CONESTOGA-ROVERS
& ASSOCIATES

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March 16, 2009

Reference No. 017303

Ms. Vicki Katko
Department of Environmental Quality
Remediation and Redevelopment Division
Jackson District Office
301 East Louis Glick Highway
Jackson, Michigan 49201-1556

Dear Ms. Katko:

Re: 2008 Groundwater Monitoring Summary
Company Vehicle Operations Area and Willow Run Business Center
Former Willow Run Assembly Plant
Washtenaw County, Michigan

On behalf of ENCORE, a wholly owned subsidiary of General Motors Corporation (GM), Conestoga-Rovers & Associates, Inc. (CRA) is providing this Groundwater Monitoring Summary covering the period between January 2008 and December 2008 for the Former Willow Run Assembly Plant located in Ypsilanti, Michigan (Site). The Former Willow Run Assembly Plant property currently houses the Company Vehicle Operations (CVO) property and the Willow Run Business Center (WRBC).

The groundwater monitoring program consists of groundwater sampling, as well as groundwater level monitoring to evaluate groundwater flow conditions. Regular groundwater sampling events have been conducted to monitor constituent concentrations at the CVO property boundary since 2004 and the monitoring data is submitted to the Michigan Department of Environmental Quality (MDEQ) annually. Regular groundwater monitoring was completed for the first time at the WRBC in 2008. The 2008 groundwater monitoring data for the WRBC is also presented in this letter.

The shallow groundwater at CVO has been impacted with chlorinated and non-chlorinated volatile organic compounds (VOCs). The main constituents of concern (COCs) at CVO are trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-1,2-DCE), and vinyl chloride. Metals and polychlorinated biphenyls (PCBs) have also been detected at CVO and have been monitored as part of the routine quarterly sampling schedule.

The main COCs at the WRBC are metals and vinyl chloride.

The MDEQ granted a *groundwater not in an aquifer determination* for the surficial unit from which groundwater is sampled (letter to Dr. Ken Richards dated September 1, 2004) at the CVO property. Accordingly, drinking water criteria are not applicable; however, residential drinking water (RDW) criteria are considered along with groundwater surface water interface (GSI) criteria to monitor the property boundary concentrations for off-Site migration. Detections above GSI or RDW criteria at interior wells do not reflect exceedances, as the criteria are not applicable at these locations. The results were flagged for assessment purposes only.

Past Interim Remedial Actions

Six Interim Response Actions (IRAs) have been completed at the CVO portion of the Site:

- Groundwater chemical oxidation in two areas between December 2001 and June 2002;
- Soil removal to address light non-aqueous phase liquids (LNAPL) and abandoned conduit in July 2003;
- Sheet pile cutoff wall installation to prevent dense non-aqueous phase liquid (DNAPL) from migrating to Tyler Pond;
- Active DNAPL recovery from August 2004 to present;
- Soil and drum removal from the subsurface during test pitting activities in June 2005; and
- Implementation of short-term remedial action of enhanced bioremediation of groundwater using soy lactate (EOS™) in April 2007.

GROUNDWATER SAMPLING IN 2008

Regular groundwater monitoring was completed on a quarterly basis in 2008. The 2008 sampling schedule was revised in April 2008 based on the 2007 groundwater monitoring results. The 2008 schedule was reduced to semi-annual and annual sampling programs. Figures 1a and 1b present the 2008 groundwater sampling locations for CVO and WRBC properties, respectively.

CVO Groundwater Monitoring

The 2008 CVO groundwater sampling program monitored constituent concentrations along the property boundaries, (north and south), at interior site wells, and an off-Site well. Table 1a presents the 2008 groundwater monitoring program completed at the CVO area.

In addition to the regular groundwater monitoring program, Potential Area of Concern (PAOC) 18 (Outfall 12 NAPL Area) wells were sampled to evaluate the effectiveness of the enhanced biodegradation remedial action. These wells are collectively referred to as the natural attenuation wells. Table 1b summarizes the sampling parameters monitored.

CVO Sampling Results Summary

Table 2 presents the 2008 groundwater analytical results for the regularly sampled wells located at CVO. The constituents included in this table are those that were detected above any Part 201 criteria during any of the CVO 2008 sampling events. Table 2 indicates that during the 2008 sampling events, four VOCs (cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, and methylene chloride) and six metals (aluminum, lead, iron, manganese, mercury, and vanadium) were detected above the GSI and/or RDW criteria at perimeter locations at CVO. These exceedances are generally consistent with previous years sampling results.

All constituents except aluminum have historically been detected above the generic criteria in the boundary wells and have been reported to the MDEQ using EQP4482 Notice of Migration (NOM) of contamination, pursuant to Part 201 of the National Resources and Environmental Protection Act, 1994 Act 451 as amended. The most recent NOM for CVO was filed in January 2008. Aluminum will be included in the March 2009 semi-annual sampling to monitor its concentration and evaluate the need for a revision to the NOM for aluminum.

Enhanced Bioremediation - Soy Lactate Injections

DNAPL has been observed in monitoring wells MW18-01, MW18-02, MW18-03, MW18-04, MW18-05, MW18-08 and MW18-09. The DNAPL is considered the source area for chlorinated VOCs in groundwater at PAOC 18. These VOCs have migrated to the GSI compliance point, monitoring well GS-8, in concentrations exceeding the Final Acute Value (FAV) criterion.

As a response to the FAV criterion exceedances by TCE and cis-1,2-DCE at monitoring well GS-8, a short-term remedial action was approved by the MDEQ on February 14, 2007 and implemented in April 2007 by CRA. The short-term remedial action consisted of the injection of a soy lactate solution (EOS™) and nutrients to stimulate anaerobic degradation of the chlorinated compounds. The EOS™ created suitable conditions for reductive dechlorination by existing bacteria present in the soil. TCE is converted to cis-1,2-DCE then to vinyl chloride and finally to ethene, a less toxic constituent than its chemical predecessors.

Natural attenuation wells IW-41, IW-44, IW-45, IW-55, MW18-45, and GS-8 were sampled during March, June and September 2008 to evaluate the soy lactate's effectiveness at stimulating reductive dechlorination. The effectiveness was assessed by evaluating the parameters

presented in Table 1b and how the concentrations of TCE, cis-1,2-DCE, vinyl chloride and ethene fluctuated over time. Baseline conditions were reported as a part of the March 2007 quarterly sampling event. The final sampling event included in the schedule submitted to the MDEQ on December 22, 2006 (approved with modifications by MDEQ on February 14, 2007) is the March 2009 sampling event. After that sampling event a detailed evaluation of the effectiveness of the short-term remedial action will be submitted to the MDEQ under separate cover.

Natural Attenuation Results Summary

Table 3 presents the results from the natural attenuation wells for VOCs, metals, and PCBs from the 2008 monitoring events. The constituents included in this table are those that were detected above any Part 201 criteria during any of the 2008 natural attenuation sampling events.

The natural attenuation data, collected since 2007, show that the EOS™ barrier has been effective in stimulating anaerobic biodegradation. The concentrations of TCE have decreased at all locations since 2007. Approximately 71 percent and 41 percent of TCE appeared to have been removed at GS-8 and MW-18-45, respectively. The concentrations of cis-1,2-DCE have increased at GS-8 and MW-18-45 since March 2008 confirming that TCE degradation to cis-1,2-DCE is occurring.

WRBC Groundwater Monitoring

Seven GSI wells and MW-5A were sampled for Site target analyte list (TAL) metals on a regular basis during 2008. GSI wells (GS-9 through GS-15) were installed during the November 2007 investigation along the bank of Tyler Pond at the WRBC. Three metals (arsenic, barium and manganese) were detected above the criteria during the November 2007 investigation and a NOM was submitted to the MDEQ on April 24, 2008. VOCs and SVOCs were not detected at any location above applicable criteria.

MW-5A, located within PAOC 5 (ELPO Tank Building), was also sampled for metals during 2008. Previous investigations (late 1990's) show that lead exceeded the GSI criteria within this area and its potential to migrate with groundwater towards Tyler Pond. Monitoring well MW-5A was installed to determine current lead concentrations for use in preparation of a groundwater model as suggested by the MDEQ in the late 1990's. Since lead has not been detected in this area in recent sampling rounds (2008), a groundwater model is not necessary.

To monitor background groundwater concentrations at the WRBC, BG-4 was sampled for TCL VOCs as a part of the quarterly sampling events. Vinyl chloride was detected above the RDW criterion at BG-4 during the November 2007 investigation. The background well, BG-4, is not

near a property boundary, therefore it was not included in the NOM, however has been monitored on a regular basis.

Finally, two monitoring wells, RD-MW-9 and RD-MW-10, located within PAOC 8 were sampled on a regular basis in 2008. PAOC 8 is the Former Research and Development Area that contained an underground storage tank (UST) farm and an associated dispenser island. The main goal for this PAOC was to evaluate the current status of natural attenuation and to determine the extent of constituent impact by installing monitoring wells upgradient and downgradient of the impacted area. During the November 2007 investigation VOCs, SVOCs, and PCBs were not detected above criteria within PAOC 8, however, manganese was detected above the RDW criteria. The monitoring wells, RD-MW-9 and RD-MW-10, within PAOC 8 were sampled for benzene, toluene, ethylbenzene, and xylene (BTEX) during the 2008 calendar year. Metals were sampled within PAOC 8 during the March, June, and September 2008 quarterly sampling rounds.

Table 1a presents the 2008 groundwater monitoring program completed at the WRBC.

WRBC Sampling Results Summary

Table 4a and Table 4b present the 2008 groundwater analytical results for the wells located at the WRBC.

Table 4a presents the WRBC VOC data. PAOC 8 monitoring wells RD-MW-9 and RD-MW-10 that were monitored for BTEX compounds did not exhibit any detections of these compounds. Vinyl chloride continued to be detected above the RDW criterion at well BG-4 during the two quarters it was sampled.

The constituents included in Table 4b are those that were detected above any Part 201 criteria during any of the 2008 monitoring events. Seven metals (aluminum, arsenic, barium, manganese, copper, vanadium, and mercury) were detected above the generic criteria at the boundary wells during 2008. A NOM was submitted on April 24, 2008 to report arsenic, barium, and manganese to the MDEQ. Mercury and copper were detected above the generic criteria during the June 2008 and September 2008 monitoring events, respectively. These constituents were not detected above the criteria in subsequent monitoring events during 2008. Therefore, a NOM was not submitted to report these constituents.

Vanadium was detected above the generic criteria for the first time in December 2008 at GS-9. This location will be monitored in March 2009 for vanadium exceedances and a revised NOM will be submitted if needed based on the results. Aluminum will be included in the March 2009 semi-annual sampling to monitor its concentration and evaluate the need for a revision to the NOM for aluminum.

Manganese was also detected above the Part 201 RDW criterion from the monitoring wells, RD-MW-9 and RD-MW-10. Detections of other metals were not above criteria were at these locations.

Lead was not detected at monitoring well MW-5A during 2008.

Based on the results from PAOCs 5 and 8, ENCORE plans to pursue closer of these PAOCs.

GROUNDWATER LEVEL MONITORING

Water levels were collected on a quarterly basis to determine groundwater flow conditions throughout the 2008 calendar year. Figures 2 through 5 present the locations for all the monitoring wells where water levels were gauged. The groundwater flow pattern was also interpreted from these readings for each quarterly event and depicted on Figures 1 through 4.

The figures show generally consistent flow direction at the Site, with a groundwater divide that extends through the center portion of the Site running west to east. Groundwater north of this divide moves towards Tyler Pond to the north, while groundwater south of the divide moves to the south towards Tyler Road.

The figures also show the effects of the sheet pile wall as a barrier to groundwater flow. In the area surrounding the sheet pile wall, groundwater flow is directed around it as is evident by the close contour patterns to the west and east of the sheet pile wall and the higher water level elevation within the sheet pile wall area compared to adjacent areas.

2009 PROPOSED MONITORING

Groundwater monitoring is planned on a semi-annual basis for the 2009 calendar year at CVO and WRBC. The sampling locations and analyses have been revised based on the consistency of the results over the past several years. The revised schedule for CVO and WRBC is shown in Table 5. Figure 6 presents the 2009 sampling locations.

Groundwater levels will be collected on a semi-annual basis for the 2009 calendar year. The groundwater contours will be prepared for the March 2009 event only. The analysis, sampling frequency, and the sampling locations are subject to change, contingent on future sampling results.

The March 2009 semi-annual sampling event is scheduled for the week of March 23 - 27, 2009.

