State of Wisconsin Department of Natural Resources PO Box 7921, Madison WI 53707-7921 dnr.wi.gov

Remediation Site Operation, Maintenance, Monitoring & Optimization Report

Form 4400-194 (R 11/14)

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GENERAL INSTRUCTIONS, PURPOSE AND APPLICABILITY OF THIS FORM: Completion of this form is required under s. NR 724.13(3), Wis. Adm. Code. A narrative report or letter containing the equivalent information required in this form may be submitted in lieu of the actual form. Failure to submit this form as required is a violation of s. NR 724.13(3), Wis. Adm. Code, and is subject to the penalties in s. 292.99, Wis. Stats. This form must be submitted every six months for soil or groundwater remediation projects that report operation and maintenance progress in accordance with s. NR 724.13(3), Wis. Adm. Code.

Note: Long-term monitoring results submitted in accordance with s. NR 724.17(3), Wis. Adm. Code are required to be submitted within 10 business days of receiving sampling results and are not required to be submitted using this form. However, portions of this form require monitoring data summary information that may be based on information previously submitted in accordance with s. NR 724.17(3), Wis. Adm.

Note: Responsible parties should check with the State Project Manager assigned to the site to determine if this form is required to be submitted at sites responded to under the Federal Comprehensive Environmental Response and Compensation Act (commonly known as Superfund) or an equivalent State lead Superfund response.

Note: Responsible parties should check with the State Project Manager assigned to the site to determine if any of the information required in this form may be omitted or changed and obtain prior written approval for any omissions or changes.

Submittal of this form is not a substitute for reporting required by Department programs such as Waste Water or Air Management. Personally identifiable information on this form is not intended to be used for any other purpose than tracking progress of the remediation by the Bureau for Remediation and Redevelopment.

Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31-19.39, Wis. Stats.). Unless otherwise noted, all citations refer to Wisconsin Administrative Code.

Note: There is a separate semi-annual report required under s. NR 700.11(1), Wis. Adm. Code. Reporting under that provision is through an internet-based form:

http://dnr.wi.gov/topic/Brownfields/documents/regs/NR700progreport.pdf

Section GI - General Site Info	ormation				g i version					
A. General Information 1. Site name										
One Hour Martinizing - Ocor	nomowoc									
	07/01/2017		12/31/2017						184	
3. Regulatory agency (enter DN	R, DATCP and/or c	ther)	4. BRRTS ID	No.	(2 digit pro	ogram-2	digit (county-6	digit site	specific)
DNR			02-68-5519	11						
5. Site location	County	9398		ing (f.) Ne Ve				14111111		
Region	Address									
Southeast Region	Waukesha		36929 Pla	ank I	Rd		_			
Municipality name City	Town 🔘 Village			ר	Γownship	Range	⊚E	Section	1/4	1/4 1/4
Oconomowoc Lake					07 N	17	OW	3	NW	NW
6. Responsible party			7. Consulta	nt	10.00		7,85			
Name	I		Select i		following	informat	ion ha	s chang	ed since t	he last
Brian Cass	1									
Mailing address			Company name							
W229 N2494 County Road F	, Waukesha, WI	53186	EnviroForensics, LLC Mailing address Phone number							- L
Phone number			1						none nun	nper
(262)	521-9710		N16 W23	390 \$	Stone Ric	ige Dr.	Suite	G	(317) 97	2-7870
8. Contaminants PCE								•		
9. Soil types (USCS or USDA) Silty Sand										
10. Hydraulic conductivity(cm/se	ec):		11. Average	e line	ar velocity	of grou	ındwa	ter (ft/yr)	_	
0.02			355							
12. If soil is treated ex situ, is the	e treatment location	off site? (Yes No							
If yes, give location: Region			Co	ounty						
Municipality name City	◯ Town ◯ Villag	e		7	Fownship N	Range	OE OW	Section	1/4	1/4 1/4

