DEPARTMENT OF THE ARMY
BADGER ARMY AMMUNITION PLANT
S7273 BLUFF ROAD
MERRIMAC, WISCONSIN 53561

February 8, 2019

SUBJECT: Residential Well Replacement – Water's Edge Subdivision
Badger Army Ammunition Plant

Mr. Jason Lowery
Wisconsin Department of Natural Resources
GEF2 Central Office
PO Box 7921
Madison, WI 53707-7921

Dear Mr. Lowery:

Residential well WE-UK124 (432) located in the Water's Edge Subdivision was replaced by SpecPro Professional Services, LLC (SPS) on behalf of the Department of the Army (Army). During June and July 2018, 2,6-dinitrotoluene (DNT) and total DNT were detected above the NR 140 Enforcement Standard (ES) in WE-UK124. The Army informed the homeowner that they would replace their well with a deeper well. The Water's Edge Subdivision is located at the southern edge of the Central Plume (see Figure 1).

The replacement residential well, WE-ZE512 (437), was installed by Brad Webster & Sons Drilling, Inc., a Wisconsin licensed well driller. Drilling of the replacement well, WE-ZE512, began on November 28 and was completed on November 30, 2018. A new well pump was installed and WE-ZE512 became fully operational on December 21, 2018. WE-ZE512 was constructed below the contaminated unconsolidated sand aquifer and into the bedrock aquifer to avoid DNT-impacted groundwater associated with the Central Plume. The contaminated well (WE-UK124) was screened in the unconsolidated sand aquifer from 97 to 100 feet deep. WE-UK124 was abandoned on December 19, 2018 using bentonite chips and cut off below ground level. The replacement well (WE-ZE512) was drilled into the shale bedrock to a depth of 324 feet. To limit impacts from the DNT-impacted groundwater found the unconsolidated sand aquifer, a steel casing was installed from the ground surface to 15 feet below the unconsolidated sand and bedrock interface. The 220-foot steel casing was grouted with cement to seal off the upper sand aquifer. The well was drilled using air-rotary with an open bedrock hole from 220 to 324 feet. The well draws its groundwater from this 220 to 324-foot zone.

Groundwater from the replacement residential well, WE-ZE512, was sampled on December 26, 2018. CT Laboratories, LLC of Baraboo, Wisconsin performed analytical testing for DNT and volatile organic compounds. Analytical results from both the regular and duplicate samples did not detect any of the six DNT isomers. Toluene was detected in both the regular and duplicate samples at concentrations of 0.63 and 0.76 micrograms per liter (µg/l). These toluene concentrations are well below the NR 140 Preventive Action Limit (PAL) of 160 µg/l.

The Army intends to include the new residential well, WE-ZE512, in the annual residential sampling that will be conducted in August 2019.

The enclosed files contain a copy of the well construction report, well abandonment log, residential well lab results, signed Environmental Monitoring Data Certification Form, and a map showing the well locations.

Please do not hesitate to contact me at 608-434-5374 if you have any questions.

Sincerely,

Robert M. Sitton
Commander's Representative

Enclosure
Copy furn: Bryan Lynch, Contracting Officer's Representative

State of Wisconsin
Department of Natural Resources

Environmental Monitoring Data Certification

Form 4400-231(R 1/04)

Notice: Personally identifiable information collected will be used for program administration and enforcement purposes. The Department may also provide this information to requesters as required under Wisconsin's Open Records law, ss. 19.31 to 19.39, Wis. Stats.
When submitting monitoring data, the owner or operator of the facility, practice or activity is required to notify the Department in writing that a groundwater standard or an explosive gas level has been attained or exceeded, as specified in ss. NR 140.24(1)(a); NR 140.26(1)(a); NR 507.30NR 635.14(9)(a); NR 635.18(20) and NR 507.30, Wis. Adm. Code. Failure to report may result in fines, forfeitures or other penalties resulting from enforcement under ss. 289.97, 291.97 or 299.95, Wis. Stats.

