**DEPARTMENT OF THE ARMY**
US ARMY INSTALLATION MANAGEMENT COMMAND
US ARMY ENVIRONMENTAL COMMAND
2455 REYNOLDS ROAD
JOINT BASE SAN ANTONIO FORT SAM HOUSTON, TX 78234-7588

AMIM-AEC-M (1200C) September 13, 2022

SUBJECT: Submittal of August 2022 Annual Residential Well Testing Results
WDNR BRRTS #02-57-001002
Badger Army Ammunition Plant

Mr. Luke Lampo
Wisconsin Department of Natural Resources
South Central Region
3911 Fish Hatchery Road
Fitchburg, WI 53711-5397

Dear Mr. Lampo:

Enclosed are the Badger Army Ammunition Plant (BAAP) August 2022 Annual Residential Well Testing Results from 55 residential wells. Enclosed are copies of the signed Environmental Monitoring Data Certification Form, a list of wells sampled, three maps showing the well locations, and a residential well results summary spreadsheet. Per previous discussions, the Army understands that the WDNR will be mailing the results to each well owner.

SpecPro Professional Services, LLC (SPS) collected groundwater samples from 55 residential wells on August 8, 9, 10, and 11, 2022. As shown on Figures 1, 2, and 3, the 55 sampled residential wells are distributed to the east and south of BAAP. The Central Plume, Deterrent Burning Ground (DBG) Plume and Propellant Burning Ground (PBG) Plume are located near the residential wells (see Figure 1). The residential wells were sampled in accordance with the annual sampling WDNR Plan Modification of the Groundwater Monitoring Program dated September 4, 2013. The Hendershot and Peckosh residential wells could not be sampled due to their power being off. The Schluter, former Howery, residential well could not be sampled due to their well pump being disconnected.

Sampling Results

- 2,6-Dinitrotoluene (DNT) and total DNT were detected above the NR 140 Preventive Action Limit (PAL) but below the NR 140 Enforcement Standard (ES) in residential well WE-XK342 located in the Central Plume (see Figure 3). The NR 140 PAL for 2,6-DNT and total DNT is 0.005 micrograms per liter (µg/l). The NR 140 ES for 2,6-DNT and total DNT is 0.05 µg/l. WE-XK342 has a history of 2,6-DNT detections above the NR 140 PAL. Residential well WE-XK342 will continue to be sampled quarterly.

- Carbon tetrachloride (CTET) was detected above the NR 140 PAL but below the NR 140 ES in one residential well (Apel) located on the eastern side of the PBG Plume (see Figure 1).

- Chloroform was detected above the NR 140 PAL but below the NR 140 ES in three residential wells (WE-QN039, WE-SQ001, and WE-SQ017) located in or adjacent to the Central Plume (see Figure 3).

- Trichloroethene (TCE) was detected above the NR 140 PAL but below the NR 140 ES in one residential well (Potts) located by Weigand's Bay (see Figure 2). There has been no source of TCE identified at BAAP that is upgradient of the Weigand's Bay area. The source of the TCE appears to be in the shallow well jet pumps.

Quality Review

SPS conducted an internal quality control review of the groundwater data. The internal review did not find any issues with the groundwater data. All groundwater samples were analyzed by CT Laboratories, LLC (CT Lab) in Baraboo, Wisconsin. CT Lab is a WDNR Chapter NR 149 certified laboratory and accredited by the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP).

Please do not hesitate to contact me at 210-466-1353 if you have any questions.

Sincerely,

NGUYEN.QUANG.D.1513629334 Digitally signed by NGUYEN.QUANG.D.1513629334 Date: 2022.09.13 15:04:14 -05'00'

Quang Nguyen
Team Lead, Midwest and Central America Division

Enclosures
Copy furn: Joel Janssen, SpecPro Professional Services, LLC

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 | 8/8 - 8/11/22 |

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

August 2022

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?

- [ ] No. No groundwater standards or explosive gas limits were exceeded.
- [x] 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 _____ Date 9/13/22

**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
August 2022
Badger Army Ammunition Plant

Groundwater is currently being monitored by the facility because of past production activities. Fifty-five residential wells were sampled during August 2022.

2,6-Dinitrotoluene (DNT) and total DNT exceeded the NR 140 Preventive Action Limit (PAL) in WE-XK342 (435). Well WE-XK342 has a history of 2,6-DNT detections.

Carbon tetrachloride exceeded the NR 140 PAL in Apel (998).

Chloroform exceeded the NR 140 PAL in WE-QN039 (158), WE-SQ017 (164), and WE-SQ001 (165).

Trichloroethene exceeded the NR 140 PAL in Potts (411).

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

DNT analysis was also performed by CT Lab using method SW 8270D SIM. 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.