Site name: One Hour Martinizing - Oconomowoc	Remediation Site Operation	•
Reporting period from: <u>07/01/2017</u> To: <u>12/31/2017</u>	Monitoring & Optimization F	-
Days in period: 184	Form 4400-194 (R 11/14)	Page 2 of 28
B. Remediation Method		
Only submit sections that apply to an individual site. Check all that a	pply:	
Groundwater extraction (submit a completed Section GW-1).		
Free product recovery (submit a completed Section GW-1).		
In situ air sparging (submit a completed Section GW-2).		
Groundwater natural attenuation (submit a completed Section GV	<i>N</i> -3).	
Other groundwater remediation method (submit a completed Sec	ction GW-4).	
Soil venting (including soil vapor extraction building venting and because of the soil venting (including soil vapor extraction building venting and because of the soil venting (including soil vapor extraction building venting and because of the soil venting (including soil vapor extraction building venting and because of the soil venting (including soil vapor extraction building venting and because of the soil vapor e	bioventing submit a completed Section IS-1).	
Soil natural attenuation (submit a completed Section IS-2).		
Other in situ soil remediation method (submit a completed Section	on IS-3).	
Biopiles (submit a completed Section ES-1).	havit a completed Section FS 2)	
Landspreading/thinspreading of petroleum contaminated soil (sul		
Other ex situ remediation method (submit a completed Section E Site is a landfill (submit a completed Section LF-1).		
		-
C. General Effectiveness Evaluation for All Active Systems If the remediation is active (not natural attentuation), complete this su	uhsection	
•	Yes () No	
If the answer is no, explain whether or not modifications are neces		stablished in design.
· '	, , ,	•
3. Is natural attenuation an effective low cost option at this time?	Yes No	
4. Is closure sampling warranted at this time? Yes No		
5. Are there any modifications that can be made to the remediation to	o improve cost effectiveness? Yes	No
If yes, explain.		
ψ_{-} , ψ_{-} , δ		
• •		
D. Economic and Cost Data to Date 1. Total investigation cost: \$469,100.00		
Implementation costs (design, capital and installation costs, excluding the state of the st	ding investigation costs: \$221,800.00	
3. Total costs during the previous reporting period: \$36,500.		
4. Total costs during this reporting period: \$22,190.00		
	000.00	O
6. Are any unusual or one-time costs listed in the reporting periods of If yes, explain:	overed by D.3., D.4. or D.5. above?	es No
7. If closure is anticipated within 12 months, estimated costs for projection	ect closeout:	

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Site name: One Hour Martinizing - Oconomowoc	Remediation Site Operation, Maintenance,
Reporting period from: 07/01/2017 To: 12/31/2017	Monitoring & Optimization Report
Days in period: 184	Form 4400-194 (R 11/14) Page 3 of 28
E. Name(s), Signature(s) and Date of Person(s) Submitting Fo	rm
Legibly print name, date and sign. Only persons qualified to submit sites with any ongoing active remediation, monitoring or an investiga activities during the six month reporting period.	reports under ch. NR 712 Wis. Adm. Code are to sign this form for ation. Other persons may sign this form for sites with no response
Registered Professional Engineers:	
I hereby certify that I am a registered professional engineer in the St of ch. A-E 4, Wis. Adm. Code; that this document has been prepared 8, Wis. Adm. Code; and that, to the best of my knowledge, all inform prepared in compliance with all applicable requirements in chs. NR 7	d in accordance with the rules of Professional Conduct in ch. A-E nation contained in this document is correct and the document was
Print name T	itle
Andrew Horwath S	Senior Engineer
Signature Andrew O. How III	Pate
	1/29/2018
Hydrogeologists:	
I hereby certify that I am a hydrogeologist as that term is defined in knowledge, all information contained in this document is correct and requirements in chs. NR 700 to 726, Wis. Adm. Code.	
Print name T	Title
Brian Kappen P	Project Manager
Signature	Date / 120 / 2010
Bit Ry	1/29/2018
Scientists:	
I hereby certify that I am a scientist as that term is defined in s. NR all information contained in this document is correct and the docume chs. NR 700 to 726, Wis. Adm. Code.	
Print name T	itle
	· · · · · · · · · · · · · · · · · · ·
Signature D	Pate
Other Persons:	· · · · · · · · · · · · · · · · · · ·
Print name T	itle
Signature	
	Oate Control of the C
	Pate
Professional Seal(s), if applicables 111111111111111111111111111111111111	Digitally signed by Andrew D. ANDREW D HORWATH E-49831-6 Date: IN 2018.01.29 11:24:28 -05'00'

