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August 25, 2009

SEP 1 2009

Mr. John Feeney
Wisconsin Department of Natural Resources
1155 Pilgrim Road
Plymouth, WI 53703-0408

Subject: January Through June 2009 Semiannual Status Report
Monitored Natural Attenuation Demonstration
Tecumseh Products Company, Grafton, Wisconsin
WDNR FID #24009170, BRRTS #02-46000751

Dear Mr. Feeney:

Monitored natural attenuation (MNA) is ongoing at the Tecumseh Products Company (Tecumseh) in Grafton, Wisconsin. In December 2007, RMT, Inc. (RMT), on behalf of Tecumseh, submitted an MNA Demonstration Workplan to the Wisconsin Department of Natural Resources (WDNR), which outlined four rounds of semiannual monitoring to be completed at the site. The WDNR approved this plan in a Conceptual Approval letter dated March 5, 2008. The first two rounds of sampling were completed in April and October 2008, and RMT submitted Status Letter Reports to the WDNR on June 23, 2008, and January 8, 2009, respectively. RMT completed the third round of sampling in April 2009. The purpose of this letter is to document the April 2009 sampling results and the additional activities that have occurred at the site since December 2008.

Additional Activities

Status of Additional Activities

Within the WDNR's Conceptual Approval of the MNA Workplan, the WDNR specified additional items that must be addressed at the site in preparation for a future request for closure. These items and the status of work on the items are as follows:

1. *Submit maps of where residual soil and groundwater contamination is located.*

   This will be done as part of a formal closure request.

2. *Complete additional investigation of the groundwater to the east of the plant near the Heiser well, and assess the vapor intrusion risk associated with the downgradient plume.*

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These items were completed last year, and were summarized in the January 8, 2009, Status Letter.

3. *Determine if other water supply wells are in the area near the plume.*

This item has been completed since the last Status Letter, and the results are discussed in detail below.

4. *Conduct a vapor intrusion assessment of the Tecumseh building.*

A Subslab Vapor Sampling Plan was submitted to the WDNR in July 2009, and was approved by the WDNR in a letter dated August 11, 2009. Tecumseh plans to complete the sampling program in the fall of 2009, and will provide the WDNR with a formal vapor intrusion assessment for the facility following implementation of the sampling program.

5. *All institutional controls for the site should be in place prior to the start of the MNA program.*

This item has been completed.

Private Well Locations

RMT, on behalf of Tecumseh, contacted Mr. Timothy Nenning, the Utility Superintendent for the Village of Grafton, Wisconsin, to obtain a list of private wells that may still be operable. Based on the data available to Mr. Nenning, 16 wells within the Village of Grafton have an operating permit or their operating status is unknown. The location of these wells, and information on their operating status are shown on Figure 1.

- Four wells in the Village are still in operation, and the church property on which these wells are located is not served by municipal water.
- Four wells in the Village are still in operation, but the properties on which they are located have municipal water service.
- Five wells in the Village do not have an operating permit, but also do not have a record of being abandoned, so their operating status is unknown. The properties on which they are located are all served by municipal water.
- Three wells in the Village are at a location where the structure on the property has been removed, but there is no record for the well abandonment.

None of the private wells that have an operating permit with the Village are within the groundwater flow path for the plume that extends from the Tecumseh facility. The closest private well downgradient from the plume is located at 1863 Washington Street, and the operating status of this well is unknown. This private well is approximately 3,500 feet downgradient from the Tecumseh property, and 1,500 feet downgradient from the sentinel well MW-20BR, which currently has non-detectable levels of chlorinated VOCs. Based on the evaluation of the private wells included the Village's database, the groundwater contaminant plume that extends from the Tecumseh property does not pose a threat to any of the private wells in the Village of Grafton.

Semiannual Monitoring

Sampling Method

The third round of semiannual groundwater monitoring was completed between April 20 and 22, 2009 for the wells shown on Figure 2. Groundwater samples were collected using low-flow purging and sampling methods. (The previous consultants did not use low-flow sampling methods; however, low-flow sampling was specified for the implementation of the MNA Demonstration workplan.) Groundwater samples were sent to Pace Analytical Services, Inc., and laboratory-analyzed for chloride, iron, manganese, nitrogen, sulfate, total organic carbon (TOC), and chlorinated volatile organic compounds (CVOCs). The laboratory reports for this period are included in Attachment A. In addition, the water level, pH, specific conductivity, temperature, oxidation-reduction potential (ORP), and dissolved oxygen (DO) concentration of the groundwater samples were measured in the field.

Results

The results of the CVOC analysis are summarized in Table 1, and the results of the field parameter measurements and nonvolatile compound laboratory analyses are summarized in Table 2.

For the on-site wells in the West Dock Area, reductive dechlorination continues to control the transport of trichloroethylene (TCE) in the groundwater, as demonstrated by the decrease in concentration of TCE between MW-25 and downgradient well MW-26, and the concurrent increase in the concentration of the breakdown products cis-1,2-dichloroethylene (cis-1,2-DCE) and vinyl chloride between these two wells. In addition, reducing conditions persist in this area, with ORP less than -50mV and DO less than 1 ppm. The rebound in the concentration TCE in MW-25 observed during the October 2008 monitoring event was not observed during this most recent sampling round. Based on the most April 2009 data, an overall decreasing trend in the concentration of TCE is apparent in MW-25. The trend in TCE in MW-25 will be evaluated more completely following the next monitoring event.

