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Annual Groundwater Monitoring Report

Pontiac North Campus

April 2014

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Theresa Olechiw
Associate Project Manager

John P. McKenna, C.P.G., P.G.
Associate Vice President

Prepared for:
RACER Trust

Prepared by:
ARCADIS of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Tel 248 994 2240
Fax 248 994 2241

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List of Acronyms and Abbreviations

AIR	Area of Industrial Redevelopment
DO	dissolved oxygen
EEC	Encore Environmental Consortium, LLC
EI	Environmental Indicators
ENCORE	Environmental Corporate Remediation
FSP	Field Sampling Plan
GM	General Motors LLC
GMP	Groundwater Monitoring Program
NRDWC	Nonresidential Drinking Water Criteria
LNAPL	light non-aqueous phase liquid
MDEQ	Michigan Department of Environmental Quality
MLC	Motors Liquidation Company
mg/L	milligrams per liter
ORP	oxygen reduction potential
PCBs	polychlorinated biphenyls
QAPP	Quality Assurance Project Plan
RFI	RCRA Facility Investigation
RCRA	Resource Conservation and Recovery Act
RDWC	Residential Drinking Water Criteria
Site	Pontiac North Campus
SSPL	Site-specific parameter list
TCL	target compound list
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds

1. Introduction

On July 10, 2009, Motors Liquidation Company (MLC) (formerly known as General Motors Corporation), who had filed for Chapter 11 protection under the Bankruptcy Code in federal court, sold certain assets to General Motors Company (now known as General Motors LLC (GM LLC)), including a portion of Pontiac North Campus. Effective March 31, 2011, the Revitalizing Auto Communities Environmental Response Trust (RACER) was created through a Bankruptcy Settlement Agreement between MLC, the federal government, fourteen states, and the St. Regis Mohawk Tribe.

On October 30, 2009, MLC and GM jointly submitted a request to the U.S. Environmental Protection Agency (USEPA) to modify the Groundwater Monitoring Program (GMP) (Appendix A) for the RACER Pontiac North Campus (hereafter referred to as the "Site") in Pontiac, Michigan (Figure 1). The USEPA responded via email granting the request for modification to the plan (Appendix B).

The 2013 annual groundwater sampling event was conducted December 2 through 5, 2013 at the Site. This groundwater sampling event was completed in accordance with the Resource Conservation and Recovery Act (RCRA) Environmental Indicators (EI) Report [CA725 (Current Human Exposures Under Control) and CA750 (Migration of Contaminated Groundwater Under Control)] (ENVIRON, 2002) as amended by the 2009 PNC GMP Modification Proposal approved Nov 23, 2009 by USEPA.

Groundwater and LNAPL (if present) elevation measurements were recorded in 77 monitoring wells and groundwater samples were collected from a sub-set of the original list of monitoring wells presented in the EI Report (ENVIRON, 2002) as approved by the USEPA (Appendices A and B). Beginning with the annual event in 2009, the focused set of monitoring wells on and immediately downgradient from RACER owned and controlled property being sampled is listed below.

Shallow Saturated Zone	
MW-40-99	MWM16-21
MWF1R	MWM16-43
MWF7-01	MWW1-04
MWF12-01	MWW10-03

The monitoring well locations are shown on Figures 2 and 3.

During the Annual groundwater sampling event it was discovered that monitoring well MW-16-43 is damaged and no longer suitable for sampling. The monitoring well had been filled with gravel. Monitoring well MW-16-43 is located south of Columbia Ave near the former Plant 15. The well is assumed to have been damaged by activities performed by a demolition contractor. The monitoring well will be properly abandoned and replaced this summer.

The following sections of this report summarize the procedures used to complete the groundwater sampling and the analytical results for the groundwater samples collected during this event.

2. Groundwater Sampling Procedures

2.1 Water Level Measurements

Groundwater and LNAPL level measurements were recorded from accessible monitoring wells on December 2 through 5, 2013 in accordance with procedures outlined in the Field Sampling Plan (FSP) of the RCRA Facility Investigation (RFI) Work Plan (EEC, 2001a). Groundwater and LNAPL levels were collected with either a static water level meter or an oil/water interface probe. These levels were measured to the nearest 0.01 foot. Groundwater elevations were calculated using surveyed top-of-well casing elevations. Equivalent groundwater elevations were calculated for wells where LNAPL was present. A summary of water levels and groundwater elevations is shown in Table 1.

2.2 Groundwater Sample Collection

Groundwater samples were collected using low-flow sampling procedures, as presented in the FSP. The procedures presented in the FSP are taken from the Low-Stress (or Low-Flow) Purging and Sampling Procedure (USEPA, 1996), which is the USEPA Region V standard method for collecting low-stress/low-flow groundwater samples from monitoring wells.

During purging, representative groundwater samples were collected from each monitoring well in the field at various time intervals and measured for dissolved oxygen (DO), temperature, specific electrical conductivity, turbidity, oxygen reduction potential (ORP), and pH. These water quality measurements were used to determine groundwater stability prior to collection of the groundwater samples submitted for laboratory analysis.

Groundwater samples were collected and submitted for laboratory analysis for target compound list (TCL) volatile organic compounds (VOCs) using USEPA Method 8260B, polychlorinated biphenyls (PCBs) using USEPA Method 8082, and select Site-specific parameter list (SSPL) metals using USEPA Method 6020 and 7470A. Groundwater samples were analyzed by TestAmerica in North Canton, Ohio in accordance with methods described in the RFI Work Plan.

3. Groundwater Sampling Results

3.1 Groundwater Flow

Groundwater elevations from shallow monitoring wells (screened across the water table) were used to create a shallow potentiometric surface (Figure 2) of the overburden material. Shallow groundwater flow across the Site and the GM property is generally to the southwest; however, subsurface features, (e.g. sewer lines, other man-made features, and re-worked native and fill material) may create localized effects (groundwater mounds or depressions), as shown on Figure 2. Groundwater level data will continue to be evaluated as part of the groundwater monitoring program to monitor changes in groundwater flow direction.

3.2 Analytical Results

The groundwater data were compared to select criteria from Michigan Department of Environmental Quality Operational Memorandum #1, Attachment #1, dated December 30, 2013. The select criteria used to evaluate groundwater quality at the Site include residential and non-residential drinking water criteria (RDWC and NRDWC), and volatilization to indoor air inhalation criteria. These criteria are presented in Table 2. A summary of the December 2013 annual sampling event groundwater analytical data is included in Table 2, and is presented on Figure 3. A summary of groundwater analytical data dating back to 2001 is included in Appendix C.

It should be noted that the criteria used for comparison include criteria that are designed to be protective of potential exposures via drinking water use and are conservative for evaluating the groundwater data from the shallow and intermediate saturated zones at the Site. The Site and the immediate vicinity obtain potable water from the City of Detroit and do not rely on local groundwater as a drinking water supply. Therefore, groundwater with constituent concentrations higher than these generic screening criteria does not necessarily indicate that the groundwater poses unacceptable risks; it only suggests that the potential for the groundwater to pose unacceptable risks should be evaluated considering Site-specific factors.

The RFI Supplemental Report No. 1 (EEC, 2003) concluded that residential drinking water use was not a current or reasonably expected future use of the shallow and intermediate groundwater at the Site. However, groundwater at the Site does have the potential to migrate off-site based on the calculated southwesterly groundwater flow direction. Due to the potential for off-Site migration, residential drinking water criteria

are used for screening data near the downgradient property boundary. The December 2013 groundwater data, presented in Table 2 and on Figure 3, have been compared to residential screening criteria to assist the evaluation of groundwater quality near the downgradient property boundary.

The following is a summary of the December 2013 groundwater sample analytes and concentrations that exceeded selected screening criteria:

VOCs

- No exceedances of RDWC or NRDWC were detected in groundwater samples collected during the December 2013 sampling event.

PCBs

- An exceedance of the RDWC and NRDWC was detected in the groundwater sample collected at monitoring well MWW1-04 during the December 2013 sampling event. The RDWC and NRDWC criteria for Aroclor-1248 (PCB-1248) are 0.0005 mg/l and the sample result for monitoring well MWW1-04 was 0.00052 mg/l.

Inorganics

- The concentration of total manganese detected at monitoring well MWF12-01 (5.2 mg/L) exceeds the aesthetic RDWC and NRDWC of 0.05 mg/L as well as the Non-residential Health-Based Drinking Water criteria of 2.5 mg/L. The concentration of manganese detected in monitoring well MWW10-03 is below the aesthetic RDWC and NRDWC criteria, however the associated duplicate of monitoring well MWW10-03 (0.062 mg/L) exceeds the aesthetic RDWC and NRDWC of 0.05 mg/L. However, this concentration of manganese does not exceed the Non-residential Health-Based Drinking Water criteria of 2.5 mg/L. The turbidity of the samples from monitoring wells MWF12-01 and MWW10-03 were 5.63 N.T.U. and 2.3 N.T.U., respectively.

- The concentration of Vanadium detected at monitoring well MWW1-04 was 0.02 mg/l which is above the RDWC of 0.0045 mg/l but below the NRDWC of 0.062 mg/l.

pH

- Monitoring well MWW1-04 had an elevated pH reading of 9.78. The pH readings from the remaining wells that were sampled in December 2013 were within the RDWC and NRDWC pH range of 6.5 to 8.5.