Site name: One Hour Martinizing - Oconom	owoc		ediation Site Operat	•
Reporting period from: 07/01/2017	To: <u>12/31/2017</u>		toring & Optimization	<u>-</u>
Days in period: 184		Form 44	00-194 (R 11/14)	Page 9 of 2
Section IS-1, Soil Venting (Including	ng Soil Vapor Extraction,	, Building Vent	ing and Bioventing)	
A. Soil Venting Operation				
Note: This form is not required for buil and are not considered part of ongoing		ms that are insta	lled proactively to protect bu	ilding occupants/users
1. Number of air extraction wells availa	ble and number of wells act	tually in use duri	ng the period:	2
2. Number of days of operation (only lie 140	st the number of days the sy	ystem actually o	perated, if unknown explain)	:
3. System utilization in percent (days o 76.1%	f operation divided by repor	ting time period	multiplied by 100). If < 80%	, explain:
The motor and blower required r		and repair. Th	e system did not operate	while the repair was
coordinated. The system is present				
Average depth to groundwater:	27.86 fee +			
B. Building Basement/Subslab Ven			<u> </u>	or the first
Number of venting points available a	•	-		
2. Number of days of operation (only list	st the number of days the sy	stem actually of	perated, if unknown explain)	:
3. System utilization in percent (days of	of operation divided by repo	rting time period	multiplied by 100). If $< 80\%$, explain:
C. Effectiveness Evaluation	or the entire sustant	0.024	noundo nor day	<u> </u>
Average contaminant removal rate f		0.034	pounds per day	
2. Average contaminant removal rate p	er well or venting point:	0.017	pounds per day	
3. If the average contaminant removal rate per well is less than one tenth of			entire system, or if the avera	ge contaminant removal
a. If contaminants are aerobically bi	odegradable and confirmation	on borings have	not been drilled in the past y	/ear:
i. Oxygen levels in extracted air:	percent		t to see	
ii. Methane levels in extracted air	(ppmy) If over 10 ppmy, ex	oplain:		
		•		
iii. If methane is not present abov	e 10 ppmy and if oxygen is	greater than 20	percent in extracted air. vou	should either:
 Drill confirmation borings d 	uring the next reporting peri-	od, if the entire	site should be considered for	r closure.
use å gas probe or water ta then you should drill confir 2 and 10 mg/kg, operate fo	able well. If a zero order rat mation borings, if the entire a or one more reporting period	e of decay base site should be co before evaluation	. Do not perform the test in d on oxygen depletion is les onsidered for closure. If the ng further. If the zero order manner than maximizes aero	s than 2 mg/kg per day, rate of decay is betweer rate of decay is greater
 b. If contaminants are not aerobicall you should drill confirmation boring. c. If soil borings were drilled during to the content of the content	ngs during the next reporting	period if the en	tire site should be considere	d for closure.

