



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)

February 13, 2025

SUBJECT: November 2024 Monitoring and Residential Well Groundwater Data
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 is the Badger Army Ammunition Plant (BAAP) November 2024 Monitoring Well and Residential Well Groundwater Data. This was a quarterly & semi-annual sampling event. On November 7 and 13, 2024, SpecPro Professional Services, LLC (SPS) collected groundwater samples from 17 monitoring wells and three residential wells associated with the Central Plume and Deterrent Burning Ground (DBG) Plume.

The attached files contain the signed Environmental Monitoring Data Certification Forms, groundwater monitoring exceedance reports, groundwater monitoring all hits reports, a sampled wells list, a map showing the well locations (Figure 1), Central Plume dinitrotoluene (DNT) results map (Figure 2), DBG Plume DNT results map (Figure 3), and residential well laboratory results. Also attached is a data summary table for selective wells associated with the DBG Plume.

The Wisconsin groundwater standards consist of Chapter NR 140 Preventive Action Limit (PAL) and Chapter NR 140 Enforcement Standard (ES). The NR 140 PAL and NR 140 ES for 2,4-dinitrotoluene (DNT), 2,6-DNT and total DNT are 0.005 micrograms per liter ($\mu\text{g/l}$) and 0.05 $\mu\text{g/l}$, respectively. The following DNT isomers do not have an associated NR 140 PAL or ES: 2,3-DNT, 2,5-DNT, 3,4-DNT and 3,5-DNT.

Central Plume

Based on the WDNR *Groundwater Sampling Program Modification Approval* letter dated July 15, 2016, nine monitoring wells associated with the Central Plume were sampled on November 7, 2024. The monitoring wells sampled, RIN-1004B, SEN-0501 A, B & D, SEN-0502 A & D, and SEN-0503 A, B & D, are in the southern (downgradient) portion of the Central Plume (see Figure 2).

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The Central Plume boundary depicted on Figures 1 and 2 is based on the total DNT concentrations reported during 2023 and 2024. The plume boundary outlines where total DNT was detected above the NR 140 ES or NR 140 PAL. Figure 2 is a Central Plume map showing the total DNT concentrations per well sampled during the November 2024 sampling round.

2,6-DNT and total DNT were detected above the NR 140 PAL in RIN-1004B during November 2024. No DNT isomers were detected in SEN-0501 A, B & D, SEN-0502 A & D, and SEN-0503 A & D. These nine monitoring wells will continue to be sampled semi-annually. Chloroform was detected above the NR 140 PAL in SEN-0502D and SEN-0503D during November 2024. Forty-three monitoring wells will be sampled in June 2025 to monitor the Central Plume.

Deterrent Burning Ground Plume

Based on the WDNR 2014 Monitoring Well Optimization Plan email approval dated May 27, 2014 and a subsequent modification dated July 15, 2016, eight monitoring wells associated with the DBG Plume were sampled on November 13, 2024. The eight monitoring wells are in the southeastern (downgradient) portion of the DBG Plume (see Figure 3).

The DBG Plume boundary depicted on Figures 1 and 3 is based on the total DNT concentrations reported during 2023 and 2024. The plume boundary outlines where total DNT was detected above the NR 140 ES or NR 140 PAL. Figure 3 is a DBG Plume map showing the total DNT concentrations per well sampled during the November 2024 sampling round.

The groundwater results indicate that DNT concentrations in the DBG Plume have continued to decrease over the past six years except in two monitoring wells, ELN-1502A, and ELN-1503A. Over the past two years, DNT concentrations in ELN-1003B and ELN-1003C been decreasing. The attached Table 1 compares the DNT results from ELN-1003B, ELN-1003C, ELN-1502A, and ELN-1503A from September 2016 through November 2024. The DNT isomers consistently found in monitoring wells within the DBG Plume are 2,3-DNT, 2,5-DNT, and 3,4-DNT. ELN-1502A was not required to be sampled during November 2024. ELN-1502A will be sampled again during April 2025.

The total DNT concentration in ELN-1003B increased from <0.008 µg/l (below the detection limit) during September 2016 to 0.223 µg/l during November 2019 but has now dropped below the laboratory's detection limit in November 2024. The total DNT concentration in ELN-1003C increased from <0.0081 µg/l during September 2016 to 0.218 µg/l during November 2022 but has now dropped to 0.072 µg/l in November 2024. Both ELN-1003B and ELN-1003C are located 0.5 mile southeast of ELN-1502A. Both ELN-1003B and ELN-1003C will be sampled again during April 2025.

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The total DNT concentration in ELN-1503A exceeded the NR 140 ES for the first time in November 2021. In April 2023, the total DNT concentration in ELN-1503A exceeded the NR 140 ES for a third time. In November 2024, the total DNT concentration in ELN-1503A dropped below the laboratory's detection limit. Between 2015 and September 2021, none of the six DNT isomers had been detected in ELN-1503A. ELN-1503A is located approximately 800 feet east of ELN-1502A. The Army has increased the sampling frequency of ELN-1503A and ELN-1503C from semi-annual to quarterly; therefore, both wells will be sampled again during April 2025.

Residential Wells

Residential well WE-XK342, located in the Water's Edge Subdivision (Central Plume), was sampled for DNT on November 7, 2024. No DNT isomers were detected in WE-XK342. WE-XK342 has a history of 2,6-DNT detections above the NR 140 PAL. WE-XK342 will be sampled again during April 2025 and continue to be sampled quarterly for DNT. Attached is a Residential Groundwater Results Summary for November 2024.

