DRAFT
GROUNDWATER SAMPLING PLAN
FORMER BADGER ARMY AMMUNITION PLANT
BARABOO, WISCONSIN

Prepared for:

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1,1,2-TCA	1,1,2-Trichloroethane
2,4-DNT	2,4-Dinitrotoluene
2,6-DNT	2,6-Dinitrotoluene
µg/l	Micrograms per liter
Army	Department of the Army
BIA	Bureau of Indian Affairs
bgs	Below ground surface
BAAP	Badger Army Ammunition Plant
BEST	Biologically Enhanced Subsurface Treatment
BSD	Bluffview Sanitary District
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, also known as Superfund: Amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA)
COC	Contaminant of Concern
CSM	Conceptual Site Model
CTET	Carbon Tetrachloride
DBG	Deterrent Burning Ground
DNT	Dinitrotoluene
DoD	Department of Defense
EBS	Enhanced Biodegradation System
ES	Enforcement Standard
FS	Feasibility Study
FUDS	Formerly Used Defense Sites
GEMS	Groundwater and Environmental Monitoring System (WDNR)
IRM	Interim Remedial Measures
MIRM	Modified Interim Remedial Measures
mg/l	Milligrams per liter
MNA	Monitored Natural Attenuation
MSL	Mean Sea Level
NC	Nitrocellulose
NC Area	Nitrocellulose Production Area
NG	Nitroglycerin
NPS	National Park Service
NR	Natural Resources
PAL	Preventive Action Limit
PBG	Propellant Burning Ground
PP	Proposed Plan
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SPS	SpecPro Professional Services, LLC
SVE	Soil Vapor Extraction

TCE	Trichloroethene or Trichloroethylene
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
WDNR	Wisconsin Department of Natural Resources
WDOT	Wisconsin Department of Transportation
Wis. Adm. Code	Wisconsin Administrative Code
WP&L	Wisconsin Power and Light
WWTP	Wastewater Treatment Plant

1.0 INTRODUCTION

1.1 Purpose

The Groundwater Sampling Plan (plan) outlines a comprehensive groundwater monitoring plan for the four groundwater plumes at the Badger Army Ammunition Plant (BAAP). The four plumes consist of the Central, Deterrent Burning Ground (DBG), Nitrocellulose Production Area (NC), and Propellant Burning Ground (PBG) Plumes. The plan provides updated 2023 contaminant isoconcentration maps and cross sections plus documents trends in groundwater contaminants of concern for each plume.

This plan provides a comprehensive layout of the BAAP groundwater monitoring program and ensures compliance with the Wisconsin Department of Natural Resources (WDNR) monitoring requirements at the site. Procedures outlined are consistent with those specified for use at sites subject to the requirements of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

This plan introduces the schedules for conducting routine groundwater monitoring at BAAP. Adherence to the protocols presented in this document ensures that samples are collected in a consistent manner, representative of actual groundwater conditions, managed efficiently and effectively, and analyzed by appropriate analytical methods.

1.2 Scope

This sampling plan prescribes the schedule and rationale for routine groundwater monitoring throughout BAAP in accordance with Army and WDNR requirements. It is intended to aid in the planning and execution of groundwater monitoring in accordance with applicable federal and state regulations. A comprehensive list of the monitoring wells and residential wells to be sampled on a recurring basis are provided in **Section 5.0** Proposed Sampling Program. For each well in the plan, well construction details, sampling frequency and sampling parameters have been provided.

Additionally, maps showing well locations relative to groundwater plumes are provided. Relevant contaminant cross sections for each groundwater plume are provided. Tables and graphs that summarize past groundwater monitoring history for wells selected in the sampling program are provided. The process for changes to this plan (i.e., location, frequency, lab analytes) are outlined in **Section 8.0** Annual Sampling Plan Modification Procedure.

For comprehensive site history and groundwater information, refer to the *Remedial Investigation/Feasibility Study for Site-Wide Groundwater at the Former Badger Army Ammunition Plant*, *SPS, June 2021 (Repository document #1079)* or the *Final Proposed Plan for Site-Wide Groundwater Former Badger Army Ammunition Plant, SPS, December 2024 (Repository document #1123).*

1.3 Objectives

The current objective of the groundwater monitoring program is to collect and manage groundwater chemical analytical data to:

- Perform groundwater sampling in compliance with regulatory requirements and approvals;
- Provide a consistent, accurate representation of actual concentrations of contaminants in the groundwater;
- Monitor the distribution, extent, and movement of contaminants in the groundwater;
- Detect the presence of contaminants not previously detected in the groundwater.

2.0 SITE BACKGROUND

2.1 Site Description and History

The BAAP, located in south-central Wisconsin within Sumpter and Merrimac Townships in Sauk County, was constructed in 1942 to produce smokeless gunpowder and solid rocket propellant as munitions components for World War II by the Army. BAAP is located on the Sauk Prairie, between the Baraboo Range and the Wisconsin River.

Production of nitric acid, sulfuric acid, oleum (also known as fuming sulfuric acid), nitrocellulose (NC), and nitroglycerin (NG) occurred in support of munitions components production. Production periods were as follows: World War II (1942 to 1945), Korean War (1951 to 1958), and Vietnam Conflict (1966 to 1975). A portion of the BAAP property was transferred post-World War II under the Formerly Used Defense Sites (FUDS) program. BAAP was maintained on stand-by status during the non-production eras and determined to be excess in 1997. Excess hazardous substances were disposed of at primarily two locations on-site: the PBG and the DBG. The production and waste disposal practices during operational periods were burning and burial (landfilling), and this impacted the soil and groundwater at the BAAP with multiple contaminants.

The Army has divided and transferred all 7,275 acres of BAAP between the United States Department of Agriculture (USDA), Wisconsin Department of Transportation (WDOT), United States Department of Health Services on behalf of the Bluffview Sanitary District (BSD), Bureau of Indian Affairs (BIA) on behalf of the Ho-Chunk Nation and the National Park Service (NPS) on behalf of the WDNR. The property that comprised BAAP is being used as agricultural and grazing land (USDA), Highway 78 (WDOT), recreational land (NPS/WDNR), agricultural and industrial land (Ho-Chunk), and a wastewater treatment plant (BSD).

The primary land use to the north of the BAAP is recreational at Devil's Lake State Park, managed by the WDNR. This area is not impacted by past activities at BAAP as it is hydrologically upgradient. Lake Wisconsin and the Wisconsin River, to the south and southeast of the BAAP, are hydraulically connected to the groundwater beneath the BAAP. Lake Wisconsin was formed in 1914 by the Wisconsin Power and Light (WP&L) dam on the Wisconsin River, near Prairie du Sac (**Figure 1**). Agricultural and residential property is located to the east, south, and west of the BAAP. The agricultural and residential property is in the townships of Merrimac, Prairie du Sac, and Sumpter.

2.2 Environmental Setting

2.2.1 Topography

The land surface features at the BAAP are the result of glaciation. The BAAP is located on the southern edge of the Baraboo Range, also commonly referred to as the Baraboo Hills. The terminal moraine, deposited by the leading edge of the last glacier as it moved from east to west, extends from north to south across the central portion of the BAAP. The topography in the eastern two-thirds of the BAAP consists of gently rolling hills with numerous depressions. The western third of the BAAP is an outwash plain that is nearly level to gently sloping towards the southwest.

2.2.2 Geology

The site geology at BAAP is dominated by thick sequence of unconsolidated sediments which were deposited during multiple glaciation events. A map of the surficial geology is provided as **Figure 2**. A glacial terminal moraine transects the BAAP from north to south, which is classified as thick depositional layer of the Johnstown Morain. Thinner glacial deposition is found east of the terminal moraine, which is primarily silty sands with cobbles and boulders. On the far eastern side of BAAP is a unit classified as a collapsed meltwater-stream sediment. West of the terminal moraine is stream sediment of the Johnstown Moraine. There is also a unit of stream sediment shown cutting through the terminal moraine in the southern portion of BAAP. This stream sediment unit is younger than the Johnstown sediment, contains ice rafted boulders, and was deposited by floodwater during the drainage of glacial Lake Wisconsin during the Elderon Phase of glaciation.

Figures 3 and 4 are generalized geologic cross sections that show the thickness of the unconsolidated sediment (sand and gravel) overlying bedrock. The unconsolidated sediment and bedrock unit thicknesses were derived by reviewing boring logs from wells at and near BAAP. Bedrock geology at BAAP is dominated by the Eau Claire Formation (Cambrian age) beneath most of BAAP, with some Precambrian metamorphosed quartzite, granite, and rhyolite. The Eau Claire Formation consists of sandstone/shale/siltstone/dolomite. The Baraboo Range to the north of the BAAP contains Precambrian conglomerate and quartzite, which are part of the Baraboo Syncline, rising approximately 500 feet above the BAAP. The bedrock surface dips steeply toward the south, where soil deposits quickly thicken to a maximum of approximately 250 feet. Along the northern BAAP boundary, soil deposits are thin or absent and bedrock outcrops are common.

Figure 3 shows a cross section that runs from the Baraboo Range south to the Village of Prairie du Sac (PDS). The shale layer is shown to be present from just north of the Bluffview Well #3 down to PDS. The shale layer was also found in the Bluffview Well #4 well located at the Bluffview Sanitary District's sanitary wastewater treatment plant. This shale layer acts as an aquitard, which restricts groundwater from migrating deeper into the Mt. Simon Formation. Based on the well log, the PDS Well #3 has a water depth at the ground surface, whereas the local water table is located 45 feet below ground. This implies that the PDS Well #3 is a flowing or artesian well. The thick sequence of the Eau Claire Formation and the shale layer protect the PDS Well #3 from contaminants on the surface and in the sand and gravel aquifer. Monitoring well PBN-1405F is shown at the BAAP boundary and penetrates through the layer of shale. PBN-1405F was installed in 2014 by the Army to verify that contaminants have not migrated through the shale layer.

Figure 4 shows the Bluffview Well #3 on the far left penetrating the entire Eau Claire Formation and entering the Baraboo quartzite. A layer of shale is shown to underlie the western half of BAAP. Based on the available well logs, the shale layer is not present beneath the DBG Plume and near Weigand's Bay. The shale layer acts as an aquitard, which retards groundwater in the sand and gravel aquifer and the upper sandstone aquifer from moving downward into the lower sandstone aquifer. The Eau Claire Formation is shown to thin out to the east and acts as both an aquitard and an aquifer based on the thickness of the sandstone.

2.2.3 Hydrogeology

Two major aquifers (the surficial sand and gravel aquifer and the Eau Claire Formation) and one minor aquifer (the deep Mt. Simon Formation sandstone aquifer) are present beneath the BAAP. The sand and gravel aquifer and the Eau Claire are un-confined to semi-confined and possibly hydraulically connected. The Eau Claire Formation varies between 80 to 280 feet below ground surface (bgs). The Eau Claire Formation contains at least one uniform shale layer that acts as an aquitard, which retards groundwater in the sand and gravel aquifer from moving downward into the lower sandstone aquifer (Mt. Simon Formation). The Eau Claire Formation also contains many thinner layers of shale and thick sequences of dolomite that function as an aquitard. The Mt. Simon Formation is located approximately 400 feet bgs and is mostly present to the east and south of BAAP.

The general direction of groundwater flow is south-southeast, towards the Wisconsin River, as seen in **Figure 5**. **Figure 5** depicts the groundwater contours at BAAP during September 2023. The groundwater surface gradient is flatter in the northern portion of the BAAP. In the central and southern portions of the BAAP, the gradient steepens towards the Lake Wisconsin reservoir and Wisconsin River. The Wisconsin River acts as a discharge point for groundwater east and south of BAAP. The Lake Wisconsin reservoir, caused by the hydroelectric dam on the Wisconsin River, influences groundwater flow across the BAAP. Lake Wisconsin is north of the dam where there is an approximate 40-foot surface water drop. The water level in Lake Wisconsin is elevated above the water table for much of the southeastern portion of the BAAP. Anywhere the elevation in Lake Wisconsin is higher than the water table, the water in Lake Wisconsin will discharge to the groundwater. Subsequently, Lake Wisconsin discharges to the groundwater in the Gruber's Grove Bay area and continues to discharge to the groundwater until it reaches the WP&L Dam. The net result is groundwater flow parallel to Lake Wisconsin with discharge to the Wisconsin River south of the dam. Groundwater in the northeast portion of the BAAP is higher in elevation than Lake Wisconsin; therefore, the groundwater discharges to Lake Wisconsin in this area.

2.3 License Areas

Groundwater analytical data for BAAP is organized into separate solid waste management units, as licensed by the WDNR. Monitoring wells associated with the PBG Plume are included in license areas 2814, 3485, 3493, or 3499. Monitoring wells associated with the DBG Plume are included in license areas 2813, 3037, or 3038. Monitoring wells associated with the Central Plume are included in license areas 3038, 3118, 3487, 3646, or 4330. Monitoring wells associated with the NC Area Plume are included in license area 3487. License area 3497 is specific to all residential wells associated with the four groundwater plumes.

2.4 Well Identification and Designation

All sampled monitoring wells and residential wells are given a unique three-digit numeric well ID, i.e. 360. This well ID is used to track the well data in the project groundwater databases as well as the WDNR's on-line accessible Groundwater and Environmental Monitoring System (GEMS) database.

In general, groundwater monitoring wells are identified by a three-part alphanumeric code, i.e. PBN-1404B. The first two letters of the well identification are determined by the source area or waste management unit, i.e. BG, DB, EL, NL, NP, RI, PB, SE, and SP. The exception to this is the “S” series wells installed in the 1980s. The third letter determines if the well is part of a well nest “N” or a stand-alone water table monitoring well “M”. The next two numbers determine what year the well was installed, i.e. 2010 = 10 or 2015 = 15. The last two numbers indicate the order that well was installed during that year, i.e. 05 is the fifth well installed that year for that source area. The last letter determines the vertical positioning of the well screen. Wells labeled “A” are screened at or near the water table surface. Wells labeled “B” are screened below the water table, approximately one-third of the depth between the water table and bedrock. Wells labeled “C” are screened below the water table, approximately two-thirds of the depth between the water table and bedrock. Wells labeled “D” are screened below the water table and just above the top of the bedrock. Wells labeled “E” are screened below the water table and below the top of the bedrock. Wells labeled “F” are screened below the confining layer of bedrock (shale) in a lower bedrock aquifer. The static groundwater level in an “F” well is higher than the water table and indicates an artesian condition. There are exceptions to the well depth labeling as some monitoring wells installed during the 1980s were drilled shallower than the one-third or two-thirds distance between the water table and bedrock.

3.0 GROUNDWATER PLUMES

Four defined groundwater plumes exist at BAAP: the Propellant Burning Ground Plume (PBG), the Deterrent Burning Ground Plume (DBG), the Central Plume, and the Nitrocellulose Plume (NC). Each plume is described below.