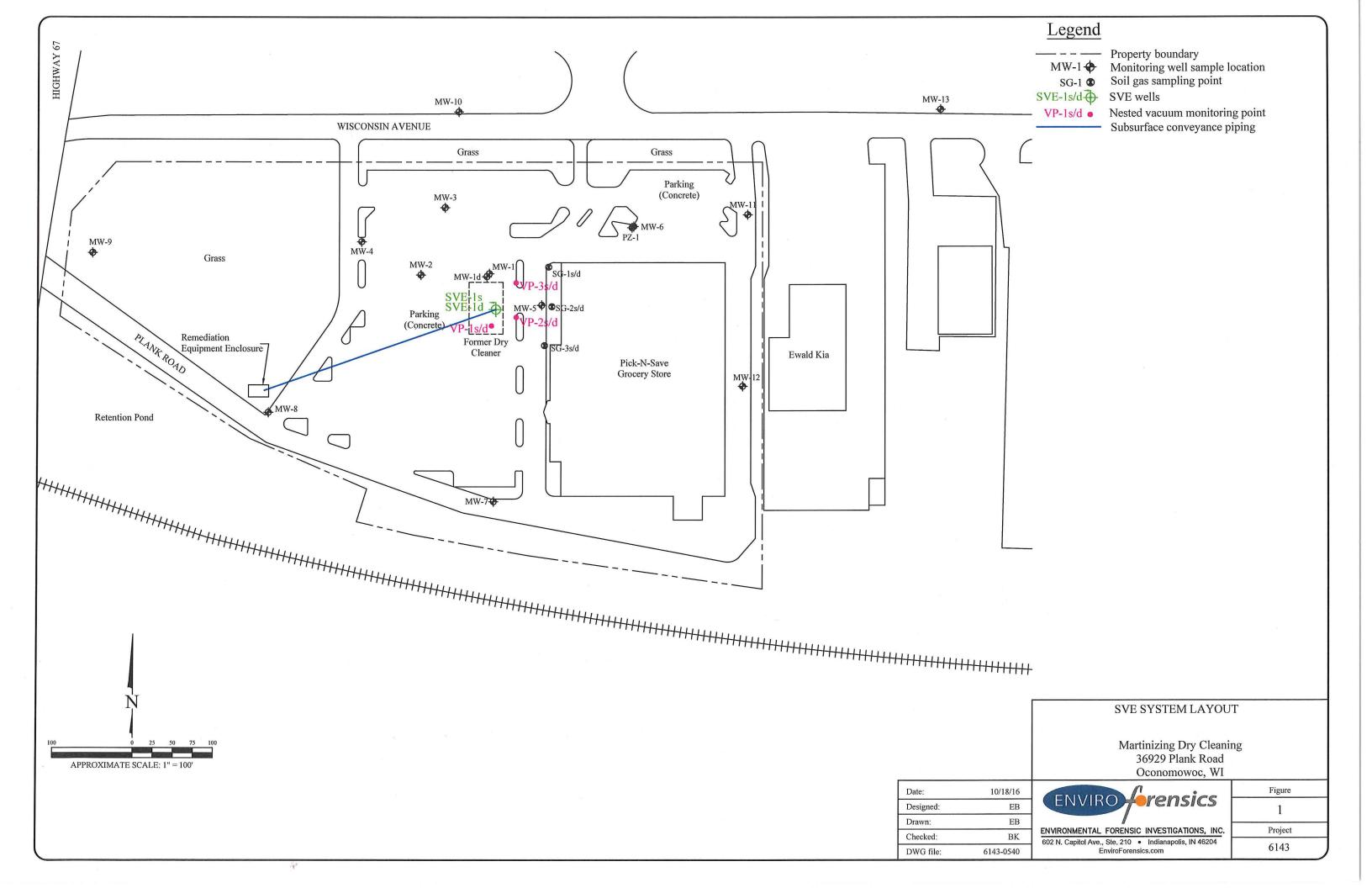
D. Additional Attachments

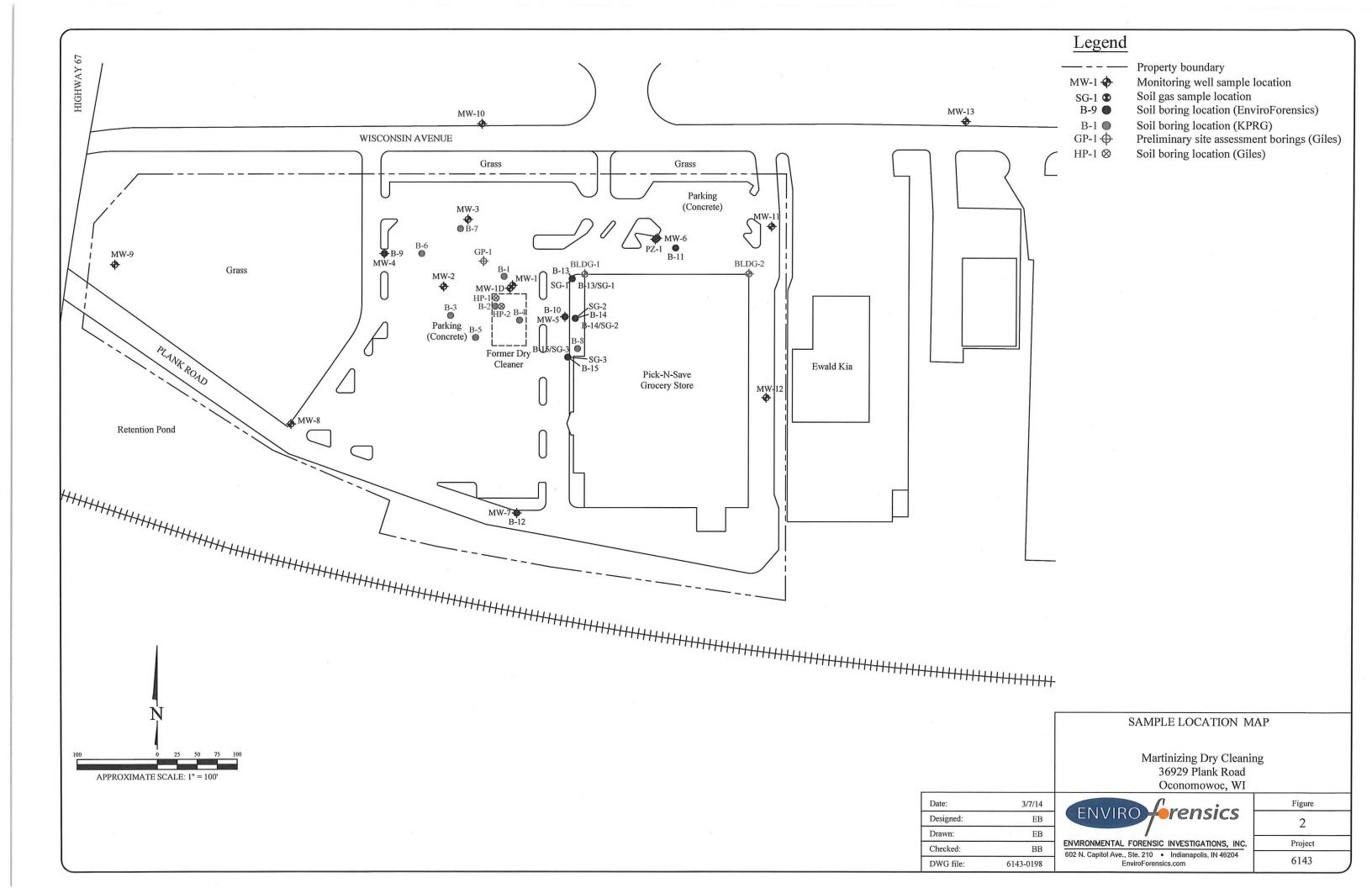
Attach the following to this form:

