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)

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. Code.

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 Information

A. General Information

1. Site name

Harborview Cleaners

2. Reporting period from:	To:	Days in period:
07/01/2018	12/31/2018	184

3. Regulatory agency (enter DNR, DATCP and/or other)	4. BRRTS ID No. (2 digit program-2 digit county-6 digit site specific)
DNR	02-46-548092

5. Site location

Region	County	Address
Southeast Region	Ozaukee	134 E Grand Ave

Municipality name ◯ City ◯ Town ◯ Village	Township	Range ◉E ◯W	Section	¼	¼ ¼
Port Washington	11 N	22	28	SE	NW

6. Responsible party	7. Consultant
Name: Harborview Cleaners	☐ Select if the following information has changed since the last submittal
Mailing address: 134 E Grand Ave	Company name: EnviroForensics, LLC
Phone number: (262) 284-2370	Mailing address: N16W23390 Stone Ridge Dr, Ste G Phone number: (262) 290-4001

8. Contaminants

Volatile organic compounds (Tetrachloroethene)

9. Soil types (USCS or USDA)

ML, CL, SM

10. Hydraulic conductivity(cm/sec):	11. Average linear velocity of groundwater (ft/yr)
3.3 x 10-4	19

12. If soil is treated ex situ, is the treatment location off site? ◯ Yes ◯ No

If yes, give location: Region	County

Municipality name ◯ City ◯ Town ◯ Village	Township	Range ◯E ◯W	Section	¼	¼ ¼
	N				

B. Remediation Method

Only submit sections that apply to an individual site. Check all that apply:

- ☐ 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 GW-3).
- ☐ Other groundwater remediation method (submit a completed Section GW-4).
- ☒ Soil venting (including soil vapor extraction building venting and 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 IS-3).
- ☐ Biopiles (submit a completed Section ES-1).
- ☐ Landspreading/thinspreading of petroleum contaminated soil (submit a completed Section ES-2).
- ☐ Other ex situ remediation method (submit a completed Section ES-3).
- ☐ 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 subsection.

1. Is the system operating at design rates and specifications? ◉ Yes ○ No
   If the answer is no, explain whether or not modifications are necessary to achieve the goal that was previously established in design.

2. Are modifications to the system warranted to improve effectiveness ○ Yes ◉ No
   If yes, explain:

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 improve cost effectiveness? ○ Yes ◉ No
   If yes, explain:

D. Economic and Cost Data to Date

1. Total investigation cost: $174,800.00
2. Implementation costs (design, capital and installation costs, excluding investigation costs: $145,900.00
3. Total costs during the previous reporting period:
4. Total costs during this reporting period: $22,800.00
5. Total anticipated costs for the next reporting period: $20,000.00
6. Are any unusual or one-time costs listed in the reporting periods covered by D.3., D.4. or D.5. above? ○ Yes ◉ No
   If yes, explain:

7. If closure is anticipated within 12 months, estimated costs for project closeout:

E. Name(s), Signature(s) and Date of Person(s) Submitting Form

Legibly print name, date and sign. Only persons qualified to submit reports under ch. NR 712 Wis. Adm. Code are to sign this form for sites with any ongoing active remediation, monitoring or an investigation. Other persons may sign this form for sites with no response activities during the six month reporting period.

Registered Professional Engineers:

I hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print name	Title
Andrew Horwath	Director of Engineering and Remediation Services
Signature: Andrew D. Horwath	Date: 1/28/2019

Hydrogeologists:

I hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print name	Title
Brian Kappen	Project Manager
Signature: B J Kappen	Date: 1/28/2019

Scientists:

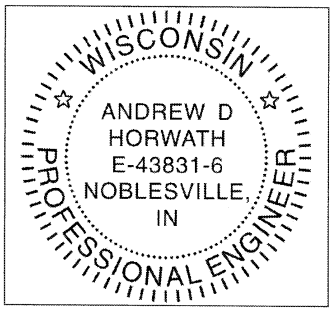
I hereby certify that I am a scientist as that term is defined in s. NR 712.03(3), Wis. Adm. Code, and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Print name	Title
Signature	Date

Other Persons:

Print name	Title
Signature	Date

Professional Seal(s), if applicable:



Section IS-1, Soil Venting (Including Soil Vapor Extraction, Building Venting and Bioventing)

A. Soil Venting Operation

Note: This form is not required for building vapor mitigation systems that are installed proactively to protect building occupants/users and are not considered part of ongoing active soil remediation.