3.1 Propellant Burning Ground Plume

3.1.1 Background

The PBG is in the southwestern portion of BAAP. The PBG source areas are comprised of the following areas: PBG Waste Pits, 1949 Pit, Racetrack Area, and Landfill #1 (**Figure 1**). The PBG Plume is approximately 3½ miles long and ½ mile wide and extends south beyond the BAAP boundary. South of BAAP, the plume turns southeast towards the Wisconsin River due to the influence of the WP&L dam. The Army has collected groundwater samples within and surrounding the PBG Plume from 1982 to present, characterizing the nature and extent of groundwater contamination. Groundwater contamination resides mainly in the surficial sand and gravel aquifer.

The PBG area has been identified as a source area of groundwater contamination for the PBG Plume. During production periods, the PBG Waste Pits, 1949 Pit, and the Racetrack Area were used for disposal of waste and excess production chemicals, primarily solvents (benzene, carbon tetrachloride (CTET), and trichloroethene (TCE)), and explosives (dinitrotoluene (DNT)). Excess chemicals and munitions components were placed in open pits and burned to dispose of them. Ash, asphalt, concrete, slag, wood, and other metallic and nonmetallic wastes were disposed of in Landfill #1.

The Army's preferred remedial alternative identified in the *Proposed Plan for Site-wide Groundwater Former Badger Army Ammunition Plant Baraboo, Wisconsin* (SPS, 2024) is Active Groundwater Remediation through Anaerobic Bioremediation, which will target impacted groundwater with elevated DNT concentrations. Groundwater remediation efforts will be inclusive of all six DNT isomers (total DNT). The Anaerobic Bioremediation will include in-situ bioremediation (biochemical) treatment. Permanent and temporary vertical injection wells will be used to administer the biochemical product into the contaminant plume. The vertical injection locations would be located both on-site and off-site. The in-situ treatment of DNT in the PBG Plume will positively affect groundwater by reducing the potential for DNT impacted groundwater to migrate downgradient towards residential properties. Groundwater monitoring will verify contaminant level reduction and provide protection to residential drinking water supplies. If needed, the remedial action will also include a provision for an alternate water supply condition including bottled water or well replacement.

3.1.2 Remediation Efforts

Multiple remediation efforts have been conducted at the PBG since 1990. A summary of each remediation effort is provided below.

3.1.2.1 Soil Removal

In 1997, contaminated soil from the uncovered portion of the Racetrack Area was excavated and transported off-site for disposal. In 1999, contaminated soil was excavated from the three Waste Pits down to 23 feet deep. The soil was transported off-site and incinerated by a licensed hazardous waste contractor. The PBG Waste Pits were filled with clean soil.

3.1.2.2 Soil Vapor Extraction

A soil vapor extraction (SVE) system operated at the three PBG Waste Pits from 1997 to 1999. Approximately 1,600 pounds of solvent-related volatile organic compounds (VOCs) were successfully removed from within the unsaturated soil above the water table (vadose zone). The SVE system was shut down after achieving satisfactory removal of VOCs from the waste pits.

3.1.2.3 Cap and Cover

Multiple PBG source areas have either been capped or covered to inhibit the infiltration of rainwater into the subsurface. In 1995, three-fourths of the Racetrack/HWTTU area was closed with a soil cover. In 1997, a clay and geomembrane barrier cap was installed over Landfill #1. In 1998, a clay and geomembrane barrier cap was installed above the 1949 Pit. In 2008, a clay and geomembrane barrier cap was installed above the PBG Waste Pits and tied into the adjacent 1949 Pit cap.

3.1.2.4 BEST System

The Biologically Enhanced Subsurface Treatment (BEST) system was installed in 2000 to reduce the soil and groundwater contaminants beneath the PBG Waste Pits. The BEST system extracted contaminated groundwater from beneath the PBG Waste Pits then added phosphate before injecting the groundwater into the unsaturated soil above the water table. Air injection wells were also utilized to promote bacterial degradation. Monitoring results indicated the indigenous bacteria were aerobically biodegrading DNT in the unsaturated soil. The BEST system operated from 2001 to 2005. Evaluation of the BEST system indicated effective DNT reduction in soil and groundwater occurred during the operation of the system.

3.1.2.5 IRM and MIRM

The Interim Remedial Measures (IRM) groundwater pump and treat system operated between 1990 and 2012. The IRM originally consisted of one extraction well (adjacent to PBG Waste Pits) and three boundary control wells located ¾ mile south of the PBG Waste Pits. From 1998 and 2012, there were two extraction wells pumping groundwater adjacent to the PBG Waste Pits and the boundary control wells were not used. Groundwater was pumped from extraction wells in the sand and gravel aquifer, conveyed through underground pipes to a treatment building, and then treated with granular activated carbon and air stripping. The treated groundwater was pumped through underground piping and then discharged to Lake Wisconsin/Wisconsin River. In 2012, the WDNR authorized shut down of the IRM due to diminishing returns in groundwater contaminant removal and that further operation would not be cost-effective. In 2014, the IRM extraction wells were abandoned and the IRM treatment building demolished.

During 1995 and 1996, the Army installed a second groundwater pump and treat system named the Modified Interim Remedial Measures (MIRM). The MIRM consisted of up to six extraction wells pumping groundwater throughout the on-site portion of the PBG Plume. Groundwater was pumped from extraction wells in the sand and gravel aquifer, conveyed through underground pipes to a treatment building, and then treated with air strippers and then granular activated carbon. The treated groundwater was pumped through underground piping and then discharged to Lake Wisconsin/Wisconsin River. The MIRM operated between 1996 and 2015. In 2015, the WDNR authorized shut down of the MIRM citing diminishing returns in groundwater contaminant removal and that further operation would not be cost-effective. In 2016, the MIRM extraction wells were abandoned and the groundwater treatment equipment removed from the MIRM building.

3.1.3 Contaminants of Concern

As part of the development of the *Proposed Plan for Site-Wide Groundwater Former Badger Army Ammunition Plant Baraboo, Wisconsin*, risk-based contaminants of concern (COCs) were identified for the PBG Plume. Based on groundwater data from 2019 to 2023, the COCs identified were benzene, CTET, chloroform, ethyl ether, total DNT, 2,4-DNT, 2,6-DNT, and TCE. All these contaminants, except chloroform, were shown to have concentrations above the NR 140 ES within the PBG Plume between 2019 and 2023. The COCs, their risk categories, and groundwater cleanup levels are shown in the following table.

Table 1
Groundwater COCs & Cleanup Levels
PBG Plume

COC (1)	Cancer Risk	Non-Cancer Risk	Groundwater Cleanup Level (2)
Benzene	none	X	5
Carbon Tetrachloride	X	none	5
Chloroform	X	none	6
Ethyl Ether	none	X	1,000
Total Dinitrotoluene	X	X	0.05
2,4-Dinitrotoluene	X	X	0.05
2,6-Dinitrotoluene	X	X	0.05
Trichloroethene	X	X	5

Notes:
(1) COC (Contaminant of Concern)
(2) The Groundwater Cleanup Level is the NR 140 Enforcement Standard (ES)
Based on analytical lab results from residential and groundwater monitoring well samples from 2019, 2020, 2021, 2022, and 2023.
All concentration values are expressed in micrograms-per-liter (µg/l)

The PBG Plume shown in **Figure 6** represents the area where the groundwater COCs have been identified above the NR 140 ES or PAL during 2023 and 2024. Historically, CTET, ethyl ether (diethyl ether), and TCE have defined the boundaries of VOC contamination. These three VOCs help monitor VOCs migrating from the PBG. All six DNT isomers (2,3-DNT, 2,4-DNT, 2,5-DNT, 2,6-DNT, 3,4-DNT, and 3,5-DNT) have been detected in the PBG Plume, mostly near the PBG sources. Total DNT concentrations help monitor DNT migrating from the PBG. The isoconcentration maps and the isoconcentration cross sections were prepared using all groundwater data collected during 2023 and supplemented with an additional 107 monitoring wells sampled in 2020. The additional 107 monitoring wells sampled in the PBG area were not part of the WDNR required sampling program in 2023. The additional 2020 groundwater data was to supplement the 2023 data and fill in gaps to generate the isoconcentration boundaries.

3.1.3.1 Carbon Tetrachloride

Figure 7 is a 2023 isoconcentration map for CTET in the PBG Plume. The green shaded areas indicate where CTET was detected above the NR 140 PAL (0.5 µg/l). The blue shaded areas indicate where CTET was detected above the NR 140 ES (5 µg/l). These same color designations are also used in each CTET isoconcentration cross section. **Figure 8** shows the orientation of the CTET isoconcentration cross sections, which are illustrated in **Figures 9, 10, 11, and 12**. The extent of CTET contamination shown on **Figure 7** covers the largest area compared to ethyl ether, total DNT, or TCE. CTET concentrations near the PBG sources are lower than areas farther south (downgradient). The highest concentration of CTET, detected in 2023, was in monitoring well PBN-9101C located off-site and near the Wisconsin River.

Figure 9 (A-A') illustrates the estimated vertical extent of CTET, along the centerline of the PBG Plume, from the PBG (north) towards the Wisconsin River (south). CTET concentrations beneath the PBG source areas are much lower (below the NR 140 ES) than what is found downgradient of the PBG. The CTET concentrations are highest south of the BAAP boundary and in wells screened approximately 65 to 120 feet below the water table. The CTET plume extends north to south from the PBG to the Wisconsin River with an average thickness of 90 feet beneath BAAP and 150 feet south of BAAP. The maximum depth of CTET is 150 feet below the water table at monitoring well PBM-9001D, which is screened in the gravel and sand just above the sandstone. Based on **Figure 9**, CTET has potentially entered the upper portion of the bedrock aquifer near PBM-9001D. As shown in **Figure 9**, there is a dolomite/shale layer beneath the contamination plume that retards groundwater contamination from migrating into the lower Mt. Simon Formation (sandstone).

Figure 10 (B-B') illustrates the width and depth of the CTET plume approximately 2,000 feet south of the PBG. **Figure 11** (C-C') illustrates the width and depth of the CTET plume approximately 6,600 feet south of the PBG and at the BAAP boundary. **Figure 12** (D-D') illustrates the width and depth of the CTET plume, but off-site and approximately 12,000 feet south of the PBG. The CTET plume in **Figure 10** is estimated to be approximately 3,200 feet wide and a maximum depth of 135 feet below the water table at PBN-9301C. The CTET plume in **Figure 11** is estimated to be approximately 3,000 feet wide and a maximum depth of 150 feet below the water table and below PBN-1302C. The CTET plume in **Figure 12** is estimated to be

approximately 2,500 feet wide and a maximum depth of 130 feet below the water table at monitoring well SWN-9103D.

3.1.3.2 Ethyl Ether

Figure 13 is a 2023 isoconcentration map for ethyl ether in the PBG Plume. The green shaded areas indicate where ethyl ether was detected above the NR 140 PAL (100 µg/l). The blue shaded areas indicate where ethyl ether was detected above the NR 140 ES (1,000 µg/l). These same color designations are also used in each ethyl ether isoconcentration cross section. **Figure 8** shows the orientation of the ethyl ether isoconcentration cross sections, which are illustrated in **Figures 14, 15, 16, and 17**. The extent of ethyl ether contamination shown on **Figure 13** is a narrow plume extending from the BAAP boundary to one mile off-site. Ethyl ether is not detected in monitoring wells located near the PBG sources. The highest concentration of ethyl ether, detected in 2023, was in monitoring well SWN-9103D located one mile south of the BAAP boundary.

Figure 14 (A-A') illustrates the estimated vertical extent of ethyl ether, along the centerline of the PBG Plume, from the PBG (north) towards the Wisconsin River (south). The ethyl ether concentrations are highest at the BAAP boundary and in wells screened approximately 170 feet below the water table and just above the bedrock surface. The ethyl ether plume is approximately 60 feet thick beneath BAAP. The maximum depth (on-site) of ethyl ether is 190 feet below the water table and below PBN-9304D, which is screened just above the top of the bedrock. Ethyl ether was not detected in PBN-1405F, which was constructed 110 feet beneath PBN-9304D and below the dolomite/shale layer. During 2023, ethyl ether was detected above the NR 140 ES in SWN-9103D (located one mile south of the BAAP boundary). The ethyl ether concentration in SWN-9103D has been increasing since it was first detected in 2021. The maximum depth (off-site) of ethyl ether is 160 feet below the water table at monitoring well SWN-9103D, which is screened in the gravel and sand just above the sandstone. Based on **Figure 14**, ethyl ether has likely entered the upper portion of the bedrock aquifer between PBN-9304D and SWN-9103D. As shown in **Figure 14**, there is a dolomite/shale layer (Eau Claire Formation) beneath the contamination plume that retards groundwater contamination from migrating into the lower Mt. Simon Formation (sandstone).

Figure 15 (B-B') illustrates the width and depth of the ethyl ether plume approximately 2,000 feet south of the PBG. **Figure 16** (C-C') illustrates the width and depth of the ethyl ether plume approximately 6,600 feet south of the PBG and at the BAAP boundary. **Figure 17** (D-D') illustrates the width and depth of the ethyl ether plume, but off-site and approximately 12,000 feet south of the PBG. There is no ethyl ether plume shown in **Figure 15** because there were no detections above 100 µg/l. The ethyl ether plume in **Figure 16** is estimated to be approximately 700 feet wide and a maximum depth of 190 feet below the water table and below PBN-9304D. The ethyl ether plume in **Figure 17** is estimated to be approximately 750 feet wide and a maximum depth of 160 feet below the water table and below SWN-9103D.

The following residential wells are shown on either **Figure 13** (A-A') or **Figure 17** (D-D'): E11575, E11520, S9059A, S9079 and S9294. Since 2018, the highest ethyl ether concentration in these five wells was only 4.6 µg/l in S9079.

3.1.3.3 Trichloroethene

Figure 18 is a 2023 isoconcentration map for TCE in the PBG Plume. The green shaded areas indicate where TCE was detected above the NR 140 PAL (0.5 µg/l). This color designation is also used in each TCE isoconcentration cross section. **Figure 8** shows the orientation of the TCE isoconcentration cross sections, which are illustrated in **Figures 19, 20, 21, and 22**. The extent of TCE contamination shown on **Figure 18** is narrow but still extends from the PBG sources down to the Wisconsin River. TCE concentrations near the PBG sources are much lower than areas farther south (downgradient). The highest concentration of TCE, detected in 2023, was in monitoring well PBM-9001D located off-site and near the Wisconsin River. No TCE concentrations were detected above the NR 140 ES during 2021, 2022 or 2023. TCE was last detected above the NR 140 ES in 2020 (PBN-9101C).

