Memorandum

Revised March 7, 2017
March 6, 2017

To:	Nate Nemani (U.S. EPA)	Ref. No.:	058502
	J.E.P.		
From:	John-eric Pardys/kf/24		
cc:	Dave Favero, RACER		

Subject: Proposed Monitoring Well Abandonments

The following memorandum was prepared to request U.S. EPA concurrence to properly abandon monitoring wells on a portion of Revitalizing Auto Community Environmental Response's (RACER's) Saginaw Nodular Industrial Land (Site) in Saginaw, Michigan, tax parcel 21-4333-00000. The Site location is presented on Figure 1.1 and the Site Plan is presented on Figure 1.2.

RACER is requesting approval to abandon all monitoring wells located on tax parcel 21-4333-00000 to facilitate redevelopment of the property. RACER will re-install the monitoring wells following the redevelopment of the Site with the exception of the following monitoring wells, which RACER proposes to remain permanently abandoned. See below for the rationale behind the proposed permanent monitoring well abandonments:

- MW-12 – the purpose behind the installation of this monitoring well is unknown. This monitoring well is currently not being utilized as part of any sampling program at the Site nor is there any perceived purpose for its use in the future.
- MW-3, MW-9, MW-17, and MW-18 – monitoring well locations were installed to assist with the closure of a RCRA unit, the "Existing Calcium Carbide Desulfurization Slag Treatment Bunker (AOI G.5). Closure approval was received from MDEQ on February 27, 2004. In addition the monitoring wells are in close proximity to each other and screened in the same unit. Please note that one of the monitoring wells in this area has been kept to complete on-going monitoring of ammonia and pH as part of the annual Environmental Indicator (EI) sampling program. A copy of the most recent EI figure is provided in Attachment A.
- MW-04333, MW-04433, MW-04435, and MW-04534 – monitoring well locations were installed as part of the RFI. As of 2012 the available information indicated that there was no unacceptable risk to human health or the environment at the Property based on current and reasonable anticipated future land use, with the exception of a potential for unacceptable non-cancer hazards to a hypothetical on-Site construction worker from Ingestion and Dermal Contact exposures to elevated ammonia and high pH levels in shallow groundwater, which are continuing to be evaluated as part of the EI monitoring program. These monitoring wells are currently not being utilized as part of any sampling program at the Site nor is there any perceived purpose for their use in the future. In addition, the ground surface around