1. Number of air extraction wells available and number of wells actually in use during the period: 4
2. Number of days of operation (only list the number of days the system actually operated, if unknown explain):
   113. All four (4) extraction wells were available for use during the reporting period. However, at certain times higher vacuum was applied to only two (2) wells to target extraction from specific areas. Wells that were intentionally closed are listed with zero vacuum on Table 3 (attached).
3. System utilization in percent (days of operation divided by reporting time period multiplied by 100). If < 80%, explain:
   61%. However, the system was started up on August 13 and did not operate for the first 43 days of the reporting period. Adjusted system utilization (i.e., not including July 1 - August 12) is 81%. Downtime was caused by malfunction of system controls and lead time for replacement.
4. Average depth to groundwater: 11 gpm

B. Building Basement/Subslab Venting System Operation

1. Number of venting points available and number of points actually in use during the period:
2. Number of days of operation (only list the number of days the system actually operated, if unknown explain):
3. System utilization in percent (days of operation divided by reporting time period multiplied by 100). If < 80%, explain:

C. Effectiveness Evaluation

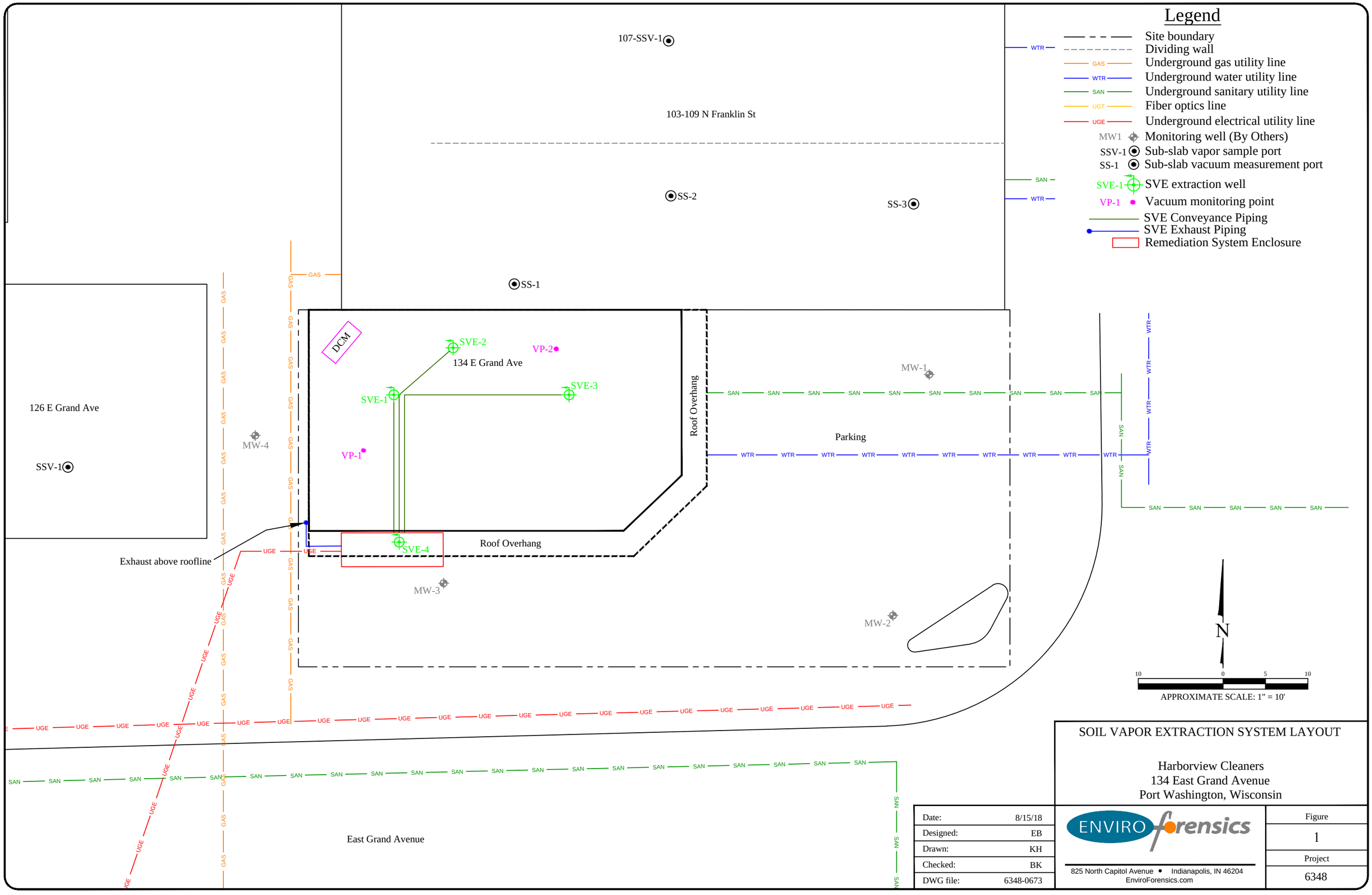
1. Average contaminant removal rate for the entire system: 0.035 pounds per day
2. Average contaminant removal rate per well or venting point: 0.009 pounds per day
3. If the average contaminant removal rate is less than one pound per day for the entire system, or if the average contaminant removal rate per well is less than one tenth of a pound per day, evaluate the following:
   a. If contaminants are aerobically biodegradable and confirmation borings have not been drilled in the past year:
      i. Oxygen levels in extracted air: percent
      ii. Methane levels in extracted air (ppm_V) If over 10 ppm_V, explain:
      iii. If methane is not present above 10 ppm_V and if oxygen is greater than 20 percent in extracted air, you should either:
      - Drill confirmation borings during the next reporting period, if the entire site should be considered for closure.
      - Or, perform an in situ respirometry test in a zone of high contamination. Do not perform the test in an air extraction well, use a gas probe or water table well. If a zero order rate of decay based on oxygen depletion is less than 2 mg/kg per day, then you should drill confirmation borings, if the entire site should be considered for closure. If the rate of decay is between 2 and 10 mg/kg, operate for one more reporting period before evaluating further. If the zero order rate of decay is greater than 10 mg/kg total hydrocarbons, continue operating the system in a manner than maximizes aerobic biodegradation.

