RCRA Facility Investigation (RFI) activities proposed in the *RCRA RFI Work Plan* (Haley & Aldrich, September 2012) ("RFI Work Plan") and covers data collected through February 2013. The work proposed as part of the RFI Work Plan was based on information documented in the *Current Conditions Summary* (CCS) (Haley & Aldrich, December 2011).

The RFI Work Plan was approved by Michigan Department of Environmental Quality (MDEQ) via electronic mail on 15 November 2012.

The data collected to date have been evaluated to characterize the nature and extent of hazardous constituents in the environmental media at the Site. Human health and ecological risk evaluations are included in this RFI Report to provide a basis for determining whether the presence of hazardous constituents poses an unacceptable risk to human health and the environment that would warrant corrective measures.

1.2 Report Organization

This RFI Report is organized as follows:

- Section 1 provides an introduction to this report and an outline of its organization.
- Section 2 provides a brief overview of RFI activities and modifications made to the scope of work covered by the RFI Work Plan.
- Section 3 discusses the environmental setting of the Site, updated from the RFI Work Plan as appropriate, including land use, water supply/groundwater use, demographics, climate, geology and hydrogeology, surface water/drainage, and conceptual Site models for human and ecological exposures.
- Section 4 presents a discussion of the RFI results with respect to Nonresidential Screening Criteria included in Part 201 of the Michigan Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended (Part 201 Criteria).

- Section 5 presents a human health risk evaluation concerning the significance of hazardous constituents in affected environmental media at the investigated areas and whether corrective measures are warranted.
- Section 6 summarizes the conclusions of the RFI.
- Section 7 lists primary references.

The tables, figures, and appendices referenced throughout this report provide supporting information pertaining to the RFI activities conducted for the Site.

2. OVERVIEW OF THE RFI

2.1 Site Description and History

The Site measures approximately 70 acres in size, and is located at 37350 Ecorse Road in Romulus, Michigan. It is generally a rectangular-shaped tract of land that is situated in a mixed industrial/commercial/residential area (see Figures 1 and 2). The Site is currently vacant, and is bordered to the east by the General Motors Romulus Casting, Engine, Transmission Facility (GM CET Facility), which is currently owned and operated by General Motors LLC (36880 Ecorse Road). The Site is bordered to the north and south by mostly vacant undeveloped land, and to the west by light industrial property, with residential areas beyond.

The majority of the Site is covered by the concrete slab of the former Romulus Engineering Center (measuring approximately 196,000 square feet in size) and associated paved parking lots. The remaining surface of the Site is covered by a paved access road and several undeveloped areas of trees and other vegetation.

The main Site building structure of the former Romulus Engineering Center was constructed in 1981, and primarily housed dynamometer cells for engine testing. The building was demolished to its foundation slab in 2010. The floors of all associated pits and subsurface features (e.g., wastewater pits) were broken to prevent them from collecting precipitation, and were filled to grade with crushed concrete material.

Section 2 of the RFI Work Plan summarized individual areas of the Site which were identified with the potential for a release of hazardous waste or hazardous constituent to the environment. These areas are referred to as Areas of Interest (AOIs). A total of 7 AOIs were identified; 6 of which were identified for further investigation. The remaining AOI warranted no further action, and is not being carried forward through the RCRA Corrective Action process. The 6 AOIs subject to investigation under the RFI are summarized in Table I of this report. Further details concerning all 7 Site AOIs are provided in Table I of the RFI Work Plan.

2.2 Summary of RFI Activities and Work Plan Modifications

Section 3 of the RFI Work Plan described the scope of work that was initially planned for the Site, including discussions regarding RFI Goals and Objectives, RFI Approach, and Sampling and Analysis Plan for Areas of Interest (soil, groundwater, and non-aqueous phase liquid [NAPL]). Section 4 of the RFI Work Plan discussed plans for evaluating the resulting RFI data.

Field activities were conducted at the Site, with certain modifications (see below), pursuant to the RFI Work Plan, as well as the associated *Field Sampling Plan*, and *Quality Assurance Project Plan* (QAPP) (Haley & Aldrich, September 2012).

The field activities associated with the implementation of the RFI Work Plan were undertaken at the Site during the period of approximately mid-December 2012 through February 2013, and included the following activities:

- Drilling of 17 test borings, with continuous interval sampling to depths of up to 30 feet below the ground surface (bgs);
- Photoionization detector (PID) screening, visual characterization, and soil/water shake testing of soil samples;
- Collection and laboratory analysis of 13 soil samples (including Quality Assurance/Quality Control [QA/QC] samples) from 10 locations;
- Installation of 15 temporary monitoring wells;
- Careful development of 14 of the 15 temporary monitoring wells;
- Measurement of groundwater elevations at 14 of the 15 temporary monitoring wells;
- Collection and laboratory analysis of 13 groundwater water samples using ultra-low-flow sampling techniques (sample withdrawal rates less than 100 milliliters per minute); and
- Ground surveying to establish location and elevation information for each soil boring and monitoring well.

All soil samples subject to laboratory analysis were analyzed for the following:

- Target Compound List (TCL) volatile organic compounds (VOCs);
- TCL polycyclic aromatic hydrocarbons (PAHs);
- TCL polychlorinated biphenyls (PCBs); and
- Michigan 10 metals (Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Selenium, Silver, and Zinc).

All groundwater samples were submitted for laboratory analysis of the following analytes:

- TCL VOCs;
- TCL PAHs; and
- Michigan 10 metals (both filtered and unfiltered samples).

Groundwater samples were also analyzed in the field for the following parameters:

- Dissolved Oxygen (DO);
- Oxidation-reduction potential (ORP);
- Alkalinity/acidity (pH);

- Temperature;
- Conductivity; and
- Turbidity.

Tables II through V summarize the following information pertaining to the RFI field investigation, respectively:

- Soil Boring Inventory and Completion Summary;
- Temporary Monitoring Well Inventory and Completion Summary;
- Soil Sample Collection Summary; and
- Groundwater Sample Collection Summary.

2.3 RFI Work Plan Modifications

The RFI Work Plan proposed the drilling of 17 soil borings, each of which was to be converted to temporary groundwater monitoring wells if saturated conditions existed at the drilling location. A total of 17 soil borings were completed, 15 temporary monitoring wells were installed, and 13 soil samples were submitted for laboratory analysis (including QA/QC samples).

Boring location SB-01-102 was intended to be converted to a temporary monitoring well, but conditions at this location were dry to a depth of 20 feet bgs; accordingly, a well was not installed.

Two borings were proposed in AOI-03, but only one was successfully drilled. At soil boring SB-03-116, native soils were observed below approximately 9 inches of shallow subsurface concrete. Soils were wet immediately below this concrete; therefore, in lieu of collecting a soil sample, a temporary monitoring well was installed with a screen placed at 5 to 10 feet bgs. At the other AOI-03 boring location, SB-03-117, located to the east of soil boring SB-03-116, only fill material was observed above refusal at 15 feet bgs. Large gravel fill material was noted to 15 feet bgs and refusal at this depth appeared to be due to concrete, indicating that the boring was likely inside a subsurface vault or pit-like feature. Three additional attempts were made to investigate native soils near SB-03-117: 5 feet to the north of the original location and 5 feet to east of the original location with the similar observations and refusal in concrete at 16 feet, and 10 feet south of the original boring also with similar observations, but with shallower refusal at 6 feet. No soil was collected for laboratory analysis from SB-03-117 due to the presence of non-native fill material having no visual evidence of impact. A well was not installed because it appeared that the targeted location involved a vault or pit-like feature. The temporary monitoring well installed in SB-03-116 is sufficient to evaluate potential impacts of Site-related activities at this AOI.

Pursuant to the RFI Work Plan, each of the temporary monitoring wells to be installed was to consist of "…pre-packed screen and riser installation, but no pack/surface seal, surface mount, or protective casing…" However, due to the potential for localized ponded water to enter the well boreholes, a revised approach of installing a bentonite seal on top of the sand pack of each well was implemented.

It was planned that potential impacts to groundwater at the Site would be assessed through the collection and laboratory analysis of groundwater samples to be collected as grab samples using a peristaltic pump, with no pre-sampling well development efforts to be performed. However, as follow-up to Item 2A of MDEQ's approval letter (dated 15 November 2012) for the RFI Work Plan, seals were installed at the top of the sand pack of each of the 15 temporary monitoring wells. Additionally, approximately one week or more prior to sampling each of the monitoring wells, each well was developed by gentle surging with a polyethylene bailer, and purging at a rate of approximately 100 to 200 milliliters per minute (mL/min) (to the extent possible depending upon well yield), until readings of field indicator parameters (pH, temperature, conductivity, ORP, DO, and turbidity) stabilized. Stabilization was considered to be achieved when the final groundwater flow rate was achieved and three consecutive readings for each of the parameters were within the following limits or after 10 well volumes were removed:

- pH = ±0.1 pH units of the average value of the three readings;
- Temperature = ±3 percent of the average value of the three readings;
- Conductivity = ±0.005 milliSiemen per centimeter (mS/cm) of the average value of the three readings for conductivity <1 mS/cm and ±0.01 mS/cm of the average value of the three readings for conductivity >1 mS/cm;
- ORP = ±10 millivolts (mV) of the average value of the three readings;
- DO = ±10 percent of the average value of the three readings; and
- Turbidity = ±10 percent of the average value of the three readings, or a final value of less than 5 NTU.

After performing this initial surging and purging, each well was allowed to "rest" for at least one week prior to being sampled. Groundwater samples were collected using ultra-low-flow sampling techniques, with sample withdrawal rates of less than 100 mL/min.

One round of groundwater elevation measurement and sample collection was performed over the period 30 January 2013 through 1 February 2013, with the following exceptions:

- Groundwater samples were not collected from monitoring well TW-05-113 because it was iced over; and
- Groundwater samples could not be collected from monitoring well TW-01-103 because it did not produce a sustained volume of water sufficient to facilitate sample collection.

3. ENVIRONMENTAL SETTING

This section describes the environmental setting at the Site, including land use, water supply/groundwater use, demographics, climate, geology and hydrogeology, surface water/drainage, and conceptual Site models for human and ecological exposures.

3.1 Land Use

As noted previously, the Site is located in a mixed industrial/commercial/residential area. It is bordered to the north and south by mostly vacant undeveloped land, to the east by the GM CET Facility, and to the west by light industrial property and residential areas beyond.

As noted in Section 2.3 of the CCS, the Site is assessed as commercial land and zoned by the City of Romulus, namely as M-2, General Industrial District. According to Article 8 of the City of Romulus zoning ordinance, activities permitted in M-2 districts include manufacturing, assembly and fabrication of large-scale or specialized industrial operations likely to produce external physical effects. M-2 districts are areas designated for use where heavy industrial users have access to major roadways, utilities and other infrastructure.

3.2 Groundwater Use/ Water Supply

Drinking water is supplied to the Site by the City of Romulus through the Detroit Water and Sewage Department, with the ultimate source of drinking water to the Site being the Detroit River.

The State of Michigan requires licensure of all groundwater well drillers operating in the State, and Wayne County requires permits be issued for all drinking water well installations. These various overlapping requirements provided strict control over drinking water well installations in this area.

There are no drinking water wells identified within one mile of the Site per Environmental Data Resources, Inc. (30 September 2011)

3.3 Climate

The Wayne County climate is influenced by the Great Lakes, and has a temperate climate with well-defined seasons. Frequent weather changes come from the passing of weather fronts and associated low and high centers of air pressure across the region. Winds are typically from the southwest, but during the winter months are dominantly from the northwest. As presented in (http: // www.bestplaces.net / climate / county / Michigan / wayne), the average January low temperature is 17°F, and the average July high temperature is 84°F, while the total annual rainfall and snowfall for the county are each approximately 32 inches.

3.4 Demographics

As presented at http: // www.city-data.com / city / Romulus-Michigan.html, the city of Romulus, Michigan measures approximately 36 square miles, and is composed mostly of urban area, with a population density of approximately 660 people per square mile. Its overall population is approximately 24,000 people, with a man/woman ration being about 48 to 52. The median age of this population is about 36 years old, and its estimated median household annual income in 2009 was about $46,000.

3.5 Surface Water Hydrology

The Site is located at approximately 664 feet above mean sea level, and is generally flat with minor depressions, primarily on the eastern side of the parcel, where seasonal, ephemeral ponding of precipitation and storm water runoff occurs. Properties surrounding the Site are located at elevations similar to the Site, increasing slightly in all directions.

Prior to the Site's demolition in 2010, on-site surface drainage was controlled via subsurface storm sewer system which was integrated with the adjacent GM CET Facility. As part of the Site's demolition, the portion of the integrated storm sewer system serving the Site was plugged at the Site boundary, and is no longer in use. With no engineered systems in place to control storm water and precipitation run-off at the Site, and due to the Site's relatively flat surface topography, precipitation and storm water collects in surface depressions at various locations (only limited ephemeral ponds). Any storm events that would yield precipitation exceeding the ponding capacity of the Site discharge to the adjacent McClaughrey Drain, which runs adjacent to the Site (approximately 50 feet from the property boundary on the western and northern sides). The McClaughrey Drain ultimately discharges to the Lower Branch of the Rouge River located approximately 2 miles north of the Site. The Lower Rouge River combines with the upper and middle Rouge Rivers before discharging into the Detroit River.

3.6 Site Geology and Hydrogeology

Geologic conditions have been characterized during Site investigations to a depth of approximately 30 feet bgs or 634.6 ft AMSL. Descriptions of soil encountered at the RFI boring locations are presented on boring logs included in Appendix A. The focus of the RFI was to characterize the nature and extent of any release(s) of hazardous waste and/or hazardous constituents at the Site which may pose an unacceptable risk to human health and the environment. Investigation locations were selected based on field conditions and were biased based on historical process information, Site-specific physical parameters, observed potential evidence of contamination, and observed potential evidence of preferential pathways.

Stratigraphic correlations of on-site investigative locations are illustrated in cross-sections included as Figures 4 and 5, with orientations as illustrated on Figure 3. Soil descriptions and stratigraphy observed at the Site are generally consistent with published regional information (see Section 2.3 of the CCS). The Site and surrounding area is generally flat with a mixture of glacial and lacustrine organic deposits. Below a surface dominated by concrete and gravel fill, shallow soils (dominated by poorly graded sand

with silt) is generally encountered less than 10 feet bgs; below which is generally underlain by a stiff gray-brown lean clay.

A total of 15 temporary monitoring wells were installed in soil borings with evidence of sufficient soil moisture likely to yield representative groundwater samples pursuant to the RFI Work Plan. Groundwater samples were collected from 13 of the 15 temporary monitoring wells installed. Several attempts were made to develop/sample the remaining two wells; however samples could not be collected due to poor yield or frozen conditions. Shallow groundwater encountered at the Site is on average less than 1 foot below ground surface. Shallow groundwater potentiometric surface elevations recorded in January 2013 ranged from approximately 662.5 to 665.5 feet above mean sea level (AMSL); indicating a gradient toward the north-northeast. Figure 6 illustrates shallow groundwater potentiometric surface contours developed for the Site based in water levels measured on 30 January 2013.

3.7 Conceptual Site Model for Human Exposures

As previously discussed, the Site occupies approximately 70 acres of land in Romulus, Michigan that are zoned for general industry. Future land use at the Site is expected to remain nonresidential, commercial/industrial. As part of the final remedy for the Site, a deed restriction to maintain continued nonresidential, commercial/industrial use is planned for the Site, and will be pursued following MDEQ's review and approval of this RFI report. As such, workers comprise the main receptor population at the Site under both current and reasonably expected future land use. The Site is currently demolished and inactive; therefore, the current exposure potential is practically nonexistent.

Under reasonably expected future conditions, the populations with potentially significant on-site exposures are routine workers, maintenance workers, construction workers, and trespassers. It is anticipated that any subsurface maintenance work at the Site would be conducted in accordance with Due Care requirements under Section 20107a of MNREPA and a Site Health and Safety Plan, which would contain provisions for preventing significant exposures of such workers to environmental media.

The current zoning for the off-site areas around the Site is expected to remain unchanged. As such, the largest potentially exposed populations around the Site are residents, routine workers and maintenance workers.

In summary, the potentially exposed populations at and around the Site under current and reasonably expected future land use include the following:

Onsite:

- Routine workers,
- Maintenance workers,
- Construction workers, and
- Trespassers.

Off-site:

- Residents,
- Routine workers, and
- Maintenance workers.

3.8 Conceptual Site Model for Ecological Exposures

The Site and the immediate surrounding area have been significantly developed with much of the ground surface covered by buildings and pavement and consisting of commercial and industrial development, residential development, and public roadways. The majority of the Site is covered by the former building slab and pavement.

Select undeveloped areas of Site comprising approximately 30 percent of its surface cover represent potential ecological habitats comprised of the following areas:

- Open grass and low shrub;
- Successional shrub/forest;
- Mature deciduous forest; and
- Seasonal wetland.

These areas may possess the characteristics common to several habitat types that likely support certain upland ecological receptors; however, they are relatively small, discrete, and discontinuous compared to similar, much larger undeveloped tracts of land that are present adjacent to the Site to the north and across Ecorse Road to the south. Also, the dynamic nature of past Site operations, and the active adjacent industrial operations, is likely to be disturbing to most wildlife. As such, the potential ecological habitat areas of the Site identified above likely do not represent areas that would be found hospitable for sustained occupancy by most ecological receptors. Therefore, further ecological assessment is not required to document no significant risk to ecological receptors.

4. INVESTIGATION RESULTS AND DISCUSSION

This section presents a summary of the results of the field investigations of the 6 AOIs considered during this RFI. Section 4.1 describes the Part 201 Criteria used during this investigation, and Section 4.2 discusses the investigation results. The associated analytical data and screening results are presented/summarized both in table and figure formats as follows:

- Table VI – Summary of Part 201 Criteria for Soil;
- Table VII – Summary of Part 201 Criteria for Groundwater;
- Figure 7 – Soil and Groundwater Analytical Data;
- Appendix B-1 – Summary of Soil Analytical Data; and
- Appendix B-2 – Summary of Groundwater Analytical Data.

4.1 Identification of Potentially Significant Releases

Analytical results for soil and groundwater samples collected at the Site were compared to conservative screening criteria to determine if potentially significant releases to the environment have occurred, and if the field investigation adequately characterized these potentially significant releases. A potentially significant release of hazardous constituents to the environment at an area is considered when the highest site-related concentrations of constituents detected in soil or groundwater at the area are higher than any of the screening criteria. The presence of constituent concentrations higher than the screening criteria may not mean that the media necessarily poses a significant risk to human health or the environment. It only means that the potential to pose a significant risk should be further evaluated with consideration for additional site-specific factors.

The screening criteria for each medium are summarized below and have been identified to be applicable to the Site based on the conceptual Site model for human exposures discussed in Section 3.7. The following Part 201 Criteria[1] were used to evaluate the Site soil characterization data:

- Part 201 Nonresidential Drinking Water Protection Criteria;
- Part 201 Nonresidential Indoor and Ambient Air Criteria;
- Part 201 Nonresidential Direct Contact Criteria; and
- Part 201 Groundwater to Surface Water Interface Protection (GSIP) Criteria.

As previously noted, groundwater samples were intended to be collected from all initial soil borings to assist in the assessment of potential groundwater impact and in the placement of future groundwater monitoring wells, if needed. However, the following conditions encountered at the Site prohibited collection of groundwater samples from four locations: one boring was dry; one boring could not be

[*] Updated by MDEQ on 28 September 2012.

completed; sufficient water for sampling did not accumulate in one temporary monitoring well; and another temporary monitoring well was iced over. As such, groundwater samples were collected from 14 wells on 30 January 2013 through 1 February 2013. On 8 January 2013 through 23 January 2013, each of the wells subject to sampling was carefully developed with gentle surging and low-rate purging (200 to 300 mL/min) in an attempt to remove soil particles. Following this careful development, the wells were allowed to "rest" for one week prior to any sampling being performed. Groundwater samples were collected from these wells on 30 January 2013 and 31 January 2013. Ultra-low-flow sampling techniques (sample withdrawal rates less than 100 mL/min) were used to collect these samples, as a further measure to obtain more representative groundwater samples.

All of the RFI groundwater data have been compared with the following screening criteria:

- Part 201 Nonresidential Drinking Water Criteria;
- Part 201 Nonresidential Volatilization to Indoor Air Inhalation Criteria;
- Groundwater Contact Criteria;
- Water Solubility Levels;
- Flammability and Explosivity Levels;
- Acute Inhalation Levels ; and
- Part 201 Groundwater to Surface Water Interface (GSI) Criteria.

Constituents with at least one concentration exceeding the Part 201 Criteria anywhere at the Site (soil and/or groundwater) were selected for display on a "data-box" figure (Figure 7).

4.2 RFI Results and Discussion

4.2.1 Overview

As discussed in Section 2, 6 AOIs were subject to investigation based on evidence of a past release, historic operations, visual observations, and/or file review results. Tables B-1 and B-2 of Appendix B summarize the soil and groundwater data generated as part of the RFI with respect to each AOI. These tables present the analytical results for all analytes for all of the soil and groundwater samples collected during the RFI. As previously noted, Figure 7 also illustrates Part 201 Criteria exceedences across the Site. Validation of all soil and groundwater data collected at the Site as part of the RFI was performed in accordance with the QAPP. A summary of this validation is provided in Appendix C. The Site characterization data obtained for each of the AOIs investigated during this RFI are judged to be adequate and appropriate for RCRA Corrective Action decision-making. The laboratory reports are presented in Appendix D.

4.2.2 Analyte Detections and Criteria Exceedances

As shown in Tables B-1 and B-2 of Appendix B, constituents detected at the Site as part of the RFI include primarily select metals at various locations, and very limited detections of PAHs and/or VOCs at only a few locations. Of the Part 201 Criteria discussed in Section 4.1, only the following were exceeded when compared to the RFI analytical data for the Site:

- Part 201 Nonresidential Drinking Water Protection Criteria (soil);
- Part 201 Nonresidential Drinking Water Criteria (groundwater);
- Part 201 GSIP Criteria (soil); and
- Part 201 GSI Criteria (groundwater).

Only one soil sample exceeded the Nonresidential Drinking Water Protection Criteria of 4.6 mg/kg for arsenic:

AOI	Soil Sample ID	Interval (ft.)	Arsenic Concentration (mg/kg)
AOI-01	SB-01-101	3.5-4.0	5.69

Note: shaded value represent criteria exceedances.