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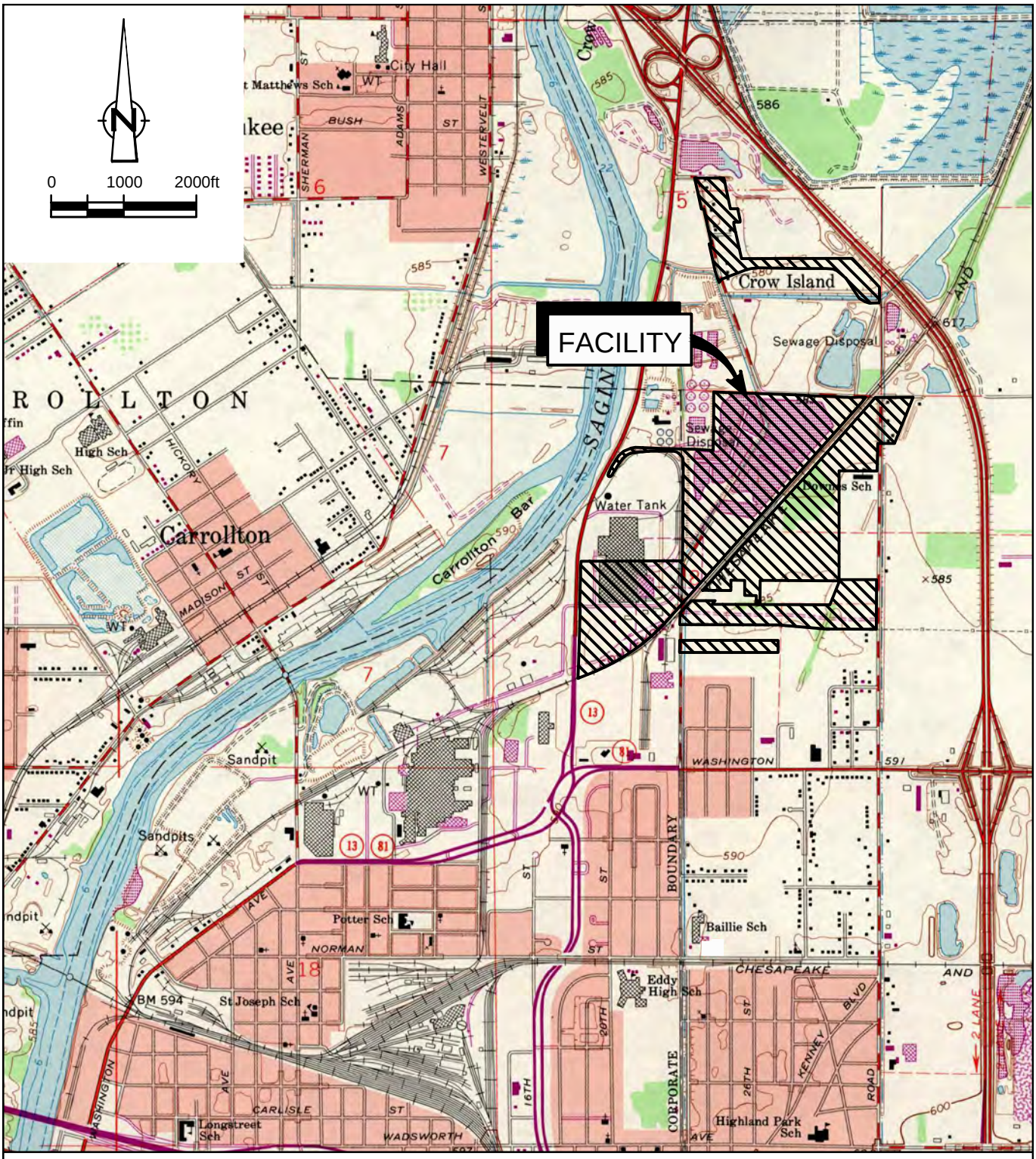
monitoring wells MW-04333, MW-04433, and MW-04534 are typically under water and MW-04435 is located directly beside the GM haul road and has the potential to be damaged.

The monitoring wells proposed for permanent abandonment are highlighted on Figure 1.2. Table 1 presents a summary of the monitoring well details for the monitoring wells on tax parcel 21-4333-00000 and those monitoring wells proposed for permanent abandonment. Prior to abandonment a full round of Environmental Indicator (EI) sampling will be conducted.

Temporarily abandoned wells will be re-installed when redevelopment activities are substantially complete and it is safe to re-install the wells.