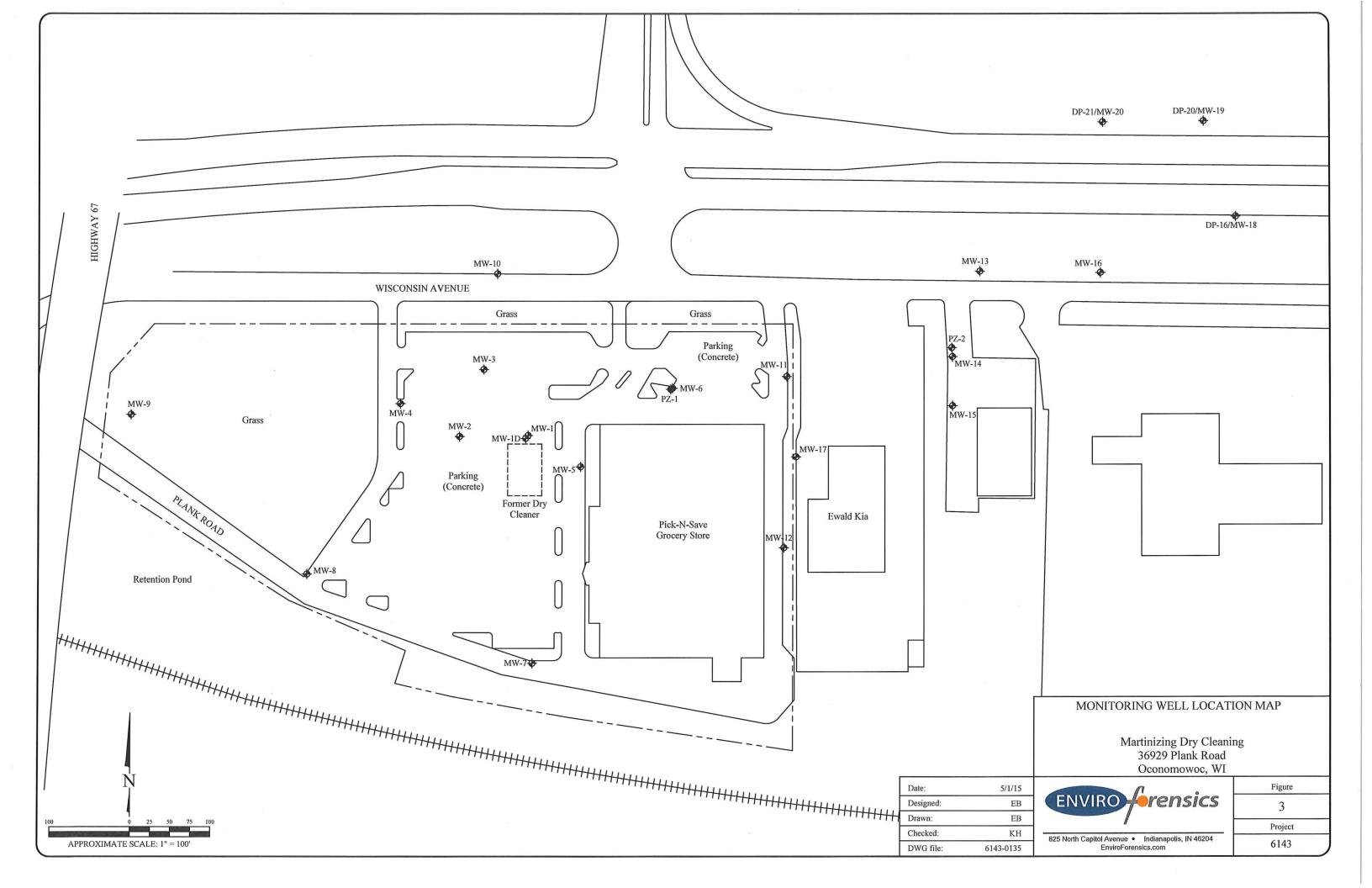
- Well and soil sample location map indicating all air extraction wells. If forced air injection wells are also in use, identify those wells.
- If water table monitoring wells are present at the site, a map of well locations.
- Time versus vapor phase contaminant concentration graph.
- Time versus cumulative contaminant removal graph.
- · Groundwater elevations table, if water table wells are present at the site; also list screen lengths and elevations.