Although this sample concentration exceeded the Part 201 Nonresidential Drinking Water Protection Criterion for arsenic, it did not exceed the Part 201 State Default Background Level for arsenic of 5.8 mg/kg.

No other soil data exceeded screening criteria.

The Nonresidential Drinking Water Criteria of 0.010 mg/L for arsenic was exceeded in groundwater at only two locations:

AOI	Temp. Well ID	Arsenic Concentration (mg/L)	
		Unfiltered	Filtered
AOI-07	MW-07-111	0.011/0.011	0.011/0.010
AOI-07	MW-07-112	0.013	0.002 U

Note: shaded values represent criteria exceedances; duplicate results are separated with a "/", and "U" indicates that the analyte was not detected (the value shown is the reporting limit).

These concentrations of arsenic detected in Site groundwater are believed to be present due to natural conditions (i.e., types of soil deposits), and are not believed to be attributed to Site operations because arsenic is not known to have been used at the Site, nor is it likely to have been a component of Site-related activities. Additionally, these exceedances of Nonresidential Drinking Water Criterion for arsenic are within the collective range of concentrations typical of

well water of Wayne County (greater than 0.010 mg/L), as described in MDEQ public outreach information[2].

Exceedances of the Part 201 GSIP and GSI Criteria are summarized below.

Part 201 GSIP Criteria (soil) Exceedances	
Chromium, 3.3 mg/kg	
AOI/Sample ID/Sample Interval	*Concentration (mg/kg)*
AOI-01/SB-01-104/3.0-3.5ft	6.59
AOI-01/SB-01-105/6.25-7.0ft	10
AOI-01/SB-01-108/0-1.5ft	3.58
Selenium, 0.40 mg/kg	
AOI/Sample ID/Sample Interval	*Concentration (mg/kg)*
AOI-01/SB-01-105/6.25-7.0ft	2.93
AOI-01/SB-01-108/0-1.5ft	0.61
Naphthalene, 0.011 mg/kg	
AOI/Sample ID/Sample Interval	*Concentration (mg/kg)*
AOI-01/SB-01-104/3.0-3.5ft	0.08
Part 201 GSI Criteria (groundwater) Exceedances	
Arsenic, 0.010 mg/L	
AOI/Temp. Well ID/Sample Type	*Concentration (mg/L)*
AOI-07/MW-07-111/Filtered	0.011/0.010
AOI-07/MW-07-111/Unfiltered	0.011
AOI-07/MW-07-112/Unfiltered	0.013
Copper, 0.009 mg/L	
AOI/Temp. Well ID/Sample Type	*Concentration (mg/L)*
AOI-01/MW-01-107/Filtered	0.017
AOI-01/MW-01-107/Unfiltered	0.017
Selenium, 0.005 mg/L	
AOI/Temp. Well ID/Sample Type	*Concentration (mg/L)*
AOI-01/MW-01-107/Filtered	0.011
AOI-01/MW-01-107/Unfiltered	0.014
AOI-03/MW-03-116/Filtered	0.013
AOI-03/MW-03-116/Unfiltered	0.013

Note: Duplicate results are separated with a "/".

Although select Part 201 GSIP and GSI Criteria are noted above to have been exceeded, the exposure pathways associated with these criteria are not considered to be complete, collectively based on the following points:

[2] http://www.michigan.gov/documents/deq/deq-wd-gws-wcu-arsenicwellwater_270592_7.pdf.

- All Part 201 GSIP and GSI Criteria exceedances are associated with only AOIs-01, -3, and -07;
- All groundwater associated with Part 201 GSIP and GSI Criteria exceedances involving AOI-01 and AOI-03 is controlled by the groundwater sink shown on Figure 6 proximate to AOI-01, and does not discharge to the McClaughrey Drain adjacent to the Site;
- Part 201 GSI Criteria exceedances associated with AOI-07 involve only arsenic, and as noted above, arsenic is believed to be present in Site media due to natural conditions, and is not believed to be attributed to Site operations; and
- Part 201 GSI Criteria exceedances involving arsenic at AOI-07 (if assumed to be linked to Site operations) are only very slightly above the associated criteria, and are measured to be present at a distance of over 500 feet from the McClaughrey Drain adjacent to the Site.

5. HUMAN HEALTH RISK EVALUATION

As previously explained, the RFI field work was designed to determine if a release of hazardous waste or hazardous constituents had occurred, and where a potentially significant release was identified, to characterize the nature and extent of hazardous constituents in the environmental media.

During the implementation of the RFI, the Site characterization data collected for each AOI were compared with conservative risk-based screening criteria to identify whether a potentially significant release of hazardous constituents to the environment may have occurred. Section 4 concluded that adequate data had been collected from each AOI to support a risk evaluation.

The significance of potential exposures to Site-related concentrations of constituents in potential exposure media was evaluated based on current and reasonably expected future land use at and around the Site. Potential exposure media include soil and groundwater. There is no exposure to surface water and/or sediment, since there are no surface water bodies on the property (only limited ephemeral ponds) and no significant impact on off-site surface water bodies.

Soil characterization data pertaining to the Site were compared with Part 201 Criteria as discussed in Section 4.1, and as detailed in Section 4.2.2 the only applicable screening criteria identified to exceed Site data included a limited number of exceedances involving arsenic and its of Part 201 Nonresidential Drinking Water Protection Criterion (soil), and Part 201 Nonresidential Drinking Water Criterion (water).

The only potential pathways of concern involving these screening criteria include the potable use of groundwater at or in the vicinity of the Site (i.e., on-site and off-site routine workers, maintenance workers, and construction workers, as well as local residents and Site trespassers).

Currently there is no evidence of exposure as these pathways are incomplete due to the following reasons:

- No current use of groundwater at the Site;
- Drinking water is supplied to the Site and the surrounding area by the City of Romulus through the Detroit Water and Sewage Department, with the ultimate source of drinking water to the Site being the Detroit River;
- No water wells present within 1-mile radius of the Site;
- Wayne County requires permits be issued for all drinking water well installations; and
- State of Michigan requires licensure of all groundwater well drillers operating in the State.

Concern for the future state of these pathways is addressed by Due Care compliance under Section 20107a of MNREPA, and the fact that State and County permits are needed for well installations regionally surrounding the Site.

Additionally, as noted in Section 4.2.2, the levels of arsenic found in groundwater at the Site are believed to be present due to natural conditions (i.e., types of soil deposits), and are not attributed to Site-related activities.

Also, baseline institutional controls are planned for this Site, involving land and groundwater use restrictions and proper soil management. It is expected that these controls will adequately address any concerns for potential future use of Site groundwater. These controls will be established through deed restrictions, and are expected to include restrictions that will maintain continued nonresidential, commercial/industrial use of the Site, prohibit any future use of groundwater at the Site for any purpose, beyond sampling and other related investigatory testing, and call for proper soil management. These restrictions will run with the property in perpetuity, unless additional remediation is approved by MDEQ and implemented.

6. SUMMARY AND CONCLUSIONS

An RFI of the Site has been conducted to determine whether the AOIs identified in the RFI Work Plan have released hazardous waste or hazardous constituents that pose a significant risk to human health or the environment. As a result of the extensive RFI, potentially significant releases to on-site soil and groundwater were identified and characterized. The nature and extent of hazardous constituents in the environmental media characterized during the RFI are discussed in Section 4.

As discussed in Section 4, the Site characterization data obtained for each of the areas investigated during the RFI and discussed herein are judged to be adequate and appropriate for RCRA Corrective Action decision-making.

All Site data were compared to applicable criteria identified in Section 4.1, consistent with the conceptual Site model for human exposures discussed in Section 3.7. The only applicable Part 201 Criteria found to be exceeded when compared to the RFI analytical data for the Site involved arsenic in soil only at one location above its Part 201 Nonresidential Drinking Water Protection Criterion, and arsenic in groundwater at only two locations above its Part 201 Nonresidential Drinking Water Criterion. Each of these exceedances was only slightly above the corresponding criterion.

The only potential pathways of concern involving these screening criteria include the potable use of groundwater at or in the vicinity of the Site. Currently, groundwater at or in the vicinity of the Site is not being used, and the future state of these pathways is addressed by the restrictions discussed in Sections 3.2 and 6. Additionally, it is expected that further concerns for potential future use of Site groundwater will be addressed through Due Care compliance and deed restrictions that will prohibit future use of Site groundwater.

Per the conceptual Site model for ecological exposures presented in Section 3.8, terrestrial and/or aquatic exposure of ecological receptors is considered nominal and/or incomplete. Therefore, further action pertaining to ecological receptors is not warranted.

7. PRIMARY REFERENCES

- ARCADIS-US, Inc., Remediation Cost Estimate Summary, 27 October 2009, Revised May 2010.
- Encore Environmental Consortium LLC, Phase II Environmental Site Assessment GMPT – Romulus Engineering Center AST Fuel Distribution Area, 3750 Ecorse Road, Romulus, MI 48174, 31 October 2007.
- Environmental Data Recourses, Inc., Radius Map Report With GeoCheck®, Inquiry Number 3176434.2s, CPC Romulus Engineering Center, 37350 Ecorse Road, Romulus, MI 48174, 30 September 2011.
- Haley & Aldrich of Michigan, Inc., Resource Conservation and Recovery Act Current Conditions Summary for Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan, 30 December 2011.
- Haley & Aldrich of Michigan, Inc., Resource Conservation and Recovery Act Facility Investigation Quality Assurance Project Plan for Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan, 24 September 2012.
- Haley & Aldrich of Michigan, Inc., Resource Conservation and Recovery Act Facility Investigation Field Sampling Plan for Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan, 24 September 2012.
- Haley & Aldrich of Michigan, Inc., Resource Conservation and Recovery Act Facility Investigation Work Plan for Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan, 24 September 2012.
- Michigan Department of Environmental Quality, Arsenic in Well Water, http: // www.michigan.gov / documents / deq / deq-wd-gws-wcu-arsenicwellwater_270592_7.pdf.

TABLE I
SUMMARY OF AOIS SUBJECT TO RFI
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

AOI #	AOI Title	Location Column/Bay	Description / Components
01	Former AST Farm Area	Northeast area of Site	Former diesel fuel storage tanks (four 20,000-gallon tanks). Area impacted by release included: area identified as "federally designated wetland", area surrounding tank farm and "wetland", former pump house and sump. Response included installation of French drain and sump for remediation. It is not known whether these components remain at the Site.
02	Former Industrial Waste Pump House	Northeast area of Site	Industrial wastewater conveyance from Romulus Engineering Center via overhead trestle to onsite WWTP at GMPT plant. Staining observed on concrete pad. Former below grade feature, possibly a sump, and staining were observed in the concrete pad.
03	Former Pump House	Northeast area of Site	Feature identified on Site Plan as pump house. Use of pump house unknown; possibly associated with oil or fuel conveyance. Area of former pump house pad was covered by standing water at time of Site reconnaissance and could not be observed.
04	Evidence of Release in Former Test Cell "D" Wing Area	Southeast test cell	Area of dark staining and oily residue observed on concrete and gravel near northeast corner of former Test Cell "D" Wing. Staining may be associated with demolition or subsequent activities.
05	Evidence of Release in Former Test Cell "C" Wing Area	Northeast test cell	Staining observed on concrete and gravel near southwest area of the Test Cell "E" Wing. Staining may be associated with demolition or subsequent activities.
07	Former Drum Product Storage Shed	Northwest are aof Facility, North of Shipping Dock	Unknown

TABLE II
SOIL BORING INVENTORY AND COMPLETION SUMMARY
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MICHIGAN

Boring ID	Associated AOI	Completion Date	APPROXIMATE LOCATION		Surface Elevation (NAD 83)	Boring Total Depth (ft below grade)
			Northing	Easting		
01-101	AOI-01	12/17/2012	277830.45	13382927.68	664.61	30
01-102	AOI-01	12/17/2012	277721.73	13382904.21	664.56	20
01-102 R	AOI-01	12/20/2012				5
01-103	AOI-01	12/17/2012	277779.47	13382976.34	663.98	15
01-104	AOI-01	12/17/2012	277817.94	13382989.27	665.05	15
01-105	AOI-01	12/18/2012	277782.11	13383041.15	665.16	10
01-106	AOI-01	12/18/2012	277749.46	13383030.55	661.09	10
01-107	AOI-01	12/18/2012	277661.69	13382987.52	662.91	10
01-108	AOI-01	12/18/2012	277617.38	13383025.68	662.01	10
02-109	AOI-02	12/18/2012	277616.85	13383125.95	665.20	15
02-110	AOI-02	12/18/2012	277624.32	13383107.85	664.81	10
07-111	AOI-07	12/18/2012	277227.83	13382549.99	664.82	10
07-112	AOI-07	12/18/2012	277222.09	13382567.78	664.56	10
05-113	AOI-05	12/19/2012	276970.49	13382893.70	665.50	10
05-114	AOI-05	12/19/2012	276972.49	13382927.88	665.53	10
04-115	AOI-04	12/19/2012	276870.59	13383047.21	665.41	10
03-116	AOI-03	12/19/2012	277292.61	13382839.32	665.46	10
03-117	AOI-03	12/19/2012	277283.30	13382856.73	665.77	15

TABLE III
TEMPORARY MONITORING WELL INVENTORY AND COMPLETION SUMMARY
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MICHIGAN

Well ID	AOI Location	Date Installed	Approximate Location		Ground Elevation AMSL	Top of Riser Elevation AMSL	Well Diameter (inches)	Depth of Well from ground surface	Screened Interval ft BGS	Screen Elevation fet AMSL	Date/Time of Depth to Water & Depth to Bottom	Measured Depth to Bottom from TOR	Depth to Water (ft below TOR)	Groundwater Elevation (feet AMSL)
			Northing	Easting										
01-101	AOI-01	12/17/2012	277830.45	13382927.68	664.61	666.46	1.5	8	3-8	661.61 - 665.61	1/30/13 8:44	10.03	3.27	663.19
01-103	AOI-01	12/18/2012	277779.47	13382976.34	663.98	665.58	1.5	10	5-10	658.98 - 653.98	1/30/13 8:23	11.55	3.12	662.46
01-104	AOI-01	12/17/2012	277817.94	13382989.27	665.05	666.01	1.5	14	9-14	656.05 - 651.05	1/30/13 8:56	15.03	3.43	662.58
01-105	AOI-01	12/18/2012	277782.11	13383041.15	665.16	665.71	1.5	10	5-10	660.16 - 655.16	1/30/13 8:59	10.30	2.67	663.04
01-106	AOI-01	12/18/2012	277749.46	13383030.55	661.09	664.12	1.5	13	3-13	658.09 - 648.09	1/30/13 9:20	NT	NT	NT
01-107	AOI-01	12/20/2012	277661.69	13382987.52	662.91	665.77	1.5	7	2-7	660.91 - 655.91	1/30/13 9:15	10.03	3.02	662.75
01-108	AOI-01	12/20/2012	277617.38	13383025.68	662.01	664.94	1.5	7	2-7	660.01 - 655.01	1/30/13 9:13	10.30	2.26	662.68
02-109	AOI-02	12/18/2012	277616.85	13383125.95	665.20	666.95	1.5	13	3-13	662.20 - 652.20	1/30/13 9:25	15.03	3.95	663.00
02-110	AOI-02	12/18/2012	277624.32	13383107.85	664.81	666.44	1.5	9	4-9	660.81 - 655.81	1/30/13 9:27	10.02	3.45	662.99
07-111	AOI-07	12/18/2012	277227.83	13382549.99	664.82	665.68	1.5	9	4-9	660.82 - 655.82	1/30/13 9:36	10.03	1.65	664.03
07-112	AOI-07	12/18/2012	277222.09	13382567.78	664.56	665.91	1.5	8.5	3.5-8.5	661.06 - 656.06	1/30/13 9:38	10.00	1.78	664.13
05-113	AOI-05	12/19/2012	276970.49	13382893.70	665.50	667.36	1.5	8	3-8	662.50 - 657.50	1/30/13 9:41	NT	1.81	665.55
05-114	AOI-05	12/19/2012	276972.49	13382927.88	665.53	668.56	1.5	7	2-7	663.53 - 658.53	1/30/13 9:43	10.02	3.06	665.50
04-115	AOI-04	12/19/2012	276870.59	13383047.21	665.41	666.57	1.5	9	4-9	661.41 - 656.41	1/30/13 9:45	10.30	1.50	665.07
03-116	AOI-03	12/19/2012	277292.61	13382839.32	665.46	668.15	1.5	10	5-10	660.46 - 655.46	1/30/13 9:49	12.55	3.61	664.54

Notes:
AOI = Area of Interest
AMSL = Above Mean Sea Level
TOR = Top of Riser
BGS = Below Ground Surface
NT = Not Taken

TABLE IV
SOIL SAMPLE COLLECTION SUMMARY
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MICHIGAN

AOI	Location ID	Sample Depth (ft bgs)	Sample Date	Sample Name	Sample Type	Location Type	Analyzed Parameters			
							VOCs	SVOCs (PAHs)	PCBs	MI 10 Metals
AOI-01	01-101	3.5-4.0	12/17/2012	SB101(12-17-2012)(3.5-4.0)	N	SOIL BORING	x	x	x	x
AOI-01	01-103	3.5-4.0	12/17/2012	SB103(12-17-2012)(3.5-4.0)	N	SOIL BORING	x	x	x	x
AOI-01	01-104	3.0-3.5	12/17/2012	SB104(12-17-2012)(3.0-3.5)	N	SOIL BORING	x	x	x	x
AOI-01	01-105	3.0-3.25	12/18/2012	SB105(12-18-2012)(3.0-3.25)	N	SOIL BORING	x	x	x	x
AOI-01	01-105	6.25-7.0	12/18/2012	SB105(12-18-2012)(6.25-7.0)	N	SOIL BORING	x	x	x	x
AOI-01	01-107	2.0-2.5	12/18/2012	SB107(12-18-2012)(2.0-2.5)	N	SOIL BORING	x	x	x	x
AOI-01	01-108	0.0-1.5	12/18/2012	SB108(12-18-2012)(0.0-1.5)	N	SOIL BORING	x	x	x	x
AOI-01	01-102 R	3.5-4.0	12/20/2012	SB102(12-20-2012)(3.5-4.0)	N	SOIL BORING	x	x	x	x
AOI-02	02-109	1.5-2.0	12/18/2012	SB109(12-18-2012)(1.5-2.0)	N	SOIL BORING	x	x	x	x
AOI-02	02-110	2.0-2.5	12/18/2012	SB110(12-18-2012)(2.0-2.5)	N	SOIL BORING	x	x	x	x
AOI-02	02-110	2.0-2.5	12/18/2012	DUP-01(12-18-2012)	FD	SOIL BORING	x	x	x	x

Notes and Abbreviations:
1. Sample type codes: N - Normal, FD, Field Duplicate
2. ft bgs: Feet below ground surface

TABLE V
GROUNDWATER SAMPLE COLLECTION SUMMARY
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MICHIGAN

Location Type	AOI	Location	Sample Date	Sample Name	Sample Type	Sample Parameters			
						VOCs	SVOCs (PAHs)	MI 10 Metals	MI 10 Metals, Dissolved
Temporary Monitoring Well	AOI-01	01-101	1/30/2013	TW101(01-30-2013)(1150)	N	x	x	x	x
Temporary Monitoring Well	AOI-01	01-103	NOT SAMPLED, INSUFFICIENT VOLUME OF WATER						
Temporary Monitoring Well	AOI-01	01-104	1/30/2013	TW104(01-30-2013)(1120)	N	x	x	x	x
Temporary Monitoring Well	AOI-01	01-105	1/30/2013	TW105(01-30-2013)(1335)	N	x	x	x	x
Temporary Monitoring Well	AOI-01	01-106	1/31/2013	TW106(01-31-2013)(1415)	N	x	x	x	x
Temporary Monitoring Well	AOI-01	01-107	2/1/2013	TW107(02-01-2013)(1115)	N	x	x	x	x
Temporary Monitoring Well	AOI-01	01-108	2/1/2013	TW108(02-01-2013)(1230)	N	x	x	x	x
Temporary Monitoring Well	AOI-02	02-109	1/31/2013	TW109(01-31-2013)(1220)	N	x	x	x	x
Temporary Monitoring Well	AOI-02	02-110	1/31/2013	TW110(01-31-2013)(1355)	N	x	x	x	x
Temporary Monitoring Well	AOI-07	07-111	1/30/2013	TW111(01-30-2013)(1440)	N	x	x	x	x
Temporary Monitoring Well	AOI-07	07-111	1/30/2013	DUO-01(01-30-2013)	FD	x	x	x	x
Temporary Monitoring Well	AOI-07	07-112	1/30/2013	TW112(01-30-2013)(1455)	N	x	x	x	x
Temporary Monitoring Well	AOI-05	05-113	NOT SAMPLED,WELL FROZEN						
Temporary Monitoring Well	AOI-05	05-114	1/31/2013	TW114(01-31-2013)(1635)	N	x	x	x	x
Temporary Monitoring Well	AOI-05	05-114	1/31/2013	DUP-02(01-31-2013)	N	x	x	x	x
Temporary Monitoring Well	AOI-04	04-115	1/31/2013	TW115(01-31-2013)(1720)	N	x	x	x	x
Temporary Monitoring Well	AOI-03	03-116	2/1/2013	TW116(02-01-2013)(1405)	N	x	x	x	x

Notes and Abbreviations:

1. Sample type codes: N - Normal, FD - Field Duplicate
2. Miscellaneous analytes include one or more of the following:

Alkalinity, Total (As CaCO3)	Methane
Ammonia	Nitrate (as N)
Ammonia-N	Nitrite (as N)
Chloride	pH (lab)
Dissolved Organic Carbon (DOC)	Phosphorus
Ethane	Sulfate
Ethene	Total Dissolved Solids (TDS)
Hardness	Total Kjeldahl Nitrogen (TKN)
Hardness (Filtered)	Total Suspended Solids (TSS)