Residential wells E12375A and S7655, located east of the DBG Plume, were sampled for DNT on November 13, 2024. DNT was not detected in either of the wells. Residential wells E12375A and S7655 will be sampled again during April 2025 and continue to be sampled quarterly for DNT.

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 scott.a.benson25.civ@army.mil or 520-725-4326 if you have any questions.

Sincerely,

BENSON.SCOTT.A
LAN.1456242754

Scott Benson
Environmental Support Manager
U.S. Army Environmental Command

Digital signature by
BENSON.SCOTT.ALAN.1456242754
Date: 2025.02.14 08:40:15 -06'00'

Attachments

Copy from: Joel Janssen, SpecPro Professional Services, LLC

November 2024

Monitoring Well and Residential Well Groundwater Data

Badger Army Ammunition Plant

Central Plume

Deterrent Burning Ground Plume

List of Attachments

Figure 1 November 2024 Sampled Wells

Figure 2 Total DNT November 2024 Central Plume

Figure 3 Total DNT November 2024 DBG Plume

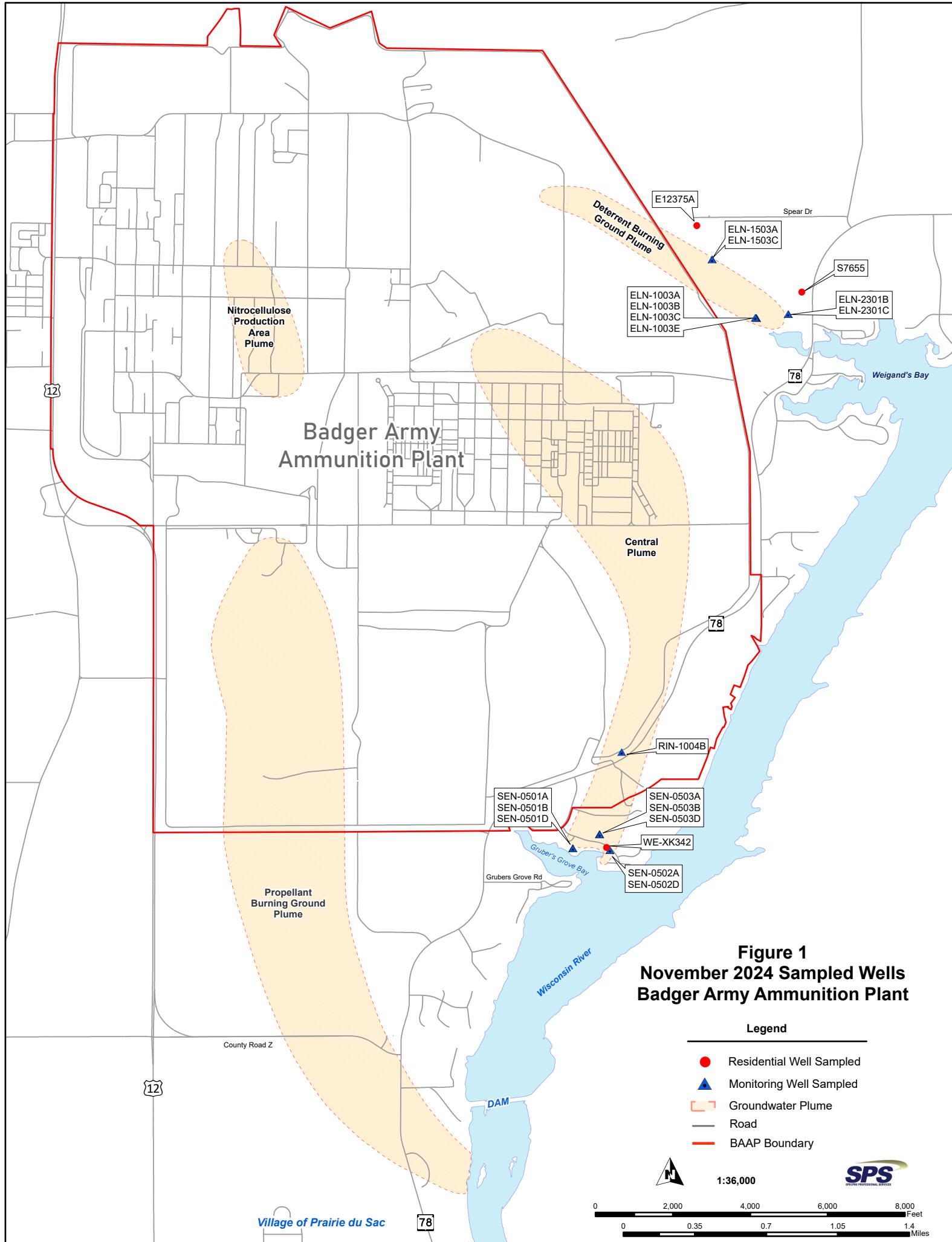
Table 1 DNT Summary Table DBG Plume

November 2024 Sampled Wells List

Residential Groundwater Results Summary - November 2024

Environmental Monitoring Data Certification Forms per License Area

Groundwater Monitoring Exceedance & Hits Reports per License Area



Legend

- Sampled Well (Total DNT Detection)
- Sampled Well (No Detection)
- Groundwater Flow Direction
- Central Plume
- Wisconsin River
- Badger Army Ammunition Plant Boundary