# Badger Army Ammunition Plant

SpecPro Professional Services, LLC

GROUNDWATER MONITORING EXCEEDANCE REPORT

August 2022 Report Date: 9/10/2022

| Parameter Name | Lic No. | Well No. | Well Name | Date | Dup | Result | Units | PAL | ES |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 3497 | 158 | WE-QN039 | 8/8/2022 | 1 | 0.65 | ug/l | 0.6 | 6 |
| Chloroform | 3497 | 164 | WE-SQ017 | 8/8/2022 | 1 | 1 | ug/l | 0.6 | 6 |
| Chloroform | 3497 | 165 | WE-SQ001 | 8/8/2022 | 1 | 1.4 | ug/l | 0.6 | 6 |
| Trichloroethene | 3497 | 411 | Potts | 8/9/2022 | 1 | 0.89 | ug/l | 0.5 | 5 |
| 2,6-Dinitrotoluene | 3497 | 435 | WE-XK342 | 8/8/2022 | 1 | 0.031 | ug/l | 0.005 | 0.05 |
| 2,6-Dinitrotoluene | 3497 | 435 | WE-XK342 | 8/8/2022 | 2 | 0.028 | ug/l | 0.005 | 0.05 |
| Total Dinitrotoluenes | 3497 | 435 | WE-XK342 | 8/8/2022 | 1 | 0.031 | ug/l | 0.005 | 0.05 |
| Total Dinitrotoluenes | 3497 | 435 | WE-XK342 | 8/8/2022 | 2 | 0.028 | ug/l | 0.005 | 0.05 |
| Carbon tetrachloride | 3497 | 998 | Apel | 8/10/2022 | 1 | 0.55 | ug/l | 0.5 | 5 |

# Badger Army Ammunition Plant

SpecPro Professional Services, LLC

August 2022 GROUNDWATER MONITORING ALL HITS REPORT

License No: 3497 Report Date: 9/10/2022

| Parameter Name | Well | Well Name | Date | Dup | Result | LOD | LOQ | Units | PAL | ES |
|---|---|---|---|---|---|---|---|---|---|---|
| Ethyl ether | 152 | McGraw | 8/10/2022 | 1 | 0.15 | 0.1 | 0.2 | ug/l | 100 | 1000 |
| Chloroform | 157 | WE-QR441 | 8/8/2022 | 1 | 0.23 | 0.1 | 0.2 | ug/l | 0.6 | 6 |
| Chloroform | 158 | WE-QN039 | 8/8/2022 | 1 | 0.65 | 0.1 | 0.2 | ug/l | 0.6 | 6 |
| Carbon tetrachloride | 164 | WE-SQ017 | 8/8/2022 | 1 | 0.1 | 0.1 | 0.2 | ug/l | 0.5 | 5 |
| Chloroform | 164 | WE-SQ017 | 8/8/2022 | 1 | 1 | 0.1 | 0.2 | ug/l | 0.6 | 6 |
| Carbon tetrachloride | 165 | WE-SQ001 | 8/8/2022 | 1 | 0.12 | 0.1 | 0.2 | ug/l | 0.5 | 5 |
| Chloroform | 165 | WE-SQ001 | 8/8/2022 | 1 | 1.4 | 0.1 | 0.2 | ug/l | 0.6 | 6 |
| Trichloroethene | 411 | Potts | 8/9/2022 | 1 | 0.89 | 0.1 | 0.2 | ug/l | 0.5 | 5 |
| Dichlorodifluoromethane | 412 | Curto | 8/9/2022 | 1 | 0.33 | 0.1 | 0.2 | ug/l | 200 | 1000 |
| Trichloroethene | 414 | Wenger | 8/10/2022 | 1 | 0.22 | 0.1 | 0.2 | ug/l | 0.5 | 5 |
| 2,6-Dinitrotoluene | 435 | WE-XK342 | 8/8/2022 | 2 | 0.028 | 0.0049 | 0.049 | ug/l | 0.005 | 0.05 |
| 2,6-Dinitrotoluene | 435 | WE-XK342 | 8/8/2022 | 1 | 0.031 | 0.005 | 0.05 | ug/l | 0.005 | 0.05 |
| Chloroform | 435 | WE-XK342 | 8/8/2022 | 2 | 0.14 | 0.1 | 0.2 | ug/l | 0.6 | 6 |
| Chloroform | 435 | WE-XK342 | 8/8/2022 | 1 | 0.13 | 0.1 | 0.2 | ug/l | 0.6 | 6 |
| Total Dinitrotoluenes | 435 | WE-XK342 | 8/8/2022 | 1 | 0.031 | 0.008 | 0.05 | ug/l | 0.005 | 0.05 |
| Total Dinitrotoluenes | 435 | WE-XK342 | 8/8/2022 | 2 | 0.028 | 0.0078 | 0.049 | ug/l | 0.005 | 0.05 |
| Chloroform | 799 | WE-AAB891 | 8/8/2022 | 1 | 0.11 | 0.1 | 0.2 | ug/l | 0.6 | 6 |
| 1,1,2-Trichloroethane | 803 | Spear | 8/10/2022 | 1 | 0.22 | 0.2 | 0.4 | ug/l | 0.5 | 5 |
| Dichlorodifluoromethane | 803 | Spear | 8/10/2022 | 1 | 0.2 | 0.1 | 0.2 | ug/l | 200 | 1000 |
| Ethyl ether | 840 | S8871 | 8/10/2022 | 1 | 0.21 | 0.1 | 0.2 | ug/l | 100 | 1000 |
| Methyl tert-butyl ether | 860 | Phillips | 8/9/2022 | 1 | 0.85 | 0.1 | 0.2 | ug/l | 12 | 60 |
| 1,1,1-Trichloroethane | 875 | Krumenauer | 8/10/2022 | 1 | 0.26 | 0.1 | 0.2 | ug/l | 40 | 200 |
| Carbon tetrachloride | 875 | Krumenauer | 8/10/2022 | 1 | 0.44 | 0.1 | 0.2 | ug/l | 0.5 | 5 |
| Chloroform | 875 | Krumenauer | 8/10/2022 | 1 | 0.18 | 0.1 | 0.2 | ug/l | 0.6 | 6 |
| Dichlorodifluoromethane | 916 | Purcell-G | 8/11/2022 | 1 | 0.18 | 0.1 | 0.2 | ug/l | 200 | 1000 |
| Dichlorodifluoromethane | 916 | Purcell-G | 8/11/2022 | 2 | 0.2 | 0.1 | 0.2 | ug/l | 200 | 1000 |
| Carbon tetrachloride | 931 | Schlender | 8/10/2022 | 1 | 0.47 | 0.1 | 0.2 | ug/l | 0.5 | 5 |
| Chloroform | 931 | Schlender | 8/10/2022 | 1 | 0.23 | 0.1 | 0.2 | ug/l | 0.6 | 6 |
| 1,1,1-Trichloroethane | 998 | Apel | 8/10/2022 | 2 | 0.29 | 0.1 | 0.2 | ug/l | 40 | 200 |
| 1,1,1-Trichloroethane | 998 | Apel | 8/10/2022 | 1 | 0.33 | 0.1 | 0.2 | ug/l | 40 | 200 |
| Carbon tetrachloride | 998 | Apel | 8/10/2022 | 1 | 0.55 | 0.1 | 0.2 | ug/l | 0.5 | 5 |
| Carbon tetrachloride | 998 | Apel | 8/10/2022 | 2 | 0.49 | 0.1 | 0.2 | ug/l | 0.5 | 5 |
| Chloroform | 998 | Apel | 8/10/2022 | 2 | 0.17 | 0.1 | 0.2 | ug/l | 0.6 | 6 |
| Chloroform | 998 | Apel | 8/10/2022 | 1 | 0.17 | 0.1 | 0.2 | ug/l | 0.6 | 6 |

