ReadyEarth Consulting, Inc.

ReadyEarth
Consulting, Inc.
P.O. Box 365
Pewaukee, WI 53072
jbartley@ReadyEarth.net
PHONE 262.522.3520
MOBILE 414.731.9874
FAX 262.522.3501

February 11, 2020
Revised March 24, 2020

Ms. Janet DiMaggio
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Madison, WI 53711

RE: Reconsideration Letter and Additional Comments Regarding Site Investigation Addendum for the Block System Cleaners Facility Located at 2017 Winnebago Street in Madison, Wisconsin – BRRTS No. 02-13-552132; ReadyEarth Project no. 11-0604

Dear Ms. DiMaggio:

ReadyEarth Consulting, Inc. (ReadyEarth) is pleased to submit this letter for the above-referenced site (the "site"). This letter addresses comments from the Wisconsin Department of Natural Resources (DNR) committee review of our "Site Investigation Addendum" dated September 17, 2019 ("SI Addendum"). In an email dated October 18, 2019 (copy included in Attachment C), the DNR requested additional information regarding three components referenced from a 2015 letter:

- Better definition of contaminant plume at depth
- More exploration of the contaminant source
- The possible need for remediation

In November 2019, ReadyEarth engaged in a phone call with Janet DiMaggio and Wendell Wojner of the DNR to present additional discussion regarding the 2019 committee review. As a result of that call, DNR requested that ReadyEarth prepare this letter to present the discussion in writing for additional consideration by committee. This letter summarizes our November 2019 conversation and presents additional information for the closure committee to reconsider toward the completeness of the SI and reviewing a closure request.

I. Plume Definition and Piezometer Locations (Attachment A)

Please refer to figure B.3.a cross-section diagram included in Attachment A. Based on soil descriptions presented on the cross-section diagram, the DNR has questioned whether a preferential pathway exists at depth for plume migration, and whether the piezometers are situated to properly evaluate the plume extent.

1. The two soil types in question are labeled on the cross-section diagram as a “well-graded sand” and a “hard fine sandy silt”. The descriptions on the actual boring logs (included in Attachment A) are as follows:

    - “brown silty fine to coarse SAND, some fine to coarse gravel, very dense, wet, no odor”
    - “gray fine sandy SILT, some clay, some coarse sand, some fine to coarse gravel, hard/very dense, wet, no odor”

    The two units are a silty sand and a sandy silt. Both units include similar components and are quite similar. However, the units are slightly different and are thus graphically represented differently on the cross-section. Due to their similarity, it is likely that the soil transitioned from one description to the other as opposed to breaking sharply. For sure, the units appeared substantially similar in the field insofar that there was no obvious reason to change the approved scope of work. The term well-graded signifies that there is a wide range of particle sizes and relatively lower porosity compared to poorly-graded sand. To be clear, the sand was not beach sand, was not loose and granular (it was more like concrete as opposed to table salt), and did not visually represent a preferential pathway.

2. Both units are similarly very dense/hard:

    - The “well-graded sand” was believed to be bedrock during drilling of PZ-2 due to auger refusal at 19.5 feet below ground surface (bgs). Air rotary drilling eventually revealed that it was not bedrock and drilling continued using hollow stem augers.
    - Blow counts for the subsequent three samples attempted below the initial refusal depth (representing both soil units) were 50/4 or 50/5 indicating the maximum 50 blow counts were attained over 4 or 5 inches and the attempts were terminated.
    - ReadyEarth recognizes that density/hardness does not necessarily correlate to permeability; however, these comparisons provide examples of the similarities of the two soil units in question

3. The siltier unit is clearly not acting as an aquitard:

    - PZ-3 and PZ-4 set in the “hard fine sandy silt” could not be purged dry during development. PZ-1 set in the “well-graded sand” could be purged dry during development (as could PZ-2). The well development forms are included in Attachment A.
    - Tetrachloroethene (PCE) has been detected in all of the piezometers set within the siltier unit (groundwater data tables are included in Attachment A):

    - Although relatively low, the PCE concentrations are higher at PZ-4 (20 feet deeper PZ-1) than PZ-2 or PZ-3, which indicates adequate permeability of the siltier unit for vertical migration closer to the former source.
    - PCE was detected in both downgradient piezometers PZ-2 and PZ-3, which are both set in the sandy silt unit, at concentrations slightly above the preventive action limit (PAL).
- If contaminants were preferentially flowing within the sand, it would be expected that a well closer to the transition would have higher concentrations. However, the PCE concentrations are consistently lower at PZ-2 (approximately 15 feet below the transition) and slightly higher at PZ-3 (35 feet below the transition).

4. The plume extent depicted on the cross-section map is a reasonable representation:

    - The angle of the plume is established by the shallow wells MW-4 and MW-6, which are along the centerline of the plume: impacts are present at the top of the water table at MW-4 (based on PID readings and soil lab results at the soil/water interface); the low concentrations at MW-6 indicate only the very bottom of that well is engaged with the plume.
    - The degree of the concentrations in the other piezometers as compared to PZ-1, and the relationships of the concentrations in those piezometers to the enforcement standard (ES) and PAL indicate that PZ-1 is centrally-located in the plume and that the other piezometers are peripherally-located in the plume. The corroboration of the shallow and deep wells suggests the cross-section is a good model for the plume.
    - A reasonable plume cannot be drawn that would incorporate preferential flow above PZ-2 (certainly not exceeding an ES - i.e. the plume cannot extend beyond PZ-2 without being detected at PZ-2). That plume would be an unnatural contortion that wraps back and then drops vertically 25 feet so that it is only slightly detected and at a lower concentration at PZ-2 than at PZ-3.

5. The concentrations at PZ-1 are the highest detected at the site, yet are still relatively low (161 parts per billion {ppb} during the April 2019 event). We believe that for the reasons expressed herein, additional investigation is neither warranted nor economically feasible on a cost to benefit basis.

6. PZ-2 is set at an ideal depth to evaluate the plume, and it was appropriate to set that well at the planned depth as opposed to altering the scope of work:

    - As discussed under item no. 4 of this section, the current well configuration works well to define the plume, and the cross-section is a reasonable model of the plume.

- PZ-2 is situated ideally to monitor the concentrations at PZ-1 and is in fact critical for the plume definition. A shallower piezometer could be argued to be missing the plume based on the groundwater concentrations as they are.
- The soil units are substantially similar and neither were there field indications of preferential flow or aquitard conditions nor does the empirical data indicate such.
- The well configuration was discussed in great detail during a technical assistance process with the DNR. There were no obvious justifications to deviate from that plan (e.g. no clear difference in soil type or saturation observations, no odors, no significant PID readings, etc.).

Overall, the piezometers and the entire well network are well situated to evaluate the degree and extent of groundwater impacts in relation to the former source area.

II. Former Source Area (Attachment B)

The DNR requested further explanation of potential source areas at the site. This section discusses the likeliest source area based on empirical data and speculative evidence, and why the SI activities focused on appropriate areas of the site

1. A critical aspect to the discussion regarding the former source area for the site is the relatively low concentrations. The highest PCE concentrations during the most recent groundwater sampling event (April 2019) were 119 ppb in shallow groundwater (MW-3) and 161 ppb in deeper groundwater (PZ-1). The shallow concentrations have been relatively consistent and generally within the same order of magnitude over thirteen rounds of sampling. The PCE concentrations in PZ-1 have decreased from a peak of 548 ppb, which is still fairly low for an overall peak concentration at a dry cleaner site, relatively speaking.

2. The preponderance of empirical data indicates that the former source area is proximal to the rear portion of the building (now razed), which formerly contained the Stoddard tanks (ReadyEarth recognizes that the DNR does not consider the Stoddard tanks themselves as a source):

    - The highest PCE concentrations in shallow groundwater are consistently at either MW-3 or MW-4.
    - The shallow groundwater PCE concentrations decrease with distance from that area:
        - The PCE concentrations in the closest sidegradient wells to that area (MW-1 and MW-2) are generally less than 10 ppb.
        - The PCE in the closest downgradient shallow well (MW-6) is generally less than 10 ppb.

- The sub-slab vapor PCE concentrations decrease with distance from that area of the building.

3. The preponderance of speculative evidence suggests that the rear portion of the building would be the most likely area of a former source:

    - It has been reported that PCE spot cleaning was conducted during the time Stoddard was used as the main cleaning agent (pre circa 1991). Although there was no specific spot cleaning area, the Stoddard machines had been located in the rear area of the building and it is reasonable that the spot cleaning would be nearby.
    - The rear of the building was generally used as a storage area for the building, so it is reasonable that PCE for spot cleaning may have been stored there at some point prior to installation of the dry cleaning machine.
    - A rear door to the building (now razed) had been located adjacent to MW-4 (shown on the maps and photographs included in Attachment B).
    - A former floor drain had been located in the rear portion of the building (now razed). The floor drain elbowed underground and then into the basement where it then ran along the ceiling to discharge to the sanitary sewer on the Winnebago Street side of the building (near MW-5). Probehole P-4 was advanced in the immediate vicinity of the former floor drain with no impacts detected. The location of the floor drain and P-4 are illustrated on the figures and photographs in Attachment B. Figure B.1.b.2 Detailed Site Map Zoom in Attachment B depicts the photograph locations.

4. It is unlikely that the former source area is further south of the rear corner of the building due to the consistency of the concentrations at MW-3 and MW-4, and the much lower concentrations at MW-1, MW-2, and MW-6.

5. The former dry cleaning machine and associated PCE usage was not the source of impacts at the site:

    - GP-3 from the site scoping investigation was a shallow probe installed immediately adjacent to the former dry cleaning machine. No impacts were detected in soils collected adjacent to the former dry cleaning machine.
    - The soil, vapor, and groundwater results from GP-2, P-2, VP-2, and MW-2 are not consistent with a release at or associated with the former dry cleaning machine - especially considering the concentrations at MW-3 and MW-4.

6. While the DNR notes that the source of PCE is still unknown, the sampling to date in the most likely former source area has been extensive and thorough. Further sampling would be redundant:

    - The most-likely former source area matches the area of highest shallow groundwater impacts. Evidence provided herein indicates that the former source was somewhere near the rear portion of the building (near MW-4).
    - Five probeholes and an NR 141 well have been advanced in an area of approximate 500 ft^2 in that vicinity.

7. The possibility must be considered that the former source area may simply be very small or no longer present:

    - The groundwater concentrations are relatively low and stable or decreasing, which both support a limited source.
    - It's quite typical to not pinpoint the exact cause of a release. For example, at a gasoline filling station a release could have originated from a tank, piping, or dispenser within one particular area. If the SI can identify the area of highest concentrations, surround that area by perimeter sampling, and evaluate trends over time, a source area can be “defined”.

8. The DNR has requested additional information regarding buried utilities, locations of sumps in the building, locations of quick connects for the former PCE dry cleaning machine, and locations of exterior doors for the Block building:

    - The buried utilities are indicated on the figure B.1.b.1 Detailed Site Map included in Attachment B. The locations of these utilities have been determined from maps obtained from the City of Madison Engineering Department and/or have been determined through a utility locate.
    - The utilities are not affecting the former source area or affecting plume migration. The only utilities along the flow line are those in Atwood Avenue. Those utilities would need to be buried approximately 30 feet bgs in order to intersect the plume.
    - Figure B.1.b.2 Detailed Site Map Zoom included in Attachment B highlights even more details in the vicinity of the most-likely former source area and basement of the Block building. That figure details the former floor drain previously referenced, the wet-wash trench sump discussed in our phone call, and exterior doors to the Block building near the former source area. Note that the wet-wash trench sump collected water from a typical powder detergent washer machine and is not a foundation sump. Water from the trench was pumped via traditional sump pump to the sanitary sewer on the Winnebago Street side of the building.

- The former PCE dry cleaning machine quick connects are not addressed on the maps as they were located on the former dry cleaning machine itself, which has been removed from the building. The quick connects were utilized during PCE transfer discussed along with other dry cleaning processes on the interview summary included in Attachment B. ReadyEarth conducted the interview with Mr. Kevin Burditt, former General Manager of Block. The area near MW-2 was discussed in our phone call as the area where the PCE delivery vehicle would park. The actual PCE transfer to the machine was done from a cart-mounted drum through quick connects to the former machine. Any accidental spills during transfer of that cart from the vehicle to the machine would have been detected at MW-2. There is no report or evidence of any such spill.
- The photographs included in Attachment B show various aspects of the building that the DNR has raised as areas of potential interest.

9. The existing sampling density provides adequate coverage in the area of the highest shallow groundwater impacts (i.e. former source area). Further sampling is not physically feasible without being redundant.

The sampling conducted to date has shown a limited source, relatively low groundwater concentrations, and vapor/indoor air results conducive to reducing vapor mitigation as opposed to expanding it. The conditions at the site do not warrant active remediation.

III. Justification Against Active Remediation (Attachment C)

In a letter dated September 11, 2015 (copy included in Attachment C), the DNR recommended active remediation; however, that recommendation was made prior to the availability of additional mitigating data, and ReadyEarth believes that the recommendation was premature. Based on the entirety of the SI to date, ReadyEarth believes that remediation is not warranted for the site.

1.) In 2017, ReadyEarth requested technical assistance from the DNR prior to conducting additional required sampling. As part of that request, ReadyEarth inquired as to relevant factors to show that active remediation is not required in order to achieve closure. In their July 25, 2017 email response (copy included in Attachment C), the DNR indicated a potential for dense non-aqueous phase liquid (DNAPL) at the site and potential for questionable fill at the site. Neither has been identified at the site.

2.) The following significant data has been obtained subsequent to the DNR's comments regarding active remediation:

- Ten additional borings with soil sampling from both vadose zone and saturated intervals:
  - All of the soil samples were field screened for vapors
  - Twenty-one soil samples were analyzed for VOCs.
  - Zero impacts suggesting significant continuing sources were identified.
  - Zero evidence of DNAPL.
  - Zero evidence of questionable fill and all soil concentrations are below direct contact standards.
- Four additional wells including three piezometers, and four additional rounds of groundwater sampling.
- Continued stable or decreasing trends of already low groundwater concentrations.
- DNR authorized to cease operation of the sub-slab depressurization system (SSDS) in both the western portion of the Block building and the adjacent bar.
- Additional sub-slab vapor and indoor air sampling was conducted in the 2000 Atwood basement. The laboratory results were consistent with the pattern of the other sub-slab vapor samples, and confirmed that further vapor mitigation is not warranted.

3.) The premise of active remediation supposes there is a significant continuing source **to** remediate:

- The soil sampling has identified zero evidence of a significant continuing source in the highest area of shallow groundwater impacts.
- Six probeholes/borings were advanced in an approximate 500 ft^2 area in the vicinity of the highest shallow groundwater impacts. **If** any source soils remain, their extent appears extremely limited and perhaps infeasible to remediate cost-effectively.
- Zero evidence of DNAPL has been identified.
- The groundwater results are relatively low and are stable or decreasing. The groundwater impacts appear to be attenuating without the need for active remediation.

4.) Active remediation is not required for direct contact issues. Neither questionable fill nor soil concentrations above direct contact standards was identified at the site. Based on the relatively comprehensive soil sampling to date, no continuing obligations will be required with respect to direct contact at the time of closure.

5.) Active remediation would not appreciably further protect any of the exposure pathways:

- All soil concentrations are below direct contact standards
- Literally two concentrations of PCE were detected above the groundwater standards out of twenty-six unsaturated soil samples. Both concentrations are relatively low, estimated concentrations.
- A vapor mitigation system is operating within the basement of the Block building. That system will likely remain at the time of closure with or without any active remediation.
- The relatively low overall concentrations in groundwater indicate that the current contaminant mass in groundwater is already reduced and will continue to be reduced.

IV. Remediation by Natural Attenuation and Trend Analyses (Attachment D)

In the SI addendum, ReadyEarth provided evidence that overall, the soil, vapor, and groundwater sampling results continue to remain consistent with the preponderance of the previous data collected for the site. Further, ReadyEarth concluded that the groundwater data shows that the concentrations at the site are decreasing or, at a minimum, stable over at least the past four sampling rounds and several more rounds for those wells with more data. The DNR has also expressed a belief that the overall trend is stable. Attachment D includes the PCE and groundwater trend graphs over time, which were also included with the SI Addendum.

The best evidence for natural attenuation is stable and decreasing concentrations indicating that the mass of volatile contaminants has been reduced and the extent of a plume is being mitigated without need for additional remedial actions:

- The PCE concentrations in downgradient well MW-6 have demonstrated decreases over virtually ten consecutive events.
- Both the Stoddard and chlorinated concentrations in MW-4, which is closest to the likely former source area, have demonstrated consecutive decreases over the past three events:
    - The Stoddard compounds have decreased to below detection limits.
    - The PCE concentrations have attenuated approximately 79% from its peak concentration in 2013.
- PCE concentrations in PZ-1 (installed at approximately 36 feet bgs) have generally been the highest at the site (highest concentration measured to date is 548 ppb). The PCE concentrations in PZ-1 have decreased over the last two consecutive events and PCE was at its second lowest recorded concentration at that well during the most recent sampling event (161 ppb in April 2019).
- PZ-4 is nested with PZ-1 and is installed at approximately 60 feet bgs. PCE was initially detected in PZ-4 at a relatively low 29.1 ppb, and the PCE concentrations

have consecutively decreased over each event down to 5.4 ppb during the April 2019 event.

- The PCE concentrations are below the PAL or ES in both downgradient piezometers PZ-2 and PZ-3.
- The PCE impacts appear to be defined to the extent practicable and are demonstrating natural attenuation through decreasing concentration trends.

Conclusions

We appreciate your efforts toward this site and this opportunity for the DNR to reconsider the October 2019 peer review. It is our intent for this submittal to present the data, additional evaluation, and our conclusions in such a manner so that the DNR will reach a conclusion that the SI has adequately evaluated the degree and extent of impacts at the site and that the SI is complete. Further, it is our intent for this submittal to demonstrate that active remediation is not warranted for the site and for the DNR to conclude that the site is eligible for closure.