   b. If contaminants are not aerobically biodegradable and confirmation borings have not been recently drilled during the past year, you should drill confirmation borings during the next reporting period if the entire site should be considered for closure.
   c. If soil borings were drilled during the past year and soil contamination remains above acceptable levels, explain if the system effectiveness can be increased and/or if other options need to be considered to achieve cleanup criteria.

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.
- 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.



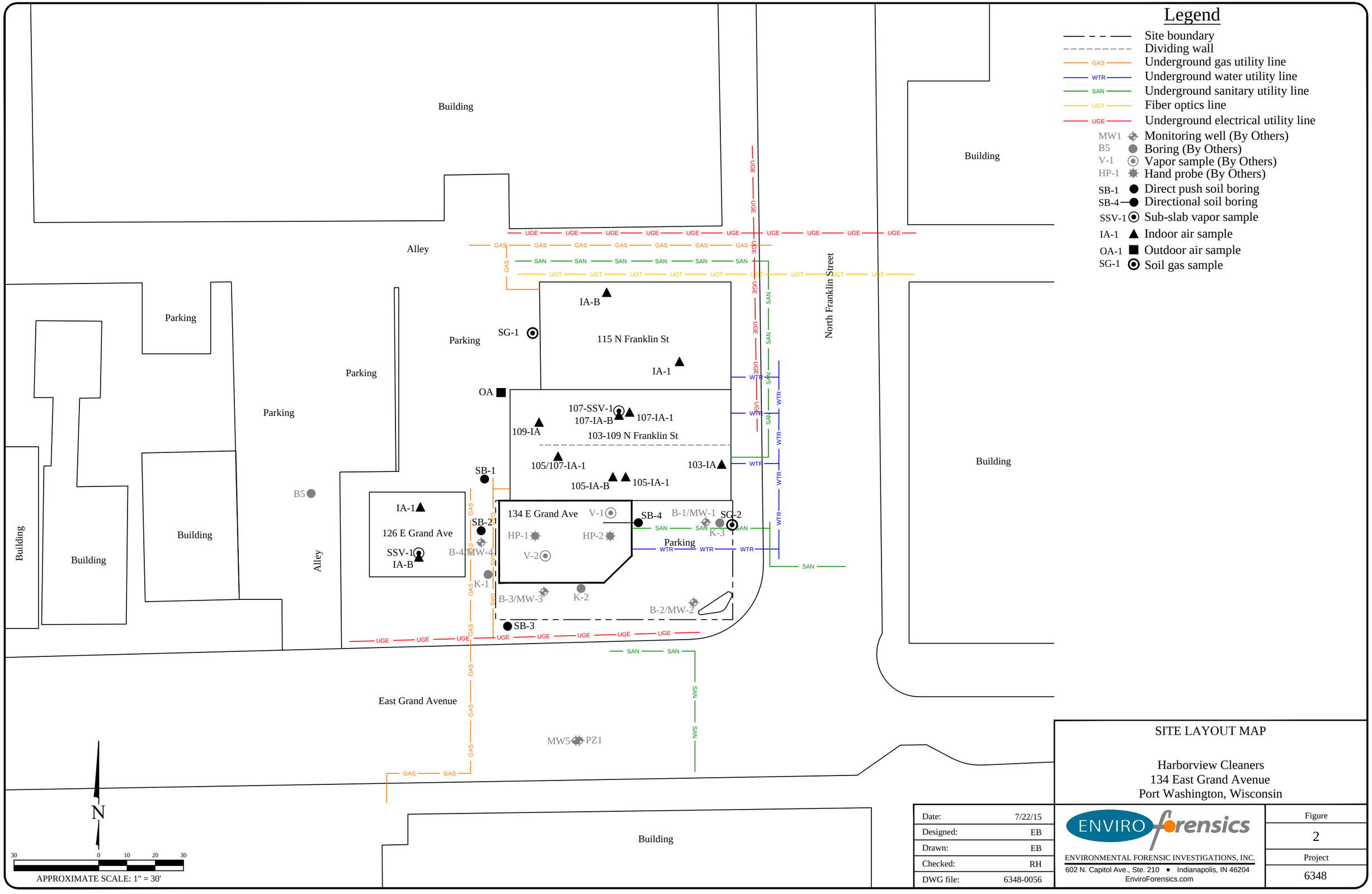
SOIL VAPOR EXTRACTION SYSTEM LAYOUT

Harborview Cleaners
134 East Grand Avenue
Port Washington, Wisconsin

Date:	8/15/18
Designed:	EB
Drawn:	KH
Checked:	BK
DWG file:	6348-0673

ENVIRO forensics
825 North Capitol Avenue • Indianapolis, IN 46204
EnviroForensics.com

Figure
1
Project
6348



SITE LAYOUT MAP

Harborview Cleaners
134 East Grand Avenue
Port Washington, Wisconsin

Date:	7/22/15
Designed:	EB
Drawn:	EB
Checked:	RH
DWG file:	6348-0056

ENVIRO forensics
ENVIRONMENTAL FORENSIC INVESTIGATIONS, INC.
602 N. Capitol Ave., Ste. 210 • Indianapolis, IN 46204
EnviroForensics.com