Instructions:

- **Prepare one form for each license or monitoring ID.**
- **Please type or print legibly.**
- Attach a notification of any values that attain or exceed groundwater standards (that is, preventive action limits, enforcement standards or alternative concentration limits). The notification must include a preliminary analysis of the cause and significance of each value.
- Attach a notification of any gas values that attain or exceed explosive gas levels.
- Send the original signed form, any notification, and Electronic Data Deliverable [EDD] to: GEMS Data Submittal Contact - WA/5
  Bureau of Waste Management
  Wisconsin Department of Natural Resources
  101 South Webster Street
  Madison WI 53707-7921

Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner):
SpecPro Professional Services - Badger Army Ammunition Plant

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:
Name: Joel Janssen Phone: (608) 438-1110
E-mail: Joel.Janssen@SpecProSvcs.com

Facility name:	License # / Monitoring ID	Facility ID [FID]	Actual sampling dates (e.g., July 2-6, 2003)
BAAP - Off-Site Residential Wells	03497	157005530	12/26/18

The enclosed results are for sampling required in the month(s) of: (e.g., June 2003)
December 2018

Type of Data Submitted (Check all that apply)

- [ ] Groundwater monitoring data from monitoring wells
- [x] Groundwater monitoring data from private water supply wells
- [ ] Leachate monitoring data
- [ ] Gas monitoring data
- [ ] Air monitoring data
- [ ] Other (specify)

Notification attached?

- [x] No. No groundwater standards or explosive gas limits were exceeded.
- [ ] Yes, a notification of values exceeding a groundwater standard is attached. It includes a list of monitoring points, dates, sample values, groundwater standard and preliminary analysis of the cause and significance of any concentration.
- [ ] Yes, a notification of values exceeding an explosive gas limit is attached. It includes the monitoring points, dates, sample values and explosive gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards.

Joel Janssen	Project Manager	(608) 438-1110
Facility Representative Name (Print)	Title	(Area Code) Telephone No.

Signature: Joel Janssen Date: 2/7/19

FOR DNR USE ONLY. Check action taken, and record date and your initials. Describe on back side if necessary.

- [ ] **Found uploading problems on** _____ **Initials**
- [ ] **Notified contact of problems on** _____ **Uploaded data successfully on** _____

EDD format(s): [ ] **Diskette** [ ] **CD (initial submittal and follow-up)** [ ] **E-mail (follow-up only)** [ ] **Other**

Case Narrative
Groundwater Monitoring
License Number 3497
Off-Site Residential Wells
December 2018
Badger Army Ammunition Plant

Groundwater is currently being monitored by the facility because of past production activities. One residential well, WE-ZE512 (437), was sampled as part of a special sampling round conducted by the Army. Residential well WE-ZE512 was installed by the Army during December 2018 to replace WE-UK124 (432).

No compounds were detected above either the Preventive Action Limit (PAL) or Enforcement Standard (ES) in the well sampled.

Volatile organic compounds (VOCs) analysis was performed by CT Laboratories (CT Lab) using method EPA 8260C.

Dinitrotoluene (DNT) analysis was also performed by CT Lab using method SW 8270DSIM. The following DNT isomers were reported: 2,3-DNT, 2,4-DNT, 2,5-DNT, 2,6-DNT, 3,4-DNT, and 3,5-DNT.