We welcome the opportunity for further discussion to resolve any questions that this submittal may raise. If you have any questions or comments regarding this submittal, please call me at (262) 522-3520.

Sincerely,

ReadyEarth Consulting, Inc.

Jason E. Bartley, P.G.
President

attachments

cc: Cindy Harris (via email)
Peder Moren, Elizabeth Rae, Todd Jindra - JET Venture LLC (via email)

11-0604x

ATTACHMENT A

Plume Definition and Piezometer Locations
Supporting Documents

- B.3.a Geologic Cross-Section Figure A-A’
- Boring Logs
- Well Development Forms (PZ-1 through PZ-4)
- A.1 Groundwater Analytical Tables

A

(elev)

A'

(elev)

PZ-3 (g.s. 858.98)

PZ-2 (g.s. 859.10)

MW-9 (g.s. 859.27)

MW-6 (g.s. 860.23)

PZ-1 (g.s. 861.03)

PZ-4 (g.s. 860.99)

MW-2 (g.s. 861.34)

MW-4 (g.s. 862.35)

MW-3 (g.s. 862.39)

MW-8 (g.s. 863.20)

Atwood Avenue

asphalt ground surface

2021 Winnebago St.

Subject Site 2017 Winnebago basement

sandy silt (ML)

silty clay (CL-ML)

silty sand (SM)

well graded sand (SW)

poorly graded sand (SP)

hard fine sandy silt (ML)

approximate extent of GW impacts above ES

approximate extent of GW impacts above PAL

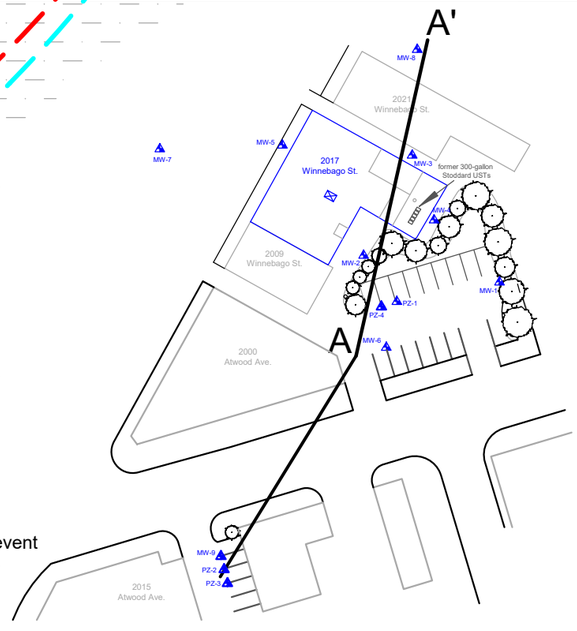
Scale

horizontal scale: 1 in. = 30 ft.

vertical scale: 1 in. =8 ft

all dimensions area approximate

GW elevations based on 12-17-18 event



B.3.a Geologic Cross-Section Figure A-A'

Block System Cleaners

2017 Winnebago Street

Madison, Wisconsin

Drawing No.: 11-0604y	DWG Date: 04-27-12	Rev Date: 08-22-19	Drafted by: JEB

ReadyEarth Consulting, Inc.

ReadyEarth Consulting, Inc.

Boring Number: B-9/MW-9

Facility/Project Name:	Property Address:
Block System Cleaners	2017 Winnebago Street, Madison, WI

Boring Drilled by (name & firm):	Drill Date:	Drilling Method:
Badger State Drilling	4-2-18	4.25 HSA

Site Location:	County & Code:	DNR FID Number:	DNR BRRTS Number:
SW 1/4 of the SE 1/4, Section 6, T. 7N, R. 10E	Dane - 13	113153590	02-13-552132

Surface Elevation:	Well Name:	Unique Well ID:	Boring Location Description:
859.27	MW-9	VR055	parking lot of 2015 Atwood Ave (restaurant across street from site)

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
-	-	-		asphalt ground surface and base coarse.		
			2	brown silty fine to medium SAND, silt increases with depth, few to trace coarse gravel, medium dense to dense, damp, no odor.		-
1	18	34			SM	<1
			4			
2	18	28				*<1
			6			
3	18	18		dark brown silty fine to medium SAND, few to trace coarse gravel, medium dense, damp to moist, no odor.	SM	<1
			8			
4	20	14		brown silty fine to medium SAND, trace coarse gravel, medium dense, moist to very moist, no odor.	SW	*18
			10			
5	16	11		brown silty fine to medium SAND, trace coarse gravel, medium dense, very moist to wet, no odor.		19
			12		SW	
6	18	13				24
			14			
7	18	73		brown silty fine to medium SAND, trace coarse gravel, medium dense, very moist to wet, no odor.		23
			16		ML	
8	NR	NR				NM
			18	end of boring at 18 feet bgs. Installed MW-9 (see well construction report).		
			20			
			22			
			24			

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature:	Firm:
	ReadyEarth Consulting, Inc.

ReadyEarth Consulting, Inc.

Boring Number: PZ-2

Facility/Project Name:	Property Address:		
Block System Cleaners	2017 Winnebago Street, Madison, WI		
Boring Drilled by (name & firm):	Drill Date:	Drilling Method:	
Badger State Drilling	4-2-18	4 1/4 hollow stem augers	
Site Location:	County & Code:	DNR FID Number:	DNR BRRTS Number:
SW 1/4 of the SE 1/4, Section 6, T. 7N, R. 10E	Dane - 13	113153590	02-13-552132
Surface Elevation:	Well Name:	Unique Well ID:	Boring Location Description:
859.10	PZ-2	VR056	parking lot of 2015 Atwood Avenue (slightly south of MW-9)

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
-	-	-		asphalt ground surface and base coarse.		
-	-	-	2	brown silty fine to medium SAND, silt increases with depth, few to trace coarse gravel, medium dense to dense, damp, no odor.		-
1	18	31		blind drilled between intervals - cuttings appeared similar to above.	SM	*<1
-	-	-	4			-
2	18	23	6	dark brown silty fine to medium SAND, few to trace gravel, medium dense, damp to moist, no odor.		*<1
-	-	-	8	blind drilled between intervals - cuttings appeared similar to above.	SW	-
3	20	12	10	brown silty fine to medium SAND, few to trace gravel, medium dense, moist to wet, no odor.		<1
-	-	-	12	blind drilled between intervals - cuttings appeared similar to above.	SW	-
-	-	-	14	brown fine sandy SILT, hard/dense, damp, no odor.	ML	-
-	-	-	16			-
-	-	-	18			-
-	-	-	20	auger refusal at 19.5 feet bgs - possible bedrock. Changed to air rotary and continued to 25 feet bgs.		-
-	-	-	22			-
-	-	-	24			-
-	-	-	26			-
-	-	-		see page 2		
			28			

ReadyEarth Consulting, Inc.

Boring Number: PZ-2

Facility/Project Name: Block System Cleaners

Property Address: 2017 Winnebago Street, Madison, WI

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
-	-	-		auger cuttings appear the same as above.		-
-	-	-	28		SW	-
-	-	-	30			-
4	24	50/5		brown silty fine to coarse SAND, some fine to coarse gravel, very dense, wet, no odor.		<1
-	-	-	32	blind drilled between intervals - cuttings appeared similar to above.	SW	-
5	1	50/4	34	gray fine sandy SILT, some clay, some coarse sand, some fine to coarse gravel, hard/very dense, wet, no odor.		<1
-	-	-	36			-
6	1	50/4	38			<1
-	-	-	40		ML	-
10	20	40	42			<1
-	-	-	44			-
-	-	-	46			-
			48	end of boring at 48 feet bgs. Installed PZ-2 (see well construction report).		

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Jon E Bartell

Firm: ReadyEarth Consulting, Inc.

ReadyEarth Consulting, Inc.

Boring Number: PZ-3

Facility/Project Name:	Property Address:		
Block System Cleaners	2017 Winnebago Street, Madison, WI		
Boring Drilled by (name & firm):	Drill Date:	Drilling Method:	
Badger State Drilling	4-3-18	4 1/4 hollow stem augers	
Site Location:	County & Code:	DNR FID Number:	DNR BRRTS Number:
SW 1/4 of the SE 1/4, Section 6, T. 7N, R. 10E	Dane - 13	113153590	02-13-552132
Surface Elevation:	Well Name:	Unique Well ID:	Boring Location Description:
858.98	PZ-3	VR057	parking lot of 2015 Atwood Avenue (slightly south of PZ-2)

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
-	-	-		asphalt ground surface and base coarse.		
				blind drilled to 48 feet bgs (depth of PZ-2). Cuttings appeared similar to PZ-2.		-
1	NR	50/1	48	gray fine sandy SILT, some clay, some coarse sand, some fine to coarse gravel, hard/very dense, wet, no odor.		<1
-	-	-	50			-
2	NR	50/1	52	Very low recoveries. Soil identification based on tip of cutting shoes.		<1
-	-	-	54		ML	-
3	NR	50/1	56			<1
-	-	-	58			-
4	NR	50/1	60			<1
-	-	-	62			-
-	-	-	64	blind drilled to end of boring. Cuttings appeared same as above.		-
-	-	-	66			-
-	-	-	68			-
			70	end of boring at 70 feet bgs. Installed PZ-3 (see well construction report).		

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Jan E Bartell

Firm: ReadyEarth Consulting, Inc.

ReadyEarth Consulting, Inc.

Boring Number: PZ-4

Facility/Project Name:	Property Address:		
Block System Cleaners	2017 Winnebago Street, Madison, WI		
Boring Drilled by (name & firm):	Drill Date:	Drilling Method:	
Badger State Drilling	4-4-18	4 1/4 hollow stem augers	
Site Location:	County & Code:	DNR FID Number:	DNR BRRTS Number:
SW 1/4 of the SE 1/4, Section 6, T. 7N, R. 10E	Dane - 13	113153590	02-13-552132
Surface Elevation:	Well Name:	Unique Well ID:	Boring Location Description:
860.99	PZ-4	VR058	parking lot of 2000 Atwood Avenue (slightly west of PZ-1)

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
				asphalt ground surface and base coarse.		
-	-	-	2	blind drilled to 4 feet to begin sampling. Cuttings were brown fine to coarse sandy SILT, some to little clay, little to few gravel, damp no odor.	ML	-
-	-	-	4			-
1	6	21		brown silty fine SAND, some medium to coarse sand, silt increases with depth, some to little clay, few to trace coarse gravel, medium dense, damp, no odor.	SM	*7.9
-	-	-	6	blind drilled between intervals - cuttings appeared similar to above.		-
			8			
2	16	26		brown silty fine SAND, some medium to coarse sand, some to little clay, few to trace gravel, medium dense, damp to moist, no odor.	SW	*47
-	-	-	10	blind drilled between intervals - cuttings appeared similar to above.		-
			12			
3	18	67		brown silty fine to coarse SAND, few to trace gravel, medium dense, moist to wet, no odor.		*46
-	-	-	14	blind drilled between intervals - cuttings appeared similar to above.	SW	-
-	-	-	16			-
			18			
4	22	50/6		brown fine to medium SAND, little silt, few to trace gravel, interbedded coarse sand seams, very dense, wet, no odor.	SW	*36
-	-	-	20	brown fine sandy SILT, few to trace gravel, very dense, wet, no odor.		-
5	12	50/5	22		ML	15
-	-	-	24			-
			26			
-	-	-		see page 2		
			28			

ReadyEarth Consulting, Inc.

Boring Number: PZ-4

Facility/Project Name: Block System Cleaners

Property Address: 2017 Winnebago Street, Madison, WI

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
-	-	-		auger cuttings appear the same as above.		-
6	24	50/2	28	gray brown silty fine SAND, some medium to coarse sand, some fine gravel, trace coarse gravel, very dense, wet, no odor.	SW	4
-	-	-	30	blind drilled between intervals - cuttings appeared similar to above.		-
7	4	50/4	32	brown fine to coarse SAND, some silt, little clay, some fine to coarse gravel, very dense, wet, no odor.	SW	<1
-	-	-	34	blind drilled between intervals - cuttings appeared similar to above.		-
-	-	-	36			-
8	NR	50/4	38	gray fine sandy SILT, some clay, some coarse sand, some fine to coarse gravel, hard/very dense, wet, no odor.	ML	NM
-	-	-	40			-
-	-	-	42	blind drilled between intervals - cuttings appeared similar to above.		-
-	-	-	44			-
-	-	-	46			-
-	-	-	48			-
9	3	50/3	50			1.5
-	-	-	55			-
-	-	-	60			-
				end of boring at 60 feet bgs. Installed PZ-4 (see well construction report).		

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature:

Firm: ReadyEarth Consulting, Inc.

ReadyEarth Consulting, Inc.

Boring Number: P-1

Facility/Project Name:	Property Address:		
Block System Cleaners	2017 Winnebago Street, Madison, WI		
Boring Drilled by (name & firm):	Drill Date:	Drilling Method:	
Matthew Baake - Baake Field Services LLC	4-12-19	2-inch soil probe	
Site Location:	County & Code:	DNR FID Number:	DNR BRRTS Number:
SW 1/4 of the SE 1/4, Section 6, T. 7N, R. 10E	Dane - 13	113153590	02-13-552132
Surface Elevation:	Well Name:	Unique Well ID:	Boring Location Description:
862.39	NA	NA	adjacent to MW-3 in alley

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
				asphalt ground surface and base coarse.		
1	16	NA		Fill - brown to dark brown SILT, some sand, little clay and gravel, damp, no odor.	ML	1.8
2	18	NA	2	brown silty CLAY, little fine to coarse sand, medium stiff, damp to moist, no odor.	CL-ML	2.7
3	20	NA	4			1.7
4	20	NA	6	brown fine to coarse SAND, some fine to coarse gravel, damp, no odor.	SW	1.7
5	20	NA	8			1.7
6	16	NA	10	brown fine sandy SILT, some to trace gravel, stiff, damp, no odor.	ML	2.5
7	22	NA	12	brown fine to medium SAND, little fine gravel (some rock at 12 feet), damp, no odor.	SP	2.7
			14	grayish brown SILT and CLAY, some fine sand, wet, no odor.	ML	
			16	end of probe at 15 feet bgs.		
			18			
			20			
			22			
			24			

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Jan E Baake

Firm: ReadyEarth Consulting, Inc.

ReadyEarth Consulting, Inc.

Boring Number: P-2

Facility/Project Name:	Property Address:		
Block System Cleaners	2017 Winnebago Street, Madison, WI		
Boring Drilled by (name & firm):	Drill Date:	Drilling Method:	
Matthew Baake - Baake Field Services LLC	4-12-19	2-inch soil probe	
Site Location:	County & Code:	DNR FID Number:	DNR BRRTS Number:
SW 1/4 of the SE 1/4, Section 6, T. 7N, R. 10E	Dane - 13	113153590	02-13-552132
Surface Elevation:	Well Name:	Unique Well ID:	Boring Location Description:
861.34	NA	NA	adjacent to MW-2 at rear of Block

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
				asphalt ground surface and base coarse.		
1	20	NA		Fill - brown to dark brown SILT, some sand, little clay and gravel, damp, no odor.	ML	1.9
			2	brown silty CLAY, little fine to coarse sand, medium stiff, damp to moist, no odor.		
2	18	NA			CL-ML	2.7
			4			
3	16	NA		brown silty fine to medium SAND, some clay, very soft, wet, no odor.		2.6
			6			
4	20	NA				2.7
			8		SP	
5	18	NA				2.4
			10			
6	22	NA				2.7
			12	brown fine to coarse SAND, trace gravel and rock, moist to wet, no odor.	SW	
7	24	NA				2.7
			14	brown fine to coarse SAND, trace gravel and rock, wet, no odor.	SW	
				end of probe at 22 feet bgs.		
			16			
			18			
			20			
			22			
			24			

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Jan E Baake

Firm: ReadyEarth Consulting, Inc.

ReadyEarth Consulting, Inc.

Boring Number: P-3

Facility/Project Name:	Property Address:		
Block System Cleaners	2017 Winnebago Street, Madison, WI		
Boring Drilled by (name & firm):	Drill Date:	Drilling Method:	
Matthew Baake - Baake Field Services LLC	4-12-19	2-inch soil probe	
Site Location:	County & Code:	DNR FID Number:	DNR BRRTS Number:
SW 1/4 of the SE 1/4, Section 6, T. 7N, R. 10E	Dane - 13	113153590	02-13-552132
Surface Elevation:	Well Name:	Unique Well ID:	Boring Location Description:
NM	NA	NA	adjacent to and west of the former stoddard UST area

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
				rubble and broken concrete ground surface		
1	20	NA		Fill - brown to dark brown SILT, some sand, little clay and gravel, damp, no odor.	ML	<1
2	16	NA	2	brown silty CLAY, little fine to coarse sand, medium stiff, damp to moist, no odor.	CL-ML	2.4
3	18	NA	4	brown silty fine to coarse SAND, some fine to coarse gravel, very soft, moist to wet, no odor.	SM	2.7
4	18	NA	6			5.6
5	22	NA	8	brown silty fine SAND, some fine to coarse gravel/rock, silt increases with depth, damp, no odor.	ML	5.6
6	20	NA	10			14.2
7	22	NA	12	brown silty fine to medium SAND, little fine gravel, trace coarse gravel/rock, moist to wet, weathered petroleum odor increasing with depth.	SP	757
			14			
				end of probe at 15 feet bgs.		
			16			
			18			
			20			
			22			
			24			
			26			

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Jon E Baake

Firm: ReadyEarth Consulting, Inc.

ReadyEarth Consulting, Inc.