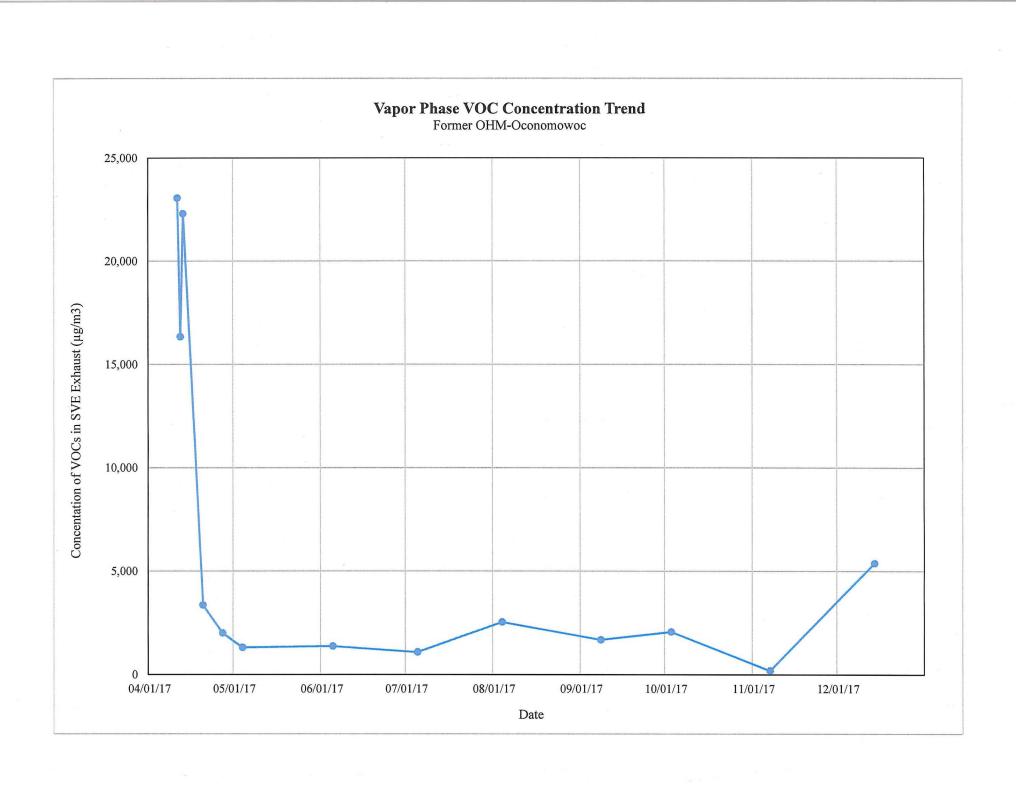
effectiveness can be increased and/or if other options need to be considered to achieve cleanup criteria.

- Table of soil contaminant chemistry data.
- Soil gas data, if gas probes are used to monitor subsurface conditions in locations other than where air is extracted.
- System operational data table.