Figure	2
Project	6348

Chart 1

SVE Effluent VOC Concentration Trend

Harborview Cleaners - 134 E. Grand Avenue, Port Washington, Wisconsin

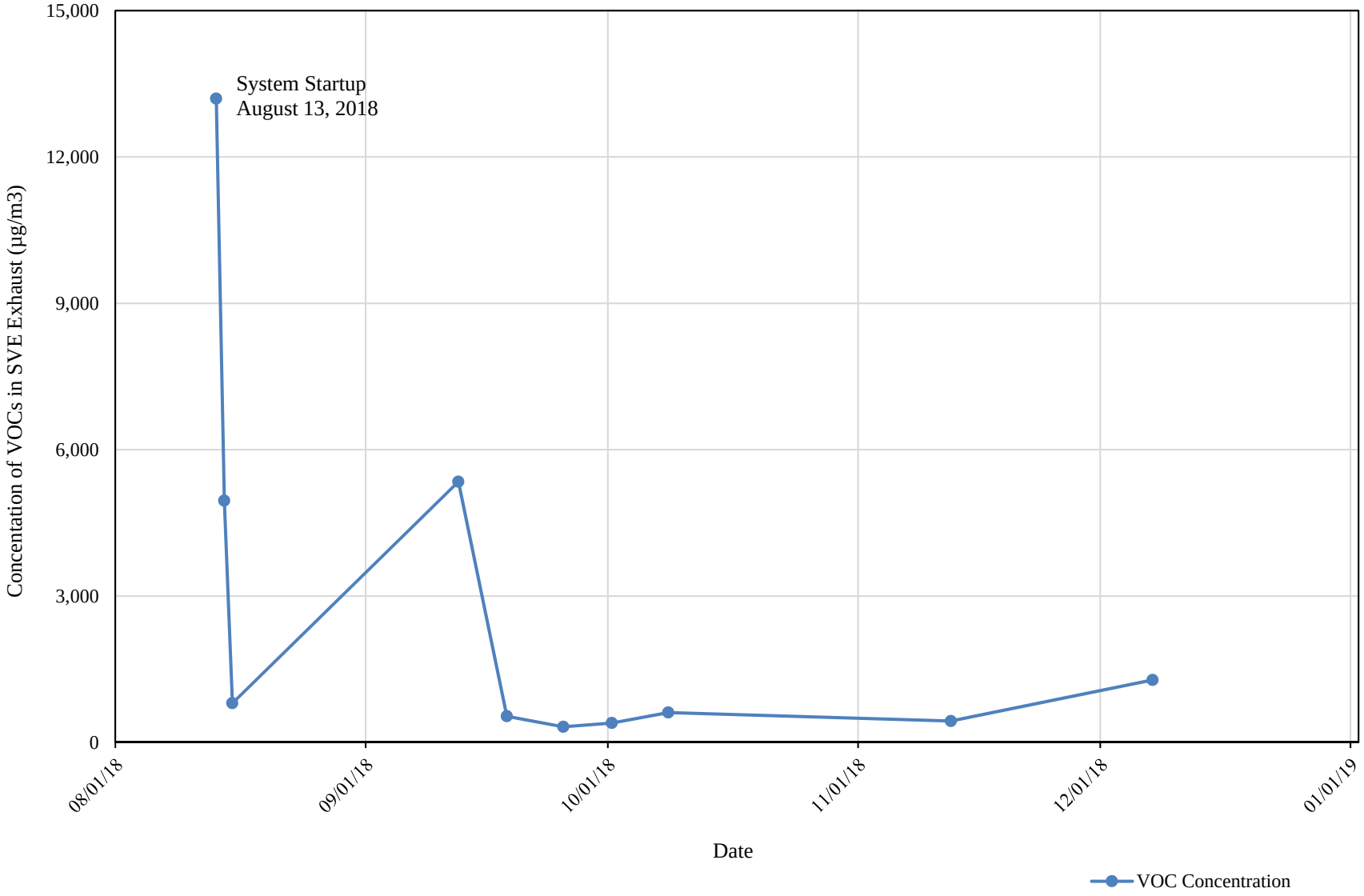


Chart 2

Cumulative VOC Mass Removed