Boring Number: P-4

Facility/Project Name:	Property Address:		
Block System Cleaners	2017 Winnebago Street, Madison, WI		
Boring Drilled by (name & firm):	Drill Date:	Drilling Method:	
Matthew Baake - Baake Field Services LLC	4-12-19	2-inch soil probe	
Site Location:	County & Code:	DNR FID Number:	DNR BRRTS Number:
SW 1/4 of the SE 1/4, Section 6, T. 7N, R. 10E	Dane - 13	113153590	02-13-552132
Surface Elevation:	Well Name:	Unique Well ID:	Boring Location Description:
NM	NA	NA	adjacent to the former floor drain in the stoddard UST room

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
				rubble and broken concrete ground surface		
1	20	NA		Fill - brown to dark brown SILT, some sand, little clay and gravel, damp, no odor.	ML	2.5
2	18	NA	2	brown silty CLAY, little fine to coarse sand, medium stiff, damp to moist, no odor.	CL-ML	2.7
3	20	NA	4	brown silty fine to coarse SAND, some fine to coarse gravel, very soft, moist to wet, no odor.	SM	2.7
4	22	NA	6			2.4
5	20	NA	8	brown silty fine SAND, some fine to coarse gravel/rock, silt increases with depth, damp, no odor.	ML	1.8
6	22	NA	10			5.7
7	22	NA	12	brown silty fine to medium SAND, little fine gravel, trace coarse gravel/rock, moist to wet, weathered petroleum odor increasing with depth.	SP	652
			14			
				end of probe at 15 feet bgs.		
			16			
			18			
			20			
			22			
			24			
			26			

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Jan E Baake

Firm: ReadyEarth Consulting, Inc.

ReadyEarth Consulting, Inc.

Boring Number: P-5

Facility/Project Name:	Property Address:		
Block System Cleaners	2017 Winnebago Street, Madison, WI		
Boring Drilled by (name & firm):	Drill Date:	Drilling Method:	
Matthew Baake - Baake Field Services LLC	4-12-19	2-inch soil probe	
Site Location:	County & Code:	DNR FID Number:	DNR BRRTS Number:
SW 1/4 of the SE 1/4, Section 6, T. 7N, R. 10E	Dane - 13	113153590	02-13-552132
Surface Elevation:	Well Name:	Unique Well ID:	Boring Location Description:
NM	NA	NA	adjacent to MW-4

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
				rubble and broken concrete ground surface		
1	20	NA		Fill - brown to dark brown SILT, some sand, little clay and gravel, damp, no odor.	ML	2.7
2	20	NA	2	brown silty CLAY, little fine to coarse sand, medium stiff, damp to moist, no odor.	CL-ML	1.8
3	20	NA	4	brown silty fine to coarse SAND, some fine to coarse gravel, very soft, moist to wet, no odor.	SM	2.7
4	20	NA	6			2.4
5	20	NA	8	brown silty fine SAND, some fine to coarse gravel/rock, silt increases with depth, damp, no odor.	ML	2.7
6	22	NA	10			4.7
7	20	NA	12	brown silty fine to medium SAND, little fine gravel, trace coarse gravel/rock, moist to wet, weathered petroleum odor increasing with depth.	SP	801
			14			
				end of probe at 15 feet bgs.		
			16			
			18			
			20			
			22			
			24			
			26			

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Jon E Baake

Firm: ReadyEarth Consulting, Inc.

ReadyEarth Consulting, Inc.

Boring Number: P-6

Facility/Project Name:	Property Address:		
Block System Cleaners	2017 Winnebago Street, Madison, WI		
Boring Drilled by (name & firm):	Drill Date:	Drilling Method:	
Matthew Baake - Baake Field Services LLC	4-12-19	2-inch soil probe	
Site Location:	County & Code:	DNR FID Number:	DNR BRRTS Number:
SW 1/4 of the SE 1/4, Section 6, T. 7N, R. 10E	Dane - 13	113153590	02-13-552132
Surface Elevation:	Well Name:	Unique Well ID:	Boring Location Description:
NM	NA	NA	adjacent to and east of the former stoddard UST area

Sample Number	Recovery	Blow Counts	Depth in ft. bgs	Soil Description	USCS	PID Reading
				rubble and broken concrete ground surface		
1	22	NA		Fill - brown to dark brown SILT, some sand, little clay and gravel, damp, no odor.	ML	1.8
2	20	NA	2	brown silty CLAY, little fine to coarse sand, medium stiff, damp to moist, no odor.	CL-ML	2.7
3	22	NA	4	brown silty fine to coarse SAND, some fine to coarse gravel, very soft, moist to wet, no odor.	SM	2.7
4	16	NA	6			2.4
5	20	NA	8	brown silty fine SAND, some fine to coarse gravel/rock, silt increases with depth, damp, no odor.	ML	2.7
6	20	NA	10			1.8
7	22	NA	12	brown silty fine to medium SAND, little fine gravel, trace coarse gravel/rock, moist to wet, weathered petroleum odor increasing with depth.	SP	679
			14			
				end of probe at 15 feet bgs.		
			16			
			18			
			20			
			22			
			24			
			26			

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Jon E Baake

Firm: ReadyEarth Consulting, Inc.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
BLOCK SYSTEM CLEANING	DANE	PZ-1
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	13	_____	____

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☒ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 30 min.

4. Depth of well (from top of well casisng) 35.03 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 7.43 gal.

7. Volume of water removed from well 17.0 gal.

8. Volume of water added (if any) — gal.

9. Source of water added NA

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 11.98 ft.	_____ ft.
Date	b. 05/30/2014 (m m d d y y y y)	__/__/____ (m m d d y y y y)
Time	c. 11:00 ☒ a.m. ☐ p.m.	__:__ ☐ a.m. ☐ p.m.
12. Sediment in well bottom	~2.0 inches	_____ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) CLEARING SIGNIFICANTLY	Clear ☐ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	NA mg/l	_____ mg/l
15. COD	NA mg/l	_____ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: JASON Last Name: BARTLEY
Firm: READYEARTH CONSULTING, INC.

17. Additional comments on development:
DEVELOPED BY PURGING DRY. DEVELOPMENT WATER WAS TURBID INITIALLY BUT CLEARED SIGNIFICANTLY TO BE RELATIVELY FREE OF SEDIMENT.

Name and Address of Facility Contact/Owner/Responsible Party
First Name: KEVIN Last Name: BURDITT
Facility/Firm: BLOCK SYSTEM CLEANERS
Street: 2017 WINNEBAGO ST.
City/State/Zip: MADISON, WI 53704

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: Jason E Bartley
Print Name: JASON E. BARTLEY
Firm: READYEARTH CONSULTING, INC.

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
FMR. BLOCK CLEANERS	DANE	PZ-2
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	13	VR056	___

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other SURGED W/ PUMP	☒

3. Time spent developing well 60 min.

4. Depth of well (from top of well casisng) 47.59 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 19.1 gal.

7. Volume of water removed from well 20.0 gal.

8. Volume of water added (if any) ____ gal.

9. Source of water added NA

10. Analysis performed on water added? ☐ Yes ☒ No (If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 11.80 ft.	____ ft.
Date	b. 04/26/2018 (m m d d y y y y)	___/___/____
Time	c. 9:50 ☒ a.m. ☐ p.m.	___:___ ☐ a.m. ☐ p.m.
12. Sediment in well bottom	0.0 inches	___ inches
13. Water clarity	Clear ☒ 10 Turbid ☐ 15 (Describe) TURBID CLEARING TO RELATIVELY CLEAR	Clear ☐ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____ mg/l	____ mg/l
15. COD	____ mg/l	____ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: JASON Last Name: BARTLEY
Firm: ROBBYEARTH CONSULTING, INC.

17. Additional comments on development:
SURGED WITH PUMP AND PUMPED UNTIL WATER WAS RELATIVELY FREE OF SEDIMENT.

Name and Address of Facility Contact /Owner/Responsible Party
First Name: JIM Last Name: FRIEDL
Facility/Firm: BLOCK CLEANERS
Street: 2017 WINNEBAGO ST.
City/State/Zip: MADISON, WI 53704

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: JASON E. BARTLEY
Firm: ROBBYEARTH CONSULTING, INC.

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
FMR. BLOCK CLEANERS	DANE	PZ-3
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	13	VR057	___

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other SURGE W/PUMP	☒

3. Time spent developing well 60 min.

4. Depth of well (from top of well casisng) 69.51 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 30.7 gal.

7. Volume of water removed from well 500 gal.

8. Volume of water added (if any) ___ gal.

9. Source of water added NA

10. Analysis performed on water added? ☐ Yes ☒ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 11.98 ft.	___.__ ft.
Date	b. 04/26/2018 (m m d d y y y y)	___/___/____ (m m d d y y y y)
Time	c. 10:50 ☒ a.m. ☐ p.m.	___:___ ☐ a.m. ☐ p.m.
12. Sediment in well bottom	0.0 inches	___.__ inches
13. Water clarity	Clear ☒ 10 Turbid ☐ 15 (Describe) TURBID CLEARING TO RELATIVELY CLEAR.	Clear ☐ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids ___.__ mg/l ___.__ mg/l

15. COD ___.__ mg/l ___.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: JASON Last Name: BARTLEY
Firm: ROBBYEARTH CONSULTING, INC.

17. Additional comments on development:
SURGED WITH PUMP AND PUMPED UNTIL WATER WAS RELATIVELY FREE OF SEDIMENT.

Name and Address of Facility Contact /Owner/Responsible Party
First Name: JIM Last Name: FRIEDL
Facility/Firm: BLOCK CLEANERS
Street: 2017 WINNEBAGO ST.
City/State/Zip: MADISON, WI 53704

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: JASON E. BARTLEY
Firm: ROBBYEARTH CONSULTING, INC.

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
FMR. BLOCK CLEANERS	DANE	PZ-4
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	13	WR058	___

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other SURGED W/ PUMP	☒

3. Time spent developing well 60 min.

4. Depth of well (from top of well casisng) 59.43 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 245 gal.

7. Volume of water removed from well 50.0 gal.

8. Volume of water added (if any) ____ gal.

9. Source of water added NA

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 13.53 ft.	____ ft.
Date	b. 04/26/2018 (m m d d y y y y)	___/___/____ (m m d d y y y y)
Time	c. 4:30 ☐ a.m. ☒ p.m.	___:___ ☐ a.m. ☐ p.m.
12. Sediment in well bottom	0.0 inches	___ inches
13. Water clarity	Clear ☒ 10 Turbid ☐ 15	Clear ☐ 20 Turbid ☐ 25
(Describe)	TURBID CLEARING TO RELATIVELY CLEAR.	

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____ mg/l	____ mg/l
15. COD	____ mg/l	____ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: JASON Last Name: BARTLEY
Firm: ROBBY EARTH CONSULTING, INC.

17. Additional comments on development:
SURGED WITH PUMP AND PUMPED UNTIL WATER WAS RELATIVELY FREE OF SEDIMENT.

Name and Address of Facility Contact /Owner/Responsible Party
First Name: JIM Last Name: FRIEDL
Facility/Firm: BLOCK CLEANERS
Street: 2017 WINNEBAGO ST.
City/State/Zip: MADISON, WI 53704

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: JASON E. BARTLEY
Firm: ROBBY EARTH CONSULTING, INC.

NOTE: See instructions for more information including a list of county codes and well type codes.

A.1 Groundwater Analytical Table (Pg 1 of 10)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

	MW-1													NR 140 PALs	NR 140 ESs
Sample Date	12/21/11	3/22/12	6/15/12	12/14/12	3/28/13	6/27/13	5/30/14	1/20/15	4/29/15	4/26/18	8/7/18	12/17/18	4/13/19		
Volatile Organic Compounds (µg/kg)															
benzene	<0.41	<0.41	<0.41	<0.41	<0.41	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25	<0.25	<0.25	*0.5*	**5.0**
bromodichloromethane	<0.56	<0.56	<0.56	<0.56	<0.56	<0.45	<0.50	<0.50	<0.50	<0.50	<0.36	<0.36	<0.36	0.06	**0.6**
n-butylbenzene	<0.93	<0.93	<0.93	<0.93	<0.93	<0.40	<0.50	<0.50	<0.50	<0.50	<0.71	<0.71	<0.71	-	-
sec-butylbenzene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.60	<2.2	<2.2	<2.2	<2.2	<0.85	<0.85	<0.85	-	-
tert-butylbenzene	<0.97	<0.97	<0.97	<0.97	<0.9	<0.42	<0.18	<0.18	<0.18	<0.18	<0.30	<0.30	<0.30	-	-
chloromethane	<0.24	<0.24	<0.24	<0.24	<0.24	<0.39	<0.50	<0.50	<0.50	<0.50	<2.2	*7.4*	<2.2	*3*	**30**
dibromochloromethane	<0.81	<0.81	<0.81	<0.81	<0.81	<1.9	<0.32	<0.50	<0.50	<0.50	<2.6	<2.6	<2.6	*6*	**60**
1,2-dichlorobenzene	<0.83	<0.83	<0.83	<0.83	<0.83	<0.44	<0.50	<0.50	<0.50	<0.50	<0.71	<0.71	<0.71	*60*	***600***
1,4-dichlorobenzene	<0.95	<0.95	<0.95	<0.95	<0.95	<0.43	<0.50	<0.50	<0.50	<0.50	<0.94	<0.94	<0.94	*15*	***75***
1,1-dichloroethane	<0.75	<0.75	<0.75	<0.75	<0.75	<0.28	<0.18	<0.24	<0.24	<0.24	<0.27	<0.27	<0.27	*85*	***850***
1,1-dichloroethene	<0.57	<0.57	<0.57	<0.57	<0.57	<0.43	<0.41	<0.41	<0.41	<0.41	<0.24	<0.24	<0.24	*0.7*	***7***
cis-1,2-dichloroethene	<0.83	<0.83	<0.83	<0.83	<0.83	<0.42	<0.26	<0.26	<0.26	<0.26	<0.27	<0.27	<0.27	*7*	**70**
trans-1,2-dichloroethene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.37	<0.24	<0.26	<0.26	<0.26	<1.1	<1.1	<1.1	*20*	**100**
1,2-dichloropropane	<0.49	<0.49	<0.49	<0.49	<0.49	<0.50	<0.23	<0.23	<0.23	<0.23	<0.28	<0.28	<0.28	*0.5*	***5***
ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.54	<0.50	<0.50	<0.50	<0.50	<0.50	<0.22	<0.22	<0.22	*140*	**700**
isopropylbenzene	<0.59	<0.59	<0.59	<0.59	<0.59	<0.34	<0.12	<0.14	<0.14	<0.14	<0.39	<0.39	<0.39	-	-
p-isopropyltoluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.40	<0.50	<0.50	<0.50	<0.50	<0.80	<0.80	<0.80	-	-
naphthalene	<0.89	<0.89	<0.89	<0.89	<0.89	<2.5	<2.5	<2.5	<2.5	<2.5	<1.2	<1.2	<1.2	*10*	**100**
n-propylbenzene	<0.81	<0.81	<0.81	<0.81	<0.81	<0.50	<0.50	<0.50	<0.50	<0.50	<0.81	<0.81	<0.81	-	-
tetrachloroethene	**6.2**	**5.6**	*3.7*	**8.3**	*3.4*	*4.8*	**5.1**	***5.5***	*4.6*	*3.9*	*3.8*	*3.7*	*2.8*	*0.5*	**5**
toluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.44	<0.50	<0.50	<0.50	<0.50	<0.17	<0.17	<0.17	*160*	**800**
trichloroethene	<0.48	<0.48	<0.48	<0.48	<0.48	<0.43	<0.33	<0.33	<0.33	<0.33	<0.26	<0.26	<0.26	*0.5*	**5**
1,2,4-trimethylbenzene	<0.97	<0.97	<0.97	<0.97	<0.97	<0.57	<0.50	<0.50	<0.50	<0.50	<0.84	<0.84	<0.84	*96*	**480**
1,3-5-trimethylbenzene	<0.83	<0.83	<0.83	<0.83	<0.83	<2.5	<0.50	<0.50	<0.50	<0.50	<0.87	<0.87	<0.87		
vinyl chloride	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<1.5	<0.18	<0.17	<0.17	<0.17	*0.02*	**0.2**
total xylenes	<2.63	<2.63	<2.63	<2.63	<2.63	<1.32	<1.50	<0.18	<1.5	<1.5	<0.73	<0.73	<0.73	*400*	**2,000**

Notes:

1. Only the detected VOCs are shown.
2. Concentrations in *blue italics* exceed their respective preventive action limits (PALs).
3. Concentrations in **red bold** exceed their respective enforcement standards (ESs).
4. "-" indicates that groundwater standards are not established for the indicated parameter.