For the on-site wells along the eastern property line, the concentration of TCE remains relatively stable. For the off-site downgradient wells, the concentration of TCE remains stable in each of the wells, with the exception of MW-18BR2 and MW-19BR1, which show slight increasing trends. However, reductive dechlorination is ongoing within these areas of the plume, as demonstrated by the elevated concentration of cis-1,2-DCE at these wells.

Within the January 2009 status letter, the issue was raised as to whether the samples from MW-19BR1 and MW-19BR2 were mislabeled in some past events, because the labeling of the sample ports for this well nest left room for interpretation by the sampler. Although during previous monitoring events there is suspicion of inadvertent mislabeling, in February 2009, RMT confirmed the identity of the sample ports for MW-19BR1 and MW-19BR2 by measuring the hydraulic head in each well. Since RMT has been responsible for monitoring this well nest, the samples collected for MW-19BR1 and MW-19BR2 have consistently represented the data from the shallow and deep bedrock aquifer, respectively.

RMT expects to complete the next round of groundwater monitoring in October 2009. A letter documenting the site activities and the groundwater sampling results will be submitted to the WDNR the following summer.

Please feel free to contact Mr. Tom Stolzenburg, at 608-662-5287, or Alyssa Sellwood, at 608-662-5480, if you have any questions.

Sincerely,

RMT, Inc.

M Colegrove for Alyssa Sellwood

Alyssa Sellwood, P.E.
Project Engineer

Thomas Stolzenburg

Thomas R. Stolzenburg
Senior Project Manager

Attachments: Tables 1 and 2
Figures 1 and 2
Attachment A – Laboratory Reports

cc: Jason Smith – Tecumseh Products Company
Henry Handzel – DeWitt, Ross, and Stevens
John Rice – RMT

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Laboratory Reports

Table 1
Summary of Chlorinated VOCs Detected in Groundwater (µg/L)
Tecumseh Products Company - Grafton, Wisconsin

WELL I.D.	SAMPLE DATE	TCE	CIS-1,2-DCE	TRANS-1,2-DCE	VINYL CHLORIDE	1,1,1-TCA	1,1-DCA	1,1-DCE	CHLORO-ETHANE
On-Site Monitoring Wells									
NR 140 Enforcement Standard		**5**	**70**	**100**	**0.2**	**200**	**850**	**7**	**400**
NR 140 Preventive Action Limit		**0.5**	**7**	**20**	**0.02**	**40**	**85**	**0.7**	**80**
On-Site Monitoring Wells - West Dock Area									
MW-25	4/30/2008	**354**	4.7 J	< 4.4	< 0.9	< 4.5	< 3.8	< 2.8	< 4.8
	10/8/2008	**3,770**	**534**	<22.2	**48.3**	<22.5	<18.8	<14.2	<24.2
	4/20/2009	**324**	5.1	< 1.8	< 0.36	< 1.8	< 1.5	< 1.1	< 1.9
MW-26	4/30/2008	**39.5**	**345**	2.8 J	**210**	< 2.2	7.3	3.3 J	10
	10/8/2008	**44.3**	**721**	*39*	**148**	4.9 J	25.2	<2.8	13.6 J
	4/20/2009	**33.5**	**597**	13.3	**183**	4.7 J	21.1	5.6	10.1
Eastern Property Line Wells - Recycling Dock Area									
MW-24R	4/28/2008	*1.2 J*	< 0.83	< 0.89	**0.52 J**	< 0.9	12.7	< 0.57	75.8
	10/7/2008	*1.8*	1.5 J	<0.89	**0.63**	<0.9	1.1 J	<0.57	7.7
	4/22/2009	*0.61 J*	< 0.83	< 0.89	< 0.18	< 0.9	< 0.75	< 0.57	< 0.97
MW-3	4/28/2008	< 0.48	< 0.83	< 0.89	< 0.18	< 0.9	< 0.75	< 0.57	< 0.97
	10/8/2008	DRY							
	4/20/2009	< 0.48	< 0.83	< 0.89	< 0.18	< 0.9	< 0.75	< 0.57	< 0.97
MW-3D	4/28/2008	< 0.48	< 0.83	< 0.89	< 0.18	< 0.9	< 0.75	< 0.57	< 0.97
	10/8/2008	<0.48	<0.83	<0.89	<0.18	<0.9	4.5	<0.57	<0.97
	4/20/2009	< 0.48	< 0.83	< 0.89	0.32 J	< 0.9	< 0.75	< 0.57	15.8
MW-3BR1	4/29/2008	**102**	*18.5*	< 0.89	**1.2**	36.4	27.1	**10.7**	< 0.97
	10/7/2008	**104**	*18*	<0.89	**1.3**	*51*	28.1	**11.1**	<0.97
	4/21/2009	**133**	*19.8*	< 0.89	**1.5**	*44.5*	26	**11.7**	< 0.97
MW-3BR2	4/29/2008	**170**	*47.7*	< 0.89	**2**	3.9	12.6	*1.6 J*	< 0.97
	10/7/2008	**216**	*45.3*	1.9 J	**2.1**	5.7	17.9	*2.4*	<0.97
	4/21/2009	**172**	*36.3*	< 0.89	**2.2**	6.6	18.8	*2.6*	< 0.97
MW-3BR3	4/28/2008	No Sample							
	10/7/2008	**222**	*61*	8.3	**3.9**	7.1 J	28	*2.5 J*	<2.4
	4/21/2009	**247**	*65.7*	2	**5.1**	6.7	29.5	*5.6*	< 1.9
Eastern Property Line Wells									
MW-9	4/28/2008	**992**	**1,010**	< 8.9	< 1.8	**211**	*94.8*	**16.1 J**	< 9.7
	10/9/2008	**1,200**	**819**	9.8 J	<1.8	**225**	45.3	**21.1**	<9.7
	4/21/2009	**429**	**310**	7.5	< 0.45	*85.4*	27.4	*4.2*	< 2.4
MW-9D	4/28/2008	**519**	**89.2**	< 4.4	< 0.9	*78.9*	*111*	**11.4**	< 4.8
	10/9/2008	**522**	**149**	<8.9	**10.6**	*59.1*	*130*	*6.3 J*	<9.7
	4/21/2009	**801**	**191**	6.3	**10.8**	*55.2*	*159*	**15.3**	< 4.8
MW-12	4/28/2008	**303**	4.2 J	< 4.4	< 0.9	< 4.5	< 3.8	< 2.8	< 4.8
	10/9/2008	**778**	*8.3 J*	<8.9	<1.8	24.6 J	<7.5	<5.7	<9.7
	4/21/2009	**618**	*< 8.3*	< 8.9	< 1.8	22.5	< 7.5	< 5.7	< 9.7
MW-12BR	4/30/2008	**24.6**	**91.8**	< 0.89	< 0.18	24.9	38.9	*4.2*	< 0.97
	10/8/2008	**11.6**	**86.6**	<0.89	<0.18	15	31.1	*2.8*	<0.97
	4/21/2009	**76.8**	**45.9**	< 0.89	**0.43 J**	*50.3*	82.4	*7.8*	< 0.97
MW-13BR2	4/29/2008	**311**	*25.5*	< 2.2	**1.8**	*185*	*191*	**7.5**	< 2.4
	10/8/2008	**265**	*29*	<0.89	**2.7**	*155*	*158*	**34.8**	<0.97
	4/21/2009	**314**	*28.1*	< 1.8	**2.9**	*164*	*162*	**27.5**	< 1.9
MW-13BR3	4/29/2008	**149**	*13.4*	< 0.89	**0.45 J**	*58.8*	64.2	**14.5**	< 0.97
	10/8/2008	**115**	*13.9*	<0.89	**0.44 J**	*43.3*	51.1	**11.3**	<0.97
	4/21/2009	**149**	*13.8*	< 0.89	**0.66 J**	*47.8*	49.6	**12.7**	< 0.97