Figure 19 (A-A') illustrates the estimated vertical extent of TCE, along the centerline of the PBG Plume, from the PBG (north) towards the Wisconsin River (south). The TCE concentrations are highest downgradient of the BAAP boundary and in wells screened approximately 50 to 110 feet below the water table. The TCE plume has an average thickness of 100 feet. The maximum depth of TCE is 150 feet below the water table at monitoring well PBM-9001D, which is screened in the gravel and sand just above the sandstone. Based on **Figure 19**, TCE has likely entered the upper portion of the bedrock aquifer near PBM-9001D.

Figure 20 (B-B') illustrates the width and depth of the TCE plume approximately 2,000 feet south of the PBG. **Figure 21** (C-C') illustrates the width and depth of the TCE plume approximately 6,600 feet south of the PBG and at the BAAP boundary. **Figure 22** (D-D') illustrates the width and depth of the TCE plume, but off-site and approximately 12,000 feet south of the PBG. The TCE plume in **Figure 20** is estimated to be approximately 1,400 feet wide and a maximum depth of 90 feet below the water table at PBN-8902C. The TCE plume in **Figure 21** is estimated to be approximately 1,100 feet wide and a maximum depth of 90 feet below the water table and below PBN-9304C. There is no TCE plume shown in **Figure 22** because there were no detections above 0.5 µg/l.

3.1.3.4 Dinitrotoluene

Figure 23 is a 2023 isoconcentration map for total DNT in the PBG Plume. The total DNT isoconcentrations shown on **Figure 23** are broken into three-color designations. The green shaded areas indicate where total DNT is above the NR 140 PAL (0.005 µg/l). The blue shaded areas indicate where total DNT is above the NR 140 ES (0.05 µg/l) but below 1.0 µg/l. The red shaded area displays where total DNT is above 1.0 µg/l. These same color designations are also used in each total DNT isoconcentration cross section. **Figure 8** shows the orientation of the total DNT isoconcentration cross sections, which are illustrated in **Figures 24, 25, 26, 27, and 28**. The extent of total DNT contamination shown on **Figure 23** is broken into three separate areas, near the PBG, by the BAAP boundary, and near the Wisconsin River. The separation of the total DNT plume boundaries may be related to the extensive groundwater pumping conducted by the Army from 1990 to 2015. The area closest to the PBG sources contains the highest concentrations of total DNT. The highest concentration of total DNT, detected during 2023, was in monitoring well PBN-8202C located immediately downgradient of the PBG Waste Pits.

Figure 24 (A-A') illustrates the estimated vertical extent of total DNT, along the centerline of the PBG Plume, from the PBG (north) towards the Wisconsin River (south). The total DNT concentrations beneath the PBG Waste Pits (source area) are higher than what is found downgradient. The total DNT concentrations are much lower south of the BAAP boundary than what is found on BAAP. The total DNT concentrations are highest in wells screened approximately 0 to 30 feet below the water table at the source area. The total DNT plume has an average thickness of 100 feet. The maximum depth of total DNT is approximately 60 feet above the top of the bedrock indicating that DNT has not entered the bedrock aquifer.

Figure 25 (A1-A1') illustrates the estimated vertical extent of total DNT beneath the capped PBG Waste Pits to the southeast corner of the Racetrack Area at PBN-1402A, B, C. The total DNT concentrations are highest in the shallow wells located beneath the PBG Waste Pits. The highest concentrations of total DNT are shown in well nest PBN-8202A, B, C, which is downgradient of waste pit 2 (WP-2). The vertical depth of the total DNT plume beneath the PBG Waste Pits can only be estimated as there are no deeper monitoring wells. Monitoring well PBN-8910D is the deepest well near the PBG Waste Pits. PBN-8910D is located 390 feet south of the PBN-8202A,B,C well nest. For the past 12 years, DNT has not been detected in PBN-8910D.

Figure 26 (B-B') illustrates the width and depth of the total DNT plume approximately 2,000 feet south of the PBG. **Figure 27** (C-C') illustrates the width and depth of the total DNT plume approximately 6,600 feet south of the PBG and at the BAAP boundary. **Figure 28** (D-D') illustrates the width and depth of the total DNT plume, but off-site and approximately 12,000 feet south of the PBG. The total DNT plume in **Figure 26** is estimated to be approximately 1,800 feet wide and a maximum depth of 100 feet below the water table at PBN-8902C. The total DNT plume in **Figure 27** is broken into two separate areas surrounding PBN-9304B and SPN-8904B,C (west side) and PBN-1303C (east side). There is no total DNT plume shown in **Figure 28** because there were no detections above 0.005 µg/l.

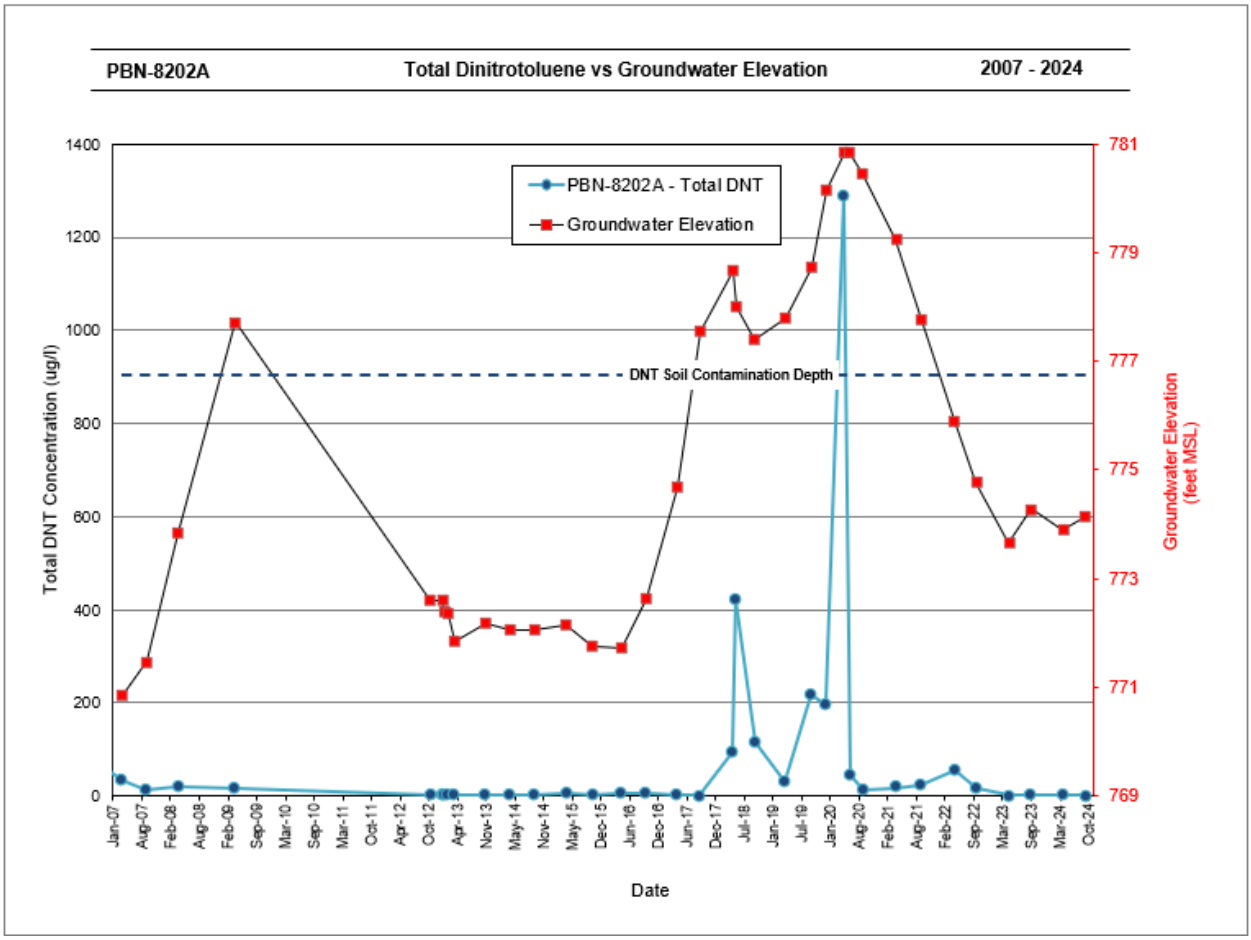
3.1.4 Concentration Graphs

To evaluate contaminant trend data for the PBG Plume, concentration over time graphs were prepared for select monitoring wells within the plume. Graphs showing PBG Plume contaminant concentration over time are presented in **Appendix A**. The primary COCs used for trend analysis were CTET, chloroform, ethyl ether, TCE, and total DNT. In the source area, data from eight monitoring wells were graphed. Graphs were prepared for 29 on-site monitoring wells located downgradient of the PBG. Graphs were prepared for 28 off-site monitoring wells located downgradient of the PBG. A list of the monitoring wells and COCs graphed is provided in **Appendix A**.

The source area wells PBM-0002, PBM-0008, and PBN-8202A show a large decrease in DNT concentrations after 2002. These sharp decreases are related to the operation of the BEST system from 2001 to 2005. During December 2012, the IRM ceased groundwater pumping directly downgradient of the PBG Waste Pits and PBM-0002. Between 2012 to 2017, the total DNT concentrations in the source area wells stabilized between 1 to 5 µg/l. During April 2018, a noticeable increase in total DNT concentration was identified in PBN-8202A. PBN-8202A is located directly south and downgradient of the PBG Waste Pits (**Figure 6**). The total DNT concentration in PBN-8202A increased from 1.469 µg/l during September 2017 to 94.65 µg/l

during April 2018 to 420.294 µg/l during May 2018 to 116.42 µg/l during September 2018. The total DNT concentration in PBN-8202A reached a high of 1,286.9 µg/l during April 2020.

Between 2016 and April 2020, the groundwater table near the PBG Waste Pits rose nine feet. Below is a graph depicting both the total DNT concentration and groundwater elevation in PBN-8202A from 2007 to 2024. The graph shows a peak in groundwater elevation in 2018 along with a sharp increase of total DNT in PBN-8202A. During 2018, the groundwater elevation in PBN-8202A ranged from 777.4 to 778.5 feet MSL. The graph displays the approximate DNT soil contamination depth (776.80 feet MSL) in relation to the groundwater elevation.



Additional information about the DNT soil contamination beneath the PBG Waste Pits is provided in the *RI/FS for Site-Wide Groundwater at the Former Badger Army Ammunition Plant (June 2021).* The graph displays the groundwater beneath the PBG Waste Pits was above the DNT contaminated soil from September 2017 to September 2021. The increase in total DNT concentrations in PBN-8202A appears to be related to the rise in groundwater encountering contaminated soil beneath the PBG cap. Since 2020, the groundwater table at the PBG source area has dropped seven feet and below the estimated depth of DNT contaminated soil. As the groundwater elevation in PBN-8202A dropped so did the total DNT concentration. The total DNT concentration in PBN-8202A dropped to 1.967 µg/l during April 2024.

The DNT concentrations in the monitoring wells further downgradient of the PBG source areas show either stable or decreasing trends.

The VOC compounds of CTET, chloroform, and TCE have been declining near the source areas since the 1980's. The VOC compounds have declined to levels at or below the NR 140 PAL. Downgradient of the PBG source areas and on-site, the VOC compounds of CTET, chloroform, and TCE show decreasing trends in both the shallow and deep wells. One exception is that chloroform in PBN-8502A had a peak during 2015 but then declined between 2016 and 2024.

Monitoring wells PBN-1302A, B, C, D, PBN-1303A, B, C, D and PBN-1304A, B, C, D are located on the eastern side of the PBG Plume and near the BAAP boundary (**Figure 6**). The CTET concentrations in PBN-1302A & B have been increasing since 2014 but remain below the NR 140 ES of 5 µg/l. The CTET concentration in PBN-1302C has decreased from above the NR 140 ES in 2014 to 2.4 µg/l in 2024. The CTET concentrations in PBN-1303A, B & C have been slowly increasing since 2016 but remain below the NR 140 ES. The CTET concentrations in PBN-1304A, B, & C have been slowly increasing to just above the NR 140 PAL of 0.5 µg/l.

The ethyl ether concentration in PBN-1001C was 4,610 µg/l during October 2010 (first time sampled). The NR 140 ES for ethyl ether is 1,000 µg/l. The ethyl ether concentration dropped over the next eight years in PBN-1001C to no detection by 2018. Since 2018, ethyl ether has not been detected in PBN-1001C. The ethyl ether concentration in PBN-9304D was 7,690 µg/l during October 2013 (first time sampled for ethyl ether). The ethyl ether concentration dropped over the next eight years in PBN-9304D to below the NR 140 PAL (100 µg/l). Since 2021, the ethyl ether concentration in PBN-9304D has ranged from no detection to 65 µg/l.

As the PBG Plume extends off-site, the VOC compounds of CTET, chloroform, and TCE show either stable or decreasing trends in both the shallow and deep wells. There are several monitoring wells that have seen peaks followed by decreases.

- The CTET concentration in SWN-9103C had a sharp peak during 2010 (90.1 µg/l) followed by a sharp decrease below 5 µg/l by 2014. The CTET concentration in PBN-9101C had a peak during 2012 (44.8 µg/l) and has decreased to 13 µg/l during 2023. The CTET concentration in PBM-9001D had a peak (above 25 µg/l) during 2011 and has decreased to 9 µg/l during 2023. The CTET concentration in SWN-9104C has been increasing since 2013, reaching 4.7 µg/l during 2023. The CTET concentration in SWN-9104D has been increasing since 2010, reaching 5.1 µg/l during 2023. Since 2015, the CTET concentrations in SWN-9105B, C & D have been slowly increasing towards the NR 140 PAL.
- The chloroform concentration in SWN-9103C had a peak during 2007 (above 6 µg/l) followed by a decrease to below 0.5 µg/l during 2018. The chloroform concentration in SWN-9105C had a peak during 2010 (above 2.5 µg/l) followed by a decrease (below 0.6 µg/l) during 2020. The chloroform concentration in PBN-9101C had a peak during 2012 (above 6 µg/l) followed by a decrease (below 1 µg/l) during 2023. The chloroform concentration in PBM-9001D had a peak (above 3 µg/l) during 2011 followed by a decrease (below 0.6 µg/l) during 2024.
- The TCE concentration in SWN-9103B had a peak during 2000 (above 7 µg/l) followed by a steady decrease to below 0.5 µg/l by 2014. The TCE concentration in SWN-9103D had a

peak during 2014 (near 5 µg/l) followed by a decrease to below 0.5 µg/l by 2018. The TCE concentration in PBN-9101C had a peak during 2011 (above 14 µg/l) followed by a sharp decrease to 2017. Between 2017 and 2019, the TCE concentration in PBN-9101C increased from 6.5 to 15 µg/l. Since 2019, the TCE concentration in PBN-9101C decreased to 3.9 µg/l during 2024. The TCE concentration in PBM-9001D had a peak during 2011 (above 5 µg/l) followed by a decrease till 2015 and then another peak during 2018 (above 8 µg/l). Since 2018, the TCE concentration in PBM-9001D has decreased from 8.6 to 1.8 µg/l.