A.1 Groundwater Analytical Table (Pg 2 of 10)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

	MW-2													NR 140 PALs	NR 140 ESs
Sample Date	12/21/11	3/22/12	6/15/12	12/14/12	3/28/13	6/27/13	5/30/14	1/20/15	4/29/15	4/26/18	8/7/18	12/17/18	4/13/19		
Volatile Organic Compounds (µg/kg)															
benzene	<0.41	<0.41	<0.41	<0.41	<0.41	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25	<0.25		*0.5*	**5.0**
bromodichloromethane	<0.56	<0.56	<0.56	<0.56	<0.56	<0.45	<0.50	<0.50	<0.50	<0.50	<0.36	<0.36		0.06	**0.6**
n-butylbenzene	<0.93	<0.93	<0.93	<0.93	<0.93	<0.40	<0.50	<0.50	<0.50	<0.50	<0.81	<0.71		-	-
sec-butylbenzene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.60	<2.2	<2.2	<2.2	<2.2	<0.85	<0.85		-	-
tert-butylbenzene	<0.97	<0.97	<0.97	<0.97	<0.97	<0.42	<0.18	<0.18	<0.18	<0.18	<0.30	<0.30		-	-
chloromethane	<0.24	<0.24	<0.24	<0.24	<0.24	<0.39	<0.50	<0.50	<0.50	<0.50	*5.0 J*	2.5 J		*3*	**30**
dibromochloromethane	<0.81	<0.81	<0.81	<0.81	<0.81	<1.9	<0.32	<0.50	<0.50	<0.50	<2.6	<2.6		*6*	**60**
1,2-dichlorobenzene	<0.83	<0.83	<0.83	<0.83	<0.83	<0.44	<0.50	<0.50	<0.50	<0.50	<0.71	<0.71		*60*	***600***
1,4-dichlorobenzene	<0.95	<0.95	<0.95	<0.95	<0.95	<0.43	<0.50	<0.50	<0.50	<0.50	<0.94	<0.94		*15*	***75***
1,1-dichloroethane	<0.75	<0.75	<0.75	<0.75	<0.75	<0.28	<0.18	<0.24	<0.24	<0.24	<0.27	<0.27		*85*	***850***
1,1-dichloroethene	<0.57	<0.57	<0.57	<0.57	<0.57	<0.43	<0.41	<0.41	<0.41	<0.41	<0.24	<0.24		*0.7*	***7***
cis-1,2-dichloroethene	*63.3*	1.2	<0.83	*15.7*	<0.83	3.1	3.9	**110**	4.0	<0.26	<0.27	<0.27		*7*	**70**
trans-1,2-dichloroethene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.37	0.42 J	4.0	<0.26	<0.26	<1.1	<1.1		*20*	**100**
1,2-dichloropropane	<0.49	<0.49	<0.49	<0.49	<0.49	<0.50	<0.23	<0.23	<0.23	<0.23	<0.28	<0.28		*0.5*	***5***
ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.54	<0.50	<0.50	<0.50	<0.50	<0.50	<0.22	<0.22		*140*	**700**
isopropylbenzene	<0.59	<0.59	<0.59	<0.59	<0.59	<0.34	<0.12	<0.14	<0.14	<0.14	<0.39	<0.39		-	-
p-isopropyltoluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.40	<0.50	<0.50	<0.50	<0.50	<0.80	<0.80		-	-
naphthalene	<0.89	<0.89	<0.89	<0.89	<0.89	<2.5	<2.5	<2.5	<2.5	<2.5	<1.2	<1.2		*10*	**100**
n-propylbenzene	<0.81	<0.81	<0.81	<0.81	<0.81	<0.50	<0.50	<0.50	<0.50	<0.50	<0.81	<0.81		-	-
tetrachloroethene	**35.3**	**7.6**	**7.3**	**11.7**	**7.2**	**8.2**	**5.9**	**14.5**	**6.3**	**5.7**	**8.0**	**8.9**		*0.5*	**5**
toluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.44	<0.50	<0.50	<0.50	<0.50	<0.17	<0.17		*160*	**800**
trichloroethene	*4.3*	<0.48	<0.48	*1.5*	<0.48	<0.43	<0.33	*1.2*	<0.33	<0.33	<0.26	<0.26		*0.5*	**5**
1,2,4-trimethylbenzene	<0.97	<0.97	<0.97	<0.97	<0.97	<0.57	<0.50	<0.50	<0.50	<0.50	<0.84	<0.84		*96*	**480**
1,3-5-trimethylbenzene	<0.83	<0.83	<0.83	<0.83	<0.83	<2.5	<0.50	<0.50	<0.50	<0.50	<0.87	<0.87			
vinyl chloride	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	**0.27 J**	<0.18	<0.18	<0.17	<0.17		*0.02*	**0.2**
total xylenes	<2.63	<2.63	<2.63	<2.63	<2.63	<1.32	<1.50	<1.5	<1.5	<1.5	<0.73	<0.73		*400*	**2,000**

Not sampled due to presence of renovation dumpster

Notes:

1. Only the detected VOCs are shown.
2. Concentrations in *blue italics* exceed their respective preventive action limits (PALs).
3. Concentrations in **red bold** exceed their respective enforcement standards (ESs).
4. "-" indicates that groundwater standards are not established for the indicated parameter.

A.1 Groundwater Analytical Table (Pg 3 of 10)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

	MW-3													NR 140 PALs	NR 140 ESs
Sample Date	12/21/11	3/22/12	6/15/12	12/14/12	3/28/13	6/27/13	5/30/14	1/20/15	4/29/15	4/26/18	8/7/18	12/17/18	4/13/19		
Volatile Organic Compounds (µg/kb)															
benzene	<0.41	<0.82	<0.82	<0.82	<0.82	<1.0	<1.0	<1.0	<0.50	<1.0	<0.49	<0.49	<0.49	*0.5*	**5.0**
bromodichloromethane	<0.56	<1.1	<1.1	<1.1	<1.1	<0.91	<1.0	<1.0	<1.0	<1.0	<0.73	<0.73	<0.73	0.06	**0.6**
n-butylbenzene	<0.93	<1.9	<1.9	<1.9	<1.9	<0.80	<1.0	<1.0	<1.0	<1.0	<1.4	<1.4	<1.4	-	-
sec-butylbenzene	<0.89	<1.8	<1.8	<1.8	<1.8	<1.2	<4.4	<4.4	<4.4	<4.4	<1.7	<1.7	<1.7	-	-
tert-butylbenzene	<0.97	<1.9	<1.9	<1.9	<1.9	<0.85	<0.36	<0.36	<0.36	<0.36	<0.61	<0.61	<0.61	-	-
chloromethane	<0.24	<0.48	<0.48	<0.48	<0.48	<0.78	<1.0	<1.0	<1.0	<1.0	<4.4	<4.4	<4.4	*3*	**30**
dibromochloromethane	<0.81	<1.6	<1.6	<1.6	<1.6	<3.8	<0.64	<1.0	<1.0	<1.0	<5.2	<5.2	<5.2	*6*	**60**
1,2-dichlorobenzene	<0.83	<1.7	<1.7	<1.7	<1.7	<0.88	<1.0	<1.0	<1.0	<1.0	<1.4	<1.4	<1.4	*60*	***600***
1,4-dichlorobenzene	<0.95	<1.9	<1.9	<1.9	<1.9	<0.87	<1.0	<1.0	<1.0	<1.0	<1.9	<1.9	<1.9	*15*	***75***
1,1-dichloroethane	<0.75	<1.5	<1.5	<1.5	<1.5	<0.57	<0.37	<0.48	<0.48	<0.48	<0.55	<0.55	<0.55	*85*	***850***
1,1-dichloroethene	<0.57	<1.1	<1.1	<1.1	<1.1	<0.85	<0.82	<0.82	<0.82	<0.82	<0.49	<0.49	<0.49	*0.7*	***7***
cis-1,2-dichloroethene	3.8	4.3	4.9	3.6	3.4	<0.84	4.4	2.0	0.95 J	<0.51	0.88 J	2.1	0.89 J	*7*	**70**
trans-1,2-dichloroethene	<0.89	<1.8	<1.8	<1.8	<1.8	<0.74	<0.48	<0.51	<0.51	<0.51	<2.2	<2.2	<2.2	*20*	**100**
1,2-dichloropropane	<0.49	<0.98	<0.98	<0.98	<0.98	<1.0	<0.47	<0.47	<0.47	<0.47	<0.57	<0.57	<0.57	*0.5*	***5***
ethylbenzene	<0.54	<1.1	<1.1	<1.1	<1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<0.44	<0.44	<0.44	*140*	**700**
isopropylbenzene	<0.59	<1.2	<1.2	<1.2	<1.2	<0.68	<0.23	<0.29	<0.29	<0.29	<0.79	<0.79	<0.79	-	-
p-isopropyltoluene	<0.67	<1.3	<1.3	<1.3	<1.3	<0.79	<1.0	<1.0	<1.0	<1.0	<1.6	<1.6	<1.6	-	-
naphthalene	<0.89	<1.8	<1.8	<1.8	<1.8	<5.0	<5.0	<5.0	<5.0	<5.0	<2.4	<2.4	<2.4	*10*	**100**
n-propylbenzene	<0.81	<1.6	<1.6	<1.6	<1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.6	<1.6	<1.6	-	-
tetrachloroethene	**149**	**129**	**155**	**170**	**173**	**157**	**133**	**161**	**147**	**146**	**183**	**162**	**119**	*0.5*	**5**
toluene	<0.67	<1.3	<1.3	<1.3	<1.3	<0.8	<1.0	<1.0	<1.0	<1.0	<0.34	<0.34	1.4 J	*160*	**800**
trichloroethene	**6.7**	**6.2**	**7.2**	**7.7**	**8.1**	*3.3*	**7.0**	**6.8**	**6.9**	**5.9**	*4.5*	**6.0**	*3.7*	*0.5*	**5**
1,2,4-trimethylbenzene	<0.97	<1.9	<1.9	<1.9	<1.9	<1.1	<1.0	<1.0	<1.0	<1.0	2.8 J	<1.7	<1.7	*96*	**480**
1,3-5-trimethylbenzene	<0.83	<1.7	<1.7	<1.7	<1.7	<5.0	<1.0	<1.0	<1.0	<1.0	<1.7	<1.7	<1.7		
vinyl chloride	<0.18	<0.36	<0.36	<0.36	<0.36	<0.37	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	*0.02*	**0.2**
total xylenes	<2.63	<5.2	<5.3	<5.3	<5.3	<2.6	<3.0	<3.0	<3.0	<3.0	<1.45	<1.45	<1.45	*400*	**2,000**

Notes:

1. Only the detected VOCs are shown.
2. Concentrations in *blue italics* exceed their respective preventive action limits (PALs).
3. Concentrations in **red bold** exceed their respective enforcement standards (ESs).
4. "-" indicates that groundwater standards are not established for the indicated parameter.

A.1 Groundwater Analytical Table (Pg 4 of 10)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

	MW-4													NR 140 PALs	NR 140 ESs
Sample Date	12/21/11	3/22/12	6/15/12	12/14/12	3/28/13	6/27/13	5/30/14	1/20/15	4/29/15	4/26/18	8/7/18	12/17/18	4/13/19		
Volatile Organic Compounds (µg/kg)															
benzene	<8.2	<4.1	<4.1	<4.1	<4.1	<0.5	<0.50	<0.50	<0.50	<1.0	<0.49	<0.25		*0.5*	**5.0**
bromodichloromethane	<11.2	<5.6	<5.6	<5.6	<5.6	<0.45	<0.50	<0.50	<0.50	<1.0	<0.73	<0.36		0.06	**0.6**
n-butylbenzene	<18.6	<9.3	<9.3	<9.3	29.9	14.4	<0.50	0.61 J	7.3	<1.0	<1.4	<0.71		-	-
sec-butylbenzene	20.3	19.6	15.9 J	17.3 J	12.4 J	10.4	<2.2	3.3 J	8.6	<4.4	<1.7	<0.85		-	-
tert-butylbenzene	<19.4	<9.7	<9.7	<9.7	<9.7	1.9	0.27 J	0.68 J	<0.18	0.56 J	<0.61	<0.30		-	-
chloromethane	<4.8	<2.4	<2.4	<2.4	<2.4	<0.39	<0.50	<0.50	<0.50	<1.0	<4.4	<2.2		*3*	**30**
dibromochloromethane	<16.2	<8.1	<8.1	<8.1	<8.1	<1.9	<0.32	<0.50	<0.50	<1.0	<5.2	<2.6		*6*	**60**
1,2-dichlorobenzene	<16.6	10.4	9.0 J	<8.3	<8.3	<0.44	<0.50	<0.50	1.0	<1.0	<1.4	<0.71		*60*	***600***
1,4-dichlorobenzene	<19.0	<9.5	<9.5	<9.5	<9.5	0.44 J	<0.50	<0.50	<0.50	<1.0	<1.9	<0.94		*15*	***75***
1,1-dichloroethane	<15.0	<7.5	<7.5	<7.5	<7.5	0.33 J	<0.18	0.28 J	0.42 J	<0.48	<0.55	<0.27		*85*	***850***
1,1-dichloroethene	<11.4	<5.7	<5.7	<5.7	<5.7	<0.43	<0.41	<0.41	<0.41	<0.82	<0.49	<0.24		*0.7*	***7***
cis-1,2-dichloroethene	<16.6	<8.3	<8.3	<8.3	<8.3	1.0	1.0	0.64 J	0.39 J	2.5	1.4 J	<0.27		*7*	**70**
trans-1,2-dichloroethene	<17.8	<8.9	<8.9	<8.9	<8.9	<0.37	<0.24	<0.26	<0.26	<0.51	<2.2	<1.1		*20*	**100**
1,2-dichloropropane	<9.8	<4.9	<4.9	<4.9	<4.9	<0.50	<0.23	<0.23	<0.23	<0.47	<0.57	<0.28		*0.5*	***5***
ethylbenzene	57.0	68.2	60.4	70.6	32.4	2.9	<0.50	0.75 J	3.9	<1.0	<0.44	<0.22		*140*	**700**
isopropylbenzene	41.7	48.9	44.0	46.2	32.5	8.6	0.69 J	1.5	9.6	1.0 J	<0.79	<0.39		-	-
p-isopropyltoluene	31.1	41.8	38.6	<6.7	33.4	21.5	0.74 J	0.94 J	9.8	<1.0	<1.6	<0.80		-	-
naphthalene	*84.8*	*82.3*	*83.3*	*78.6*	*50.4*	8.7	<2.5	<2.5	6.6	<5.0	<2.4	<1.2		*10*	**100**
n-propylbenzene	70.0	87.6	77.9	92.2	61.5	17.3	1.2	2.4	16.8	2.0 J	<1.4	<0.81		-	-
tetrachloroethene	**89.3**	**285**	**272**	**305**	**383**	**178**	**103**	**187**	**206**	**185**	**127**	**82.3**		*0.5*	**5**
toluene	<13.4	<6.7	<6.7	<6.7	<6.7	<0.44	<0.50	<0.50	<0.50	<1.0	<0.34	<0.17		*160*	**800**
trichloroethene	**23.3**	**25.3**	**26.7**	**34.4**	**79.2**	**99.3**	**33.6**	**31.9**	**28.6**	**25.8**	**16.7**	**7.6**		*0.5*	**5**
1,2,4-trimethylbenzene	**1,210**	**1,220**	**1,040**	**1,090**	**734**	*90.7*	8.1	8.4	*127*	8.8	3.5 J	<0.84		*96*	**480**
1,3-5-trimethylbenzene	**498**	**447**	**404**	**378**	**257**	*47.7*	3.0	2.7	*50.0*	3.8	<1.7	<0.87			
vinyl chloride	<3.6	<1.8	<1.8	<1.8	<1.8	<0.18	<0.18	<0.18	<0.18	<0.35	<0.35	<0.17		*0.02*	**0.2**
total xylenes	163	166	111	109	37.7	4.4	<1.50	<1.5	3.0	<3.0	<1.45	<0.73		*400*	**2,000**

Not sampled due to damage during demolition

Notes:

1. Only the detected VOCs are shown.
2. Concentrations in *blue italics* exceed their respective preventive action limits (PALs).
3. Concentrations in **red bold** exceed their respective enforcement standards (ESs).
4. "-" indicates that groundwater standards are not established for the indicated parameter.

A.1 Groundwater Analytical Table (Pg 5 of 10)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

	MW-5													NR 140 PALs	NR 140 ESs
Sample Date	12/21/11	3/22/12	6/15/12	12/14/12	3/28/13	6/27/13	5/30/14	1/20/15	4/29/15	4/26/18	8/7/18	12/17/18	4/13/19		
Volatile Organic Compounds (µg/kg)															
benzene	<0.41	<0.41	<0.41	<0.41	<0.41	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25	<0.25	<0.25	*0.5*	**5.0**
bromodichloromethane	<0.56	<0.56	<0.56	<0.56	<0.56	<0.45	<0.50	<0.50	<0.50	<0.50	<0.36	<0.36	<0.36	0.06	**0.6**
n-butylbenzene	<0.93	<0.93	<0.93	<0.93	<0.93	<0.40	<0.50	<0.50	<0.50	<0.50	<0.81	<0.71	<0.71	-	-
sec-butylbenzene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.60	<2.2	<2.2	<2.2	<2.2	<0.85	<0.85	<0.85	-	-
tert-butylbenzene	<0.97	<0.97	<0.97	<0.97	<0.97	<0.42	<0.18	<0.18	<0.18	<0.18	<0.30	<0.30	<0.30	-	-
chloromethane	<0.24	<0.24	<0.24	<0.24	<0.24	<0.39	<0.50	<0.50	<0.50	<0.50	<2.2	<2.2	<2.2	*3*	**30**
dibromochloromethane	<0.81	<0.81	<0.81	<0.81	<0.81	<1.9	<0.32	<0.50	<0.50	<0.50	<2.6	<2.6	<2.6	*6*	**60**
1,2-dichlorobenzene	<0.83	<0.83	<0.83	<0.83	<0.83	<0.44	<0.50	<0.50	<0.50	<0.50	<0.71	<0.71	<0.71	*60*	***600***
1,4-dichlorobenzene	<0.95	<0.95	<0.95	<0.95	<0.95	<0.43	<0.50	<0.50	<0.50	<0.50	<0.94	<0.94	<0.94	*15*	***75***
1,1-dichloroethane	<0.75	<0.75	<0.75	<0.75	<0.75	<0.28	<0.18	<0.24	<0.24	<0.24	<0.27	<0.27	<0.27	*85*	***850***
1,1-dichloroethene	<0.57	<0.57	<0.57	<0.57	<0.57	<0.43	<0.41	<0.41	<0.41	<0.41	<0.24	<0.24	<0.24	*0.7*	***7***
cis-1,2-dichloroethene	<0.83	<0.83	<0.83	<0.83	<0.83	<0.42	<0.26	<0.26	<0.26	<0.26	<0.27	<0.27	<0.27	*7*	**70**
trans-1,2-dichloroethene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.37	<0.24	<0.26	<0.26	<0.26	<1.1	<1.1	<1.1	*20*	**100**
1,2-dichloropropane	<0.49	<0.49	<0.49	<0.49	<0.49	<0.50	<0.23	<0.23	<0.23	<0.23	<0.28	<0.28	<0.28	*0.5*	***5***
ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.54	<0.50	<0.50	<0.50	<0.50	<0.50	<0.22	<0.22	<0.22	*140*	**700**
isopropylbenzene	<0.59	<0.59	<0.59	<0.59	<0.59	<0.34	<0.12	<0.14	<0.14	<0.14	<0.39	<0.39	<0.39	-	-
p-isopropyltoluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.40	<0.50	<0.50	<0.50	<0.50	<0.80	<0.80	<0.80	-	-
naphthalene	<0.89	<0.89	<0.89	<0.89	<0.89	<2.5	<2.5	<2.5	<2.5	<2.5	<1.2	<1.2	<1.2	*10*	**100**
n-propylbenzene	<0.81	<0.81	<0.81	<0.81	<0.81	<0.50	<0.50	<0.50	<0.50	<0.50	<0.81	<0.81	<0.81	-	-
tetrachloroethene	**11.4**	**15.2**	**18.2**	**19.3**	**16.3**	**17.8**	**14.4**	**16.6**	**14.0**	**12.0**	**5.3**	*3.5*	*4.5*	*0.5*	**5**
toluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.44	<0.50	<0.50	<0.50	<0.50	<0.17	<0.17	<0.17	*160*	**800**
trichloroethene	<0.48	<0.48	<0.48	<0.48	<0.48	<0.43	<0.33	<0.33	<0.33	<0.33	<0.26	<0.26	<0.26	*0.5*	**5**
1,2,4-trimethylbenzene	<0.97	<0.97	<0.97	<0.97	<0.97	<0.57	<0.50	<0.50	<0.50	<0.50	<0.84	<0.84	<0.84	*96*	**480**
1,3-5-trimethylbenzene	<0.83	<0.83	<0.83	<0.83	<0.83	<2.5	<0.50	<0.50	<0.50	<0.50	<0.87	<0.87	<0.87		
vinyl chloride	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	*0.02*	**0.2**
total xylenes	<2.63	<2.63	<2.63	<2.63	<2.63	<1.32	<1.50	<1.5	<1.5	<1.5	<0.73	<0.73	<0.73	*400*	**2,000**

Notes:

1. Only the detected VOCs are shown.
2. Concentrations in *blue italics* exceed their respective preventive action limits (PALs).
3. Concentrations in **red bold** exceed their respective enforcement standards (ESs).
4. "-" indicates that groundwater standards are not established for the indicated parameter.