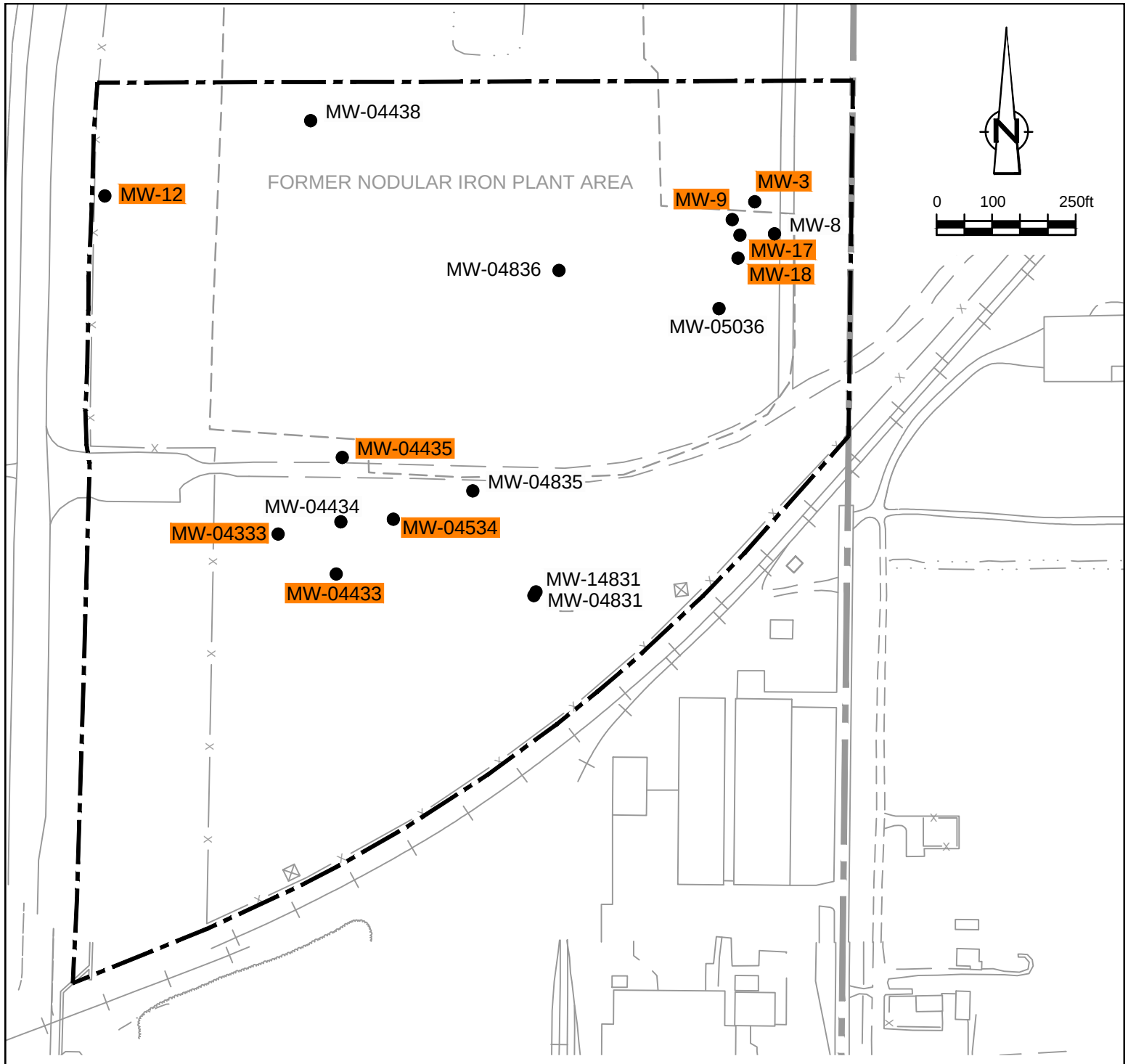
Please review and let us know if you have any questions or if you concur with abandonment of the wells proposed.

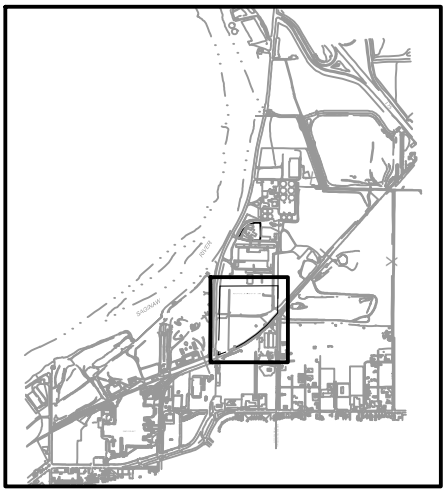


SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE; SAGINAW, MICHIGAN 1967

figure 1.1

SITE LOCATION
REVITALIZING AUTOMOTIVE COMMUNITY
ENVIRONMENTAL RESPONSE
Saginaw, Michigan





KEY MAP
SCALE: 1" = 4500'

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- MONITORING WELL LOCATION
- MONITORING WELL PROPOSED FOR PERMANENT ABANDONMENT