TABLE VI
SUMMARY OF PART 201 SCREENING CRITERIA FOR SOIL
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

	Statewide Default Background Levels {A}	Groundwater to Surface Water Protection Criteria {B}	Groundwater Contact Protection Criteria {C}	Soil Saturation Conc. Screening Levels {D}	Non-residential Drinking Water Protection Criteria {E}	Non-residential Soil Volatilization to Indoor Air Inhalation Criteria {F}	Non-residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) {G}	Non-residential Particulate Soil Inhalation Criteria {H}	Non-residential Direct Contact Criteria {I}
Inorganic Compounds (mg/kg)									
Arsenic	5.8	4.6	2000	-	4.6	-	-	910	37
Barium	75	290	1000000	-	1300	-	-	150000	130000
Cadmium	1.2	2.6	230000	-	6	-	-	2200	2100
Chromium	-	3.3	140000	-	30	-	-	240	9200
Copper	32	52	1000000	-	5800	-	-	59000	73000
Lead	21	1800	-	-	700	-	-	44000	900
Mercury	0.13	0.05	47	-	1.7	89	62	8800	580
Selenium	0.41	0.4	78000	-	4	-	-	59000	9600
Silver	1	0.1	200000	-	13	-	-	2900	9000
Zinc	47	120	1000000	-	5000	-	-	-	630000
PCBs (mg/kg)									
Total PCBs	-	-	-	-	-	16000	810	6500	16
Semi-Volatile Organic Compounds (mg/kg)									
1-Methylnaphthalene	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	-	4.2	5500	-	170	4900	1800	290000	26000
Acenaphthene	-	8.7	970	-	880	350000	97000	6200000	130000
Acenaphthylene	-	-	440	-	17	3000	2700	1000000	5200
Anthracene	-	-	41	-	41	1000000	1600000	29000000	730000
Benzo(a)anthracene	-	-	-	-	-	-	-	-	80
Benzo(a)pyrene	-	-	-	-	-	-	-	1900	8
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	80
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	350000	7000
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	800
Chrysene	-	-	-	-	-	-	-	-	8000
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	8
Fluoranthene	-	5.5	730	-	730	1000000	890000	4100000	130000
Fluorene	-	5.3	890	-	890	1000000	150000	4100000	87000
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	80
Naphthalene	-	0.73	2100	-	100	470	350	88000	52000
Phenanthrene	-	2.1	1100	-	160	5100	190	2900	5200
Pyrene	-	-	480	-	480	1000000	780000	2900000	84000
Total Petroleum Hydrocarbons (mg/kg)									
Diesel Range Organics	-		-	-	-	-	-	-	-
Volatile Organic Compounds (mg/kg)									
1,1,1-Trichloroethane	-	1.8	460	460	4	460	4500	29000000	460
1,1,2,2-Tetrachloroethane	-	1.6	94	870	0.7	23	34	68000	240
1,1,2-Trichloroethane	-	6.6	420	920	0.1	24	57	250000	840
1,1-Dichloroethane	-	15	890	890	50	430	2500	15000000	890
1,1-Dichloroethene	-	2.6	220	570	0.14	0.33	3.7	78000	570
1,2,4-Trichlorobenzene	-	5.9	1100	1100	4.2	1100	34000	11000000	1100
1,2,4-Trimethylbenzene	-	0.57	110	110	2.1	110	25000	36000000	110
1,2-Dibromo-3-chloropropane (DBCP)	-	-	1.2	1.2	0.01	1.2	0.9	700	1.2
1,2-Dibromoethane (Ethylene Dibromide)	-	0.11	0.5	890	0.02	3.6	5.8	18000	0.43
1,2-Dichlorobenzene	-	0.28	210	210	14	210	46000	44000000	210
1,2-Dichloroethane	-	7.2	380	1200	0.1	11	21	150000	420
1,2-Dichloropropane	-	4.6	320	550	0.1	7.4	30	120000	550
1,3,5-Trimethylbenzene	-	1.1	94	94	1.8	94	19000	36000000	94
1,3-Dichlorobenzene	-	0.68	51	170	0.48	48	94	88000	170

TABLE VI
SUMMARY OF PART 201 SCREENING CRITERIA FOR SOIL
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

	Statewide Default Background Levels {A}	Groundwater to Surface Water Protection Criteria {B}	Groundwater Contact Protection Criteria {C}	Soil Saturation Conc. Screening Levels {D}	Non-residential Drinking Water Protection Criteria {E}	Non-residential Soil Volatilization to Indoor Air Inhalation Criteria {F}	Non-residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) {G}	Non-residential Particulate Soil Inhalation Criteria {H}	Non-residential Direct Contact Criteria {I}
Volatile Organic Compounds (mg/kg) (con't)									
1,4-Dichlorobenzene	-	0.36	140	-	1.7	100	260	570000	1900
2-Butanone (Methyl Ethyl Ketone)	-	44	27000	27000	760	27000	35000	29000000	27000
2-Hexanone	-	-	2500	2500	58	1800	1300	1200000	2500
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	-	-	2700	2700	100	2700	53000	60000000	2700
Acetone	-	34	110000	110000	42	110000	160000	170000000	73000
Benzene	-	4	220	400	0.1	8.4	45	470000	400
Bromodichloromethane	-	-	280	1500	1.6	6.4	31	110000	490
Bromoform	-	-	870	870	1.6	770	3100	3600000	870
Bromomethane (Methyl Bromide)	-	0.7	1400	2200	0.58	1.6	13	150000	1000
Carbon disulfide	-	-	280	280	46	140	1600	21000000	280
Carbon tetrachloride	-	0.9	92	390	0.1	0.99	12	170000	390
Chlorobenzene	-	0.5	260	260	2	220	920	2100000	260
Chloroethane	-	22	950	950	34	950	36000	290000000	950
Chloroform (Trichloromethane)	-	7	1500	1500	1.6	38	150	1600000	1500
Chloromethane (Methyl Chloride)	-	-	1100	1100	22	10	120	2600000	1100
cis-1,2-Dichloroethene	-	12	640	640	1.4	41	210	1000000	640
cis-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-
Cyclohexane	-	-	-	-	-	-	-	-	-
Dibromochloromethane	-	-	360	610	1.6	21	80	160000	500
Dichlorodifluoromethane (CFC-12)	-	-	1000	1000	270	1700	63000	1500000000	1000
Ethylbenzene	-	0.36	140	140	1.5	140	2400	13000000	140
Isopropylbenzene	-	3.2	390	390	260	390	2000	2600000	390
m&p-Xylene	-	-	-	-	-	-	-	-	-
Methyl acetate	-	-	-	-	-	-	-	-	-
Methyl cyclohexane	-	-	-	-	-	-	-	-	-
Methyl Tert Butyl Ether	-	140	5900	5900	0.8	5900	30000	88000010	5900
Methylene chloride	-	30	2300	2300	0.1	240	700	8300000	2300
o-Xylene	-	-	-	-	-	-	-	-	-
Styrene	-	2.1	270	520	2.7	520	3300	6900000	520
Tetrachloroethene	-	1.2	88	88	0.1	21	210	1200000	88
Toluene	-	5.4	250	250	16	250	3300	12000000	250
trans-1,2-Dichloroethene	-	30	1400	1400	2	43	330	2100000	1400
trans-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-
Trichloroethene	-	4	440	500	0.1	1.9	14	59000	500
Trichlorofluoromethane (CFC-11)	-	-	560	560	150	560	110000	1700000000	560
Trifluorotrichloroethane (Freon 113)	-	1.7	550	550	550	550	210000	2300000000	550
Vinyl chloride	-	0.26	20	490	0.04	2.8	29	890000	34
Xylene (total)	-	0.82	150	150	5.6	150	54000	130000000	150

Notes:
1. Michigan Part 201 Generic Cleanup Criteria, dated 9/28/2012.

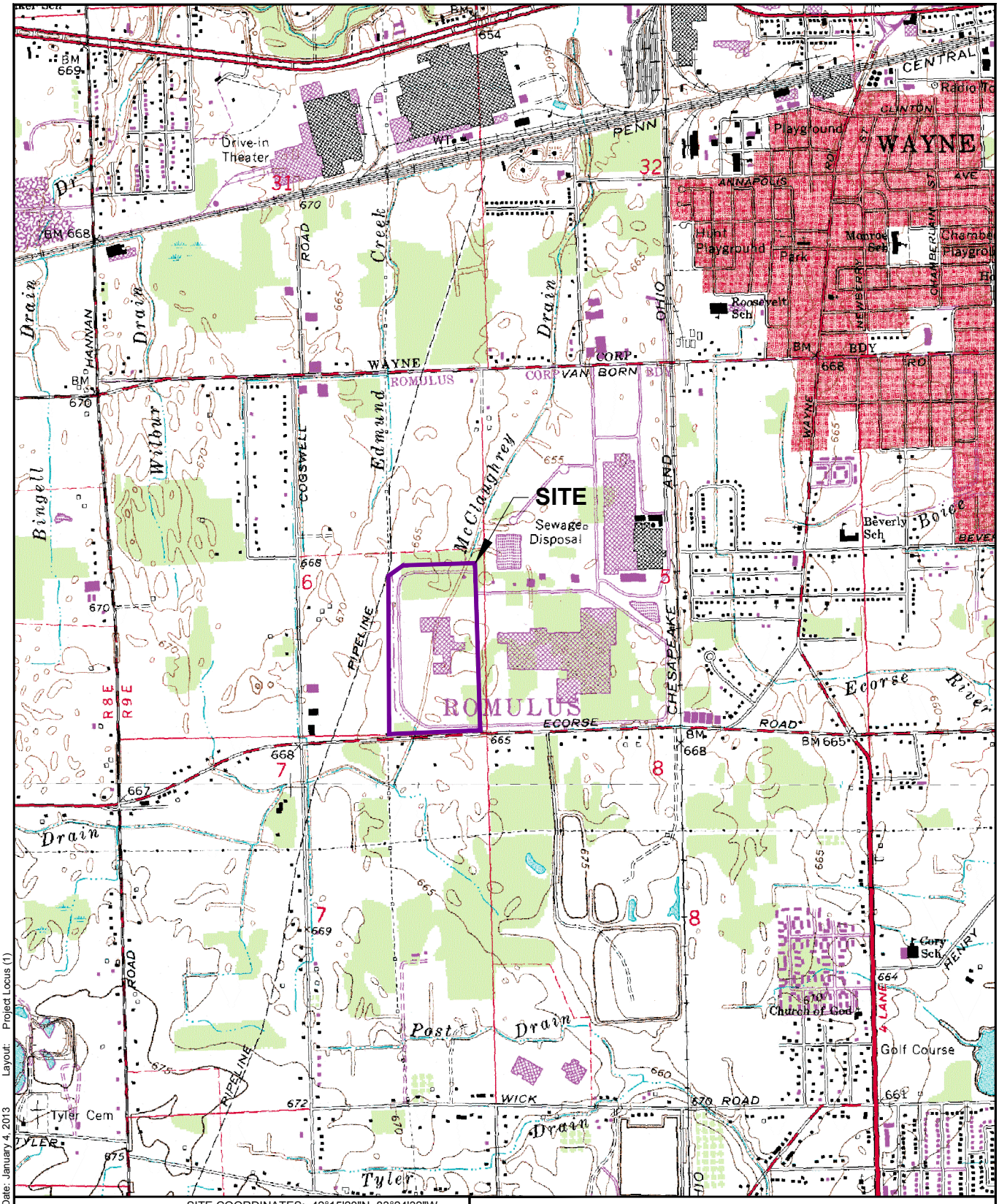
TABLE VII
SUMMARY OF PART 201 SCREENING CRITERIA FOR GROUNDWATER
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

	Non-residential Drinking Water Criteria {A}	Groundwater to Surface Water Criteria {B}	Nonresidential Groundwater Volatilization to Indoor Air Inhalation Criteria {B}	Groundwater Contact Criteria {C}	Water Solubility {D}	Flammability and Explosivity Screening Level {E}	Acute Inhalation Screening Level {F}
Inorganic Compounds (mg/L)							
Arsenic, Dissolved	0.01	0.01	-	4.3	-	-	-
Arsenic, Total	0.01	0.01	-	4.3	-	-	-
Barium, Dissolved	2	0.44	-	14000	-	-	-
Barium, Total	2	0.44	-	14000	-	-	-
Cadmium, Dissolved	0.005	0.0022	-	190	-	-	-
Cadmium, Total	0.005	0.0022	-	190	-	-	-
Chromium, Dissolved	0.1	0.011	-	460	-	-	-
Chromium, Total	0.1	0.011	-	460	-	-	-
Copper, Dissolved	1	0.009	-	7400	-	-	-
Copper, Total	1	0.009	-	7400	-	-	-
Lead, Dissolved	0.004	0.01	-	-	-	-	-
Lead, Total	0.004	0.01	-	-	-	-	-
Mercury, Dissolved	0.002	0.0000013	0.056	0.056	0.056	-	-
Mercury, Total	0.002	0.0000013	0.056	0.056	0.056	-	-
Selenium, Dissolved	0.05	0.005	-	970	-	-	-
Selenium, Total	0.05	0.005	-	970	-	-	-
Silver, Dissolved	0.098	0.0002	-	1500	-	-	-
Silver, Total	0.098	0.0002	-	1500	-	-	-
Zinc, Dissolved	5	0.12	-	110000	-	-	-
Zinc, Total	5	0.12	-	110000	-	-	-
Semi-Volatile Organic Compounds (mg/L)							
1-Methylnaphthalene	-	-	-	-	-	-	-
2-Methylnaphthalene	0.75	0.019	25	25	24.6	-	-
Acenaphthene	3.8	0.038	4.2	4.2	4.24	-	-
Acenaphthylene	0.15	-	3.9	3.9	3.93	-	-
Anthracene	0.043	-	0.043	0.043	0.0434	-	-
Benzo(a)anthracene	0.0085	-	-	0.0094	0.0094	-	-
Benzo(a)pyrene	0.005	-	-	0.001	0.00162	-	-
Benzo(b)fluoranthene	0.0015	-	-	0.0015	0.0015	-	-
Benzo(g,h,i)perylene	0.001	-	-	0.001	0.00026	-	-
Benzo(k)fluoranthene	0.001	-	-	0.001	0.0008	-	-
Chrysene	0.0016	-	-	0.0016	0.0016	-	-
Dibenz(a,h)anthracene	0.002	-	-	0.002	0.00249	-	-
Fluoranthene	0.21	0.0016	0.21	0.21	0.206	-	-
Fluorene	2	0.012	2	2	1.98	-	-
Indeno(1,2,3-cd)pyrene	0.002	-	-	0.002	0.000022	-	-
Naphthalene	1.5	0.011	31	31	31	-	31
Phenanthrene	0.15	0.002	1	1	1	-	-
Pyrene	0.14	-	0.14	0.14	0.135	-	-
Volatile Organic Compounds (mg/L)							
1,1,1-Trichloroethane	0.2	0.089	1300	1300	1330	-	1300
1,1,2,2-Tetrachloroethane	0.035	0.078	77	4.7	2970	-	-
1,1,2-Trichloroethane	0.005	0.33	110	21	4420	-	-
1,1-Dichloroethane	2.5	0.74	2300	2400	5060	380	-
1,1-Dichloroethene	0.007	0.13	1.3	11	2250	97	140
1,2,4-Trichlorobenzene	0.07	0.099	300	19	300	-	300
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	-	1.2	0.39	1.23	-	-
1,2-Dibromoethane (Ethylene Dibromide)	0.00005	0.0057	15	0.025	4200	-	-
1,2-Dichlorobenzene	0.6	0.013	160	160	156	-	160
1,2-Dichloroethane	0.005	0.36	59	19	8520	2500	-
1,2-Dichloropropane	0.005	0.23	36	16	2800	550	2800
1,3-Dichlorobenzene	0.019	0.028	41	2	111	-	-
1,4-Dichlorobenzene	0.075	0.017	74	6.4	73.8	-	-
2-Butanone (Methyl Ethyl Ketone)	38	2.2	240000	240000	240000	-	240000

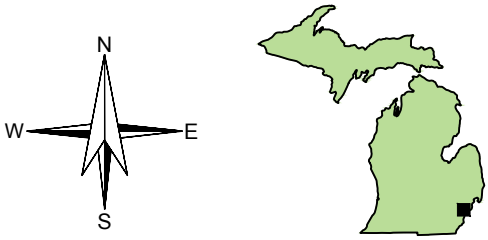
TABLE VII
SUMMARY OF PART 201 SCREENING CRITERIA FOR GROUNDWATER
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

	Non-residential Drinking Water Criteria {A}	Groundwater to Surface Water Criteria {B}	Nonresidential Groundwater Volatilization to Indoor Air Inhalation Criteria {B}	Groundwater Contact Criteria {C}	Water Solubility {D}	Flammability and Explosivity Screening Level {E}	Acute Inhalation Screening Level {F}
Volatile Organic Compounds (mg/L) (con't)							
2-Hexanone	2.9	-	8700	5200	16000	-	-
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	5.2	-	20000	13000	20000	-	20000
Acetone	2.1	1.7	1000000	31000	1000000	15000	1000000
Benzene	0.005	0.2	35	11	1750	68	67
Bromodichloromethane	0.08	-	37	14	6740	-	-
Bromoform	0.08	-	3100	140	3100	-	-
Bromomethane (Methyl Bromide)	0.029	0.035	9	70	14500	-	-
Carbon disulfide	2.3	-	550	1200	1190	13	-
Carbon tetrachloride	0.005	0.045	2.4	4.6	793	-	96
Chlorobenzene	0.1	0.025	470	86	472	160	-
Chloroethane	1.7	1.1	5700	440	5740	110	-
Chloroform (Trichloromethane)	0.08	0.35	180	150	7920	-	-
Chloromethane (Methyl Chloride)	1.1	-	45	490	6340	36	210
cis-1,2-Dichloroethene	0.07	0.62	210	200	3500	530	-
cis-1,3-Dichloropropene	-	-	-	-	-	-	-
Cyclohexane	-	-	-	-	-	-	-
Dibromochloromethane	0.08	-	110	18	2600	-	-
Dichlorodifluoromethane (CFC-12)	4.8	-	300	300	300	-	-
Ethylbenzene	0.074	0.018	170	170	169	43	170
Isopropylbenzene	2.3	0.028	56	56	56	29	-
m&p-Xylene	-	-	-	-	-	-	-
Methyl acetate	-	-	-	-	-	-	-
Methyl cyclohexane	-	-	-	-	-	-	-
Methyl Tert Butyl Ether	0.04	7.1	47000	610	46800	-	-
Methylene chloride	0.005	1.5	1400	220	17000	-	-
o-Xylene	-	-	-	-	-	-	-
Styrene	0.1	0.08	310	9.700001	310	140	310
Tetrachloroethene	0.005	0.06	170	12	200	-	200
Toluene	0.79	0.27	530	530	526	61	-
trans-1,2-Dichloroethene	0.1	1.5	200	220	6300	230	-
trans-1,3-Dichloropropene	-	-	-	-	-	-	-
Trichloroethene	0.005	0.2	4.9	22	1100	-	1100
Trichlorofluoromethane (CFC-11)	7.3	-	1100	1100	1100	-	1100
Trifluorotrichloroethane (Freon 113)	170	0.032	170	170	170	-	170
Vinyl chloride	0.002	0.013	13	1	2760	33	-

Notes
1. Michigan Part 201 Generic Cleanup Criteria, dated 9/28/2012.



SITE COORDINATES: 42°15'20"N 83°24'32"W



U.S.G.S. QUADRANGLE: BELLEVILLE, MICHIGAN

HALEY & ALDRICH

FORMER ROMULOUS ENGINEERING CENTER
RACER SITE ID 1002
37350 ECORSE ROAD
ROMULOUS, MICHIGAN

PROJECT LOCUS

SCALE: 1:24000
JANUARY 2013

FIGURE 1

Drawing Name: G:\37515-Romulus Engineering Center\005-RFI Implementation\CAD\37515-005_01.dwg Layout: Project Locus (1)
Operator Name: LUCIDO, SAM Plot Date: January 4, 2013

AOI-02 FORMER INDUSTRIAL WASTE PUMP HOUSE / SUMP

BM "A"

02–109
02–110
01–105
01–106
01–108
01–104
01–103
01–107
01–101
01–102

AOI-01 FORMER AST FARM AREA/RELEASE
FORMER TANK FARM DIESEL FUEL
(4) 20,000 GAL TANK

AOI-05 RELEASE IN FORMER TEST CELL "E" WING AREA

FORMER COOLING TOWER

03–117
03–116

AOI-03 FORMER PUMP HOUSE

04–115
05–114
05–113

AOI-04 RELEASE IN FORMER TEST CELL "D" WING AREA

AOI-06 AREA OF CLOSED UST

ROMULUS ENGINEERING CENTER

07–112
07–111

AOI-07 FORMER DRUM PRODUCT STORAGE AREA

PARKING

ACCESS GATE

ECORSE ROAD

McCLAUGHREY DRAIN

LEGEND

- FENCE LINE
- McCLAUGHREY DRAIN
- FIRE HYDRANT
- MONITORING WELL
- SOIL BORING
- BENCHMARK

NOTES

1. BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY GM POWERTRAIN.
2. THE SITE IS COMPLETELY DEMOLISHED.
3. BENCHMARK "A" ELEVATION = 664.49 (NAVD88) A TOP RAILROAD SPIKE IN NW FACE OF 22 INCH OAK. LOCATED 200'± SOUTH AND 40'± WEST OF THE NE FENCE CORNER AT 37350 ECORSE ROAD.

N E S W

0 200 400

APPROXIMATE SCALE IN FEET

HALEY & ALDRICH

FORMER ROMULUS ENGINEERING CENTER
RACER SITE ID 1002
37350 ECORSE ROAD
ROMULUS, MICHIGAN

SITE PLAN

SCALE: AS SHOWN
JANUARY 2013

FIGURE 2

Drawing Name: G:\37515-Romulus Engineering Center\005-RFI Implementation\CAD\37515-005_02.dwg
Operator Name: LUCIDO, SAM Plot Date: January 10, 2013 Layout: Site Plan (2)

AOI-02 FORMER INDUSTRIAL WASTE PUMP HOUSE / SUMP

BM "A"

SB-02-110

SB-02-109

SB-01-105

A

SB-01-106

SB-01-108

SB-01-104

SB-01-103

SB-01-107

SB-01-101

SB-01-102

AOI-01 FORMER AST FARM AREA/RELEASE
FORMER TANK FARM DIESEL FUEL
(4) 20,000 GAL TANK

AOI-05 RELEASE IN FORMER TEST CELL "E" WING AREA

A'

SB-04-115

FORMER COOLING TOWER

B'

SB-03-117

SB-03-116

SB-05-114

SB-05-113

AOI-04 RELEASE IN FORMER TEST CELL "D" WING AREA

AOI-06 AREA OF CLOSED UST

AOI-03 FORMER PUMP HOUSE

ROMULUS ENGINEERING CENTER

SB-07-112

SB-07-111

AOI-07 FORMER DRUM PRODUCT STORAGE AREA

B'

PARKING

ACCESS GATE

ECORSE ROAD

McCLAUGHREY DRAIN

LEGEND

- FENCE LINE
- McCLAUGHREY DRAIN
- MONITORING WELL
- SOIL BORING
- BENCHMARK
- A — A' CROSS-SECTION CUT LINE

NOTES

1. BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY GM POWERTRAIN.
2. THE SITE IS COMPLETELY DEMOLISHED.
3. BENCHMARK "A" ELEVATION = 664.49 (NAVD88) A TOP RAILROAD SPIKE IN NW FACE OF 22 INCH OAK. LOCATED 200'± SOUTH AND 40'± WEST OF THE NE FENCE CORNER AT 37350 ECORSE ROAD.