Harborview Cleaners - 134 E. Grand Avenue, Port Washington, Wisconsin

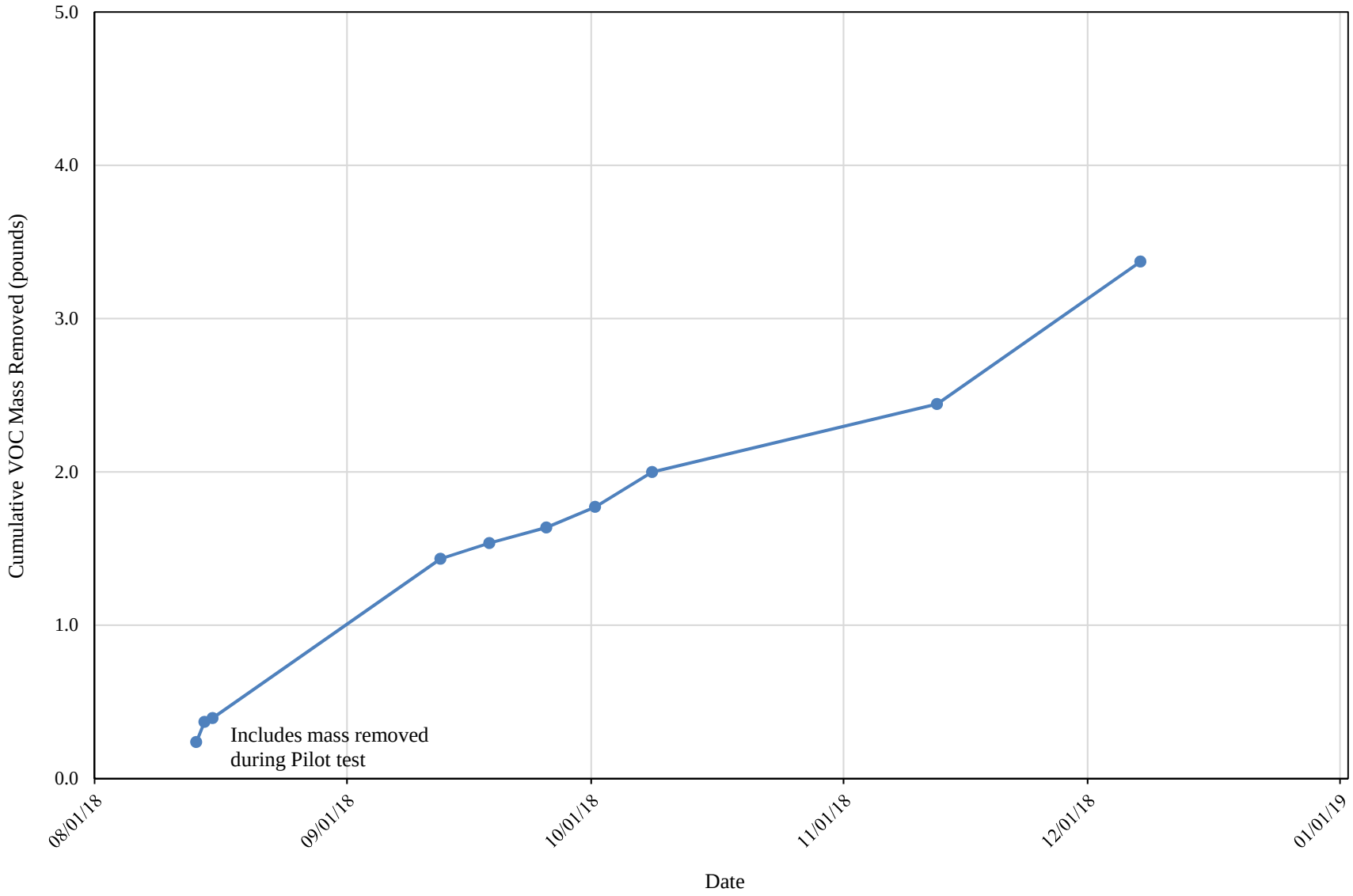


TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
Harborview Cleaners
134 East Grand Avenue, Port Washington, Wisconsin