NOTE:
MICHIGAN SOUTH STATE PLANE COORDINATE SYSTEM NAD 83, IN U.S. INTERNATIONAL FEET.

figure 1.2

SITE PLAN
REVITALIZING AUTOMOTIVE COMMUNITY ENVIRONMENTAL RESPONSE
Saginaw, Michigan

Table 1

Monitoring Well Details
Portion of RACER's Saginaw Nodular Industrial Land (Tax Parcel 21-4333-00000)
Saginaw, MI

Well Id	Coordinates x	Coordinates y	Purpose	Historical reference elevation	Flushmount(F)/ Stick-up(S)	Status	DTB (ft)	Screen Interval (ft)			Log	Diameter (inches)	Unit	Current Use (Annual Water Level/EI Analysis)
Investigative Unit G														
MW-04333	13244484.53	713379.05	RFI	589.04	**S**	Active							shallow	AWL
MW-04433	13244589.04	713307.48	RFI	589.11	**S**	Active							shallow	AWL
MW-04434	13244597.24	713400.98	RFI	589.81	**S**	Active	16.00	4.38	-	9.14	Y	2.00	shallow	AWL
MW-04435	13244599.80	713516.43	RFI	589.18	**S**	Active							shallow	AWL
MW-04438	13244543.15	714120.63	RFI	589.66	**S**	Active							shallow	AWL
MW-04534	13244691.31	713405.68	RFI	590.48	**S**	Active							shallow	AWL
MW-04831	13244943.52	713268.65	RFI	591.36	**S**	Active	28.00	6.24	-	15.98	Y	2.00	shallow	AWL
MW-04835	13244833.98	713456.56	RFI	589.97	**S**	Active							shallow	AWL
MW-04836	13244988.56	713852.04	RFI	592.12	**S**	Active							shallow	AWL/EI
MW-05036	13245275.65	713783.30	RFI	591.95	**S**	Active	32.00	5.94	-	15.68	Y	2.00	shallow	AWL/EI
MW-14831	13244947.18	713275.05	RFI	591.31	**S**	Active	38.05	33.27	-	37.99	Y	2.00	intermediate	AWL
MW-17	13245313.14	713915.25	RCRA Closure - G.5	592.94	**S**	Active	17.67	4.00	-	14.00	Y	4.00	shallow	AWL
MW-18	13245309.57	713873.91	RCRA Closure - G.5	593.12	**S**	Active	18.25	4.70	-	14.70	Y	4.00	shallow	AWL
MW-3	13245339.69	713975.08	RCRA Closure - G.5	592.34	**S**	Active	15.01						shallow	AWL
MW-8	13245375.07	713917.58	RCRA Closure - G.5	590.69	**S**	Active	15.05						shallow	AWL/EI
MW-9	13245299.40	713943.13	RCRA Closure - G.5	592.17	**S**	Active	15.03						shallow	AWL
MW-12			unknown		**S**	Active	15.02				N	4.00	shallow	None

Notes:

proposed for permanent abandonment

Attachment A

MW-04757	11/16/1998	7/18/2000	1/5/2003	1/25/2005	8/31/2006	9/12/2007	11/12/2008	12/2/2009	11/30/2010	11/1/2011	11/7/2012	7/16/2013	11/12/2013	11/14/2014	11/3/2015	11/7/2016
Ammonia	-	-	700	-	-	-	170	178	300	-	14000	1700 J/1100 J	200 U	220	300	280
Chromium	126 J	97.1	-	5.0 U	5 U	5 U	11.5 J	-	-	-	-	-	-	-	-	-
Chromium VI (hexavalent)	-	10 U	-	-	50 UJ	50 U	R	50 U	6 J	-	-	-	-	-	-	-
Cyanide (amenable)	-	-	-	-	-	-	-	-	10 U	10 UJ	10 U	-	10 U	-	-	-
Cyanide (total)	10 U	7	-	-	8 J	10 U	10	10 U	10 U	10 UJ	10 U	-	10 U	-	-	-
Un-ionized ammonia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	5.5
Vanadium	54 J	36.3	-	10.0 U	10 U	10 U	10 U	-	-	-	-	-	-	-	-	-