- The ethyl ether concentration in PBN-9903D had a peak during 2014 (above 3,500 µg/l) but decreased during 2015 and then remained between 440 and 1,200 µg/l till 2021. PBN-9903D was not sampled 2022 or 2023. In April 2024 the ethyl ether concentration PBN-9903D dropped to 0.73 µg/l. Ethyl ether is detected in the off-site monitoring wells located south (downgradient) of PBN-9903D. In 2021, ethyl ether was first detected in SWN-9103D. SWN-9103D is located approximately one mile south of PBN-9903D. In September 2022, the ethyl ether concentration was 130 µg/l in SWN-9103D. The ethyl ether concentration in SWN-9103D has continued to increase to 2,000 µg/l during April 2024. The ethyl ether concentration in SWN-9103E has slowly increased to 26 µg/l during April 2024.
- The DNT concentrations in the off-site monitoring wells have been stable or decreasing. One exception is that PBN-9903C had total DNT concentrations fluctuating near the NR 140 ES (0.05 µg/l) between 2013 and 2021. Another exception is that PBN-9101C had total DNT concentrations consistently above the NR 140 ES between 2011 and 2022.

3.2 Deterrent Burning Ground Plume

3.2.1 Background

The seven-acre DBG area is in the northeastern portion of BAAP (**Figure 1**). The DBG Plume is approximately 1½ miles long and 800 feet wide and extends southeast beyond the BAAP boundary. Outside of BAAP, the plume continues southeast towards Weigand's Bay (connected to the Wisconsin River). The Army used the DBG area as a waste disposal site from the 1940s to 1970s. The east side of the DBG consisted of three burn pits and metal tanks within a former sand borrow pit. Open burning of deterrent caused soil and groundwater contamination. Deterrent is a liquid organic extract from surplus propellant, composed mostly of DNT and di-n-butyl phthalate, as well as minor amounts of diphenylamine, benzene, and NC. Coal ash from the power plant, construction rubble, trash, and burned garbage were deposited in Landfill #3, located on the west side of the DBG. Landfill #5 is located to the northeast of the DBG. Landfill #5 reportedly received solid waste, including office waste, demolition debris, laboratory waste, and coal ash from the power plant. Records indicate that no hazardous materials were disposed of in Landfill #5.

The sources of groundwater contamination are the former burn pits at the DBG and Landfill #3. All six DNT isomers (2,3-DNT, 2,4-DNT, 2,5-DNT, 2,6-DNT, 3,4-DNT, and 3,5-DNT) have been detected in the DBG Plume. Groundwater contamination remains in the surficial sand and gravel aquifer and has not migrated into the bedrock.

The Army's preferred remedial alternative identified in the *Proposed Plan for Site-wide Groundwater Former Badger Army Ammunition Plant Baraboo, Wisconsin* (SPS, 2024) is Active Groundwater Remediation through Anaerobic Bioremediation, which will target impacted groundwater with elevated DNT concentrations. Groundwater remediation efforts will be inclusive of all six DNT isomers (total DNT). The Anaerobic Bioremediation will include in-situ bioremediation (biochemical) treatment. Temporary vertical injection wells will be used to administer the biochemical product into the contaminant plume. The vertical injection locations would be located both on-site and off-site. The in-situ treatment of DNT in the DBG Plume will positively affect groundwater by reducing the potential for DNT impacted groundwater to migrate downgradient towards residential properties. Groundwater monitoring will verify contaminant level reduction and provide protection to residential drinking water supplies.

3.2.2 Remediation Efforts

Multiple remediation efforts have been conducted at the DBG since 1988. A summary of each remediation effort is provided below.

3.2.2.1 Soil Removal

An interim corrective action consisting of the removal and off-site incineration of DBG waste pit soil occurred in 1999 and 2000. Impacted soil from the three waste pits was excavated to a depth of approximately 15 feet. The total volume of the excavated and incinerated soil was approximately 4,260 cubic yards. Each pit was backfilled with clean fill to pre-excavation grades. This removed the surface soil contaminated with the highest DNT levels.

3.2.2.3 Cap and Cover

In 1988, Landfill #5 was closed with a clay cap. A portion of the DBG Waste Pits were capped in 2001 with an interim geomembrane cap, which facilitated additional soil and groundwater studies to better understand site conditions. In 2003, a permanent geosynthetic clay and geomembrane barrier cap was installed over the DBG Waste Pits and Landfill #3.

3.2.2.3 Enhanced Biodegradation System

The Enhanced Biodegradation System (EBS) was installed beneath the DBG cap in the area of the three DBG Waste Pits. The EBS operated from 2003 until 2008. The EBS was designed to enhance naturally occurring biodegradation of DNT in subsurface soil by maintaining soil moisture, nutrients and soil gas oxygen beneath the cap. Water and nutrients were introduced into the soil column through a network of piping. The water infiltration rate was kept below the average annual percolation rate. The Army suspended all operation and monitoring associated with the EBS following the infiltration event in June 2008. This decision was based on the lack of a water resource sufficient to provide the volume needed for continued treatment, problems with the soil moisture and respirometry monitoring equipment, and a lack of consistent evidence to show that the EBS was effectively enhancing degradation beyond what was occurring naturally.

3.2.3 Contaminants of Concern

As part of the development of the *Proposed Plan for Site-wide Groundwater Former Badger Army Ammunition Plant Baraboo, Wisconsin*, risk-based COCs were identified for the DBG Plume. Based on groundwater data from 2019 to 2023, the COCs identified were chloroform, total DNT, and 1,1,2-TCA. Of these contaminants. Only total DNT was shown to have concentrations above the NR 140 ES within the DBG Plume between 2019 and 2023. The COCs, their risk categories, and groundwater cleanup levels are shown in the following table.

Table 2
Groundwater COCs & Cleanup Levels
DBG Plume

COC (1)	Cancer Risk	Non-Cancer Risk	Groundwater Cleanup Level (2)
Chloroform	X	none	6
Total Dinitrotoluene	X	none	0.05
1,1,2-Trichloroethane	X	X	5

Notes:
(1) COC (Contaminant of Concern)
(2) The Groundwater Cleanup Level is the NR 140 Enforcement Standard (ES)
Based on analytical lab results from residential and groundwater monitoring well samples from 2019, 2020, 2021, 2022, and 2023.
All concentration values are expressed in micrograms-per-liter (µg/l)

The DBG Plume originates at the DBG and extends southeast beyond the BAAP boundary. East of BAAP, the plume continues southeast towards Weigand's Bay which is connected to the Wisconsin River. The DBG Plume shown in **Figure 6** represents the area where total DNT has been identified above the NR 140 ES or PAL during 2023 and 2024. Five of the six DNT isomers (2,3-DNT, 2,4-DNT, 2,6-DNT, 3,4-DNT, and 3,5-DNT) were detected in the DBG Plume during 2023. 2,3-DNT and 3,4-DNT are the most frequently detected DNT isomers in the DBG Plume. Total DNT concentrations help monitor DNT migrating from the DBG. Monitoring wells located directly downgradient of Landfill #5 have continued to indicate that Landfill #5 is not a source of DNT groundwater contamination. The isoconcentration map and the isoconcentration cross sections were prepared using all groundwater data collected during 2023.

3.2.3.1 Dinitrotoluene

Figure 29 is a 2023 isoconcentration map for total DNT in the DBG Plume. The total DNT isoconcentrations shown on **Figure 29** are broken into three-color designations. The green shaded area indicate where total DNT is above the NR 140 PAL (0.005 µg/l). The blue shaded area indicate where total DNT is above the NR 140 ES (0.05 µg/l) but below 1.0 µg/l. The red shaded area displays where total DNT is above 1.0 µg/l. These same color designations are also used in each total DNT cross section. The area closest to the DBG source contains the highest concentrations of total DNT. The highest concentration of total DNT detected during 2023 was in

DBM-8201, which is immediately downgradient of the DBG. **Figure 8** shows the orientation of the isoconcentration cross sections for the DBG. The total DNT isoconcentration cross sections are illustrated in **Figures 30 and 31**.

Figure 30 (E-E') illustrates the estimated vertical extent of total DNT, along the centerline of the DBG Plume, from the DBG (northwest) towards Weigand's Bay (southeast). The total DNT concentrations adjacent to the DBG (source area) are higher than what is found downgradient. There is no red shaded area (total DNT above 1.0 µg/l) displayed on **Figure 30** because DBM-8201 was not used to construct the cross section. During 2023, DBM-8201 was the only monitoring well with a total DNT concentration above 1.0 µg/l. The highest total DNT concentrations are found in wells screened approximately 0 to 30 feet below the water table. The total DNT plume extends northwest to southeast approximately 6,700 feet with an average thickness of 80 feet. **Figure 30** shows that the DNT plume is only present in the sand and gravel aquifer and has not migrated downward into the bedrock.

Figure 31 (F-F') illustrates the width and depth of the total DNT plume between 200 to 1,200 feet south of the DBG. The total DNT plume is estimated to be approximately 1,000 feet wide and a maximum depth of 55 feet below the water table in **Figure 31** (F-F'), which is close to the source area.

3.2.3.2 Sulfate

The horizontal distribution of sulfate is illustrated in **Figure 32**. The green shaded area displays where sulfate was detected above the NR 140 PAL [125 milligrams per liter (mg/l)]. The blue shaded area displays where sulfate was detected above the NR 140 ES (250 mg/l). Landfill #5 is the source of the sulfate. The sulfate isoconcentrations are interpreted from the April 2023 groundwater data. Annually during April, 16 monitoring wells have been sampled for sulfate. Since 2013, residential wells were no longer sampled for sulfate due to the historically low detections and the stability of the sulfate near Landfill #5. The highest concentration of sulfate detected during April 2023 was 1,200 mg/l in ELN-8203A, which is immediately downgradient of Landfill #5. The limits of the sulfate isoconcentrations are approximately 500 by 850 feet. Due to the limited extent of sulfate detections, cross sections were not prepared. Wisconsin has a "secondary" NR 140 Public Welfare Groundwater Quality Standard for sulfate. The sulfate Chapter NR 140 Groundwater Standard is based on a taste threshold and not based on risk to human health.

3.2.3.3 1,1,2-Trichloroethane

Concentrations of 1,1,2-trichloroethane (1,1,2-TCA) have historically exceeded the NR 140 PAL in monitoring wells ELN-8203A, ELN-8203B, and ELN-8203C, which are directly downgradient of Landfill #5 (**Figure 6**). The April 2023 concentrations of 1,1,2-TCA in ELN-8203A, B and C were 0.71, 1.1, and 0.47 µg/l, respectively. The NR 140 PAL and NR 140 ES for 1,1,2-TCA are 0.5 µg/l and 5 µg/l, respectively. 1,1,2-TCA is routinely detected (below the PAL) in residential well E12375A, which is located 2,600 feet southeast of ELN-8203A. Due to the limited extent of 1,1,2-TCA detections, an isoconcentration map or cross section were not prepared.

3.2.4 Concentration Graphs

To evaluate contaminant trend data for the DBG Plume, concentration over time graphs were prepared for select monitoring wells within the plume. Graphs showing DBG Plume contaminant concentration over time are presented in **Appendix A**. The primary COC in the DBG Plume is total DNT; therefore, concentrations of total DNT were evaluated for trends. In the source area, data from five monitoring wells were graphed. Graphs were prepared for 14 on-site monitoring wells located downgradient of the DBG. Graphs were prepared for 12 off-site monitoring wells located downgradient of the DBG. A list of the monitoring wells graphed is provided in **Appendix A**.

In the source area, data from wells DBM-8201, DBM-8202, and DBN-1001B, C, E were graphed. During 2003, a large rainfall event occurred during the installation of an infiltration gallery and a cap at the DBG. Both DBM-8201 and DBM-8202 had a spike of total DNT. The increase in total DNT concentrations appears to be related to the rainfall event. Since the cap was installed over the DBG, the total DNT concentrations declined. DBM-8201 shows a spike in 2004 (11.3 µg/l) followed by a decrease till another spike of total DNT in 2007 (12.696 µg/l). Since 2007, total DNT in DBM-8201 has shown an overall declining trend. Between 2021 and 2023, total DNT concentrations rose approximately 1 µg/l. Since April 2023, the total DNT concentration in DBM-8201 dropped 1.5 µg/l. DBM-8202 shows a spike in 2003 (70.9 µg/l) followed by a stable to decreasing trend. Since 2018, total DNT concentrations in DBM-8202 has remained below 1 µg/l. DBN-1001B shows a decreasing trend from 2014 till 2024 with some periods of elevated concentrations. DNT has rarely been detected in either DBN-1001C or DBN-1001E.

At the center of the DBG Plume, data from wells ELM-8901, ELM-8907, ELM-8908, and ELN-1502A, C were graphed. ELM-8901 shows a steep decreasing trend from 2009 (6.936 µg/l) to 2024 (0.5766 µg/l). ELM-8907 showed a generally stable trend followed by an increase between 2008 and 2011 (3.69 µg/l) then a steadily decreasing trend. ELM-8908 showed some variability in total DNT concentrations then noticeable increases in 2007 (5.535 µg/l) and 2013 (5.15 µg/l) followed by a decreasing trend since 2014. ELN-1502A and ELN-1502C were installed in 2015 to provide additional definition of the center of the DBG Plume near the BAAP boundary (**Figure 6**). ELN-1502A showed an increase in total DNT from 2015 to 2018 (0.801 µg/l) followed by a decreasing trend from 2019 to 2024 (0.245 µg/l).

Wells in nest ELM-9501 and ELN-0801B, C, E are located downgradient of the DBG and on the southern edge of the DBG Plume (**Figure 6**). All four wells have shown decreasing trends since 2009. During 2022, 2023, and 2024, total DNT was not detected in either ELM-9501 or ELN-0801B, C, E.

Wells in nest ELN-1001B, C, E are located downgradient of the DBG and southeast of well nest ELN-0801B, C, E (**Figure 6**). Since they were installed in 2010, all three wells have shown no detections of DNT except for one low detection in ELN-1001B (0.018 µg/l in 2016).

ELN-1503A and ELN-1503C were installed in 2015 to provide additional definition of the northern edge of the DBG Plume east of ELN-1502A, C. Between 2015 and 2021, DNT was not detected in either ELN-1503A or ELN-1503C. Between 2021 and 2024, the total DNT

concentration in ELN-1503A has ranged from 0.012 to 0.113 µg/l. Since 2022, total DNT in 1503A is trending down. Total DNT was detected once in ELN-1503C (0.052 µg/l in 2021).