Table 1 (continued)
Summary of Chlorinated VOCs Detected in Groundwater (µg/L)
Tecumseh Products Company - Grafton, Wisconsin

WELL I.D.	SAMPLE DATE	TCE	CIS-1,2-DCE	TRANS-1,2-DCE	VINYL CHLORIDE	1,1,1-TCA	1,1-DCA	1,1-DCE	CHLORO-ETHANE
Off-Site Downgradient Wells									
MW-22BR	4/29/2008	**53.2**	*8.8*	< 0.89	< 0.18	< 0.9	1.4 J	< 0.57	< 0.97
	10/8/2008	**18.1**	3.7	<0.89	<0.18	<0.9	<0.75	<0.57	<0.97
	4/22/2009	**39.5**	5.4	< 0.89	< 0.18	< 0.90	1.0	< 0.57	< 0.97 L
PW-30 (Heiser)[1]	4/29/2008	*1.2 J*	< 0.83	< 0.89	< 0.18	< 0.9	< 0.75	< 0.57	< 0.97
MW-27[2]	7/22/2008	*0.98 J*	<0.83	<0.89	<0.18	<0.9	<0.75	<0.57	<0.97
	10/8/2008	*0.53 J*	<0.83	<0.89	<0.18	<0.9	<0.75	<0.57	<0.97
	4/22/2009	< 0.48	< 0.83	< 0.89	< 0.18	< 0.90	< 0.75	< 0.57	< 0.97 L
MW-18BR1	4/29/2008	**48**	*19*	< 0.89	< 0.18	5.7	28.2	*3.3*	< 0.97
	10/7/2008	**48.6**	*16.9*	<0.89	<0.18	5.3	25.8	*3.1*	<0.97
	4/22/2009	**41.1**	*12.7*	< 0.89	< 0.18	4.0	19.8	*3.3*	< 0.97 L
MW-18BR2	4/29/2008	**129**	*63.9*	1.4 J	< 0.18	19.5	*96.4*	**12.8**	< 0.97
	10/7/2008	**146**	*63.4*	2.8 J	<0.18	20.1	*96.2*	**12.3**	<0.97
	4/22/2009	**150**	*60.7*	1.2	< 0.18	16.2	*90.3*	**16.3**	< 0.97 L
MW-14BR	4/29/2008	0.49 J	< 0.83	< 0.89	< 0.18	< 0.9	< 0.75	< 0.57	< 0.97
	10/8/2008	0.48 J	<0.83	<0.89	<0.18	<0.9	<0.75	<0.57	<0.97
	4/22/2009	0.70 J	< 0.83	< 0.89	< 0.18	< 0.90	< 0.75	< 0.57	< 0.97 L
MW-19BR1	4/29/2008	**18.3**	2.6 J	< 0.89	< 0.18	< 0.9	4.2	0.093 J	< 0.97
	10/7/2008	**227**	**125**	2.6 J	**7.8**	<0.9	*120*	**30.5**	<0.97
	4/22/2009	**251**	*69.1*	5.4	**2.7 J**	< 4.5	**95.6**	*5.5*	< 4.8 L
MW-19BR2	4/28/2008	No Sample							
	10/7/2008	<0.48	<0.83	<0.89	**0.87**	<0.9	<0.75	<0.57	<0.97
	4/22/2009	*2.0*	< 0.83	< 0.89	**2.1**	< 0.90	0.83 J	< 0.57	< 0.97 L
MW-20BR1	4/29/2008	< 0.48	< 0.83	< 0.89	< 0.18	< 0.9	< 0.75	< 0.57	< 0.97
	10/7/2008	<0.48	<0.83	<0.89	<0.18	<0.9	<0.75	<0.57	<0.97
	4/22/2009	< 0.48	< 0.83	< 0.89	< 0.18	< 0.90	< 0.75	< 0.57	< 0.97 L
MW-20BR2	4/29/2008	< 0.48	< 0.83	< 0.89	< 0.18	< 0.9	< 0.75	< 0.57	< 0.97
	10/7/2008	<0.48	<0.83	<0.89	<0.18	<0.9	<0.75	<0.57	<0.97
	4/22/2009	< 0.48	< 0.83	< 0.89	< 0.18	< 0.90	< 0.75	< 0.57	< 0.97 L