N E S W

0 200 400

APPROXIMATE SCALE IN FEET

HALEY & ALDRICH

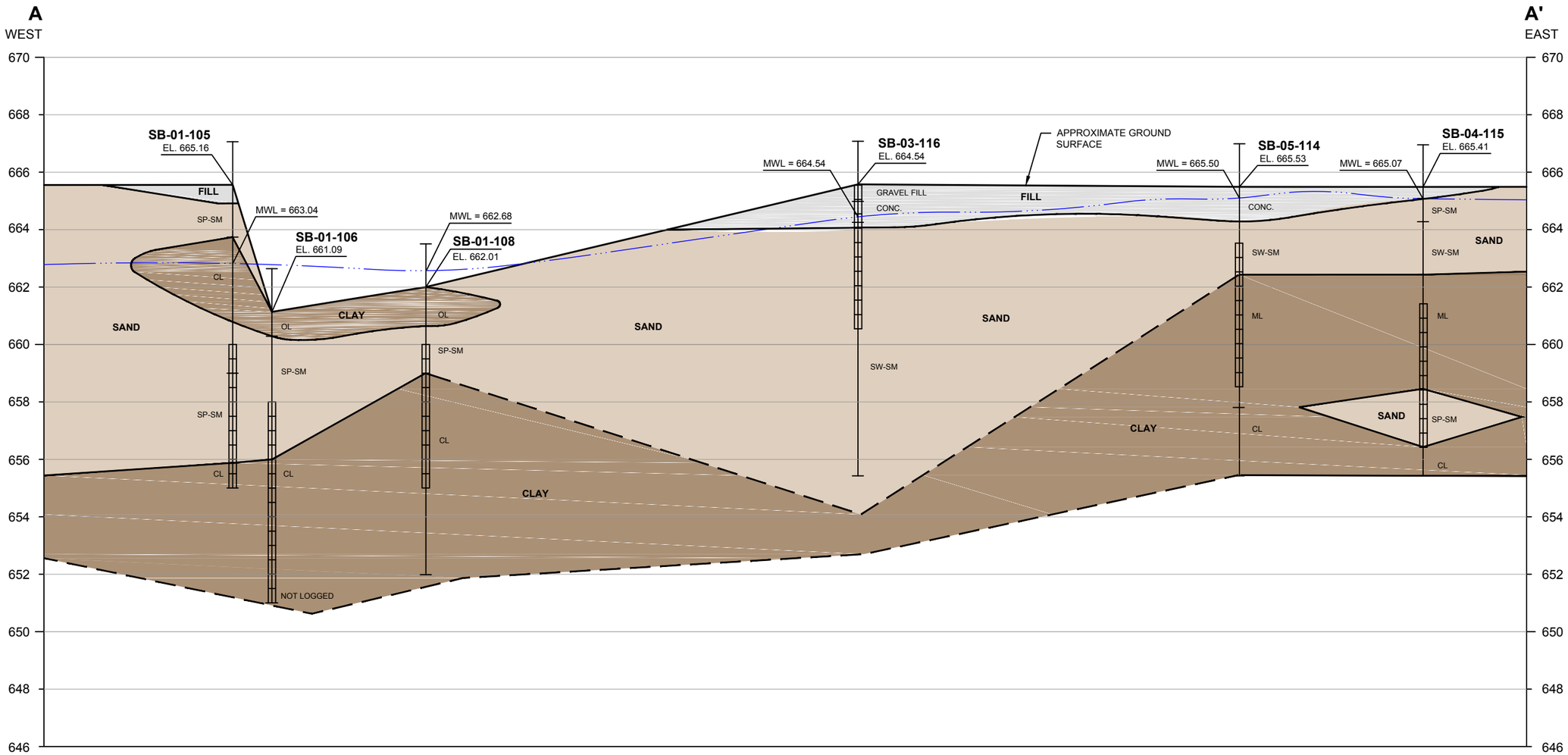
FORMER ROMULUS ENGINEERING CENTER
RACER SITE ID 1002
37350 ECORSE ROAD
ROMULUS, MICHIGAN

CROSS SECTION LOCATION PLAN

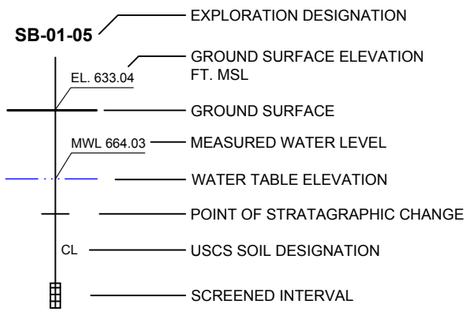
SCALE: AS SHOWN
MARCH 2013

FIGURE 3

Drawing Name: G:\37515-Romulus Engineering Center\005-RFI Implementation\CAD\37515-005_02.dwg
Operator Name: LUCIDO, SAM Plot Date: March 5, 2013 Layout: Cross Section Lines



EXPLORATION LEGEND



LEGEND

- WATER TABLE ELEVATION TAKEN 01/30/2013
- FILL AND CONCRETE
- SAND AND COARSE GRAINED SOILS
- CLAY AND FINE GRAINED SOILS

HORIZ. 0 100 200
VERT. 0 4 8
APPROXIMATE SCALE IN FEET

HALEY & ALDRICH

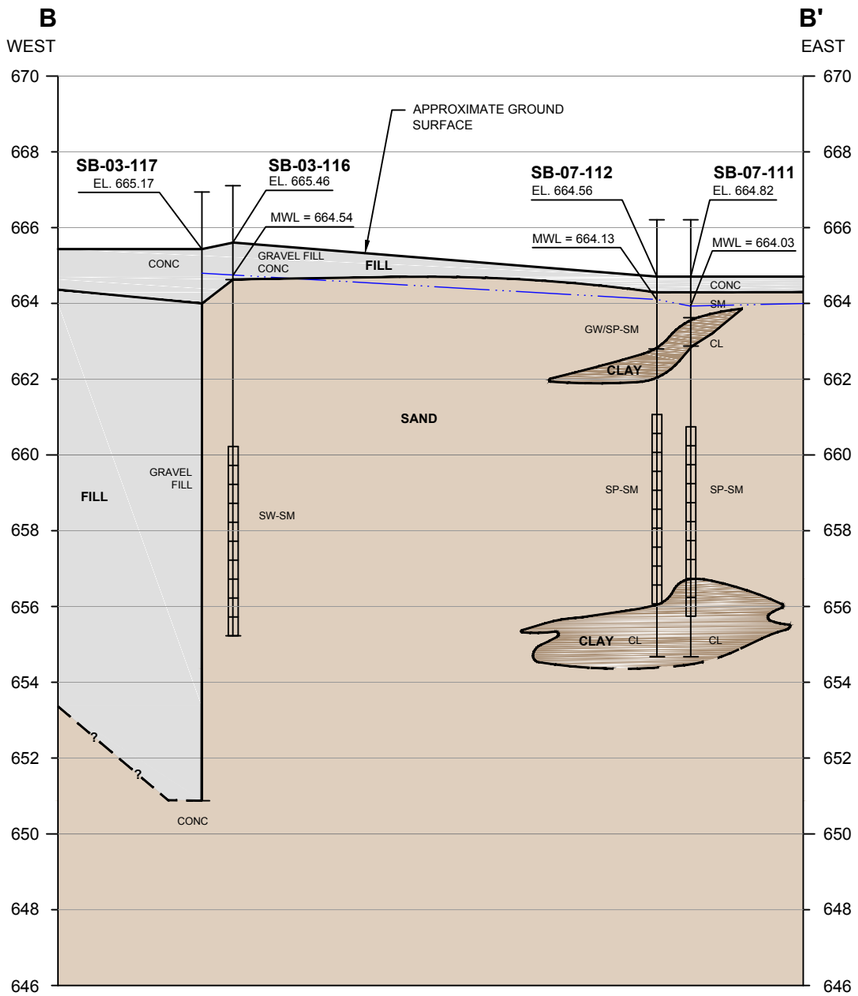
FORMER ROMULUS ENGINEERING CENTER
RACER SITE ID 1002
37350 ECORSE ROAD
ROMULUS, MICHIGAN

CROSS-SECTION A-A'

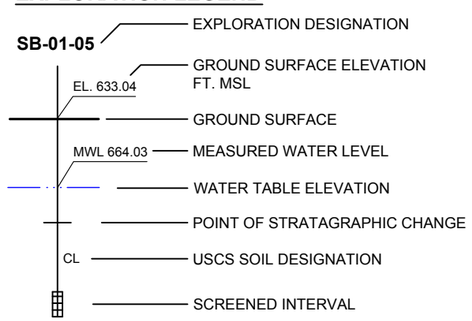
SCALE: AS SHOWN
APRIL 2013

FIGURE 4

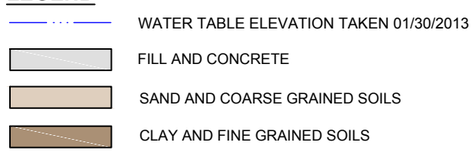
Drawing Name: G:\37515-Romulus Engineering Center\005-RFI Implementation\CAD\37515-005_XS.dwg
Operator Name: LUCIDO, SAM Plot Date: April 2, 2013 Layout: Xsec A-A



EXPLORATION LEGEND



LEGEND



HORIZ. 0 100 200
VERT. 0 4 8
APPROXIMATE SCALE IN FEET

HALEY & ALDRICH

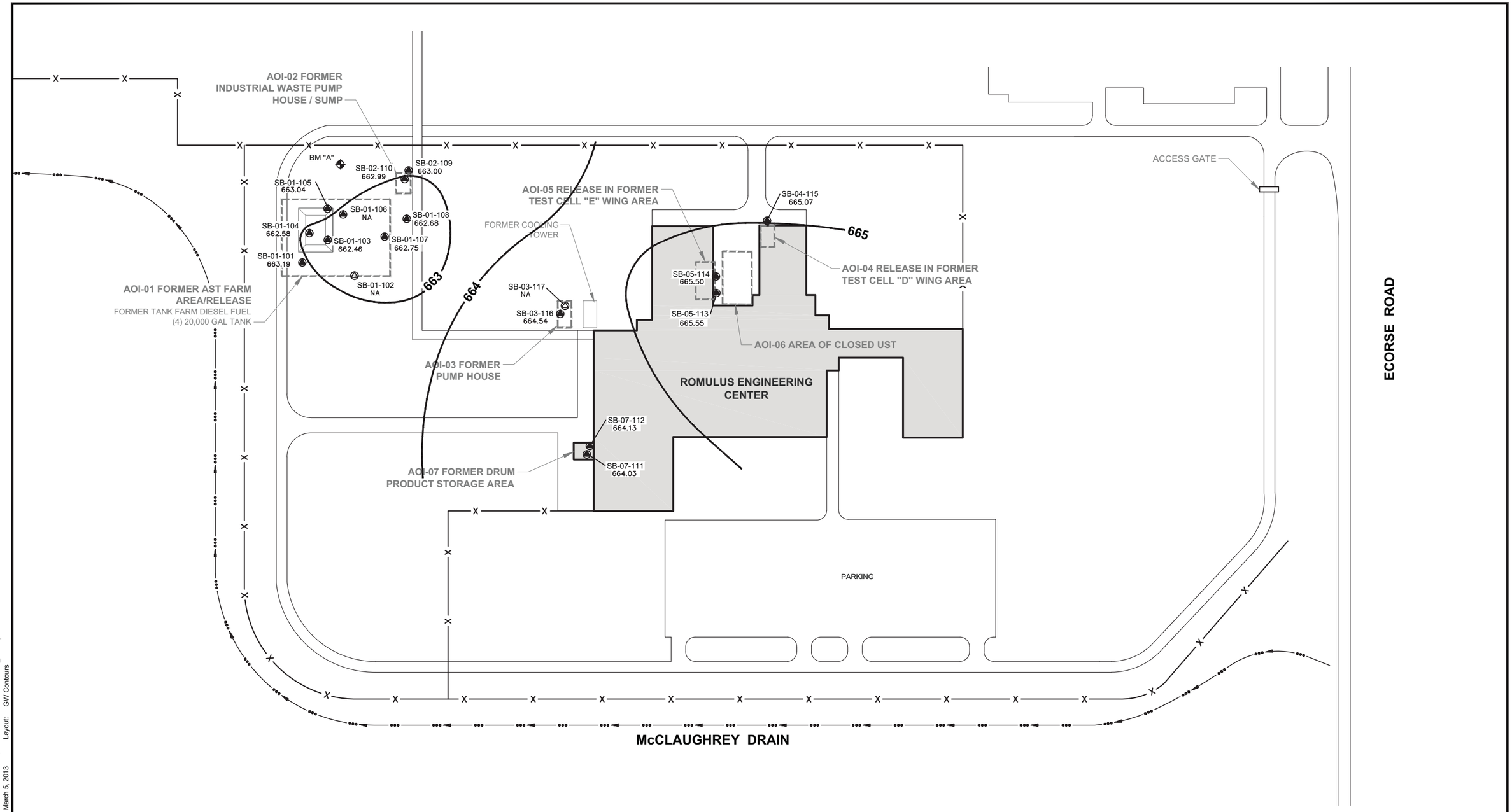
FORMER ROMULUS ENGINEERING CENTER
RACER SITE ID 1002
37350 ECORSE ROAD
ROMULUS, MICHIGAN

CROSS-SECTION B-B'

SCALE: AS SHOWN
APRIL 2013

FIGURE 5

Drawing Name: G:\37515-Romulus Engineering Center\005-RFI Implementation\CAD\37515-005_XS.dwg
Operator Name: LUCIDO, SAM Plot Date: April 2, 2013 Layout: Xsec B-B



LEGEND

- FENCE LINE
- McCLAUGHREY DRAIN
- MONITORING WELL
- SOIL BORING
- BENCHMARK
- 665 — GROUNDWATER CONTOUR LINE
- 665.07 — GROUNDWATER ELEVATION

NOTES

1. BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY GM POWERTRAIN.
2. THE SITE IS COMPLETELY DEMOLISHED.
3. BENCHMARK "A" ELEVATION = 664.49 (NAVD88) A TOP RAILROAD SPIKE IN NW FACE OF 22 INCH OAK. LOCATED 200'± SOUTH AND 40'± WEST OF THE NE FENCE CORNER AT 37350 ECORSE ROAD.

N E S W

0 200 400

APPROXIMATE SCALE IN FEET

HALEY & ALDRICH

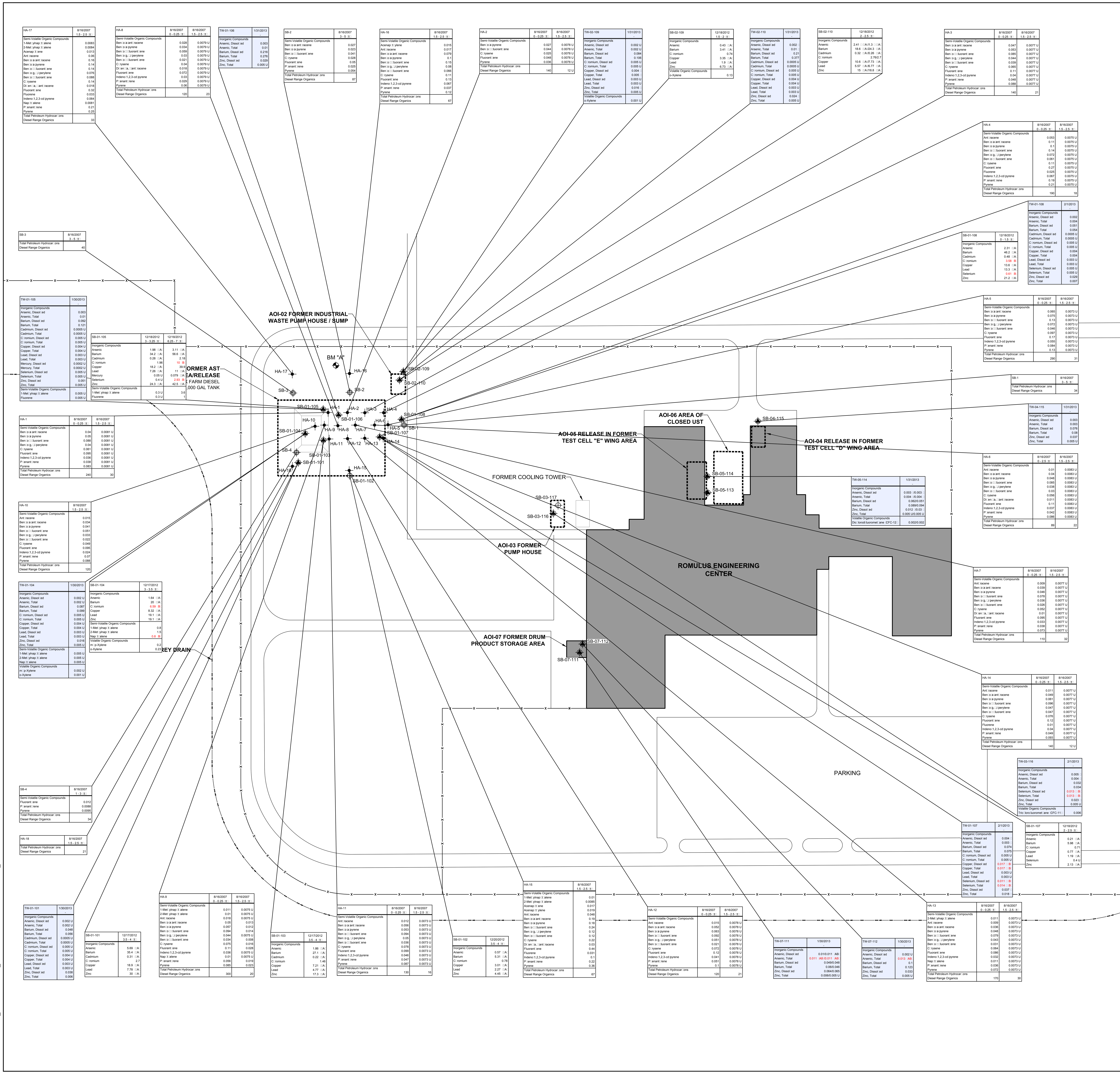
FORMER ROMULUS ENGINEERING CENTER
RACER SITE ID 1002
37350 ECORSE ROAD
ROMULUS, MICHIGAN

SHALLOW GROUNDWATER POTENTIOMETRIC SURFACE CONTOURS JANUARY 30, 2013

SCALE: AS SHOWN
MARCH 2013

FIGURE 6

Drawing Name: G:\37515-Romulus Engineering Center\005-RFI Implementation\CAD\37515-005_03.dwg
Operator Name: LUCIDO, SAM Plot Date: March 5, 2013 Layout: GW Contours



LEGEND:

- FENCE
- McCLAUGHREY DRAIN
- BENCHMARK
- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- HISTORIC SOIL BORING LOCATION
- HISTORIC HAND AUGER SOIL BORING LOCATION

NOTES:

1. BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY GM POWERTRAIN.
2. THE SITE IS COMPLETELY DEMOLISHED.
3. BENCHMARK "A" ELEVATION = 664.49 (NAVD88) A TOP RAILROAD SPIKE IN NW FACE OF 22 INCH OAK. LOCATED 200'± SOUTH AND 40'± WEST OF THE NE FENCE CORNER AT 37350 ECORSE ROAD.
4. GROUNDWATER DATA SHOWN IN BLUE DATABOX. RESULT SHOWN IN MG/L.
   A - NON-RESIDENTIAL DRINKING WATER CRITERIA
   B - GROUNDWATER SURFACE WATER INTERFACE CRITERIA
   C - NON-RESIDENTIAL GROUNDWATER VOLATILIZATION TO INDOOR AIR INHALATION CRITERIA
   D - GROUNDWATER CONTACT CRITERIA
   E - WATER SOLUBILITY
   F - FLAMMABILITY AND EXPLOSIVITY SCREENING LEVEL
   G - ACUTE INHALATION SCREENING LEVEL
5. SOIL DATA SHOWN IN WHITE DATABOX. RESULT SHOWN IN MG/KG.
   A - LESS THAN STATEWIDE DEFAULT BACKGROUND LEVELS, NOT SCREENED FOR OTHER CRITERIA
   B - GROUNDWATER SURFACE WATER INTERFACE PROTECTION CRITERIA
   C - GROUNDWATER CONTACT PROTECTION CRITERIA
   D - SOIL SATURATION CONCENTRATION SCREENING LEVELS
   E - NON-RESIDENTIAL DRINKING WATER PROTECTION CRITERIA
   F - NON-RESIDENTIAL SOIL VOLATILIZATION TO INDOOR AIR INHALATION CRITERIA
   G - NON-RESIDENTIAL INFINITE SOURCE VOLATILE SOIL INHALATION CRITERIA
   H - NON-RESIDENTIAL PARTICULATE SOIL INHALATION CRITERIA
   I - NON-RESIDENTIAL DIRECT CONTACT CRITERIA
6. CHEMICALS SHOWN IN BOX WERE DETECTED AT THAT LOCATION IN SOIL AND/OR GROUNDWATER.