A.1 Groundwater Analytical Table (Pg 6 of 10)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

	MW-6										NR 140 PALs	NR 140 ESs
Sample Date	12/14/12	3/28/13	6/27/13	5/30/14	1/20/15	4/29/15	4/26/18	8/7/18	12/17/18	4/13/19		
Volatile Organic Compounds (µg/kg)												
benzene	<0.41	<0.41	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25	<0.25	<0.25	*0.5*	**5.0**
bromodichloromethane	<0.56	<0.56	<0.45	<0.50	<0.50	<0.50	<0.50	<0.36	<0.36	<0.36	0.06	**0.6**
n-butylbenzene	<0.93	<0.93	<0.40	<0.50	<0.50	<0.50	<0.50	<0.71	<0.71	<0.71	-	-
sec-butylbenzene	<0.89	<0.89	<0.60	<2.2	<2.2	<2.2	<2.2	<0.85	<0.85	<0.85	-	-
tert-butylbenzene	<0.97	<0.97	<0.42	<0.18	<0.18	<0.18	<0.18	<0.30	<0.30	<0.30	-	-
chloromethane	<0.24	<0.24	<0.39	<0.50	<0.50	<0.50	<0.50	<2.2	*4.5 J*	<2.2	*3*	**30**
dibromochloromethane	<0.81	<0.81	<1.9	<0.32	<0.50	<0.50	<0.50	<2.6	<2.6	<2.6	*6*	**60**
1,2-dichlorobenzene	<0.83	<0.83	<0.44	<0.50	<0.50	<0.50	<0.50	<0.71	<0.71	<0.71	*60*	***600***
1,4-dichlorobenzene	<0.95	<0.95	<0.43	<0.50	<0.50	<0.50	<0.50	<0.94	<0.94	<0.94	*15*	***75***
1,1-dichloroethane	<0.75	<0.75	<0.28	<0.18	<0.24	<0.24	<0.24	<0.27	<0.27	<0.27	*85*	***850***
1,1-dichloroethene	<0.57	<0.57	<0.43	<0.41	<0.41	<0.41	<0.41	<0.24	<0.24	<0.24	*0.7*	***7***
cis-1,2-dichloroethene	<0.83	<0.83	<0.42	<0.26	<0.26	<0.26	<0.26	<0.27	<0.27	<0.27	*7*	**70**
trans-1,2-dichloroethene	<0.89	<0.89	<0.37	<0.24	<0.26	<0.26	<0.26	<1.1	<1.1	<1.1	*20*	**100**
1,2-dichloropropane	<0.49	<0.49	<0.50	<0.23	<0.23	<0.23	<0.23	<0.28	<0.28	<0.28	*0.5*	***5***
ethylbenzene	<0.54	<0.54	<0.50	<0.50	<0.50	<0.50	<0.50	<0.22	<0.22	<0.22	*140*	**700**
isopropylbenzene	<0.59	<0.59	<0.34	<0.12	<0.14	<0.14	<0.14	<0.39	<0.39	<0.39	-	-
p-isopropyltoluene	<0.67	<0.67	<0.40	<0.50	<0.50	<0.50	<0.50	<0.80	<0.80	<0.80	-	-
naphthalene	<0.89	<0.89	<2.5	<2.5	<2.5	<2.5	<2.5	<1.2	<1.2	<1.2	*10*	**100**
n-propylbenzene	<0.81	<0.81	<0.50	<0.50	<0.50	<0.50	<0.50	<0.81	<0.81	<0.81	-	-
tetrachloroethene	**13.6**	**13.1**	**12.3**	**6.9**	**9.3**	**7.9**	**7.0**	**6.9**	**6.1**	*4.7*	*0.5*	**5**
toluene	<0.67	<0.67	<0.44	<0.50	<0.50	<0.50	<0.50	<0.17	<0.17	<0.17	*160*	**800**
trichloroethene	<0.48	<0.48	<0.43	<0.33	<0.33	<0.33	<0.33	<0.26	<0.26	<0.26	*0.5*	**5**
1,2,4-trimethylbenzene	<0.97	<0.97	<0.57	<0.50	<0.50	<0.50	<0.50	<0.84	<0.84	<0.84	*96*	**480**
1,3-5-trimethylbenzene	<0.83	<0.83	<2.5	<0.50	<0.50	<0.50	<0.50	<0.87	<0.87	<0.87		
vinyl chloride	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	*0.02*	**0.2**
total xylenes	<2.63	<2.63	<1.32	<1.50	<1.5	<1.5	<1.5	<0.73	<0.73	<0.73	*400*	**2,000**

Notes:

1. Only the detected VOCs are shown.
2. Concentrations in *blue italics* exceed their respective preventive action limits (PALs).
3. Concentrations in **red bold** exceed their respective enforcement standards (ESs).
4. "-" indicates that groundwater standards are not established for the indicated parameter.

A.1 Groundwater Analytical Table (Pg 7 of 10)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

	MW-7										NR 140 PALs	NR 140 ESs
Sample Date	12/14/12	3/28/13	6/27/13	5/30/14	1/20/15	4/29/15	4/26/18	8-718	12/17/18	4/13/19		
Volatile Organic Compounds (µg/kb)												
benzene	<0.41	<0.41	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25	<0.25	<0.25	*0.5*	**5.0**
bromodichloromethane	<0.56	<0.56	<0.45	<0.50	<0.50	<0.50	<0.50	<0.36	<0.36	<0.36	0.06	**0.6**
n-butylbenzene	<0.93	<0.93	<0.40	<0.50	<0.50	<0.50	<0.50	<0.71	<0.71	<0.71	-	-
sec-butylbenzene	<0.89	<0.89	<0.60	<2.2	<2.2	<2.2	<2.2	<0.85	<0.85	<0.85	-	-
tert-butylbenzene	<0.97	<0.97	<0.42	<0.18	<0.18	<0.18	<0.18	<0.30	<0.30	<0.30	-	-
chloromethane	<0.24	<0.24	<0.39	<0.50	<0.50	<0.50	<0.50	<2.2	<2.2	2.5 J	*3*	**30**
dibromochloromethane	<0.81	<0.81	<1.9	<0.32	<0.50	<0.50	<0.50	<2.6	<2.6	<2.6	*6*	**60**
1,2-dichlorobenzene	<0.83	<0.83	<0.44	<0.50	<0.50	<0.50	<0.50	<0.71	<0.71	<0.71	*60*	***600***
1,4-dichlorobenzene	<0.95	<0.95	<0.43	<0.50	<0.50	<0.50	<0.50	<0.94	<0.94	<0.94	*15*	***75***
1,1-dichloroethane	<0.75	<0.75	<0.28	<0.8	<0.24	<0.24	<0.24	<0.27	<0.27	<0.27	*85*	***850***
1,1-dichloroethene	<0.57	<0.57	<0.43	<0.41	<0.41	<0.41	<0.41	<0.24	<0.24	<0.24	*0.7*	***7***
cis-1,2-dichloroethene	<0.83	<0.83	<0.42	<0.26	<0.26	<0.26	<0.26	<0.27	<0.27	<0.27	*7*	**70**
trans-1,2-dichloroethene	<0.89	<0.89	<0.37	<0.24	<0.26	<0.26	<0.26	<1.1	<1.1	<1.1	*20*	**100**
1,2-dichloropropane	<0.49	<0.49	<0.50	<0.23	<0.23	<0.23	<0.23	<0.28	<0.28	<0.28	*0.5*	***5***
ethylbenzene	<0.54	<0.54	<0.50	<0.50	<0.50	<0.50	<0.50	<0.22	<0.22	<0.22	*140*	**700**
isopropylbenzene	<0.59	<0.59	<0.34	<0.12	<0.14	<0.14	<0.14	<0.39	<0.39	<0.39	-	-
p-isopropyltoluene	<0.67	<0.67	<0.40	<0.50	<0.50	<0.50	<0.50	<0.80	<0.80	<0.80	-	-
naphthalene	<0.89	<0.89	<2.5	<2.5	<2.5	<2.5	<2.5	<1.2	<1.2	<1.2	*10*	**100**
n-propylbenzene	<0.81	<0.81	<0.50	<0.50	<0.50	<0.50	<0.50	<0.81	<0.81	<0.81	-	-
tetrachloroethene	<0.45	<0.45	<0.47	<0.50	<0.50	<0.50	<0.50	<0.33	<0.33	<0.33	*0.5*	**5**
toluene	<0.67	<0.67	<0.44	<0.50	<0.50	<0.50	<0.50	<0.17	<0.17	<0.17	*160*	**800**
trichloroethene	<0.48	<0.48	<0.43	<0.33	<0.33	<0.33	<0.33	<0.26	<0.26	<0.26	*0.5*	**5**
1,2,4-trimethylbenzene	<0.97	<0.97	<0.57	<0.50	<0.50	<0.50	<0.50	<0.84	<0.84	<0.84	*96*	**480**
1,3-5-trimethylbenzene	<0.83	<0.83	<2.5	<0.50	<0.50	<0.50	<0.50	<0.87	<0.87	<0.87		
vinyl chloride	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	*0.02*	**0.2**
total xylenes	<2.63	<2.63	<1.32	<1.50	<1.5	<1.5	<1.5	<0.73	<0.73	<0.73	*400*	**2,000**

Notes:

1. Only the detected VOCs are shown.
2. Concentrations in *blue italics* exceed their respective preventive action limits (PALs).
3. Concentrations in **red bold** exceed their respective enforcement standards (ESs).
4. "-" indicates that groundwater standards are not established for the indicated parameter.

A.1 Groundwater Analytical Table (Pg 8 of 10)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

	MW-8										MW-9				NR 140 PALs	NR 140 ESs
Sample Date	12/14/12	3/28/13	6/27/13	5/30/14	1/20/15	4/29/15	4/26/18	8/7/18	12/17/18	4/13/19	4/26/18	8/7/18	12/17/18	4/13/19		
Volatile Organic Compounds (µg/kg)																
benzene	<0.41	<0.41	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25	<0.25	<0.25	<0.50	<0.25	<0.25	<0.25	*0.5*	**5.0**
bromodichloromethane	<0.56	<0.56	<0.45	<0.50	<0.50	<0.50	<0.50	<0.36	<0.36	<0.36	<0.50	<0.36	<0.36	<0.36	0.06	**0.6**
n-butylbenzene	<0.93	<0.93	<0.40	<0.50	<0.50	<0.50	<0.50	<0.71	<0.71	<0.71	<0.50	<0.71	<0.71	<0.71	-	-
sec-butylbenzene	<0.89	<0.89	<0.60	<2.2	<2.2	<2.2	<2.2	<0.85	<0.85	<0.85	<2.2	<0.85	<0.85	<0.85	-	-
tert-butylbenzene	<0.97	<0.97	<0.42	<0.18	<0.18	<0.18	<0.18	<0.30	<0.30	<0.30	<0.18	<0.30	<0.30	<0.30	-	-
chloromethane	<0.24	<0.24	<0.39	<0.50	<0.50	<0.50	<0.50	<2.2	<2.2	<2.2	<0.50	<2.2	*3.0 J*	<2.2	*3*	**30**
dibromochloromethane	<0.81	<0.81	<1.9	<0.32	<0.50	<0.50	<0.50	<2.6	<2.6	<2.6	<0.50	<2.6	<2.6	<2.6	*6*	**60**
1,2-dichlorobenzene	<0.83	<0.83	<0.44	<0.50	<0.50	<0.50	<0.50	<0.71	<0.71	<0.71	<0.50	<0.71	<0.71	<0.71	*60*	***600***
1,4-dichlorobenzene	<0.95	<0.95	<0.43	<0.50	<0.50	<0.50	<0.50	<0.94	<0.94	<0.94	<0.50	<0.94	<0.94	<0.94	*15*	***75***
1,1-dichloroethane	<0.75	<0.75	<0.28	<0.18	<0.24	<0.24	<0.24	<0.27	<0.27	<0.27	<0.24	<0.27	<0.27	<0.27	*85*	***850***
1,1-dichloroethene	<0.57	<0.57	<0.43	<0.41	<0.41	<0.41	<0.41	<0.24	<0.24	<0.24	<0.41	<0.24	<0.24	<0.24	*0.7*	***7***
cis-1,2-dichloroethene	<0.83	<0.83	<0.42	<0.26	<0.26	<0.26	<0.26	<0.27	<0.27	<0.27	<0.26	<0.27	<0.27	<0.27	*7*	**70**
trans-1,2-dichloroethene	<0.89	<0.89	<0.37	<0.24	<0.26	<0.26	<0.26	<1.1	<1.1	<1.1	<0.26	<1.1	<1.1	<1.1	*20*	**100**
1,2-dichloropropane	<0.49	<0.49	<0.50	<0.23	<0.23	<0.23	<0.23	<0.28	<0.28	<0.28	<0.23	<0.28	<0.28	<0.28	*0.5*	***5***
ethylbenzene	<0.54	<0.54	<0.50	<0.50	<0.50	<0.50	<0.50	<0.22	<0.22	<0.22	<0.50	<0.22	<0.22	<0.22	*140*	**700**
isopropylbenzene	<0.59	<0.59	<0.34	<0.12	<0.14	<0.14	<0.14	<0.39	<0.39	<0.39	<0.14	<0.39	<0.39	<0.39	-	-
p-isopropyltoluene	<0.67	<0.67	<0.40	<0.50	<0.50	<0.50	<0.50	<0.80	<0.80	<0.80	<0.50	<0.80	<0.80	<0.80	-	-
naphthalene	<0.89	<0.89	<2.5	<2.5	<2.5	<2.5	<2.5	<1.2	<1.2	<1.2	<2.5	<1.2	<1.2	<1.2	*10*	**100**
n-propylbenzene	<0.81	<0.81	<0.50	<0.50	<0.50	<0.50	<0.50	<0.81	<0.81	<0.81	<0.50	<0.81	<0.81	<0.81	-	-
tetrachloroethene	<0.45	<0.45	<0.47	<0.50	<0.50	<0.50	<0.50	<0.33	<0.33	<0.33	*0.55 J*	<0.33	<0.33	<0.33	*0.5*	**5**
toluene	<0.67	<0.67	<0.44	<0.50	<0.50	<0.50	<0.50	<0.17	<0.17	0.24 J	<0.50	<0.17	<0.17	<0.17	*160*	**800**
trichloroethene	<0.48	<0.48	<0.43	<0.33	<0.33	<0.33	<0.33	<0.26	<0.26	<0.26	<0.33	<0.26	<0.26	<0.26	*0.5*	**5**
1,2,4-trimethylbenzene	<0.97	<0.97	<0.57	<0.50	<0.50	<0.50	<0.50	<0.84	<0.84	<0.84	<0.50	<0.84	<0.84	<0.84	*96*	**480**
1,3-5-trimethylbenzene	<0.83	<0.83	<2.5	<0.50	<0.50	<0.50	<0.50	<0.87	<0.87	<0.87	<0.50	<0.87	<0.87	<0.87		
vinyl chloride	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.17	<0.17	<0.17	<0.18	<0.17	<0.17	<0.17	*0.02*	**0.2**
total xylenes	<2.63	<2.63	<1.32	<1.50	<1.5	<1.5	<1.5	<0.73	<0.73	<0.73	<1.5	<0.73	<0.73	<0.73	*400*	**2,000**

Notes:

1. Only the detected VOCs are shown.
2. Concentrations in *blue italics* exceed their respective preventive action limits (PALs).
3. Concentrations in **red bold** exceed their respective enforcement standards (ESs).
4. "-" indicates that groundwater standards are not established for the indicated parameter.