Notes:

Entered by: PMP 6/29/09

QC by: AAS 6/29/09

(1) PW-30 (Heiser) was abandoned on September 3, 2008.

(2) MW-27 was installed on July 22, 2008.

Bolded values = constituents that exceed NR 140 Enforcement Standards.

J = concentration detected equal to or greater than the method detection limit but less than the reporting limit.

DCE = dichloroethene.

DCA = dichloroethane.

TCA = trichloroethane.

TCE = trichloroethene.

Table 2

Summary of Groundwater Field and Degradation Evaluation Parameters

Tecumseh Products Company - Grafton, Wisconsin

SAMPLE LOCATION	SAMPLE DATE	WATER LEVEL	pH	SPECIFIC CONDUCTANCE	TEMPERATURE	ORP	DISSOLVED OXYGEN	DISSOLVED NITRATE	DISSOLVED MANGANESE	DISSOLVED IRON	DISSOLVED SULFATE	CHLORIDE	TOC
UNITS		ft (MSL)		µmhoms/cm	°C	mV	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L
On-Site Monitoring Wells													
MW-25	4/30/08	757.86	7.18	820	11.7	-62	0.22	< 0.085 H	60.7	< 26 H	92.4	28.2 B	< 1.4
	10/8/08	753.01	7.20	875	14.9	-80	0.57	<0.085	66.6	<26	85.6	28.4	<1.4
	4/20/09	755.59	7.26	845	10.9	39	1.36	0.18 J	61.2	0.4	91	20.2	2.6
MW-26	4/30/08	753.61	7.09	970	15.0	-164	0.18	< 0.085 H	83.8	< 26 H	89.8	72.6	< 1.4
	10/8/08	747.98	6.98	1,452	16.0	-183	0.96	<0.085	206	<26	92	186	3.3
	4/20/09	750.87	6.98	1,345	14.6	-58	0.35	< 0.085	203	0.1	91.1	161	3.7
Eastern Property Line Wells - Recycling Dock Area													
MW-24R	4/28/08	753.95	7.08	1,735	10.3	-182	0.18	< 0.085 H	189	130 H	20.5	402	6.4
	10/7/08	747.87	7.10	1,080	16.5	-165	1.48 J	<0.085	140	<26	17.6	103	6.3
	4/21/09	750.82	7.07	1,116	9.2	-54	0.43	0.17 J	148	0.8	16.8	157	3
MW-3	4/28/08	755.21	7.25	1,343	8.1	176	4.51	3.6 H	8	< 26 H	21.4	241	1.9
	10/8/08	dry											
	4/20/09	752.68	7.23	1,165	6.4	133	6.91	0.6	6.9	0.1	19	188	3.4
MW-3D	4/28/08	752.86	6.94	1,136	12.5	-172	0.17	< 0.085 H	115	150 H	74.8	111	< 1.4
	10/8/08	746.81	7.12	1,189	15.0	-167	0.35	0.28 JH	73.2	<26	48.8	135	<1.4
	4/20/09	NM	6.90	1,238	12.5	-42	0.27	0.26 J	190	1.5	58.9 M	134	3.9
MW-3BR1	4/29/08	NM	7.08	768	13.0	-237	0.33	< 0.085	59	< 26 H	68.6	35.9 B	2.1
	10/7/08	NM	7.13	790	16.1	-281	0.2	<0.085	59.5	<26	60.7	32.5	1.8 J
	4/21/09	NM	7.05	798	12.0	-141	2.65	0.16 J	62.7	1	61.6	33.2	1.5 J
MW-3BR2	4/29/08	NM	7.20	1,117	14.0	-221	0.15	< 0.085	46	< 26 H	83.4	102	< 1.4
	10/7/08	NM	7.26	1,119	15.2	-169 R	0.5 R	<0.085	43.4	<26	82.8	99.8	1.4 J
	4/21/09	NM	7.12	1,113	11.5	-85	0.7	< 0.085	50.2	0.6	84	99.7	< 1.4
MW-3BR3	4/29/08	No Sample											
	10/7/08	NM	7.18	1,012	14.9	-231	0.2	<0.085	50.7	<26	83.3	73.4	1.6 J
	4/21/09	NM	7.03	1,024	13.0	-86	1.33	0.17 J	51.2	1	84.5	79	1.4 J