HALEY & ALDRICH

FORMER ROMULUS ENGINEERING CENTER
RACER SITE ID 1002
37350 ECORSE ROAD
ROMULUS, MICHIGAN

SOIL AND GROUNDWATER ANALYTICAL DATA

SCALE: AS SHOWN
MARCH 2013

FIGURE 7

G:\37515-ROMULUS_THRU 10-18-2011_DTR AFTER\GLOBAL\CAD\37515-005_DATABOXES-R3.DWG

APPENDIX A

Soil Boring Logs

(On CD)

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 01-101

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 2
Start: December 17, 2012
Finish: December 17, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 664.61
Location: AOI-01

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 35/60	0.0 5.0			CL	Stiff, brown, lean CLAY (CL), mps = 5mm, moist, no odor, moist, plant material present						100	N	M	M	
		ND				661.1												
						3.5	SC	Loose, dark brown, clayey SAND (SC), mps = 5mm, no odor, dry, organic black material present		5	10	50	20	15				
		ND				660.1												
						4.5	CL	Soft, brown, lean CLAY (CL), mps = 3mm, no odor, dry						100	N	M	M	
5		ND	G2 56/60	5.0 10.0		659.6	SW-SM	Loose, gray-brown, well-graded SAND with silt and gravel (SW-SW), mps = 20mm, no odor, wet	5	15	10	50	10	10				
						5.0												
		ND				658.6	CL	Stiff, gray-brown, lean CLAY (CL), mps = 15mm, brown molting, no odor, dry						100	N	M	M	
						6.0												
		ND																
		ND																
10		ND	G3 48/60	10.0 15.0														
		ND					CL	Similar as above										
		ND																
		ND																
15		ND	G4 56/60	15.0 20.0														
		ND					CL	Similar as above										
		ND																
		ND																
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 30
Rock Cored (lin. ft.)
Samples 6G

Geoprobe No. 01-101

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None; Toughness: L-Low, M-Medium, H-High; Plasticity: N-Nonplastic, L-Low, M-Medium, H-High; Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

GEOPROBE REPORT

Geoprobe No. 01-101
File No. 37515-005
Sheet No. 2 of 2

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20		ND	G5 43/60	20.0 25.0			CL	Similar as above										
						642.9												
		ND				21.8	SP-SM	Medium dense, gray-brown, poorly-graded SAND with silt and gravel (SP-SM), mps = 5mm, no odor, moist to wet		15	5	60	10	10				
		ND																
						640.9												
		ND				23.8	CL	Stiff, gray-brown, lean CLAY (CL), no odor, dry						100	N	M	M	
25		ND	G6 42/60	25.0 30.0														
		ND																
		ND					CL	Similar as above										
		ND																
30						634.6												
						30.0		Bottom of Exploration at 30 ft										

*SPT = Sampler blows per 6 in. **Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 01-102

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 2
Start: December 17, 2012
Finish: December 17, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 664.56
Location: AOI-01

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 51/60	0.0 5.0		663.8	CL	Stiff, gray-brown, lean CLAY (CL), mps = 10mm, no odor, dry, plant fragments						100	N	M	M	
						0.8 663.3	SP-SC	Loose, brown, poorly-graded SAND with clay (SP-SC), mps = 1mm, earthy odor, dry, plant fragments			10	70	10	10				
		ND				1.3	SP	Loose, tan, poorly-graded SAND (SP), mps = 2mm, no odor, dry			5	80	10	5				
		ND																
		ND																
		ND																
5			G2 49/60	5.0 10.0		658.6												
						6.0	CL	Stiff, gray-brown, lean CLAY (CL), mps = 15mm, brown molting, no odor, dry						100	N	M	M	
		ND																
		ND																
		ND				655.8												
						8.8 655.3	SC	Loose, gray, clayey SAND (SC), mps = 1mm, no odor, dry				55	20	35				
						9.3	CL	Stiff, gray-brown, lean CLAY (CL), mps = 10mm, no odor, dry						100	N	M	M	
10		ND	G3 49/60	10.0 15.0	NO WELL INSTALLED													
		ND																
		ND																
		ND					CL	Similar as above										
		ND																
15		ND	G4 52/60	15.0 20.0														
							CL	Similar as above										
		ND																
		ND																
		ND																
20						644.6												

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 20
Rock Cored (lin. ft.)
Samples 4G

Geoprobe No. 01-102

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

GEOPROBE REPORT

Geoprobe No. 01-102
File No. 37515-005
Sheet No. 2 of 2

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
						20.0		Bottom of Exploration at 20.0 ft										

*SPT = Sampler blows per 6 in. **Maximum particle size is determined by direct observation within the limitations of sampler size.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Geoprobe No. 01-102

HALEY & ALDRICH

GEOPROBE REPORT

Geoprobe No. 01-102R

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 20, 2012
Finish: December 20, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 664.56
Location: AOI-01

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 60/60	0.0 5.0	NO WELL INSTALLED	663.8	CL	Stiff, gray-brown, lean CLAY (CL), mps = 10mm, no odor, dry						100	N	M	M	
		ND				0.8 663.3	SP-SC / SP	Loose, brown, poorly-graded SAND with clay (SP-SC), mps = 1mm, no odor, dry			5	75	10	10				
		ND				1.3		Loose, tan, poorly-graded SAND (SP), mps = 20mm, no odor, dry			5	70	15	10				
		ND																
		ND																
5						659.6 5.0		Bottom of Exploration at 5 ft										

Water Level Data					
Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification	
O	Open End Rod
T	Thin Wall Tube
U	Undisturbed Sample
S	Split Spoon
G	Geoprobe

Well Diagram: Riser Pipe, Screen, Filter Sand, Cuttings, Grout, Concrete, Bentonite Seal

Summary	
Overburden (lin. ft.)	5
Rock Cored (lin. ft.)	
Samples	1G

Geoprobe No. 01-102R

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None; Toughness: L-Low, M-Medium, H-High; Plasticity: N-Nonplastic, L-Low, M-Medium, H-High; Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H+A_USCS_GEOPROBE 37515-005 USCSLIB3NEW_SPTCOLUMN_REV 11-2010.GLB USCSTBC3.GDT C:\USERS\CHORSTMAN\GINT PROJECTS\ROMULUS GINT LOGS\37515-005_FEB 2013.GPJ Feb 26, 13

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 01-103

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 17, 2012
Finish: December 17, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 663.98
Location: AOI-01

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 51/60	0.0 5.0		663.5		-GRAVEL FILL-										
						0.5	CL	Stiff, gray-brown, lean CLAY (CL), mps = 35mm, brown molting, plant fragments, no odor, dry		5		5		90	N	M	M	
		ND																
		ND																
		ND				660.5												
						3.5	SC	Stiff, brown, clayey SAND (SC), mps = 10mm, no odor, dry				70	10	20				
		ND				660.0	CL	Stiff, gray-brown, lean CLAY (CL), mps = 15, no odor, dry						100	N	M	M	
5						4.0												
						659.0												
		ND	G2 32/60	5.0 10.0		5.0	SP-SM	Loose, gray, poorly-graded SAND with silt (SP-SM), mps = 1mm, no odor, dry				70	20	10				
						658.5	CL	Similar as 4 - 5 ft										
						5.5	SM	Loose, dark brown, silty SAND (SM), mps =15mm, no odor, dry. At 7.5 ft, black discoloration and plant fragments			5	35	20	40				
						658.0												
						6.0												
		ND																
		ND																
						654.2												
10		ND	G3 58/60	10.0 15.0		9.8	CL	Stiff, gray-brown, lean CLAY (CL), mps = 15mm, no odor, dry						100	N	M	M	
		ND																
		ND																
		ND																
		ND																
						649.0												
15						15.0		Bottom of Exploration at 15 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 15
Rock Cored (lin. ft.)
Samples 3G

Geoprobe No. 01-103

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 01-104

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 17, 2012
Finish: December 17, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation 665.05 Datum
Location AOI-01

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 44/60	0.0 5.0		664.3		-GRAVEL FILL-										
						0.8	SC	Stiff, brown with black discoloration, clayey SAND (SL), mps = 25mm, black-top/MGP/diesel-like odor, dry		5		5	5	85				
		7.2				663.3 1.8		-CONCRETE-										
		ND				662.3 2.8	SP-SM	Loose, brown, poorly-graded SAND with silt (SP-SM), mps = 1mm, strong diesel-like odor beneath concrete, dry			5	75	10	10				
		7.2																
		ND				660.1												
5			G2 23/60	5.0 10.0		5.0	CL	Stiff brown, lean CLAY (CL), no odor, dry										
		ND																
		ND				656.3 8.8	SP-SM	Loose, yellow-brown grades to gray, poorly-graded SAND with silt (SP-SM), mps = 1mm, no odor, moist to dry				80	10	10				
						655.1												
10		ND	G3 58/60	10.0 15.0		10.0		Wet at 10 ft										
		ND																
		ND				653.1 12.0	CL	Stiff, gray-brown, lean CLAY (CL), mps = 15mm, no odor, dry						100	N	M	M
		ND																
		ND																
15						650.1 15.0		Bottom of Exploration at 15 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 15
Rock Cored (lin. ft.)
Samples 3G

Geoprobe No. 01-104

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 01-105

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 18, 2012
Finish: December 18, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation 665.16 Datum
Location AOI-01

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 35/60	0.0 5.0		664.7		-GRAVEL FILL-										
						0.5	SP-SM	Loose, brown, poorly-graded SAND with silt and gravel (SP-SM), mps = 20mm, no odor, dry	5	10		40	25	20				
		ND				663.7 1.5	CL	Soft, gray brown, lean CLAY with sand (CL), mps = 10mm, strong diesel-like odor at 3 feet, dry		5		10	10	75	S	M	M	
		ND																
		ND																
5			G2 48/60	5.0 10.0		658.9												
						6.3	SM	Loose, black, silty SAND (SM), mps = 15mm, strong diesel-like odor, dry		5		40	25	30				
		6.2				658.2 7.0	SP-SM	Loose, gray with black staining, poorly-graded SAND with silt (SP-SM), mps = 2mm, strong diesel-like odor, wet			5	35	50	10				
		4.6																
		3.2				656.2												
						9.0	CL	Stiff, gray-brown, lean CLAY (CL), mps = 15mm, no odor, dry						100	N	M	M	
10		3.2				655.2												
						10.0		Bottom of Exploration at 10 ft										

Water Level Data					
Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification
- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon
- G Geoprobe

Well Diagram
- Riser Pipe
- Screen
- Filter Sand
- Cuttings
- Grout
- Concrete
- Bentonite Seal

Summary
- Overburden (lin. ft.) 10
- Rock Cored (lin. ft.) --
- Samples 2G

Geoprobe No. 01-105

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

GEOPROBE REPORT

Geoprobe No. 01-106

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 18, 2012
Finish: December 18, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation 661.09 Datum
Location AOI-01

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 48/60	0.0 5.0		660.3	OL	Soft, dark, ORGANIC SOIL (OL), mps = 1mm, earthy odor, dry, plant fragments				5	5	90				
		ND				0.8	SP-SM	Loose, light brown, with yellow-brown molting and black discoloration at 4.0 ft, (SP-SM), mps = 1 mm, odor at 4-5 ft, wet				85	15					
		ND																
		ND																
5			G2 54/60	5.0 10.0		656.1 5.0	CL	Very stiff, gray-brown, lean CLAY (CL), mps = 60mm, no odor, dry	5				95	N				
		ND																
		ND																
		ND																
10						651.1 10.0		Bottom of Exploration at 10 ft Soil below 10 feet was not logged. Driller noted clay at similar elevation in adjacent boring										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.) --
Samples 2G

Geoprobe No. 01-106

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH

GEOPROBE REPORT

Geoprobe No. 01-107

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 18, 2012
Finish: December 18, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 662.91
Location: AOI-01

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		ND	G1 51/60	0.0 5.0		661.9	OL	Loose, dark brown, ORGANIC SOIL (OL), mps = 1mm, no odor, dry				5	5	90				
		ND				1.0	SP-SM	Loose, light-brown, poorly-graded SAND with silt (SP-SM), mps = 1mm, no odor, wet at 2.5 ft				80	10	10				
		ND																
		ND				659.2												
		ND				3.8	CL	Stiff, gray-brown, lean CLAY (CL), mps = 15mm, no odor, dry						100	N	M	M	
5			G2 60/60	5.0 10.0														
		ND																
		ND																
		ND					CL	Similar as above										
		ND				652.9												
10						10.0		Bottom of Exploration at 10 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.) --
Samples 2G

Geoprobe No. 01-107

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 01-108

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 18, 2012
Finish: December 18, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation 662.01 Datum
Location AOI-01

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 42/60	0.0 5.0			OL	Soft, brown, ORGANIC SOIL (OL), mps = 1mm, odor, dry, plant materials				5	5	90				
		ND				660.5												
						1.5	SP-SM	Loose, gray with yellow-brown banding, poorly-graded SAND with silt (SP-SM), mps = 1 mm, no odor, wet			5	5	90					
		ND				659.0												
		ND				3.0	CL	Very stiff, gray-brown, lean CLAY (CL), mps = 10mm, no odor, dry						100	N	M	M	
		ND																
5			G2 33/60	5.0 10.0														
		ND					CL	Similar as above										
		ND																
						652.0												
10						10.0		Bottom of Exploration at 10 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.)
Samples 2G

Geoprobe No. 01-108

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 02-109

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 18, 2012
Finish: December 18, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation 665.2 Datum
Location AOI-02

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 30/60	0.0 5.0		664.5		-CONCRETE-										
		ND				0.8	SP-SM	Loose, light brown with yellow molting, poorly-graded SAND with silt (SP-SM), mps = 1mm, flowery/bug spray-like odor above 2 ft, wet at 2 ft			5	5	90					
		ND																
		ND																
		ND						4- 7.75 ft, no recovery										
5			G2 27/60	5.0 15.0														
		ND				657.5 7.8	SP-SM	Loose, brown to black, well-graded SAND with silt (SP-SM), mps 15mm, flowery/bug spray-like odor at 7.75 ft, hydrocarbon-like odor at 8 ft, wet		20	15	40	15	10				
		1.3				656.2 9.0	SP-SM	Loose, black, poorly-graded SAND with silt (SP-SM), mps = 1mm, strong hydrocarbon-like odor, wet			5	5	90					
		7.1																
10			G3 50/60	10.0 15.0														
		8.2				652.0 13.3	SM	Loose, brown with black discoloration, silty SAND (SM), mps = 1mm, hydrocarbon-like odor, moist. At 13.25 ft, 1.5 inch clay				50	25	25				
		ND																
15						650.2 15.0		Bottom of Exploration at 15 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 15
Rock Cored (lin. ft.)
Samples 3G

Geoprobe No. 02-109

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 02-110

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 18, 2012
Finish: December 18, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 664.81
Location: AOI-02

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 39/60	0.0 5.0		664.3		-GRAVEL FILL-										
						0.5	CL	Stiff, dark brown, lean CLAY with gravel (CL), mps = 50mm, no odor, dry	5	10		5	5	75	N	M	M	
						663.1 1.8	OL	Loose, dark brown, sandy ORGANIC SOIL (OL), mps = 2mm, no odor, dry			5	20	10	65				
						662.3 2.5	SP-SM	Loose, yellow-brown, poorly-graded SAND with silt (SP-SM), mps = 1mm, no odor, wet to moist			5	70	15	10				
5			G2 41/60	5.0 10.0														
		ND					SP	Loose, gray with yellow-brown molting, poorly-graded SAND, mps = 7mm, no odor, wet to moist				90	5	5				
		ND																
		ND				655.6 9.3	CL	Stiff, gray, lean CLAY (CL), mps = 3mm, no odor, dry						100	N	M	M	
10						654.8 10.0		Bottom of Exploration at 10 ft										

Water Level Data					
Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification: O Open End Rod; T Thin Wall Tube; U Undisturbed Sample; S Split Spoon; G Geoprobe

Well Diagram: Riser Pipe; Screen; Filter Sand; Cuttings; Grout; Concrete; Bentonite Seal

Summary
Overburden (lin. ft.) 10
Rock Cored (lin. ft.)
Samples 2G

Geoprobe No. 02-110

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None; Toughness: L-Low, M-Medium, H-High; Plasticity: N-Nonplastic, L-Low, M-Medium, H-High; Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 03-116

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 19, 2012
Finish: December 19, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 665.46
Location: AOI-03

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0		ND	G1 43/60	0.0 5.0		665.0		-GRAVEL FILL-										
						0.5 664.2		-CONCRETE-										
		ND				1.3	SW-SM	Loose, light brown, well-graded SAND with silt (SW-SM), mps = 3mm, no odor, wet			25	50	15	10				
		ND																
		ND																
5			G2 49/60	5.0 10.0														
		ND					SW-SM	Similar as above										
		ND																
		ND																
10						655.5 10.0		Bottom of Exploration at 10 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.)
Samples 2G

Geoprobe No. 03-116

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 03-117

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 19, 2012
Finish: December 19, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation 665.77 Datum
Location AOI-03

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 38/60	0.0 5.0	NO WELL INSTALLED	664.8		-GRAVEL FILL-										
		ND				1.0		-CONCRETE-										
		ND				664.3 1.5		-GRAVEL FILL-										
		ND				662.8 3.0		Trash/garbage-like odor										
		ND																
5			G2 28/60	5.0 10.0				Similar as above -GRAVEL FILL-										
		ND																
		ND																
10		ND	G3	10.0 15.0		655.3 10.5		Similar as above -GRAVEL FILL-										
						650.8 15.0		Bottom of Exploration at 15 ft, driller noted refusal in concrete										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.)
Samples 2G

Geoprobe No. 03-117

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H+A_USCS_GEOPROBE 37515-005 USCSLIB3NEW_SPTCOLUMN_REV 11-2010.GLB USCSTBC3.GDT C:\USERS\CHORSTMAN\GINT PROJECTS\ROMULUS GINT LOGS\37515-005_FEB 2013.GPJ Feb 26, 13

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 04-115

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 19, 2012
Finish: December 19, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 665.41
Location: AOI-04

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 32/60	0.0 5.0		664.9		-CONCRETE-										
						0.5	SP-SM	Loose, light-brown, poorly-graded SAND with silt (SP-SM), mps = 1mm, no odor, moist				70	20	10				
						663.9												
		ND				1.5	SW-SM	Loose, light-brown, well-graded SAND with silt (SW-SM), mps = 15mm, no odor, moist			20	50	20	10				
		ND				662.7												
						2.8	ML	At 1.5 ft, 1 inch of bentonite						100				
		ND						Medium dense, dark brown SILT (ML), mps = less than 0.75mm, no odor, dry										
								3 - 7 ft, no recovery										
5			G2 36/60	5.0 10.0														
						658.4												
		ND				7.0	SP-SM	Loose, gray, grading to light brown, poorly-graded SAND with silt (SP-SM), mps = 1mm, no odor, wet				70	20	10				
						656.4												
		ND				9.0	CL	Very stiff, gray-brown, lean CLAY (CL), mps = 15mm, no odor, dry						100	N	N	M	
						655.4												
10						10.0		Bottom of Exploration at 10 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.)
Samples 2G

Geoprobe No. 04-115

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 05-113

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 19, 2012
Finish: December 19, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation 665.5 Datum
Location AOI-05

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 39/60	0.0 5.0		664.8		-CONCRETE-										
		ND				0.8 663.8	SW-SM	Brown, loose, well-graded SAND with silt (SW-SM), mps = 3mm, no odor, wet			20	50	20	10				
		0.1				1.8	SP-SM	Loose, gray-brown, poorly-graded SAND with silt (SP-SM), mps = 2mm, 1 inch black discoloration at 2 ft, strong hydrocarbon-like odor, wet				70	20	10				
		ND																
5			G2 46/60	5.0 10.0			SP-SM	Similar as above, no discoloration, no odor										
		ND				657.5												
		ND				8.0 657.0	OL	Stiff, dark brown, ORGANIC SOIL (OL), mps = 1 mm, earthy odor, dry						100				
		ND				8.5 656.3	CL	Stiff, gray-brown, lean CLAY (CL), mps = 15mm, no odor, dry						100	N	M	M	
10						9.3 655.5 10.0		Bottom of Exploration at 10 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.)
Samples 2G

Geoprobe No. 05-113

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 05-114

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 19, 2012
Finish: December 19, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 665.53
Location: AOI-05

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 43/60	0.0 5.0		664.8		-CONCRETE-										
		ND				0.8	SW-SM	Loose, brown, well-graded SAND with silt (SW-SM), mps = 7mm, no odor in sand at 2 ft, wet. At 2 ft a 2.5 inch seam of silt with black discoloration and slight hydrocarbon-like odor			15	50	25	10				
		ND				662.5												
		ND				3.0	ML	Soft, dark-brown, SILT (ML), mps = 0.50 mm, no odor, moist. At 3 ft, a 2 inch lean clay						100	R	L	N	
		ND																
5			G2 40/60	5.0 10.0				Similar as above, dry										
						657.8												
		ND				7.8	CL	Stiff, gray-brown, lean CLAY (CL), mps = 15mm, no odor, dry						100	N	M	M	
		ND				655.5												
10						10.0		Bottom of Exploration at 10 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.)
Samples 2G

Geoprobe No. 05-114

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 07-111

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 18, 2012
Finish: December 18, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 664.82
Location: AOI-07

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 35/60	0.0 5.0		664.1		-CONCRETE-										
		ND				0.8 / 663.3	SW-SM	Brown, loose, well-graded SAND with silt (SW-SM), mps = 24mm, no odor, moist		5	10	60	15	10				
						1.5 / 662.8	SM	Medium desnse, black, silty SAND (SM), mps = 2mm, no odor, dry				50	30	20				
		ND				2.0 / 662.3	CL							100	N	M	M	
		ND				2.5 / 661.8	SP-SM	Stiff, brown with black discolor, lean CLAY (CL), mps = 15mm, no odor, dry				80	10	10				
						3.0 / 661.3	SP-SM	Loose, gray, poorly-graded SAND with silt (SP-SM), no odor, dry				90	5	5				
5						3.5		Loose, gray, poorly-graded SAND with silt (SP-SM), mps = 11mm, no odor, dry										
			G2 48/60	5.0 10.0				Similar as 2.5 - 3 ft										
		ND				657.8												
		ND				7.0 / 656.8	SP-SM	Similar as above, wet										
		ND				8.0	CL	Very stiff, gray-brown, lean CLAY (CL), no odor, dry										
		ND				654.8												
10						10.0		Bottom of Exploration at 10 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.)
Samples 2G

Geoprobe No. 07-111

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H+A_USCS_GEOPROBE 37515-005 USCSLIB3NEW_SPTCOLUMN_REV 11-2010.GLB USCSTBC3.GDT C:\USERS\CHORSTMAN\GINT PROJECTS\ROMULUS GINT LOGS\37515-005_FEB 2013.GPJ Feb 26, 13

HALEY & ALDRICH — GEOPROBE REPORT

Geoprobe No. 07-112

Project: Former GM Romulus Engineering Center, 37350 Ecorse Road, Romulus, Michigan
Client: RACER Trust
Contractor: Mannik & Smith Group

File No.: 37515-005
Sheet No.: 1 of 1
Start: December 18, 2012
Finish: December 18, 2012
Driller: Robert Schippent
H&A Rep.: M. Castles-Humphrey
Elevation Datum: 664.56
Location: AOI-07

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	--	Macro	--	Rig Make & Model: Geoprobe
Outside Diameter (in.)	--	3.5	--	Bit Type: NA
Hammer Weight (lb.)	--	--	-	Drill Mud: NA
Hammer Fall (in.)	--	--	-	Casing: Direct Push
				Hoist/Hammer: NA NA

Depth (ft.)	SPT*	PID (ppm)	Sample No. & Rec. (in.)	Sample Depth (ft.)	Well Diagram	Elev./Depth (ft.)	USCS Symbol	Visual-Manual Identification and Description (Density/consistency, color, GROUP NAME, max. particle size**, structure, odor, moisture, optional descriptions, geologic interpretation)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0			G1 36/60	0.0 5.0		663.8		-CONCRETE-										
						0.8 663.1	GW	Loose, brown, well-graded GRAVEL with silt (GW), mps = 30mm, no odor, wet	25	60		5	5	5				
						1.5 662.6	SP-SM	Loose, brown, poorly-graded SAND with silt (SP-SM), mps = 2mm, no odor, wet			5	80	5	10				
						2.0 662.1	CL							100	N	M	M	
						2.5	SP-SM	Stiff, gray-brown, lean CLAY (CL), mps = 10mm, no odor, dry			5	85	5	5				
5			G2 45/60	5.0 10.0				Loose, gray-brown, poorly-graded SAND with silt (SP-SM), mps = 2mm, moist to 2.5 ft, wet to 3.25 ft										
						655.8 8.8 654.6	CL	Stiff, gray-brown, lean CLAY (CL), mps = 15mm, no odor, dry						100	N	M	M	
10						10.0		Bottom of Exploration at 10.0 ft										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft.) to: Bottom of Casing	Bottom of Hole	Water

Sample Identification

O Open End Rod
T Thin Wall Tube
U Undisturbed Sample
S Split Spoon
G Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (lin. ft.) 10
Rock Cored (lin. ft.)
Samples 2G

Geoprobe No. 07-112

Field Tests: Dilatancy: R-Rapid, S-Slow, N-None
Toughness: L-Low, M-Medium, H-High
Plasticity: N-Nonplastic, L-Low, M-Medium, H-High
Dry Strength: N-None, L-Low, M-Medium, H-High, V-Very High

*SPT = Sampler blows per 6 in. **Maximum particle size (mm) is determined by direct observation within the limitations of sampler size (in millimeters).