Residential Well Sampling List
August 2022

| Well Name | Well ID | Results | DNT Sampled | VOC Sampled | Comments |
|---|---|---|---|---|---|
| USDA 3 | 126 | X | X | | |
| USDA 6 | 128 | X | X | | |
| WE-TM599 | 129 | X | X | | Riordan, Water's Edge Group |
| McGraw | 152 | X | X | X | |
| WE-RM383 | 153 | X | X | | Freidag, Rossing, Water's Edge Group |
| WE-RR542 | 156 | X | X | | Cairns, Sherpe, Water's Edge Group |
| WE-QR441 | 157 | X | X | X | May, Heath, Hemberger, Water's Edge Group |
| WE-QN039 | 158 | X | X | X | Layton, Hilgemann, Water's Edge Group |
| WE-RD430 | 159 | X | X | | Schmidt, Zimmerman, Ford, Water's Edge Group |
| Purcell-D | 163 | X | X | X | |
| WE-SQ017 | 164 | X | X | X | Thompson, Water's Edge Group |
| WE-SQ001 | 165 | X | X | X | Schwarz, Rosenau, Water's Edge Group |
| WE-RR598 | 169 | X | X | | Chow, Gruber, Deppey, Wenger, Water's Edge Group |
| WE-SQ002 | 170 | X | X | | Ramaker, Neumaier, Water's Edge Group |
| WE-TF023 | 174 | X | X | | Minor, Water's Edge Group |
| Potts | 411 | X | X | X | |
| Curto | 412 | X | X | X | shared with Nimmow |
| Wenger | 414 | X | X | X | |
| Grosse | 415 | X | X | X | |
| Gruber-D | 417 | X | X | X | |
| Hendershot | 418 | | | | *power was off; no sample collected* |
| Schluter | 419 | | | | *pump disconnected; no sample collected* |
| Osterland | 422 | X | X | X | |
| Melum | 423 | X | X | X | |
| Fellin | 424 | X | X | X | former Raschein well |
| Revers | 425 | X | X | X | |
| Cornelius | 426 | X | X | X | **duplicate** |
| Reif | 427 | X | X | X | |
| Schumann | 428 | X | X | X | |
| WE-UK125 | 431 | X | X | | Gust, Haag, Lochner, Water's Edge Group |
| WE-UA297 | 433 | X | X | | Krisko, Van Aartsen, Water's Edge Group |
| WE-XD828 | 434 | X | X | | Riethmiller, Water's Edge Group |
| WE-XK342 | 435 | X | X | X | **duplicate**<br>Hallman, Keiser, Water's Edge Group |
| WE-YW972 | 436 | X | X | | Dietzen/Schwenn, Water's Edge Group |
| WE-ZE512 | 437 | X | X | X | Whalen, Water's Edge Group |
| WE-AAB891 | 799 | X | X | X | Connery, Palchik, Water's Edge Group |
| Mittenzwei | 800 | X | X | X | |
| Spear | 803 | X | X | X | |
| Peckosh | 817 | | | | *power was off; no sample collected* |
| USDA 1 | 828 | X | X | | |
| USDA 2 | 829 | X | X | | |
| WE-AAF735 | 837 | X | X | X | MacKinney, Water's Edge Group |
| E12092 | 838 | X | X | X | Cross |
| Gibbs | 839 | X | X | X | |
| S8871 | 840 | X | X | X | Hanson |
| Groth | 842 | X | X | X | |
| Phillips | 860 | X | X | X | |
| Vanover | 862 | X | X | X | former Judd well |
| Miller | 874 | X | X | X | shared with Holl |
| Krumenauer | 875 | X | X | X | |
| Nowotarski | 891 | X | X | X | |
| Olah | 904 | X | X | X | |
| PDS-3 | 911 | X | X | X | |
| Purcell-G | 916 | X | X | X | Lytle |
| Ramaker-J | 917 | X | X | X | |
| Schlender | 931 | X | X | X | shared with Koenig, Ballweg |
| Zurbachen-A | 967 | X | X | X | |
| Apel | 998 | X | X | X | |