Boring Identification	Sample Depth (feet)	Sample Date	Consultant	Tetrachloroethene	Trichloroethene	Chloroform	n-Butylbenzene	Ethylbenzene	Methylene Chloride	Napthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes (total)
Industrial RCL [1]				**153,000**	**8,810**	**2,130**	**108,000**	**37,000**	**1,070,000**	**26,000**	**264,000**	**818,000**	**219,000**	**182,000**	**388,000**
Non-Industrial RCL [1]				**30,700**	**644**	**423**	**108,000**	**7,470**	**60,700**	**5,150**	**264,000**	**818,000**	**89,800**	**182,000**	**388,000**
Soil to Goundwater RCL [1]				**4.5**	**3.6**	**3.3**	**N.E.**	**1,570**	**2.6**	**659**	**1,970**	**1,107**	**1,390**	**1,380**	**3,960**
K-1	3-4	11/20/2006	Konicek	**1,300**	<25	<25	<40	<25	**84**	<25	<25	<25	<25	<25	<75
K-2	3-4	11/20/2006	Konicek	**660**	<25	<25	<40	<25	**69**	<25	<25	<25	<25	<25	<75
K-3	3-4	11/20/2006	Konicek	<25	<25	<25	<40	<25	**65**	<25	<25	<25	<25	<25	<75
K-3	9	11/20/2006	Konicek	**150**	<25	<25	<40	<25	**67**	<25	<25	<25	<25	<25	<75
B-1/MW-1	2-4	12/20/2007	Konicek	<25	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
	18-20	12/20/2007	Konicek	<25	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
B-2/MW-2	2-4	12/20/2007	Konicek	<25	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
	13	12/20/2007	Konicek	<25	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
B-3/MW-3	2-4	12/20/2007	Konicek	**670**	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
	14-16	12/20/2007	Konicek	<25	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
	14-16 D	12/20/2007	Konicek	<25	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
B-4/MW-4	2-4	12/20/2007	Konicek	**4,100**	**63 Q**	<26	<42	<26	<26	<26	<26	<26	<26	<26	<78
	14-16	12/20/2007	Konicek	<25	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
B-5	8-10	1/16/2008	Konicek	<25	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
	14-15	1/16/2008	Konicek	<25	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
PZ-1	4-6	3/13/2008	Konicek	<25	<25	**42.5 J**	<40.4	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<50.0
	10-12	3/13/2008	Konicek	<25.3	<25.3	<25.3	<40.8	<25.3	<25.3	<25.3	<25.3	<25.3	<25.3	<25.3	<50.6
	14-16	3/13/2008	Konicek	<25	<25	<25.0	<40.4	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<50.0
	32-35	3/13/2008	Konicek	<25	<25	<25.0	<40.4	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<50.0
HP-1	2-4	1/16/2008	Konicek	**29,000**	<120	<120	<200	<120	<120	<120	<120	<120	<120	<120	<370
	6-8	1/16/2008	Konicek	**81,000**	<310	<310	<500	<310	<310	<310	<310	<310	<310	<310	<930
HP-2	2-4	1/16/2008	Konicek	**45 Q**	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
	6-8	1/16/2008	Konicek	**1,200**	<25	<25	<40	<25	<25	<25	<25	<25	<25	<25	<75
SB-1	8-10	12/2/2015	EnviroForensics	<54	<42	<26	<86	<27	<220	<87	<35	<31	<78	<89	<0.99
	14-16	12/2/2015	EnviroForensics	<54	<42	<26	<86	<27	<220	<87	<35	<31	<78	<89	<0.99
SB-2	6-8	12/2/2015	EnviroForensics	**3,800**	<42	<260	**1,470 J**	**690 J**	<2200	**4,400**	**1,020 J**	**380 J**	**7,200**	**2,200 J**	**4,560**
	11-13	12/2/2015	EnviroForensics	<54	<42	<26	<86	<27	<220	<87	<35	<31	<78	<89	<0.99

TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
Harborview Cleaners
134 East Grand Avenue, Port Washington, Wisconsin

Boring Identification	Sample Depth (feet)	Sample Date	Consultant	Tetrachloroethene	Trichloroethene	Chloroform	n-Butylbenzene	Ethylbenzene	Methylene Chloride	Napthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes (total)
Industrial RCL [1]				**153,000**	**8,810**	**2,130**	**108,000**	**37,000**	**1,070,000**	**26,000**	**264,000**	**818,000**	**219,000**	**182,000**	**388,000**
Non-Industrial RCL [1]				**30,700**	**644**	**423**	**108,000**	**7,470**	**60,700**	**5,150**	**264,000**	**818,000**	**89,800**	**182,000**	**388,000**
Soil to Goundwater RCL [1]				**4.5**	**3.6**	**3.3**	**N.E.**	**1,570**	**2.6**	**659**	**1,970**	**1,107**	**1,390**	**1,380**	**3,960**
SB-3	6-8	12/2/2015	EnviroForensics	**1,720**	<42	<26	<86	<27	<220	<87	<35	<31	<78	<89	<0.99
	10-12	12/2/2015	EnviroForensics	**500**	<42	<26	<86	<27	<220	<87	<35	<31	<78	<89	<0.99
	14-16	12/2/2015	EnviroForensics	<54	<42	<26	<86	<27	<220	<87	<35	<31	<78	<89	<0.99
SB-4	6-8 (4.5-6.5 vertical)	12/2/2015	EnviroForensics	<54	<42	<26	<86	<27	<220	<87	<35	<31	<78	<89	<0.99
	12-14 (9.5-11.5 vertical)	12/2/2015	EnviroForensics	**186**	<42	<26	<86	<27	<220	<87	<35	<31	<78	<89	<0.99
	16-18 (13-15 vertical)	12/2/2015	EnviroForensics	<54	<42	<26	<86	<27	<220	<87	<35	<31	<78	<89	<0.99