Table 2 (continued)
Summary of Groundwater Field and Degradation Evaluation Parameters
Tecumseh Products Company - Grafton, Wisconsin

SAMPLE LOCATION	SAMPLE DATE	WATER LEVEL	pH	SPECIFIC CONDUCTANCE	TEMPERATURE	ORP	DISSOLVED OXYGEN	DISSOLVED NITRATE	DISSOLVED MANGANESE	DISSOLVED IRON	DISSOLVED SULFATE	CHLORIDE	TOC
UNITS		ft (MSL)		µmhoms/cm	°C	mV	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L
Eastern Property Line Wells													
MW-9	4/28/08	752.98	6.97	2,170	9.0	220	3.95	4.8 H, M	1.1 J	< 26 H	27.9 M	437 M	2.7
	10/9/08	746.73	6.87	1,371	17.6	56	1.19	3.3	17.9	<26	23.0 B	200	1.9 J
	4/21/09	749.86	7.09	2,390	8.3	161	6.06	< 0.085	5	0.05	25	482	4
MW-9D	4/28/08	752.92	7.18	1,183	11.8	-88	0.39	< 0.085 H	130	< 26 H	86.8	119	< 1.4
	10/9/08	746.72	7.08	1,160	15.0	-98	0.15	<0.085	100	<26	87.2	117	<1.4
	4/21/09	749.86	7.2	1,139	11.5	58	2.35	0.19 JM	79.2	0.8	75.4	158 M	< 1.4
MW-12	4/28/08	753.01	7.17	769	9.0	250	2.39	0.18 H	9.1	< 26 H, R1	25.1 M	73.8 M	< 1.4
	10/9/08	746.74	6.81	770	NA	124	0.85	0.20 J	28.1	<26	26.9 B	57.2	<1.4
	4/21/09	749.92	6.79	981	9.2	246	0.48	0.19 J	26.8	0.2	20.6	106	1.5 J
MW-12BR	4/30/08	752.61	7.18	1,031	11.2	-235	0.16	< 0.085 H	48.6	< 26 H	90.8	91.5	< 1.4
	10/8/08	746.59	7.35	1,087	15.2	-323	0.49	<0.085	66.1	<26	60.2	87.3	<1.4
	4/21/09	749.77	7.23	1,041	9.8	-11	0.36	0.25 J	48.1	1.5	82.1	88.8	1.9 J
MW-13BR2	4/29/08	NM	7.18	1,093	11.7	-201	0.29	< 0.085	73.4	< 26 H	87.6	108	< 1.4
	10/8/08	NM	6.98	1,105	16.3	-215	0.42	0.58	73.5	<26	78	102	<1.4
	4/21/09	NM	7.07	1,124	10.5	-80	1.46	0.52	76.4	0.8	86.9	103	1.8 J
MW-13BR3	4/29/08	NM	7.21	917	12.0	-192	0.3	< 0.085	213	< 26 H	79.8	68.6	< 1.4
	10/8/08	NM	7.05	943	16.5	-184	0.5	<0.085	212	<26	77.3	61.5	<1.4
	4/21/09	NM	7.10	940	11.2	-70	1.65	0.17 J	204	0.3	77.6	60.6	< 1.4
Off-Site Downgradient Wells													
MW-22BR	4/29/08	749.78	7.38	732	12.0	-6	1.4	0.32 J	73.3	< 26 H	49.2	42.1 B	< 1.4
	10/8/08	743.91	7.18	760	14.0	180	0.5	0.17 JH	81.8	<26	41.5	52.5	<1.4
	4/22/09	746.88	7.00	880	11.5	250	0.7	< 0.085	103	0.05	44.2	68.4	< 1.4
MW-27[1]	7/22/08	750.34	7.27	626	13.4	134	3.39	0.18 JM	52.7	<26	14.1 B	4 JM	4 JM
	10/8/08	746.89	7.09	512	15.1	62	2.61	<0.085	34	<26	15	3.1 J	<1.4
	4/22/09	750.11	7.01	638	8.1	348	6.19	0.18 JM	1.6 J	0.1	13.5	2.6 JM	1.8 J
PW-30 (Heiser)[2]	4/29/08	NM	7.78	NA	10.2	-10	6.85	9.2 H	0.63 J	< 26 H	34.2	38.8 B	< 1.4
MW-18BR1	4/29/08	NM	7.28	1,135	10.8	-68	4.48	7.8	0.67 J	< 26 H	36.9	136	< 1.4
	10/7/08	NM	7.17	1,166	13.5	-136	2.5	6.3	2.5 J	<26	34.7	134	1.6 J
	4/22/09	NM	7.07	1,110	10.3	235	6.14	5.9	3.2 J	0.1	31.8	118	< 1.4
MW-18BR2	4/29/08	NM	7.15	1,616	11.0	-251	1.08	3	102	< 26 H	43	243	19.4
	10/7/08	NM	7.10	1,496	13.4	-244	0.5	3.1	39.1	<26	44.6	242	1.8 J
	4/22/09	NM	6.99	1,644	10.6	-78	1.05	< 0.085	171	0.8	38.7	258	6.7