CONESTOGA-ROVERS
& ASSOCIATES

If you have any questions, please do not hesitate to contact me at (734) 453-5123.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Frederick W. Blickle, PE

BL/ab/14/Det.
Encl.

c.c.: Ken Richards - ENCORE
Beth Landale - CRA

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John McKenna
Arcadis
Jun 18, 2009 08:17

SEWAGE DISPOSAL

PAOC NO.	DESCRIPTION
18	OUTFALL 12 NAPL AREA
19	CVO PROPERTY GROUNDWATER
20	FORMER CAT SITE PLUME
23	1949 FILL AREA
24	1952 PITS
29	KAISER-FRAZER DUMP AREA

LEGEND

- DITCH, STREAM OR RIVER
- FENCE LINE
- TREE LINE
- FORMER SLUDGE LINE
- PAOC BOUNDARY
- MW-12 — 2008 SAMPLING POINT

PAOC 29
PAOC 23
PAOC 24
PAOC 20
PAOC 18
PAOC 19
OUTFALL #11
OUTFALL #12
OUTFALL #13
OUTFALL #14
CATWALKS
TYLER POND
SHEET PILE WALL
HAULAWAY BLDG.
GUARD SHACK
BELL M.H.
TYLER ROAD
TYLER POND OUTLET STRUCTURE
MW19-12
GS-3
GS-4
GS-6
GS-8
GS-7
MW18-07
MW19-07
MW19-01
MW19-24
MW19-02
MW19-03
MW-14
MW-4
IW-9
IW-12
IW-33
IW-41
IW-44
IW-45
IW-46
IW-55
MW-18-45
MW-12
MW-6

0 40 120ft

17303-08(KATK014)GN-WI007 MAR 16/2009

figure 1a

CVO PAOCs AND 2008 SAMPLING LOCATIONS
FORMER WILLOW RUN ASSEMBLY PLANT
GENERAL MOTORS CORPORATION
Ypsilanti, Michigan

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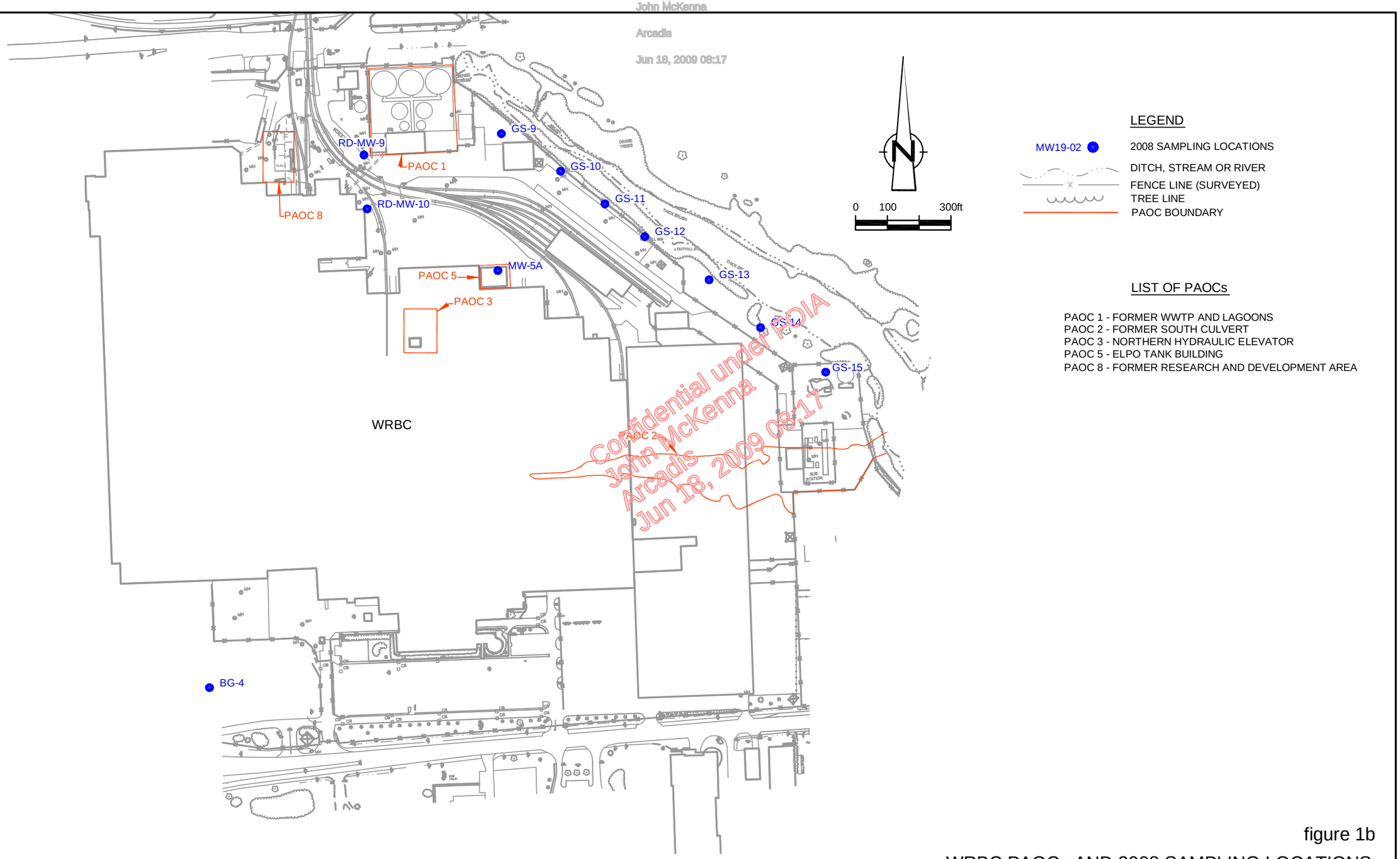
John McKenna
Arcadis
Jun 18, 2009 08:17



LEGEND

- MW19-02 — 2008 SAMPLING LOCATIONS
- DITCH, STREAM OR RIVER
- FENCE LINE (SURVEYED)
- TREE LINE
- PAOC BOUNDARY

LIST OF PAOCs

PAOC 1 - FORMER WWTP AND LAGOONS
PAOC 2 - FORMER SOUTH CULVERT
PAOC 3 - NORTHERN HYDRAULIC ELEVATOR
PAOC 5 - ELPO TANK BUILDING
PAOC 8 - FORMER RESEARCH AND DEVELOPMENT AREA

figure 1b

WRBC PAOCs AND 2008 SAMPLING LOCATIONS
FORMER WILLOW RUN ASSEMBLY PLANT
GENERAL MOTORS CORPORATION
Ypsilanti, Michigan

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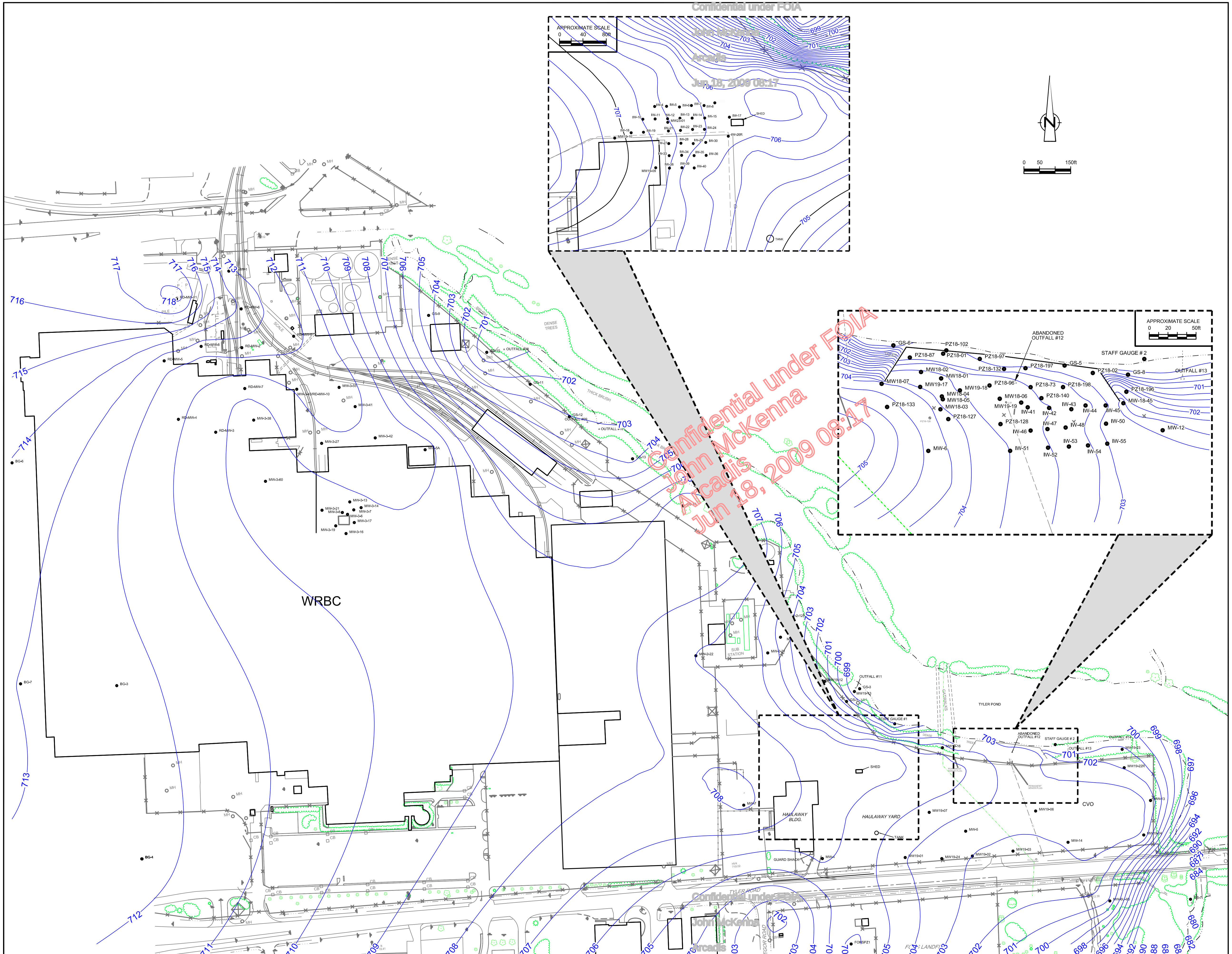

LEGEND

- MW8 MONITORING WELL LOCATION
- GS-2 GROUNDWATER SURFACE WATER INTERFACE WELL LOCATION
- IW-52 INJECTION WELL LOCATION
- U.P. UTILITY POLE
- DITCH, STREAM OR RIVER
- FENCE LINE
- TREE LINE
- FORMER DIESEL LINE
- FORMER SLUDGE LINE
- OVERHEAD ELECTRICAL LINE

PRODUCT ELEVATIONS (AMSL) FT.
MARCH 21 AND 24, 2008

LOCATION	ELEVATION (LNAPL)	THICKNESS (FT)
IW-40	706.37	0.72
IW-50	703.18	0.24
PZ18-128	703.67	0.16
PZ18-140	703.51	0.03
PZ18-96	703.69	0.08

LOCATION	ELEVATION (DNAPL)	THICKNESS (FT)
MW18-02	699.10	1.28
MW18-05	690.84	0.56
MW18-06	703.76	0.30
MW18-08	694.54	0.72
MW18-09	698.91	3.61

GROUNDWATER ELEVATIONS (AMSL) FT.
(MARCH 21 AND 24, 2008)

LOCATION	ELEVATION	LOCATION	ELEVATION	LOCATION	ELEVATION
BG-3	712.49	IW-47	703.70	MW23-01	706.48
BG-4	712.48	IW-48	703.42	MW23-02	706.22
BG-6	713.95	IW-5	706.44	MW-3	706.00
BG-7	712.96	IW-50	702.94	MW-3-13	709.82
FONSPZ1	706.37	IW-51	703.74	MW-3-14	709.78
GS-10	700.18	IW-52	704.58	MW-3-16	709.63
GS-11	702.45	IW-53	703.46	MW-3-17	709.66
GS-12	703.01	IW-54	703.34	MW-3-19	709.53
GS-13	703.71	IW-55	703.13	MW-3-21	709.47
GS-14	708.92	IW-6	706.30	MW-3-27	710.70
GS-15	708.39	IW-7	706.24	MW-3-38	709.47
GS-2	703.68	IW-8	706.25	MW-3-41	711.27
GS-3	697.36	MW-12	702.75	MW-3-42	710.63
GS-4	698.30	MW-13	702.72	MW-3-43/RD-MW-10	711.10
GS-6	700.52	MW-14	702.99	MW-3-55	711.82
GS-7	678.33	MW18-01	703.80	MW-3-6	709.85
GS-8	700.32	MW18-02	703.76	MW-3-60	709.53
GS-9	704.32	MW18-03	703.82	MW-3-7	709.71
IW-1	706.40	MW18-04	703.81	MW-3-8	709.66
IW-11	706.61	MW18-05	703.93	MW-4	706.17
IW-12	706.52	MW18-06	703.46	MW-5	703.48
IW-17	706.13	MW18-07	704.41	MW-5A	710.71
IW-18	706.92	MW18-08	703.87	MW-6	704.40
IW-19	706.71	MW18-09	703.78	MW-6U-93	701.23
IW-2	706.33	MW-18-45	702.63	MW-7	708.25
IW-20	707.21	MW-18-46	705.09	PZ18-01	702.23
IW-21	706.44	MW19-01	704.00	PZ18-02	702.58
IW-22	706.36	MW19-02	702.97	PZ18-102	698.70
IW-23	706.50	MW19-03	702.64	PZ18-127	704.18
IW-24	706.25	MW19-04	703.01	PZ18-128	703.51
IW-26R	706.11	MW19-06	703.20	PZ18-132	703.17
IW-27	706.49	MW19-07	704.57	PZ18-140	703.48
IW-28	706.37	MW19-08	705.60	PZ18-196	702.21
IW-29	706.30	MW19-10	707.11	PZ18-198	703.14
IW-3	706.25	MW19-11	706.30	PZ18-73	703.51
IW-30	706.21	MW19-16	704.70	PZ18-87	703.05
IW-33	706.56	MW19-17	704.06	PZ18-96	703.61
IW-34	706.38	MW19-18	703.70	PZ18-97	702.14
IW-35	706.30	MW19-19	703.54	RD-MW-1	713.08
IW-36	706.24	MW19-22R	701.87	RD-MW-11	718.71
IW-38	706.52	MW19-23	701.17	RD-MW-2	712.60
IW-39	706.42	MW19-24	703.37	RD-MW-3	710.31
IW-4	706.53	MW19-26	706.08	RD-MW-4	711.16
IW-40	705.65	MW19-27	705.96	RD-MW-5	712.37
IW-42	703.55	MW19-28	705.70	RD-MW-6	713.91
IW-43	703.39	MW-1U-93	701.50	RD-MW-7	710.20
IW-44	703.32	MW-2-20	704.60	RD-MW-8	712.44
IW-45	703.07	MW-2-21	705.86	RD-MW-9	712.35
IW-46	703.68	MW-2-22	706.90		