DNT - Dinitrotoluene

ND - Compound was not detected

All results are expressed in micrograms per liter ($\mu\text{g/l}$)

Dashed plume boundary is interpreted

0 770 1,540 2,310 3,080 Feet



Central Plume

78

Wisconsin River

RIN-1004B (0.014)

SEN-0501A (ND)
SEN-0501B (ND)
SEN-0501D (ND)

SEN-0503A (ND)
SEN-0503B (ND)
SEN-0503D (ND)

The Water's Edge subdivision

78

Gruber's Grove Bay

WE-XK342 (ND)

SEN-0502A (ND)
SEN-0502D (ND)

FIGURE 2

Total DNT Groundwater Results
November 2024 Round

CENTRAL PLUME
BADGER ARMY AMMUNITION PLANT

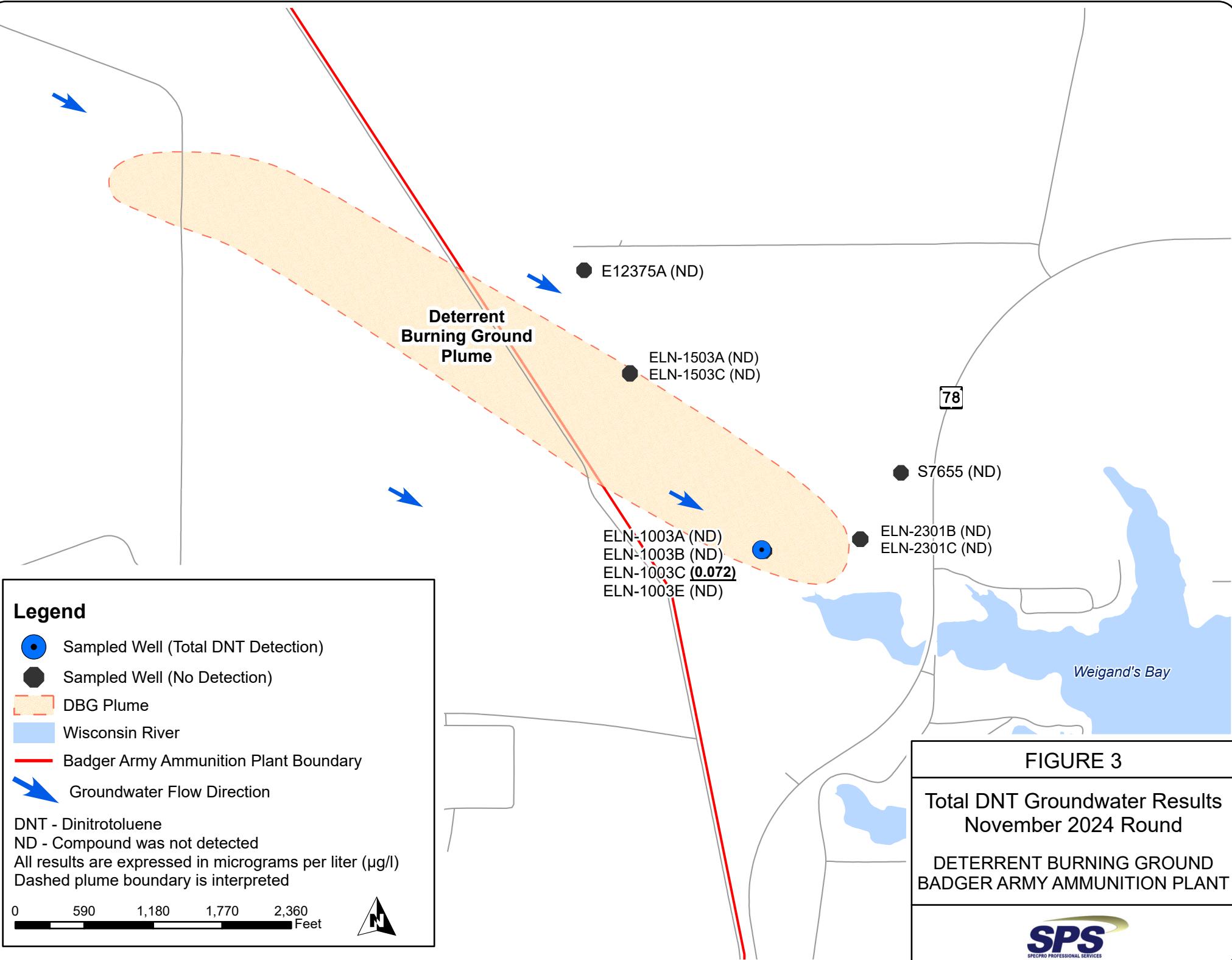


Table 1
2016 - 2024 Summary
Dinitrotoluene Groundwater Results
Deterrent Burning Ground
Badger Army Ammunition Plant