Table 2 (continued)
Summary of Groundwater Field and Degradation Evaluation Parameters
Tecumseh Products Company - Grafton, Wisconsin

SAMPLE LOCATION	SAMPLE DATE	WATER LEVEL	pH	SPECIFIC CONDUCTANCE	TEMPERATURE	ORP	DISSOLVED OXYGEN	DISSOLVED NITRATE	DISSOLVED MANGANESE	DISSOLVED IRON	DISSOLVED SULFATE	CHLORIDE	TOC
UNITS		ft (MSL)		µmhoms/cm	°C	mV	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L
MW-14BR	4/29/08	743.37	7.33	859	9.8	32	7.32	11.4 H	0.8 J	< 26 H	32.5	63.1	< 1.4
	10/8/08	736.08	7.13	856	15.9	208	8.06	10.0 H	1.5 J	<26	28.8	55.6	<1.4
	4/22/09	740.61	7.08	858	9.5	354	8.15	8.2	2.0 J	0	27.3	62.3	< 1.4
MW-19BR1	4/29/08	NM	7.35	298	10.4	-180	0.3	0.31 J	10.2	< 26 H	5.5	6.7 B	9
	10/7/08	NM	7.08	1,024	12.2	-268	2.51	<0.085	101	<26	52.3	96	2.5
	4/22/09	NM	7.15	1,049	10.2	-212	0.29	< 0.085	40.2	0.5	53.9	98	< 1.4
MW-19BR2	4/29/08	No Sample											
	10/7/08	NM	7.01	539	12.7	-299	2.19	2	204	<26	6.4	3.1 J	2.3
	4/22/09	NM	7.01	533	10.1	-226	0.29	< 0.085	186	1	5.2	2.0 J	< 1.4
MW-20BR1	4/29/08	NM	8.13	987	9.0	-134	1.8	0.14 J	74.3	< 26 H	14.8	751	8.3
	10/7/08	NM	7.69	778	12.9	-274	1.62	0.16 J	93.2	<26	4.5	142	14.7
	4/22/09	NM	8.00	4,280	11.2	-168	0.64	0.19 J	380	0.6	15.8	1210	11.7
MW-20BR2	4/29/08	NM	6.93	1,554	10.4	-270	0.34	0.15 J	193	38 J, H	2.2 J	361	15.5
	10/7/08	NM	6.52	1,865	12.9	-290	0.31	0.16 J	189	<26	3.1 J	419	14.5
	4/22/09	NM	7.00	2,480	10.7	-216	0.29	0.20 J	195	3	3.9 J	605	11.7
Terminal Electron Accepting Process[3]			--	--	--	--	Aerobic respiration	Denitrification	Manganese reduction	Iron (III) reduction	Sulfate reduction	--	--
Trend During Biodegradation[3][4]			Optimal range: 5 to 9	Increase over background	--	< 50 mV suggests reductive dechlorination possible	Reductive dechlorination can occur in groundwater microcosms at < 1 to 2 mg/L	< 1 mg/L in source area	Increase over background	Increase over background	Decrease compared to background	Increase over background	> 20 mg/L preferred

Entered by: PMP 6/29/09
QC by: AAS 7/1/09

Notes:

NM = not measured. Water levels cannot be measured in the multi-level water 100 wells.

NS = not sampled.

B = analyte present in the method blank.

H = preservation, extraction, or analysis performed past holding time.

J = estimated value.

M = matrix spike recovery was outside laboratory control limits.

R1 = relative percent difference (RPD) value was outside control limits.

- - = injection date not applicable as injections not performed in proximity to well.