Note: Soil identification and percentages based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

APPENDIX B

Summary of Soil and Groundwater Analytical Data

APPENDIX B-1
SUMMARY OF SOIL ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

Report Order		AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)
Location Name		HA-1	HA-1	HA-2	HA-2	HA-3	HA-3	HA-4	HA-4	HA-5	HA-5	HA-6	HA-6
Sample Name		HA-1-081607-0	HA-1-081607-1.5	HA-2-081607-0	HA-2-081607-1.5	HA-3-081607-0	HA-3-081607-1.5	HA-4-081607-0	HA-4-081607-1.5	HA-5-081607-0	HA-5-081607-1.5	HA-6-081607-0	HA-6-081607-1.5
Sample Date		8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007
Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (bgs)	Analytical	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 2.5 (ft)	1.5 - 2.5 (ft)
Sample Matrix	Method	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Inorganic Compounds (mg/kg)													
Arsenic	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Barium	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Copper	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Lead	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	SW7471A	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Silver	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Other (%)													
Total Solids	SM2540B	-	-	-	-	-	-	-	-	-	-	-	-
PCBs (mg/kg)													
Aroclor-1016 (PCB-1016)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1221 (PCB-1221)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1232 (PCB-1232)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1242 (PCB-1242)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Semi-Volatile Organic Compounds (mg/kg)													
1-Methylnaphthalene	SW8270C	0.025 U	0.0081 U	0.024 U	0.0078 U	0.024 U	0.0077 U	0.024 U	0.0075 U	0.025 U	0.0073 U	0.0078 U	0.0083 U
2-Methylnaphthalene	SW8270C	0.025 U	0.0081 U	0.024 U	0.0078 U	0.024 U	0.0077 U	0.024 U	0.0075 U	0.025 U	0.0073 U	0.0078 U	0.0083 U
Acenaphthene	SW8270C	0.025 U	0.0081 U	0.024 U	0.0078 U	0.024 U	0.0077 U	0.024 U	0.0075 U	0.025 U	0.0073 U	0.0078 U	0.0083 U
Acenaphthylene	SW8270C	0.025 U	0.0081 U	0.024 U	0.0078 U	0.024 U	0.0077 U	0.024 U	0.0075 U	0.025 U	0.0073 U	0.0078 U	0.0083 U
Anthracene	SW8270C	0.025 U	0.0081 U	0.024 U	0.0078 U	0.024 U	0.0077 U	**0.053**	0.0075 U	0.025 U	0.0073 U	**0.01**	0.0083 U
Benzo(a)anthracene	SW8270C	**0.04**	0.0081 U	0.024 U	0.0078 U	**0.047**	0.0077 U	**0.11**	0.0075 U	**0.065**	0.0073 U	**0.04**	0.0083 U
Benzo(a)pyrene	SW8270C	**0.05**	0.0081 U	**0.027**	0.0078 U	**0.053**	0.0077 U	**0.1**	0.0075 U	**0.075**	0.0073 U	**0.048**	0.0083 U
Benzo(b)fluoranthene	SW8270C	**0.088**	0.0081 U	**0.044**	0.0078 U	**0.085**	0.0077 U	**0.14**	0.0075 U	**0.13**	0.0073 U	**0.085**	0.0083 U
Benzo(g,h,i)perylene	SW8270C	**0.04**	0.0081 U	0.024 U	0.0078 U	**0.044**	0.0077 U	**0.072**	0.0075 U	**0.072**	0.0073 U	**0.038**	0.0083 U
Benzo(k)fluoranthene	SW8270C	0.025 U	0.0081 U	0.024 U	0.0078 U	**0.039**	0.0077 U	**0.061**	0.0075 U	**0.046**	0.0073 U	**0.03**	0.0083 U
Chrysene	SW8270C	**0.061**	0.0081 U	**0.025**	0.0078 U	**0.065**	0.0077 U	**0.11**	0.0075 U	**0.097**	0.0073 U	**0.056**	0.0083 U
Dibenz(a,h)anthracene	SW8270C	0.025 U	0.0081 U	0.024 U	0.0078 U	0.024 U	0.0077 U	0.024 U	0.0075 U	0.025 U	0.0073 U	**0.011**	0.0083 U
Fluoranthene	SW8270C	**0.095**	0.0081 U	**0.048**	0.0078 U	**0.11**	0.0077 U	**0.27**	0.0075 U	**0.17**	0.0073 U	**0.11**	0.0083 U
Fluorene	SW8270C	0.025 U	0.0081 U	0.024 U	0.0078 U	0.024 U	0.0077 U	**0.025**	0.0075 U	0.025 U	0.0073 U	0.0078 U	0.0083 U
Indeno(1,2,3-cd)pyrene	SW8270C	**0.036**	0.0081 U	0.024 U	0.0078 U	**0.04**	0.0077 U	**0.067**	0.0075 U	**0.055**	0.0073 U	**0.037**	0.0083 U
Naphthalene	SW8270C	0.025 U	0.0081 U	0.024 U	0.0078 U	0.024 U	0.0077 U	0.024 U	0.0075 U	0.025 U	0.0073 U	0.0078 U	0.0083 U
Phenanthrene	SW8270C	**0.038**	0.0081 U	0.024 U	0.0078 U	**0.048**	0.0077 U	**0.19**	0.0075 U	**0.084**	0.0073 U	**0.042**	0.0083 U
Pyrene	SW8270C	**0.083**	0.0081 U	**0.036**	0.0078 U	**0.088**	0.0077 U	**0.21**	0.0075 U	**0.13**	0.0073 U	**0.086**	0.0083 U
Total Petroleum Hydrocarbons (mg/kg)													
Diesel Range Organics	SW8015B	**240**	**30**	**140**	12 U	**140**	**21**	**190**	**18**	**290**	**31**	**89**	**22**
Volatile Organic Compounds (mg/kg)													
1,1,1-Trichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	SW8260B	0.43 U	0.25 U	0.38 U	0.23 U	0.47 U	0.25 U	0.4 U	0.26 U	0.55 U	0.24 U	0.32 U	0.28 U

APPENDIX B-1
SUMMARY OF SOIL ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

Report Order		AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)
Location Name		HA-1	HA-1	HA-2	HA-2	HA-3	HA-3	HA-4	HA-4	HA-5	HA-5	HA-6	HA-6
Sample Name		HA-1-081607-0	HA-1-081607-1.5	HA-2-081607-0	HA-2-081607-1.5	HA-3-081607-0	HA-3-081607-1.5	HA-4-081607-0	HA-4-081607-1.5	HA-5-081607-0	HA-5-081607-1.5	HA-6-081607-0	HA-6-081607-1.5
Sample Date		8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007
Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (bgs)	Analytical	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 2.5 (ft)	1.5 - 2.5 (ft)
Sample Matrix	Method	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatile Organic Compounds (mg/kg) (con't)													
1,2-Dibromo-3-chloropropane (DBCP)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene Dibromide)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	SW8260B	0.43 U	0.25 U	0.38 U	0.23 U	0.47 U	0.25 U	0.4 U	0.26 U	0.55 U	0.24 U	0.32 U	0.28 U
1,3-Dichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl Ethyl Ketone)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
2-Hexanone	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	SW8260B	0.086 U	0.049 U	0.076 U	0.046 U	0.094 U	0.051 U	0.08 U	0.052 U	0.069 U	0.047 U	0.065 U	0.056 U
Bromodichloromethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane (Methyl Bromide)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Chloromethane (Methyl Chloride)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Cyclohexane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	SW8260B	0.086 U	0.049 U	0.076 U	0.046 U	0.094 U	0.051 U	0.08 U	0.052 U	0.11 U	0.047 U	0.065 U	0.056 U
Isopropylbenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
m&p-Xylene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Methyl cyclohexane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tert Butyl Ether	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	SW8260B	0.17 U	0.099 U	0.15 U	0.091 U	0.19 U	0.1 U	0.16 U	0.1 U	0.22 U	0.095 U	0.13 U	0.11 U
trans-1,2-Dichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane (CFC-11)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (total)	SW8260B	0.26 U	0.15 U	0.23 U	0.14 U	0.28 U	0.15 U	0.24 U	0.16 U	0.33 U	0.14 U	0.19 U	0.17 U

Notes and Abbreviations:

1. U - Not detected, result below shown reporting limit.
   UJ - Not detected, reporting limit estimated
   J - Estimated result
2. Result in **bold** were detected.

APPENDIX B-1
SUMMARY OF SOIL ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

Report Order		AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)
Location Name		HA-7	HA-7	HA-8	HA-8	HA-9	HA-9	HA-10	HA-11	HA-11	HA-12	HA-12	HA-13
Sample Name		HA-7-081607-0	HA-7-081607-1.5	HA-8-081607-0	HA-8-081607-1.5	HA-9-081607-0	HA-9-081607-1.5	HA-10-081607-1.5	HA-11-081607-0	HA-11-081607-1.5	HA-12-081607-0	HA-12-081607-1.5	HA-13-081607-0
Sample Date		8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007
Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (bgs)	Analytical	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)
Sample Matrix	Method	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Inorganic Compounds (mg/kg)													
Arsenic	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Barium	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Copper	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Lead	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	SW7471A	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Silver	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	SW6020	-	-	-	-	-	-	-	-	-	-	-	-
Other (%)													
Total Solids	SM2540B	-	-	-	-	-	-	-	-	-	-	-	-
PCBs (mg/kg)													
Aroclor-1016 (PCB-1016)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1221 (PCB-1221)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1232 (PCB-1232)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1242 (PCB-1242)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1248 (PCB-1248)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1254 (PCB-1254)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor-1260 (PCB-1260)	SW8082	-	-	-	-	-	-	-	-	-	-	-	-
Semi-Volatile Organic Compounds (mg/kg)													
1-Methylnaphthalene	SW8270C	0.0081 U	0.0077 U	0.0091 U	0.0079 U	**0.011**	0.0075 U	0.0075 U	0.0078 U	0.0073 U	0.0088 U	0.0078 U	0.0082 U
2-Methylnaphthalene	SW8270C	0.0081 U	0.0077 U	0.0091 U	0.0079 U	**0.01**	0.0075 U	0.0075 U	0.0078 U	0.0073 U	0.0088 U	0.0078 U	**0.011**
Acenaphthene	SW8270C	0.0081 U	0.0077 U	0.0091 U	0.0079 U	0.009 U	0.0075 U	0.0075 U	0.0078 U	0.0073 U	0.0088 U	0.0078 U	0.0082 U
Acenaphthylene	SW8270C	0.0081 U	0.0077 U	0.0091 U	0.0079 U	0.009 U	0.0075 U	0.0075 U	0.0078 U	0.0073 U	0.0088 U	0.0078 U	0.0082 U
Anthracene	SW8270C	**0.009**	0.0077 U	0.0091 U	0.0079 U	**0.018**	0.0075 U	**0.015**	**0.012**	0.0073 U	**0.015**	0.0078 U	**0.009**
Benzo(a)anthracene	SW8270C	**0.039**	0.0077 U	**0.028**	0.0079 U	**0.05**	**0.013**	**0.034**	**0.056**	0.0073 U	**0.052**	0.0078 U	**0.036**
Benzo(a)pyrene	SW8270C	**0.046**	0.0077 U	**0.034**	0.0079 U	**0.057**	**0.012**	**0.041**	**0.053**	0.0073 U	**0.063**	0.0078 U	**0.048**
Benzo(b)fluoranthene	SW8270C	**0.078**	0.0077 U	**0.059**	0.0079 U	**0.094**	**0.014**	**0.051**	**0.094**	0.0073 U	**0.092**	0.0078 U	**0.079**
Benzo(g,h,i)perylene	SW8270C	**0.036**	0.0077 U	**0.03**	0.0079 U	**0.044**	0.0075 U	**0.033**	**0.05**	0.0073 U	**0.051**	0.0078 U	**0.043**
Benzo(k)fluoranthene	SW8270C	**0.026**	0.0077 U	**0.021**	0.0079 U	**0.034**	**0.008**	**0.022**	**0.036**	0.0073 U	**0.021**	0.0078 U	**0.031**
Chrysene	SW8270C	**0.052**	0.0077 U	**0.04**	0.0079 U	**0.075**	**0.016**	**0.049**	**0.078**	0.0073 U	**0.072**	0.0078 U	**0.064**
Dibenz(a,h)anthracene	SW8270C	**0.01**	0.0077 U	**0.018**	0.0079 U	0.009 U	0.0075 U	0.0075 U	0.0078 U	0.0073 U	0.0088 U	0.0078 U	0.0082 U
Fluoranthene	SW8270C	**0.095**	0.0077 U	**0.072**	0.0079 U	**0.11**	**0.028**	**0.095**	**0.099**	0.0073 U	**0.12**	0.0078 U	**0.086**
Fluorene	SW8270C	0.0081 U	0.0077 U	0.0091 U	0.0079 U	0.009 U	0.0075 U	0.0075 U	0.0078 U	0.0073 U	0.0088 U	0.0078 U	0.0082 U
Indeno(1,2,3-cd)pyrene	SW8270C	**0.033**	0.0077 U	**0.03**	0.0079 U	**0.036**	0.0075 U	**0.024**	**0.046**	0.0073 U	**0.041**	0.0078 U	**0.032**
Naphthalene	SW8270C	0.0081 U	0.0077 U	0.0091 U	0.0079 U	**0.01**	0.0075 U	0.0075 U	0.0078 U	0.0073 U	0.0088 U	0.0078 U	**0.011**
Phenanthrene	SW8270C	**0.038**	0.0077 U	**0.029**	0.0079 U	**0.056**	**0.019**	**0.07**	**0.047**	0.0073 U	**0.051**	0.0078 U	**0.036**
Pyrene	SW8270C	**0.073**	0.0077 U	**0.06**	0.0079 U	**0.085**	**0.023**	**0.088**	**0.087**	0.0073 U	**0.1**	0.0078 U	**0.072**
Total Petroleum Hydrocarbons (mg/kg)													
Diesel Range Organics	SW8015B	**110**	**32**	**120**	**23**	**300**	**20**	**120**	**130**	**16**	**120**	**21**	**170**
Volatile Organic Compounds (mg/kg)													
1,1,1-Trichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	SW8260B	0.33 U	0.23 U	0.39 U	0.22 U	0.44 U	0.24 U	-	0.27 U	0.24 U	0.31 U	0.26 U	0.29 U

APPENDIX B-1
SUMMARY OF SOIL ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

Report Order		AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)
Location Name		HA-7	HA-7	HA-8	HA-8	HA-9	HA-9	HA-10	HA-11	HA-11	HA-12	HA-12	HA-13
Sample Name		HA-7-081607-0	HA-7-081607-1.5	HA-8-081607-0	HA-8-081607-1.5	HA-9-081607-0	HA-9-081607-1.5	HA-10-081607-1.5	HA-11-081607-0	HA-11-081607-1.5	HA-12-081607-0	HA-12-081607-1.5	HA-13-081607-0
Sample Date		8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007
Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (bgs)	Analytical	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	0 - 0.25 (ft)
Sample Matrix	Method	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatile Organic Compounds (mg/kg) (con't)													
1,2-Dibromo-3-chloropropane (DBCP)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromoethane (Ethylene Dibromide)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	SW8260B	0.33 U	0.23 U	0.39 U	0.22 U	0.44 U	0.24 U	-	0.27 U	0.24 U	0.31 U	0.26 U	0.29 U
1,3-Dichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (Methyl Ethyl Ketone)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
2-Hexanone	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	SW8260B	0.065 U	0.047 U	0.078 U	0.045 U	0.089 U	0.048 U	-	0.055 U	0.049 U	0.061 U	0.052 U	0.058 U
Bromodichloromethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane (Methyl Bromide)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform (Trichloromethane)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Chloromethane (Methyl Chloride)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Cyclohexane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane (CFC-12)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	SW8260B	0.065 U	0.047 U	0.078 U	0.045 U	0.089 U	0.048 U	-	0.055 U	0.049 U	0.061 U	0.052 U	0.058 U
Isopropylbenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
m&p-Xylene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Methyl acetate	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Methyl cyclohexane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tert Butyl Ether	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	SW8260B	0.13 U	0.094 U	0.16 U	0.089 U	0.18 U	0.096 U	-	0.11 U	0.098 U	0.12 U	0.1 U	0.12 U
trans-1,2-Dichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane (CFC-11)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Trifluorotrichloroethane (Freon 113)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	SW8260B	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (total)	SW8260B	0.2 U	0.14 U	0.23 U	0.13 U	0.27 U	0.14 U	-	0.16 U	0.15 U	0.18 U	0.15 U	0.18 U

Notes and Abbreviations:

1. U - Not detected, result below shown reporting limit.
   UJ - Not detected, reporting limit estimated
   J - Estimated result
2. Result in **bold** were detected.