Plume	Well Name	Well ID	License	Sample Level	Date	Dinitrotoluenes						
						2,3-Dinitrotoluene	2,4-Dinitrotoluene	2,5-Dinitrotoluene	2,6-Dinitrotoluene	3,4-Dinitrotoluene	3,5-Dinitrotoluene	Dinitrotoluene, Total
DBG	ELN-1003B	468	2813	B	9/19/16	<0.006	<0.008	<0.003	<0.004	<0.004	<0.004	<0.008
					9/19/16 (D)	<0.006	<0.008	<0.003	<0.004	<0.004	<0.004	<0.008
					4/25/17	<0.006	<0.008	<0.003	<0.004	0.051	<0.004	<u>0.051</u>
					9/12/17	0.014 (J)	<0.0082	<0.0031	<0.0041	0.054	<0.0041	<u>0.068</u>
					4/26/18	0.029 (J)	0.026 (J)	0.028 (J)	0.024 (J)	0.1	0.025 (J)	<u>0.232</u>
					4/26/18 (D)	0.029 (J)	0.024 (J)	0.027 (J)	0.023 (J)	0.097	0.025 (J)	<u>0.225</u>
					5/14/18	0.03	<0.008	<0.003	0.036	0.12	<0.004	<u>0.186</u>
					6/28/18	0.059	<0.0076	<0.0029	<0.0038	0.12	<0.0038	<u>0.179</u>
					10/3/18	0.032	<0.0078	<0.0029	0.01 (J)	0.15	<0.0039	<u>0.192</u>
					10/3/18 (D)	0.031	<0.0081	<0.003	0.01 (J)	0.13	<0.004	<u>0.171</u>
					11/15/18	0.078	<0.0081	<0.003	0.072	0.17	<0.004	<u>0.32</u>
					4/23/19	0.045	<0.0078	<0.0029	<0.0039	0.12	<0.0039	<u>0.165</u>
					6/13/19	0.033	<0.0078	<0.0029	0.02 (J)	0.13	<0.0039	<u>0.183</u>
					6/13/19 (D)	0.033	<0.0077	<0.0029	0.019 (J)	0.13	<0.0038	<u>0.182</u>
					9/17/19	0.048	<0.0082	<0.0031	0.023 (J)	0.16	<0.0041	<u>0.231</u>
					9/17/19 (D)	0.048	<0.0082	<0.0031	0.022 (J)	0.15	<0.0041	<u>0.22</u>
					11/20/19	0.053	<0.0078	<0.0029	<0.0039	0.17	<0.0039	<u>0.223</u>
					5/6/20	<0.0063	<0.0083	<0.0031	<0.0042	0.13	<0.0042	<u>0.13</u>
					6/11/20	0.051	<0.0081	<0.003	<0.004	0.13	<0.004	<u>0.181</u>
					9/22/20	0.041	<0.0076	<0.0029	<0.0038	0.13	<0.0038	<u>0.171</u>
					11/9/20	0.04	<0.0082	<0.0031	<0.0041	0.13	<0.0041	<u>0.17</u>
					4/22/21	0.051 (J)	<0.0084	<0.0053	0.022 (J)	0.12	<0.0053	<u>0.193</u>
					4/22/21 (D)	0.048 (J)	<0.0082	<0.0051	0.022 (J)	0.12	<0.0051	<u>0.19</u>
					6/8/21	0.051 (J)	<0.0082	<0.0052	0.027 (J)	0.1	<0.0052	<u>0.178</u>
					6/8/21 (D)	0.053	<0.0084	<0.0053	0.029 (J)	0.1	<0.0053	<u>0.182</u>
					9/30/21	0.037 (J)	<0.0082	<0.0051	<0.0051	0.083	<0.0051	<u>0.12</u>
					11/9/21	0.038 (J)	<0.0077	<0.0048	<0.0048	0.086	<0.0048	<u>0.124</u>
					5/5/22	0.038 (J)	<0.0078	<0.0049	<0.0049	0.083	<0.0049	<u>0.121</u>
					7/7/22	0.041 (J)	<0.0078	<0.0049	<0.0049	0.084	<0.0049	<u>0.125</u>
					9/26/22	0.022 (J)	<0.0077	<0.0048	<0.0048	0.047 (J)	<0.0048	<u>0.069</u>
					11/9/22	0.038 (J)	<0.0076	<0.0048	<0.0048	0.092	<0.0048	<u>0.13</u>
					4/25/23	0.034 (J)	<0.0076	<0.0048	<0.0048	0.062	<0.0048	<u>0.096</u>
					6/27/23	0.022 (J)	<0.0077	<0.0048	<0.0048	0.061	<0.0048	<u>0.083</u>
					9/13/23	<0.0059	<0.0078	<0.0049	<0.0049	0.027 (J)	<0.0049	<u>0.027 (J)</u>
					9/13/23 (D)	<0.0058	<0.0077	<0.0048	<0.0048	0.025 (J)	<0.0048	<u>0.025 (J)</u>
					11/14/23	<0.0058	<0.0077	<0.0048	<0.0048	0.054	<0.0048	<u>0.054</u>
					4/10/24	<0.0057	<0.0076	<0.0048	<0.0048	0.026 (J)	<0.0048	<u>0.026 (J)</u>
					6/12/24	<0.0057	<0.0076	<0.0048	<0.0048	0.029 (J)	<0.0048	<u>0.029 (J)</u>
					9/11/24	<0.0057	<0.0076	<0.0048	<0.0048	0.028 (J)	<0.0048	<u>0.028 (J)</u>
					11/13/24	<0.0058	<0.0077	<0.0048	<0.0048	<0.0048	<0.0048	<0.0077

Table 1
2016 - 2024 Summary
Dinitrotoluene Groundwater Results
Deterrent Burning Ground
Badger Army Ammunition Plant