Notes:

[1] Residual Contaminant Levels calculated according to the procedures described in WDNR Publication RR-890

All concentrations reported in micrograms per kilogram µg/kg

J, Q = Estimated concentration between the laboratory detection limit and reporting limit

N.E. = Not established

Bolded values are above laboratory detection limits

Bolded and Green Shaded value indicates an exceedance of the Non-Industrial Residual Contaminant Level

Bolded and Blue Shaded value indicates an exceedance of the Soil to Groundwater Residual Contaminant Level

TABLE 2
GROUNDWATER ELEVATION DATA SUMMARY
Harborview Cleaners
134 East Grand Avenue
Port Washington, Wisconsin

Well ID	Date	TOC Elevation (feet AMSL)	Depth to Water (feet below TOC)	Groundwater Elevation (feet AMSL)
MW-1	4/18/2016	591.69	8.38	583.31
	7/19/2016		8.76	582.93
MW-2	4/18/2016	591.81	8.44	583.37
	7/19/2016		8.71	583.10
MW-3	4/18/2016	592.69	11.19	581.50
	7/19/2016		11.38	581.31
MW-4	4/18/2016	593.84	11.83	582.01
	7/19/2016		12.08	581.76
MW-5	4/18/2016	592.34	10.98	581.36
	7/19/2016		11.14	581.20
PZ-1	4/18/2016	592.42	3.63	588.79
	7/19/2016		8.75	583.67

Notes:
All values are in feet
AMSL = above mean sea level
TOC = top of casing reported in the 2009 Site Investigation Report

TABLE 3
SOIL VAPOR EXTRACTION SYSTEM OPERATIONAL DATA
Harborview Cleaners
134 E. Grand Avenue, Port Washington, Wisconsin

Date	Time	Parameter	System Runtime	VFD Setting	System Vacuum	Conveyance Line Vacuum				Exhaust Pressure	Inlet Filter Differential Pressure	Exhaust Differential Pressure	Calculated Flow Rate	Intake Temperature	Exhaust Temperature	Effluent VOC Concentration
		Location	Panel Display	Panel Display	Air-Water Separator	1	2	3	4	Exhaust Pipe	Filter Housing	Pitot Tube			Exhaust Pipe	Exhaust Port
		Units	Hours	Hertz	in Hg	in Hg				in H_2O	in H_2O	in H_2O	SCFM	°F	°F	µg/m^3
08/13/18	1103		3.5	60.0	-6.0	-7.0	0.0	-7.0	0.0	8.0	0.0	2.2	287		143	13,197
08/14/18	1100		26.4	60.0	-5.5	-7.0	0.0	-8.0	0.0	9.0	0.0	2.2	289		145	4,956
08/15/18	1345		50.6	50.0	-2.0	-2.0	-1.5	-1.8	-1.8	4.0	0.0	2.2	319		109	803
09/12/18	1333		187.8	51.2	-2.0	-3.0	-2.0	-2.0	-2.5	8.0	0.0	2.2	321	68	110	5,344
09/18/18	950		328.2	51.2	-2.0	-2.5	-2.0	-2.0	-2.0	8.0	0.0	2.1	306	63	103	536
09/25/18	1520		501.7	51.2	-5.0	-6.0	0.0	-5.5	0.0	5.0	0.0	1.7	254	65	123	319
10/01/18	1050		641.2	51.2	-3.2	0.0	-3.0	0.0	-3.0	7.0	0.0	2.0	295	57	110	397
10/08/18	1210		687.9	51.2	-5.6	-6.0	0.0	-5.5	0.0	5.0	0.0	1.7	260	60	116	612
11/12/18	1207		1503.9	51.2	-1.5	-2.5	-1.5	-2.0	-2.0	7.0	0.0	2.2	332	48	82	437
12/07/18	1220		2129.0	51.2	-3.1	0.0	-3.0	-3.0	0.0	6.0	0.0	2.1	310	49	88	1,280

Notes:
in Hg = inches of mercury
in H_2O = inches of water
µg/m^3 = micrograms per cubic meter