4. Conclusions

Overall, groundwater analytical results are similar to previous sampling results at the majority of locations. Selected constituents that have been detected in numerous events were graphed to show trends in concentration over time. These graphs are presented in Appendix D. The conclusions are as follows:

- The concentrations of 1,1-dichloroethene in monitoring well MWF7-01 indicate that they are decreasing and are stable in monitoring well MWF12-01 (downgradient of MWF7-01), both concentrations of which are less than the non-residential drinking water criteria of 0.007 mg/L. This may indicate degradation of 1, 1-dichloroethene is naturally occurring at the Site.

- Concentrations of both cis-1,2-dichloroethene and tetrachloroethene have decreased since 2009 at monitoring well MWF7-01. Both constituents are less than the non-residential drinking water criteria of 0.07 mg/L for cis-1,2-DCE and 0.005 mg/L for PCE. This may indicate degradation is naturally occurring at the Site.

- The concentration of manganese in monitoring well MWW10-03 indicates it is decreasing and stable. The concentration of manganese in MWF12-01 is above the health-based non-residential criteria of 2.5 mg/L in the 2012 sampling event.

- The concentrations of total PCBs in monitoring well MWW1-04 have fluctuated over time. The 2013 groundwater result was an increase over last year; however, the overall trend is still downwards.

- The concentration of vanadium in monitoring well MWW1-04 is stable and has been decreasing since 2010. The concentrations of vanadium in MWW1-04 have remained less than the criteria of 0.062 mg/L for the non-residential drinking water pathway.

These results indicate impacted groundwater on-Site is exhibiting a decreasing and stable footprint.

A revised groundwater monitoring program is in development and will continue to monitor these trends, in particular manganese. Upon approval of the Corrective Measures Proposal, the groundwater monitoring program will be finalized. It will include monitoring points, parameters, duration, and monitoring objectives to maintain groundwater compliance and move toward Site closure.

5. References

Encore Environmental Consortium, LLC (EEC). 2001a. RCRA Facility Investigation (RFI) Work Plan, General Motors Corporation, Pontiac North Campus, Pontiac, Michigan. May, 2001.

EEC. 2001b. Quality Assurance Project Plan (QAPP), General Motors Corporation, Pontiac North Campus, Pontiac, Michigan. May, 2001.

EEC. 2003. RCRA Facility Investigation (RFI) Supplemental Report No. 1, General Motors Corporation, Pontiac North Campus, Pontiac, Michigan. November, 2003.

ENVIRON International Corporation (ENVIRON). 2002. Resource Conservation and Recovery Act Environmental Indicators Report, General Motors Corporation, Pontiac North Campus Facility, Pontiac, Michigan. July, 2002.

USEPA, Region I, 1996. Low-Stress (or Low-Flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells – Revision 2. July 30, 1996.

Michigan Department of Environmental Quality Operational Memorandum #1, Attachment #1, Cleanup Criteria Requirements for Response Activity dated December 30, 2013.

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Tables

TABLE 1
RACER TRUST PONTIAC NORTH CAMPUS
2013 ANNUAL GROUNDWATER MONITORING REPORT
GROUNDWATER ELEVATION SUMMARY DECEMBER 2013

Well ID	Well Elevation [1]	Depth to Water (ft)	Depth to LNAPL (ft)	Groundwater Elevation	LNAPL Thickness (ft)	Equivalent Groundwater Elevation [2]
SITEWIDE						
MWF1R	971.74	26.02	--	945.72	--	--
OFFSITE						
MWOS-01	943.74	7.86	--	935.88	--	--
MWOS-02	943.46	7.69	---	935.77	---	---
MWOS-04	942.52	4.70	---	937.82	---	---
MWOS-05	944.26	No Access	--	No Access	--	--
MWOS-06	944.01	4.13	---	939.88	---	---
PZOS-01	945.08	No Access	--	No Access	--	--
PZOS-02	946.38	No Access	--	No Access	--	--
MW ROW 01	942.53	TOC	---	942.53	---	---
MW ROW 02	941.92	TOC	---	941.92	---	---
MW ROW 03	942.38	1.16	---	941.22	---	---
FIERO						
F-7						
MWF7-01	970.30	21.00	--	949.30	--	--
F-8						
MWF8-01	972.94	19.63	--	953.31	--	--
F-12						
MWF12-01	965.39	18.48	--	946.91	--	--
MWF12-02	966.81	19.31	--	947.50	--	--
PONTIAC SCHOOL BOARD PROPERTY						
MWPS-02	942.30	6.30	--	936.00	--	--
DEMOLITION AREA						
W-1						
MWW1-04	944.20	6.03	--	938.17	--	--
MWW1-06	943.63	5.62	--	938.01	--	--
MW-40-99	952.32	10.52	--	941.80	--	--
TW-01-01 (4)	972.95	30.00	26.88	942.95	3.12	945.45
TW-01-02	973.38	21.21	---	952.17	---	---
TW-01-03	969.06	16.25	---	952.81	---	---
W-8						
MWW8-34	966.55	15.85	--	950.70	--	--
MWW8-36	968.62	17.50	--	951.12	--	--
MWW8-45	968.40	18.71	---	949.69	---	---
MWW8-48	971.08	27.96	--	943.12	--	--
MWW8-65	969.62	35.15	--	934.47	--	--
RWW8-119	969.36	19.15	--	950.21	--	--
RWW8-124	967.77	17.96	--	949.81	--	--
RWW8-125	967.64	17.94	--	949.70	--	--
RWW8-129	966.71	16.82	--	949.89	--	--
RWW8-130	966.44	16.77	--	949.67	--	--
RWW8-131	966.01	16.30	--	949.71	--	--
RWW8-132	965.47	15.87	--	949.60	--	--
RWW8-133	966.34	16.61	--	949.73	--	--
TW-11-01	969.28	11.11	9.87	958.17	1.24	959.16
TW-11-02	970.38	6.75	6.65	963.63	0.10	963.71
TW-09-01	970.01	20.30	19.95	949.71	0.35	949.99
TW-10-01	971.91	21.46	---	950.45	---	---
TW-10-02	971.83	20.06	---	951.77	---	---
TWW8-01	969.37	DRY	---	---	---	---
TWW8-02	968.57	17.53	17.45	951.04	0.08	951.10

TABLE 1
RACER TRUST PONTIAC NORTH CAMPUS
2013 ANNUAL GROUNDWATER MONITORING REPORT
GROUNDWATER ELEVATION SUMMARY DECEMBER 2013

Well ID	Well Elevation [1]	Depth to Water (ft)	Depth to LNAPL (ft)	Groundwater Elevation	LNAPL Thickness (ft)	Equivalent Groundwater Elevation [2]
W-10						
MWW10-07	967.11	6.79	---	960.32	---	---
MWW10-09	966.81	8.31	---	958.50	---	---
MWW10-SEN01	967.31	19.45	---	947.86	---	---
MWW10-SEN02	967.68	26.35	---	941.33	---	---
MWW10-SEN03	981.67	39.45	---	942.22	---	---
MWW10-SEN04	971.12	28.25	---	942.87	---	---
MWW10-SEN05	970.78	16.84	---	953.94	---	---
MFD						
M-2						
MWM2-04	967.68	15.49	---	952.19	---	---
MWM2-06	967.72	15.66	---	952.06	---	---
MWM2-07	967.60	15.55	---	952.05	---	---
MWM2-08	967.56	15.85	---	951.71	---	---
MWM2-18	967.59	15.45	---	952.14	---	---
MWM2-19	967.75	15.61	---	952.14	---	---
MWM2-20	967.30	15.15	---	952.15	---	---
MWM2-22	967.56	15.35	---	952.21	---	---
MWM2-23	967.61	15.47	---	952.14	---	---
MWM2-24	967.36	15.20	---	952.16	---	---
MWM2-28	967.70	15.14	---	952.56	---	---
MWM2-29	967.63	21.40	---	946.23	---	---
MWM2-33R	967.55	45.44	---	922.11	---	---
MWM2-38	967.49	45.45	---	922.04	---	---
MWM2-35	967.55	45.50	---	922.05	---	---
TWM2-01	967.23	6.80	---	960.43	---	---
TWM2-02	967.52	2.20	---	965.32	---	---
TWM2-03	967.76	DRY	---	---	---	---
TWM2-04	967.64	3.41	---	964.23	---	---
TWM2-05	967.69	10.25	10.15	957.44	0.10	957.52
TWM2-06	967.53	11.61	---	955.92	---	---
TWM2-07	967.59	15.80	15.22	951.79	0.58	952.35
M-4						
MWM4-05	985.70	8.08	--	977.62	--	--
M-5						
MWM5-01	977.85	OBSTRUCTION	---	---	---	---
MWM5-02	977.07	19.71	---	957.36	---	---
MWM5-03	978.78	21.34	---	957.44	---	---
MWM5-04	979.55	21.04	---	958.51	---	---
M-16						
MWM16-37	980.37	23.33	---	957.04	---	---
MWM16-43	979.66	damaged	--	--	--	--
M-1						
MWM1-02	964.27	14.26	---	950.01	---	---
MWM1-03	964.94	13.83	--	951.11	--	--
MWM1-04	970.25	20.27	--	949.98	--	--
MWM1-05	967.48	16.38	---	951.1	---	---

NA = not applicable

Footnotes:

1 - Top of Casing Elevation is in feet National Vertical Geodetic Datum (1988)

2 - The equivalent groundwater (GW) elevation is calculated where LNAPL is present using the LNAPL surface elevation, the thickness of LNAPL and the approximate specific density of the LNAPL (0.8). The calculation is as follows:

Equivalent GW elevation = LNAPL surface elevation - ((1-specific density of the LNAPL) x LNAPL thickness)

3 - Water levels collected on December 2-5, 2013.