APPENDIX B-1
SUMMARY OF SOIL ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

Report Order		AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01
Location Name		HA-13	HA-14	HA-14	HA-15	HA-16	HA-17	HA-18	SB-1	SB-2	SB-3	SB-4	SB-01-101
Sample Name		HA-13-081607-1.5	HA-14-081607-0	HA-14-081607-1.5	HA-15-081607-1.5	HA-16-081607-1.5	HA-17-081607-1.5	HA-18-081607-1.5	SB-1-081607-3	SB-2-081607-3	SB-3-081607-3	SB-4-081607-1	01(12-17-2012)(3.5
Sample Date		8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	12/17/2012
Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (bgs)	Analytical	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	1.5 - 2.5 (ft)	1.5 - 2.5 (ft)	1.5 - 2.5 (ft)	1.5 - 2.5 (ft)	3 - 5 (ft)	3 - 5 (ft)	3 - 5 (ft)	1 - 3 (ft)	3.5 - 4 (ft)
Sample Matrix	Method	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Inorganic Compounds (mg/kg)													
Arsenic	SW6020	-	-	-	-	-	-	-	-	-	-	-	**5.69**
Barium	SW6020	-	-	-	-	-	-	-	-	-	-	-	**35.4**
Cadmium	SW6020	-	-	-	-	-	-	-	-	-	-	-	**0.31**
Chromium	SW6020	-	-	-	-	-	-	-	-	-	-	-	**2.7**
Copper	SW6020	-	-	-	-	-	-	-	-	-	-	-	**18.9**
Lead	SW6020	-	-	-	-	-	-	-	-	-	-	-	**7.78**
Mercury	SW7471A	-	-	-	-	-	-	-	-	-	-	-	0.05 U
Selenium	SW6020	-	-	-	-	-	-	-	-	-	-	-	0.4 U
Silver	SW6020	-	-	-	-	-	-	-	-	-	-	-	0.1 U
Zinc	SW6020	-	-	-	-	-	-	-	-	-	-	-	**30**
Other (%)													
Total Solids	SM2540B	-	-	-	-	-	-	-	-	-	-	-	**89**
PCBs (mg/kg)													
Aroclor-1016 (PCB-1016)	SW8082	-	-	-	-	-	-	-	-	-	-	-	0.33 U
Aroclor-1221 (PCB-1221)	SW8082	-	-	-	-	-	-	-	-	-	-	-	0.33 U
Aroclor-1232 (PCB-1232)	SW8082	-	-	-	-	-	-	-	-	-	-	-	0.33 U
Aroclor-1242 (PCB-1242)	SW8082	-	-	-	-	-	-	-	-	-	-	-	0.33 U
Aroclor-1248 (PCB-1248)	SW8082	-	-	-	-	-	-	-	-	-	-	-	0.33 U
Aroclor-1254 (PCB-1254)	SW8082	-	-	-	-	-	-	-	-	-	-	-	0.33 U
Aroclor-1260 (PCB-1260)	SW8082	-	-	-	-	-	-	-	-	-	-	-	0.33 U
Semi-Volatile Organic Compounds (mg/kg)													
1-Methylnaphthalene	SW8270C	0.0073 U	0.0081 U	0.0077 U	**0.01**	0.0085 U	**0.0083**	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
2-Methylnaphthalene	SW8270C	0.0073 U	0.0081 U	0.0077 U	**0.0085**	0.0085 U	**0.0084**	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
Acenaphthene	SW8270C	0.0073 U	0.0081 U	0.0077 U	**0.017**	0.0085 U	**0.013**	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
Acenaphthylene	SW8270C	0.0073 U	0.0081 U	0.0077 U	**0.019**	**0.015**	0.0075 U	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
Anthracene	SW8270C	0.0073 U	**0.011**	0.0077 U	**0.048**	**0.017**	**0.06**	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
Benzo(a)anthracene	SW8270C	0.0073 U	**0.049**	0.0077 U	**0.19**	**0.079**	**0.16**	0.0073 U	0.0077 U	**0.027**	0.0082 U	0.0084 U	0.3 U
Benzo(a)pyrene	SW8270C	0.0073 U	**0.061**	0.0077 U	**0.18**	**0.1**	**0.14**	0.0073 U	0.0077 U	**0.023**	0.0082 U	0.0084 U	0.3 U
Benzo(b)fluoranthene	SW8270C	0.0073 U	**0.096**	0.0077 U	**0.24**	**0.15**	**0.14**	0.0073 U	0.0077 U	**0.041**	0.0082 U	0.0084 U	0.3 U
Benzo(g,h,i)perylene	SW8270C	0.0073 U	**0.047**	0.0077 U	**0.12**	**0.08**	**0.076**	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
Benzo(k)fluoranthene	SW8270C	0.0073 U	**0.047**	0.0077 U	**0.12**	**0.066**	**0.088**	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
Chrysene	SW8270C	0.0073 U	**0.076**	0.0077 U	**0.22**	**0.11**	**0.14**	0.0073 U	0.0077 U	**0.028**	0.0082 U	0.0084 U	0.3 U
Dibenz(a,h)anthracene	SW8270C	0.0073 U	0.0081 U	0.0077 U	**0.03**	0.0085 U	**0.018**	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
Fluoranthene	SW8270C	0.0073 U	**0.12**	0.0077 U	**0.44**	**0.13**	**0.32**	0.0073 U	0.0077 U	**0.05**	0.0082 U	**0.012**	0.3 U
Fluorene	SW8270C	0.0073 U	**0.01**	0.0077 U	**0.031**	0.0085 U	**0.033**	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
Indeno(1,2,3-cd)pyrene	SW8270C	0.0073 U	**0.04**	0.0077 U	**0.1**	**0.067**	**0.064**	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
Naphthalene	SW8270C	0.0073 U	0.0081 U	0.0077 U	0.0074 U	0.0085 U	**0.0081**	0.0073 U	0.0077 U	0.022 U	0.0082 U	0.0084 U	0.3 U
Phenanthrene	SW8270C	0.0073 U	**0.049**	0.0077 U	**0.22**	**0.037**	**0.21**	0.0073 U	0.0077 U	**0.025**	0.0082 U	**0.0088**	0.3 U
Pyrene	SW8270C	0.0073 U	**0.093**	0.0077 U	**0.36**	**0.12**	**0.25**	0.0073 U	0.0077 U	**0.054**	0.0082 U	**0.0095**	0.3 U
Total Petroleum Hydrocarbons (mg/kg)													
Diesel Range Organics	SW8015B	**30**	**140**	12 U	**67**	**67**	**33**	**21**	**34**	**87**	**40**	**34**	-
Volatile Organic Compounds (mg/kg)													
1,1,1-Trichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,1,2,2-Tetrachloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,1,2-Trichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,1-Dichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,1-Dichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,2,4-Trichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.1 U
1,2,4-Trimethylbenzene	SW8260B	0.23 U	0.32 U	0.21 U	0.22 U	-	-	-	0.22 U	0.37 U	0.24 U	0.23 U	-

APPENDIX B-1
SUMMARY OF SOIL ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

Report Order		AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01 (Legacy)	AOI-01
Location Name		HA-13	HA-14	HA-14	HA-15	HA-16	HA-17	HA-18	SB-1	SB-2	SB-3	SB-4	SB-01-101
Sample Name		HA-13-081607-1.5	HA-14-081607-0	HA-14-081607-1.5	HA-15-081607-1.5	HA-16-081607-1.5	HA-17-081607-1.5	HA-18-081607-1.5	SB-1-081607-3	SB-2-081607-3	SB-3-081607-3	SB-4-081607-1	01(12-17-2012)(3.5
Sample Date		8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	8/16/2007	12/17/2012
Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (bgs)	Analytical	1.5 - 2.5 (ft)	0 - 0.25 (ft)	1.5 - 2.5 (ft)	1.5 - 2.5 (ft)	1.5 - 2.5 (ft)	1.5 - 2.5 (ft)	1.5 - 2.5 (ft)	3 - 5 (ft)	3 - 5 (ft)	3 - 5 (ft)	1 - 3 (ft)	3.5 - 4 (ft)
Sample Matrix	Method	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatile Organic Compounds (mg/kg) (con't)													
1,2-Dibromo-3-chloropropane (DBCP)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,2-Dibromoethane (Ethylene Dibromide)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,2-Dichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,2-Dichloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,2-Dichloropropane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,3,5-Trimethylbenzene	SW8260B	0.23 U	0.32 U	0.21 U	0.22 U	-	-	-	0.22 U	0.37 U	0.24 U	0.23 U	-
1,3-Dichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
1,4-Dichlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
2-Butanone (Methyl Ethyl Ketone)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.94 U
2-Hexanone	SW8260B	-	-	-	-	-	-	-	-	-	-	-	3 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	3 U
Acetone	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.94 U
Benzene	SW8260B	0.047 U	0.064 U	0.042 U	0.045 U	-	-	-	0.043 U	0.075 U	0.049 U	0.047 U	0.06 U
Bromodichloromethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Bromoform	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Bromomethane (Methyl Bromide)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.3 U
Carbon disulfide	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.3 U
Carbon tetrachloride	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Chlorobenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Chloroethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.3 U
Chloroform (Trichloromethane)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Chloromethane (Methyl Chloride)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.3 U
cis-1,2-Dichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
cis-1,3-Dichloropropene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Cyclohexane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Dibromochloromethane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Dichlorodifluoromethane (CFC-12)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Ethylbenzene	SW8260B	0.047 U	0.064 U	0.042 U	0.045 U	-	-	-	0.043 U	0.075 U	0.049 U	0.047 U	0.06 U
Isopropylbenzene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
m&p-Xylene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.1 U
Methyl acetate	SW8260B	-	-	-	-	-	-	-	-	-	-	-	3 U
Methyl cyclohexane	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Methyl Tert Butyl Ether	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.3 U
Methylene chloride	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.3 U
o-Xylene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Styrene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Tetrachloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Toluene	SW8260B	0.093 U	0.13 U	0.084 U	0.089 U	-	-	-	0.087 U	0.15 U	0.098 U	0.093 U	0.06 U
trans-1,2-Dichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
trans-1,3-Dichloropropene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Trichloroethene	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.06 U
Trichlorofluoromethane (CFC-11)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.1 U
Trifluorotrichloroethane (Freon 113)	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.1 U
Vinyl chloride	SW8260B	-	-	-	-	-	-	-	-	-	-	-	0.1 U
Xylene (total)	SW8260B	0.14 U	0.19 U	0.13 U	0.13 U	-	-	-	0.13 U	0.22 U	0.15 U	0.14 U	-

Notes and Abbreviations:

1. U - Not detected, result below shown reporting limit.
   UJ - Not detected, reporting limit estimated
   J - Estimated result
2. Result in **bold** were detected.

APPENDIX B-1
SUMMARY OF SOIL ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

Report Order		AOI-01	AOI-01	AOI-01	AOI-01	AOI-01	AOI-01	AOI-01	AOI-02	AOI-02	AOI-02
Location Name		SB-01-102	SB-01-103	SB-01-104	SB-01-105	SB-01-105	SB-01-107	SB-01-108	SB-02-109	SB-02-110	SB-02-110
Sample Name		02(12-20-2012)(3.5	03(12-17-2012)(3.5	04(12-17-2012)(3.0	05(12-18-2012)(3.0-	05(12-18-2012)(6.25	07(12-18-2012)(2.0	08(12-18-2012)(0.0	09(12-18-2012)(1.5	UP-01(12-18-2012	10(12-18-2012)(2.0-2.5)
Sample Date		12/20/2012	12/17/2012	12/17/2012	12/18/2012	12/18/2012	12/18/2012	12/18/2012	12/18/2012	12/18/2012	12/18/2012
Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Field Duplicate	Normal
Sample Depth (bgs)	Analytical	3.5 - 4 (ft)	3.5 - 4 (ft)	3 - 3.5 (ft)	3 - 3.25 (ft)	6.25 - 7 (ft)	2 - 2.5 (ft)	0 - 1.5 (ft)	1.5 - 2 (ft)	2 - 2.5 (ft)	2 - 2.5 (ft)
Sample Matrix	Method	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Inorganic Compounds (mg/kg)											
Arsenic	SW6020	**0.57**	**1.86**	**1.64**	**1.98**	**3.11**	**0.21**	**2.31**	**0.43**	**2.41 J**	**1.3 J**
Barium	SW6020	**5.31**	**27.1**	**20**	**34.2**	**56.6**	**5.98**	**46.2**	**3.41**	**24.3**	**18.6**
Cadmium	SW6020	0.2 U	**0.22**	0.2 U	**0.28**	**2.18**	0.2 U	**0.48**	0.2 U	**0.32**	**0.26**
Chromium	SW6020	**0.78**	**1.46**	**6.59**	**1.96**	**10**	**0.71**	**3.58**	**0.74**	**2.7**	**2.76**
Copper	SW6020	**3.01**	**7.21**	**8.32**	**18.2**	**39.9**	**0.77**	**13.6**	**3.35**	**10.6**	**7.73**
Lead	SW6020	**2.27**	**4.77**	**19.1**	**7.26**	**11**	**1.19**	**13.3**	**1.9**	**6.77**	**5.57**
Mercury	SW7471A	0.05 U	0.05 U	0.05 U	0.05 U	**0.079**	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Selenium	SW6020	0.4 U	0.4 U	0.4 U	0.4 U	**2.93**	0.4 U	**0.61**	0.4 U	0.4 U	0.4 U
Silver	SW6020	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Zinc	SW6020	**4.45**	**17.3**	**19.1**	**24.3**	**42.5**	**2.13**	**21.2**	**6.73**	**18.8**	**15**
Other (%)											
Total Solids	SM2540B	**97**	**88**	**87**	**86**	**64**	**84**	**81**	**91**	**84**	**89**
PCBs (mg/kg)											
Aroclor-1016 (PCB-1016)	SW8082	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Aroclor-1221 (PCB-1221)	SW8082	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Aroclor-1232 (PCB-1232)	SW8082	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Aroclor-1242 (PCB-1242)	SW8082	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Aroclor-1248 (PCB-1248)	SW8082	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Aroclor-1254 (PCB-1254)	SW8082	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Aroclor-1260 (PCB-1260)	SW8082	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Semi-Volatile Organic Compounds (mg/kg)											
1-Methylnaphthalene	SW8270C	0.3 U	0.3 U	**0.8**	0.3 U	**3.6**	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
2-Methylnaphthalene	SW8270C	0.3 U	0.3 U	**1.5**	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Acenaphthene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Acenaphthylene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Anthracene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzo(a)anthracene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzo(a)pyrene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzo(b)fluoranthene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzo(g,h,i)perylene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Benzo(k)fluoranthene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Chrysene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dibenz(a,h)anthracene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Fluoranthene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Fluorene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	**1**	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Indeno(1,2,3-cd)pyrene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Naphthalene	SW8270C	0.3 U	0.3 U	**0.8**	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Phenanthrene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Pyrene	SW8270C	0.3 U	0.3 U	0.3 U	0.3 U	1 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Total Petroleum Hydrocarbons (mg/kg)											
Diesel Range Organics	SW8015B	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (mg/kg)											
1,1,1-Trichloroethane	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
1,1,2,2-Tetrachloroethane	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
1,1,2-Trichloroethane	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
1,1-Dichloroethane	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
1,1-Dichloroethene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
1,2,4-Trichlorobenzene	SW8260B	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2,4-Trimethylbenzene	SW8260B	-	-	-	-	-	-	-	-	-	-

APPENDIX B-1
SUMMARY OF SOIL ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

Report Order		AOI-01	AOI-01	AOI-01	AOI-01	AOI-01	AOI-01	AOI-01	AOI-02	AOI-02	AOI-02
Location Name		SB-01-102	SB-01-103	SB-01-104	SB-01-105	SB-01-105	SB-01-107	SB-01-108	SB-02-109	SB-02-110	SB-02-110
Sample Name		02(12-20-2012)(3.5	03(12-17-2012)(3.5	04(12-17-2012)(3.0	05(12-18-2012)(3.0-3	05(12-18-2012)(6.25	07(12-18-2012)(2.0	08(12-18-2012)(0.0	09(12-18-2012)(1.5	UP-01(12-18-2012	10(12-18-2012)(2.0-2.5)
Sample Date		12/20/2012	12/17/2012	12/17/2012	12/18/2012	12/18/2012	12/18/2012	12/18/2012	12/18/2012	12/18/2012	12/18/2012
Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Field Duplicate	Normal
Sample Depth (bgs)	Analytical	3.5 - 4 (ft)	3.5 - 4 (ft)	3 - 3.5 (ft)	3 - 3.25 (ft)	6.25 - 7 (ft)	2 - 2.5 (ft)	0 - 1.5 (ft)	1.5 - 2 (ft)	2 - 2.5 (ft)	2 - 2.5 (ft)
Sample Matrix	Method	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatile Organic Compounds (mg/kg) (con't)											
1,2-Dibromo-3-chloropropane (DBCP)	SW8260B	0.05 UJ	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 UJ	0.06 UJ
1,2-Dibromoethane (Ethylene Dibromide)	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
1,2-Dichlorobenzene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
1,2-Dichloroethane	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
1,2-Dichloropropane	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
1,3,5-Trimethylbenzene	SW8260B	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
1,4-Dichlorobenzene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
2-Butanone (Methyl Ethyl Ketone)	SW8260B	0.79 UJ	0.97 U	0.98 U	1 U	1.6 U	1 U	1.1 U	0.91 U	1 UJ	0.92 UJ
2-Hexanone	SW8260B	3 U	3 U	3 UJ	3 U	5 UJ	3 U	4 U	3 UJ	3 U	3 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	SW8260B	3 U	3 U	3 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Acetone	SW8260B	0.79 UJ	0.97 U	0.98 UJ	1 U	1.6 UJ	1 U	1.1 U	0.91 UJ	1 UJ	0.92 UJ
Benzene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Bromodichloromethane	SW8260B	0.05 UJ	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 UJ	0.06 UJ
Bromoform	SW8260B	0.05 UJ	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 UJ	0.06 UJ
Bromomethane (Methyl Bromide)	SW8260B	0.3 U	0.3 U	0.3 U	0.3 U	0.5 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U
Carbon disulfide	SW8260B	0.3 U	0.3 U	0.3 U	0.3 U	0.5 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U
Carbon tetrachloride	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Chlorobenzene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Chloroethane	SW8260B	0.3 U	0.3 U	0.3 U	0.3 U	0.5 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U
Chloroform (Trichloromethane)	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Chloromethane (Methyl Chloride)	SW8260B	0.3 U	0.3 U	0.3 U	0.3 U	0.5 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U
cis-1,2-Dichloroethene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
cis-1,3-Dichloropropene	SW8260B	0.05 UJ	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 UJ	0.06 UJ
Cyclohexane	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Dibromochloromethane	SW8260B	0.05 UJ	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 UJ	0.06 UJ
Dichlorodifluoromethane (CFC-12)	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Ethylbenzene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Isopropylbenzene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
m&p-Xylene	SW8260B	0.1 U	0.1 U	**0.2**	0.1 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methyl acetate	SW8260B	3 U	3 U	3 U	3 U	5 U	3 U	4 U	3 U	3 U	3 U
Methyl cyclohexane	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Methyl Tert Butyl Ether	SW8260B	0.3 U	0.3 U	0.3 U	0.3 U	0.5 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U
Methylene chloride	SW8260B	0.3 U	0.3 U	0.3 U	0.3 U	0.5 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U
o-Xylene	SW8260B	0.05 U	0.06 U	**0.23**	0.07 U	0.1 U	0.07 U	0.07 U	**0.13**	0.07 U	0.06 U
Styrene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Tetrachloroethene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Toluene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
trans-1,2-Dichloroethene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
trans-1,3-Dichloropropene	SW8260B	0.05 UJ	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 UJ	0.06 UJ
Trichloroethene	SW8260B	0.05 U	0.06 U	0.07 U	0.07 U	0.1 U	0.07 U	0.07 U	0.06 U	0.07 U	0.06 U
Trichlorofluoromethane (CFC-11)	SW8260B	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Trifluorotrichloroethane (Freon 113)	SW8260B	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Vinyl chloride	SW8260B	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Xylene (total)	SW8260B	-	-	-	-	-	-	-	-	-	-

Notes and Abbreviations:

1. U - Not detected, result below shown reporting limit.
   UJ - Not detected, reporting limit estimated
   J - Estimated result
2. Result in **bold** were detected.

APPENDIX B-2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

AOI		AOI-01	AOI-01	AOI-01	AOI-01	AOI-01	AOI-01	AOI-02	AOI-02
Location Name		TW-01-101	TW-01-104	TW-01-105	TW-01-106	TW-01-107	TW-01-108	TW-02-109	TW-02-110
Sample Name		TW101(01-30-2013)(1150)	TW104(01-30-2013)(1120)	TW105(01-30-2013)(1335)	TW106(01-31-2013)(1415)	TW107(02-01-2013)(1115)	TW108(02-01-2013)(1230)	TW109(01-31-2013)(1220)	TW110(01-31-2013)(1355)
Sample Date		1/30/2013	1/30/2013	1/30/2013	1/31/2013	2/1/2013	2/1/2013	1/31/2013	1/31/2013
Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (bgs)	Analytical	3 - 8 (ft)	9 - 14 (ft)	5 -10 (ft)	3 -13 (ft)	2 - 7 (ft)	2 - 7 (ft)	3 -13 (ft)	4 - 9 (ft)
Sample Matrix	Method	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Inorganic Compounds (mg/L)									
Arsenic, Dissolved	E200.8	0.002 U	0.002 U	**0.003**	**0.003**	**0.004 J**	**0.002**	0.002 U	**0.002 J**
Arsenic, Total	E200.8	0.002 U	0.002 U	**0.01**	**0.01**	**0.003 J**	**0.004**	0.002 U	**0.01 J**
Barium, Dissolved	E200.8	**0.048**	**0.087**	**0.092**	**0.216**	**0.074**	**0.051**	**0.084**	**0.21**
Barium, Total	E200.8	**0.056**	**0.099**	**0.121**	**0.276**	**0.075**	**0.054**	**0.106**	**0.377**
Cadmium, Dissolved	E200.8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Cadmium, Total	E200.8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Chromium, Dissolved	E200.8	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium, Total	E200.8	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Copper, Dissolved	E200.8	0.004 U	0.004 U	0.004 U	0.004 U	**0.017 J**	**0.004**	**0.004 J**	0.004 U
Copper, Total	E200.8	0.004 U	0.004 U	0.004 U	0.004 U	**0.017 J**	**0.004**	**0.005 J**	0.004 U
Lead, Dissolved	E200.8	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Lead, Total	E200.8	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Mercury, Dissolved	E245.1	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury, Total	E245.1	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Selenium, Dissolved	E200.8	0.005 U	0.005 U	0.005 U	0.005 U	**0.011 J**	0.005 U	0.005 U	0.005 U
Selenium, Total	E200.8	0.005 U	0.005 U	0.005 U	0.005 U	**0.014 J**	0.005 U	0.005 U	0.005 U
Silver, Dissolved	E200.8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Silver, Total	E200.8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Zinc, Dissolved	E200.8	**0.038**	**0.016**	**0.051**	**0.029**	**0.037 J**	**0.029**	**0.016 J**	**0.024 J**
Zinc, Total	E200.8	**0.006**	0.005 U	0.005 U	0.005 U	**0.018 J**	**0.007**	0.005 U	0.005 U
Semi-Volatile Organic Compounds (mg/L)									
1-Methylnaphthalene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
2-Methylnaphthalene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 UJ	0.005 U	0.005 UJ	0.005 UJ
Acenaphthene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Acenaphthylene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Anthracene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Benzo(a)anthracene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U	0.001 U
Benzo(a)pyrene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U	0.001 U
Benzo(b)fluoranthene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U	0.001 U
Benzo(g,h,i)perylene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U	0.001 U
Benzo(k)fluoranthene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U	0.001 U
Chrysene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U	0.001 U
Dibenz(a,h)anthracene	SW8270C	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.004 U	0.002 U
Fluoranthene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.004 U	0.001 U
Fluorene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Indeno(1,2,3-cd)pyrene	SW8270C	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.004 U	0.002 U
Naphthalene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Phenanthrene	SW8270C	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.004 U	0.002 U
Pyrene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Volatile Organic Compounds (mg/L)									
1,1,1-Trichloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,4-Trichlorobenzene	SW8260B	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
1,2-Dibromo-3-chloropropane (DBCP)	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dibromoethane (Ethylene Dibromide)	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

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RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

AOI		AOI-01	AOI-01	AOI-01	AOI-01	AOI-01	AOI-01	AOI-02	AOI-02
Location Name		TW-01-101	TW-01-104	TW-01-105	TW-01-106	TW-01-107	TW-01-108	TW-02-109	TW-02-110
Sample Name		TW101(01-30-2013)(1150)	TW104(01-30-2013)(1120)	TW105(01-30-2013)(1335)	TW106(01-31-2013)(1415)	TW107(02-01-2013)(1115)	TW108(02-01-2013)(1230)	TW109(01-31-2013)(1220)	TW110(01-31-2013)(1355)
Sample Date		1/30/2013	1/30/2013	1/30/2013	1/31/2013	2/1/2013	2/1/2013	1/31/2013	1/31/2013
Sample Type		Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Sample Depth (bgs)	Analytical	3 - 8 (ft)	9 - 14 (ft)	5 -10 (ft)	3 -13 (ft)	2 - 7 (ft)	2 - 7 (ft)	3 -13 (ft)	4 - 9 (ft)
Sample Matrix	Method	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Volatile Organic Compounds (mg/L) (con't)									
1,4-Dichlorobenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
2-Butanone (Methyl Ethyl Ketone)	SW8260B	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
2-Hexanone	SW8260B	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	SW8260B	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Acetone	SW8260B	0.02 U	0.02 U	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ
Benzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromoform	SW8260B	0.001 U	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 UJ	0.001 U	0.001 U
Bromomethane (Methyl Bromide)	SW8260B	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	SW8260B	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Carbon tetrachloride	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform (Trichloromethane)	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane (Methyl Chloride)	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cyclohexane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorodifluoromethane (CFC-12)	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Ethylbenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Isopropylbenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	SW8260B	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Methyl acetate	SW8260B	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Methyl cyclohexane	SW8260B	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Methyl Tert Butyl Ether	SW8260B	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Methylene chloride	SW8260B	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
o-Xylene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Styrene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Tetrachloroethene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichlorofluoromethane (CFC-11)	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trifluorotrichloroethane (Freon 113)	SW8260B	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Vinyl chloride	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Notes and Abbreviations:

1. U - Not detected, result below shown reporting limit.
   UJ - Not detected, reporting limit estimated
   J - Estimated result
2. Result in **bold** were detected.