SCALE VERIFICATION

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

GENERAL MOTORS CORPORATION

FORMER WILLOW RUN ASSEMBLY PLANT

GROUNDWATER CONTOURS MARCH 21 AND 24, 2008

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager:	Reviewed By:	Date:	
F. BLICKLE	L. ALVAREZ	JUNE 2008	
Scale: 1" = 150'	Project Nº: 17303-08	Report Nº: KATK014	Drawing Nº: FIG. 2

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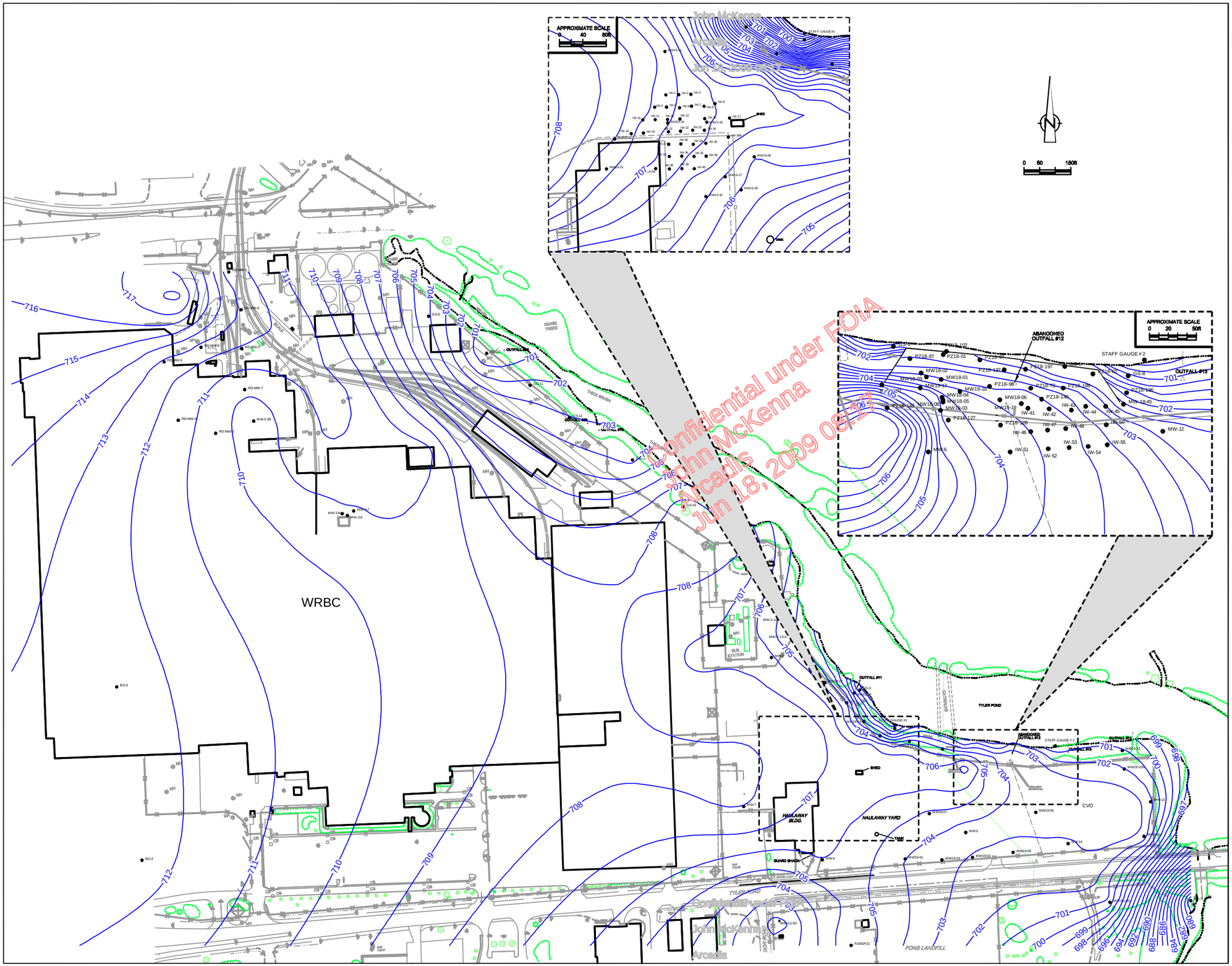


LEGEND

- DITCH, STREAM OR RIVER
- FENCE LINE (SURVEYED)
- TREE LINE
- FORMER DIESEL FUEL LINE
- SB1,B1 — SOIL BORINGS(SURVEYED)
- MW8 — MONITORING WELL LOCATION (NOT SURVEYED)
- GS-2 — GROUNDWATER SURFACE WATER INTERFACE WELL(SURVEYED)
- IW-52 — INJECTION WELL LOCATION (SURVEYED)
- GP19-03D — GAS PROBE LOCATIONS
- SANITARY SEWER
- STORM SEWER SHOWN AS PER SITE SITE UTILITIES UNDERGROUND PLAN JOB NO. 200 BMP2078.DWG
- STORM SEWER SHOWN AS PER INVERTS FOUND BY FIELD OBSERVATIONS,
- FORMER SLUDGE LINE
- OVERHEAD ELECTRICAL LINE
- CB15 — CATCH BASIN (SURVEYED)
- MH18 — MANHOLE (SURVEYED)
- PAVEMENT VARIATION (SURVEYED)
- UTILITY POLE (SURVEYED)
- LOCATION UNKNOWN BEYOND THIS POINT
- PERMANENT SEWER PLUG
- 704 — GROUNDWATER CONTOUR
- 708 — APPROXIMATE GROUNDWATER CONTOUR

PRODUCT ELEVATIONS (AMSL) FT.

LOCATION	ELEVATION (LNAPL)	THICKNESS (FT)
IW-50	703.22	0.18
MW18-06	703.84	0.14
MW19-08	706.32	0.34
PZ18-128		
PZ18-140		
PZ18-96		

LOCATION	ELEVATION (DNAPL)	THICKNESS (FT)
MW18-01	698.84	0.08
MW18-02	699.05	1.28
MW18-08	694.20	0.67

GROUNDWATER ELEVATIONS (AMSL) FT.

LOCATION	ELEVATION	LOCATION	ELEVATION	LOCATION	ELEVATION
BG-3	712.56	MW-46	703.77	MW-2-12A	704.60
BG-4	712.43	MW-47	703.91	MW-2-20	704.68
BG-6	714.01	MW-48	703.52	MW-2-21	706.34
BG-7	712.89	MW-5	707.08	MW-2-22	706.71
FONSPZ1	705.87	MW-50	703.04	MW23-01	707.03
GS-1	704.60	MW-51	703.90	MW23-02	706.77
GS-10	699.90	MW-52	703.72	MW-3	706.33
GS-11	702.31	MW-53	703.59	MW-3-13	710.05
GS-12	703.03	MW-54	703.46	MW-3-14	709.97
GS-13	703.76	MW-55	703.28	MW-3-16	709.82
GS-14	708.59	MW-6	706.55	MW-3-17	709.86
GS-15	707.91	MW-7	706.85	MW-3-21	709.76
GS-2	703.19	MW-8	706.85	MW-3-27	710.97
GS-3	697.28	MW-9	706.79	MW-3-38	709.43
GS-4	697.90	MW-12	702.85	MW-3-41	710.96
GS-5	701.57	MW-13	702.41	MW-3-42	710.59
GS-6	700.21	MW-14	702.81	MW-3-43RD-MW-10	710.91
GS-7	677.87	MW18-01	703.74	MW-3-55	711.20
GS-8	700.17	MW18-02	703.70	MW-3-6	709.88
GS-9	704.11	MW18-03	703.84	MW-3-60	709.75
IW-1	707.07	MW18-04	703.82	MW-3-7	709.93
IW-10	707.26	MW18-05	703.95	MW-3-8	709.87
IW-11	707.17	MW18-06	703.70	MW-4	706.03
IW-12	707.00	MW18-07	704.30	MW-5	703.58
IW-13	706.94	MW18-08	703.88	MW-5A	710.44
IW-15	706.76	MW18-09	713.02	MW-6	704.70
IW-17	706.66	MW-18-45	702.58	MW-61J-93	700.83
IW-18	707.44	MW-18-46	704.01	MW-7	708.19
IW-19	707.03	MW19-01	703.95	PZ18-01	701.20
IW-2	706.99	MW19-02	702.92	PZ18-02	702.24
IW-20	707.11	MW19-03	702.55	PZ18-102	697.85
IW-21	706.95	MW19-04	702.79	PZ18-127	704.05
IW-22	706.84	MW19-06	703.42	PZ18-128	703.79
IW-23	707.03	MW19-07	704.80	PZ18-132	703.29
IW-24	706.78	MW19-08	705.88	PZ18-133	708.12
IW-26R	706.62	MW19-09	706.92	PZ18-140	703.58
IW-27	706.94	MW19-10	707.48	PZ18-196	701.98
IW-28	706.84	MW19-11	707.15	PZ18-197	703.24
IW-29	706.79	MW19-12	704.90	PZ18-198	703.09
IW-3	706.91	MW19-13	700.52	PZ18-73	703.51
IW-30	706.73	MW19-14	701.80	PZ18-87	703.03
IW-33	706.96	MW19-15	704.98	PZ18-96	703.68
IW-34	706.82	MW19-16	704.22	PZ18-97	701.74
IW-35	706.74	MW19-17	704.06	RD-MW-1	712.48
IW-36	706.70	MW19-18	703.70	RD-MW-11	718.55
IW-38	706.84	MW19-19	703.59	RD-MW-2	711.89
IW-39	706.75	MW19-22R	702.04	RD-MW-3	710.50
IW-4	707.17	MW19-23	701.14	RD-MW-4	711.48
IW-40	706.41	MW19-24	703.31	RD-MW-5	712.69
IW-41	703.66	MW19-25	707.28	RD-MW-6	712.90
IW-42	703.61	MW19-26	706.26	RD-MW-7	710.12
IW-43	703.43	MW19-27	706.28	RD-MW-8	712.65
IW-44	703.33	MW19-28	705.95	RD-MW-9	711.87
IW-45	703.03	MW-1U-93	701.55		