Plume	Well Name	Well ID	License	Sample Level	Date	Dinitrotoluenes						
						2,3-Dinitrotoluene	2,4-Dinitrotoluene	2,5-Dinitrotoluene	2,6-Dinitrotoluene	3,4-Dinitrotoluene	3,5-Dinitrotoluene	Dinitrotoluene, Total
DBG	ELN-1003C	469	2813	C	9/19/16	<0.0061	<0.0081	<0.003	<0.004	<0.004	<0.004	<0.0081
					4/25/17	<0.006	<0.008	<0.003	0.0085 (J)	<0.004	<0.004	0.0085 (J)
					9/12/17	<0.0064	<0.0085	<0.0032	<0.0043	<0.0043	<0.0043	<0.0085
					4/26/18	0.025 (J)	0.026 (J)	<0.003	0.023 (J)	<0.004	<0.004	0.074
					5/14/18	<0.0061	<0.0081	<0.003	0.029 (J)	0.079	<0.004	0.108
					6/28/18	<0.0057	<0.0076	<0.0029	<0.0038	<0.0038	<0.0038	<0.0076
					6/28/18 (D)	<0.0058	<0.0077	<0.0029	<0.0038	<0.0038	<0.0038	<0.0077
					10/3/18	0.024 (J)	<0.0078	<0.0029	0.0087 (J)	0.1	<0.0039	0.1327
					11/15/18	0.07	<0.0078	<0.0029	0.068	0.14	<0.0039	0.278
					4/23/19	<0.0058	<0.0078	<0.0029	<0.0039	0.09	<0.0039	0.09
					4/23/19 (D)	<0.0058	<0.0078	<0.0029	<0.0039	0.093	<0.0039	0.093
					6/13/19	0.028 (J)	<0.0082	<0.0031	0.022 (J)	0.11	<0.0041	0.16
					9/17/19	0.039	<0.0082	<0.0031	0.022 (J)	0.11	<0.0041	0.171
					11/20/19	<0.0059	<0.0079	<0.003	<0.004	0.13	<0.004	0.13
					11/20/19 (D)	<0.0059	<0.0079	<0.003	<0.004	0.13	<0.004	0.13
					5/6/20	<0.0064	<0.0085	<0.0032	<0.0043	0.13	<0.0043	0.13
					5/6/20 (D)	<0.0064	<0.0085	<0.0032	<0.0043	0.11	<0.0043	0.11
					6/11/20	0.05	<0.0084	<0.0032	0.035	0.13	<0.0042	0.215
					9/22/20	0.039	<0.0078	<0.0029	<0.0039	0.13	<0.0039	0.169
					11/9/20	0.038	<0.0082	<0.0031	<0.0041	0.14	<0.0041	0.178
					4/22/21	0.048 (J)	<0.0083	<0.0052	0.026 (J)	0.13	<0.0052	0.204
					6/8/21	0.054	<0.0084	<0.0053	0.031 (J)	0.12	<0.0053	0.205
					9/30/21	0.037 (J)	<0.008	<0.005	0.024 (J)	0.11	<0.005	0.171
					11/9/21	0.045 (J)	<0.0081	<0.0051	<0.0051	0.11	<0.0051	0.155
					5/5/22	0.046 (J)	<0.0083	<0.0052	0.033 (J)	0.11	<0.0052	0.189
					5/5/22 (D)	0.045 (J)	<0.0081	<0.0051	<0.0051	0.11	<0.0051	0.155
					7/7/22	0.044 (J)	<0.0079	<0.005	0.035 (J)	0.11	<0.005	0.189
					9/26/22	0.028 (J)	<0.0078	<0.0049	<0.0049	0.077	<0.0049	0.105
					11/9/22	0.047 (J)	<0.0076	<0.0048	0.031 (J)	0.13	<0.0048	0.208
					11/9/22 (D)	0.051	<0.008	<0.005	0.037 (J)	0.13	<0.005	0.218
					4/25/23	0.042 (J)	<0.008	<0.005	0.023 (J)	0.099	<0.005	0.164
					4/25/23 (D)	0.039 (J)	<0.0077	<0.0048	0.02 (J)	0.091	<0.0048	0.15
					6/27/23	0.032 (J)	<0.0079	<0.005	0.018 (J)	0.097	<0.005	0.147
					9/13/23	0.012 (J)	<0.0077	<0.0048	<0.0048	0.054	<0.0048	0.066
					11/14/23	0.036 (J)	<0.0078	<0.0049	<0.0049	0.08	<0.0048	0.116
					4/10/24	0.011 (J)	<0.0078	<0.0049	<0.0049	0.055	<0.0049	0.066
					6/12/24	0.018 (J)	<0.0078	<0.0049	<0.0049	0.06	<0.0049	0.078
					9/11/24	0.019 (J)	<0.0078	<0.0049	<0.0049	0.06	<0.0049	0.079
					11/13/24	0.019 (J)	<0.0077	<0.0048	<0.0048	0.053	<0.0048	0.072

Table 1
2016 - 2024 Summary
Dinitrotoluene Groundwater Results
Deterrent Burning Ground
Badger Army Ammunition Plant