4 - Depth to Water = Total Depth of Well

TABLE 2
RACER TRUST PONTIAC NORTH CAMPUS
2013 ANNUAL GROUNDWATER MONITORING REPORT
GROUNDWATER ANALYTICAL RESULTS DATA SUMMARY DECEMBER 2013

Location ID: / Date Collected:	Units	Groundwater Surface Water Interface Criteria	Non-Residential Drinking Water Criteria	Non-Residential Health Based Drinking Water Value	Non- Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Residential Drinking Water Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	MW-40-99 12/3/2013	MWF12-01 12/4/2013	MWF1R 12/4/2013	MWF7-01 12/4/2013
Pesticides/PCBs[1]											
Aroclor-1016 (PCB-1016)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	NA	NA	NA
Aroclor-1221 (PCB-1221)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	NA	NA	NA
Aroclor-1232 (PCB-1232)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	NA	NA	NA
Aroclor-1242 (PCB-1242)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	NA	NA	NA
Aroclor-1248 (PCB-1248)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	NA	NA	NA
Aroclor-1254 (PCB-1254)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	NA	NA	NA
Aroclor-1260 (PCB-1260)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	NA	NA	NA
Volatile Organics											
1,1,1-Trichloroethane	mg/L	0.089	0.2 (A)	--	1300 (S)	0.2 (A)	660	< 0.0010	0.026	< 0.0010	0.0073
1,1,2,2-Tetrachloroethane	mg/L	0.078 (X)	0.035	--	77	0.0085	12	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,2-Trichloroethane	mg/L	0.33 (X)	0.005 (A)	--	110	0.005 (A)	17	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethane	mg/L	0.74	2.5	--	2300	0.88	1000	< 0.0010	0.0041	< 0.0010	0.0019
1,1-Dichloroethene	mg/L	0.13	0.007 (A)	--	1.3	0.007 (A)	0.2	< 0.0010	0.0014	< 0.0010	0.00041 J
1,2,4-Trichlorobenzene	mg/L	0.099 (X)	0.07 (A)	--	300 (S)	0.07 (A)	300 (S)	< 0.0010 J	< 0.0010	< 0.0010 J	< 0.0010
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	--	0.0002 (A)	--	1.2 (S)	0.0002 (A)	0.22	< 0.0010 J	< 0.0010	< 0.0010 J	< 0.0010
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.0057 (X)	0.00005 (A)	--	15	0.00005 (A)	2.4	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichlorobenzene	mg/L	0.013	0.6 (A)	--	160 (S)	0.6 (A)	160 (S)	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloroethane	mg/L	0.36 (X)	0.005 (A)	--	59	0.005 (A)	9.6	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloropropane	mg/L	0.23 (X)	0.005 (A)	--	36	0.005 (A)	16	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3-Dichlorobenzene	mg/L	0.028	0.019	--	41	0.0066	18	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,4-Dichlorobenzene	mg/L	0.017	0.075 (A)	--	74 (S)	0.075 (A)	16	< 0.0010	< 0.0010	< 0.0010	< 0.0010
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	2.2	38	--	240000 (S)	13	240000 (S)	< 0.025	< 0.025	< 0.025	< 0.025
2-Hexanone	mg/L	--	2.9	--	8700	1	4200	< 0.05	< 0.05	< 0.05	< 0.05
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/L	--	5.2	--	20000 (S)	1.8	20000 (S)	< 0.05	< 0.05	< 0.05	< 0.05
Acetone	mg/L	1.7	2.1	--	1000000 (D,S)	0.73	1000000 (D,S)	< 0.025 B	0.0024 J	< 0.025	< 0.025
Benzene	mg/L	0.2 (X)	0.005 (A)	--	35	0.005 (A)	5.6	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromodichloromethane	mg/L	--	0.08 (A,W)	--	37	0.08 (A,W)	4.8	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromoform	mg/L	--	0.08 (A,W)	--	3100 (S)	0.08 (A,W)	470	< 0.0010 J	< 0.0010	< 0.0010 J	< 0.0010
Bromomethane (Methyl bromide)	mg/L	0.035	0.029	--	9	0.01	4	< 0.0010 J	< 0.0010 J	< 0.0010 J	< 0.0010 J
Carbon disulfide	mg/L	--	2.3	--	550	0.8	250	0.00026 J	0.0025 J	< 0.0050	0.00025 J
Carbon tetrachloride	mg/L	0.045 (X)	0.005 (A)	--	2.4	0.005 (A)	0.37	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Chlorobenzene	mg/L	0.025	0.1 (A)	--	470 (S)	0.1 (A)	210	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Chloroethane	mg/L	1.1 (X)	1.7	--	5700 (S)	0.43	5700 (S)	< 0.0010 J	< 0.0010 J	< 0.0010 J	< 0.0010 J
Chloroform (Trichloromethane)	mg/L	0.35	0.08 (A,W)	--	180	0.08 (A,W)	28	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Chloromethane (Methyl chloride)	mg/L	--	1.1	--	45	0.26	8.6	< 0.0010	< 0.0010 J	< 0.0010	< 0.0010
cis-1,2-Dichloroethene	mg/L	0.62	0.07 (A)	--	210	0.07 (A)	93	< 0.0010	< 0.0010	< 0.0010	< 0.0010
cis-1,3-Dichloropropene	mg/L	--	--	--	--	--	--	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Cyclohexane	mg/L	--	--	--	--	--	--	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Dibromochloromethane	mg/L	--	0.08 (A,W)	--	110	0.08 (A,W)	14	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Dichlorodifluoromethane (CFC-12)	mg/L	--	4.8	--	300 (S)	1.7	220	< 0.0010	< 0.0010 J	< 0.0010	< 0.0010
Ethylbenzene	mg/L	0.018	0.074 (E)	0.7	170 (S)	0.074 (E)	110	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Isopropyl benzene	mg/L	0.028	2.3	--	56 (S)	0.8	56 (S)	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Methyl acetate	mg/L	--	--	--	--	--	--	< 0.01	< 0.01	< 0.01	< 0.01
Methyl cyclohexane	mg/L	--	--	--	--	--	--	0.00018 J	< 0.0010	< 0.0010	< 0.0010
Methyl tert butyl ether (MTBE)	mg/L	7.1 (X)	0.04 (E)	0.69	47000 (S)	0.04 (E)	47000 (S)	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Methylene chloride	mg/L	1.5 (X)	0.005 (A)	--	1400	0.005 (A)	220	< 0.0050	< 0.0050 J	< 0.0050	< 0.0050 J
Styrene	mg/L	0.08 (X)	0.1 (A)	--	310 (S)	0.1 (A)	170	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Tetrachloroethene	mg/L	0.06 (X)	0.005 (A)	--	170	0.005 (A)	25	< 0.0010	< 0.0010	< 0.0010	0.00074 J
Toluene	mg/L	0.27	0.79 (E)	1.0	530 (S)	0.79 (E)	530 (S)	< 0.0010	< 0.0010	< 0.0010	< 0.0010
trans-1,2-Dichloroethene	mg/L	1.5 (X)	0.1 (A)	--	200	0.1 (A)	85	< 0.0010	< 0.0010	< 0.0010	< 0.0010
trans-1,3-Dichloropropene	mg/L	--	--	--	--	--	--	< 0.0010 J	< 0.0010	< 0.0010 J	< 0.0010
Trichloroethene	mg/L	0.2 (X)	0.005 (A)	--	4.9	0.005 (A)	2.2	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trichlorofluoromethane (CFC-11)	mg/L	--	7.3	--	1100 (S)	2.6	1100 (S)	< 0.0010	< 0.0010 J	< 0.0010	< 0.0010 J
Trifluorotrichloroethane (Freon 113)	mg/L	0.032	170 (S)	--	170 (S)	170 (S)	170 (S)	< 0.0010	< 0.0010	< 0.0010	< 0.0010 J
Vinyl chloride	mg/L	0.013 (X)	0.002 (A)	--	13	0.002 (A)	1.1	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Xylene (total)	mg/L	0.041	0.28 (E)	10	190 (S)	0.28 (E)	190 (S)	< 0.0020	< 0.0020	< 0.0020	< 0.0020

TABLE 2
RACER TRUST PONTIAC NORTH CAMPUS
2013 ANNUAL GROUNDWATER MONITORING REPORT
GROUNDWATER ANALYTICAL RESULTS DATA SUMMARY DECEMBER 2013