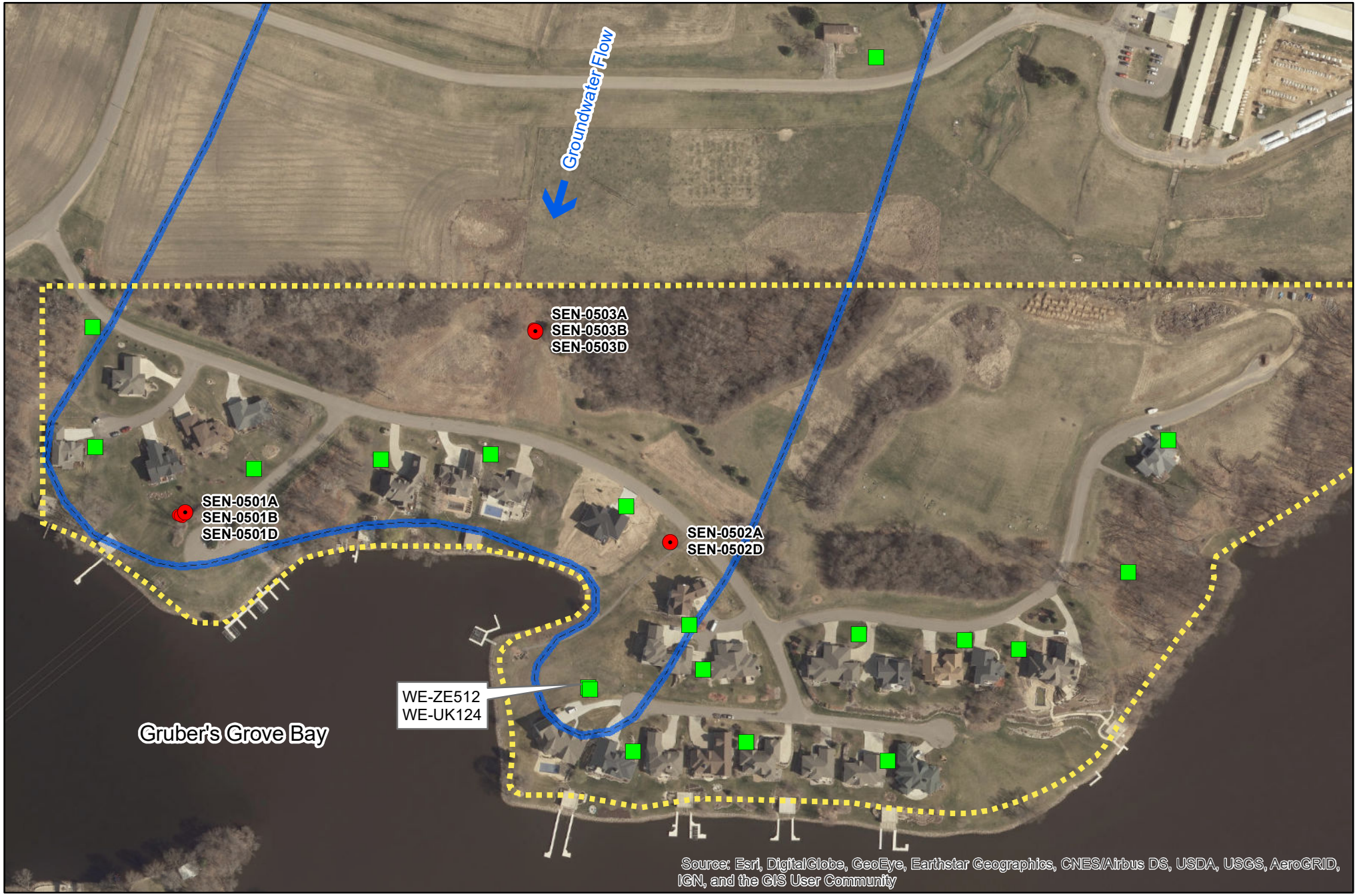
SpecPro Professional Services, LLC

Badger Army Ammunition Plant

December 2018 GROUNDWATER MONITORING ALL HITS REPORT

License No: 3497 Report Date: 2/7/2019

Parameter Name	Well	Well Name	Date	Dup	Result	LOD	LOQ	Units	PAL	ES
Toluene	437	WE-ZE512	12/26/2018	2	0.63	0.1	0.2	ug/l	160	800
Toluene	437	WE-ZE512	12/26/2018	1	0.76	0.1	0.2	ug/l	160	800



Legend

- Residential Well
- Monitoring Well
- Groundwater Plume
- Water's Edge Subdivision

Figure 1
Well Replacement - Water's Edge Subdivision
Badger Army Ammunition Plant

SPS
SPECPRO PROFESSIONAL SERVICES

0 125 250 500
Feet

Well Construction Report

WISCONSIN UNIQUE WELL NUMBER ZE 512

Drinking Water and Groundwater - DG/5
Department of Natural Resources, Box 7921
Madison, WI 53707

Form 3300-077A (R 3/17)

Property Owner: Waters Edge Condo association	Telephone Number ( )
Mailing Address: 2000 Prairie ST.	
City: Prairie Du Sac	State: WI ZIP Code: 53578
County of Well Location: Sauk	Co. Well Permit No. —
Well Completion Date (mm-dd-yyyy): 12-22-2018	

1. Well Location

☒ Town ☐ City ☐ Village of Merrimac

Fire # (If avail.)