APPENDIX B-2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

AOI		AOI-03	AOI-04	AOI-05	AOI-05	AOI-07	AOI-07	AOI-07
Location Name		TW-03-116	TW-04-115	TW-05-114	TW-05-114	TW-07-111	TW-07-111	TW-07-112
Sample Name		TW116(02-01-2013)(1405)	TW115(01-31-2013)(1720)	TW114(01-31-2013)(1635)	DUP-02(01-31-2013)	TW111(01-30-2013)(1440)	DUP-01(01-30-2013)	TW112(01-30-2013)(1455)
Sample Date		2/1/2013	1/31/2013	1/31/2013	1/31/2013	1/30/2013	1/30/2013	1/30/2013
Sample Type		Normal	Normal	Normal	Field Duplicate	Normal	Field Duplicate	Normal
Sample Depth (bgs)	Analytical	5 -10 (ft)	4 - 9 (ft)	2 -7 (ft)	2 -7 (ft)	4 - 9 (ft)	4 - 9 (ft)	3.5 - 8.5 (ft)
Sample Matrix	Method	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Inorganic Compounds (mg/L)								
Arsenic, Dissolved	E200.8	**0.005 J**	**0.003**	**0.003 J**	**0.003 J**	**0.01**	**0.011**	0.002 U
Arsenic, Total	E200.8	**0.004 J**	**0.003**	**0.004 J**	**0.004 J**	**0.011**	**0.011**	**0.013**
Barium, Dissolved	E200.8	**0.032**	**0.076**	**0.051**	**0.062**	**0.048**	**0.049**	**0.1**
Barium, Total	E200.8	**0.034**	**0.08**	**0.089**	**0.094**	**0.06**	**0.046**	**0.123**
Cadmium, Dissolved	E200.8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Cadmium, Total	E200.8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Chromium, Dissolved	E200.8	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Chromium, Total	E200.8	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Copper, Dissolved	E200.8	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Copper, Total	E200.8	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U
Lead, Dissolved	E200.8	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Lead, Total	E200.8	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U
Mercury, Dissolved	E245.1	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Mercury, Total	E245.1	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Selenium, Dissolved	E200.8	**0.013 J**	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Selenium, Total	E200.8	**0.013 J**	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Silver, Dissolved	E200.8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Silver, Total	E200.8	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
Zinc, Dissolved	E200.8	**0.023 J**	**0.037**	**0.012 J**	**0.03 J**	**0.065**	**0.064**	**0.033**
Zinc, Total	E200.8	0.005 U	0.005 U	0.005 U	0.005 U	**0.006**	0.005 U	0.005 U
Semi-Volatile Organic Compounds (mg/L)								
1-Methylnaphthalene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
2-Methylnaphthalene	SW8270C	0.005 UJ	0.005 U	0.005 UJ	0.005 UJ	0.005 U	0.005 U	0.005 U
Acenaphthene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Acenaphthylene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Anthracene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Benzo(a)anthracene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Benzo(a)pyrene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Benzo(b)fluoranthene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Benzo(g,h,i)perylene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Benzo(k)fluoranthene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chrysene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibenz(a,h)anthracene	SW8270C	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Fluoranthene	SW8270C	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Fluorene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Indeno(1,2,3-cd)pyrene	SW8270C	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Naphthalene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Phenanthrene	SW8270C	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Pyrene	SW8270C	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Volatile Organic Compounds (mg/L)								
1,1,1-Trichloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,4-Trichlorobenzene	SW8260B	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
1,2-Dibromo-3-chloropropane (DBCP)	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dibromoethane (Ethylene Dibromide)	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

APPENDIX B-2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
RACER FORMER ROMULUS ENGINEERING CENTER
ROMULUS, MI

AOI		AOI-03	AOI-04	AOI-05	AOI-05	AOI-07	AOI-07	AOI-07
Location Name		TW-03-116	TW-04-115	TW-05-114	TW-05-114	TW-07-111	TW-07-111	TW-07-112
Sample Name		TW116(02-01-2013)(1405)	TW115(01-31-2013)(1720)	TW114(01-31-2013)(1635)	DUP-02(01-31-2013)	TW111(01-30-2013)(1440)	DUP-01(01-30-2013)	TW112(01-30-2013)(1455)
Sample Date		2/1/2013	1/31/2013	1/31/2013	1/31/2013	1/30/2013	1/30/2013	1/30/2013
Sample Type		Normal	Normal	Normal	Field Duplicate	Normal	Field Duplicate	Normal
Sample Depth (bgs)	Analytical	5 -10 (ft)	4 - 9 (ft)	2 -7 (ft)	2 -7 (ft)	4 - 9 (ft)	4 - 9 (ft)	3.5 - 8.5 (ft)
Sample Matrix	Method	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Volatile Organic Compounds (mg/L) (con't)								
1,4-Dichlorobenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
2-Butanone (Methyl Ethyl Ketone)	SW8260B	0.02 U	0.02 U	0.14 U	0.16 U	0.02 U	0.02 U	0.02 U
2-Hexanone	SW8260B	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	SW8260B	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Acetone	SW8260B	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 U
Benzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromoform	SW8260B	0.001 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromomethane (Methyl Bromide)	SW8260B	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	SW8260B	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Carbon tetrachloride	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform (Trichloromethane)	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane (Methyl Chloride)	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cyclohexane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromochloromethane	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorodifluoromethane (CFC-12)	SW8260B	0.001 U	0.001 U	**0.002**	**0.002**	0.001 U	0.001 U	0.001 U
Ethylbenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Isopropylbenzene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
m&p-Xylene	SW8260B	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Methyl acetate	SW8260B	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Methyl cyclohexane	SW8260B	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Methyl Tert Butyl Ether	SW8260B	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Methylene chloride	SW8260B	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
o-Xylene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Styrene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Tetrachloroethene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichlorofluoromethane (CFC-11)	SW8260B	**0.006**	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trifluorotrichloroethane (Freon 113)	SW8260B	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Vinyl chloride	SW8260B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Notes and Abbreviations:

1. U - Not detected, result below shown reporting limit.
   UJ - Not detected, reporting limit estimated
   J - Estimated result
2. Result in **bold** were detected.

APPENDIX C

Analytical Data Validation Documentation

Data Usability Summary Report (DUSR)
10020 Romulus Engineering Center
Analytical Laboratory: Merit Laboratories, Inc. - East Lansing, MI
Sample Delivery Group # S55372

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Inorganic Data Review (EPA 540-R-04-004)
- USEPA National Functional Guidelines for Organic Data Review (EPA 540-R-08-01) and/or
  USEPA National Functional Guidelines for Low Concentration Organic Data Review (EPA 540-R-00-006)

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996, or Standard Methods for the Examination of Water and Wastewater, Eds 18-20.

This DUSR pertains to the following samples:

Sample ID
2306-013113-0001
TW106(01-31-2013)(1415)
2306-013113-0002
TW115(01-31-2013)(1720)
2306-020113-0001
TW108(02-01-2013)(1230)

Project Samples were analyzed according to the following analytical methods

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days
2.	ICP/MS Metals	EPA 6020/200.8	180 days
3.	Mercury	E2451.1	28 days
4.	SVOCs (BNAs)	EPA 8270C/625	7 days ext/40 days analysis

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed

- Holding Times
- GC/MS Instrument Performance Check
- Initial Calibration Procedures
- Continuing Calibration Procedures
- Blank Sample Analysis
- System Monitoring Compound Recoveries
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Internal Standard Recoveries
- ICP Interference Check Sample Performance
- Target Compound Identification
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

GC/MS Instrument Performance Check

GC/MS instrument performance checks for the instruments used in the analysis of project samples fell within method specific criteria without exception. No qualification of the data is recommended.

Initial Calibration Procedures

Initial instrument calibration procedures for the analysis of project samples were consistent with the guidelines prescribed by EPA protocols, with the following exception(s):

During the analysis of VOCs (SW846 8260B), the initial calibration standards for the following target compound(s) exhibited a percent relative standard deviation (%RSD) greater than the acceptance criteria of 30% and/or a RRF less than 0.05:

Inst.	Date / Time	Target Analyte(s)	%RSD	RRF	Affected Sample(s)	Corrective Action
vol.05.Urborg	01/09/13	Bromoform	22.96	0.38	All Project Samples	See Action #1 Below

Action #1
Positive results are qualified "J", estimated and non-detected analytes as "UJ", estimated detection limit.

Continuing Calibration Procedures

Continuing calibration verification (CCV) procedures for the analysis of project samples were consistent with the guidelines prescribed by EPA protocols, with the following exception(s):

During the analysis of VOCs (SW846 8260B), the continuing calibration verification (CCV) standards for the following target compound(s) exhibited a percent drift (%D) greater than the acceptance criteria of 25% and/or a RRF less than 0.05:

Inst.	Date / Time	Target Analyte(s)	%D	RRF	Affected Sample(s)	Corrective Action
vol.05.Urborg	02/04/13 11:28	Acetone	42.40	0.07	All Project Samples	See Action #1 Below

Action #1
Positive results are qualified "J", estimated and non-detected analytes as "UJ", estimated detection limit.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

System Monitoring Compound Recoveries

System monitoring/surrogate compounds are added to each sample prior to analysis of organic parameters to confirm the efficiency of the sample preparation procedure. The calculated recovery for each surrogate compound was evaluated to confirm the accuracy of the reported results. The calculated recovery of these compounds fell within the laboratory specific quality control criteria. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria, with the following exception(s):

LCS ID / Project Sample MS	Type	Target Analyte(s)	%R Criteria	%R	%RPD	Affected Sample(s)
LCS (130204A5.1)	LCS	Acetone	30 - 162	178.5		All Project Samples
	LCS	2-Butanone (MEK)	44 - 134	142.4		
TW106(01-31-2013)(1415)	MS	4-Methyl-2-pentanone (MIBK)	72 - 125	129.4		All Project Samples

Action:

If the LCS %R is greater than the upper acceptance limit, associated target analyte positive results are qualified "J" and non-detects should not be qualified. If the LCS %R is less than the lower acceptance limit associated target analyte positive results are qualified "J" and non-detects are qualified "R". If the MS/MSD is from a project sample and the %R greater than the upper acceptance limit, associated target analyte positive results are qualified "J" and non-detects should not be qualified. If the MS/MSD %R is >10%, but less than the lower acceptance limit, associated analyte positive results are qualified "J" and non-detects are qualified "UJ". If the MS/MSD %R is less than 10% associated target analyte positive results are qualified "J" and non-detects are qualified "R". MS/MSD qualifiers are only applied to affected samples of the same matrix. If the MS/MSD is a LAB sample do not qualify project samples.

Internal Standard Recoveries

Internal Standard compounds were added to each sample matrix prior to the analysis of organic parameters to quantify the amount of the target compounds detected within each sample. The calculated response of each IS compound fell within the QA/QC criteria of +100% and – 50% of the corresponding CCV standard. No qualification of the data is recommended.

ICP Interference Check Sample Performance

The results of the ICP Interference Check Samples analyzed concurrently with the project samples were all within the acceptance criteria +/- 20% of true value as prescribed by USEPA guidance. No qualification of the data is recommended.

Target Compound Identification

GC/MS qualitative analysis for organic parameters was performed to remove mis-identifications of the target compounds. The relative retention times (RRT) of all reported target compounds were within +/- 0.06 RRT units of the associated calibration standard RRT, and all ions present in the reference standard spectrum at a relative intensity greater than 10 percent were also present in the sample spectrum. No qualification of the data is recommended.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format or equivalent. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Samples that contain results between the MDL and RL were flagged as estimated, "J", by the laboratory. The data user should be aware that there is a possibility of false positive or mis-identification at the quantitation levels. The laboratory also qualified results when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Data Usability Summary Report (DUSR)
10020 Romulus Engineering Center
Analytical Laboratory: Merit Laboratories, Inc. - East Lansing, MI
Sample Delivery Group # S55047

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Inorganic Data Review (EPA 540-R-04-004)
- USEPA National Functional Guidelines for Organic Data Review (EPA 540-R-08-01) and/or
  USEPA National Functional Guidelines for Low Concentration Organic Data Review (EPA 540-R-00-006)

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996, or Standard Methods for the Examination of Water and Wastewater, Eds 18-20.

This DUSR pertains to the following samples:

Sample ID
2306-121812-0001
SB110(12-18-2012)(2.0-2.5)
DUP-01(12-18-2012)
SB102(12-20-2012)(3.5-4.0)

Project Samples were analyzed according to the following analytical methods

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days
2.	Solids, Total (TS)	EPA 160.3	7 days
3.	ICP/MS Metals	EPA 6020/200.8	180 days
4.	Mercury	EPA 7471A	28 days
5.	PCBs	EPA 8082/608	7 days ext/40 days analysis
6.	Purgeable Halocarbons/Aromatics	EPA 8260(8021B list)	14 days
7.	SVOCs (BNAs)	EPA 8270C/625	7 days ext/40 days analysis

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed

- Holding Times
- GC/MS Instrument Performance Check
- Initial Calibration Procedures
- Continuing Calibration Procedures
- Blank Sample Analysis
- System Monitoring Compound Recoveries
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Internal Standard Recoveries
- Field Duplicate Sample Analysis
- ICP Interference Check Sample Performance
- Target Compound Identification
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

GC/MS Instrument Performance Check

GC/MS instrument performance checks for the instruments used in the analysis of project samples fell within method specific criteria without exception. No qualification of the data is recommended.

Initial Calibration Procedures

Initial instrument calibration procedures for the analysis of project samples were consistent with the guidelines prescribed by EPA protocols, with the following exception(s):

During the analysis of VOCs (SW846 8260B), the initial calibration standards for the following target compound(s) exhibited a percent relative standard deviation (%RSD) greater than the acceptance criteria of 30% and/or a RRF less than 0.05:

Inst.	Date / Time	Target Analyte(s)	%RSD	RRF	Affected Sample(s)	Corrective Action
VOL.07.Ravnica	12/20/12	trans-1,3-Dichloropropene	23.75	0.33	2306-121812-0001	
	Time	Dibromochloromethane	20.61	0.45		
		Bromoform	27.07	0.29		
		1,2-Dibromo-3-chloropropane	24.16	0.09		
VOL.07.Ravnica	12/14/12	Acetone	62.12	0.13	SB110(12-18-2012)(2.0-2.5)	See Action #1 Below
	Time	Bromodichloromethane	29.34	0.29	DUP-01(12-18-2012)	
		cis-1,3-Dichloropropene	30.18	0.34	SB102(12-20-2012)(3.5-4.0)	See Action #1 Below
		trans-1,3-Dichloropropene	35.14	0.26		See Action #1 Below
		Dibromochloromethane	34.99	0.36		See Action #1 Below
		Bromoform	44.85	0.18		See Action #1 Below
		1,2-Dibromo-3-chloropropane	40.63	0.05		See Action #1 Below

Action #1
Positive results are qualified "J", estimated and non-detected analytes as "UJ", estimated detection limit.

Continuing Calibration Procedures

Continuing calibration verification (CCV) procedures for the analysis of project samples were consistent with the guidelines prescribed by EPA protocols, with the following exception(s):

During the analysis of VOCs (SW846 8260B), the continuing calibration verification (CCV) standards for the following target compound(s) exhibited a percent drift (%D) greater than the acceptance criteria of 25% and/or a RRF less than 0.05:

Inst.	Date / Time	Target Analyte(s)	%D	RRF	Affected Sample(s)	Corrective Action
VOL.07.Ravnica	12/27/12	Acetone	49.80	0.10	2306-121812-0001	See Action #1 Below
	23:39	2-Butanone (MEK)	41.00	0.15		See Action #1 Below
VOL.07.Ravnica	12/28/12	Dichlorodifluoromethane	47.10	0.43	SB110(12-18-2012)(2.0-2.5)	See Action #1 Below
	17:51				DUP-01(12-18-2012)	
					SB102(12-20-2012)(3.5-4.0)	

Action #1
Positive results are qualified "J", estimated and non-detected analytes as "UJ", estimated detection limit.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

System Monitoring Compound Recoveries

System monitoring/surrogate compounds are added to each sample prior to analysis of organic parameters to confirm the efficiency of the sample preparation procedure. The calculated recovery for each surrogate compound was evaluated to confirm the accuracy of the reported results. The calculated recovery of these compounds fell within the laboratory specific quality control criteria. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria. No qualification of the data is recommended.

Internal Standard Recoveries

Internal Standard compounds were added to each sample matrix prior to the analysis of organic parameters to quantify the amount of the target compounds detected within each sample. The calculated response of each IS compound fell within the QA/QC criteria of +100% and – 50% of the corresponding CCV standard. No qualification of the data is recommended.

Field Duplicate Sample Analysis

The overall variability attributable to the sampling procedure, sample matrix, and laboratory procedures, was evaluated by assessing the relative percent difference (RPD) data from field duplicate samples. All calculated RPD values were within matrix specific data quality objectives, with the exception of results qualified "J" as shown in the table(s) below:

Target Analyte(s)	Original Sample ID. SB110(12-18-2012)(2.0-2.5)	FD Sample ID. DUP-01(12-18-2012)	%RPD	Flag Original and FD sample results with:
VOCs	0	0		All ND

Action:

If the sample matrix is solid and the %RPD is greater than 50%, the original sample results are qualified "J". If the sample matrix is water or air and the %RPD is greater than 35%, the original sample results are qualified "J".

Target Analyte(s)	Original Sample ID. SB110(12-18-2012)(2.0-2.5)	FD Sample ID. DUP-01(12-18-2012)	%RPD	Flag Original and FD sample results with:
SVOCs	0	0		ALL ND

Action:

If the sample matrix is solid and the %RPD is greater than 50%, the original sample results are qualified "J". If the sample matrix is water or air and the %RPD is greater than 35%, the original sample results are qualified "J".

Target Analyte(s)	Original Sample ID. SB110(12-18-2012)(2.0-2.5)	FD Sample ID. DUP-01(12-18-2012)	%RPD	Flag Original and FD sample results with:
PCBs	0 ug/kg	0 U ug/kg		ALL ND

Action:

If the sample matrix is solid and the %RPD is greater than 50%, the original sample results are qualified "J". If the sample matrix is water or air and the %RPD is greater than 35%, the original sample results are qualified "J".

Target Analyte(s)	Original Sample ID. SB110(12-18-2012)(2.0-2.5)	FD Sample ID. DUP-01(12-18-2012)	%RPD	Flag Original and FD sample results with:
Lead	5.57 mg/kg	6.77 mg/kg	19%	
Arsenic	1.3 mg/kg	2.41 mg/kg	60%	J
Barium	18.6 mg/kg	24.3 mg/kg	27%	
Cadmium	0.26 mg/kg	0.32 mg/kg	21%	
Chromium	2.76 mg/kg	2.7 mg/kg	2%	
Copper	7.73 mg/kg	10.6 mg/kg	31%	
Zinc	15 mg/kg	18.8 mg/kg	22%	

Action:

If the sample matrix is solid and the %RPD is greater than 50%, the original sample results are qualified "J". If the sample matrix is water or air and the %RPD is greater than 35%, the original sample results are qualified "J".

Target Analyte(s)	Original Sample ID. SB110(12-18-2012)(2.0-2.5)	FD Sample ID. DUP-01(12-18-2012)	%RPD	Flag Original and FD sample results with:
Mercury	0	0		ND

Action:

If the sample matrix is solid and the %RPD is greater than 50%, the original sample results are qualified "J". If the sample matrix is water or air and the %RPD is greater than 35%, the original sample results are qualified "J".

ICP Interference Check Sample Performance

The results of the ICP Interference Check Samples analyzed concurrently with the project samples were all within the acceptance criteria +/- 20% of true value as prescribed by USEPA guidance. No qualification of the data is recommended.

Target Compound Identification

GC/MS qualitative analysis for organic parameters was performed to remove mis-identifications of the target compounds. The relative retention times (RRT) of all reported target compounds were within +/- 0.06 RRT units of the associated calibration standard RRT, and all ions present in the reference standard spectrum at a relative intensity greater than 10 percent were also present in the sample spectrum. No qualification of the data is recommended.

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Data Qualifiers

Samples that contain results between the MDL and RL were flagged as estimated, "J", by the laboratory. The data user should be aware that there is a possibility of false positive or mis-identification at the quantitation levels. The laboratory also qualified results when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

APPENDIX D

Laboratory Analytical Reports

(on CD)