MW-04257	1/29/2004	1/24/2005	9/12/2007	11/12/2008	12/3/2009	11/30/2010	11/2/2011	11/8/2012	7/16/2013	11/12/2013	11/14/2014	11/3/2015	11/8/2016
Ammonia	-	990	-	1170	1070	1200	820	340	-	630	350	620	380
Chromium	-	5.0 U	150	116 J	-	-	-	-	-	-	-	-	-
Chromium VI (hexavalent)	-	-	50 U	R	5 J	10 J	20 UJ	20 U	-	-	-	-	-
Cyanide (amenable)	-	-	-	-	R	10 U	10 UJ	10 U	-	10 U	-	-	-
Cyanide (total)	-	-	10 U	10 U	R	10 U	10 UJ	10 U	-	10 U	-	-	-
pH	6.90	7.25/6.79	7.27	7.13 J/7.15	6.97 J/6.64	7.2 J/6.84	7.0 J/6.88	6.79/6.97 J	7.22	7.30 J/7.35	7.32 J	6.96 J	7.06
Un-ionized ammonia	-	-	-	-	-	-	-	-	-	-	-	5	1.8
Vanadium	-	10.0 U	10 U	10 U	10.0 U	-	-	-	-	-	-	-	-

MW-04051	1/29/2004	1/21/2005	10/8/2005	9/14/2007	11/5/2008	12/3/2009	11/23/2010	11/1/2011	11/8/2012	7/16/2013	11/12/2013	11/14/2014	11/3/2015	11/8/2016
Ammonia	-	3450	-	-	6330	5170	5600	5300/5700	5800	-	4600	4400	5800	530
Chromium	-	5.0 U	-	5 U	5 U	-	-	-	-	-	-	-	-	-
Chromium VI (hexavalent)	-	-	-	50 UJ	50 UJ	8 J	200 U	9.7 J/4.7 J	100 U	-	-	-	-	-
Cyanide (amenable)	-	-	-	4 J	-	R	10 U	10 UJ/10 UJ	10 U	-	10 U	-	-	-
Cyanide (total)	-	-	-	4 J	10 U	R	10 U	10 UJ/10 UJ	10 U	-	10 U	-	-	-
Mercury	-	-	-	0.0007 J	0.001 U	R	0.0005 UJ	0.0005 UJ/0.0005 UJ	0.20 U	-	-	-	-	-
pH	7.48	6.53/6.91	6.69	7.30	6.76/6.98 J	6.83 J/6.05	6.727.6 J	6.58/6.8 J/6.8 J	6.88/6.89 J	6.85	7.03 J/6.94	7.13 J	6.60 J	6.71
Un-ionized ammonia	-	-	-	-	-	-	-	-	-	-	-	-	19	1.3
Vanadium	-	10.0 U	-	10 U	10 U	10.0 U	-	-	-	-	-	-	-	-

MW-03945	1/29/2004	1/21/2005	10/8/2005	9/14/2007	11/5/2008	12/3/2009	11/23/2010	11/1/2011	11/8/2012	7/16/2013	11/12/2013	11/14/2014	11/3/2015	11/8/2016
Ammonia	-	7700/7700	-	-	8880	7690/8040	7000/7200	6700	8800	9100	5100	7300	7600	7400
Chromium	-	5.0 U/5.0 U	-	5 U	5 U	-	-	-	-	-	-	-	-	-
Chromium VI (hexavalent)	-	-	-	50 UJ	50 UJ	8 J/8 J	200 U/200 U	3.4 J	200 U	-	-	-	-	-
Cyanide (amenable)	-	-	-	-	-	R/R	10 U/10 U	10 UJ	10 U	-	10 U	-	-	-
Cyanide (total)	-	-	-	6 J	2 J	R/R	10 U/10 U	10 UJ	10 U	-	10 U	-	-	-
Mercury	-	-	-	0.0008 J	0.001 U	R/R	0.0005 UJ/0.0005 UJ	0.0005 UJ	0.20 U	-	-	-	-	-
pH	7.31	6.32/6.82/6.87	6.57	7.22	6.69/6.87 J	6.69/6.64 J/6.59 J	6.89/6.9 J/6.9 J	6.57/6.7 J	6.70 J/6.63	6.68	6.93 J/6.7	7.01 J	6.63 J	6.56
Un-ionized ammonia	-	-	-	-	-	-	-	-	-	-	-	-	20	11.3
Vanadium	-	10.0 U/10.0 U	-	10 U	10 U	10.0 U/10.0 U	-	-	-	-	-	-	-	-