Street Address or Road Name and Number: Waters Edge CT.

Subdivision Name: Waters Edge | Lot #: 17 | Block #:

Latitude / Longitude in Decimal Degrees (DD): 43.~~23417~~° N3272 / ~~89.36921~~° W7153

Method Code: ☒ GPS008 ☐ SCR002 ☐ OTH001

¼ / ¼ NE ¼ NW | Section: 19 | Township: 10 N | Range: ☒ E ☐ W

or Gov't Lot #

Well Constructor (Business Name): Webster + Sons Drilling	License #: 6574
Address: 415 N Main ST.	Public Well Facility ID Number:
City: Poynette State: WI ZIP Code: 53955	Public Well Plan Approval # / Date of Approval (mm/dd/yyyy):
Hicap Permanent Well #	Common Well #

2. Well Type

☒ Replacement (see item 12 below) ☐ New ☐ Reconstruction

of previous unique well # UK124 constructed in 12-11-07

Reason for replaced or reconstructed well? Contaminated from Badger Ammo Plant

☒ Drilled ☐ Driven Point ☐ Jetted ☐ Other

3. Well serves 1 # of Home
Examples: home, barn, restaurant, school, industry

Heat Exchange ____ # of drillholes

High Capacity: Well? ☐ Yes ☒ No; Property? ☐ Yes ☒ No; Potable? ☒ Yes ☐ No

4a. WATER WELL Is the well located in floodplain? ☐ Yes ☒ No

Distance in feet from well to nearest existing or proposed:

1200+ Landfill	— Swimming Pool (Above or Inground)
— Scrap Metal Facility/Recycling Facility	— Privy
100+ Septic or Holding, or POWTS Tank	100+ Building Drain
— Sewage Absorption Unit or Mound	100+ Building Sewer
— Nonconforming Pit	☒ Gravity ☐ Pressure
— Buried Home Heating Oil Tank	— Collector Sewer: Storm
— Buried Petroleum Tank	60+ Collector Sewer: Sanitary 9 units
— Surface or Basement Petroleum Tank	☐ ≤ 6" ☒ > 6" in diam.
☐ ≤ 1500 gal ☐ > 1500 gal	— Ditch or Culvert
— Buried Liquid Propane Tank	— Kennel: ☐ ≤ 5 Pets ☐ > 5 Pets
200+ Lake, Stream, River or Pond	— Quarry
— Salt, Deicing Storage	
— Grease Trap	
— Animal Barn Pen	
— Animal Yard or Shelter	
— Animal Barn	
— Silo/Silage Storage Tube	
— Barn Gutter	
— Milk House Drain Outlet	
— Permanent Manure Stack	
— Temporary Manure Stack	
— Other Manure Storage:	
— Other Contamination Source:	

4b. HEAT EXCHANGE DRILLHOLE

Distance in feet from drillhole to nearest existing or proposed:

___	Municipal Water Supply Well
___	Non-Municipal Water Supply Well
___	On-site Waste Disposal System
100+	Buried Fuel Storage Tank

5. Drillhole Dimensions and Construction Method

Dia.(in.)	From (ft.)	To (ft.)	Upper Enlarged Drillhole	Lower Open Bedrock
8.5	surface	220	☒ --- Rotary - Mud Circulation -------	☐
6	220	324	☐ --- Rotary - Air ----------	☒
			☐ --- Rotary - Air and Foam ----------	☐
			☐ --- Drill-Through Casing Hammer	
			☐ --- Reverse Rotary	
			☐ --- Cable-tool Bit ____ in. dia. ---	☐
			☐ --- Dual Rotary ----------	☐

☐ Temp. Outer Casing ____ in. dia. Removed? ☐ Yes ☐ No
____ depth ft. If no, explain on back.

6. Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification, Manufacturer & Method of Assembly	From (ft.)	To (ft.)
6	Wheatland A53B PE .280	surface	220
Dia. (in.)	Screen type, material & slot size	From	To

7. Grout or Other Sealing Material

Method: Braidenhead

Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
Neat Cement	surface	220	35
(Gravel pack if applicable)			

8. Geology

Codes 1 2 3 4	Type, Caving/Noncaving, Color, Hardness, etc.	From (ft.)	To (ft.)
	Black Dirt	surface	2
	Large Sand & gravel	2	65
	Sand	65	100
	Sand & gravel	100	205
	Hard Bluish Shale	205	311
	Broken Blue Shale	311	315
	Hard Blue Shale	315	324

9. Static Water Level 8 ft. ☐ Above ☒ Below ground surface

10. Pumping Test

Pumping level 320 ft. below surface
Pumping at 35 GPM/GPH for 1 Hrs.
Method = ☒ Airlift ☐ Test Pump ☐ Other

11. Well Is:

☒ Above ☐ Below Grade
18 in.

Developed? ☒ Yes ☐ No
Disinfected? ☒ Yes ☐ No
Capped? ☒ Yes ☐ No

12. Filling and Sealing. Did you notify the owner that the well you removed from service or replaced must be filled and sealed within 90 days?
When new house is built ☒ Yes ☐ No If no, explain on back.

Did you fill and seal all unused, noncomplying or unsafe wells on this property? ☒ Yes ☐ No If no, explain on back.

13. Signature of Well Constructor/Supervisory Driller	Lic. #	Date Signed
[signature]	6890	11-4-2019
Name of Drill Rig Operator (unless same as above)	Lic. or Reg. #	Date

Make additional comments on back about geology, additional screens, water quality, etc.

Comments on back? ☐ Yes ☐ No **Variance?** ☐ Yes ☐ No

Notification # 7485421401

WELL OWNER

State of Wis., Dept. of Natural Resources
dnr.wi.gov

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

Route to DNR Bureau:
☑ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☐ Waste Management ☐ Other: _____

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Sauk	UK124	—

Latitude / Longitude (see instructions)	Format Code	Method Code
43.3272 N	☒ DD	☒ GPS008
89.7153 W	☐ DDM	☐ SCR002 ☐ OTH001

¼ / ¼	¼	Section	Township	Range
NE	NW	19	10 N	7 ☒ E ☐ W

or Gov't Lot #

Well Street Address: E12185 Waters Edge Court

Well City, Village or Town	Well ZIP Code
Prairie du Sac	53578

Subdivision Name	Lot #
Waters Edge	17

Reason for Removal from Service	WI Unique Well # of Replacement Well
Water quality	ZE512

2. Facility / Owner Information

Facility Name

Facility ID (FID or PWS)

License/Permit/Monitoring #

Original Well Owner: Waters Edge Condo Association

Present Well Owner: Waters Edge Condo Association

Mailing Address of Present Owner: 2000 Prairie ST Suite 220

City of Present Owner	State	ZIP Code
Prairie du Sac	WI	53578

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☑ Water Well
☐ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 12-11-2007

If a Well Construction Report is available, please attach.

Construction Type:
☑ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (specify): _____

Formation Type:
☑ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
100	6"
Lower Drillhole Diameter (in.)	**Casing Depth (ft.)**

Was well annular space grouted? ☐ Yes ☒ No ☐ Unknown

If yes, to what depth (feet)?	Depth to Water (feet)
	29'

4. Pump, Liner, Screen, Casing & Sealing Material

	Yes	No	N/A
Pump and piping removed?	☑	☐	☐
Liner(s) removed?	☐	☐	☑
Liner(s) perforated?	☐	☐	☑
Screen removed?	☐	☑	☐
Casing left in place?	☑	☐	☐
Was casing cut off below surface?	☑	☐	☐
Did sealing material rise to surface?	☑	☐	☐
Did material settle after 24 hours?	☐	☑	☐
If yes, was hole retopped?	☐	☐	☐
If bentonite chips were used, were they hydrated with water from a known safe source?	☑	☐	☐

Required Method of Placing Sealing Material
☐ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☑ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☑ Bentonite Chips

For Monitoring Wells and Monitoring Well Boreholes Only:
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
3/4" bentonite chips	Surface	100	25	—

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Brad Webster & Sons Pump Inc	6574	12-23-2018

Street or Route	Telephone Number
415 N. Main ST	(608) 635-7564

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Poynette	WI	53955	Brad Webster	12-26-2018