Wells in nest ELN-1003A, B, C, E are located at the leading edge of the DBG Plume. Starting in 2018, ELN-1003B and ELN-1003C showed increasing trends. The total DNT concentration in ELN-1003B peaked at 0.32 µg/l in 2018. Since 2019, the total DNT concentration in ELN-1003B has been steadily declining. The total DNT concentration in ELN-1003C peaked at 0.215 µg/l in 2020. Since 2022, the total DNT concentration in ELN-1003C has been declining.

ELN-2301B and ELN-2301C were installed in 2023 to provide additional definition of the leading edge of the DBG Plume east of ELN-1003A, B, C, E (**Figure 6**). These wells are located northwest of Weigand's Bay and upgradient from many residential wells located along Weigand's Bay. During 2023 and 2024, DNT was not detected in either ELN-2301B or ELN-2301C.

Wells in nest ELN-1002A, B, C, E are located downgradient of the DBG and southeast of well nest ELN-1003A, B, C, E (**Figure 6**). These wells are located just west of Weigand's Bay and upgradient from many residential wells located along Weigand's Bay. Since they were installed in 2010, all four wells have shown no detections of DNT except for two low detections: 0.018 µg/l (2012) in ELN-1002E and 0.029 µg/l (2015) in ELN-1002B.

3.3 Central Plume

3.3.1 Background

The source of DNT contaminated groundwater in the Central Plume is in the north-central portion of BAAP (**Figure 1**). The Central Plume is approximately 3.5 miles long and extends south beyond the BAAP boundary. Outside of BAAP, the plume continues south towards Gruber's Grove Bay (connected to the Wisconsin River). The production of NG, rocket paste, and rocket propellant was conducted in this area. These production areas were not connected to the main industrial sewer network. The production related wash waters were discharged to open ditches and may have contributed to groundwater contamination.

The source of groundwater contamination for the Central Plume was the discharge of production-related water to open ditches and ponds. Groundwater contamination remains in the surficial sand and gravel aquifer and has not migrated into the bedrock.

The Army's preferred remedial alternative identified in the *Proposed Plan for Site-wide Groundwater Former Badger Army Ammunition Plant Baraboo, Wisconsin* (SPS, 2024) is Active Groundwater Remediation through Anaerobic Bioremediation, which will target impacted groundwater with elevated DNT concentrations. Groundwater remediation efforts will be inclusive of all six DNT isomers (total DNT). The Anaerobic Bioremediation will include in-situ bioremediation (biochemical) treatment. Temporary vertical injection wells will be used to administer the biochemical product into the contaminant plume. The vertical injection locations would be located both on-site and off-site. The in-situ treatment of DNT in the Central Plume will positively affect groundwater by reducing the potential for DNT impacted groundwater to migrate downgradient towards residential properties. Groundwater monitoring will verify contaminant level reduction and provide protection to residential drinking water supplies.

3.3.2 Remediation Efforts

Multiple removal efforts have been conducted at the Rocket Paste and Nitroglycerin production areas, which are associated with the Central Plume sources. Soil removal activities were conducted around production buildings and along ditches and drainage pathways leading away from the Rocket Paste and Nitroglycerin production areas. In addition, sewer removal and adjacent soil excavation was completed in these areas. All contaminated soil and sewer piping were disposed of in the on-site licensed Landfill 3646.

3.3.3 Contaminants of Concern

As part of the development of the *Proposed Plan for Site-wide Groundwater Former Badger Army Ammunition Plant Baraboo, Wisconsin*, risk-based COCs were identified for the Central Plume. Based on groundwater data from 2019 to 2023, the COCs identified were chloroform and total DNT. Of these contaminants, only total DNT was shown to have concentrations above the NR 140 ES within the Central Plume between 2019 and 2023. The COCs, their risk categories, and groundwater cleanup levels are shown in the following table.

Table 3
Groundwater COCs & Cleanup Levels
Central Plume

COC (1)	Cancer Risk	Non-Cancer Risk	Groundwater Cleanup Level (2)
Chloroform	X	none	6
Total Dinitrotoluene	X	none	0.05

Notes:
(1) COC (Contaminant of Concern)
(2) The Groundwater Cleanup Level is the NR 140 Enforcement Standard (ES)
Based on analytical lab results from residential and groundwater monitoring well samples from 2019, 2020, 2021, 2022, and 2023.
All concentration values are expressed in micrograms-per-liter (µg/l)

The Central Plume shown in **Figure 6** represents the area where total DNT has been identified above the NR 140 ES or PAL during 2023 and 2024. Four of the six DNT isomers (2,3-DNT, 2,4-DNT, 2,6-DNT, and 3,4-DNT) were detected in the Central Plume during 2023. 2,3-DNT, 2,4-DNT, 2,6-DNT, and 3,4-DNT are detected in the northern portion of the Central Plume. Only 2,4-DNT and 2,6-DNT are detected in the southern portion of the Central Plume.

Figure 33 is a 2023 isoconcentration map for total DNT in the Central Plume. The total DNT isoconcentrations shown on **Figure 33** are broken into two-color designations. The green shaded area indicate where total DNT is above the NR 140 PAL (0.005 µg/l). The blue shaded area indicate where total DNT is above the NR 140 ES (0.05 µg/l). These same color designations are also used in each total DNT cross section. The area closest to the Central Plume source contains the highest concentrations of total DNT. The highest concentration of total DNT detected during 2023 was 0.304 µg/l in NLN-1001C, which is in the northeast section of the Central Plume. The

isoconcentration map and the isoconcentration cross section were prepared using all groundwater data collected during 2023.

Figure 8 shows the orientation of the isoconcentration cross section for the Central Plume. The total DNT isoconcentration cross section is illustrated on **Figure 34** (G-G'). **Figure 34** illustrates the estimated vertical extent of total DNT, along the centerline of the Central Plume, as it migrates towards Gruber's Grove Bay. The total DNT concentrations are highest in the northern portion of the Central Plume and in wells screened within 60 feet below the water table. The vertical depth of the total DNT plume in the northern section (near RIN-2301A, B and NLN-1001A, C) can only be estimated as there are no deeper monitoring wells. The total DNT plume extends from the north to the south with an average thickness of 100 feet in the northern and southern sections. The total DNT plume is thinner, 60 feet, within the middle section. Based on two deeper monitoring wells (RIN-1501D and SEN-0503D) shown in **Figure 34**, the DNT plume has not migrated downward into the bedrock.

The WE-UK125 residential well is shown on **Figure 34** (G-G'). The WE-UK125 residential well was chosen based on its location along the cross section. The WE-UK125 residential well is screened in the bedrock aquifer, but most of the residential wells in the Water's Edge Subdivision are screened in the sand and gravel aquifer. Many of the residential wells located in the Water's Edge Subdivision are screened at the same depth (60 feet below the water table) as the DNT plume. The DNT plume encompasses a portion of the residential wells located in the Water's Edge Subdivision.

3.3.4 Concentration Graphs

To evaluate contaminant trend data for the Central Plume, concentration over time graphs were prepared for select monitoring wells within the plume. Concentration over time graphs are provided in **Appendix A**. The primary COC in the Central Plume is total DNT; therefore, concentrations of total DNT were evaluated. All 25 wells selected showed stable to decreasing trends for DNT concentrations throughout the plume.

3.4 Nitrocellulose Area Plume

3.4.1 Background

The northwest portion of BAAP is the source of DNT contaminated groundwater in the NC Area Plume (**Figure 1**). The NC Area Plume is approximately 3/4 mile long and 1/4 mile wide. The NC Area Plume does not extend beyond the BAAP boundaries. The production of smokeless gunpowder and NC occurred in this area. DNT was a component of the manufacturing process. These production areas were connected to the main production sewer network. The production-related wastewater may have leaked into the soil beneath the piping network or beneath the production buildings.

The former DNT Screen House (located in the middle of the NC Area Plume) was identified as a specific source of DNT contamination. Contaminated soil was also identified under and around the Hydro-jet Houses and in relation to sewer piping.

Based on the level of risk identified at the NC Area Plume, a no-action decision has been selected in accordance with CERCLA guidance. The Army will continue to perform groundwater monitoring to verify contaminant levels until the WDNR deems it unnecessary.

3.4.2 Remediation Efforts

During 2008, 2009, and 2010, multiple removal actions were conducted within the NC Production Area. Sewer piping, a concrete sump, and contaminated soil were removed from beneath the former DNT Screen House (located just north of monitoring well RIM-0705). Additionally, concrete slabs and contaminated soil were removed from beneath nine Hydro-jet Houses, located to the north of the DNT Screen House. Over 20 miles of process sewer piping and the adjacent soil were excavated in the NC Production Area. All contaminated soil and concrete were disposed of in the on-site licensed Landfill 3646.

3.4.3 Contaminants of Concern

As part of the development of the *Proposed Plan for Site-wide Groundwater Former Badger Army Ammunition Plant Baraboo, Wisconsin*, risk-based COCs were identified for the NC Area Plume. Based on groundwater data from 2019 to 2023, the COCs identified were total DNT, 2,4-DNT, and 2,6-DNT. All these contaminants were shown to have concentrations above the NR 140 ES within the NC Area Plume between 2019 and 2023. The COCs, their risk categories, and groundwater cleanup levels are shown in the following table.

Table 4
Groundwater COCs & Cleanup Levels
NC Area Plume

COC (1)	Cancer Risk	Non-Cancer Risk	Groundwater Cleanup Level (2)
Total Dinitrotoluene	none	none	0.05
2,4-Dinitrotoluene	none	none	0.05
2,6-Dinitrotoluene	none	none	0.05

Notes:
(1) COC (Contaminant of Concern)
(2) The Groundwater Cleanup Level is the NR 140 Enforcement Standard (ES)
Based on analytical lab results from groundwater monitoring well samples from 2019, 2020, 2021, 2022, and 2023.
All concentration values are expressed in micrograms-per-liter (µg/l)

The NC Area Plume shown in **Figure 6** represents the area where total DNT has been identified above the NR 140 ES or PAL during 2023 and 2024. Only two of the six DNT isomers (2,4-DNT and 2,6-DNT) have been detected in the NC Area Plume.

Figure 35 is a 2023 isoconcentration map for total DNT in the NC Area Plume. The total DNT isoconcentrations shown on **Figure 35** are broken into two-color designations. The green shaded areas indicate where total DNT is above the NR 140 PAL (0.005 µg/l). The blue shaded areas

indicate where total DNT is above the NR 140 ES (0.05 µg/l). These same color designations are also used in the total DNT cross section. The northern area of the NC Area Plume contains the highest concentrations of total DNT. The highest concentration of total DNT detected during 2023 was 0.066 µg/l in monitoring well RIM-0705. RIM-0705 is in the north central portion of the NC Area Plume. The isoconcentration map and the isoconcentration cross section were prepared using all groundwater data collected during 2023.

Figure 8 shows the orientation of the isoconcentration cross section for the NC Area Plume. The total DNT isoconcentration cross section is illustrated on **Figure 36** (G-G'). **Figure 36** illustrates the estimated vertical extent of total DNT, along the centerline of the NC Area Plume, as it migrates south. The total DNT concentrations are highest in wells screened at the water table. The total DNT plume extends from the north to the south with an average thickness of 30 feet. **Figure 36** indicates that DNT has not migrated vertically into the monitoring wells screened 80 feet below the water table.

3.4.4 Concentration Graphs

To evaluate contaminant trend data for the NC Area Plume, concentration over time graphs were prepared for five monitoring wells within the plume. Concentration over time graphs are provided in **Appendix A**. The primary COC in the NC Area Plume is total DNT; therefore, concentrations of total DNT were evaluated. All five wells selected, showed stable to decreasing trends for DNT concentrations throughout the plume. There are no residential wells located near the NC Area Plume.

4.0 CURRENT SAMPLING PROGRAM

The Army has been monitoring the nature and extent of groundwater contamination since the early 1980s. Based on the current understanding of the BAAP groundwater plumes, not all monitoring wells are currently being used to define the current plume areas. **Figure 6** displays all the 311 existing monitoring wells associated with the BAAP. The Army maintains all the monitoring wells shown on **Figure 6** regardless of their sampling status. The Army did retain some monitoring wells not directly associated with a groundwater plume (e.g., S1106, S1150).

A majority of the former BAAP property was transferred with groundwater access restrictions limiting residential use. Groundwater outside the BAAP property may be used for residential use, as there are no groundwater access restrictions.

The current 2024 groundwater sampling program including monitoring wells and residential wells has been conducted according to sampling plans agreed upon by the Army and WDNR. The sampling plan has been routinely modified based on requests from the WDNR. The Army has occasionally modified the sampling plan by increasing the sampling frequency of selected monitoring wells or residential wells due to plume migration. The Army has also added newly installed residential wells to the sampling plan due to their proximity to a plume.

The 2024 monitoring and residential well sampling frequencies and locations for the PBG, DBG, Central, and NC Area plumes are illustrated in **Figures 37, 38, 39 and 40**, respectively.

4.1 Monitoring Wells

The current 2024 groundwater sampling program includes 182 monitoring wells sampled at varying frequencies: 9 quarterly (four times per year), 122 semi-annual (twice per year), 44 annual (once per year), and 7 biennial (once every two years); **Figures 37, 38, 39 and 40**. **Table 5** provides the location, well construction information, and sample frequency for the 182 monitoring wells currently being sampled by the Army. **Table 6** provides the location and well construction information for the 137 monitoring wells that are not currently being sampled.

4.2 Residential Wells

A total of 65 residential wells are currently sampled at varying frequencies: 2 quarterly (four times per year) and 52 annually. **Table 7** provides the well construction information and sample frequency for the 54 residential wells currently being sampled by the Army. Since 2021, the Army has added ten residential wells to the sampling plan. These additions to the sampling plan were based on the potential risk to contaminated groundwater impacting the residential wells.

In 2021, the Army added three newly installed residential wells to the sampling plan. The Army added two new residential wells (WE-AAF735 and E12092), due to their proximity to the Central Plume. The Army added one new residential well (S8871), due to its proximity to the PBG Plume.

In 2023, the Army added five existing residential wells to the sampling plan. The Army added one residential well (E12455), due to its proximity to the DBG Plume. The Army added four residential wells (E11752A, S9093A, S9104, and S9179), due to their proximity to the PBG Plume.

In 2024, the Army added one new residential well and one existing residential well to the sampling plan. The Army added one new residential well (WE-AAU638), due to its proximity to the Central Plume. The Army added one existing residential well (E11823), due to its proximity to the PBG Plume.