# Residential Groundwater Test Results - August 2022 Sampling Event

| August '22 Round | Level of Detection | Level of Quantitation |
|---|---|---|
| 2,3-DNT | 0.0058 | 0.048 |
| 2,4-DNT | 0.0078 | 0.049 |
| 2,5-DNT | 0.0048 | 0.048 |
| 2,6-DNT | 0.0048 | 0.048 |
| 3,4-DNT | 0.0048 | 0.048 |
| 3,5-DNT | 0.0048 | 0.048 |

*Level of detection and level of quantitation may change each round.

= Under PAL and ES
= Over Preventive Action Limit (PAL)
= Over Enforcement Standard (ES)
= No PAL or ES established
= Not Tested
ND = Compound was not detected

*All results are expressed as µg/l (micrograms per liter)*

| Well Name | Well No. | Well Owner | Shared With | Analyzed By | Sample Date | Carbon tetrachloride | Chloroform | Dichlorodifluoromethane | Ethyl ether | Methyl tert-butyl ether | 1,1,1-Trichloroethane | 1,1,2-Trichloroethane | Trichloroethene | 2,4-Dinitrotoluene | 2,6-Dinitrotoluene | 2,3-Dinitrotoluene | 3,4-Dinitrotoluene | 2,5-Dinitrotoluene | 3,5-Dinitrotoluene | Dinitrotoluene, Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| McGraw | 152 | McGraw | | CT Lab | 8/10/2022 | ND | ND | ND | 0.15 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Purcell-D | 163 | Purcell | *(Army installed new well - 2019)* | CT Lab | 8/10/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Potts | 411 | Potts | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | 0.89 | ND | ND | ND | ND | ND | ND | ND |
| Curto | 412 | Curto | | CT Lab | 8/9/2022 | ND | ND | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Wenger | 414 | Wenger | | CT Lab | 8/10/2022 | ND | ND | ND | ND | ND | ND | ND | 0.22 | ND | ND | ND | ND | ND | ND | ND |
| Grosse | 415 | Grosse | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Gruber-D | 417 | Gruber | | CT Lab | 8/10/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Hendershot | 418 | Hendershot | | CT Lab | 8/10/2022 | Power was off; sample not collected | | | | | | | | | | | | | | |
| Schluter | 419 | Schluter | *(formerly Howery)* | CT Lab | 8/10/2022 | Pump not working; sample not collected | | | | | | | | | | | | | | |
| Osterland | 422 | Osterland | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Melum | 423 | Melum | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Fellin | 424 | Fellin | *(formerly Raschein)* | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Revers | 425 | Revers | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Cornelius | 426 | Cornelius | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Reif | 427 | Reif | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Schumann | 428 | Schumann | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | | | | CT Lab (D) | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Mittenzwei | 800 | Mittenzwei | | CT Lab | 8/10/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Spear | 803 | Spear | | CT Lab | 8/10/2022 | ND | ND | 0.2 | ND | ND | ND | 0.22 | ND | ND | ND | ND | ND | ND | ND | ND |
| Peckosh | 817 | Peckosh | | CT Lab | 8/9/2022 | Power was off; sample not collected | | | | | | | | | | | | | | |
| E12092 | 838 | Cross | | CT Lab | 8/10/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Gibbs | 839 | Gibbs | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| S8871 | 840 | Hanson | | CT Lab | 8/10/2022 | ND | ND | ND | 0.21 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Groth | 842 | Groth | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Phillips | 860 | Phillips | *(new well installed - 2021)* | CT Lab | 8/10/2022 | ND | ND | ND | ND | 0.85 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Vanover | 862 | Vanover | *(formerly Judd)* | CT Lab | 8/10/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Miller | 874 | Miller | *Holl* | CT Lab | 8/10/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Krumenauer | 875 | Krumenauer | | CT Lab | 8/10/2022 | 0.44 | 0.18 | ND | ND | ND | 0.26 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Nowotarski | 891 | Nowotarski | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Olah | 904 | Olah | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| PDS-3 | 911 | Prairie du Sac Utilities | | CT Lab | 8/11/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Purcell-G | 916 | Lytle | | CT Lab | 8/11/2022 | ND | ND | 0.18 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | | | | CT Lab (D) | 8/11/2022 | ND | ND | 0.2 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Ramaker-J | 917 | Ramaker | | CT Lab | 8/10/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Schlender | 931 | Schlender | *Koenig, Ballweg* | CT Lab | 8/10/2022 | 0.47 | 0.23 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Zurbachen-A | 967 | Zurbachen | | CT Lab | 8/9/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| Apel | 998 | Apel | | CT Lab | 8/10/2022 | 0.55 | 0.17 | ND | ND | ND | 0.33 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | | | | CT Lab (D) | 8/10/2022 | 0.49 | 0.17 | ND | ND | ND | 0.29 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| WE-TM599 | 129 | Water's Edge Group | *Riordan* | CT Lab | 8/8/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| WE-RM383 | 153 | Water's Edge Group | *Freidag, Rossing* | CT Lab | 8/8/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |

# Residential Groundwater Test Results - August 2022 Sampling Event

| August '22 Round | Level of Detection | Level of Quantitation |
|---|---|---|
| 2,3-DNT | 0.0058 | 0.048 |
| 2,4-DNT | 0.0078 | 0.049 |
| 2,5-DNT | 0.0048 | 0.048 |
| 2,6-DNT | 0.0048 | 0.048 |
| 3,4-DNT | 0.0048 | 0.048 |
| 3,5-DNT | 0.0048 | 0.048 |

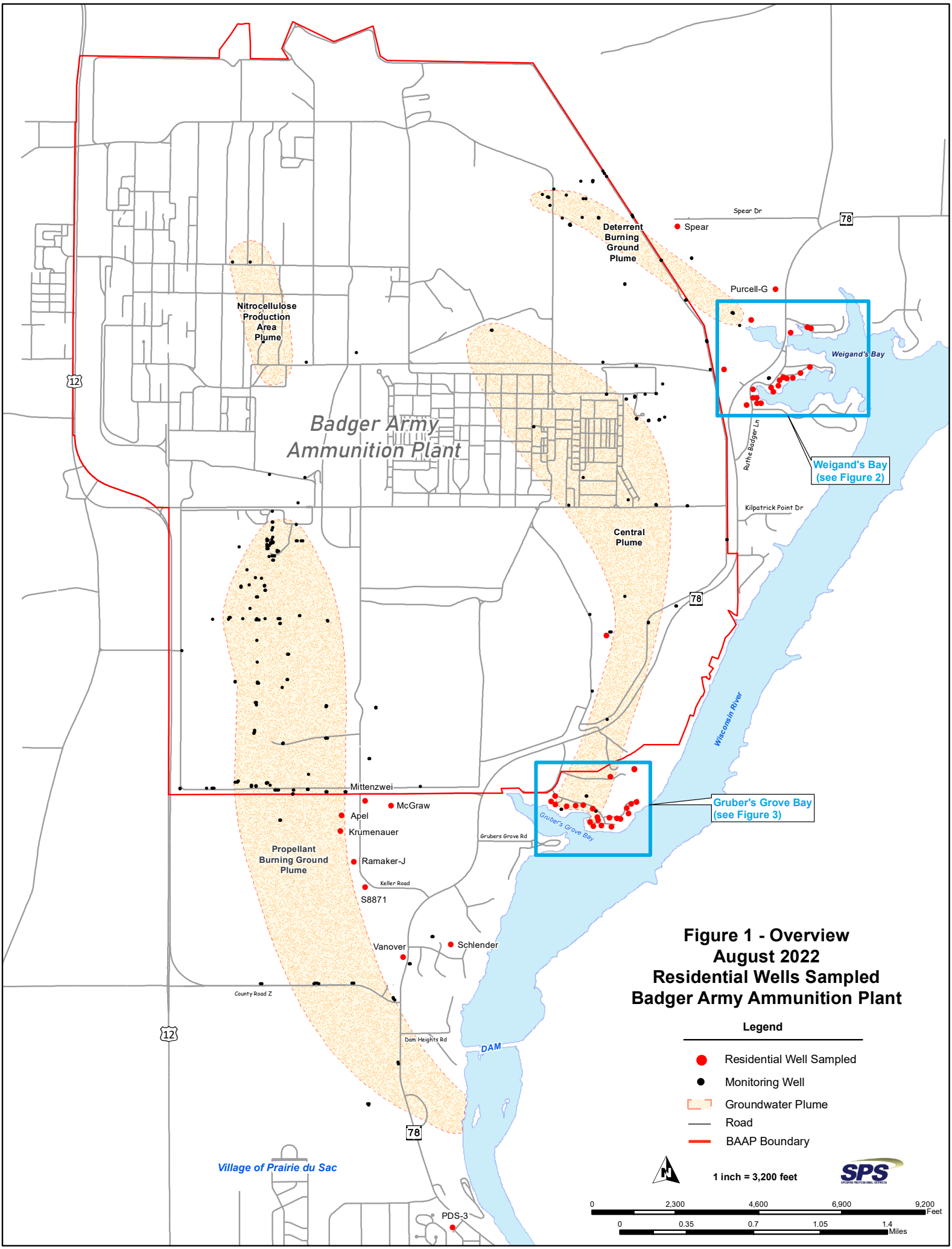
*Level of detection and level of quantitation may change each round.