A.1 Groundwater Analytical Table (Pg 9 of 10)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

	PZ-1							PZ-2				NR 140 PALs	NR 140 ESs
Sample Date	5/30/14	1/20/15	4/29/15	4/26/18	8/7/18	12/17/18	4/13/19	4/26/18	8/7/18	12/17/18	4/13/19		
Volatile Organic Compounds (µg/kg)													
benzene	<1.0	<1.0	<1.0	<2.0	<0.99	<0.99	<0.99	*0.65 J*	0.31 J	<0.25	<0.25	*0.5*	**5.0**
bromodichloromethane	<1.0	<1.0	<1.0	<2.0	<1.5	<1.5	<1.5	<0.50	<0.36	<0.36	<0.36	0.06	**0.6**
n-butylbenzene	<1.0	<1.0	<1.0	<2.0	<2.8	<2.8	<2.8	<0.50	<0.71	<0.71	<0.71	-	-
sec-butylbenzene	<4.4	<4.4	<4.4	<8.7	<3.4	<3.4	<3.4	<2.2	<0.85	<0.85	<0.85	-	-
tert-butylbenzene	0.68 J	1.9 J	1.9 J	2.7 J	3.5 J	1.4 J	<1.2	<0.18	<0.30	<0.30	<0.30	-	-
chloromethane	<1.0	<1.0	<1.0	<2.0	<8.8	<8.8	<8.8	<0.50	<2.2	*4.1 J*	*4.3 J*	*3*	**30**
dibromochloromethane	<0.64	<1.0	<1.0	<2.0	<10.4	<10.4	<10.4	<0.50	<2.6	<2.6	<2.6	*6*	**60**
1,2-dichlorobenzene	<1.0	<1.0	<1.0	<2.0	<2.8	<2.8	<2.8	<0.50	<0.71	<0.71	<0.71	*60*	***600***
1,4-dichlorobenzene	<1.0	<1.0	<1.0	<2.0	<3.8	<3.8	<3.8	<0.50	<0.94	<0.94	<0.94	*15*	***75***
1,1-dichloroethane	18.6	*108*	83.6	*116*	*132*	30.2	19.8	<0.24	<0.27	<0.27	<0.27	*85*	***850***
1,1-dichloroethene	*1.5 J*	*2.7*	*2.7*	*5.1*	*5.9*	*2.6 J*	*1.8 J*	<0.41	<0.24	<0.24	<0.24	*0.7*	***7***
cis-1,2-dichloroethene	5.5	5.5	6.0	*9.0*	*14.5*	*9.5*	*17.1*	<0.26	<0.27	<0.27	<0.27	*7*	**70**
trans-1,2-dichloroethene	<0.48	0.66 J	0.58 J	1.9 J	<4.4	<4.4	<4.4	<0.26	<1.1	<1.1	<1.1	*20*	**100**
1,2-dichloropropane	**25.3**	**200**	**149**	**259**	**302**	**87.0**	**51.4**	<0.23	<0.28	<0.28	<0.28	*0.5*	***5***
ethylbenzene	<1.0	<1.0	<1.0	<2.0	<0.87	<0.87	<0.87	<0.50	<0.22	<0.22	<0.22	*140*	**700**
isopropylbenzene	<0.23	<0.29	<0.29	<0.57	<1.6	<1.6	<1.6	<0.14	<0.39	<0.39	<0.39	-	-
p-isopropyltoluene	<1.0	<1.0	<1.0	<2.0	<3.2	<3.2	<3.2	<0.50	<0.80	<0.80	<0.80	-	-
naphthalene	<5.0	<5.0	<5.0	<10.0	<4.7	<4.7	<4.7	<2.5	<1.2	<1.2	<1.2	*10*	**100**
n-propylbenzene	<1.0	<1.0	<1.0	<2.0	<3.2	<3.2	<3.2	<0.50	<0.81	<0.81	<0.81	-	-
tetrachloroethene	**139**	**361**	**474**	**478**	**548**	**439**	**161**	<0.50	*0.97 J*	*0.68 J*	0.36 J	*0.5*	**5**
toluene	<1.0	<1.0	<1.0	<2.0	<0.69	<0.69	<0.69	0.98 J	0.66 J	0.27 J	<0.17	*160*	**800**
trichloroethene	**118**	**110**	**130**	**173**	**207**	**152**	**99.8**	<0.33	<0.26	<0.26	<0.26	*0.5*	**5**
1,2,4-trimethylbenzene	<1.0	<1.0	<1.0	<2.0	<3.4	<3.4	<3.4	<0.50	<0.84	<0.84	<0.84	*96*	**480**
1,3-5-trimethylbenzene	<1.0	<1.0	<1.0	<2.0	<3.5	<3.5	<3.5	<0.50	<0.87	<0.87	<0.87		
vinyl chloride	<0.35	**0.43 J**	<0.35	<0.70	**0.75 J**	<0.70	<0.70	<0.18	<0.17	<0.17	<0.17	*0.02*	**0.2**
total xylenes	<3.0	<3.0	<3.0	<6.0	<2.9	<2.9	<2.9	<1.5	<0.73	<0.73	<0.73	*400*	**2,000**

Notes:

1. Only the detected VOCs are shown.
2. Concentrations in *blue italics* exceed their respective preventive action limits (PALs).
3. Concentrations in **red bold** exceed their respective enforcement standards (ESs).
4. "-" indicates that groundwater standards are not established for the indicated parameter.

A.1 Groundwater Analytical Table (Pg 10 of 10)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

	PZ-3				PZ-4				NR 140 PALs	NR 140 ESs
Sample Date	4/26/18	8/7/18	12/17/18	4/13/19	4/26/18	8/7/18	12/17/18	4/13/19		
Volatile Organic Compounds (µg/kg)										
benzene	<0.50	<0.25	<0.25	<0.25	<0.50	<0.25	<0.25	<0.25	*0.5*	**5.0**
bromodichloromethane	**0.62 J**	<0.36	<0.36	<0.36	<0.50	<0.36	<0.36	<0.36	0.06	**0.6**
n-butylbenzene	<0.50	<0.71	<0.71	<0.71	<0.50	<0.71	<0.71	<0.71	-	-
sec-butylbenzene	<2.2	<0.85	<0.85	<0.85	<2.2	<0.85	<0.85	<0.85	-	-
tert-butylbenzene	<0.18	<0.30	<0.30	<0.30	<0.18	<0.30	<0.30	<0.30	-	-
chloromethane	<0.50	<2.2	*7.0 J*	2.5 J	<0.50	<2.2	*3.1 J*	<2.2	*3*	**30**
dibromochloromethane	0.66 J	<2.6	<2.6	<2.6	<0.50	<2.6	<2.6	<2.6	*6*	**60**
1,2-dichlorobenzene	<0.50	<0.71	<0.71	<0.71	<0.50	<0.71	<0.71	<0.71	*60*	***600***
1,4-dichlorobenzene	<0.50	<0.94	<0.94	<0.94	<0.50	<0.94	<0.94	<0.94	*15*	***75***
1,1-dichloroethane	<0.24	<0.27	<0.27	<0.27	<0.24	<0.27	0.63 J	<0.27	*85*	***850***
1,1-dichloroethene	<0.41	<0.24	<0.24	<0.24	<0.41	<0.24	<0.24	<0.24	*0.7*	***7***
cis-1,2-dichloroethene	1.0	<0.27	<0.27	<0.27	0.52 J	<0.27	0.40 J	<0.27	*7*	**70**
trans-1,2-dichloroethene	<0.26	<1.1	<1.1	<1.1	<0.26	<1.1	<1.1	<1.1	*20*	**100**
1,2-dichloropropane	<0.23	<0.28	<0.28	<0.28	<0.23	<0.28	*1.0*	<0.28	*0.5*	***5***
ethylbenzene	<0.50	<0.22	<0.22	<0.22	<0.50	<0.22	<0.22	<0.22	*140*	**700**
isopropylbenzene	<0.14	<0.39	<0.39	<0.39	<0.14	<0.39	<0.39	<0.39	-	-
p-isopropyltoluene	<0.50	<0.80	<0.80	<0.80	<0.50	<0.80	<0.80	<0.80	-	-
naphthalene	<2.5	<1.2	<1.2	<1.2	<2.5	<1.2	<1.2	<1.2	*10*	**100**
n-propylbenzene	<0.50	<0.81	<0.81	<0.81	<0.50	<0.81	<0.81	<0.81	-	-
tetrachloroethene	**14.5**	*1.1 J*	*1.0 J*	*1.7*	**29.1**	**13.5**	**10.8**	**5.4**	*0.5*	**5**
toluene	<0.50	<0.17	<0.17	<0.17	<0.50	<0.17	<0.17	<0.17	*160*	**800**
trichloroethene	*1.0*	0.29 J	<0.26	<0.26	**5.8**	*2.9*	*2.7*	*0.75 J*	*0.5*	**5**
1,2,4-trimethylbenzene	<0.50	<0.84	<0.84	<0.84	<0.50	<0.84	<0.84	<0.84	*96*	**480**
1,3-5-trimethylbenzene	<0.50	<0.87	<0.87	<0.87	<0.50	<0.87	<0.87	<0.87		
vinyl chloride	<0.18	<0.17	<0.17	<0.17	<0.18	<0.17	<0.17	<0.17	*0.02*	**0.2**
total xylenes	<1.5	<0.73	<0.73	<0.73	<1.5	<0.73	<0.73	<0.73	*400*	**2,000**

Notes:

1. Only the detected VOCs are shown.
2. Concentrations in *blue italics* exceed their respective preventive action limits (PALs).
3. Concentrations in **red bold** exceed their respective enforcement standards (ESs).
4. "-" indicates that groundwater standards are not established for the indicated parameter.

ATTACHMENT B
Former Source Area
Supporting Documents

- B.1.b.1 Detailed Site Map
- B.1.b.2 Detailed Site Map Zoom
- Block Cleaning Process PDF
- Site Photographs

B.1.b Detailed Site Map
Block System Cleaners
2017 Winnebago Street
Madison, Wisconsin

Drawing No.: 11-0604z
DWG Date: 06-27-17
Rev Date: 02-07-20
Drafted by: JEB

ReadyEarth Consulting, Inc.

Winnebago Street
S. 2nd Street
Atwood Avenue
Amoth Court

2002-2004 Winnebago St.
2016 Winnebago St.
2037 Winnebago St.
2021 Winnebago St.
2009 Winnebago St.
2052 Atwood Ave.
2044 Atwood Ave.
2000 Atwood Ave.
2033 Atwood Ave.
2021-2027 Atwood Ave.
2001-2013 Atwood Ave.

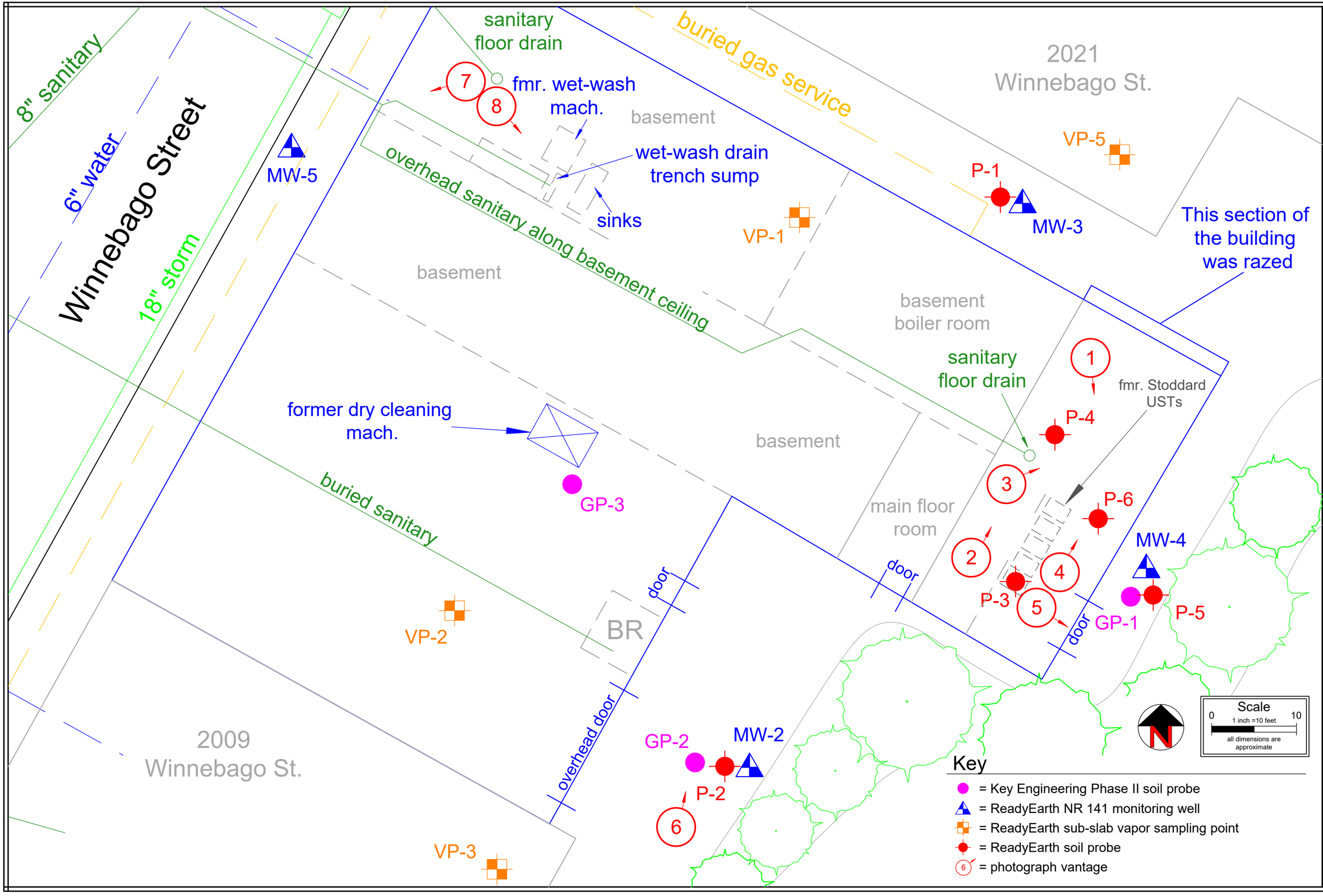
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-8
MW-9
PZ-1
PZ-2
PZ-3
PZ-4
P-1
P-2
P-3
P-4
P-5
P-6
GP-1
GP-2
GP-3
VP-1
VP-2
VP-3
VP-4
VP-5
VP-6
IA-1

basement
basement boiler room
BR
former 300-gal Stoddard USTs
former dry cleaning mach.

buried gas service
buried elec. service
buried communication
buried comm. service
18" storm
12" storm
15" storm
6" water
10" water
8" sanitary
15" sanitary
6" sanitary

Scale
0 1 inch =40 feet 40
all dimensions are approximate

Key
- = Key Engineering Phase II soil probe
- = ReadyEarth NR 141 monitoring well
- = ReadyEarth sub-slab vapor sampling point
- = ReadyEarth soil probe



B.1.b Detailed Site Map Zoom
Former Block System Cleaners
2017 Winnebago Street
Madison, Wisconsin

Drawing No.: 11-0604af
DWG Date: 02-7-20
Rev Date:
Drafted by: JEB

ReadyEarth Consulting, Inc.

- Dry to dry machine – clothes go in dry and come out dry.
- Clothes are pre-treated as needed with a detergent/water mix with other ADDITIVES AS NEEDED. No solvent is used in the pre-treat sprayer.
- Clothes go into machine and approximately 20 gal of solvent is washed through clothes.
- Two-bath system
    - Button filter
    - In-line filtration
- Clothes are spun to extract solvent. Solvent goes to the still.
- Still heats solvent
- Vapor recovery through chillers
- All chillers are cooled by NON-CONTACT WATER
- Water is separated and drained off into a bucket – approximately 3-7 gallons per week depending primarily on humidity and also water in clothes and from any pre-treating. Water is then carried in bucket to evaporator as needed (see below).
- Observing recovered water is important to see if any solvent is in water to know if there is a problem in the process (i.e. shouldn't be any solvent in the water as product). That is why water is collected in bucket as opposed to plumbed direct to an evaporator.
- System is a closed system. Air released when door is opened and closed (puff of air) goes through charcoal filter on top of machine. Under normal atmospheric pressure all air would go through filter, but roof fan is more powerful at times of year so that some vapors may escape machine out door when open.
- No disposable filters on machine. There is a permanent in-line filter that all solvent runs through during wash to remove particulates. Filter is back washed into still at the end of each cycle.
- Impurities, fine solids, spent solvents accumulate at bottom of still and refered to as "still bottoms". The still bottoms accumulate and get to the consistency of very thin peanut butter. The still bottoms are removed on a weekly basis whether needed or not and are placed in a bucket and walked over to safety kleen drums located near south overhead doors. Average disposal is approximately 4 drums per year.
- PCE delivery is by a cart-mounted drum, which is required by code. The drum has quick-connect fittings that attach to the dry cleaning machine and an electric pump to deliver the product directly to the machine. Prior to the code change, solvent was typically added by 5-gallon pail and poured into machine.
- PCE has been delivered to the site this way since the early 1990s. PCE machine installed at the site in 1991.

<u>Evaporator</u>

- The evaporator is located in an area of the building above the basement.
- Water is poured by hand through a filter medium in a funnel on top of machine that drains to a lower tank. Three sensors in lower tank: 1) for low level; 2) for high level; and 3) for PCE detection.
- 3 sensors for PCE detection in total in system.
- Water from lower tank is pumped by peristaltic pump through a charcoal filter, through another sensor, and then into heating chamber.
- Charcoal filters are replaced as needed (2-3 times per year) by drying them in the top funnel and are then disposed in the safety Kleen drum with the still bottoms.

- Water is simply heated and evaporated.
- Evaporator was installed at the site in 1993. Block is not sure how contact water was handled between 1991 and 1993.