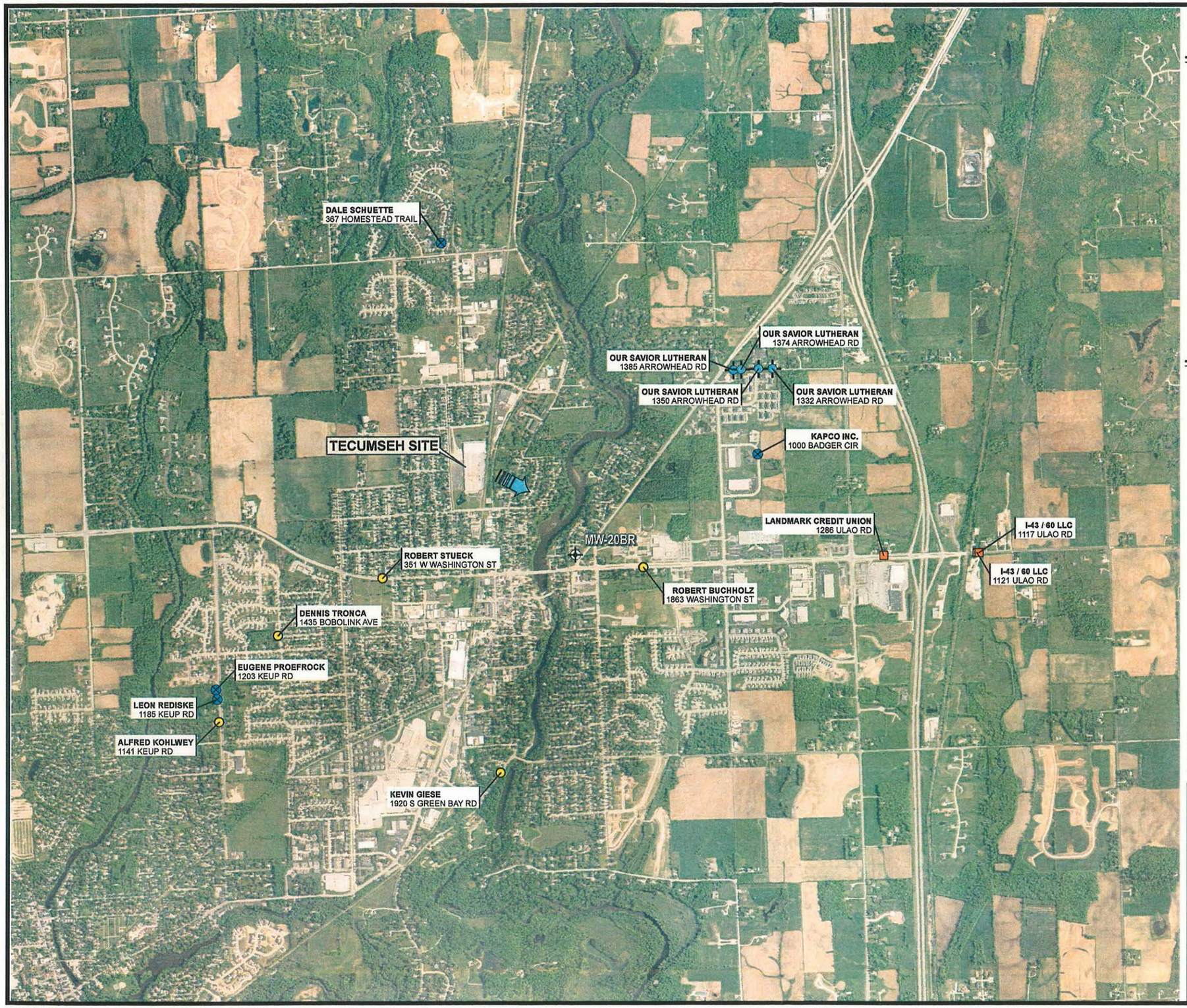
Footnotes

(1) MW-27 was installed on July 22, 2008.

(2) PW-30 (Heiser) was abandoned on September 3, 2008.

(3) Wiedemier, 1998.

(4) WDNR quick reference guide to natural biodegradation of chlorinated solvents, May 2007.



LEGEND

- PRIVATE WELL IN OPERATION
- PRIVATE WELL IN OPERATION - PROPERTY ALSO SERVED BY MUNICIPAL WATER
- PRIVATE WELL - OPERATING STATUS UNKNOWN
- BUILDING NO LONGER PRESENT - PRIVATE WELL, OPERATING STATUS UNKNOWN
- MW-20BR SENTINEL MONITORING WELL IN TECUMSEH MNA MONITORING NETWORK
- DIRECTION OF GROUNDWATER FLOW ON TECUMSEH PROPERTY

NOTES

1. AERIAL PHOTOGRAPHY FROM USDA – NATIONAL AGRICULTURE IMAGERY PROGRAM, DATED: JUNE 2, 2005.
2. WELL LOCATIONS BASED ON GEO-CODED ADDRESSES, LOCATIONS ARE APPROXIMATE. WELL LOCATIONS AND STATUS PROVIDED BY VILLAGE OF GRAFTON ON JANUARY 13, 2009.
3. WELL MW-20BR SHOWN FOR REFERENCE.

0 2,000 4,000 FEET

1 " = 2,000 '
1:24,000

PROJECT:
TECUMSEH PRODUCTS COMPANY
GRAFTON, WI

SHEET TITLE:
PRIVATE WELLS WITH THE POTENTIAL FOR OPERATION IN VILLAGE OF GRAFTON

DRAWN BY:	PAPEZ J	SCALE:		PROJ. NO.	00-007397.07
CHECKED BY:	AAS		AS NOTED	FILE NO.	73970701.mxd
APPROVED BY:	JMR	DATE PRINTED:			
DATE:	AUGUST 2009		8/20/2009		FIGURE 1

RMT
744 Heartland Trail
Madison, WI 53717-1934
P.O. Box 8923 53708-8923
Phone: 608-831-4444
Fax: 608-831-3334