DNR Use Only

Date Received	Noted By

Comments

DNR

CT Laboratories, LLC
Badger Army Ammunition Plant
Laboratory Results
December 2018

Well Code: 437
Well Name: WE-ZE512

Parameter	Result	Qualifier	Unit	LOD	LOQ	Date Collected	Date Analyzed	Method
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1,1,2-Tetrachloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1,1-Trichloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1,1-Trichloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1,2,2-Tetrachloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1,2,2-Tetrachloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1,2-Trichloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1,2-Trichloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1-Dichloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1-Dichloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1-Dichloroethene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1-Dichloroethene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1-Dichloropropene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,1-Dichloropropene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2,3-Trichlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2,3-Trichlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2,3-Trichloropropane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2,3-Trichloropropane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2,4-Trichlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2,4-Trichlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2,4-Trimethylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2,4-Trimethylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2-Dibromo-3-chloropropane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2-Dibromo-3-chloropropane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2-Dibromoethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2-Dibromoethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2-Dichlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2-Dichlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2-Dichloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2-Dichloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2-Dichloropropane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,2-Dichloropropane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,3,5-Trimethylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,3,5-Trimethylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,3-Dichlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,3-Dichlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,3-Dichloropropane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,3-Dichloropropane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
1,4-Dichlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C

CT Laboratories, LLC
Badger Army Ammunition Plant
Laboratory Results
December 2018

Well Code: 437
Well Name: WE-ZE512

Parameter	Result	Qualifier	Unit	LOD	LOQ	Date Collected	Date Analyzed	Method
1,4-Dichlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
2,2-Dichloropropane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
2,2-Dichloropropane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
2-Butanone	< 1	U	ug/L	1	2	12/26/2018	1/3/2019	SW8260C
2-Butanone	< 1	U	ug/L	1	2	12/26/2018	1/3/2019	SW8260C
2-Chlorotoluene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
2-Chlorotoluene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
2-Hexanone	< 1	U	ug/L	1	2	12/26/2018	1/3/2019	SW8260C
2-Hexanone	< 1	U	ug/L	1	2	12/26/2018	1/3/2019	SW8260C
4-Chlorotoluene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
4-Chlorotoluene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
4-Methyl-2-pentanone	< 1	U	ug/L	1	2	12/26/2018	1/3/2019	SW8260C
4-Methyl-2-pentanone	< 1	U	ug/L	1	2	12/26/2018	1/3/2019	SW8260C
Benzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Benzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Bromobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Bromobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Bromochloromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Bromochloromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Bromodichloromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Bromodichloromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Bromoform	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Bromoform	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Bromomethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Bromomethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Carbon disulfide	< 0.2	U	ug/L	0.2	0.4	12/26/2018	1/3/2019	SW8260C
Carbon disulfide	< 0.2	U	ug/L	0.2	0.4	12/26/2018	1/3/2019	SW8260C
Carbon tetrachloride	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Carbon tetrachloride	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Chlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Chlorobenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Chloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Chloroethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Chloroform	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Chloroform	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Chloromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Chloromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
cis-1,2-Dichloroethene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
cis-1,2-Dichloroethene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
cis-1,3-Dichloropropene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
cis-1,3-Dichloropropene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C

CT Laboratories, LLC
Badger Army Ammunition Plant
Laboratory Results
December 2018

Well Code: 437
Well Name: WE-ZE512

Parameter	Result	Qualifier	Unit	LOD	LOQ	Date Collected	Date Analyzed	Method
Dibromochloromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Dibromochloromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Dibromomethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Dibromomethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Dichlorodifluoromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Dichlorodifluoromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Dichlorofluoromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Dichlorofluoromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Diisopropyl ether	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Diisopropyl ether	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Ethyl ether	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Ethyl ether	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Ethylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Ethylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Hexachlorobutadiene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Hexachlorobutadiene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Isopropylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Isopropylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
m & p-Xylene	< 0.2	U	ug/L	0.2	0.4	12/26/2018	1/3/2019	SW8260C
m & p-Xylene	< 0.2	U	ug/L	0.2	0.4	12/26/2018	1/3/2019	SW8260C
Methyl tert-butyl ether	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Methyl tert-butyl ether	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Methylene chloride	< 0.2	U	ug/L	0.2	1	12/26/2018	1/3/2019	SW8260C
Methylene chloride	< 0.2	U	ug/L	0.2	1	12/26/2018	1/3/2019	SW8260C
Naphthalene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Naphthalene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
n-Butylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
n-Butylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
n-Propylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
n-Propylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
o-Xylene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
o-Xylene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
p-Isopropyltoluene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
p-Isopropyltoluene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
sec-Butylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
sec-Butylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Styrene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Styrene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
tert-Butylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
tert-Butylbenzene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Tetrachloroethene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C