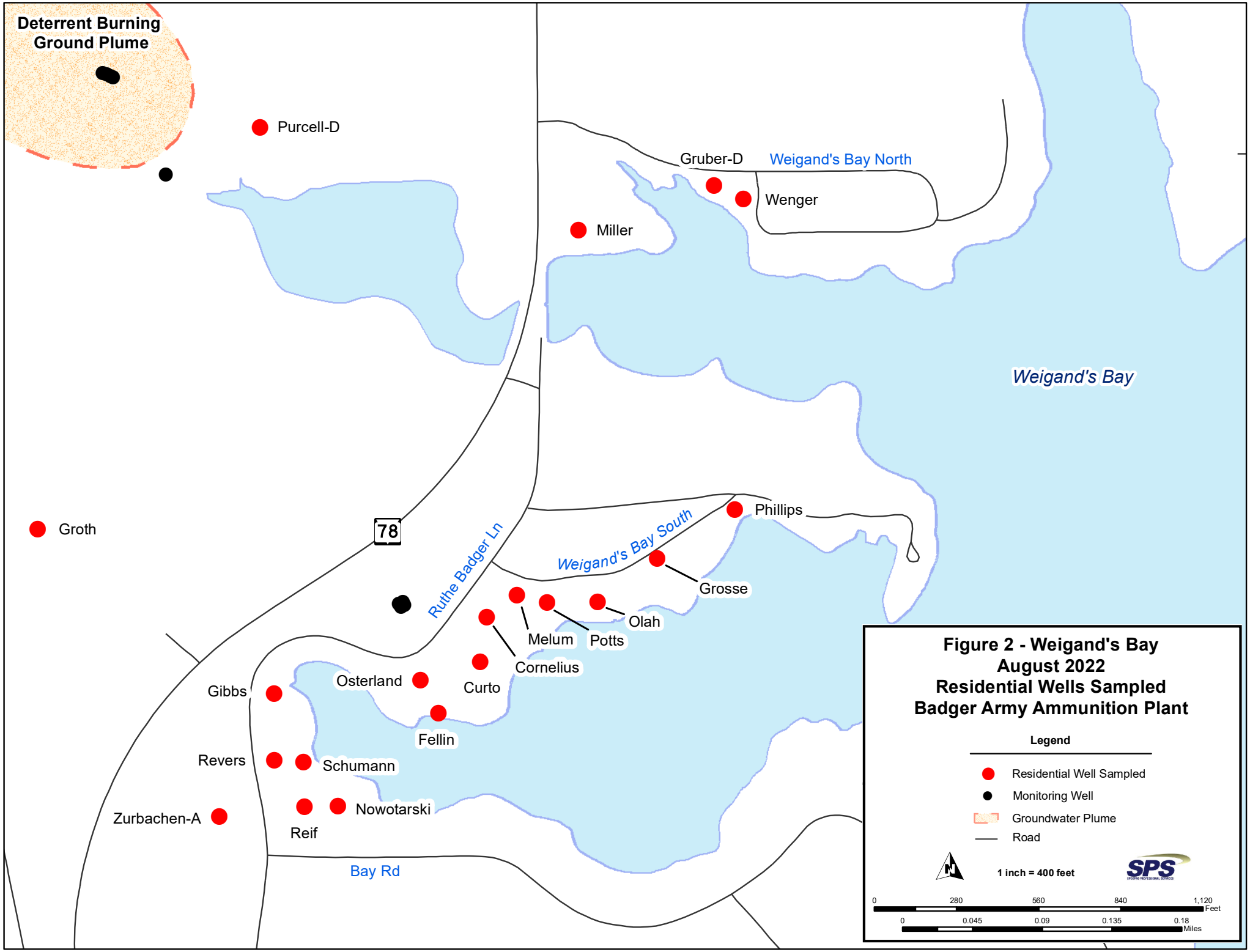
= Under PAL and ES
= Over Preventive Action Limit (PAL)
= Over Enforcement Standard (ES)
= No PAL or ES established
= Not Tested
ND = Compound was not detected