MW-04250	12/4/1998	7/18/2000
Chromium	186/173	28
Chromium (dissolved)	5 U/5 U	5 U
Chromium VI (hexavalent)	-	10 U
Cyanide (total)	10 U/10 U	7
Mercury	0.2/0.2 U	-
Mercury (dissolved)	0.2 U/0.2 U	-
Vanadium	89/84	33

MW-04250R	9/28/2005	10/7/2005	8/31/2006	9/13/2007	11/5/2008	12/17/2008	12/3/2009	11/23/2010	11/1/2011	11/8/2012	7/16/2013	11/12/2013	11/14/2014	11/3/2015	11/7/2016
Ammonia	-	-	-	-	-	4080	4330	9100	4400	4800/6800	-	5000/5200	2700 J/1600 J	2200/2400	2700/2900
Chromium	5.5	-	2.2 J/2.2 J	5 U	5 U/5 U	-	-	-	-	-	-	-	-	-	-
Chromium VI (hexavalent)	-	-	20 J/20 J	50 U	50 UJ/50 UJ	-	50 UJ	40 U	20 UJ	20 U/20 U	-	-	-	-	-
Cyanide (amenable)	-	-	-	-	-	-	R	10 U	10 UJ	10 U/10 U	-	10 U/10 U	-	-	-
Cyanide (total)	-	-	30 J/140 J	10 U	10 U/10 U	-	R	10 U	10 UJ	10 U/10 U	-	10 U/10 U	-	-	-
Mercury			0.0041/0.00443	0.0062	0.00477/0.0462	-	0.0027 J	0.00065 UJ	0.0024 J	0.20 U/0.20 U	-	0.20 U/0.20 U	0.20 U/0.20 U	0.20 U/0.20 U	0.20 U/0.20 U
pH	11.01 J	10.48	11.16/11.12	10.90	10.76 J/10.85 J	10.98	10.67/10.72 J	9.9 J/10.05	9.3 J/9.43	9.55 J/9.95/9.49 J	10.83	9.79/9.68 J/9.68 J	9.98 J/10.0 J	9.26 J/9.31 J	8.77
Un-ionized ammonia	-	-	-	-	-	-	-	-	-	-	-	-	-	122	60.3
Vanadium	13.7	-	6.8 J/6.1 J	10 U	10 U/10 U	-	10.0 U	-	-	-	-	-	-	-	-