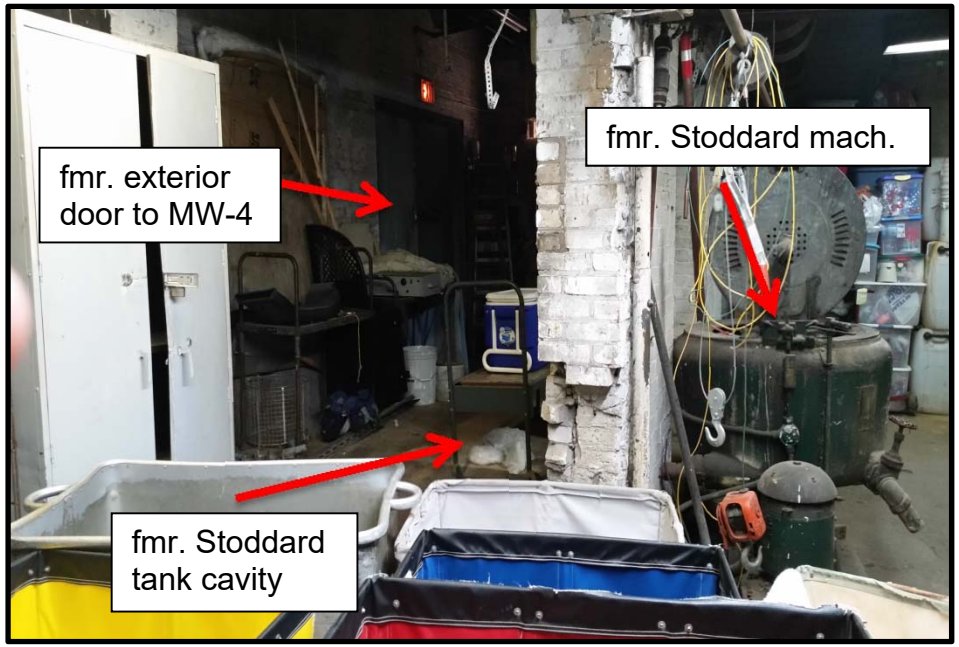


Photo 1 – This photograph looks south across the rear storage room. A rear exterior door shown in the left background leads from this room to the area where MW-4 is located. The building areas shown in this photo have been razed.

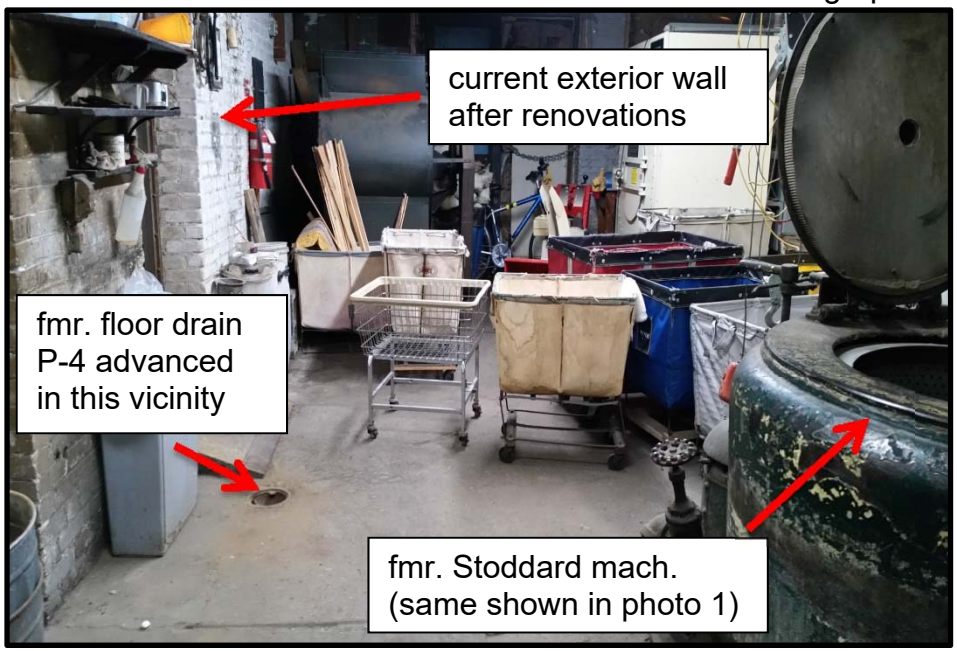


Photo 2 – This photograph looks north-northeast across the storage room. For orientation, the green former washer in the lower right foreground is the same shown in the previous photo. A floor drain referenced in the letter is show to the left of the photo.

Photo 3 – This photograph shows another vantage of the floor drain shown in the previous photo.

Photo 4 – This photograph looks north from the vantage of the exterior door shown in photo 1. The different concrete shown in the foreground is evidence of the former location of the Stoddard tanks.

Photo 5 – This photograph shows the exterior door that leads to the area of MW-4. MW-4 is approximately 10 feet from this door. This door is illustrated in on the Detailed Site Map.

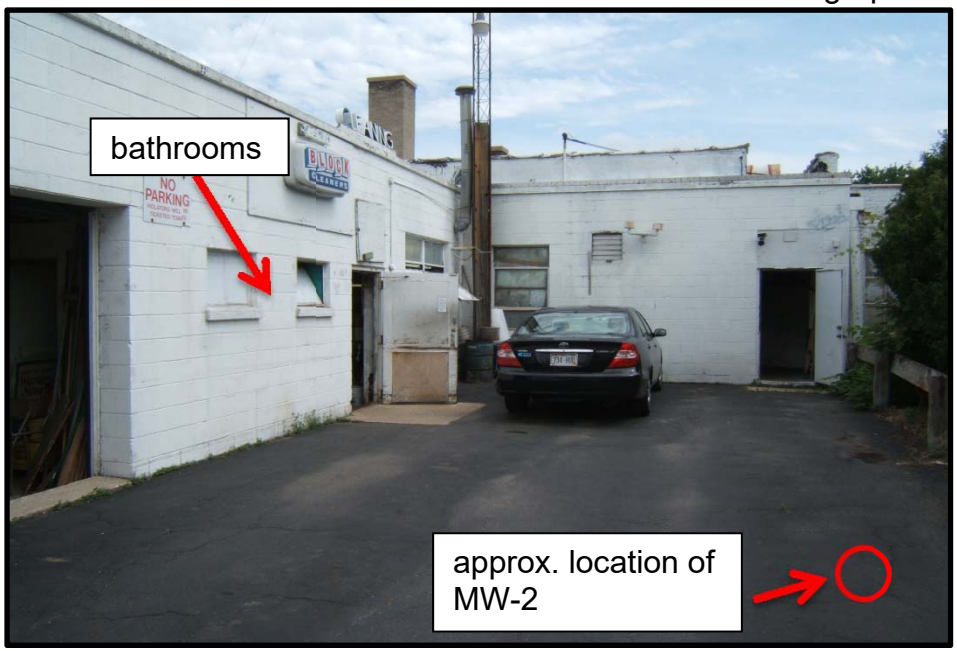


Photo 6 – This photograph shows the other exterior doors at the rear of the building. All exterior doors are shown on the Detailed Site Map. These exterior doors lead to the area of MW-2 (this photo was taken prior to MW-2 being installed).

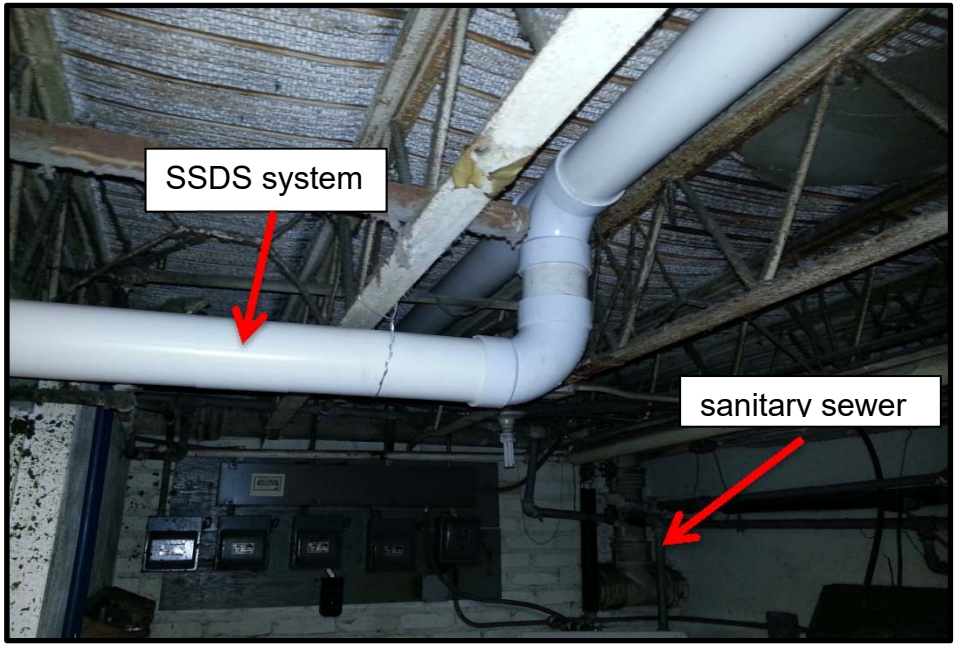


Photo 7 – This photograph looks west-southwest within the Block basement, and prominently shows a portion of the SSDS that remains operating at the site. Shown in the background is the sanitary sewer connection that accepted water from the former floor drain in photos 2 and 3.

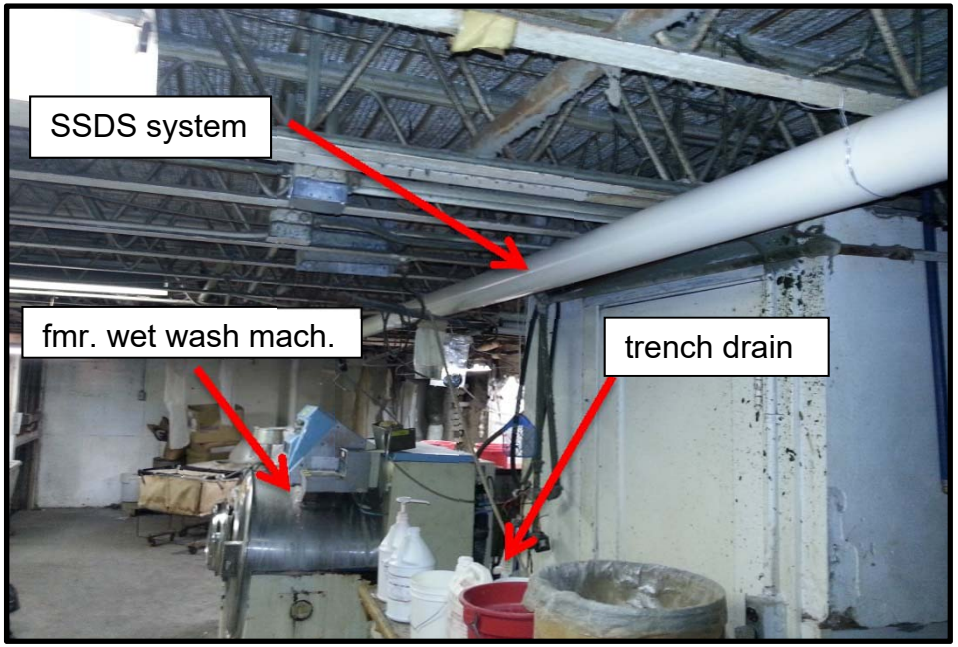


Photo 8 – This photograph is from a vantage just left of the previous photo. The machine in the foreground is the wet wash machine that discharges to a trench sump immediately behind the machine. The sump discharges to the sanitary sewer. The sump does not collect groundwater.

ATTACHMENT C

Justification Against Active Remediation
Supporting Documents

- October 18, 2019 DNR email
- September 11, 2015 DNR letter
- July 25, 2017 DNR email

Gmail by Google

Jason Bartley <jbartley@readyearth.net>

Block Cleaners Madison

DiMaggio, Janet H - DNR <Janet.DiMaggio@wisconsin.gov> Fri, Oct 18, 2019 at 8:17 AM
To: Jason Bartley <jbartley@readyearth.net>
Cc: "blockcleaners@att.net" <blockcleaners@att.net>

Hi Jason,

I brought Block Cleaners to Peer Review this week. The Department's September 11, 2015 letter in response to the earlier closure request asked for:

1. A better definition of the contaminant plume at depth,
2. More exploration of the source of contamination, and
3. The possible need for groundwater and soil remediation.

Additional work is still needed to address these concerns.

You submitted a SI Addendum dated September 17, 1019. We do not believe the SI is complete. The SI Addendum discussed the installation of one well and three piezometers in April 2018, and six soil probe borings in April 2019 to evaluate potential vadose zone source areas. No boring logs were attached; you will need to submit those.

- Three soil probe borings were located near the former Stoddard USTs and one boring each was located near wells MW-2, MW-3, and MW-4. Samples were collected from the 2-4' and 6-8' intervals. Except for P-3 (which had a GW pathway exceedance for perc, J flagged) located near the Stoddard USTs, no exceedances were observed. We don't think the Stoddard tanks were the source of the perc. The source of the perc is still unknown.

- The cross-section showed PZ-1 screened in well-graded sand. This piezometer had groundwater ES exceedences. The new piezometers, PZ-2, PZ-3, and PZ-4 were deeper and all screened in hard fine sandy silt. It is possible that the contaminant plume core is in the sand layer and not diving as depicted in the cross-section.

We have questions on the location of the source area(s). We are asking you to provide a better explanation of the potential sources and include a map that indicates buried utility corridors, location of any sump in the buildings, location of the quick connect for the perc, and locations of any doors on the Block buildings. Additional soil borings and/or wells may be needed based on your additional evaluation.

You should submit a budget for a workplan and additional site investigation.

If you have any questions, please contact me to discuss.

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Janet DiMaggio, P.G.
Hydrogeologist, Bureau for Remediation and Redevelopment/Environmental Management Division
Wisconsin Department of Natural Resources

3911 Fish Hatchery Road, Fitchburg, WI 53711
Phone: (608) 275-3295
janet.dimaggio@wisconsin.gov

dnr.wi.gov

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
3911 Fish Hatchery Road
Fitchburg WI 53711-5397

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

September 11, 2015

Mr. James Friedl
Block System Cleaners
2017 Winnebago Street
Madison, WI 53704

Subject: Case Closure Denial, Additional Site Investigation Needed for
Block System Cleaners, 2017 Winnebago Street, Madison, Wisconsin
DNR BRRTS Activity # 02-13-552132

Dear Mr. Friedl:

On August 6, 2015, the South Central Regional Closure Committee reviewed your request for closure of the case described above. The Department of Natural Resources (Department) reviews environmental remediation cases for compliance with state and federal laws to maintain consistency in the closure of these cases. As discussed with you on August 6, 2015, the closure committee has denied closure because additional requirements must be met. The purpose of this letter is to inform you of the remaining requirements for obtaining closure. We request that within 60 days of this letter, you provide us with your written response regarding the necessary work and a schedule for completion of this work.

As noted above, additional site work is necessary in order to meet the requirements for site closure. An investigation for an on-site source for the groundwater contamination is needed, the degree and extent of the contaminant groundwater plume needs to be defined, and active remediation of the groundwater contamination should be proposed. Department guidance, *Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin* (PUB – RR-800 December 2010), indicates that in most cases, remediation of the source is required in order to reduce or eliminate the vapor intrusion pathway.

Need to Define the Degree and Extent of Contamination

Additional soil and groundwater investigation is needed in order to define the degree and extent of contamination. Soil samples in the unsaturated zone should be conducted. Additional site investigation for groundwater contamination should be conducted, specifically, the degree and extent of the deeper level contamination as noted in the piezometer (PZ-1) needs to be defined. This entails, at a minimum, investigating deeper than PZ-1 and down-gradient of PZ-1. The source for the contaminated groundwater was not identified. An investigation for an on-site source area should be conducted.

Need to Conduct Additional Remedial Action

A remedial action is needed in order to comply with the closure criteria of ch. NR 726, Wis. Adm. Code. An active remedial measure should be proposed to reduce the contaminant mass in the groundwater. Section NR 726.05(8)(b)1., Wis. Adm. Code, requires as a criterion for closure for sites with vapor contamination that a remedial action be conducted to reduce the mass and concentration of volatile compounds to the extent practicable.

A complete closure request should be re-submitted once all the above requirements have been satisfied, together with any required documentation, to let the Department know that applicable requirements have been met. Case closure can be considered once all the above requirements have been satisfied.

Within 60 days of the date of this letter, please respond in writing with a schedule of your plans to meet these requirements. Until requirements have been met, your site will remain "open" and you will also need to continue to submit the semi-annual progress reports, as required by s. NR 700.11, Wis. Adm. Code. You will also be responsible for any operation and maintenance activities required under s. NR 724.13, Wis. Adm. Code.

We appreciate your efforts to restore the environment at this site. If you have any questions regarding this letter, please contact me at (608) 275-3310.

Sincerely,

Linda Hanefeld
Team Supervisor, South Central Region
Remediation & Redevelopment Program

cc: Jason Bartley, Ready Earth Consulting, Inc., P.O. Box 365, Pewaukee, WI 53072

Gmail by Google

Jason Bartley <jbartley@readyearth.net>

Block system Cleaners, Madison

DiMaggio, Janet H - DNR <Janet.DiMaggio@wisconsin.gov> Tue, Jul 25, 2017 at 11:03 AM
To: "jbartley@ReadyEarth.net" <jbartley@readyearth.net>

Good Morning Jason,

Thank you for your phone call this morning. The committee met last week, considered the submitted work plan and suggestions I made, and offered the following direction.

1. The site investigation needs to be completed.

    a. The proposal included a nested deeper PZ near the current PZ-1 and a set of nested PZs across Atwood Ave. The committee would like a WT well added to the two proposed PZs offsite.

    b. Four rounds of GWM.

    c. Shallow soil sampling around and in the presumed source area is needed.

    d. Paired subslab and indoor air vapor samples are needed for the 2000 Atwood property.

    e. A report of the completed SI is needed.