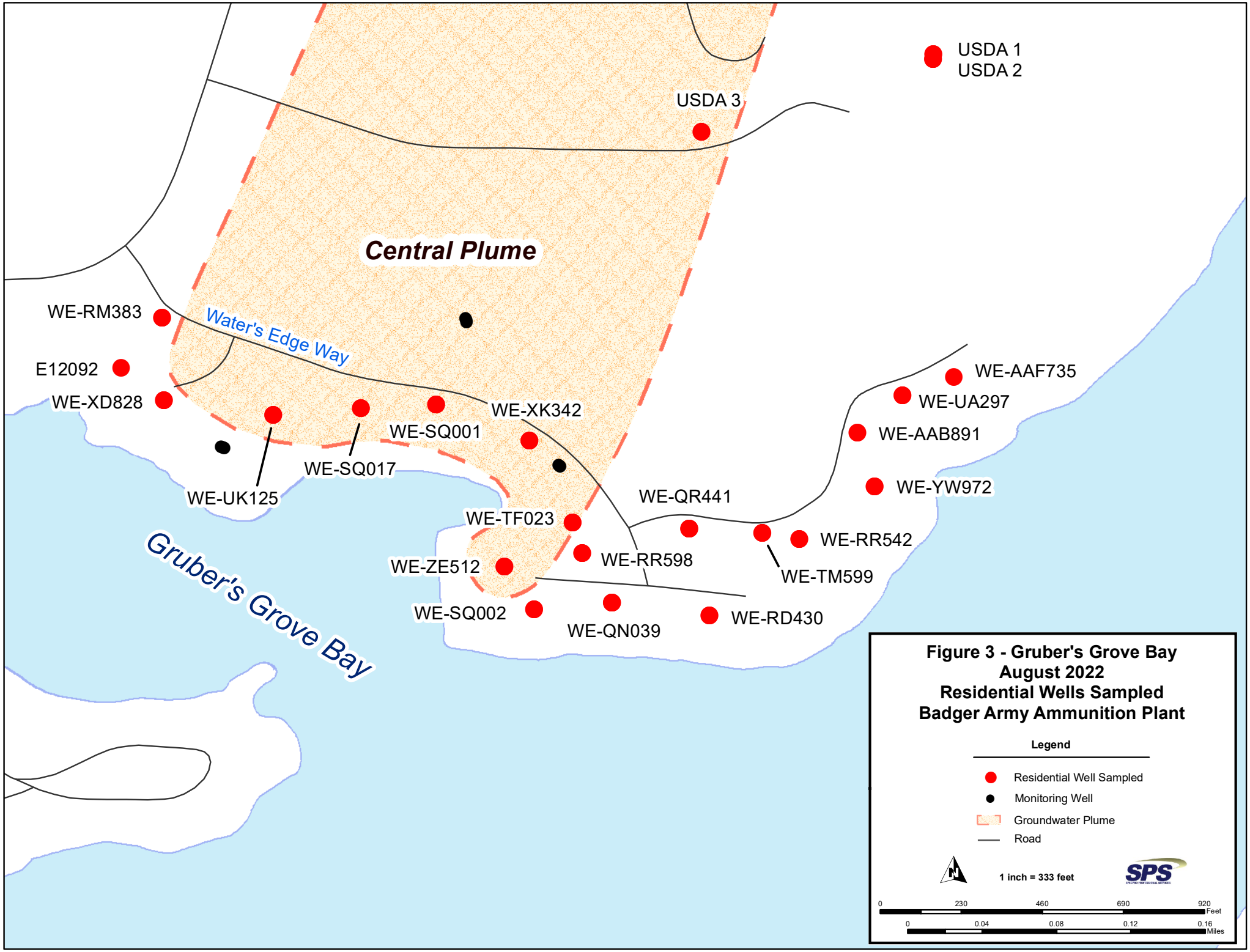
*All results are expressed as µg/l (micrograms per liter)*