SCALE VERIFICATION

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

GENERAL MOTORS CORPORATION

FORMER WILLOW RUN ASSEMBLY PLANT

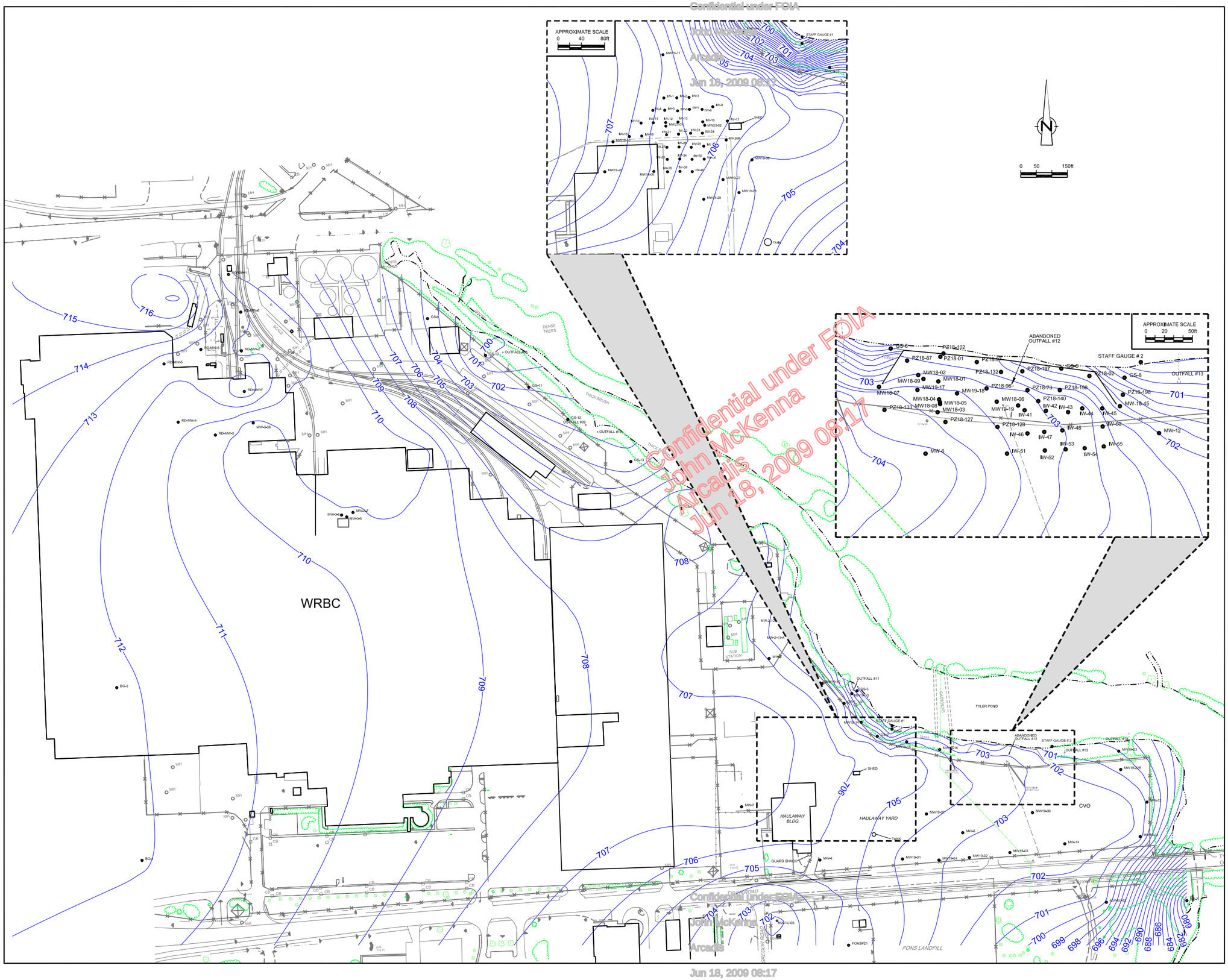
GROUNDWATER CONTOURS
JUNE 17, 2008

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager:	Reviewed By:	Date:	
F. BLICKLE	A. BAINS	JANUARY 2009	
Scale: 1" = 150'	Project No.: 17303-08	Report No.: KATK014	Drawing No.: FIG. 3

17303-08(KATK014)GN-WI001 MAR 16/2009



LEGEND

- DITCH, STREAM OR RIVER
- FENCE LINE (SURVEYED)
- TREE LINE
- FORMER DIESEL FUEL LINE
- SB1,B1 — SOIL BORINGS(SURVEYED)
- MW8 — MONITORING WELL LOCATION (NOT SURVEYED)
- GS-2 — GROUNDWATER SURFACE WATER INTERFACE WELL(SURVEYED)
- IW-52 — INJECTION WELL LOCATION (SURVEYED)
- GP19-03D — GAS PROBE LOCATIONS
- SANITARY SEWER
- STORM SEWER SHOWN AS PER SITE SITE UTILITIES UNDERGROUND PLAN JOB NO. 200 BMP2078.DWG
- STORM SEWER SHOWN AS PER INVERTS FOUND BY FIELD OBSERVATIONS,
- FORMER SLUDGE LINE
- OVERHEAD ELECTRICAL LINE
- CB15 — CATCH BASIN (SURVEYED)
- MH18 — MANHOLE (SURVEYED)
- PAVEMENT VARIATION (SURVEYED)
- UP — UTILITY POLE (SURVEYED)
- LOCATION UNKNOWN BEYOND THIS POINT
- PERMANENT SEWER PLUG
- 704 — GROUNDWATER CONTOUR
- 708 — APPROXIMATE GROUNDWATER CONTOUR

PRODUCT ELEVATIONS (AMSL) FT.

LOCATION	ELEVATION (LNAPL)	THICKNESS (FT)
IW-50	702.62	0.01
MW18-06	703.32	0.46
MW19-08	705.72	0.58
PZ18-128	703.21	0.01
PZ18-140	703.03	0.35
PZ18-96	703.26	0.02

LOCATION	ELEVATION (DNAPL)*	THICKNESS (FT)
MW18-02	698.96	1.12
MW18-08	694.32	0.79
MW18-09		

* LEVEL FOR THE DNAPL WELLS WERE COLLECTED ON SEPTEMBER 24, 2008.

GROUNDWATER ELEVATIONS (AMSL) FT.

LOCATION	ELEVATION	LOCATION	ELEVATION	LOCATION	ELEVATION
BG-3	712.21	IW-45	702.47	MW-2-20	704.42
BG-4	712.12	IW-46	703.17	MW-2-21	706.11
BG-6	713.43	IW-47	703.23	MW-2-22	706.25
BG-7	712.42	IW-48	702.9	MW23-01	706.39
FONSPZ1	705.84	IW-5	706.4	MW23-02	706.12
GS-1	704.39	IW-50	702.61	MW-3	705.66
GS-10	699.79	IW-51	703.27	MW-3-13	710.05
GS-11	701.91	IW-52	703.09	MW-3-14	709.97
GS-12	702.72	IW-53	702.94	MW-3-16	709.91
GS-13	703.24	IW-54	702.8	MW-3-17	709.9
GS-14	708.39	IW-55	702.58	MW-3-19	709.83
GS-15	707.49	IW-6	706.26	MW-3-21	709.82
GS-2	703.11	IW-7	706.15	MW-3-27	710.65
GS-3	697.24	IW-8	705.97	MW-3-38	709.41
GS-4	697.8	IW-9	706.11	MW-3-41	710.67
GS-5	701.51	MW-12	702.04	MW-3-42	710.43
GS-6	700.29	MW-13	701.09	MW-3-43RD-MW-10	710.71
GS-7	677.92	MW-14	702.18	MW-3-55	710.91
GS-8	700.27	MW18-01	703.35	MW-3-6	709.94
GS-9	703.72	MW18-02	703.35	MW-3-60	709.76
IW-1	706.41	MW18-03	703.36	MW-3-7	709.88
IW-10	706.63	MW18-04	703.37	MW-3-8	709.95
IW-11	706.53	MW18-05	703.53	MW-4	705.85
IW-12	706.35	MW18-06	702.86	MW-5	703.19
IW-13	706.28	MW18-07	703.68	MW-5A	710.34
IW-15	706.12	MW-18-45	702.04	MW-6	703.99
IW-17	706	MW19-01	703.7	MW-6U-93	700.31
IW-18	706.69	MW19-02	702.65	MW-7	707.84
IW-19	706.58	MW19-03	702.2	PZ18-01	701.28
IW-2	706.3	MW19-04	701.61	PZ18-02	702.14
IW-20	706.48	MW19-06	702.68	PZ18-102	697.82
IW-21	706.32	MW19-07	704.25	PZ18-127	703.36
IW-22	706.23	MW19-08	705.14	PZ18-128	703.2
IW-23	706.37	MW19-09	706.45	PZ18-132	702.87
IW-24	706.1	MW19-10	706.95	PZ18-133	703.18
IW-26R	705.96	MW19-11	706.48	PZ18-140	702.68
IW-27	706.34	MW19-12	704.88	PZ18-196	701.63
IW-28	706.24	MW19-13	700.47	PZ18-197	702.89
IW-29	706.17	MW19-14	701.67	PZ18-198	702.68
IW-3	706.2	MW19-15	704.49	PZ18-73	703.04
IW-30	706.13	MW19-16	704.07	PZ18-87	702.9
IW-33	706.39	MW19-17	703.44	PZ18-96	703.24
IW-34	706.23	MW19-18	703.26	PZ18-97	701.44
IW-35	706.14	MW19-19	703.07	RD-MW-1	710.98
IW-36	706.08	MW19-22R	700.71	RD-MW-11	717.52
IW-38	706.33	MW19-23	700.05	RD-MW-2	711.66
IW-39	706.25	MW19-24	703.1	RD-MW-3	710.41
IW-4	706.53	MW19-25	706.92	RD-MW-4	711.29
IW-40	706.03	MW19-26	705.85	RD-MW-5	712.32
IW-41	703.13	MW19-27	705.74	RD-MW-6	712.36
IW-42	703.05	MW19-28	705.45	RD-MW-7	714.07
IW-43	702.86	MW-1U-93	701.51	RD-MW-8	712.33
IW-44	702.78	MW-2-2A	704.36	RD-MW-9	711.63

SCALE VERIFICATION

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

GENERAL MOTORS CORPORATION

FORMER WILLOW RUN ASSEMBLY PLANT

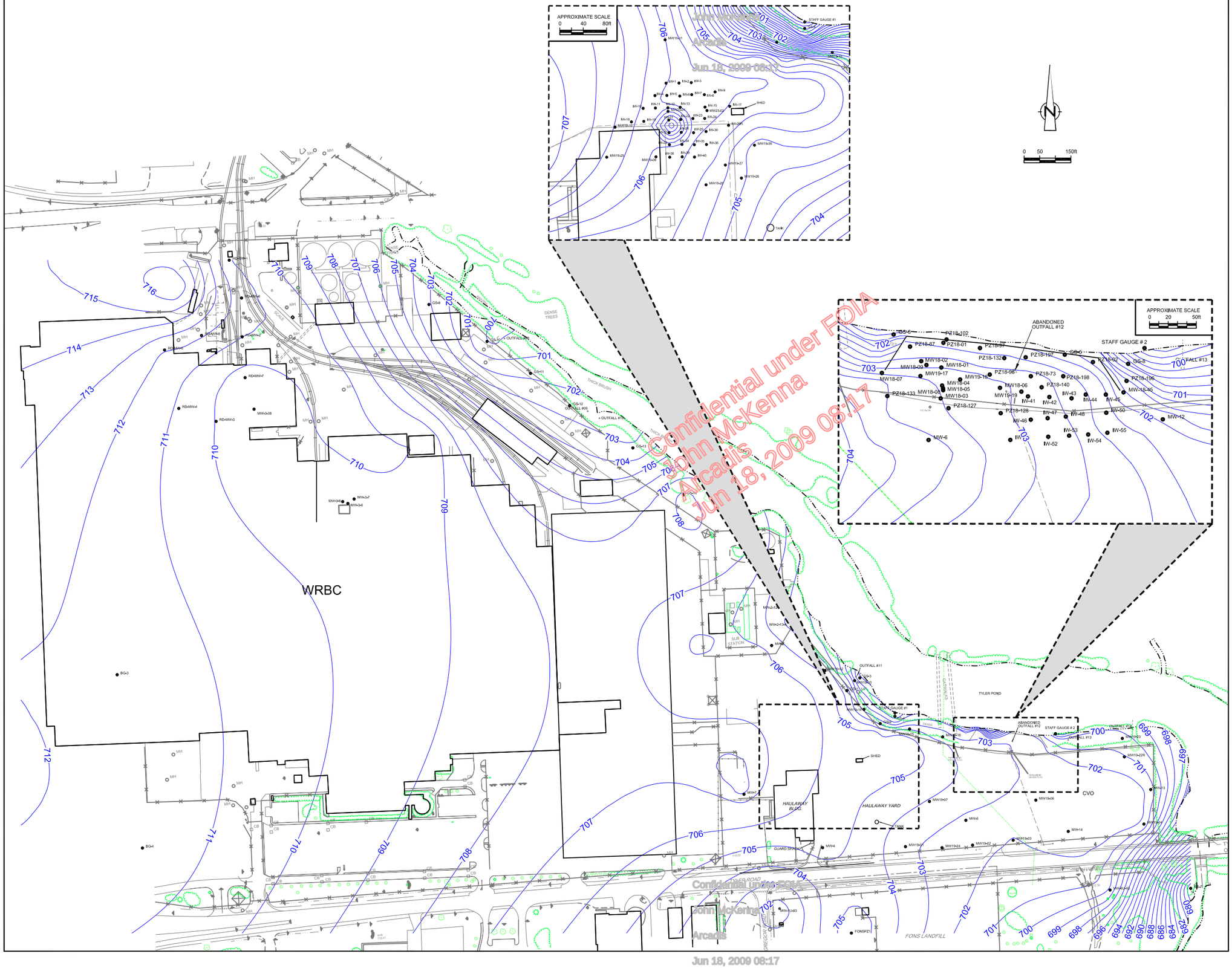
GROUNDWATER CONTOURS SEPTEMBER 22, 2008

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager:	Reviewed By:	Date:	
F. BLICKLE	A. BAINS	JANUARY 2009	
Scale: 1" = 150'	Project №: 17303-08	Report №: KATK014	Drawing №: FIG. 4

17303-08(KATK014)GN-WI002 MAR 13/2009



LEGEND

- DITCH, STREAM OR RIVER
- FENCE LINE (SURVEYED)
- TREE LINE
- FORMER DIESEL FUEL LINE
- SB1,B1 — SOIL BORINGS(SURVEYED)
- MW8 — MONITORING WELL LOCATION (NOT SURVEYED)
- GS-2 — GROUNDWATER SURFACE WATER INTERFACE WELL(SURVEYED)
- IW-52 — INJECTION WELL LOCATION (SURVEYED)
- GP19-03D — GAS PROBE LOCATIONS
- SANITARY SEWER
- STORM SEWER SHOWN AS PER SITE SITE UTILITIES UNDERGROUND PLAN JOB NO. 200 BMP2078.DWG
- STORM SEWER SHOWN AS PER INVERTS FOUND BY FIELD OBSERVATIONS,
- FORMER SLUDGE LINE
- OVERHEAD ELECTRICAL LINE
- CB15 — CATCH BASIN (SURVEYED)
- MH18 — MANHOLE (SURVEYED)
- PAVEMENT VARIATION (SURVEYED)
- UTILITY POLE (SURVEYED)
- LOCATION UNKNOWN BEYOND THIS POINT
- PERMANENT SEWER PLUG
- 704 — GROUNDWATER CONTOUR
- 708 — APPROXIMATE GROUNDWATER CONTOUR

PRODUCT ELEVATIONS (AMSL) FT.