Plume	Well Name	Well ID	License	Sample Level	Date	Dinitrotoluenes						
						2,3-Dinitrotoluene	2,4-Dinitrotoluene	2,5-Dinitrotoluene	2,6-Dinitrotoluene	3,4-Dinitrotoluene	3,5-Dinitrotoluene	Dinitrotoluene, Total
DBG	ELN-1502A	533	2813	A	9/15/16	0.065	<0.008	<0.003	<0.004	0.13	<0.004	0.195
					4/18/17	0.11	<0.0082	<0.0031	0.011 (J)	0.28	<0.0041	0.401
					4/18/17 (D)	0.12	<0.0084	<0.0032	0.012 (J)	0.31	<0.0042	0.442
					9/5/17	0.13	<0.0082	<0.0031	<0.0041	0.28	0.023 (J)	0.433
					9/5/17 (D)	0.13	<0.008	<0.003	<0.004	0.34	0.022 (J)	0.492
					4/24/18	0.14	<0.0083	<0.0031	0.03 (J)	0.39	0.034	0.594
					4/24/18 (D)	0.13	<0.008	<0.003	0.027 (J)	0.38	<0.004	0.537
					5/14/18	0.17	<0.008	<0.003	0.08	0.44	<0.004	0.69
					9/4/18	0.16	<0.0082	<0.0031	0.011 (J)	0.42	0.036	0.627
					9/4/18 (D)	0.21	<0.008	<0.003	0.02 (J)	0.53	0.041	0.801
					4/1/19	0.17	<0.0082	<0.0031	0.024 (J)	0.37	0.054	0.618
					4/1/19 (D)	0.16	<0.0082	<0.0031	0.023 (J)	0.35	0.053	0.586
					9/10/19	0.13	<0.0083	<0.0031	0.026 (J)	0.3	0.051	0.507
					9/10/19 (D)	0.14	<0.0081	<0.003	0.027 (J)	0.32	0.05	0.537
					4/6/20	0.085	<0.0087	<0.0033	<0.0043	0.19	<0.0043	0.275
					4/6/20 (D)	0.076	<0.0082	<0.0031	<0.0041	0.17	<0.0041	0.246
					9/21/20	0.078	<0.008	<0.003	<0.004	0.16	0.03	0.268
					4/5/21	0.059	0.022 (J)	<0.0051	0.011 (J)	0.12	0.028 (J)	0.24
					4/5/21 (D)	0.058	0.027 (J)	<0.0052	0.012 (J)	0.12	0.028 (J)	0.245
					9/9/21	0.06	<0.0079	<0.005	<0.005	0.13	0.027 (J)	0.217
					9/9/21 (D)	0.061	<0.0078	<0.0049	0.018 (J)	0.13	0.026 (J)	0.235
					4/25/22	0.067	<0.0082	<0.0051	<0.0051	0.11	<0.0051	0.177
					4/25/22 (D)	0.069	<0.008	<0.005	<0.005	0.12	<0.005	0.189
					9/15/22	0.067	<0.0078	<0.0049	<0.0049	0.13	0.025 (J)	0.222
					4/10/23	0.091	<0.008	<0.005	<0.005	0.17	<0.005	0.261
					4/10/23 (D)	0.094	<0.005	<0.005	<0.005	0.17	<0.005	0.264
					9/11/23	0.084	<0.0082	<0.005	<0.005	0.17	<0.005	0.254
					9/11/23 (D)	0.091	<0.0079	<0.005	<0.005	0.2	<0.005	0.291
					4/8/24	0.072	<0.0078	<0.0049	<0.0049	0.16	0.013 (J)	0.245
					4/8/24 (D)	0.067	<0.0077	<0.0048	<0.0048	0.15	0.012 (J)	0.229
					9/9/24	0.092	0.014 (J)	<0.0049	<0.0049	0.18	0.023 (J)	0.309
					9/9/24 (D)	0.1	0.015 (J)	<0.0049	<0.0049	0.2	0.023 (J)	0.338

Table 1
2016 - 2024 Summary
Dinitrotoluene Groundwater Results
Deterrent Burning Ground
Badger Army Ammunition Plant

Plume	Well Name	Well ID	License	Sample Level	Date	Dinitrotoluenes										
						2,3-Dinitrotoluene	2,4-Dinitrotoluene	2,5-Dinitrotoluene	2,6-Dinitrotoluene	3,4-Dinitrotoluene	3,5-Dinitrotoluene	Dinitrotoluene, Total				
DBG	ELN-1503A	535	2813	A	4/26/21	<0.0065	<0.0087	<0.0054	<0.0054	<0.0054	<0.0054	<0.0087				
					9/28/21	<0.0058	<0.0077	<0.0048	<0.0048	<0.0048	<0.0048	<0.0077				
					11/9/21	0.035 (J)	<0.0081	<0.0051	<0.0051	0.05 (J)	<0.0051	0.085 (J)				
					4/28/22	0.043 (J)	<0.008	<0.005	<0.005	0.07	<0.005	0.113				
					4/28/22 (D)	0.04 (J)	<0.008	<0.005	<0.005	0.067	<0.005	0.107				
					7/7/22	<0.006	<0.008	<0.005	<0.005	<0.005	<0.005	<0.008				
					7/7/22 (D)	0.037 (J)	<0.008	<0.005	<0.005	<0.005	<0.005	0.037 (J)				
					9/22/22	0.018 (J)	<0.008	<0.005	<0.005	0.02 (J)	<0.005	0.038 (J)				
					11/8/22	<0.0058	<0.0078	<0.005	<0.005	<0.005	<0.005	<0.0078				
					4/27/23	0.041 (J)	<0.008	<0.005	<0.005	0.064	<0.005	0.105				
					4/27/23 (D)	0.04 (J)	<0.008	<0.005	<0.005	0.06	<0.005	0.1				
					6/27/23	<0.006	<0.008	<0.005	<0.005	0.034 (J)	<0.005	0.034 (J)				
					9/13/23	<0.0058	<0.0077	<0.0048	<0.0048	0.012 (J)	<0.0048	0.012 (J)				
					11/14/23	<0.0061	<0.0081	<0.0051	<0.0051	<0.0051	<0.0051	<0.0081				
					4/10/24	0.0062 (J)	<0.0079	<0.005	<0.005	0.017 (J)	<0.005	0.0232 (J)				
					6/12/24	<0.0058	<0.0079	<0.005	<0.005	0.024 (J)	<0.005	0.024 (J)				
					6/12/24 (D)	<0.0058	<0.0079	<0.005	<0.005	0.023 (J)	<0.005	0.023 (J)				
					9/11/24	0.017 (J)	<0.0082	<0.0052	<0.0052	0.032 (J)	<0.0052	0.049 (J)				
					11/13/24	<0.006	<0.008	<0.005	<0.005	<0.005	<0.005	<0.008				
Chapter NR 140 PAL						NE	0.005	NE	0.005	NE	NE	0.005				
Chapter NR 140 ES						NE	0.05	NE	0.05	NE	NE	0.05				