| Well Name | Well No. | Well Owner | Shared With | Analyzed By | Sample Date | Carbon tetrachloride | Chloroform | Dichlorodifluoromethane | Ethyl ether | Methyl tert-butyl ether | 1,1,1-Trichloroethane | 1,1,2-Trichloroethane | Trichloroethene | 2,4-Dinitrotoluene | 2,6-Dinitrotoluene | 2,3-Dinitrotoluene | 3,4-Dinitrotoluene | 2,5-Dinitrotoluene | 3,5-Dinitrotoluene | Dinitrotoluene, Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WE-RR542 | 156 | Water's Edge Group | *Cairns, Sherpe* | CT Lab | 8/8/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| WE-QR441 | 157 | Water's Edge Group | *Hemberger, May, Heath* | CT Lab | 8/8/2022 | ND | 0.23 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| WE-QN039 | 158 | Water's Edge Group | *Hilgemann, Layton* | CT Lab | 8/8/2022 | ND | 0.65 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| WE-RD430 | 159 | Water's Edge Group | *Ford, Zimmerman, Schmidt* | CT Lab | 8/8/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| WE-SQ017 | 164 | Water's Edge Group | *Thompson* | CT Lab | 8/8/2022 | 0.1 | 1 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| WE-SQ001 | 165 | Water's Edge Group | *Rosenau, Schwarz* | CT Lab | 8/8/2022 | 0.12 | 1.4 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| WE-RR598 | 169 | Water's Edge Group | *Deppey, Chow, Gruber, Wenger* | CT Lab | 8/8/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| WE-SQ002 | 170 | Water's Edge Group | *Neumaier, Ramaker* | CT Lab | 8/8/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| WE-TF023 | 174 | Water's Edge Group | *Minor* | CT Lab | 8/8/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| WE-UK125 | 431 | Water's Edge Group | *Gust, Haag, Lochner* | CT Lab | 8/8/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| WE-UA297 | 433 | Water's Edge Group | *Krisko, Van Aartsen* | CT Lab | 8/8/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| WE-XD828 | 434 | Water's Edge Group | *Riethmiller* | CT Lab | 8/8/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| WE-XK342 | 435 | Water's Edge Group | *Hallman, Keiser* | CT Lab | 8/8/2022 | ND | 0.13 | ND | ND | ND | ND | ND | ND | ND | 0.031 | ND | ND | ND | ND | 0.031 |
| | | | | CT Lab (D) | 8/8/2022 | ND | 0.14 | ND | ND | ND | ND | ND | ND | ND | 0.028 | ND | ND | ND | ND | 0.028 |
| WE-YW972 | 436 | Water's Edge Group | *Dietzen/Schwenn* | CT Lab | 8/8/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| WE-ZE512 | 437 | Water's Edge Group | *Whalen (Army installed new well - 2018)* | CT Lab | 8/8/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| WE-AAB891 | 799 | Water's Edge Group | *Connery, Palchik* | CT Lab | 8/8/2022 | ND | 0.11 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| WE-AAF735 | 837 | Water's Edge Group | *MacKinney* | CT Lab | 8/8/2022 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| USDA 1 | 828 | Dairy Forage Res Center | | CT Lab | 8/11/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| USDA 2 | 829 | Dairy Forage Res Center | | CT Lab | 8/11/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| USDA 3 | 126 | Dairy Forage Res Center | | CT Lab | 8/11/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |
| USDA 6 | 128 | Dairy Forage Res Center | | CT Lab | 8/11/2022 | | | | | | | | | ND | ND | ND | ND | ND | ND | ND |

(D) = Duplicate
CT Lab = CT Laboratories, LLC


Badger Army Ammunition Plant
Nitrocellulose Production Area Plume
Deterrent Burning Ground Plume
Central Plume
Propellant Burning Ground Plume
Spear Dr
Spear
Purcell-G
Weigand's Bay
Weigand's Bay (see Figure 2)
Ruthe Badger Ln
Kilpatrick Point Dr
Wisconsin River
Gruber's Grove Bay
Gruber's Grove Bay (see Figure 3)
Grubers Grove Rd
Mittenzwei
McGraw
Apel
Krumenauer
Ramaker-J
Keller Road
S8871
Vanover
Schlender
County Road Z
Dam Heights Rd
DAM
Village of Prairie du Sac
PDS-3
12
78
Figure 1 - Overview
August 2022
Residential Wells Sampled
Badger Army Ammunition Plant
Legend
Residential Well Sampled
Monitoring Well
Groundwater Plume
Road
BAAP Boundary
1 inch = 3,200 feet
0 2,300 4,600 6,900 9,200 Feet
0 0.35 0.7 1.05 1.4 Miles


Deterrent Burning Ground Plume
Purcell-D
Gruber-D
Weigand's Bay North
Wenger
Miller
Weigand's Bay
Phillips
Groth
78
Ruthe Badger Ln
Weigand's Bay South
Grosse
Olah
Melum
Potts
Cornelius
Curto
Osterland
Gibbs
Fellin
Revers
Schumann
Zurbachen-A
Nowotarski
Reif
Bay Rd
Figure 2 - Weigand's Bay
August 2022
Residential Wells Sampled
Badger Army Ammunition Plant
Legend
Residential Well Sampled
Monitoring Well
Groundwater Plume
Road
1 inch = 400 feet
SPS
0
280
560
840
1,120
Feet
0
0.045
0.09
0.135
0.18
Miles


USDA 1
USDA 2
USDA 3
Central Plume
WE-RM383
Water's Edge Way
E12092
WE-XD828
WE-UK125
WE-SQ017
WE-SQ001
WE-XK342
WE-AAF735
WE-UA297
WE-AAB891
WE-YW972
WE-QR441
WE-TF023
WE-RR542
WE-RR598
WE-TM599
WE-ZE512
WE-SQ002
WE-QN039
WE-RD430
Gruber's Grove Bay
Figure 3 - Gruber's Grove Bay
August 2022
Residential Wells Sampled
Badger Army Ammunition Plant
Legend
Residential Well Sampled
Monitoring Well
Groundwater Plume
Road
1 inch = 333 feet
0 230 460 690 920 Feet
0 0.04 0.08 0.12 0.16 Miles