Location ID: / Date Collected:	Units	Groundwater Surface Water Interface Criteria	Non-Residential Drinking Water Criteria	Non-Residential Health Based Drinking Water Value	Non- Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Residential Drinking Water Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	MW-40-99 12/3/2013	MWF12-01 12/4/2013	MWF1R 12/4/2013	MWF7-01 12/4/2013
Inorganics											
Antimony	mg/L	0.13 (X)	0.006 (A)	--	NLV	0.006 (A)	NLV	NA	NA	NA	NA
Lead[2]	mg/L	0.0 (G,X)	0.004 (L)	--	NLV	0.004 (L)	NLV	NA	NA	NA	NA
Manganese[2]	mg/L	0.0 (G,X)	0.05 (E)	2.5	NLV	0.05 (E)	NLV	NA	**5.2**	NA	NA
Vanadium	mg/L	0.027	0.062	--	NLV	0.0045	NLV	NA	NA	NA	NA
Field Parameters											
pH	pH units	--	--	--	--	--	--	7.15	7.51	7.66	7.64
Turbidity	NTU	--	--	--	--	--	--	5.75	5.63	2.51	3.44

TABLE 2
RACER TRUST PONTIAC NORTH CAMPUS
2013 ANNUAL GROUNDWATER MONITORING REPORT
GROUNDWATER ANALYTICAL RESULTS DATA SUMMARY DECEMBER 2013

Location ID: / Date Collected:	Units	Groundwater Surface Water Interface Criteria	Non-Residential Drinking Water Criteria	Non-Residential Health Based Drinking Water Value	Non- Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Residential Drinking Water Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	MWM16-21 12/5/2013	MWW10-03 12/5/2013	MWW10-03 DUPLICATE 12/5/2013	MWW1-04 12/4/2013
Pesticides/PCBs[1]											
Aroclor-1016 (PCB-1016)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	< 0.000098	< 0.00011	< 0.000095
Aroclor-1221 (PCB-1221)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	< 0.000098	< 0.00011	< 0.000095
Aroclor-1232 (PCB-1232)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	< 0.000098	< 0.00011	< 0.000095
Aroclor-1242 (PCB-1242)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	< 0.000098	< 0.00011	< 0.000095
Aroclor-1248 (PCB-1248)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	< 0.000098	< 0.00011	**0.00052**
Aroclor-1254 (PCB-1254)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	< 0.000098	< 0.00011	< 0.000095
Aroclor-1260 (PCB-1260)	mg/L	0.0002 (M); 2.6E-5	0.0005 (A)	--	0.045 (S)	0.0005 (A)	0.045 (S)	NA	< 0.000098	< 0.00011	< 0.000095
Volatile Organics											
1,1,1-Trichloroethane	mg/L	0.089	0.2 (A)	--	1300 (S)	0.2 (A)	660	< 0.0010	< 0.0010	< 0.0010	NA
1,1,2,2-Tetrachloroethane	mg/L	0.078 (X)	0.035	--	77	0.0085	12	< 0.0010	< 0.0010	< 0.0010	NA
1,1,2-Trichloroethane	mg/L	0.33 (X)	0.005 (A)	--	110	0.005 (A)	17	< 0.0010	< 0.0010	< 0.0010	NA
1,1-Dichloroethane	mg/L	0.74	2.5	--	2300	0.88	1000	< 0.0010	< 0.0010	< 0.0010	NA
1,1-Dichloroethene	mg/L	0.13	0.007 (A)	--	1.3	0.007 (A)	0.2	< 0.0010	< 0.0010	< 0.0010	NA
1,2,4-Trichlorobenzene	mg/L	0.099 (X)	0.07 (A)	--	300 (S)	0.07 (A)	300 (S)	< 0.0010 J	< 0.0010 J	< 0.0010 J	NA
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	--	0.0002 (A)	--	1.2 (S)	0.0002 (A)	0.22	< 0.0010 J	< 0.0010 J	< 0.0010 J	NA
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.0057 (X)	0.00005 (A)	--	15	0.00005 (A)	2.4	< 0.0010	< 0.0010	< 0.0010	NA
1,2-Dichlorobenzene	mg/L	0.013	0.6 (A)	--	160 (S)	0.6 (A)	160 (S)	< 0.0010	< 0.0010	< 0.0010	NA
1,2-Dichloroethane	mg/L	0.36 (X)	0.005 (A)	--	59	0.005 (A)	9.6	< 0.0010	< 0.0010	< 0.0010	NA
1,2-Dichloropropane	mg/L	0.23 (X)	0.005 (A)	--	36	0.005 (A)	16	< 0.0010	< 0.0010	< 0.0010	NA
1,3-Dichlorobenzene	mg/L	0.028	0.019	--	41	0.0066	18	< 0.0010	< 0.0010	< 0.0010	NA
1,4-Dichlorobenzene	mg/L	0.017	0.075 (A)	--	74 (S)	0.075 (A)	16	< 0.0010	< 0.0010	< 0.0010	NA
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	2.2	38	--	240000 (S)	13	240000 (S)	< 0.025	< 0.025	< 0.025	NA
2-Hexanone	mg/L	--	2.9	--	8700	1	4200	< 0.05	< 0.05	< 0.05	NA
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/L	--	5.2	--	20000 (S)	1.8	20000 (S)	< 0.05	< 0.05	< 0.05	NA
Acetone	mg/L	1.7	2.1	--	1000000 (D,S)	0.73	1000000 (D,S)	< 0.025	< 0.025	< 0.025	NA
Benzene	mg/L	0.2 (X)	0.005 (A)	--	35	0.005 (A)	5.6	< 0.0010	< 0.0010	< 0.0010	NA
Bromodichloromethane	mg/L	--	0.08 (A,W)	--	37	0.08 (A,W)	4.8	< 0.0010	< 0.0010	< 0.0010	NA
Bromoform	mg/L	--	0.08 (A,W)	--	3100 (S)	0.08 (A,W)	470	< 0.0010 J	< 0.0010 J	< 0.0010	NA
Bromomethane (Methyl bromide)	mg/L	0.035	0.029	--	9	0.01	4	< 0.0010 J	< 0.0010 J	< 0.0010 J	NA
Carbon disulfide	mg/L	--	2.3	--	550	0.8	250	< 0.0050	< 0.0050	< 0.0050	NA
Carbon tetrachloride	mg/L	0.045 (X)	0.005 (A)	--	2.4	0.005 (A)	0.37	< 0.0010	< 0.0010	< 0.0010	NA
Chlorobenzene	mg/L	0.025	0.1 (A)	--	470 (S)	0.1 (A)	210	< 0.0010	< 0.0010	< 0.0010	NA
Chloroethane	mg/L	1.1 (X)	1.7	--	5700 (S)	0.43	5700 (S)	< 0.0010 J	< 0.0010 J	< 0.0010 J	NA
Chloroform (Trichloromethane)	mg/L	0.35	0.08 (A,W)	--	180	0.08 (A,W)	28	< 0.0010	< 0.0010	< 0.0010	NA
Chloromethane (Methyl chloride)	mg/L	--	1.1	--	45	0.26	8.6	< 0.0010	< 0.0010	< 0.0010	NA
cis-1,2-Dichloroethene	mg/L	0.62	0.07 (A)	--	210	0.07 (A)	93	< 0.0010	< 0.0010	< 0.0010	NA
cis-1,3-Dichloropropene	mg/L	--	--	--	--	--	--	< 0.0010	< 0.0010	< 0.0010	NA
Cyclohexane	mg/L	--	--	--	--	--	--	< 0.0010	< 0.0010	< 0.0010	NA
Dibromochloromethane	mg/L	--	0.08 (A,W)	--	110	0.08 (A,W)	14	< 0.0010	< 0.0010	< 0.0010	NA
Dichlorodifluoromethane (CFC-12)	mg/L	--	4.8	--	300 (S)	1.7	220	< 0.0010	< 0.0010	< 0.0010	NA
Ethylbenzene	mg/L	0.018	0.074 (E)	0.7	170 (S)	0.074 (E)	110	< 0.0010	< 0.0010	< 0.0010	NA
Isopropyl benzene	mg/L	0.028	2.3	--	56 (S)	0.8	56 (S)	< 0.0050	< 0.0050	< 0.0050	NA
Methyl acetate	mg/L	--	--	--	--	--	--	< 0.01	< 0.01	< 0.01	NA
Methyl cyclohexane	mg/L	--	--	--	--	--	--	< 0.0010	< 0.0010	< 0.0010	NA
Methyl tert butyl ether (MTBE)	mg/L	7.1 (X)	0.04 (E)	0.69	47000 (S)	0.04 (E)	47000 (S)	< 0.0050	< 0.0050 J	< 0.0050 J	NA
Methylene chloride	mg/L	1.5 (X)	0.005 (A)	--	1400	0.005 (A)	220	< 0.0050	< 0.0050	< 0.0050	NA
Styrene	mg/L	0.08 (X)	0.1 (A)	--	310 (S)	0.1 (A)	170	< 0.0010	< 0.0010	< 0.0010	NA
Tetrachloroethene	mg/L	0.06 (X)	0.005 (A)	--	170	0.005 (A)	25	< 0.0010	< 0.0010	< 0.0010	NA
Toluene	mg/L	0.27	0.79 (E)	1.0	530 (S)	0.79 (E)	530 (S)	< 0.0010	< 0.0010	< 0.0010	NA
trans-1,2-Dichloroethene	mg/L	1.5 (X)	0.1 (A)	--	200	0.1 (A)	85	< 0.0010	< 0.0010	< 0.0010	NA
trans-1,3-Dichloropropene	mg/L	--	--	--	--	--	--	< 0.0010 J	< 0.0010 J	< 0.0010 J	NA
Trichloroethene	mg/L	0.2 (X)	0.005 (A)	--	4.9	0.005 (A)	2.2	< 0.0010	< 0.0010	< 0.0010	NA
Trichlorofluoromethane (CFC-11)	mg/L	--	7.3	--	1100 (S)	2.6	1100 (S)	< 0.0010	< 0.0010	< 0.0010	NA
Trifluorotrichloroethane (Freon 113)	mg/L	0.032	170 (S)	--	170 (S)	170 (S)	170 (S)	< 0.0010	< 0.0010	< 0.0010	NA
Vinyl chloride	mg/L	0.013 (X)	0.002 (A)	--	13	0.002 (A)	1.1	< 0.0010	< 0.0010	< 0.0010	NA
Xylene (total)	mg/L	0.041	0.28 (E)	10	190 (S)	0.28 (E)	190 (S)	< 0.0020	< 0.0020	< 0.0020	NA