Notes:

DBG - Deterrent Burning Ground

The Sample Level references the typical well depth configuration

All results are expressed in micrograms per liter ($\mu\text{g/l}$)

DNT analysis was performed by CT Laboratories

D = Duplicate sample

J = Analytical result is between the Limit of Detection (LOD) and Limit of Quantitation (LOQ)

NE = Not Established

Chapter NR 140 PAL - Chapter NR 140, Wisconsin Administrative Code, Preventive Action Limit (bold values)

Chapter NR 140 ES - Chapter NR 140, Wisconsin Administrative Code, Enforcement Standard (bold & underline values)

November 2024
Badger Army Ammunition Plant
Sampled Wells List

<u>License Area</u>	<u>Well ID</u>	<u>Reporting Name</u>	<u>Date</u>	<u>Plume</u>
2813	467	ELN-1003A	11/13/24	Deterrent Burning Ground
2813	468	ELN-1003B	11/13/24	Deterrent Burning Ground
2813	469	ELN-1003C	11/13/24	Deterrent Burning Ground
2813	470	ELN-1003E	11/13/24	Deterrent Burning Ground
2813	535	ELN-1503A	11/13/24	Deterrent Burning Ground
2813	536	ELN-1503C	11/13/24	Deterrent Burning Ground
2813	547	ELN-2301B	11/13/24	Deterrent Burning Ground
2813	548	ELN-2301C	11/13/24	Deterrent Burning Ground
3487	498	RIN-1004B	11/7/24	Central
3497	435	WE-XK342	11/7/24	Central
3497	803	E12375A	11/13/24	Deterrent Burning Ground
3497	916	S7655	11/13/24	Deterrent Burning Ground
4330	580	SEN-0501A	11/7/24	Central
4330	581	SEN-0501B	11/7/24	Central
4330	582	SEN-0501D	11/7/24	Central
4330	583	SEN-0502A	11/7/24	Central
4330	584	SEN-0502D	11/7/24	Central
4330	585	SEN-0503A	11/7/24	Central
4330	586	SEN-0503B	11/7/24	Central
4330	587	SEN-0503D	11/7/24	Central

Residential Groundwater Results Summary - November 2024 Sampling Event

CT Lab = CT Laboratories, LLC

2,4-DNT, 2,6-DNT & Total DNT - NR 140 PAL = 0.005 µg/l

2,4-DNT, 2,6-DNT & Total DNT - NR 140 ES = 0.05 µg/l

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 - Landfill #5	02813	157005530	11/13/24

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

November 2024

Type of Data Submitted (Check all that apply)

Groundwater monitoring data from monitoring wells
 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.
 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

Joel Janssen 2/13/25

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

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

Case Narrative
Groundwater Monitoring
License Number 2813
Landfill #5
November 2024
Badger Army Ammunition Plant

Groundwater is currently being monitored by the facility because of past production activities. Eight monitoring wells were sampled to assist with determining the degree and lateral extent of dinitrotoluene (DNT) in the Deterrent Burning Ground Plume.

Total DNT exceeded the Enforcement Standard (ES) in ELN-1003C (469).

DNT analysis was performed by CT Laboratories 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

November 2024

Report Date: 2/12/2025

Parameter Name	Lic No.	Well No.	Well Name	Date	Dup	Result	Units	PAL	ES
Total Dinitrotoluenes	2813	469	ELN-1003C	11/13/2024	1	0.072	ug/l	0.005	0.05

Badger Army Ammunition Plant

SpecPro Professional Services, LLC

November 2024

GROUNDWATER MONITORING ALL HITS REPORT

License No: 2813

Report Date: 2/12/2025

Parameter Name	Well	Well Name	Date	Dup	Result	LOD	LOQ	Units	PAL	ES
2,3-Dinitrotoluene	469	ELN-1003C	11/13/2024	1	0.019	0.0058	0.048	ug/l		
3,4-Dinitrotoluene	469	ELN-1003C	11/13/2024	1	0.053	0.0048	0.048	ug/l		
Total Dinitrotoluenes	469	ELN-1003C	11/13/2024	1	0.072	0.0077	0.048	ug/l	0.005	0.05

State of Wisconsin
Department of Natural Resources

Environmental Monitoring Data Certification
Form 4400-231(R 1/04)

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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 - Nitroglycerine Pond/Rocket Paste Area	03487	157005530	11/7/24

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

November 2024

Type of Data Submitted (Check all that apply)

Groundwater monitoring data from monitoring wells
 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.
 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

2/13/25

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

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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 3487
Nitroglycerine Pond/Rocket Paste Area
November 2024
Badger Army Ammunition Plant

Groundwater is currently being monitored by the facility because of past production activities. One monitoring well, RIN-1004B, was sampled to assist with determining the degree and lateral extent of dinitrotoluene (DNT) in the Central Plume.