Table 5
Monitoring Well Information – Current (2024) Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
NLN-8201A	252	Annual	3118	4/23/82	495,556	2,045,494	120.3	890.65	888.60	4.0	10.0	n/a	OW	Sand	A	Central
NLN-8201B	253	Annual	3118	4/22/82	495,566	2,045,487	132.5	891.28	889.00	4.0	2.0	n/a	PZ	Sand	B	Central
NLN-8201C	254	Annual	3118	4/7/82	495,552	2,045,485	142.0	890.54	888.60	4.0	2.0	n/a	PZ	Sand	C	Central
NLN-8203A	258	Annual	3118	5/5/82	494,954	2,045,545	115.5	884.12	881.80	4.0	10.0	n/a	OW	Sand	A	Central
NLN-8203B	259	Annual	3118	5/6/82	494,946	2,045,534	127.5	884.87	882.70	4.0	2.0	n/a	PZ	Sand	B	Central
NLN-8203C	260	Annual	3118	5/5/82	494,954	2,045,532	138.5	885.17	882.70	4.0	2.0	n/a	PZ	Sand	C	Central
NLN-8205B	265	Annual	3118	5/10/82	494,905	2,046,159	136.5	899.28	896.90	4.0	2.0	n/a	PZ	Sand	B	Central
NLN-8205C	266	Annual	3118	5/10/82	494,917	2,046,156	147.5	897.99	896.30	4.0	2.0	n/a	PZ	Sand	C	Central
NLN-9205AR	269	Annual	3118	11/13/92	494,913	2,046,170	132.0	897.82	895.30	4.0	15.0	n/a	OW	Sand	A	Central
NLM-1001	330	Annual	3646	4/14/10	496,509	2,044,604	106.0	880.22	878.00	4.0	15.0	n/a	OW	Sand	A	Central
NLN-1001A	331	Annual	3646	4/21/10	495,613	2,044,708	111.5	882.62	880.28	4.0	15.0	n/a	OW	Sand	A	Central
NLN-1001C	332	Annual	3646	4/19/10	495,615	2,044,701	154.5	882.52	880.36	4.0	5.0	n/a	PZ	Sand	C	Central
RIN-0701C	443	Annual	3487	10/12/07	497,385	2,041,541	180.0	863.86	860.76	2.5	5.0	n/a	PZ	Sand	C	Central
RIN-0702C	444	Annual	3487	10/16/07	494,729	2,042,699	201.0	887.98	885.81	2.5	5.0	n/a	PZ	Sand	C	Central
RIN-0703C	445	Annual	3487	10/17/07	489,062	2,044,835	207.0	857.55	854.83	2.5	5.0	n/a	PZ	Sand	C	Central
RIM-1003	491	Annual	3487	5/3/10	492,555	2,043,661	114.3	885.06	882.78	2.5	15.0	n/a	OW	Sand	A	Central
RIN-1002A	492	Annual	3487	5/4/10	492,556	2,046,082	92.2	862.81	860.46	2.5	15.0	n/a	OW	Sand	A	Central
RIN-1002C	493	Annual	3487	6/1/10	492,569	2,046,079	179.8	862.95	860.86	2.5	5.0	n/a	PZ	Sand	C	Central
RIM-1004	494	Annual	3487	5/5/10	489,552	2,044,244	70.5	836.40	833.60	2.5	15.0	n/a	OW	Sand	A	Central
RIN-1003A	495	Annual	3487	5/5/10	489,061	2,044,797	90.5	857.10	854.66	2.5	15.0	n/a	OW	Sand	A	Central
RIN-1005A	496	Annual	3487	5/17/10	489,311	2,045,864	60.5	828.61	826.74	2.5	15.0	n/a	OW	Sand	A	Central
RIN-1005C	497	Annual	3487	5/17/10	489,317	2,045,865	147.0	828.75	826.49	2.5	5.0	n/a	PZ	Sand	C	Central
RIN-1004B	498	Semi-Annual	3487	5/13/10	486,645	2,044,721	146.7	859.31	856.74	2.5	5.0	n/a	PZ	Sand	B	Central
NPM-8901	506	Annual	3487	10/25/89	497,388	2,041,526	100.0	862.92	861.50	4.0	20.0	n/a	OW	Sand	A	Central
RPM-8901	507	Annual	3487	10/16/89	494,718	2,042,698	124.3	888.62	886.20	4.0	19.5	n/a	OW	Sand	A	Central
RIN-1501B	538	Annual	3487	10/23/15	492,538	2,046,945	123.5	845.87	842.86	2.5	10.0	n/a	PZ	Sand	B	Central
RIN-1501C	539	Annual	3487	10/27/15	492,538	2,046,939	165.2	845.86	842.80	2.5	5.0	n/a	PZ	Sand	C	Central
RIN-1501D	540	Annual	3487	10/30/15	492,578	2,046,076	237.8	863.54	860.86	2.5	5.0	n/a	PZ	Sand	D	Central
RIN-1502B	541	Annual	3487	9/22/15	489,765	2,046,626	103.4	824.29	821.41	2.5	5.0	n/a	PZ	Sand	B	Central
RIN-1502C	542	Annual	3487	9/25/15	489,768	2,046,631	143.1	824.40	821.44	2.5	5.0	n/a	PZ	Sand	C	Central
RIN-1502D	543	Annual	3487	10/2/15	489,772	2,046,636	213.3	824.33	821.35	2.5	5.0	213	PZ	Sand	D	Central
RIN-2301A	549	Annual	3487	10/5/23	496,430	2,043,649	111.0	877.88	876.06	2.5	15.0	n/a	OW	Sand	A	Central
RIN-2301B	550	Annual	3487	10/4/23	496,428	2,043,640	154.6	877.81	876.03	2.5	5.0	n/a	PZ	Sand	B	Central
RIN-2302A	551	Annual	3487	10/2/23	495,322	2,040,975	107.2	879.30	877.49	2.5	15.0	n/a	OW	Sand	A	Central
SEN-0501A	580	Semi-Annual	4330	1/27/05	484,159	2,043,454	32.0	784.56	784.64	3.8	15.0	n/a	OW	Sand	A	Central
SEN-0501B	581	Semi-Annual	4330	1/27/05	484,158	2,043,458	87.0	784.71	784.87	3.8	10.0	n/a	PZ	Sand	B	Central
SEN-0501D	582	Semi-Annual	4330	1/27/05	484,156	2,043,462	190.0	784.98	785.22	3.8	10.0	194	PZ	Sand	D	Central
SEN-0502A	583	Semi-Annual	4330	1/28/05	484,107	2,044,412	33.0	786.46	786.47	3.8	15.0	n/a	OW	Sand	A	Central
SEN-0502D	584	Semi-Annual	4330	1/12/05	484,103	2,044,417	187.0	786.24	786.76	3.8	10.0	190	PZ	Sand	D	Central
SEN-0503A	585	Semi-Annual	4330	1/26/05	484,524	2,044,148	55.5	809.56	809.63	3.8	15.0	n/a	OW	Sand	A	Central
SEN-0503B	586	Semi-Annual	4330	1/25/05	484,518	2,044,150	110.0	809.17	809.39	3.8	10.0	n/a	PZ	Sand	B	Central
SEN-0503D	587	Semi-Annual	4330	1/19/05	484,514	2,044,152	213.0	809.31	809.31	3.8	10.0	214	PZ	Sand	D	Central

Table 5
Monitoring Well Information – Current (2024) Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
S1111	751	Annual	3038	1/2/80	487,414	2,044,310	99.0	848.79	846.80	4.0	20.3	n/a	OW	Sand	A	Central
ELN-8203A	210	Semi-Annual	2813	3/24/82	501,516	2,044,336	157.5	927.79	925.20	4.0	10.0	n/a	OW	Sand	A	DBG
ELN-8203B	211	Semi-Annual	2813	3/25/82	501,502	2,044,325	166.0	927.43	925.50	4.0	2.0	n/a	PZ	Sand	B	DBG
ELN-8203C	212	Semi-Annual	2813	3/24/82	501,517	2,044,323	176.0	926.93	925.30	4.0	2.0	n/a	PZ	Sand	C	DBG
ELM-8901	216	Semi-Annual	2813	1/18/89	501,113	2,043,592	165.0	922.57	920.50	4.0	19.5	n/a	OW	Sand	A	DBG
ELM-8907	220	Semi-Annual	2813	4/18/89	500,500	2,044,492	150.3	916.21	913.70	4.0	20.0	n/a	OW	Sand	A	DBG
ELM-8908	221	Semi-Annual	2813	4/1/89	500,503	2,044,033	145.0	906.05	903.00	4.0	20.0	n/a	OW	Sand	A	DBG
ELM-8909	222	Semi-Annual	2813	4/13/89	501,298	2,043,256	155.0	921.86	919.60	4.0	20.0	n/a	OW	Sand	A	DBG
ELN-8902B	224	Semi-Annual	2813	4/18/89	501,013	2,044,130	178.5	920.38	918.00	4.0	5.0	n/a	PZ	Sand	B	DBG
ELN-9107A	227	Semi-Annual	2813	11/10/91	500,568	2,045,411	126.0	897.72	895.30	3.8	10.0	n/a	OW	Sand	A	DBG
ELN-9107B	228	Semi-Annual	2813	11/9/91	500,527	2,045,437	145.0	895.96	893.90	3.8	10.0	n/a	OW	Sand	B	DBG
ELN-9402AR	231	Semi-Annual	2813	2/15/94	501,014	2,044,060	145.0	920.92	919.00	4.0	15.0	n/a	OW	Sand	A	DBG
ELM-9501	234	Semi-Annual	2813	6/27/95	498,219	2,046,902	69.0	843.28	840.70	4.0	15.0	n/a	OW	Sand	A	DBG
S1134R	236	Semi-Annual	2813	6/8/95	501,504	2,043,991	151.0	922.06	920.60	4.0	15.0	n/a	OW	Sand	A	DBG
DBM-8201	301	Semi-Annual	3037	3/23/82	500,846	2,043,148	174.7	918.76	916.70	4.0	20.0	n/a	OW	Sand	A	DBG
DBM-8202	302	Semi-Annual	3037	3/20/82	501,147	2,042,937	157.4	920.35	917.80	4.0	20.0	n/a	OW	Sand	A	DBG
DBM-8903	306	Semi-Annual	3037	2/16/89	500,499	2,043,488	133.0	898.94	896.40	4.0	20.0	n/a	OW	Sand	A	DBG
DBN-9501A	314	Semi-Annual	3037	10/24/95	500,312	2,043,686	120.0	889.10	886.70	3.8	10.0	n/a	OW	Sand	A	DBG
DBN-9501B	315	Semi-Annual	3037	10/20/95	500,315	2,043,703	172.5	889.65	887.00	3.8	10.0	n/a	PZ	Sand	B	DBG
DBN-9501C	316	Semi-Annual	3037	10/18/95	500,298	2,043,710	228.5	890.03	887.50	3.8	10.0	n/a	PZ	Sand	C	DBG
DBN-9501E	317	Semi-Annual	3037	10/10/95	500,286	2,043,697	255.5	890.17	887.90	3.8	10.3	229	PZ	Rock	E	DBG
ELN-0801B	455	Semi-Annual	2813	4/15/08	498,220	2,046,894	105.0	843.87	841.37	2.5	5.0	n/a	PZ	Sand	B	DBG
ELN-0801C	456	Semi-Annual	2813	4/15/08	498,213	2,046,896	150.5	843.82	841.42	2.5	5.0	n/a	PZ	Sand	C	DBG
ELN-0801E	457	Semi-Annual	2813	10/23/08	498,221	2,046,909	207.7	842.70	840.10	2.5	5.0	187	PZ	Rock	E	DBG
ELN-0802A	458	Biennial	2813	10/28/08	498,661	2,045,219	107.5	878.47	876.20	2.5	15.0	n/a	OW	Sand	A	DBG
ELN-0802C	459	Biennial	2813	10/30/08	498,663	2,045,211	180.8	878.58	876.10	2.5	5.0	n/a	PZ	Sand	C	DBG
ELN-1001B	460	Semi-Annual	2813	5/11/10	497,078	2,047,480	96.1	809.31	806.98	2.5	5.0	n/a	PZ	Sand	B	DBG
ELN-1001C	461	Semi-Annual	2813	5/12/10	497,094	2,047,476	160.2	809.24	806.58	2.5	5.0	n/a	PZ	Sand	C	DBG
ELN-1001E	462	Semi-Annual	2813	6/23/10	497,110	2,047,472	245.5	809.34	806.46	2.5	5.0	230	PZ	Rock	E	DBG
ELN-1002A	463	Semi-Annual	2813	6/8/10	496,066	2,049,181	70.3	835.13	832.55	2.5	15.0	n/a	OW	Sand	A	DBG
ELN-1002B	464	Semi-Annual	2813	6/9/10	496,056	2,049,188	116.2	835.15	832.39	2.5	5.0	n/a	PZ	Sand	B	DBG
ELN-1002C	465	Semi-Annual	2813	6/15/10	496,075	2,049,195	164.1	835.15	832.13	2.5	5.0	n/a	PZ	Sand	C	DBG
ELN-1002E	466	Semi-Annual	2813	6/17/10	496,063	2,049,200	236.5	834.75	831.97	2.5	5.0	219	PZ	Rock	E	DBG
ELN-1003A	467	Quarterly	2813	7/7/10	497,862	2,048,208	31.2	801.87	799.89	2.5	15.0	n/a	OW	Sand	A	DBG
ELN-1003B	468	Quarterly	2813	7/6/10	497,867	2,048,198	96.5	801.40	798.74	2.5	5.0	n/a	PZ	Sand	B	DBG
ELN-1003C	469	Quarterly	2813	7/6/10	497,873	2,048,186	160.1	801.82	799.24	2.5	5.0	n/a	PZ	Sand	C	DBG
ELN-1003E	470	Quarterly	2813	7/1/10	497,876	2,048,172	230.6	801.62	799.12	2.5	5.0	213	PZ	Rock	E	DBG
DBN-1001B	472	Semi-Annual	3037	5/25/10	501,062	2,043,113	159.5	912.07	909.77	2.5	5.0	n/a	PZ	Sand	B	DBG
DBN-1001C	473	Semi-Annual	3037	5/27/10	501,063	2,043,094	197.0	912.00	909.78	2.5	5.0	n/a	PZ	Sand	C	DBG
DBN-1001E	474	Semi-Annual	3037	6/30/10	501,065	2,043,076	279.9	912.50	909.95	2.5	5.0	258	PZ	Rock	E	DBG
DBN-1002C	476	Semi-Annual	3037	6/17/10	500,487	2,044,488	210.1	916.12	913.72	2.5	5.0	n/a	PZ	Sand	C	DBG
DBN-1002E	477	Semi-Annual	3037	7/12/10	500,511	2,044,485	280.6	916.24	913.84	2.5	5.0	265	PZ	Rock	E	DBG