LOCATION	ELEVATION (LNAPL)	THICKNESS (FT)
IW-50	702.51	0.39
MW18-06	703.33	0.22
MW19-08	705.32	0.55
PZ18-128	703.00	0.07
PZ18-96	703.05	0.01

LOCATION	ELEVATION (DNAPL)*	THICKNESS (FT)
MW18-02	698.98	1.2
MW18-05	694.12	0.58
MW18-08	694.32	0.82

* LEVEL FOR THE DNAPL WELLS WERE COLLECTED ON DECEMBER 5, 2008.

GROUNDWATER ELEVATIONS (AMSL) FT.

LOCATION	ELEVATION	LOCATION	ELEVATION	LOCATION	ELEVATION
BG-3	711.82	IW-5	706.07	MW23-01	705.98
BG-4	711.73	IW-50	702.12	MW23-02	705.72
BG-7	711.93	IW-51	703.07	MW-3	705.44
FONSPZ1	705.79	IW-52	702.91	MW-3-13	709.77
GS-1	703.94	IW-53	702.78	MW-3-14	709.75
GS-10	699.74	IW-54	702.66	MW-3-16	709.69
GS-11	701.78	IW-55	702.47	MW-3-17	709.68
GS-12	702.52	IW-6	705.94	MW-3-19	709.59
GS-13	703	IW-7	705.77	MW-3-21	709.49
GS-14	708.27	IW-8	705.77	MW-3-27	710.08
GS-15	707.38	IW-9	706.22	MW-3-38	708.91
GS-2	703.03	MW-12	702.02	MW-3-41	710.09
GS-3	697.24	MW-13	701.6	MW-3-42	709.99
GS-4	697.93	MW-14	702.2	MW-3-43RD-MW-10	710.09
GS-6	700.64	MW18-01	703.17	MW-3-55	710.29
GS-7	677.69	MW18-02	703.18	MW-3-6	709.63
GS-8	700.16	MW18-03	703.13	MW-3-60	709.4
GS-9	703.08	MW18-04	703.17	MW-3-7	709.65
IW-1	706	MW18-05	703.22	MW-3-8	709.63
IW-10	706.28	MW18-06	703.11	MW-4	705.39
IW-11	706.11	MW18-07	703.61	MW-5	702.87
IW-12	705.95	MW18-08	703.3	MW-5A	709.88
IW-13	705.9	MW-18-45	701.98	MW-6	703.66
IW-15	705.72	MW-18-46	704.38	MW-6U-93	700.21
IW-17	705.61	MW19-01	703.18	MW-7	707.32
IW-18	706.23	MW19-02	702.24	PZ18-01	701.73
IW-19	706.2	MW19-03	701.94	PZ18-02	702.29
IW-2	705.91	MW19-04	701.93	PZ18-102	698.8
IW-20	706.09	MW19-06	702.59	PZ18-127	703.17
IW-21	709.34	MW19-07	703.91	PZ18-128	702.93
IW-22	705.86	MW19-08	704.77	PZ18-132	702.72
IW-23	706	MW19-09	705.95	PZ18-133	703.13
IW-26R	705.70	MW19-10	706.54	PZ18-140	702.91
IW-27	705.93	MW19-11	706.03	PZ18-196	701.61
IW-28	705.84	MW19-12	704.81	PZ18-197	702.78
IW-29	705.76	MW19-13	700.31	PZ18-198	702.57
IW-3	705.82	MW19-14	701.58	PZ18-73	702.84
IW-30	705.7	MW19-15	704.34	PZ18-87	702.74
IW-33	705.97	MW19-16	703.82	PZ18-96	703.04
IW-34	705.84	MW19-17	703.28	PZ18-97	701.63
IW-35	705.72	MW19-18	703.06	RD-MW-1	711.01
IW-36	705.69	MW19-19	702.92	RD-MW-11	717.04
IW-38	705.88	MW19-22R	701.05	RD-MW-2	711.03
IW-39	705.82	MW19-23	700.39	RD-MW-3	710
IW-4	706.1	MW19-24	702.61	RD-MW-4	710.89
IW-40	705.66	MW19-25	706.44	RD-MW-5	711.95
IW-41	702.96	MW19-26	705.42	RD-MW-6	711.5
IW-42	702.9	MW19-27	705.34	RD-MW-7	709.52
IW-43	702.75	MW19-28	705.05	RD-MW-8	712.05
IW-44	702.69	MW-1U-93	701.37	RD-MW-9	710.95
IW-45	702.35	MW-2-20	704.04	STAFF GAUGE1	698.65
IW-46	702.97	MW-2-21	705.85	STAFF GAUGE2	699.04
IW-48	702.75	MW-2-22	705.79	MW-2-12A	704.13

SCALE VERIFICATION

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

GENERAL MOTORS CORPORATION

FORMER WILLOW RUN ASSEMBLY PLANT

GROUNDWATER CONTOURS DECEMBER 8, 2008

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:

Project Manager:	Reviewed By:	Date:	
F. BLICKLE	A. BAINS	JANUARY 2009	
Scale: 1" = 150'	Project №: 17303-08	Report №: KATK014	Drawing №: FIG. 5

17303-08(KATK014)GN-WI003 MAR 13/2009

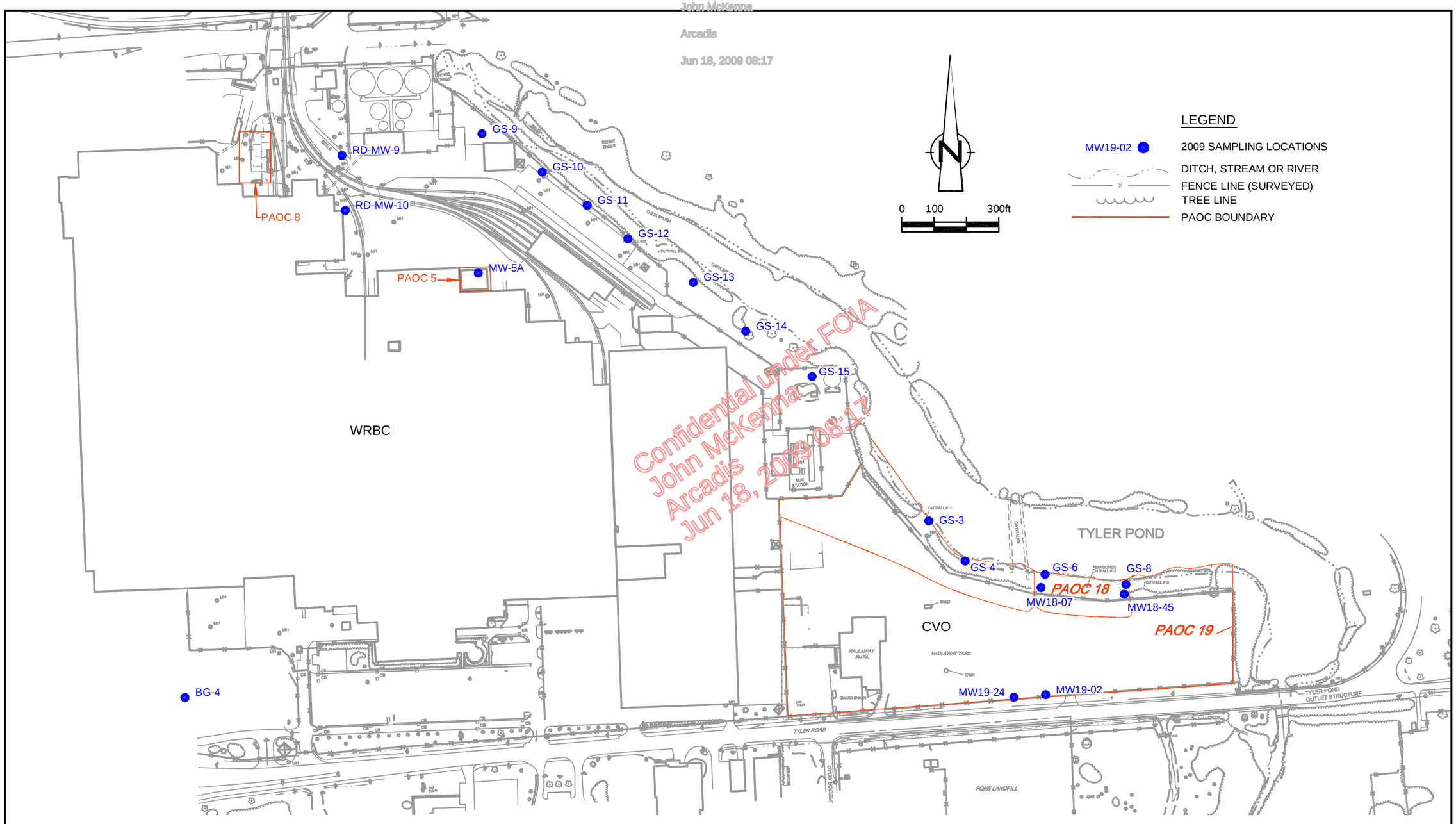


figure 6

2009 GROUNDWATER MONITORING PROGRAM
FORMER WILLOW RUN ASSEMBLY PLANT
GENERAL MOTORS CORPORATION
Ypsilanti, Michigan

17303-08(KATK014)GN-WI006 MAR 16/2009

TABLE 1a
2008 GROUNDWATER MONITORING PROGRAM
FORMER WILLOW RUN ASSEMBLY PLANT
YPSILANTI, MICHIGAN

	March 2008	June 2008	September 2008	December 2008
	Quarterly	Semi-Annual	Annual	Quarterly
CVO Property				
Northern Boundary Wells				
GS-3	A,B,C,D	A, C	A,B,C,D	A, C
GS-4	A,B,C,D	A, C	A,B,C,D	A, C
GS-6	A,B,C,D	A, B, C, D	A,B,C,D	A
Southern Boundary Wells				
MW-4	A,B,C,D	A,D	A,B,C,D	
MW19-01	A,B,C,D	A,D	A,B,C,D	
MW19-02	A,B,C,D	A,D	A,B,C,D	A,D
MW19-24	A,B,C,D	A,D	A,B,C,D	A,D
MW-14	A,B,C,D	A,D	A,B,C,D	
Interior Wells				
IW-9	A,B,C,D	A	A,B,C,D	
IW-12	A,B,C,D	A	A,B,C,D	
IW-33	A,B,C,D	A	A,B,C,D	
MW19-07	A,B,C,D	A,B,C,D	A,B,C,D	
MW19-12	A,B,C,D	A,B,C,D	A,B,C,D	
MW18-07	A,B,C,D	A,B,C,D	A,B,C,D	A
IW-46	A,B,C,D	B,C,D	B,C,D	
MW-6	A,B,C,D	A,B,C,D	A,B,C,D	
MW-12	A,B,C,D	A,B,C,D	A,B,C,D	
Off Site				
GS-7	A,B,C,D	A,B,C	A,B,C	
WRBC				
Northern Boundary Wells				
GS-9	B	B	B	B
GS-10	B	B	B	B
GS-11	B	B	B	B
GS-12	B	B	B	B
GS-13	B	B	B	B
GS-14	B	B	B	B
GS-15	B	B	B	B
Interior Wells				
RD-MW-9	B, E	B, E	B, E	E
RD-MW-10	B, E	B, E	B, E	E
MW-5A	B	B	B	B
BG-4		A	A	

Notes

A - Total Contaminant List (TCL) Volatile Organic Compounds (VOCs)
B - Site (Target Analyte List) TAL Metals
C - Total Polychlorinated Biphenyls (PCBs)
D - Ethene
E - Benzene Toluene Ethylbenzene Xylene (BTEX)

TABLE 1b
NATURAL ATTENUATION PARAMETERS
COMPANY VEHICLE OPERATIONS AREA
YPSILANTI, MICHIGAN

CVO Property	
Wells	**Natural Attenuation Parameters**
IW-41	TCL VOCs, Site TAL Metals including Iron, PCBs, Dissolved Gases (Methane, Ethane, and Ethene), TOC, Hexavalent Chromium, Dissolved Iron & Manganese (field filter), Sulfide, BOD, Alkalinity & sulfate & nitrate & nitrite, Ammonia & Total Phosphorus & COD, Anaeorbic and Aerobic Bioassay
IW-44	
IW-45	
IW-55	
MW18-45	
GS-8	

Notes

TCL - Total Contaminant List
VOCs - Volatile Organic Compounds
TAL - Target Analyte List
PCBs - Polychlorinated Biphenyls
TOC - Total Organic Carbon
BOD - Biochemical Oxygen Demand
COD - Chemical Oxygen Demand