CT Laboratories, LLC
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December 2018

Well Code: 437
Well Name: WE-ZE512

Parameter	Result	Qualifier	Unit	LOD	LOQ	Date Collected	Date Analyzed	Method
Tetrachloroethene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Tetrahydrofuran	< 1	U	ug/L	1	2	12/26/2018	1/3/2019	SW8260C
Tetrahydrofuran	< 1	U	ug/L	1	2	12/26/2018	1/3/2019	SW8260C
Toluene	0.76	=	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Toluene	0.63	=	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
trans-1,2-Dichloroethene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
trans-1,2-Dichloroethene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
trans-1,3-Dichloropropene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
trans-1,3-Dichloropropene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Trichloroethene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Trichloroethene	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Trichlorofluoromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Trichlorofluoromethane	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Vinyl acetate	< 1	U	ug/L	1	2	12/26/2018	1/3/2019	SW8260C
Vinyl acetate	< 1	U	ug/L	1	2	12/26/2018	1/3/2019	SW8260C
Vinyl chloride	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Vinyl chloride	< 0.1	U	ug/L	0.1	0.2	12/26/2018	1/3/2019	SW8260C
Dinitrotoluenes SIM								
2,3-Dinitrotoluene	< 0.0061	U	ug/L	0.0061	0.031	12/26/2018	1/3/2019	SW8270DSIM
2,3-Dinitrotoluene	< 0.0063	U	ug/L	0.0063	0.031	12/26/2018	1/3/2019	SW8270DSIM
2,4-Dinitrotoluene	< 0.0082	U	ug/L	0.0082	0.031	12/26/2018	1/3/2019	SW8270DSIM
2,4-Dinitrotoluene	< 0.0083	U	ug/L	0.0083	0.031	12/26/2018	1/3/2019	SW8270DSIM
2,5-Dinitrotoluene	< 0.0031	U	ug/L	0.0031	0.031	12/26/2018	1/3/2019	SW8270DSIM
2,5-Dinitrotoluene	< 0.0031	U	ug/L	0.0031	0.031	12/26/2018	1/3/2019	SW8270DSIM
2,6-Dinitrotoluene	< 0.0041	U	ug/L	0.0041	0.031	12/26/2018	1/3/2019	SW8270DSIM
2,6-Dinitrotoluene	< 0.0042	U	ug/L	0.0042	0.031	12/26/2018	1/3/2019	SW8270DSIM
3,4-Dinitrotoluene	< 0.0042	U	ug/L	0.0042	0.031	12/26/2018	1/3/2019	SW8270DSIM
3,4-Dinitrotoluene	< 0.0041	U	ug/L	0.0041	0.031	12/26/2018	1/3/2019	SW8270DSIM
3,5-Dinitrotoluene	< 0.0041	U	ug/L	0.0041	0.031	12/26/2018	1/3/2019	SW8270DSIM
3,5-Dinitrotoluene	< 0.0042	U	ug/L	0.0042	0.031	12/26/2018	1/3/2019	SW8270DSIM
Total Dinitrotoluenes	< 0.0083	U	ug/L	0.0083	0.031	12/26/2018	1/3/2019	SW8270DSIM
Total Dinitrotoluenes	< 0.0082	U	ug/L	0.0082	0.031	12/26/2018	1/3/2019	SW8270DSIM

Qualifier Definitions:

= Parameter was detected at the indicated concentration.

J Parameter was detected above the reported level of detection but below the level of quantitation.

U Parameter was not detected above the reported level of detection.