Table 5
Monitoring Well Information – Current (2024) Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
ELN-1502A	533	Semi-Annual	2813	10/19/15	499,322	2,046,218	130.3	902.15	899.20	2.5	15.0	n/a	OW	Sand	A	DBG
ELN-1502C	534	Semi-Annual	2813	10/14/15	499,317	2,046,221	203.0	902.36	899.30	2.5	5.0	n/a	PZ	Sand	C	DBG
ELN-1503A	535	Quarterly	2813	10/8/15	499,385	2,047,058	88.7	862.42	859.26	2.5	15.0	n/a	OW	Sand	A	DBG
ELN-1503C	536	Quarterly	2813	10/7/15	499,377	2,047,057	162.6	862.29	859.54	2.5	5.0	n/a	PZ	Sand	C	DBG
ELN-1504B	537	Quarterly	2813	9/11/15	497,531	2,048,387	39.8	780.51	778.34	2.0	5.0	n/a	PZ	Sand	B	DBG
ELN-2301B	547	Quarterly	2813	9/28/23	497,963	2,049,031	93.9	800.79	798.76	2.5	5.0	n/a	PZ	Sand	B	DBG
ELN-2301C	548	Quarterly	2813	9/27/23	497,963	2,049,024	158.5	800.83	798.81	2.5	5.0	n/a	PZ	Sand	C	DBG
S1121	755	Semi-Annual	3038	1/18/80	496,303	2,047,578	59.3	815.58	813.90	4.0	20.2	n/a	OW	Sand	A	DBG
RIM-0703	440	Annual	3487	10/4/07	499,282	2,034,376	113.0	889.23	886.53	2.5	15.0	n/a	OW	Sand	A	NC
RIM-0705	442	Semi-Annual	3487	10/10/07	497,844	2,035,152	106.0	884.38	881.30	2.5	15.0	n/a	OW	Sand	A	NC
RIM-1002	478	Semi-Annual	3487	4/29/10	499,282	2,034,869	110.2	891.01	888.51	2.5	15.0	n/a	OW	Sand	A	NC
RIN-1007C	479	Annual	3487	6/15/10	497,858	2,035,155	175.3	883.81	881.41	2.5	5.0	n/a	PZ	Sand	C	NC
RIN-1001A	480	Semi-Annual	3487	4/28/10	497,066	2,035,221	106.8	884.38	882.05	2.5	15.0	n/a	OW	Sand	A	NC
RIN-1001C	481	Annual	3487	5/24/10	497,097	2,035,225	181.4	884.02	882.01	2.5	5.0	n/a	PZ	Sand	C	NC
S1125	504	Semi-Annual	3487	12/26/79	496,508	2,036,418	126.5	895.93	894.90	4.0	20.3	n/a	OW	Sand	A	NC
PBM-9801	360	Semi-Annual	2814	10/13/98	491,877	2,035,466	123.5	890.46	887.85	4.0	15.0	n/a	OW	Sand	A	PBG
PBM-0001	367	Semi-Annual	2814	7/14/00	491,611	2,035,455	134.5	890.23	887.54	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-0002	368	Semi-Annual	2814	8/4/00	491,527	2,035,422	131.5	886.46	884.75	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-0006	372	Semi-Annual	2814	8/1/00	491,477	2,035,323	124.5	879.02	875.89	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-0008	374	Semi-Annual	2814	8/12/00	491,355	2,035,323	122.0	876.62	874.66	4.0	25.0	n/a	OW	Sand	A	PBG
PBN-2301B	544	Semi-Annual	2814	5/24/23	481,919	2,036,933	120.3	840.02	837.69	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-2301C	545	Semi-Annual	2814	5/23/23	481,924	2,036,929	180.2	839.91	837.67	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-2301D	546	Semi-Annual	2814	5/19/23	481,930	2,036,925	252.0	840.02	837.80	2.5	5.0	253	PZ	Sand	D	PBG
PBN-9101C	561	Semi-Annual	3493	10/25/91	477,125	2,038,954	152.5	830.11	828.00	3.8	10.0	n/a	PZ	Sand	C	PBG
PBN-9102B	562	Biennial	3493	9/28/91	476,019	2,038,141	115.0	821.19	819.00	3.8	10.0	n/a	PZ	Sand	B	PBG
PBN-9102C	563	Biennial	3493	9/30/91	476,028	2,038,105	161.3	821.90	819.90	3.8	10.0	n/a	PZ	Sand	C	PBG
SWN-9102C	569	Annual	3493	10/27/91	479,341	2,035,141	152.5	836.41	834.40	3.8	10.0	n/a	PZ	Sand	C	PBG
SWN-9102D	570	Annual	3493	10/23/91	479,341	2,035,185	185.0	836.66	834.50	4.0	10.0	n/a	PZ	Sand	D	PBG
SWN-9103B	571	Semi-Annual	3493	10/4/91	479,353	2,036,656	113.4	836.63	834.70	3.8	10.0	n/a	PZ	Sand	B	PBG
SWN-9103C	572	Semi-Annual	3493	10/2/91	479,351	2,036,622	162.8	836.80	834.60	4.0	10.0	n/a	PZ	Sand	C	PBG
SWN-9103D	573	Semi-Annual	3493	10/1/91	479,352	2,036,701	209.1	837.10	835.00	4.0	10.0	210	PZ	Sand	D	PBG
SWN-9103E	574	Semi-Annual	3493	11/10/91	479,352	2,036,753	237.9	837.38	835.00	3.8	10.0	210	PZ	Rock	E	PBG
SWN-9104C	575	Semi-Annual	3493	10/13/91	479,357	2,037,722	164.0	834.87	832.80	3.8	10.0	n/a	PZ	Sand	C	PBG
SWN-9104D	576	Semi-Annual	3493	10/9/91	479,359	2,037,678	197.0	835.33	833.50	3.8	10.0	n/a	PZ	Sand	D	PBG
SWN-9105B	577	Annual	3493	10/12/91	478,954	2,038,812	112.5	832.73	830.50	3.8	10.0	n/a	PZ	Sand	B	PBG
SWN-9105C	578	Annual	3493	10/11/91	478,924	2,038,828	147.0	832.88	830.80	3.8	10.0	n/a	PZ	Sand	C	PBG
SWN-9105D	579	Annual	3493	10/10/91	478,885	2,038,855	200.5	833.35	831.20	3.8	10.0	n/a	PZ	Sand	D	PBG
PBN-1003C	592	Annual	2814	6/3/10	487,681	2,034,448	189.6	848.21	846.51	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-1001C	595	Semi-Annual	2814	6/8/10	485,968	2,035,767	199.7	840.01	837.71	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-8202A	613	Semi-Annual	2814	5/1/82	491,539	2,035,491	118.5	886.15	884.09	4.0	10.0	n/a	OW	Sand	A	PBG
PBN-8202B	614	Semi-Annual	2814	3/9/82	491,537	2,035,480	133.0	885.49	883.48	4.0	2.0	n/a	PZ	Sand	B	PBG
PBN-8202C	615	Semi-Annual	2814	3/8/82	491,529	2,035,490	141.2	885.43	882.47	4.0	2.0	n/a	PZ	Sand	C	PBG

Table 5
Monitoring Well Information – Current (2024) Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
PBN-8205A	622	Semi-Annual	2814	3/13/82	490,334	2,035,262	112.5	878.52	875.80	4.0	10.0	n/a	OW	Sand	A	PBG
PBN-8205B	623	Semi-Annual	2814	3/11/82	490,343	2,035,252	124.3	877.80	875.88	4.0	2.0	n/a	PZ	Sand	B	PBG
PBN-8205C	624	Semi-Annual	2814	3/11/82	490,330	2,035,250	133.5	878.31	875.80	4.0	2.0	n/a	PZ	Sand	C	PBG
PBN-8502A	632	Semi-Annual	2814	10/1/85	489,416	2,035,667	138.1	898.88	895.80	5.0	9.0	n/a	OW	Sand	A	PBG
PBN-8503A	633	Semi-Annual	2814	10/3/85	489,407	2,034,266	94.8	851.45	848.10	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8907	637	Annual	2814	3/3/89	487,689	2,034,443	92.7	849.45	846.60	4.0	10.0	n/a	OW	Sand	A	PBG
PBM-8909	639	Biennial	2814	3/1/89	492,402	2,035,472	124.4	883.66	880.60	4.0	20.0	n/a	OW	Sand	A	PBG
PBN-8902C	645	Semi-Annual	2814	3/19/89	489,415	2,035,630	193.3	897.12	894.50	4.0	5.2	n/a	PZ	Sand	C	PBG
PBN-8903B	646	Semi-Annual	2814	3/8/89	489,457	2,034,281	125.0	847.93	844.90	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-8903C	647	Semi-Annual	2814	3/9/89	489,457	2,034,316	160.0	846.96	844.10	4.0	5.0	n/a	PZ	Sand	C	PBG
PBN-8910D	653	Semi-Annual	2814	4/29/89	491,142	2,035,388	237.0	884.42	880.90	4.0	5.0	n/a	PZ	Sand	D	PBG
PBN-8912A	654	Semi-Annual	2814	3/2/89	486,338	2,034,980	103.4	855.86	852.60	4.0	20.0	n/a	OW	Sand	A	PBG
PBN-8912B	655	Semi-Annual	2814	4/15/89	486,312	2,034,979	138.0	856.34	852.60	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-9112C	665	Semi-Annual	2814	10/24/91	486,280	2,034,972	183.4	854.48	852.20	3.8	10.0	n/a	PZ	Sand	C	PBG
PBN-9112D	666	Semi-Annual	2814	10/16/91	486,253	2,034,965	231.0	853.31	851.20	3.8	10.0	n/a	PZ	Sand	D	PBG
PBN-9301B	668	Semi-Annual	2814	3/19/93	489,365	2,036,994	160.5	875.03	872.20	3.9	10.0	n/a	PZ	Sand	B	PBG
PBN-9301C	669	Semi-Annual	2814	3/16/93	489,353	2,037,006	227.5	874.64	872.22	3.9	10.0	n/a	PZ	Sand	C	PBG
PBN-9303B	673	Semi-Annual	2814	3/9/93	486,123	2,036,945	93.5	816.16	813.49	3.9	10.0	n/a	PZ	Sand	B	PBG
PBN-9303C	674	Semi-Annual	2814	3/14/93	486,126	2,036,969	164.5	815.05	812.45	3.9	10.0	n/a	PZ	Sand	C	PBG
PBN-9303D	675	Semi-Annual	2814	3/11/93	486,127	2,036,990	224.5	813.98	811.41	3.9	10.0	223	PZ	Sand	D	PBG
PBN-9304D	687	Semi-Annual	2814	10/19/93	484,890	2,035,315	210.0	806.09	804.10	4.0	10.0	210	PZ	Sand	D	PBG
PBN-9902D	691	Semi-Annual	2814	7/1/99	484,798	2,035,025	222.5	811.53	809.50	4.0	5.0	217	PZ	Sand	D	PBG
PBN-9903A	692	Semi-Annual	2814	6/23/99	483,859	2,035,680	76.0	826.91	825.18	4.0	15.0	n/a	OW	Sand	A	PBG
PBN-9903B	693	Semi-Annual	2814	7/8/99	483,859	2,035,687	112.0	827.17	825.00	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-9903C	694	Semi-Annual	2814	7/15/99	483,861	2,035,693	163.0	827.33	824.99	4.0	5.0	n/a	PZ	Sand	C	PBG
PBN-9903D	695	Semi-Annual	2814	7/13/99	483,861	2,035,698	208.0	827.52	825.10	4.0	5.0	196	PZ	Sand	D	PBG
S1147	709	Semi-Annual	3499	10/10/83	484,928	2,034,512	70.8	817.07	815.70	5.0	25.0	n/a	OW	Sand	A	PBG
S1148	710	Semi-Annual	3499	10/10/83	484,691	2,035,563	56.7	803.72	802.10	5.0	25.0	n/a	OW	Sand	A	PBG
SPN-8903B	718	Semi-Annual	3499	3/22/89	484,935	2,034,532	93.7	818.14	815.10	4.0	5.0	n/a	PZ	Sand	B	PBG
SPN-8903C	719	Semi-Annual	3499	4/13/89	484,907	2,034,501	127.7	818.13	815.30	4.0	5.0	n/a	PZ	Sand	C	PBG
SPN-8904B	720	Semi-Annual	3499	3/9/89	484,691	2,035,540	75.0	804.23	801.60	4.0	5.0	n/a	PZ	Sand	B	PBG
SPN-8904C	721	Semi-Annual	3499	3/30/89	484,694	2,035,642	106.5	803.25	800.70	4.0	5.0	n/a	PZ	Sand	C	PBG
SPN-9103D	725	Semi-Annual	3499	10/8/91	484,909	2,034,440	200.5	819.29	816.70	3.8	10.0	n/a	PZ	Sand	D	PBG
SPN-9104D	726	Semi-Annual	3499	10/1/91	484,693	2,035,601	206.0	802.61	800.80	3.8	10.0	212	PZ	Sand	D	PBG
PBN-1302A	770	Semi-Annual	2814	10/16/13	484,705	2,036,460	84.7	830.23	828.30	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1302B	771	Semi-Annual	2814	10/17/13	484,705	2,036,453	136.2	829.65	827.60	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1302C	772	Semi-Annual	2814	10/22/13	484,705	2,036,448	187.6	828.98	827.00	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-1302D	773	Semi-Annual	2814	10/29/13	484,705	2,036,442	245.1	828.35	826.50	2.5	5.0	245	PZ	Sand	D	PBG
PBN-1303A	774	Semi-Annual	2814	11/5/13	484,651	2,036,981	130.5	884.88	883.00	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1303B	775	Semi-Annual	2814	11/12/13	484,651	2,036,968	176.5	883.71	881.60	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1303C	776	Semi-Annual	2814	11/20/13	484,652	2,036,963	232.0	883.67	881.60	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-1303D	777	Semi-Annual	2814	11/22/13	484,652	2,036,958	287.0	883.42	881.60	2.5	5.0	287	PZ	Sand	D	PBG