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John McKenna
Arcadis
Jun 18, 2009 08:17

TABLE 2
2008 GROUNDWATER EXCEEDANCES
COMPANY VEHICLE OPERATIONS AREA
FORMER WILLOW RUN ASSEMBLY PLANT
YPSILANTI, MICHIGAN

Groundwater Monitoring Wells			*VOCs*										*Metals*					
			1,3-Dichlorobenzene	*Acetone*	*Benzene*	*Chlorobenzene*	*cis-1,2-DCE*	*Ethylbenzene*	*Methylene chloride*	*Toluene*	*trans-1,2-DCE*	*Trichloroethene*	*Vinyl chloride*	*Aluminum*	*Iron*	*Lead*	*Manganese*	*Mercury*	*Vanadium*
Location	**Well ID**	**Sample Date**	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
Northern Property Boundary Wells	GS-3	03/27/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.0046	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.025[ab]	0.445[b]	--	0.003 U	0.166[b]	0.0002 U	0.004 U
		06/19/2008	0.02 U	0.5 U	0.02 U	0.02 U	0.048	0.02 UJ	0.1 U	0.02 U	0.02 U	0.02 U	0.51[ab]	--	--	--	--	--	--
		09/25/2008	0.004 U	0.1 U	0.0014 J	0.004 U	0.016	0.004 U	0.02 U	0.004 U	0.004 U	0.004 U	0.14[ab]	--	--	0.0157[ab]	0.292[b]	0.0002 U	0.0063[b]
		12/10/2008	0.0025 U	0.062 U	0.0025 U	0.0025 U	0.0062	0.0025 U	0.012 U	0.0025 U	0.0025 U	0.0025 U	0.061[ab]	--	--	--	--	--	--
	GS-4	03/26/2008	0.0017 U	0.042 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0084 U	0.0017 U	0.0017 U	0.0017 U	0.039[ab]	0.273[b]	0.585[b]	0.003 U	0.663[b]	0.0002 U	0.004 U
		06/19/2008	0.005 U	0.12 U	0.005 U	0.005 U	0.005 U	0.005 UJ	0.025 U	0.005 U	0.005 U	0.005 U	0.12[ab]	--	--	--	--	--	--
		09/24/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.0023	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.0038[b]	--	--	0.003 U	0.796[b]	0.0002 U	0.004 U
		12/10/2008	0.001 U	0.025 U	0.00033 J	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.0023[b]	--	--	--	--	--	--
	GS-6	03/26/2008	0.11 U	2.8 U	0.11 U	0.11 U	3.1[ab]	0.11 U	0.56 U	0.11 U	0.18[b]	0.11 U	1.6[ab]	0.05 U	1.08[b]	0.003 U	0.0635[b]	0.0002 U	0.004 U
		06/19/2008	0.14 U	3.6 U	0.14 U	0.14 U	3.6[ab]	0.14 UJ	0.71 U	0.14 U	0.18[b]	0.14 U	0.97[ab]	--	--	0.003 U	0.054[b]	0.00012 J[a]	0.004 U
		09/24/2008	0.12 U	3.1 U	0.12 U	0.12 U	3.9[ab]	0.12 U	0.62 U	0.12 U	0.2[b]	0.12 U	0.98[ab]	--	--	0.003 U	0.0364	0.0002 U	0.004 U
		12/09/2008	0.14 U	3.6 U	0.14 U	0.14 U	4.3[ab]	0.14 U	0.71 U	0.14 U	0.2[b]	0.14 U	1.6[ab]	--	--	--	--	--	--
Southern Property Boundary Wells	MW-4	03/27/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.00025 J	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.00022 J	0.0241 J	--	0.003 U	0.344[b]	0.0002 U	0.004 U
		06/19/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.00032 J	0.001 UJ	0.005 U	0.001 U	0.001 U	0.00055 J	0.00037 J	--	--	--	--	--	--
		09/23/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.00033 J	0.001 U	0.005 U	0.001 U	0.001 U	0.00053 J	0.00036 J	--	--	0.003 U	0.339[b]	0.0002 U	0.004 U
	MW19-01	03/26/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.0053[b]	0.05 U	0.408[b]	0.003 U	0.0151	0.0002 U	0.004 U
		06/18/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.005 U	0.001 U	0.001 U	0.001 U	0.021[ab]	--	--	--	--	--	--
		09/23/2008	0.0025 U	0.062 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.012 U	0.0025 U	0.0025 U	0.0025 U	0.035[ab]	--	--	0.003 U	0.0418	0.0002 U	0.004 U
	MW19-02	03/26/2008	0.33 U	8.3 U	0.33 U	0.33 U	6.8[ab]	0.33 U	1.7 U	0.33 U	0.22 J[b]	0.33 U	13[ab]	0.05 U	0.979[b]	0.003 U	0.125[b]	0.0002 U	0.004 U
		06/18/2008	0.25 U	6.2 U	0.25 U	0.25 U	4.9[ab]	0.25 UJ	1.2 U	0.25 U	0.17 J[b]	0.25 U	4.4[ab]	--	--	--	--	--	--
		09/23/2008	0.62 U	16 U	0.62 U	0.62 U	8.6[ab]	0.62 U	3.1 U	0.62 U	0.27 J[b]	0.62 U	15[ab]	--	--	0.003 U	0.179[b]	0.0002 U	0.004 U
		12/09/2008	0.42 U	10 U	0.42 U	0.42 U	7.5[ab]	0.42 U	2.1 U	0.42 U	0.25 J[b]	0.42 U	14[ab]	--	--	--	--	--	--
	MW19-03	03/25/2008	0.05 U	1.2 U	0.05 U	0.05 U	0.81[ab]	0.05 U	0.25 U	0.05 U	0.037 J	0.05 U	1.3[ab]	0.05 U	0.638[b]	0.003 U	0.249[b]	0.0002 U	0.004 U
	MW19-24	03/25/2008	0.5 U	12 U	0.5 U	0.5 U	0.25 J[b]	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	13[ab]	0.0242 J	7.96[b]	0.003 U	0.284[b]	0.0002 U	0.004 U
		06/18/2008	0.62 U	16 U	0.62 U	0.62 U	0.29 J[b]	0.62 U	0.25 J[ab]	0.62 U	0.62 U	0.62 U	14 J[ab]	--	--	--	--	--	--
		09/23/2008	0.83 U	21 U	0.83 U	0.83 U	0.35 J[b]	0.83 U	4.2 U	0.83 U	0.83 U	0.83 U	20[abc]	--	--	0.003 U	0.241[b]	0.0002 U	0.004 U
		12/09/2008	0.33 U / 0.33 U	8.3 U / 8.3 U	0.33 U / 0.33 U	0.33 U / 0.33 U	0.18 J[b] / 0.17 J[b]	0.33 U / 0.33 U	1.7 U / 1.7 U	0.33 U / 0.33 U	0.33 U / 0.33 U	0.33 U / 0.33 U	13[ab] / 13[ab]	--	--	--	--	--	--
	MW-14	03/25/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0312 J	0.1 U	0.003 U	0.0954[b]	0.0002 U	0.004 U
		06/18/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	--	--	--	--
		09/23/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	--	--	0.003 U	0.0906[b]	0.0002 U	0.004 U
Interior Wells[1]	IW-9	03/27/2008	1 U	25 U	1 U	1 U	3.4[ab]	1 U	5 U	0.46 J[a]	1 U	1 U	32[abc]	0.05 U	--	0.003 U	3.66[ab]	0.0002 U	0.003 J
		06/19/2008	0.42 U	10 U	0.42 U	0.42 U	1.4[ab]	0.42 UJ	2.1 U	0.42 U	0.42 U	0.42 U	11[ab]	--	--	--	--	--	--
		09/23/2008	0.71 U	18 U	0.71 U	0.71 U	1.8[ab]	0.71 U	3.6 U	0.22 J[a]	0.71 U	0.71 U	17[ab]	--	--	0.003 U	3.4[b]	0.0002 U	0.004 U
	IW-12	03/27/2008	0.62 U	0.9 J[b]	0.62 U	0.62 U	14[abc]	0.62 U	3.1 U	0.62 U	0.17 J[b]	0.62 U	13 J[ab]	0.05 U	--	0.003 U	8.88[ab]	0.0002 U	0.0023 J
		06/19/2008	1 U	25 U	1 U	1 U	32[abc]	1 U	5 U	0.24 J[a]	0.38 J[b]	1 U	19[abc]	--	--	--	--	--	--
		09/23/2008	1 U	25 U	0.26 J[ab]	1 U	38[abc]	1 U	5 U	1 U	0.42 J[b]	1 U	18[abc]	--	--	0.003 U	7.58[ab]	0.0002 U	0.0025 J
	IW-33	03/27/2008	3.3 U	5.1 J[ab]	3.3 U	3.3 U	1.2 J[ab]	3.3 U	17 U	3.3 U	3.3 U	3.3 U	86[abc]	0.0209 J	--	0.003 U	6.3[ab]	0.0002 U	0.0037 J
		06/19/2008	2.5 U	62 U	2.5 U	2.5 U	2.8[ab]	2.5 UJ	12 U	0.46 J[a]	2.5 U	2.5 U	72[abc]	--	--	--	--	--	--
		09/23/2008	1.4 U	36 U	1.4 U	1.4 U	2.6[ab]	1.4 U	7.1 U	1.4 U	1.4 U	1.4 U	42[abc]	--	--	0.003 U	5.86[ab]	0.0002 U	0.0026 J
	IW-46	03/25/2008	0.33 U	8.3 U	0.33 U	0.33 U	7.7[ab]	0.33 U	0.11 J[ab]	0.33 U	0.18 J[b]	0.096 J[ab]	6.8[ab]	0.0319 J	0.1 U	0.003 U	3.49[b]	0.00016 J[a]	0.0025 J
		06/18/2008	--	--	--	--	--	--	--	--	--	--	--	--	0.196	0.003 U	8.3[ab]	0.00019 J[a]	0.0024 J
		09/23/2008	--	--	--	--	--	--	--	--	--	--	--	--	--	0.003 U	8.38[ab]	0.0002 U	0.0017 J
	MW-6	03/25/2008	0.05 U	1.2 U	0.05 U	0.05 U	0.37[b]	0.05 U	0.016 J[b]	0.05 U	0.017 J	0.037 J[ab]	1.2[ab]	0.0753[b]	7.32[b]	0.003 U	0.33[b]	0.0002 U	0.004 U
		06/19/2008	0.04 U	1 U	0.017 J[ab]	0.04 U	0.48[b]	0.04 UJ	0.2 U	0.04 U	0.021 J	0.025 J[b]	1.1[ab]	--	--	0.003 U	0.355[b]	0.0002 U	0.004 U
		09/23/2008	0.067 U	1.7 U	0.016 J[ab]	0.067 U	0.6[b]	0.067 U	0.33 U	0.067 U	0.026 J	0.067 U	1.4[ab]	--	--	0.003 U	0.29[b]	0.0002 U	0.004 U
	MW-12	03/25/2008	0.029 U	0.71 U	0.029 U	0.029 U	0.2[b]	0.029 U	0.01 J[b]	0.029 U	0.029 U	0.94[ab]	0.029 U	0.05 U	0.1 U	0.003 U	0.0059 J	0.00013 J[a]	0.004 U
		06/18/2008	0.005 U	0.12 U	0.005 U	0.005 U	0.1[b]	0.005 UJ	0.025 U	0.005 U	0.0036 J	0.2[ab]	0.011[b]	--	0.1 U	0.003 U	0.0507[b]	0.0002 U	0.004 U
		09/23/2008	0.033 U	0.83 U	0.033 U	0.033 U	0.84[ab]	0.033 U	0.074 J[ab]	0.033 U	0.033 U	8.7[abc]	0.033 U	--	--	0.003 U	0.0371	0.0002 U	0.004 U
	MW18-07	03/26/2008	0.0067 U	0.17 U	0.0067 U	0.0067 U	0.21[b]	0.0067 U	0.033 U	0.0067 U	0.09	0.022[b]	0.09[ab]	0.05 U	8.2[b]	0.003 U	0.323[b]	0.0002 U	0.004 U
		06/19/2008	0.008 U	0.2 U	0.008 U	0.008 U	0.17[b]	0.008 UJ	0.04 U	0.008 U	0.075	0.012[b]	0.087[ab]	--	--	0.003 U	0.655[b]	0.0002 U	0.004 U
		09/24/2008	0.0057 U	0.14 U	0.0057 U	0.0057 U	0.22[b]	0.0057 U	0.029 U	0.0057 U	0.085	0.014[b]	0.093[ab]	--	--	0.003 U	0.319[b]	0.00014 J[a]	0.004 U
		12/09/2008	0.0067 U	0.17 U	0.0067 U	0.0067 U	0.21[b]	0.0067 U	0.033 U	0.0067 U	0.068	0.0089[b]	0.11[ab]	--	--	--	--	--	--
	MW19-07	03/26/2008	0.62 U / 0.71 U	18 U / 1 J[b]	0.62 U / 0.71 U	0.71 U / 0.62 U	5.6[ab] / 6.5[ab]	0.71 U / 0.62 U	3.1 U / 3.6 U	0.62 U / 0.71 U	0.14 J[b] / 0.16 J[b]	0.71 U / 0.62 U	23[abc] / 18[abc]	0.05 U / 0.05 U	2.41[b] / 2.51[b]	0.003 U / 0.003 U	0.143[b] / 0.153[b]	0.0002 U / 0.0002 U	0.004 U / 0.004 U
		06/18/2008	0.71 U / 0.5 U	18 U / 12 U	0.71 U / 0.5 U	0.5 U / 0.71 U	4.4[ab] / 4.5[ab]	0.71 UJ / 0.5 U	3.6 U / 0.17 J[ab]	0.5 U / 0.71 U	0.097 J / 0.71 U	0.5 U / 0.71 U	15[ab] / 15[ab]	--	2[b] / 1.9[b]	0.003 U / 0.003 U	0.163[b] / 0.182[b]	0.00023[a] / 0.0002 U	0.004 U / 0.004 U
		09/23/2008	1 U / 1 U	25 U / 25 U	1 U / 1 U	1 U / 1 U	9.3[ab] / 8.9[ab]	1 U / 1 U	5 U / 5 U	1 U / 1 U	1 U / 0.22 J[b]	1 U / 1 U	28[abc] / 26[abc]	--	--	0.003 U / 0.003 U	0.132[b] / 0.132[b]	0.0002 U / 0.0002 U	0.004 U / 0.004 U
	MW19-12	03/27/2008	0.014 J[b]	1.4 U	0.03 J[ab]	0.076[a]	1.3[ab]	0.13[ab]	0.28 U	0.036 J	0.025 J	0.056 U	2[ab]	0.05 U	--	0.003 U	0.619[b]	0.0002 U	0.004 U
		06/19/2008	0.012 J[b]	1.6 U	0.041 J[ab]	0.075[a]	1[ab]	0.12 J[ab]	0.31 U	0.062 U	0.02 J	0.062 U	1.8[ab]	--	--	0.003 U	0.475[b]	0.001[a]	0.004 U
		09/24/2008	0.1 U	2.5 U	0.03 J[ab]	0.092 J[a]	2[ab]	0.13[ab]	0.5 U	0.037 J	0.036 J	0.1 U	3.4[ab]	--	--	0.003 U	0.514[b]	0.0002 U	0.004 U