2,6-DNT and total DNT exceeded the Preventive Action Limit (PAL) in RIN-1004B (498).

DNT analysis was performed by CT Laboratories 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

November 2024

Report Date: 2/12/2025

Parameter Name	Lic No.	Well No.	Well Name	Date	Dup	Result	Units	PAL	ES
2,6-Dinitrotoluene	3487	498	RIN-1004B	11/7/2024	1	0.014	ug/l	0.005	0.05
Total Dinitrotoluenes	3487	498	RIN-1004B	11/7/2024	1	0.014	ug/l	0.005	0.05

Badger Army Ammunition Plant

SpecPro Professional Services, LLC

November 2024

GROUNDWATER MONITORING ALL HITS REPORT

License No: 3487

Report Date: 2/12/2025

Parameter Name	Well	Well Name	Date	Dup	Result	LOD	LOQ	Units	PAL	ES
2,6-Dinitrotoluene	498	RIN-1004B	11/7/2024	1	0.014	0.0048	0.048	ug/l	0.005	0.05
Total Dinitrotoluenes	498	RIN-1004B	11/7/2024	1	0.014	0.0077	0.048	ug/l	0.005	0.05

State of Wisconsin
Department of Natural Resources

Environmental Monitoring Data Certification
Form 4400-231(R 1/04)

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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	11/7 & 11/13/24

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

November 2024

Type of Data Submitted (Check all that apply)

Groundwater monitoring data from monitoring wells
 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.
- 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

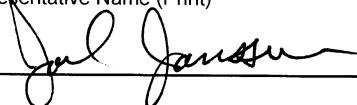
Project Manager

(608) 438-1110

Facility Representative Name (Print)

Title

(Area Code) Telephone No.



2/13/25

Signature

Date

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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
November 2024
Badger Army Ammunition Plant

Groundwater is currently being monitored by the facility because of past production activities. One residential well located in the Central Plume and two residential wells located east of the Deterrent Burning Ground Plume were sampled during this round.

Dinitrotoluene (DNT) was not detected in the three sampled residential wells.

DNT analysis was performed by CT Laboratories 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.

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 - Southeast Area	04330	157005530	11/7/24

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

November 2024

Type of Data Submitted (Check all that apply)

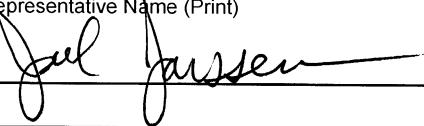
<input checked="" type="checkbox"/> Groundwater monitoring data from monitoring wells	<input type="checkbox"/> Gas monitoring data
<input type="checkbox"/> Groundwater monitoring data from private water supply wells	<input type="checkbox"/> Air monitoring data
<input type="checkbox"/> Leachate monitoring data	<input type="checkbox"/> Other (specify) _____

Notification attached?

- 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.
 2/13/25
Signature Date

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

<input type="checkbox"/> Found uploading problems on _____	Initials _____
<input type="checkbox"/> 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 4330
Southeast Area
November 2024
Badger Army Ammunition Plant

Groundwater is currently being monitored by the facility because of past production activities. Eight monitoring wells were sampled to assist with determining the degree and lateral extent of dinitrotoluene (DNT) in the Central Plume. All eight monitoring wells are located in the Water's Edge Subdivision on Gruber's Grove Bay.

DNT was not detected in the eight sampled monitoring wells.

Chloroform exceeded the Preventive Action Limit (PAL) in SEN-0502D (584) and SEN-0503D (587).

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

November 2024

Report Date: 2/12/2025

Parameter Name	Lic No.	Well No.	Well Name	Date	Dup	Result	Units	PAL	ES
Chloroform	4330	584	SEN-0502D	11/7/2024	1	0.78	ug/l	0.6	6
Chloroform	4330	587	SEN-0503D	11/7/2024	1	0.83	ug/l	0.6	6

Badger Army Ammunition Plant

SpecPro Professional Services, LLC

November 2024

GROUNDWATER MONITORING ALL HITS REPORT

License No: 4330

Report Date: 2/12/2025

Parameter Name	Well	Well Name	Date	Dup	Result	LOD	LOQ	Units	PAL	ES
Chloroform	582	SEN-0501D	11/7/2024	1	0.34	0.1	0.2	ug/l	0.6	6
Chloromethane	582	SEN-0501D	11/7/2024	1	0.17	0.1	0.2	ug/l	3	30
Chloroform	584	SEN-0502D	11/7/2024	1	0.78	0.1	0.2	ug/l	0.6	6
Chloroform	586	SEN-0503B	11/7/2024	1	0.11	0.1	0.2	ug/l	0.6	6
Chloroform	586	SEN-0503B	11/7/2024	2	0.12	0.1	0.2	ug/l	0.6	6
Chloromethane	586	SEN-0503B	11/7/2024	2	0.12	0.1	0.2	ug/l	3	30
Chloroform	587	SEN-0503D	11/7/2024	1	0.83	0.1	0.2	ug/l	0.6	6