TABLE 2
RACER TRUST PONTIAC NORTH CAMPUS
2013 ANNUAL GROUNDWATER MONITORING REPORT
GROUNDWATER ANALYTICAL RESULTS DATA SUMMARY DECEMBER 2013

Location ID: / Date Collected:	Units	Groundwater Surface Water Interface Criteria	Non-Residential Drinking Water Criteria	Non-Residential Health Based Drinking Water Value	Non- Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Residential Drinking Water Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	MWM16-21 12/5/2013	MWW10-03 12/5/2013	MWW10-03 DUPLICATE 12/5/2013	MWW1-04 12/4/2013
Inorganics											
Antimony	mg/L	0.13 (X)	0.006 (A)	--	NLV	0.006 (A)	NLV	NA	NA	NA	< 0.0031 B
Lead[2]	mg/L	0.0 (G,X)	0.004 (L)	--	NLV	0.004 (L)	NLV	NA	< 0.0010	< 0.0010	NA
Manganese[2]	mg/L	0.0 (G,X)	0.05 (E)	2.5	NLV	0.05 (E)	NLV	NA	0.047	**0.062**	NA
Vanadium	mg/L	0.027	0.062	--	NLV	0.0045	NLV	NA	NA	NA	0.02
Field Parameters											
pH	pH units	--	--	--	--	--	--	7.77	6.83	6.83	9.78
Turbidity	NTU	--	--	--	--	--	--	4.87	2.3	2.3	5.31

TABLE 2
RACER TRUST PONTIAC NORTH CAMPUS
2013 ANNUAL GROUNDWATER MONITORING REPORT
GROUNDWATER ANALYTICAL RESULTS DATA SUMMARY DECEMBER 2013

Notes:

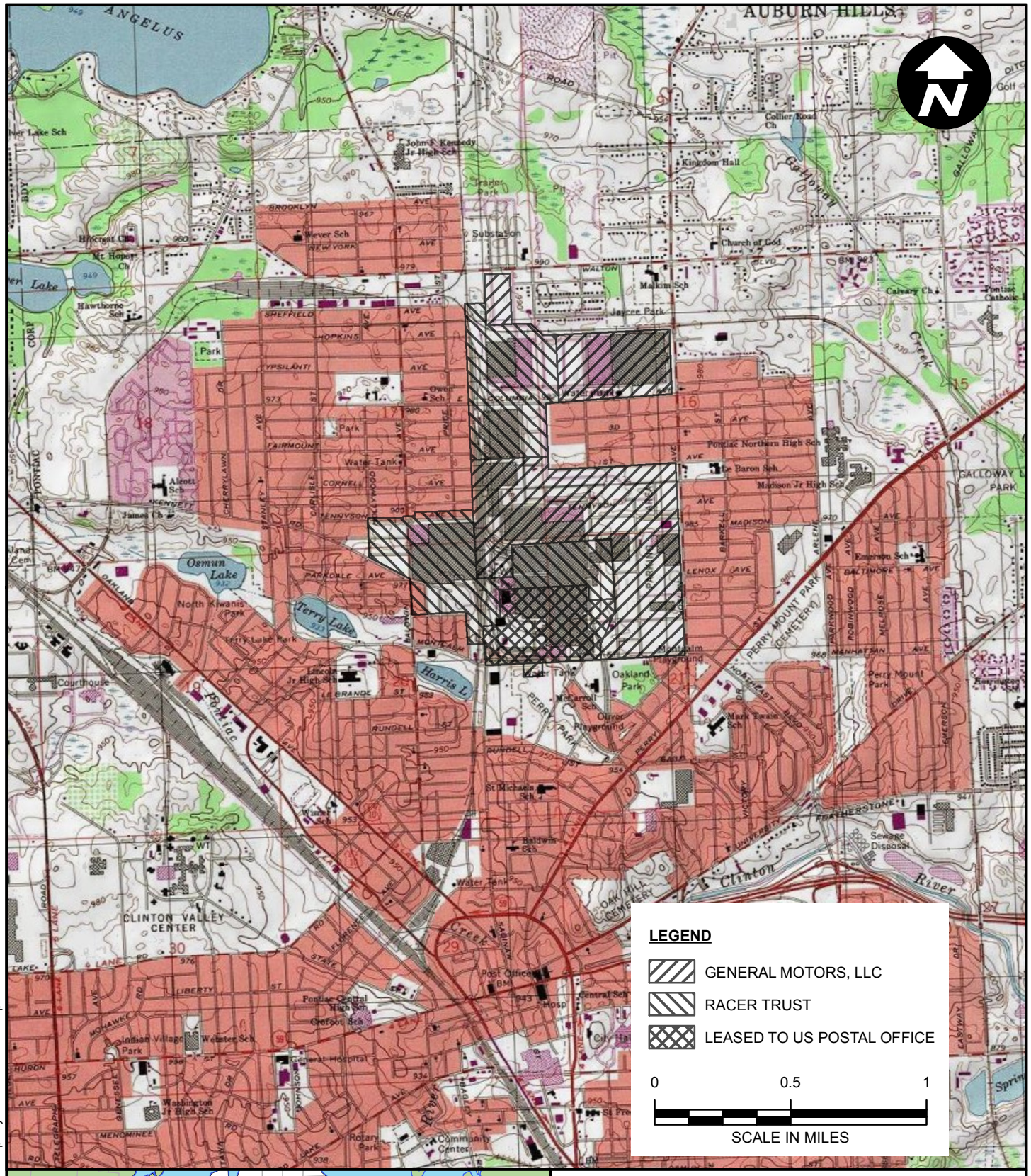
All criteria listed are from Michigan Department of Environmental Quality Operational Memorandum #1, Attachment #1, dated December 30, 2013.
Bold values exceed Michigan Non-residential drinking water criteria
Shaded values exceed Michigan residential drinking water criteria
Red values exceed Michigan Groundwater Surface Water Interface Criteria
"<" indicates the analyte not detected greater than the reporting limit listed.
"J" indicates the result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.
"B" indicates a result that exceeds the Method Detection Limit and/or Reporting Limit in the Method Blank.
1. The criteria listed is for Total PCBs.
2. Groundwater Surface Water Interface Criteria listed is calculated based on a hardness of 150 mg/L-$CaCO_3$ for southern Lower Peninsula Waters protected as a drinking water source.

Criteria footnotes:

"A" Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.
"D" Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).
"E" Criterion is the aesthetic drinking water value, as required by Section 20120a(5)of the Natural Resources and Environmental Protection Act, 1994 PA 451, asamended (NREPA).
"G" Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water.
"M" Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
"NLV" Hazardous substance is not likely to volatilize under most conditions.
"S" Criterion defaults to the hazardous substance-specific water solubility limit.
"W" Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ug/L.
"X" The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source.
When 2 numbers are present in the cell, the first number is the criterion and the second number is the risk-based or solubility value.

ARCADIS

Figures



RACER TRUST
PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

SITE LOCATION

ARCADIS

FIGURE
1

PROJECT NUMBER: B0064411.0001.00145
CITY:NOVI DIV/GROUP:ENV DB: PIC: PM: TM: TR:
G:\GIS\Project Files\MotorsLiquidationCompany\PontiacNorthCampus\Documents\SiteLocation.mxd

LEGEND:

- GROUNDWATER MONITORING WELL LOCATION
- (958.51) GROUNDWATER ELEVATION (DASHED WHERE INFERRED)
- * WELL NOT USED FOR GROUNDWATER CONTOURING
- 957.00 GROUNDWATER CONTOUR (CONTOUR INTERVAL 5.0 FEET)
- APPROXIMATE GROUNDWATER FLOW DIRECTION
- APPROXIMATE AOI AREA

NOTES:

1. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
2. GROUNDWATER ELEVATIONS CALCULATED FROM WATER LEVELS COLLECTED ON DECEMBER 2–6, 2013.
3. ALL ELEVATIONS ARE REFERENCED TO A MEAN SEE LEVEL DATUM AND ARE IN UNITS OF FEETABOVE MEAN SEE LEVEL.
4. ONLY WELLS WHICH WERE GAUGED ON THIS EVENT ARE PRESENTED.