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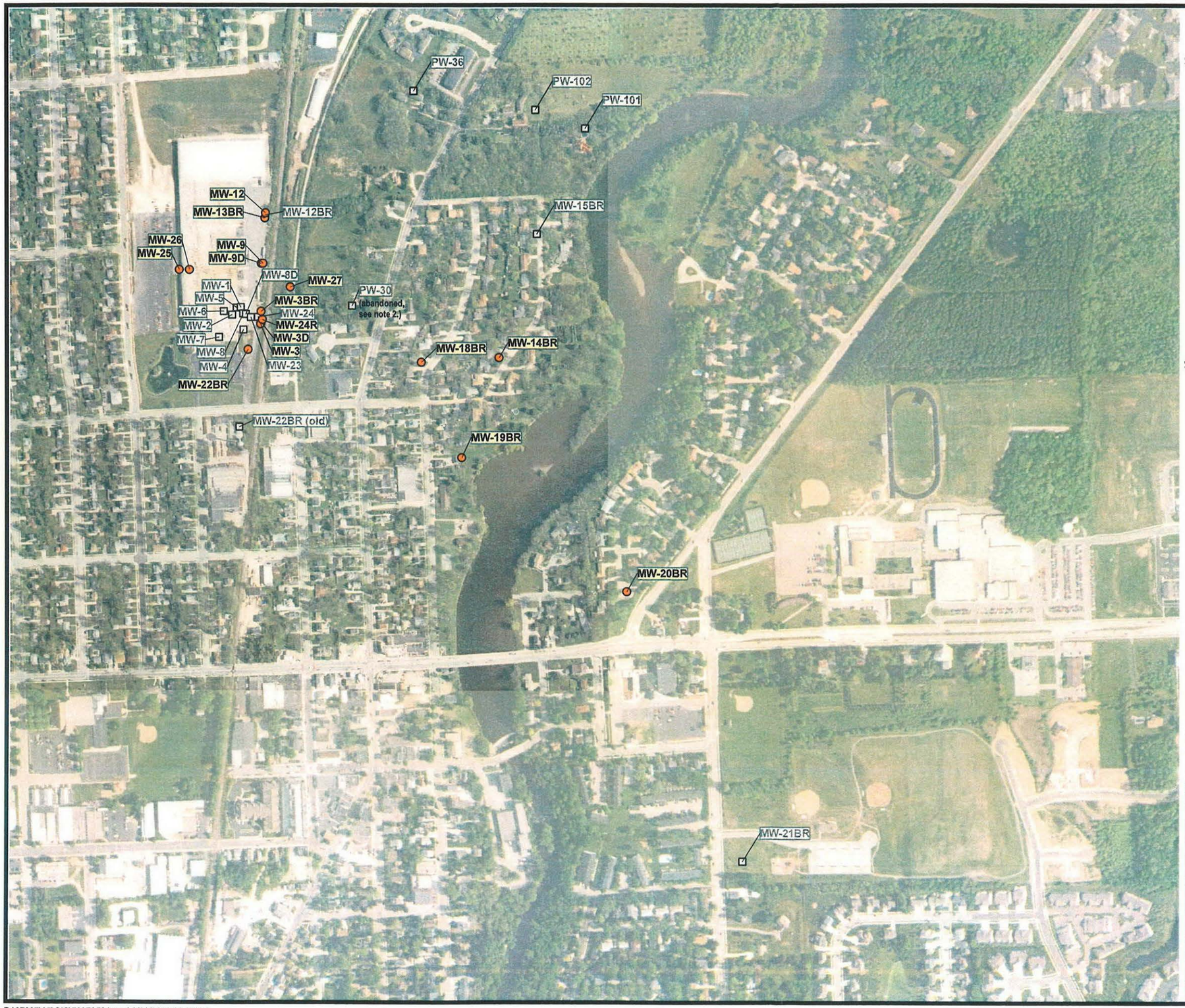

LEGEND

- WELLS IN MONITORING PROGRAM FOR MNA DEMONSTRATION APPROACH
- WELLS NOT IN PROGRAM

NOTES

1. AERIAL PHOTOGRAPHY FROM USDA – NATIONAL AGRICULTURE IMAGERY PROGRAM, DATED: JUNE 2, 2005 AND IMAGERY FROM SOUTH EAST WISCONSIN REGIONAL PLANNING COMMISSION, 2005.
2. PW-30 WAS ABANDONED ON SEPTEMBER 3, 2008 AND WAS THEREFORE REMOVED FROM THE MNA PROGRAM.
3. THE LOCATION OF MW-22BR(old) WAS BASED ON HISTORICAL MAPPING FROM THE SITE, BUT IS NOT THE LOCATION OF THE WELL INCLUDED IN RMT'S SAMPLING PROGRAM. THE PRECISE LOCATION OF MW-22BR WAS SURVEYED WITH A GPS UNIT IN JULY 2008, AND IS SHOWN ON THIS FIGURE. RMT HAS NOT FIELD VERIFIED IF A WELL IS LOCATED AT MW-22BR(old).

N

0 500 1,000 FEET

1 " = 500 '
1:6,000

PROJECT:
TECUMSEH PRODUCTS COMPANY
GRAFTON, WI

SHEET TITLE:
MNA MONITORING NETWORK

DRAWN BY: PAPEZ J	SCALE:	PROJ. NO.	00-007397.07
CHECKED BY: AAS	AS NOTED	FILE NO.	73970501.mxd
APPROVED BY: JMR	DATE PRINTED:	**FIGURE 2**	
DATE: AUGUST 2009	8/20/2009		

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