TABLE 2
2008 GROUNDWATER EXCEEDANCES
COMPANY VEHICLE OPERATIONS AREA
FORMER WILLOW RUN ASSEMBLY PLANT
YPSILANTI, MICHIGAN

Groundwater Monitoring Wells			*VOCs*										*Metals*					
			1,3-Dichlorobenzene	*Acetone*	*Benzene*	*Chlorobenzene*	*cis-1,2-DCE*	*Ethylbenzene*	*Methylene chloride*	*Toluene*	*trans-1,2-DCE*	*Trichloroethene*	*Vinyl chloride*	*Aluminum*	*Iron*	*Lead*	*Manganese*	*Mercury*	*Vanadium*
Location	**Well ID**	**Sample Date**	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
Off Site Well	GS-7	03/27/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.0019	0.001 U	0.05 U	--	0.003 U	1.99[b]	0.0002 U	0.004 U
		06/19/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.005 U	0.001 U	0.001 U	0.00051 J	0.001 U	--	--	0.003 U	2.9[b]	0.00014 J[a]	0.004 U
		09/24/2008	0.001 U	0.025 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.00058 J	0.001 U	--	--	0.003 U	1.88[b]	0.0002 U	0.004 U
	CRITERIA*																		
Groundwater Surface Water Interface		a	***0.038***	***1.7***	***0.012 X***	***0.047***	***0.62***	***0.018***	***0.047 X***	***0.14***	***1.5***	***0.029 X***	***0.015***			***0.014 X***	***3.6 X***	***0.0000013***	***0.012***
Residential Drinking Water		b	***0.0066***	***0.73***	***0.005 A***	***0.1 A***	***0.07 A***	***0.074 E***	***0.005 A***	***0.79 E***	***0.1 A***	***0.005 A***	***0.002 A***	***0.05 V***	***0.3 E***	***0.004 L***	***0.05 E***	***0.002 A***	***0.0045***
Final Acute Value		c	***0.2***	***30***	***1.8***	***0.85***	***11***	***0.32***	***17***	***1.7***	***28***	***3.5***	***17***			***0.779***	***27.6***	***0.0028D***	***0.22***

Notes

*	Screening criteria is from Michigan Department of Environmental Quality, Act 451, Part 201.
a	Constituent(s) exceeding the Groundwater Surface Water Criteria
b	Constituent(s) exceeding the Residential drinking Water Criteria
c	Constituent(s) exceeding the Final Acute Value. 0
1	GSI and drinking water criteria are not applicable to these locations as they are interior wells. Detections above these criteria were flagged for assessment purposes only.
A	Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 pa 399, mcl 325.1005.
U	Not present at or above the associated value.
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 amended (NREPA).
X	The GSI criteria shown in these tables are protective for surface water that is used as a drinking water source. The criteria shown is the lowest of the human drinking value, wildlife value and the site specific calculated final chronic value.
V	Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the act. Concentrations up to 200 ug/l may be acceptable, and still allow for drinking water use, as part of a site-specific cleanup under section 20120a(2) of the act.
M	Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
J	Estimated Concentration
UJ	Estimated reporting Limit
cis-1,2-DCE	cis-1,2-dichloroethene
trans-1,2-DCE	trans-1,2-dichloroethene

Confidential under FOIA
John McKenna
Arcadis
Jun 18, 2009 08:17

TABLE 3
2008 GROUNDWATER EXCEEDANCES
NATURAL ATTENUATION WELLS
COMPANY VEHICLE OPERATIONS AREA
FORMER WILLOW RUN ASSEMBLY PLANT
YPSILANTI, MICHIGAN

Groundwater Monitoring Wells			*VOCs*					*Metals*										*PCBs*
			cis-1,2-DCE	*Methylene chloride*	*trans-1,2-DCE*	*Trichloroethene*	*Vinyl chloride*	*Aluminum*	*Arsenic*	*Iron*	*Iron (Dissolved)*	*Lead*	*Manganese*	*Manganese (Dissolved)*	*Mercury*	*Selenium*	*Vanadium*	*Aroclor-1260 (PCB-1260)*
Well ID	**Distance (ft) downgradient from the Injection**	**Sample Date**	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
IW-41[1]	Upgradient	03/24/2008	13[abc]	5 U	1 U	3.3[ab]	24[abc]	0.05 U	0.0083	25.3[b]	27.7[b]	0.003 U	14.5[ab]	14.4[ab]	0.0002 U	0.0114[a]	0.004	--
		06/18/2008	30[abc]	4.2 U	0.17 J[b]	6.4[abc]	17[ab]	--	0.0067	14.3[b]	14.2[b]	0.003 U	10.1[ab]	9.36[ab]	0.0002 U	0.0076[a]	0.0025 J	--
		09/25/2008	13[abc]	12 U	2.5 U	2.5 U	52[abc]	--	0.0099	--	18.1[b]	0.003 U	6.47[ab]	5.69[ab]	0.0002 U	0.002 U	0.0022 J	--
IW-44[1]	30	03/24/2008	71[abc]	10 U	0.77 J[b]	3.6[abc]	31[abc]	0.036 J	0.0135[b]	0.759[b]	0.443[b]	0.0021 J	14.8[ab]	13.3[ab]	0.0002 U	0.002 U	0.0085[b]	0.0001 U
		06/18/2008	70[abc]	17 U	0.78 J[b]	3.3 U	95 J[abc]	--	0.0149[b]	0.53[b]	0.255	0.003 U	15.9[ab]	14.7[ab]	0.00014 J[a]	0.002 U	0.0061[b]	0.000054 J
		09/25/2008	160[abc]	36 U	7.1 U	7.1 U	51[abc]	--	0.0219[b]	--	4.82[b]	0.003 U	19.5[ab]	18.5[ab]	0.0002 U	0.002 U	0.0228[ab]	0.00027[a]
IW-45[1]	50	03/25/2008	32[abc]	5 U	0.39 J[b]	15[abc]	2.3[ab]	0.0414 J	0.005 U	0.1 U	0.1 U	0.003 U	0.952[b]	0.247[b]	0.0002 U	0.0299[a]	0.0013 J	--
		06/18/2008	60[abc]	8.3 U	0.46 J[b]	20[abc]	6.3[ab]	--	0.005 U	0.1 U	0.1 U	0.003 U	0.509[b]	0.0516[b]	0.0002 U	0.0341[a]	0.0016 J	--
		09/25/2008	160[abc]	36 U	7.1 U	9.2[abc]	11[ab]	--	0.005 U	--	0.1 U	0.003 U	7.35[ab]	9.06[ab]	0.0002 U	0.0058[a]	0.0037 J	--
IW-55[1]	50	03/25/2008	0.19[b]	0.0081 J[b]	0.018 U	0.53[ab]	0.014 J[b]	0.111[b]	0.0097	2.38[b]	2.43[b]	0.0048[b]	4.73[ab]	5.19[ab]	0.0002 U	0.002 U	0.0049[b]	--
		06/18/2008	0.8[ab]	0.17 U	0.017 J	0.14[ab]	0.54[ab]	--	0.0115[b]	4.1[b]	3.31[b]	0.003 U	7.03[ab]	6.47[ab]	0.0002 U	0.002 U	0.0069[b]	--
		09/25/2008	0.42[b]	0.12 U	0.0089 J	0.25[ab]	0.81[ab]	--	0.0101[b]	--	2.31[b]	0.003 U	5.98[ab]	5.93[ab]	0.0002 U	0.002 U	0.0051[b]	--
MW-18-45	70	03/25/2008	98[abc] / 89[abc]	12 U / 12 U	0.81 J[b] / 0.67 J[b]	3.8[abc] / 3.6[abc]	28[abc] / 24[abc]	0.05 U / 0.0206 J	0.0086 / 0.0103[b]	6.14[b] / 6.08[b]	5.96[b] / 5.85[b]	0.003 U / 0.003 U	1.57[b] / 1.59[b]	1.69[b] / 1.64[b]	0.0002 U / 0.0002 U	0.002 U / 0.002 U	0.004 U / 0.004 U	0.0001 U / 0.0001 U
		06/18/2008	140[abc] / 140[abc]	25 U / 25 U	5 U / 0.95 J[b]	5.2[abc] / 5.5[abc]	20[abc] / 20[abc]	--	0.0133[b] / 0.0109[b]	10.2[b] / 10.1[b]	9.86[b] / 9.42[b]	0.003 U / 0.003 U	1.59[b] / 1.62[b]	1.58[b] / 1.61[b]	0.0002 U / 0.0002 U	0.002 U / 0.002 U	0.004 U / 0.004 U	0.0001 U / 0.0001 U
		09/25/2008	82[abc] / 80[abc]	17 U / 17 U	0.82 J[b] / 3.3 U	3.2 J[ab] / 3.2 J[ab]	14[ab] / 14[ab]	--	0.0238[b] / 0.0256[b]	--	13.3[b] / 13.2[b]	0.003 U / 0.003 U	1.18[b] / 1.24[b]	1.11[b] / 1.09[b]	0.0002 U / 0.0002 U	0.002 U / 0.002 U	0.004 U / 0.004 U	0.0001 U / 0.0001 U
GS-8	100	03/25/2008	64[abc]	10 U	0.47 J[b]	1.9 J[ab]	6[ab]	0.28[b]	0.0098 J	1.37[b]	0.47[b]	0.003 U	2.09[b]	2.22[b]	0.0002 U	0.002 U	0.00081 J	0.0001 U
		06/19/2008	130[abc]	17 U	0.7 J[b]	2.5 J[ab]	10[ab]	--	0.005 U	--	0.129	0.003 U	1.29[b]	1.18[b]	0.0002 U	0.002 U	0.004 U	0.0001 U
		09/25/2008	99[abc]	25 U	5 U	1.4 J[ab]	6.5[ab]	--	0.0049 J	--	0.1 U	0.0022 J	0.916[b]	1.35[b]	0.0002 U	0.002 U	0.0015 J	0.0001 U
	CRITERIA*																	
	Groundwater Surface Water Interface	a	***0.62***	***0.047 X***	***1.5***	***0.029 X***	***0.015***		***0.05 X***			***0.014 X***	***3.6 X***	***3.6 X***	***0.0000013***	***0.005***	***0.012***	***0.0002 M***
	Residential Drinking Water	b	***0.07 A***	***0.005 A***	***0.1 A***	***0.005 A***	***0.002 A***	***0.05 V***	***0.01 A***	***0.3 E***	***0.3 E***	***0.004 L***	***0.05 E***	***0.05 E***	***0.002 A***	***0.05 A***	***0.0045***	***0.0005 A***
	Final Acute Value	c	***11***	***17***	***28***	***3.5***	***17***		***0.68***			***0.779***	***27.6***	***27.6***	***0.0028D***	***0.12***	***0.22***	***ID***