0 400' 800'
GRAPHIC SCALE

RACER TRUST
PONTIAC, MICHIGAN
PONTIAC NORTH CAMPUS

GROUNDWATER CONTOUR MAP DECEMBER 2013

ARCADIS

FIGURE 2

CITY:SYRACUSE DIV/GROUP:IMDV-21 DB:G.STOWELL PM:(Reqd) LYRON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\B0064607\20140000003\DWG\SITE-WIDE\64607W02.DWG LAYOUT:2 SAVED: 3/21/2014 11:41 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: C-LD2B-PDF-2400-GMS PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 3/21/2014 11:43 AM BY: STOWELL, GARY
XREFS:
64607X00
64607X21
IMAGES:

MWM16-21				
Date	11/5/2010	9/23/2011	10/2/2012	12/5/2013
Field Parameters				
pH Field	NA	7.16	6.99	7.77
VOCs				
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Acetone	ND(0.025)	ND(0.025)	ND(0.025)	ND (0.025)
Benzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
cis-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl Chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)

MWF7-01			
Date	11/4/2010	10/3/2012	12/4/2013
Field Parameters			
pH Field	6.91	6.99	7.64
VOCs			
1,1,1-Trichloroethane	0.014	0.0075	0.0073
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	0.0048	0.0032	0.0019
1,1-Dichloroethene	0.0019	0.00073	0.00041 J
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)
Acetone	0.0016 J	ND(0.025)	ND (0.025)
Benzene	ND(0.001)	ND(0.001)	ND(0.001)
cis-1,2-Dichloroethene	0.0009 J	0.0004	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	ND(0.005)	ND(0.005)	ND(0.005)J
Tetrachloroethene	0.0016	0.00057	0.00074 J
Toluene	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl Chloride	ND(0.001)	ND(0.001)	ND(0.001)

MWM16-43			
Date	11/5/2010	9/23/2011	10/2/2012
Field Parameters			
pH Field	NA	6.96	6.83
VOCs			
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)
Acetone	ND(0.025)	ND(0.025)	ND(0.025)
Benzene	ND(0.001)	ND(0.001)	ND(0.001)
cis-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	ND(0.005)	ND(0.005)	ND(0.005)
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl Chloride	ND(0.001)	ND(0.001)	ND(0.001)

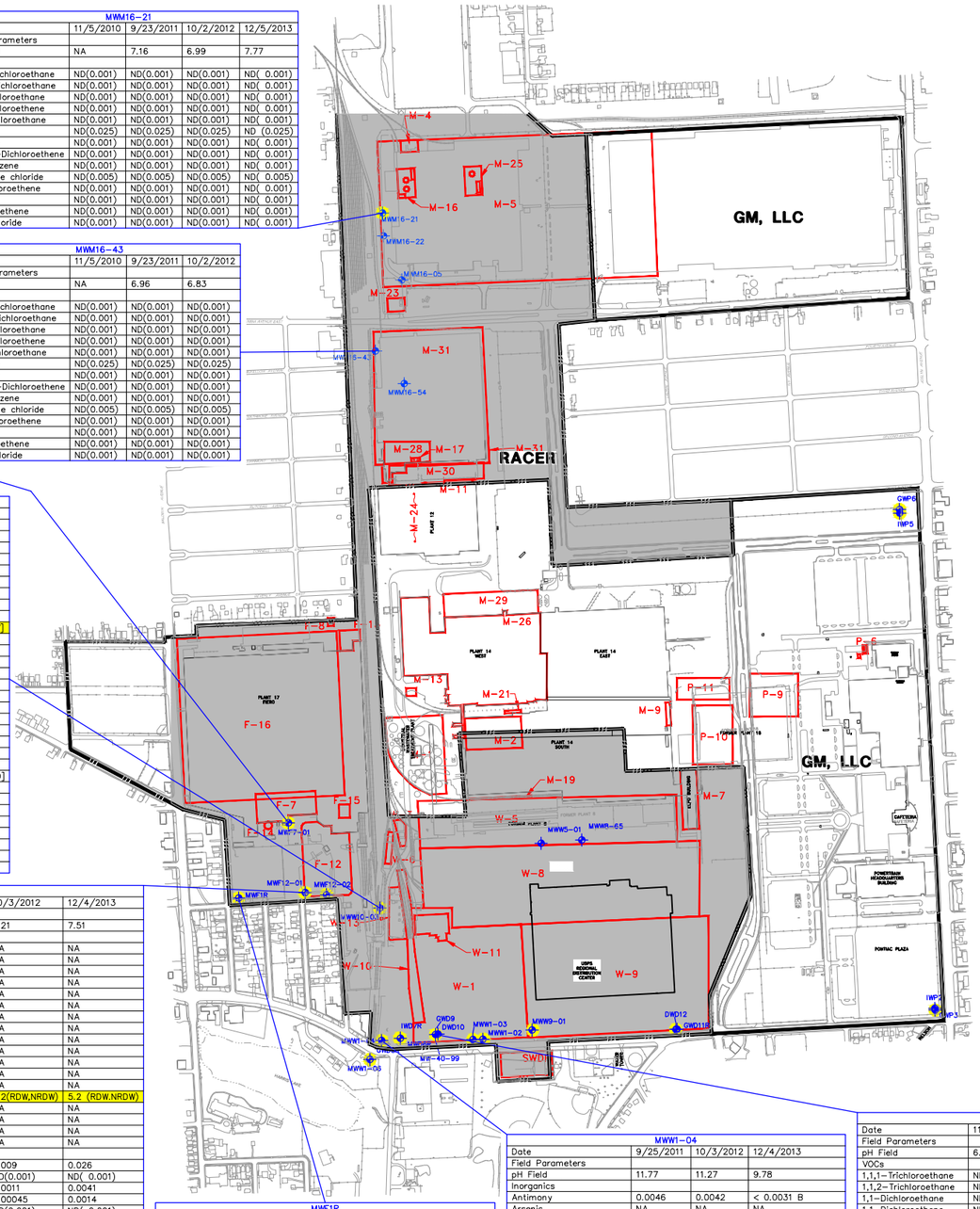
MWW10-03				
Date	11/4/2010	9/23/2011	10/2/2012	12/5/2013
Field Parameters				
pH Field	NA	6.92	6.88	6.83
Inorganics				
Antimony	NA	NA	NA	NA [NA]
Arsenic	NA	NA	NA	NA [NA]
Barium	NA	NA	NA	NA [NA]
Cadmium	NA	NA	NA	NA [NA]
Chromium (Total)	NA	NA	NA	NA [NA]
Lead	0.0005 B	ND(0.001)	ND (0.001)	ND(0.001) [ND(0.001)]
Manganese	NA	NA	0.12	0.047 [0.062 RDW,NRDW]
Mercury	NA	NA	NA	NA [NA]
Selenium	NA	NA	NA	NA [NA]
Silver	NA	NA	NA	NA [NA]
Vanadium	NA	NA	NA	NA [NA]
Pests/PCBs				
Total PCBs	ND(0.0014)	ND(0.0014)	ND (0.00095)	< 0.000098 [<0.00011]
VOCs				
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
1,1-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
1,1-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
Acetone	0.0025 J	ND(0.025)	ND(0.025)	ND (0.025) [ND (0.0250]
Benzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
cis-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
Methylene chloride	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005) [ND(0.005)]
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]
Vinyl Chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001) [ND(0.001)]

MWF12-01				
Date	11/4/2010	9/22/2011	10/3/2012	12/4/2013
Field Parameters				
pH Field	7.05	6.93	7.21	7.51
Inorganics				
Antimony	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA
Barium	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA
Chromium (Total)	NA	NA	NA	NA
Chromium III (Trivalent)	NA	NA	NA	NA
Chromium VI (Hexavalent)	NA	NA	NA	NA
Cobalt	NA	NA	NA	NA
Copper	NA	NA	NA	NA
Cyanide (Total)	NA	NA	NA	NA
Iron	NA	NA	NA	NA
Lead	NA	NA	NA	NA
Manganese	2.5 (RDW)	0.9	3.2(RDW,NRDW)	5.2 (RDW,NRDW)
Nickel	NA	NA	NA	NA
Selenium	NA	NA	NA	NA
Thallium	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA
VOCs				
1,1,1-Trichloroethane	0.0091	0.015	0.009	0.026
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	0.0016	0.0024	0.0011	0.0041
1,1-Dichloroethene	0.00066 J	0.001	0.00045	0.0014
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Acetone	0.0012 J	ND(0.025)	ND(0.025)	0.0024 J
Benzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
cis-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005) J
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl Chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)

MWF1R				
Date	11/4/2010	9/22/2011	10/2/2012	12/4/2013
Field Parameters				
pH Field	6.82	6.83	7.19	7.66
VOCs				
1,1,1-Trichloroethane	ND(0.001)	0.00053 J	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	0.00022 J	0.00095 J	ND(0.001)	ND(0.001)
1,1-Dichloroethene	ND(0.001)	0.00022 J	ND(0.001)	ND(0.001)
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Acetone	ND(0.025)	ND(0.025)	ND(0.025)	ND (0.025)
Benzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
cis-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl Chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)

MWW1-04			
Date	9/25/2011	10/3/2012	12/4/2013
Field Parameters			
pH Field	11.77	11.27	9.78
Inorganics			
Antimony	0.0046	0.0042	< 0.0031 B
Arsenic	NA	NA	NA
Barium	NA	NA	NA
Beryllium	NA	NA	NA
Cadmium	NA	NA	NA
Chromium (Total)	NA	NA	NA
Chromium III (Trivalent)	NA	NA	NA
Chromium VI (Hexavalent)	NA	NA	NA
Cobalt	NA	NA	NA
Copper	NA	NA	NA
Cyanide (Total)	NA	NA	NA
Iron	NA	NA	NA
Lead	NA	NA	NA
Manganese	NA	NA	NA
Nickel	NA	NA	NA
Selenium	NA	NA	NA
Thallium	NA	NA	NA
Vanadium	0.025(RDW)	0.014	0.02(RDW)
Pests/PCBs			
Total PCBs	0.0003	0.00043	0.00052(RDW,NRDW)