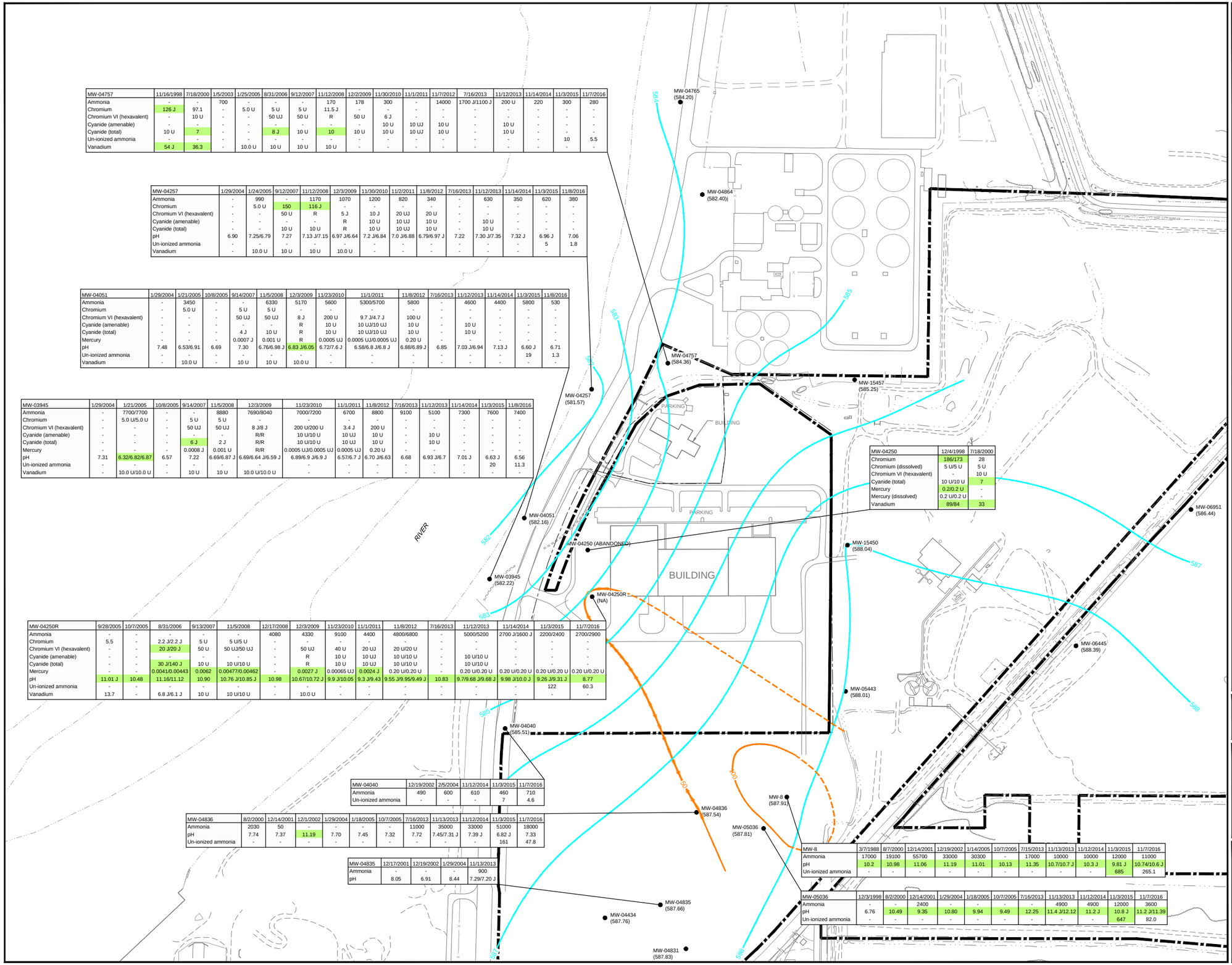
MW-04040	12/19/2002	2/5/2004	11/12/2014	11/3/2015	11/7/2016
Ammonia	490	600	610	460	710
Un-ionized ammonia	-	-	-	7	4.6

MW-04836	8/2/2000	12/14/2001	12/1/2002	1/29/2004	1/18/2005	10/7/2005	7/16/2013	11/13/2013	11/12/2014	11/3/2015	11/7/2016
Ammonia	2030	50	-	-	-	-	11000	35000	33000	51000	18000
pH	7.74	7.37	11.19	7.70	7.45	7.32	7.72	7.45/7.31 J	7.39 J	6.82 J	7.33
Un-ionized ammonia	-	-	-	-	-	-	-	-	-	161	47.8

MW-04835	12/17/2001	12/19/2002	1/29/2004	11/13/2013
Ammonia	-	-	-	900
pH	8.05	6.91	8.44	7.29/7.20 J