Notes

* Screening criteria is from Michigan Department of Environmental Quality, Act 451, Part 201.
a Constituent(s) exceeding the Groundwater Surface Water Interface Criteria.
b Constituent(s) exceeding the Residential Drinking Water Criteria.
c Constituent(s) exceeding the Final Acute Value.
[1] GSI and drinking water criteria are not applicable to these locations as they are interior wells. Detections above GSI and drinking water criteria were flagged for assessment purposes only.
A Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 pa 399, mcl 325.1005.
ID Insufficient data to develop criterion.
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 amended (NREPA).
L Criteria for lead are derived using a biologically based model, as allowed for under section 20120a(10) of the act, and are not calculated using the algorithms and assumptions specified in pathway-specific rules.
M Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.
X The GSI criteria shown in these tables are protective for surface water that is used as a drinking water source. The criteria shown is the lowest of the human drinking value, wildlife value and the site specific calculated final chronic value.
V Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the act. Concentrations up to 200 ug/l may be acceptable, and still allow for drinking water use, as part of a site-specific cleanup under section 20120a(2) of the act.
U Not present at or above the associated value.
J Estimated Concentration
UJ Estimated reporting Limit
cis-1,2-DCE cis-1,2-dichloroethene
trans-1,2-DCE trans-1,2-dichloroethene

TABLE 4a
2008 GROUNDWATER RESULTS - VOCs
WILLOW RUN BUSINESS CENTER
FORMER WILLOW RUN ASSEMBLY PLANT
YPSILANTI, MICHIGAN

Well ID	Sample Date	*Benzene* mg/L	*Ethylbenzene* mg/L	*Toluene* mg/L	*Vinyl chloride* mg/L	*Xylene (total)* mg/L
BG-4[1]	06/24/2008	0.001 U	0.001 U	0.001 U	**0.014**[b]	0.002 U
	10/01/2008	0.001 U	0.001 U	0.001 U	**0.013**[b]	0.002 U
RD-MW-9	03/28/2008	0.001 U / 0.001 U	0.001 UJ / 0.001 UJ	0.001 U / 0.001 U	--	0.002 U / 0.002 U
	06/24/2008	0.001 U / 0.001 U	0.001 U / 0.001 U	0.001 U / 0.001 U	--	0.002 U / 0.002 U
	10/01/2008	0.001 U / 0.001 U	0.001 U / 0.001 U	0.001 U / 0.001 U	--	0.002 U / 0.002 U
	12/11/2008	0.001 U / 0.001 U	0.001 U / 0.001 U	0.001 U / 0.001 U	--	0.002 U / 0.002 U
RD-MW-10	03/28/2008	0.001 U	0.001 UJ	0.001 U	--	0.002 U
	06/24/2008	0.001 U	0.001 U	0.001 U	--	0.002 U
	10/01/2008	0.001 U	0.001 U	0.001 U	--	0.002 U
	12/11/2008	0.001 U	0.001 U	0.001 U	--	0.002 U
CRITERIA*						
Groundwater Surface Water Interface	a	***0.012 X***	***0.68***	***0.14***	***0.015***	***0.035***
Residential Drinking Water	b	***0.005 A***	***0.074 E***	***0.79 E***	***0.002 A***	***0.28 E***
Final Acute Value	c	***1.8***	***0.32***	***1.7***	***17***	***0.63***

Notes

The monitoring wells RD-MW-9 & RD-MW-10 were sampled for BTEX (Benzene, Toluene, Ethylbenzene, and Xylene).

The background well, BG-4, was sampled for TCL VOCs to monitor the concentrations of vinyl chloride. No other VOCs have been detected at this location during 2008.

* Screening criteria is from Michigan Department of Environmental Quality, Act 451, Part 201.

[1] GSI and drinking water criteria are not applicable to these locations as they are interior wells. Detections above these criteria were flagged for assessment purposes only. Additional pathways have not been evaluated as part of this monitoring program.

a Constituent(s) exceeding the Groundwater Surface Water Criteria.

b Constituent(s) exceeding the Residential Drinking Water Criteria.

c Constituent(s) exceeding the Final Acute Value

A Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 pa 399, mcl 325.1005.

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 amended (NREPA).

X The GSI criteria shown in these tables are protective for surface water that is used as a drinking water source. The criteria shown is the lowest of the human drinking value, wildlife value and the site specific calculated final chronic value.

U Not present at or above the associated value

J Estimated Concentration

UJ Estimated reporting Limit

Table 4b

2008 GROUNDWATER RESULTS - METALS
WILLOW RUN BUSINESS CENTER
FORMER WILLOW RUN ASSEMBLY PLANT
YPSILANTI, MICHIGAN

Locations	Well ID	Sample Date	*Aluminum*	*Arsenic*	*Barium*	*Copper*	*Lead*	*Manganese*	*Mercury*	*Vanadium*
			mg/L	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
Northern Boundary Wells	GS-9	03/31/2008	0.0421 J	0.0114[b]	0.204	0.002 U	0.003 U	1.53[b]	0.0002 U	0.0021 J
		06/23/2008	--	0.0113[b]	0.231	0.002 U	0.003 U	1.97[b]	0.00019 J[a]	0.0024 J
		09/30/2008	--	0.0191[b]	0.307	0.0562[a]	0.0024 J	2.44[b]	0.0002 U	0.0036 J
		12/11/2008	--	0.0228[b] / 0.0212[b]	0.237 / 0.243	0.002 U / 0.002 U	0.003 U / 0.003 U	1.51[b] / 1.55[b]	0.0002 U / 0.0002 U	0.0059[b] / 0.0056[b]
	GS-10	03/28/2008	0.0345 J	0.0263[b]	1.87[a]	0.002 U	0.003 U	4.11[ab]	0.0002 U	0.004 U
		06/23/2008	--	0.0199[b]	2.2[ab]	0.00074 J	0.003 U	4.8[ab]	0.0002 U	0.004 U
		09/30/2008	--	0.0243[b]	2.37[ab]	0.002 U	0.003 U	4.59[ab]	0.0002 U	0.004 U
		12/10/2008	--	0.0286[b]	1.95[a]	0.002 U	0.003 U	3.71[ab]	0.0002 U	0.004 U
	GS-11	03/28/2008	0.0599[b]	0.0132[b]	0.345	0.002 U	0.003 U	1.77[b]	0.0002 U	0.004 U
		06/23/2008	--	0.0149[b]	0.423	0.00043 J	0.003 U	2.12[b]	0.0002 U	0.004 U
		09/30/2008	--	0.0169[b]	0.516	0.002 U	0.003 U	2.01[b]	0.0002 U	0.004 U
		12/10/2008	--	0.0163[b]	0.461	0.002 U	0.003 U	1.76[b]	0.0002 U	0.004 U
	GS-12	03/31/2008	0.223[b]	0.005 U	0.258	0.002 U	0.003 U	0.983[b]	0.0002 U	0.0011 J
		06/23/2008	--	0.005 U	0.342	0.002 U	0.003 U	1.16[b]	0.0002 U	0.004 U
		09/30/2008	--	0.005 U	0.325	0.002 U	0.003 U	1.46[b]	0.0002 U	0.004 U
		12/10/2008	--	0.005 U	0.414	0.002 U	0.003 U	2.28[b]	0.0002 U	0.004 U
	GS-13	04/01/2008	0.0617[b]	0.005 U	0.192	0.002 U	0.003 U	1.73[b]	0.0002 U	0.004 U
		06/23/2008	--	0.005 U	0.35	0.0011 J	0.003 U	3.44[b]	0.0002 U	0.004 U
		09/30/2008	--	0.005 U	0.337	0.002 U	0.003 U	3.08[b]	0.0002 U	0.004 U
		12/10/2008	--	0.005 U	0.174	0.002 U	0.003 U	1.66[b]	0.0002 U	0.004 U
	GS-14	04/01/2008	0.05 U	0.005 U	0.11	0.002 U	0.003 U	1.47[b]	0.0002 U	0.004 U
		06/23/2008	--	0.0049 J	0.0948 J	0.0013 J	0.003 U	1.27[b]	0.0002 U	0.004 U
		09/30/2008	--	0.0046 J	0.108	0.002 U	0.003 U	1.33[b]	0.0002 U	0.004 U
		12/10/2008	--	0.005 U	0.13	0.002 U	0.003 U	1.89[b]	0.0002 U	0.004 U
	GS-15	03/31/2008	0.304[b]	0.005 U	0.0621 J	0.0004 J	0.003 U	0.737[b]	0.0002 U	0.004 U
		06/23/2008	--	0.0036 J	0.0613 J	0.00083 J	0.003 U	0.388[b]	0.0002 U	0.004 U
		09/30/2008	--	0.005 U	0.0801 J	0.002 U	0.003 U	0.837[b]	0.0002 U	0.004 U
		12/10/2008	--	0.005 U	0.0673 J	0.002 U	0.003 U	1.1[b]	0.0002 U	0.004 U
Interior Wells[1]	MW-5A	03/31/2008	0.05 U	0.005 U	0.0802 J	0.002 U	0.003 U	2.47[b]	0.0002 U	0.004 U
		06/23/2008	--	0.0152[b]	0.0992 J	0.00037 J	0.003 U	2.69[b]	0.00022[a]	0.004 U
		09/30/2008	--	0.0143[b]	0.0974 J	0.002 U	0.003 U	2.72[b]	0.0002 U	0.004 U
		12/11/2008	--	0.0053	0.0999 J	0.002 U	0.003 U	2.41[b]	0.0002 U	0.004 U
	RD-MW-9	03/28/2008	0.05 U / 0.0241 J	0.0041 J / 0.0038 J	0.47 / 0.487	0.002 U / 0.002 U	0.003 U / 0.003 U	0.443[b] / 0.451[b]	0.0002 U / 0.0002 U	0.004 U / 0.004 U
		06/24/2008	--	0.0071 / 0.0099	0.478 / 0.472	0.002 U / 0.002 U	0.003 U / 0.003 U	0.436[b] / 0.441[b]	0.0002 U / 0.0002 U	0.004 U / 0.004 U
		10/01/2008	--	0.0092 / 0.0078	0.503 / 0.552	0.002 U / 0.002 U	0.003 U / 0.003 U	0.392[b] / 0.413[b]	0.0002 U / 0.0002 U	0.004 U / 0.004 U
		12/11/2008	--	--	--	--	--	--	--	--
	RD-MW-10	03/28/2008	0.0489 J	0.005 U	0.859	0.00039 J	0.003 U	1.05[b]	0.0002 U	0.004 U
		06/24/2008	--	0.0025 J	0.705	0.00058 J	0.003 U	0.804[b]	0.0002 U	0.004 U
		10/01/2008	--	0.0052	1.05	0.002 U	0.003 U	1[b]	0.0002 U	0.004 U
		12/11/2008	--	--	--	--	--	--	--	--
	*MDEQ CRITERIA**									
Groundwater Surface Water Interface		a		***0.05 X***	***1.866 X***	***0.0287***	***0.014 X***	***3.6 X***	***0.0000013***	***0.012***
Residential Drinking Water		b		***0.01 A***	***2 A***	***1 E***	***0.004 L***	***0.05 E***	***0.002 A***	***0.0045***
Final Acute Value		c		***0.68***	***10.7***	***0.0972***	***0.779***	***27.6***	***0.0028D***	***0.22***

Notes

Only Metals exceeding the Part 201 Criteria are presented in Table 5b, with the exception of lead.
The analytical results for Lead are presented in this table since lead is the constituent of concern (COC) for MW-5A.
* Screening criteria is from Michigan Department of Environmental Quality, Act 451, Part 201
[1] GSI and drinking water criteria are not applicable to these locations as they are interior wells. Detections above these criteria were flagged for assessment purposes only.
a Constituent(s) exceeding the Groundwater Surface Water Interface Criteria
b Constituent(s) exceeding the Residential Drinking Water Criteria
c Constituent(s) exceeding the Final Acute Value
A Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 pa 399, mcl 325.1005.
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 amended (NREPA)
L Criteria for lead are derived using a biologically based model, as allowed for under section 20120a(10) of the act, and are not calculated using the algorithms and assumptions specified in pathway-specific rules.
X The GSI criteria shown in these tables are protective for surface water that is used as a drinking water source. The criteria shown is the lowest of the human drinking value, wildlife value and the site specific calculated final chronic value.
U Not present at or above the associated value
J Estimated Concentration
UJ Estimated reporting Limit

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John McKenna
Arcadis
Jun 18, 2009 08:17

TABLE 5
2009 GROUNDWATER MONITORING PROGRAM
FORMER WILLOW RUN ASSEMBLY PLANT
YPSILANTI, MICHIGAN

	March 2009	September 2009
	Semi-Annual	Semi-Annual
CVO Property		
Northern Boundary Wells		
GS-3	A, Al	A
GS-4	A, Al	A
GS-6	A	A
GS-8	A	A
Southern Boundary Wells		
MW19-02	A	A
MW19-24	A	A
Interior Wells		
MW18-07	A	--
MW18-45	A	A
WRBC		
Northern Boundary Wells		
GS-9	B, Al	B
GS-10	B, Al	B
GS-11	B, Al	B
GS-12	B, Al	B
GS-13	B, Al	B
GS-14	B, Al	B
GS-15	B, Al	B
Interior Wells		
RD-MW-9	E	E
RD-MW-10	E	E
MW-5A	B	B
BG-4	A	A

Notes

A - Total Contaminant List (TCL) Volatile Organic Compounds (VOCs)

B - Site (Target Analyte List) TAL Metals

E - Benzene Toluene Ethylbenzene Xylene (BTEX)

Al - Aluminum