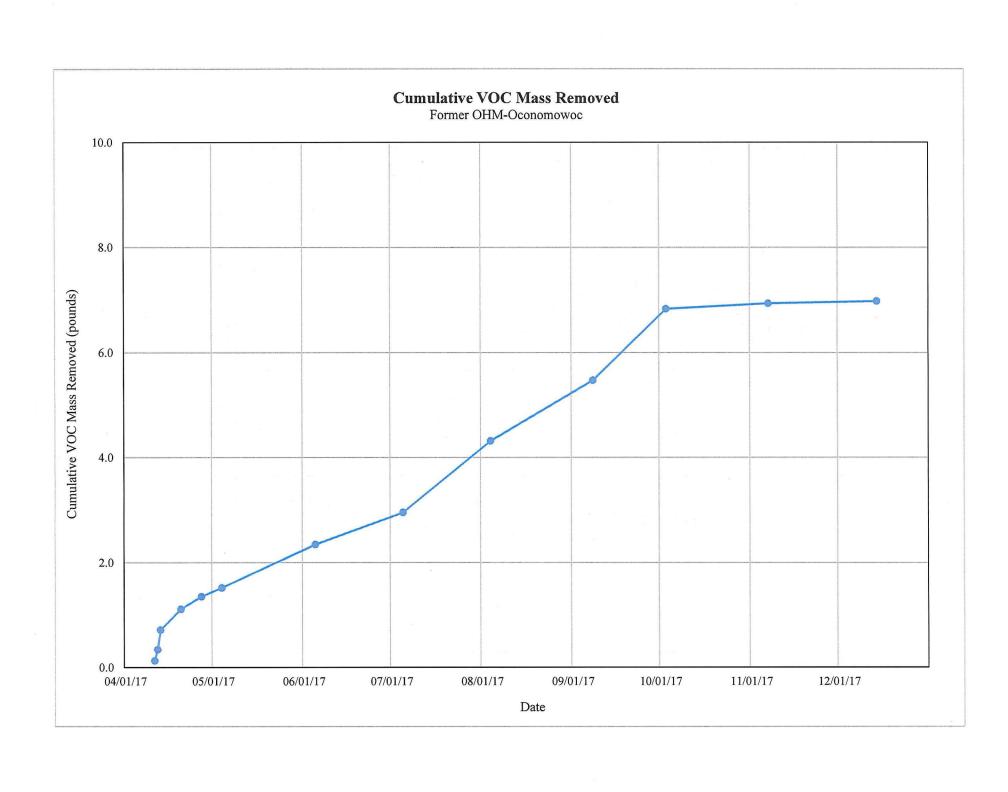


Table 1 Summary of Groundwater Elevation Data

Former One Hour Martinizing Cleaners Oconomowoc, Wisconsin

Well ID	Date	TOC Elevation (feet AMSL)	Depth to Water	Groundwater Elevation (feet AMSL)
	11/04/15	892.88	29.28	863.60
MW-1	10/10/16	892.88	28.13	864.75
IVI W - I	03/28/17	892.88	28.34	864.54
	09/07/17	892.88	27.97	864.91
	11/04/15	892.58	45.80	846.78
MW-1D	10/10/16	892.58	27.77	864.81
WW-ID	03/28/17	892.58	27.97	864.61
	09/07/17	892.58	26.92	865.66
	11/04/15	891.27	27.42	863.85
MWO	10/10/16	891.27	26.13	865.14
MW-2	03/28/17	891.27	26.37	864.90
	09/07/17	891.27	25.93	865.34
	11/04/15	892.88	29.06	863.82
MW 2	10/10/16	892.88	27.86	865.02
MW-3	03/28/17	892.88	28.06	864.82
	09/07/17	892.88	27.63	865.25
	11/04/15	891.72	27.71	864.01
	10/10/16	891.72	26.38	865.34
MW-4	03/28/17	891.72	26.64	865.08
	09/07/17	891.72	26.10	865.62
	11/04/15	893.69	30.23	863.46
	10/10/16	893.69	29.15	864.54
MW-5	03/28/17	893.69	29.33	864.36
	09/07/17	893.69	29.03	864.66
	11/04/15	893.57	30.30	863.27
10016	10/10/16	893.57	29.25	864.32
MW-6	03/28/17	893.57	29.42	864.15
	09/07/17	893.57	29.20	864.37
	11/04/15	891.51	27.55	863.96
) W. 7	10/10/16	891.51	26.27	865.24
MW-7	03/28/17	891.51	26.55	864.96
	09/07/17	891.51	26.05	865.46
	11/04/15	887.73	23.95	863.78
	10/10/16	887.73	22.80	864.93
MW-8	03/28/17	887.73	22.85	864.88
	09/07/17	887.73	22.26	865.47
	11/04/15	889.32	25.90	863.42
MW 0	10/10/16	889.32	24.50	864.82
MW-9	03/28/17	889.32	24.72	864.60
	09/07/17	889.32	24.04	865.28
	11/04/15	895.61	31.69	863.92
	10/10/16	895.61	30.50	865.11
MW-10	03/28/17	895.61	30.65	864.96
	09/07/17	895.61	30.29	865.32

Table 1 Summary of Groundwater Elevation Data

Former One Hour Martinizing Cleaners Oconomowoc, Wisconsin

Well ID	Date	TOC Elevation (feet AMSL)	Depth to Water	Groundwater Elevation (feet AMSL)
	11/04/15	893.44	30.38	863.06
NAWA 11	10/10/16	893.44	29.47	863.97
MW-11	03/28/17	893.44	29.55	863.89
	09/07/17	893.44	29.46	863.98
	11/04/15	893.05	29.86	863.19
MW 12	10/10/16	893.05	28.90	864.15
MW-12	03/28/17	893.05	29.04	864.01
	09/07/17	893.05	28.92	864.13
	11/04/15	892.12	29.71	862.41
1.000.10	10/10/16	892.12	29.13	862.99
MW-13	03/28/17	892.12	28.92	863.20
	09/07/17	892.12	29.78	862.34
	11/04/15	894.00	31.30	862.70
) MY 14	10/10/16	894.00	30.58	863.42
MW-14	03/28/17	894.00	30.51	863.49
	09/07/17	894.00	30.78	863.22
	11/04/15	893.89	31.12	862.77
) (IV 15	10/10/16	893.89	30.35	863.54
MW-15	03/28/17	893.89	30.32	863.57
	09/07/17	893.89	30.36	863.53
	11/04/15	890.67	28.52	862.15
NW 16	10/10/16	890.67	28.03	862.64
MW-16	03/28/17	890.67	27.72	862.95
	09/07/17	890.67	27.92	862.75
	11/04/15	895.63	32.50	863.13
3.077.15	10/10/16	895.63	31.65	863.98
MW-17	03/28/17	895.63	31.71	863.92
	09/07/17	895.63	31.59	864.04
MW-18	09/07/17	882.37	19.66	862.71
MW-19	09/07/17	883.02	20.40	862.62
MW-20	09/07/17	886.11	23.81	862.30
	11/04/15	893.57	32.14	861.43
D/Z 1	10/10/16	893.57	29.07	864.50
PZ-1	03/28/17	893.57	29.23	864.34
	09/07/17	893.57	28.33	865.24
	11/04/15	894.01	30.78	863.23
DG 2	10/10/16	894.01	29.80	864.21
PZ-2	03/28/17	894.01	29.94	864.07
	09/07/17	894.01	29.93	864.08

Notes:

All measurements recorded in feet

TOC = Top of Casing

MSL = Mean Seal Level

NA = not available

Table 2

Summary of Soil Analytical Results

Former One Hour Martinizing Cleaners Oconomowoc, Wisconsin

Soil Boring Identification	Sample Depth (feet BGS)	Sample Date	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride
HP-1	2-4	05/06/08	660	<27	<26	<26	<37
IID 2	2-4	05/06/08	380	<27	<26	<26	<37
HP-2	6-8	05/06/08	2,700	<27	<26	<26	<37
GP-1	2-4	05/06/08	40	<27	<26	<26	<37
Gr-1	14-16	05/06/08	69	<27	<26	<26	<37
B-1	2-4	08/12/08	3,080	<25	<25	<25	<25
D-1	9-11	08/12/08	2,090	<25	<25	<25	<25
B-2	6-7	08/12/08	1,660	<25	<25	<25	<25
B-3	2-4	08/12/08	<25	<25	<25	<25	<25
D-3	10-11	08/12/08	<25	<25	<25	<25	<25
B-4	2-4	08/12/08	<25	<25	<25	<25	<25
D-4	7-8	08/12/08	78.2	<25	<25	<25	<25
B-5	2-4	08/12/08	<25	<25	<25	<25	<25
D-3	18-20	08/12/08	46.1 J	<25	<25	<25	<25
B-6	2-4	08/12/08	<25	<25	<25	<25	<25
D-0	10-11.5	08/12/08	<25	<25	<25	<25	<25
B-7	2-4	08/12/08	<25	<25	<25	<25	<25
D-7 ,	6-7	08/12/08	<25	<25	<25	<25	<25
В-8	2-4	08/12/08	<25	<25	<25	<25	<25
D-0	10-11	08/12/08	<25	<25	<25	<25	<25
MW-1	25-27	08/12/08	158	<25	<25	<25	<25
MW-1D	36-37	08/12/08	<25	<25	<25	<25	<25
	0-2	01/04/11	<26	<26	<26	<26	<37
B-10	4-6	01/04/11	<26	<26	<26	<26	<36
	22-24	01/04/11	75	<26	<26	<26	<36
B-13	5-7	05/16/13	<16	<18	<12	<24	<10
15-13	20-22	05/16/13	<16	<17	<12	<23	<9.7
B-15	10-12	05/14/13	<12	<14	<9.0	<18	<7.6
D 13	20-22	05/14/13	<14	<15	<10	<21	<8.6
Direct (Contact Industrial	RCL*	145,000	8,410	2,340,000	1,850,000	2,080
Direct C	Contact Residentia	RCL*	33,000	1,300	156,000	1,560,000	67.0
Soil to	Soil to Groundwater RCL*		4.5	3.6	41.2	62.6	0.10

Notes:

Bolded and blue shaded values are above WDNR Soil to Groundwater Residual Contaminant Level.

BGS = below ground surface

RCL = Residual Contaminant Level



^{* =} WDNR Residual Contaminant Level (RCL) based on United States Environmental Protection Agency Region 3, 6, and 9 Regional Screening Levels (November 2017) according to WDNR Publication RR-890.

All concentrations reported in units of micrograms per kilogram (µg/kg)

TABLE 3 SOIL VAPOR EXTRACTION SYSTEM OPERATIONAL DATA

Former OHM-Oconomowoc
36929 Plank Road, Oconomowoc, Wisconsin

Date	Time	Operating Zone	System Runtime	System Vacuum	Effluent Flow Rate	Effluent VOC Concentration	Inlet Temperature	Exhaust Temperature	Dilution
			Hours	inHg	cfm	$\mu g/m^3$	°F	°F	(%)
4/11/2017	1820	shallow + deep	4.4	-13.00	185	23,052	50	185	30
4/12/2017	1339	shallow + deep	23.0	-17.00	190	16,337	65	205	30
4/13/2017	1035	shallow + deep	45.8	-11.00	198	22,289	53	165	40
4/20/2017	1037	shallow + deep	210.6	-12.00	190	3,360	65	180	40
4/27/2017	1102	shallow + deep	378.7	-12.00	190	2,000	50	170	40
5/4/2017	852	shallow + deep	540.5	-9.00	210	1,310	55	133	50
6/5/2017	1512	shallow + deep	1,314.3	-7.00	207	1,372	62	145	60
7/5/2017	1718	shallow + deep	2,036.5	-10.00	206	1,090	80	155	60
8/4/2017	946	shallow + deep	2,724.4	-7.00	208	2,541	70	130	50
9/8/2017	1330	shallow + deep	3,566.1	-6.50	218	1,680	65	130	50
10/3/2017	1541	shallow + deep	3,918.7	-8.00	190	2,060	85	135	50
11/7/2017	1240	shallow	4,493.8	-10.50	160	193	<50	175	30
12/14/2017	1115	deep	5,376.0	-11.50	133	5,375	<50	190	35

Notes:

-- = Reading not recorded inHg = inches of mercury cfm = cubic feet per minute $\mu g/m^3$ = micrograms per cubic meter