MW-8	3/7/1988	8/7/2000	12/14/2001	12/19/2002	1/14/2005	10/7/2005	7/15/2013	11/13/2013	11/12/2014	11/3/2015	11/7/2016
Ammonia	17000	19100	55700	33000	30300	-	17000	10000	10000	12000	11000
pH	10.2	10.98	11.06	11.19	11.01	10.13	11.35	10.7/10.7 J	10.3 J	9.81 J	10.74/10.6 J
Un-ionized ammonia	-	-	-	-	-	-	-	-	-	685	265.1

MW-05036	12/3/1998	8/2/2000	12/14/2001	1/29/2004	1/18/2005	10/7/2005	7/16/2013	11/13/2013	11/12/2014	11/3/2015	11/7/2016
Ammonia	-	-	2400	-	-	-	-	4900	4900	12000	3600
pH	6.76	10.49	9.35	10.80	9.94	9.49	12.25	11.4 J/12.12	11.2 J	10.8 J	11.2 J/11.39
Un-ionized ammonia	-	-	-	-	-	-	-	-	-	647	82.0



0 100 200 ft

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- MW-04765 ● MONITORING WELL LOCATION
- (582.12) GROUNDWATER ELEVATION - NOVEMBER 2015
- 586 UPPER WATER BEARING ZONE GROUNDWATER CONTOUR - FT. AMSL (NAVD 88) - NOVEMBER 2015
- 420 UN-IONIZED AMMONIA CONTOUR

MW-04765	1/21/2005	9/12/2007
Metals		
Chromium Total	5.0 U	4.3 J
Chromium VI (Hexavalent)	-	50 U
Vanadium	10.0 U	5.5 J
Wet		
Ammonia	9000	1150
Cyanide (total)	-	3.3
pH	-	7.44

SAMPLE LOCATION
SAMPLE DATE
RESULT (ug/L) EXCEPT pH WHICH IS IN s.u.
PARAMETER

EXCEEDS CRITERIA

MICHIGAN PART 201 CRITERIA

fraction	Parameter	Lowest Criteria (ug/L or s.u. for pH)	
METAL	Chromium (total)	100	A
METAL	Chromium (VI)	11	B
METAL	Mercury	0.0013	B
METAL	Vanadium	12	B
WET	Cyanide (total)	5.2	B
WET	Cyanide (amenable)	5.2	B
WET	pH	6.5 - 8.5	A
WET	Unionized Ammonia	420	B

Chromium (total) use Chromium III (Trivalent) criteria.
A: Non-Residential Drinking Water Criteria
B: GSI Criteria

NOTES:

1. SEE TABLE 1 FOR HOW UNIONIZED AMMONIA WAS CALCULATED.
2. NOTE THAT THE GSI CRITERIA DEVELOPED FOR TOTAL CHROMIUM WAS DEVELOPED FROM THE FINAL CHRONIC VALUE CALCULATION FOR TRIVALENT CHROMIUM, AS SPECIFIED IN THE MDEQ GUIDANCE. TOTAL CHROMIUM RESULTS WERE COMPARED TO TRIVALENT CHROMIUM CRITERIA SINCE EXTENSIVE SITE DATA SUPPORTS THAT THE MAJORITY OF THE TOTAL CHROMIUM IS TRIVALENT CHROMIUM. HEXAVALENT CHROMIUM IS STILL SAMPLED AT NUMEROUS LOCATIONS AND IS COMPARED TO HEXAVALENT CHROMIUM CRITERIA.
3. GROUNDWATER ELEVATION NOT USED IN DETERMINATION OF GROUNDWATER CONTOURS.

SCALE VERIFICATION

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

RACER
NODULAR IRON INDUSTRIAL LAND

SAGINAW, MICHIGAN

SUMMARY OF EI LOCATIONS AND RESULTS (1998 - 2016)

GHD

Source Reference:

Project Manager:	Reviewed By:	Date:	
M.T.	J.P.	DECEMBER 2016	
Scale: 1" = 200'	Project N²: 58502-T01	Report N²: NEMA033	Drawing N²: figure 1

58502-T01(NEMA033)GN-WA001 DEC 23, 2016