2. In answer to the five questions you asked:

    a. Is further shallow, lateral delineation required down-gradient of MW-6?

    Yes. One new proposed well should nest with existing PZ-1, and two proposed PZs should be installed nested with a WT well down-gradient and across Atwood Ave. New wells need to be geologically logged (not blind drilled) with representative soil samples taken for analyses. All site wells need to be surveyed to the national geodetic survey datum.

    b. If the results from the initial two sampling results from the down-gradient piezometers are below enforcement standards, can the groundwater sampling be terminated?

    You need to request this in writing and DNR would respond after evaluating the data.

    c. Is further source evaluation required?

    Yes. See number 1, above. The source needs to be identified. Direct contact soil samples (preferably 2-4' bgs) are needed in suspected source area and outside of the building (by GP-1, MW-3, GP-2) to define the source and extent. These direct contact zone samples should be paired with samples in the 4-8' bgs interval.

    d. Can the vapor mitigation systems (VMSs) operating in the west portion of the dry cleaning building and neighboring property (see figure B.4.a. SSDS-4 through 8) be discontinued?

    Yes, it is not required by existing data. It might be a good idea to let it operate or to offer this option to existing tenants or owners or those properties.

    Please note that paired subslab and indoor air vapor samples are needed for the 2000 Atwood property.

    e. What are the factors that DNR would consider relevant to show that active remediation is not required in order to achieve closure?

    There is potential for DNAPL at the WT in the vicinity of the source. An active remedial measure is needed as the data show high concentrations. The committee suggested consideration of SVE and a pilot test. A question arose to the nature of the subsurface materials. Please verify if there is fill or if the subsurface material are native soils.

Please let me know if you have any questions.

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Janet DiMaggio
Hydrogeologist, Bureau for Remediation and Redevelopment/Environmental Management Division
Wisconsin Department of Natural Resources

3911 Fish Hatchery Road, Fitchburg, WI 53711
Phone: (608) 275-3295
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ATTACHMENT D

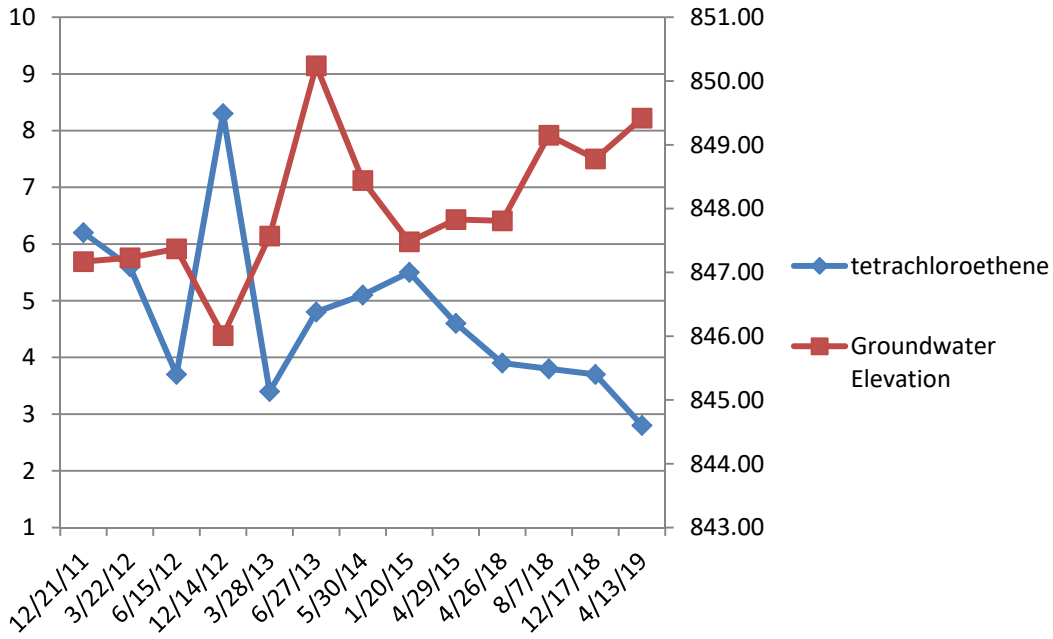
Remediation by Natural Attenuation and Trend Analyses
Supporting Documents

- A.7 PCE & GW Elevation Trend Data Graphs

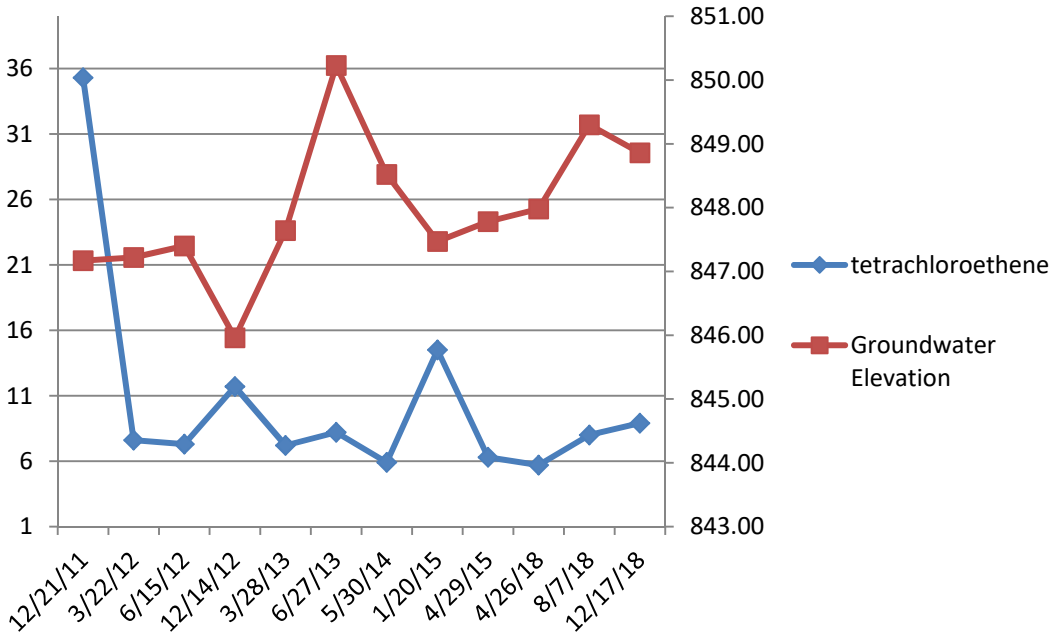
A.7 PCE & GW Elevation Trend Data Graphs (Pg 1 of 4)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

MW-1 PCE & GW Elevations vs Time



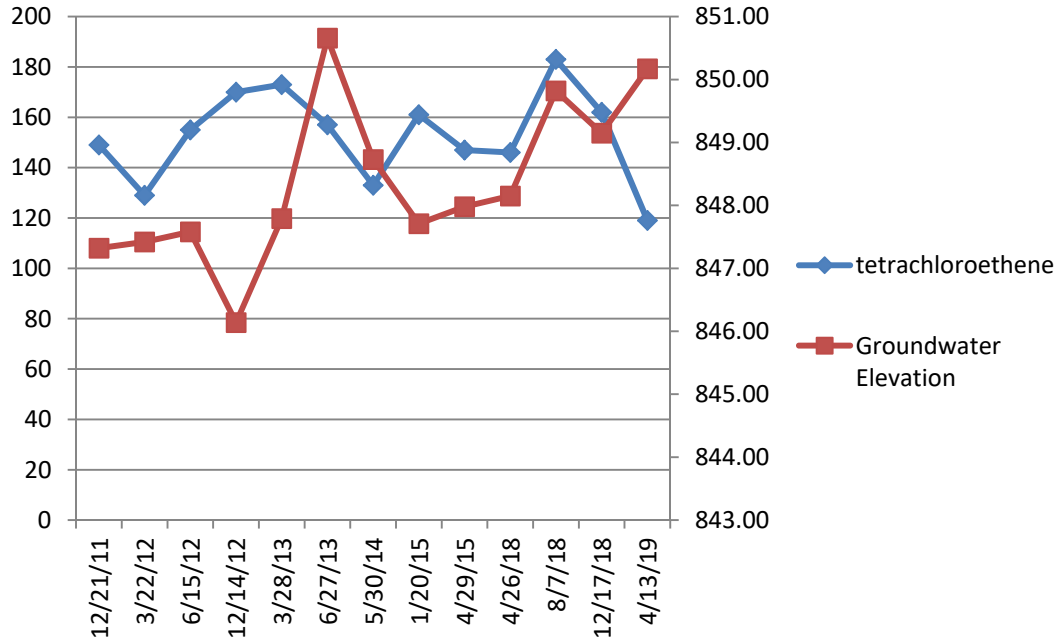
MW-2 PCE & GW Elevations vs Time



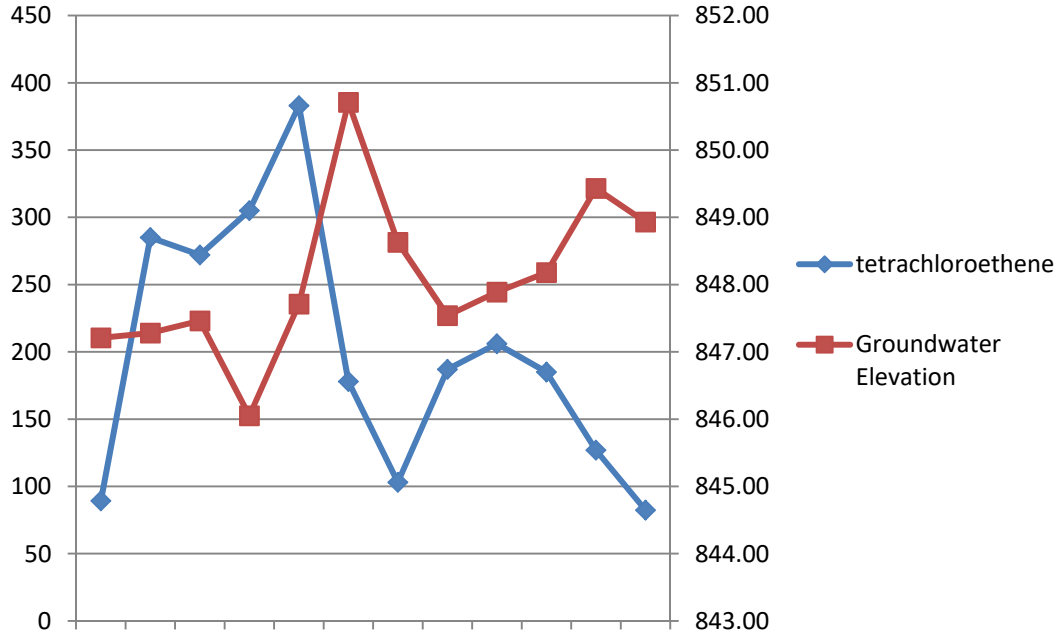
A.7 PCE & GW Elevation Trend Data Graphs (Pg 2 of 4)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

MW-3 PCE & GW Elevations vs Time



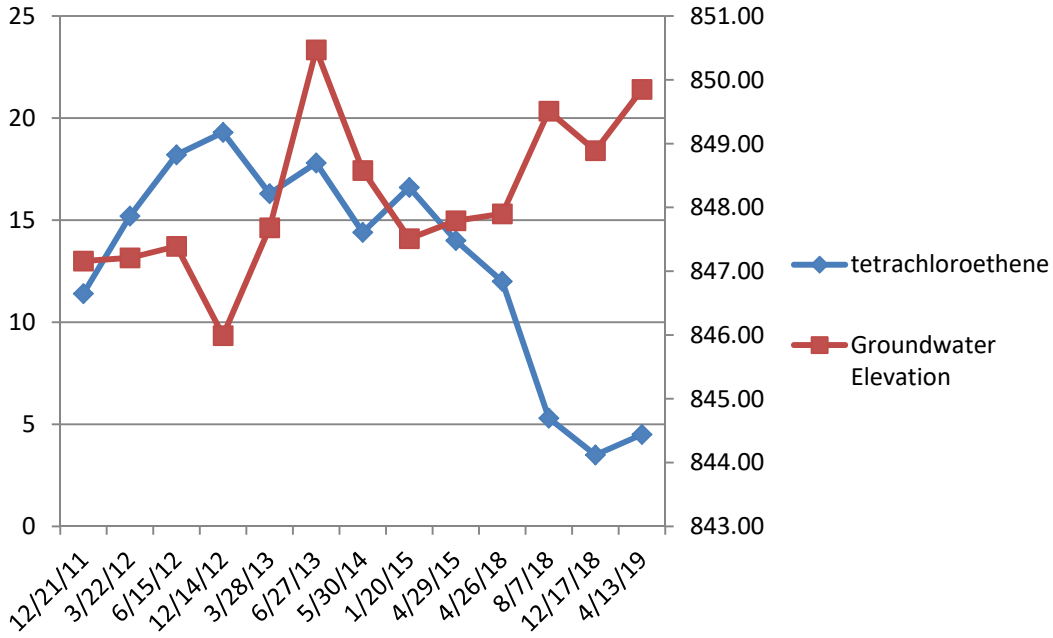
MW-4 PCE & GW Elevations vs Time



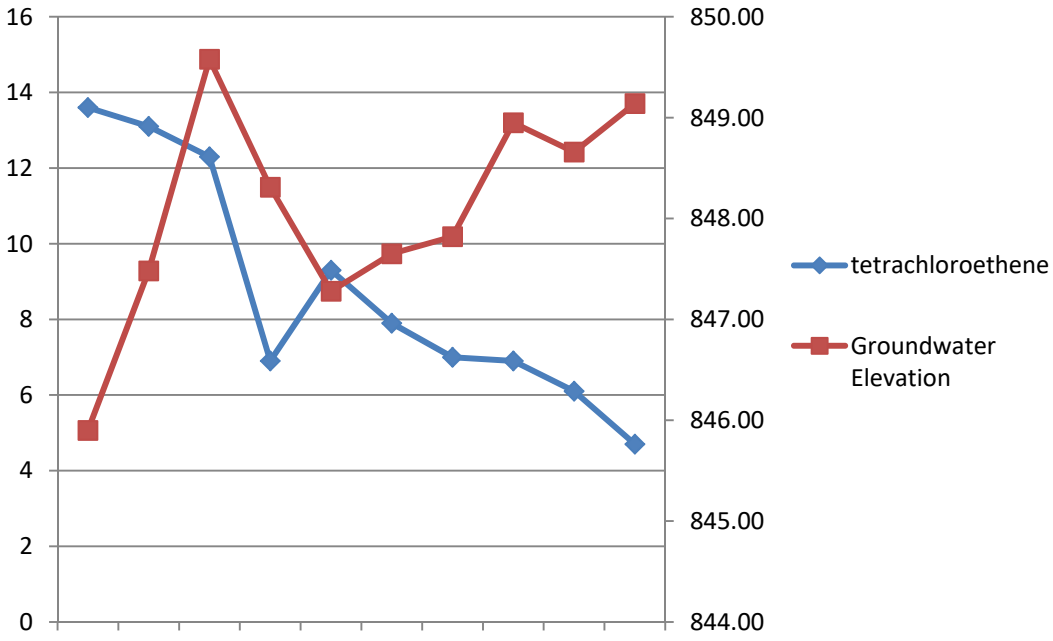
A.7 PCE & GW Elevation Trend Data Graphs (Pg 3 of 4)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

MW-5 PCE & GW Elevations vs Time



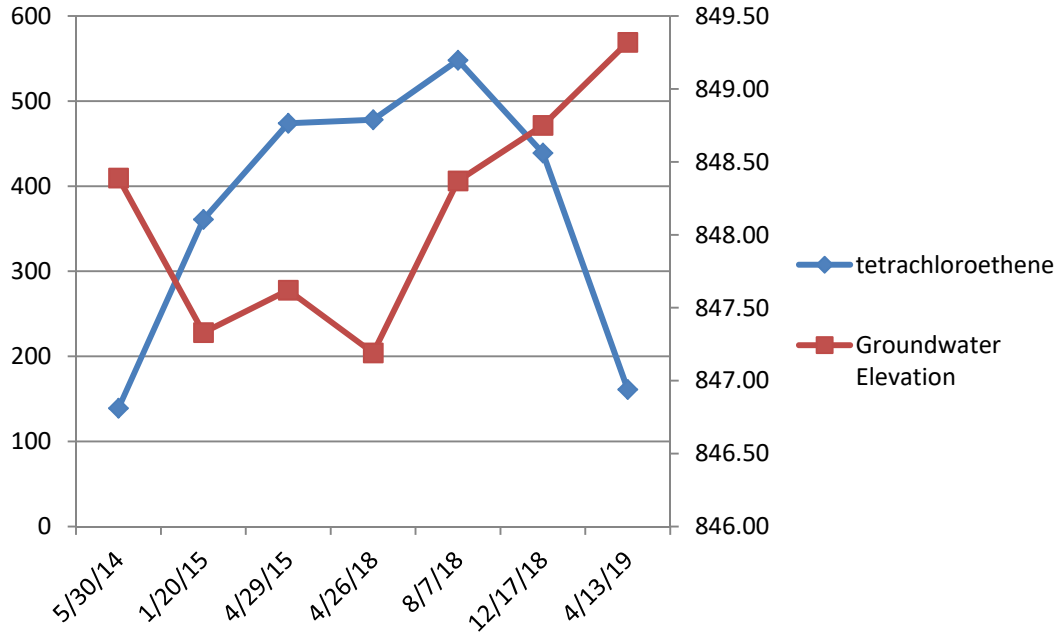
MW-6 PCE & GW Elevations vs Time



A.7 PCE & GW Elevation Trend Data Graphs (Pg 4 of 4)

Former Block System Cleaners
2017 Winnebago Street
Madison, WI

PZ-1 PCE & GW Elevations vs Time



PZ-4 PCE & GW Elevations vs Time