MW-40-99				
Date	11/3/2010	9/25/2011	10/3/2012	12/3/2013
Field Parameters				
pH Field	6.87	7.19	7.23	7.15
VOCs				
1,1,1-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1,2-Trichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,1-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
1,2-Dichloroethane	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Acetone	0.0014 J	0.0063 J	0.0016 J	ND (0.025) B
Benzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
cis-1,2-Dichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Ethylbenzene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Methylene chloride	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.005)
Tetrachloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Toluene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Trichloroethene	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
Vinyl Chloride	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)



LEGEND:

- APPROXIMATE GENERAL MOTORS (GM) COMPANY, LLC PROPERTY BOUNDARY
- APPROXIMATE RACER TRUST (RACER) PROPERTY BOUNDARY
- MWM1 — GROUNDWATER MONITORING WELL LOCATION
- MWW1-04 — GROUNDWATER MONITORING WELL LOCATION WITH CONSTITUENT(S) CURRENTLY OR HISTORICALLY EXCEEDING INDUSTRIAL CRITERIA
- FENCED AREA
- M-5 — APPROXIMATE AOI AREA AND IDENTIFICATION NUMBER

MICHIGAN PART 201 GENERIC CRITERIA FOR GROUNDWATER

RDWC – RESIDENTIAL DRINKING WATER CRITERIA
NRDW – NON-RESIDENTIAL DRINKING WATER CRITERIA

- CONSTITUENT CONCENTRATION EXCEEDS NON-RESIDENTIAL SCREENING CRITERIA (THIS MAY INCLUDE HISTORICAL DATA NOT PRESENTED ON THIS FIGURE)
- CONSTITUENT CONCENTRATION EXCEEDS RESIDENTIAL SCREENING CRITERIA (THIS MAY INCLUDE HISTORICAL DATA NOT PRESENTED ON THIS FIGURE)

NOTES:

1. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
2. ALL CONCENTRATIONS ARE PRESENTED IN MILLIGRAMS PER LITER (mg/L).
3. DUPLICATE ANALYSES ARE PRESENTED IN BRACKETS.
4. ND (0.25) – CONSTITUENT NOT DETECTED, ASSOCIATED DETECTION LIMIT PRESENTED IN BRACKETS.
5. B – RESULT EXCEEDS THE METHOD OF DETECTION LIMIT AND/OR REPORTING LIMIT IN THE METHOD BLANK
6. J – ESTIMATED CONCENTRATION.
7. NA – NOT ANALYZED
8. ANALYTICAL DATA DATING BACK TO NOVEMBER 2010 PRESENTED ON THIS FIGURE. ALL HISTORICAL DATA PRESENTED IN ATTACHMENT 3.
9. MONITORING WELL MWM16-43 WAS NOT SAMPLED IN 2013 BECAUSE THE WELL WAS DAMAGED.

0 500' 1000'
GRAPHIC SCALE

RACER TRUST
PONTIAC, MICHIGAN
PONTIAC NORTH CAMPUS

GROUNDWATER ANALYTICAL SUMMARY DECEMBER 2013 ANNUAL GROUNDWATER MONITORING EVENT

ARCADIS

FIGURE
3

Appendix A

Letter to USEPA

Transmitted Via Email

October 30, 2009

Mr. Nate Nemani
United States Environmental Protection Agency
Region V, LU-9J
77 West Jackson Street
Chicago, IL 60604-3590
LU-9J

Re: GM Pontiac North Campus – Semi-Annual Groundwater Monitoring Program Proposed Modifications

Dear Mr. Nemani:

The purpose of this letter is to request approval from the United States Environmental Protection Agency (U.S. EPA) to modify the Groundwater Monitoring Program (GMP) for the General Motors Pontiac North Campus Facility (Facility) located in Pontiac, Michigan.

GM Corporation filed for Chapter 11 protection on June 1, 2009 under the Bankruptcy Code. On July 10, 2009, GM Company (since renamed GM LLC) was created through the sale of certain GM Corporation assets pursuant to Section 363 of the Bankruptcy Code. General Motors Corporation (renamed MLC) remains in Chapter 11 bankruptcy protection and is managing the assets that were not sold to GM Company (now GM LLC). A portion of the Pontiac North Campus is part of GM LLC and a portion remains with MLC. GM LLC and MLC are jointly submitting this request until the facility separation discussions (e.g., utility splits) are completed and we have an agreement with U.S. EPA on managing the Corrective Action in the future.

Attachment A details the proposed changes to the GMP and provides supporting information. These include the elimination of select monitoring wells and parameters, a change in monitoring frequency and terminating the program after 2 additional years of sampling.

We are requesting U.S. EPA approval of the proposed modifications to the GMP provided in Attachment A, including termination of the program after an additional 2 years (ending in November 2011) if concentrations remain stable or decline. MLC and GM LLC feel that a 2 year timeframe is appropriate given the quantity of groundwater data that has been generated since 2001. Based on the extensive database of analytical data, and the observed stability of groundwater conditions at the Facility, the proposed modifications present a modest reduction in monitoring that will continue to demonstrate that the conditions at the Facility are adequately assessed.

The next semi-annual groundwater sampling event is scheduled for early December 2009. We would appreciate your expeditious review of these modifications so we can eliminate unnecessary sampling during the December monitoring event. To facilitate your review, GM LLC and MLC propose a conference call on Thursday November 5th or Friday November 6th, 2009 to discuss these proposed modifications to the Groundwater Monitoring Program. In the meantime, if you have any questions please feel free to contact the undersigned.

Sincerely,

Robert Hare
MLC Project Manager
248-225-3277

Jean Caufield
GM LLC Project Manager
313-506-9468

cc: John McKenna, ARCADIS
Gavin O'Neill, CRA
Francis Ramacciotti, ENVIRON

Attachment A
Proposed Modifications
Semi-Annual Groundwater Monitoring Program

On October 10, 2000, GM Corporation (now MLC) and the U.S. EPA entered into a Performance Based Corrective Action Agreement for the Pontiac North Campus Site. The Site encompasses approximately 595 acres in the northwest quadrant of the City of Pontiac. Groundwater samples have been collected from select monitoring wells on a semi-annual basis since 2002 as part of the GMP to demonstrate that constituent concentrations in groundwater are stable and that migration of contaminated groundwater is not occurring. The Groundwater Monitoring Program (GMP) was presented as part of the Environmental Indicators (EI) CA750 determination (ENVIRON, 2002). Since 2002, GM Corporation added several additional monitoring wells to the GMP at the request of the U.S. EPA. Following each monitoring event a report summarizing the results was prepared and submitted to U.S. EPA. Following the semi-annual sampling events of 2008, the groundwater monitoring program was evaluated to determine if modifications to the plan are warranted.

Two initial rounds of sampling were completed at each monitoring well that was installed as part of the RFI Work Plan (ENCORE, 2001). Monitoring wells included in the GMP have been sampled on a semi-annual basis since 2002. Additional wells were added to the GMP as additional RFI activities were completed or additional groundwater monitoring was required as a provision for completed Interim Measures (IM). When the analytical data from the semi-annual sampling appeared to be anomalous an additional groundwater sample was immediately collected from that individual well to verify the results for individual constituent(s). These confirmation samples are identified as a Partial Sample Event.

A comprehensive database of these analytical results has been developed over the past eight years. Even though groundwater at the Facility is not used as a drinking water source, analytical results were compared against both Michigan Department of Environmental Quality (MDEQ) Part 201 Residential Drinking Water criteria (RDW) and Industrial Drinking Water (IDW) criteria. Stable or reducing conditions have been observed in at least four sampling events in the analytical results at several locations included in the GMP.

This submittal proposes the following:

1) Elimination of select monitoring wells and parameters from the GMP,
2) Change the frequency of monitoring from semi-annual to annual; and
3) Implement the GMP for 2 more years and terminate it after that provided the data continue to show stable or decreasing trends.

The attached Table 1 provides an evaluation of each monitoring well in the semi-annual sampling program, and indicates modifications being proposed to the sample collection frequency and associated groundwater analysis.

SEMI-VOLATILE ORGANIC COMPOUNDS

Semi-volatile organic compounds (SVOCs) were analyzed for at the majority of the monitoring wells in the GMP. Two SVOCs were only detected above drinking water criteria in three monitoring wells, IWD7, MWW1-02 and MWW1-04. Bis (2-Ethylhexyl)phthalate was detected above the screening criteria once (January 2002) out of 16 sampling events at monitoring well IWD7 and once (October 2004) out of 14 sampling events at well MWW1-02 Bis (2-Ethylhexyl)phthalate is a common laboratory contaminant. Pentachlorophenol was detected above the screening criteria in monitoring well MWW1-04 four (November 2005, February 2006, May 2006, and November 2007) out of 15 samples collected. Based on this evaluation, it is proposed that SVOCs be removed from the analytical parameter list for the GMP.

SHALLOW MONITORING WELLS

For shallow monitoring wells (designated MW) at the Facility, 8 monitoring wells are proposed for elimination from the sampling program. Sample frequency for the remaining monitoring wells is proposed to be reduced from semi-annual to annual for two more years, ending in November 2011 (see Table 1A). The eight monitoring wells (MWD6, MWW1-02, MWW1-03, MWW1-06, MWF12-02, MWM16-05, MWM16-22, and MWM16-54) are proposed to be removed from the GMP because the analytical results have either not exceeded drinking water criteria, were non-detect, or if constituents were detected above criteria the concentrations have stabilized.

Monitoring wells located downgradient of light non-aqueous phase liquid (LNAPL) Area Nos. 1, 2, 3, and 9/10 will continue to be sampled to monitor the upgradient LNAPL areas. Monitoring wells MW40-99 and MWW9-01 are all located downgradient of LNAPL areas. These monitoring locations have not exhibited elevated concentrations of volatile organic compounds (VOCs), PCBs, or site specific parameter list (SSPL) metals and detected concentrations have stabilized. However, they will continue to be sampled to monitor the upgradient LNAPL areas. We propose that these wells be sampled annually instead of the current semi-annual monitoring.

For shallow monitoring wells that have a limited number of sample events (MWW5-01, MWM16-21, MWM16-43, and MWW8-65) the sample frequency will be reduced to annually. Some of these wells have only been sampled three to five times, thus precluding observation of contaminant concentration trends.

Five shallow monitoring wells have been sampled for total dioxins (MWW1-02, MWW1-03, MWW1-04, MWW1-06, and MW40-99). Exceedances of the screening criteria were observed at MWW1-03, MWW1-04 and MW40-99. Dioxins have been reported exceeding criteria three times (15 total samples collected) in monitoring well MWW1-03 and have not been detected above criteria since May 2008. Following the detection of dioxins exceeding criteria in May 2008 a confirmatory sample was collected and the results were non-detect. Dioxins have been reported exceeding criteria once (15 total samples) in monitoring well MWW1-04 and have not been reported exceeding criteria since May 2006. Dioxins have been reported exceeding criteria twice (14 total samples) in monitoring well MW40-99 and have not been reported exceeding criteria since May 2007. We are proposing that dioxins be removed from the sampling program due to the low levels observed and stability of the analytical results.

INTERMEDIATE MONITORING WELLS

We are proposing that intermediate monitoring wells (designated IW) at the Facility be removed from the groundwater sampling program, as shown on Table 1B. Groundwater samples have been collected from monitoring well IWP5 a total of 15 times. Thallium (dissolved) was detected in this well above screening criteria in January 2001 and has not exceeded the screening criteria since (15 sample events). Acetone has also been detected above the screening criteria; however it was reported in the RFI Report (ENCORE 2002) that it has been documented that bentonite pellets, which were used in the well construction, have been known to contain acetone. Acetone is also a common laboratory contaminant Acetone has not been detected above criteria since November 2002 (12 sample events). Groundwater samples have also been collected 15 times from monitoring well IWD7. Bis (2-Ethylhexyl)phthalate, lead, and vanadium were detected above the screening criteria once in January 2002. Since that time these three constituents have not been detected above screening criteria (13 sample events). Arsenic was detected twice above screening criteria (May and November 2007 sampling events) in this well. In both subsequent sampling events (October 2007 and November 2008) arsenic did not exceed the screening criteria.

Groundwater samples have never been collected from monitoring well IWP2, due to insufficient water in the well to collect a sample. For this reason, this well should be removed from the GMP and abandoned.

DEEP MONITORING WELLS

We are proposing that deep monitoring wells (designated GW and DW) be removed from the groundwater sampling program (Table 1C). As part of the original RFI activities, groundwater monitoring wells were installed into two deeper groundwater bearing units (outwash deposits) at the Facility. Deep monitoring wells designated as GW (e.g. GWD8) were installed between 878 and 893 feet above mean sea level (AMSL) in a sand zone (upper outwash deposits). The depth of the GW wells range from 55 to 107 feet below ground surface. Monitoring wells were also installed in a deeper groundwater bearing zone (lower outwash deposits) to determine if a downward vertical hydraulic gradient existed at the Facility and if constituents detected in the shallower water bearing units had migrated to the lower water bearing units. These monitoring wells installed in the lower outwash deposits were designated as DW (e.g. DWD10) and were installed between 808 and 858 AMSL in a sand and gravel zone. The depth of the DW wells range from 115 to 150 feet below ground surface.

Chromium has been detected twice and vanadium once exceeding criteria in monitoring well GWP6. Neither has been detected above criteria since November 2007. Lead and vanadium have been detected once each exceeding criteria in monitoring well GWP3; neither has been detected above criteria since May 2005. The only other two constituents detected above criteria were methylene chloride in monitoring well DWD12 in (May 2003) and acetone in monitoring wells GWD8 (September 2001), GWD9 (May and December 2003), GWP3 (September 2001, and GWP6 (September 2001 and January 2002). Both of these constituents are common laboratory contaminants and acetone has also been documented to be contained in bentonite pellets.

Arsenic is the only other constituent observed above screening criteria in the lower outwash deposits at the Facility. The concentrations of arsenic in the monitoring wells installed in both the upper (GW) and

lower (DW) outwash deposits have been consistent over time. Elevated arsenic concentrations in groundwater in southeastern Michigan are well documented and it is believed that the concentrations detected in these deep monitoring wells are associated with regional background levels. In addition, for monitoring wells were arsenic has been detected above criteria the concentrations have stabilized.

Due to the lack of reported exceedances of VOCs, SVOCs, and PCBs in the deep saturated groundwater zone, it is proposed that the deep monitoring wells be removed from the groundwater monitoring program.

Tables 1A through 1C provide a detailed summary of the proposed changes to the groundwater monitoring program. Appendix A provides the complete set of the semi-annual groundwater sampling analytical tables.

ARCADIS

Appendix B

Email Approval from USEPA

Subject: FW: GM Pontiac North Campus - Semi-Annual Groundwater Monitoring Program Proposed Modifications
Attachments: PNC GMP Moficication Proposal 10-30-09.pdf

-----Original Message-----
From: Nemani.Nate@epamail.epa.gov [mailto:Nemani.Nate@epamail.epa.gov]
Sent: Monday, November 23, 2009 2:59 PM
To: Hare, Robert
Cc: Landale, Beth; jean.e.caufield@gm.com; McKenna, John; O'Neill, Gavin
Subject: Re: GM Pontiac North Campus - Semi-Annual Groundwater Monitoring Program Proposed Modifications

Bob:

The proposal modifications to the semi-annual Groundwater Monitoring Program (GMP) outlined in the October 30, 2009 e-mail w/ attachments for the subject facility have been reviewed.

The submittal requested approval for the following provisions.

a) Elimination of select monitoring wells and parameters from the GMP .

b) Change of frequency of monitoring from semi-annual to annual for certain wells.

c) Implement the GMP for two (2) more years and terminate it after that provided the data continue to show stable or decreasing trends.

Based on the review and the justifications offered for the changes, the above provisions a) and b) are hereby approved.

Regarding the provision c), to terminate the GW monitoring after 2 years, a separate request , will need to be submitted at the of the 2-year period with pertinent documentation.

If you have any questions, please contact me.

Nate

NATE NEMANI, P.E.
RCRA CORRECTIVE ACTION PROJECT MANAGER
LAND AND CHEMICALS DIVISION
REMEDIATION AND REUSE BRANCH,
U. S.EPA, REGION 5 ,
77 W JACKSON Blvd, CHICAGO,ILLINOIS,60604, Mail Code: LU-9J
(312) 886-3224 (PHONE)
(312) 692-2176 (FAX)
nemani.nate@epa.gov (e-mail address)

From: "O'Neill, Gavin" <goneill@craworld.com>

To: Nate Nemani/R5/USEPA/US@EPA

Cc: "Hare, Robert" <rhare@alixpartners.com>, <jean.e.caufield@gm.com>, "Landale, Beth"
<blandale@craworld.com>, "McKenna, John" <John.McKenna@arcadis-us.com>

Date: 10/30/2009 01:02 PM

Subject: GM Pontiac North Campus - Semi-Annual Groundwater Monitoring Program Proposed Modifications

Mr. Nemani

Please find attached a joint request from GM LLC and MLC to modify the Semi-Annual Groundwater Monitoring Program for the GM Pontiac North Campus. As presented in the attached letter, we are proposing a conference call next week on either November 5 or 6, 2009 to discuss the proposed modifications. Please let us know at your earliest convenience your availability for those dates.

Should you have any questions or require additional information, please contact our office.

_____--------_____
Gavin O'Neill
Conestoga-Rovers & Associates (CRA)

1880 Assumption St., Unit 200
Windsor, Ontario, N8Y 1C4

Phone: 519.996.9886
Fax: 519.996.3894
Cell: 519.965.9000
Email: goneill@CRAworld.com
www.CRAworld.com
Think before you print P
Perform every task the safe way, the right way, every time!

[attachment "PNC Proposed Modifications to GMP.pdf" deleted by Nate Nemani/R5/USEPA/US]

ARCADIS

Appendix C

Historical Semi-Annual Sampling Event Groundwater Analytical Data Summary (CD)

Appendix D

Chemical Concentration Graphs

APPENDIX D
RACER TRUST PONTIAC NORTH CAMPUS
2013 ANNUAL GROUNDWATER MONITORING REPORT
CHEMICAL CONCENTRATION GRAPHS