Table 5
Monitoring Well Information – Current (2024) Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
PBN-1304A	778	Semi-Annual	2814	12/3/13	484,642	2,037,502	116.0	871.81	869.40	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1304B	779	Semi-Annual	2814	12/10/13	484,642	2,037,496	163.1	871.49	869.80	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1304C	780	Semi-Annual	2814	12/17/13	484,642	2,037,489	218.0	872.00	869.70	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-1304D	781	Semi-Annual	2814	1/14/14	484,642	2,037,484	273.0	872.03	869.50	2.5	5.0	273	PZ	Sand	D	PBG
PBN-1401A	782	Semi-Annual	2814	2/19/14	491,036	2,035,501	132.2	887.30	884.57	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1401B	783	Semi-Annual	2814	2/12/14	491,035	2,035,494	163.7	887.09	884.57	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1401C	784	Semi-Annual	2814	2/10/14	491,035	2,035,488	203.3	887.08	884.57	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-1404B	791	Semi-Annual	2814	3/11/14	487,745	2,035,891	179.5	895.08	892.18	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1404C	792	Semi-Annual	2814	3/4/14	487,742	2,035,888	239.3	895.04	892.18	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-1404D	793	Semi-Annual	2814	2/26/14	487,737	2,035,885	299.8	894.49	892.18	2.5	5.0	300	PZ	Sand	D	PBG
PBN-1405F	794	Biennial	2814	3/25/14	484,824	2,035,411	319.7	806.29	803.77	2.5	5.0	212	PZ	Rock	F	PBG
PBN-8902BR	795	Semi-Annual	2814	3/24/14	489,418	2,035,684	160.0	898.87	896.82	2.5	5.0	n/a	PZ	Sand	B	PBG
PBM-9001D	981	Semi-Annual	3485	8/25/90	477,175	2,038,945	210.5	831.52	829.00	4.0	10.0	n/a	PZ	Sand	D	PBG
PBM-9002D	982	Biennial	3485	8/18/90	475,994	2,038,132	204.5	821.31	818.70	4.0	10.0	n/a	PZ	Sand	D	PBG

Notes
OW = Water Table Observation Well
PZ = Piezometer
DBG = Deterrent Burning Ground Plume
Central = Central Plume
NC = Nitrocellulose Production Area Plume
PBG = Propellant Burning Ground Plume
Screen Level references the typical well depth configuration

Table 6
Monitoring Well Information – Currently Not Sampled
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
NLN-8202A	255	Not Sampled	3118	4/30/82	495,648	2,046,075	102.9	873.61	872.53	4.0	10.0	n/a	OW	Sand	A	Central
NLN-8202B	256	Not Sampled	3118	4/23/82	495,646	2,046,087	115.0	873.69	871.97	4.0	2.0	n/a	PZ	Sand	B	Central
NLN-8204A	261	Not Sampled	3118	5/8/82	494,911	2,045,873	125.5	892.72	891.00	4.0	10.0	n/a	OW	Sand	A	Central
NLN-8204B	262	Not Sampled	3118	5/8/82	494,899	2,045,877	137.5	893.44	891.60	4.0	2.0	n/a	PZ	Sand	B	Central
NLN-8204C	263	Not Sampled	3118	5/7/82	494,901	2,045,867	150.0	893.54	891.60	4.0	2.0	n/a	PZ	Sand	C	Central
NLM-9202R	270	Not Sampled	3118	12/21/92	494,989	2,046,317	118.2	885.15	882.90	4.0	15.0	n/a	OW	Sand	A	Central
NLM-0301R	271	Not Sampled	3646	7/23/03	495,613	2,045,778	112.0	881.20	877.92	4.0	15.0	n/a	OW	Sand	A	Central
NLM-0302R	272	Not Sampled	3646	1/9/04	496,404	2,045,533	127.0	894.50	891.70	4.0	15.0	n/a	OW	Sand	A	Central
NLM-0401	296	Not Sampled	3646	8/3/04	495,912	2,046,255	112.0	869.29	866.66	4.0	15.0	n/a	OW	Sand	A	Central
NLN-0701A	297	Not Sampled	3646	6/6/07	495,491	2,045,250	125.0	887.47	884.87	4.0	15.0	n/a	OW	Sand	A	Central
NLN-0701C	298	Not Sampled	3646	6/5/07	495,491	2,045,242	155.0	887.29	884.79	4.0	5.0	n/a	PZ	Sand	C	Central
S1120	502	Not Sampled	3487	1/17/80	493,313	2,044,061	122.8	880.14	877.40	4.0	20.2	n/a	OW	Sand	A	Central
S1150	505	Not Sampled	3487	10/10/83	496,772	2,037,797	138.0	897.56	895.60	5.0	25.0	n/a	OW	Sand	A	Central
RPM-9101	509	Not Sampled	3487	10/26/91	492,702	2,045,303	105.8	874.04	871.80	3.8	10.0	n/a	OW	Sand	A	Central
S1112	752	Not Sampled	3038	1/4/80	490,050	2,045,210	91.7	838.03	836.40	4.0	20.3	n/a	OW	Sand	A	Central
S1113	753	Not Sampled	3038	11/23/79	491,611	2,048,037	66.1	821.58	820.00	4.0	20.2	n/a	OW	Sand	A	Central
S1114	754	Not Sampled	3038	11/20/79	491,603	2,048,038	105.4	821.46	820.10	4.0	5.0	n/a	PZ	Sand	C	Central
ELN-8904A	225	Not Sampled	2813	3/30/89	501,790	2,044,600	162.0	926.34	924.10	4.0	20.0	n/a	OW	Sand	A	DBG
ELN-8904B	226	Not Sampled	2813	4/2/89	501,721	2,044,645	199.0	926.61	924.80	4.0	5.0	n/a	PZ	Sand	B	DBG
ELM-9110	229	Not Sampled	2813	11/13/91	501,635	2,044,708	154.0	923.03	920.80	3.8	15.0	n/a	OW	Sand	A	DBG
SWN-0501B	237	Not Sampled	3493	12/15/05	480,635	2,039,879	155.6	860.07	860.40	4.0	10.0	n/a	PZ	Sand	B	PBG
SWN-0501C	238	Not Sampled	3493	12/13/05	480,634	2,039,894	206.6	860.28	860.60	4.0	10.0	n/a	PZ	Sand	C	PBG
SWN-0501D	239	Not Sampled	3493	12/9/05	480,635	2,039,906	262.9	860.38	860.50	4.0	10.0	n/a	PZ	Sand	D	PBG
SWN-0501E	240	Not Sampled	3493	11/30/05	480,635	2,039,917	290.3	860.53	860.70	2.0	10.0	253	PZ	Rock	E	PBG
SWN-0502B	241	Not Sampled	3493	12/22/05	479,887	2,039,265	155.8	856.10	856.30	4.0	10.0	n/a	PZ	Sand	B	PBG
SWN-0502C	242	Not Sampled	3493	12/20/05	479,885	2,039,280	201.5	856.39	856.50	4.0	10.0	n/a	PZ	Sand	C	PBG
SWN-0502D	243	Not Sampled	3493	12/7/05	479,886	2,039,273	244.9	856.19	856.30	4.0	10.0	n/a	PZ	Sand	D	PBG
SWN-0502E	244	Not Sampled	3493	12/13/05	479,893	2,039,267	260.0	856.27	856.50	2.0	10.0	240	PZ	Rock	E	PBG
PBM-9901	361	Not Sampled	2814	6/4/99	491,934	2,035,484	130.0	891.56	888.90	4.0	105.0	n/a	OW	Sand	A	PBG
PBM-9902	362	Not Sampled	2814	6/4/99	491,664	2,035,482	132.0	890.94	888.35	4.0	110.0	n/a	OW	Sand	A	PBG
PBM-9903	363	Not Sampled	2814	6/4/99	491,628	2,035,319	126.0	882.42	880.87	4.0	105.0	n/a	OW	Sand	A	PBG
PBM-0003	369	Not Sampled	2814	8/8/00	491,440	2,035,388	120.5	875.95	876.89	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-0004	370	Not Sampled	2814	7/25/00	491,356	2,035,354	125.5	877.62	875.64	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-0005	371	Not Sampled	2814	7/19/00	491,566	2,035,322	128.0	883.58	881.22	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-0007	373	Not Sampled	2814	7/24/00	491,417	2,035,323	120.9	874.47	872.56	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-9803	526	Not Sampled	2814	10/7/98	491,595	2,035,352	121.7	885.16	882.64	4.0	15.0	n/a	OW	Sand	A	PBG
PBN-1002A	589	Not Sampled	2814	5/20/10	488,451	2,035,897	130.8	893.90	891.70	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1002B	590	Not Sampled	2814	5/19/10	488,447	2,035,927	176.5	894.27	892.27	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1002C	591	Not Sampled	2814	6/9/10	488,450	2,035,908	216.8	893.48	891.48	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-1001A	593	Not Sampled	2814	5/3/10	485,984	2,035,770	79.3	840.37	838.17	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1001B	594	Not Sampled	2814	6/2/10	485,976	2,035,768	139.9	839.93	838.23	2.5	5.0	n/a	PZ	Sand	B	PBG

Table 6
Monitoring Well Information – Currently Not Sampled
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
S1109	600	Not Sampled	2814	2/14/80	488,537	2,032,975	107.3	856.64	855.10	4.0	20.4	n/a	OW	Sand	A	PBG
S1117	601	Not Sampled	2814	2/13/80	490,355	2,034,837	119.1	867.92	862.30	4.0	20.2	n/a	OW	Sand	A	PBG
PBM-8201	605	Not Sampled	2814	3/18/82	491,409	2,034,559	100.7	857.36	855.70	4.0	20.0	n/a	PZ	Sand	A	PBG
PBM-8203	607	Not Sampled	2814	3/16/82	490,778	2,034,771	108.8	868.42	862.70	4.0	20.0	n/a	PZ	Sand	A	PBG
PBM-8204	608	Not Sampled	2814	3/17/82	490,553	2,035,006	115.5	875.72	869.00	4.0	20.0	n/a	PZ	Sand	A	PBG
PBM-8205	609	Not Sampled	2814	5/3/82	490,547	2,035,178	123.8	877.11	874.50	4.0	20.0	n/a	PZ	Sand	A	PBG
PBN-8201A	610	Not Sampled	2814	3/18/82	492,093	2,035,482	117.8	884.59	881.50	4.0	10.0	n/a	OW	Sand	A	PBG
PBN-8201B	611	Not Sampled	2814	3/10/82	492,091	2,035,469	131.5	883.77	881.50	4.0	2.0	n/a	PZ	Sand	B	PBG
PBN-8201C	612	Not Sampled	2814	3/10/82	492,101	2,035,476	141.0	883.98	881.50	4.0	2.0	n/a	PZ	Sand	C	PBG
PBN-8203A	616	Not Sampled	2814	3/15/82	490,314	2,034,600	96.5	860.01	857.60	4.0	10.0	n/a	OW	Sand	A	PBG
PBN-8203B	617	Not Sampled	2814	3/15/82	490,311	2,034,613	108.5	860.26	857.60	4.0	2.0	n/a	PZ	Sand	B	PBG
PBN-8203C	618	Not Sampled	2814	3/15/82	490,300	2,034,606	117.5	860.17	857.60	4.0	2.0	n/a	PZ	Sand	C	PBG
PBN-8204B	620	Not Sampled	2814	3/13/82	490,027	2,035,049	120.5	874.74	873.00	4.0	2.0	n/a	PZ	Sand	B	PBG
PBN-8204C	621	Not Sampled	2814	3/12/82	490,026	2,035,062	131.5	875.59	873.00	4.0	2.0	n/a	PZ	Sand	C	PBG
PBM-8501	625	Not Sampled	2814	9/22/85	489,712	2,034,851	121.6	862.73	859.30	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8502	626	Not Sampled	2814	9/17/85	489,417	2,034,654	101.7	849.42	845.40	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8503	627	Not Sampled	2814	9/18/85	489,414	2,035,277	150.5	886.29	882.90	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8504	628	Not Sampled	2814	9/24/85	488,819	2,035,043	125.4	866.47	863.80	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8505	629	Not Sampled	2814	9/28/85	488,223	2,035,056	111.0	863.97	861.30	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8506	630	Not Sampled	2814	10/4/85	487,043	2,035,032	98.2	848.18	845.10	5.0	9.0	n/a	OW	Sand	A	PBG
PBN-8501A	631	Not Sampled	2814	9/18/85	489,413	2,035,044	121.9	874.51	871.30	5.0	9.0	n/a	OW	Sand	A	PBG
PBN-8504A	634	Not Sampled	2814	9/30/85	487,634	2,035,066	112.7	860.03	857.20	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8905	635	Not Sampled	2814	3/6/89	489,403	2,033,827	98.1	855.64	852.30	4.0	20.0	n/a	OW	Sand	A	PBG
PBM-8906	636	Not Sampled	2814	4/30/89	489,509	2,036,227	136.0	886.34	883.70	4.0	20.0	n/a	OW	Sand	A	PBG
PBM-8908	638	Not Sampled	2814	3/14/89	487,520	2,035,745	125.0	888.68	885.50	4.0	20.0	n/a	OW	Sand	A	PBG
PBM-8911	640	Not Sampled	2814	3/7/89	493,411	2,035,391	111.0	884.45	881.60	4.0	20.0	n/a	OW	Sand	A	PBG
PBN-8901B	641	Not Sampled	2814	1/22/89	489,397	2,035,022	159.9	872.55	870.00	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-8901C	642	Not Sampled	2814	4/19/89	489,395	2,035,102	198.1	878.03	875.50	4.0	5.0	n/a	PZ	Sand	C	PBG
PBN-8901D	643	Not Sampled	2814	1/21/89	489,397	2,035,047	238.2	874.19	871.50	4.0	5.0	n/a	PZ	Sand	D	PBG
PBN-8904B	648	Not Sampled	2814	3/19/89	487,673	2,035,060	144.0	859.32	856.70	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-8904C	649	Not Sampled	2814	4/16/89	487,651	2,035,092	180.5	859.87	857.70	4.0	5.0	n/a	PZ	Sand	C	PBG
PBN-8910A	650	Not Sampled	2814	2/22/89	491,156	2,035,501	128.0	889.82	886.80	4.0	20.0	n/a	OW	Sand	A	PBG
PBN-8910B	651	Not Sampled	2814	2/28/89	491,159	2,035,539	166.7	892.09	889.10	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-8910C	652	Not Sampled	2814	2/3/89	491,154	2,035,464	192.0	887.11	884.70	4.0	5.0	n/a	PZ	Sand	C	PBG
LOM-8901	656	Not Sampled	2814	2/17/89	492,014	2,036,131	157.5	918.08	915.90	4.0	20.0	n/a	PZ	Sand	A	PBG
LON-8902A	657	Not Sampled	2814	2/19/89	491,571	2,036,136	159.0	927.95	918.50	4.0	20.0	n/a	OW	Sand	A	PBG
LON-8903A	659	Not Sampled	2814	2/20/89	491,581	2,036,311	158.0	926.36	919.20	4.0	20.0	n/a	OW	Sand	A	PBG
LON-8903B	660	Not Sampled	2814	2/20/89	491,579	2,036,275	198.0	927.41	919.50	4.0	5.0	n/a	PZ	Sand	B	PBG
LOM-9101	661	Not Sampled	2814	10/10/91	492,618	2,036,184	151.0	917.76	915.50	3.8	10.0	n/a	PZ	Sand	A	PBG
LOM-9102	662	Not Sampled	2814	10/25/91	493,326	2,036,375	148.0	912.46	910.30	3.8	10.0	n/a	OW	Sand	A	PBG
PBN-9106C	663	Not Sampled	2814	10/22/91	487,104	2,035,032	201.0	848.71	846.10	3.8	10.0	n/a	PZ	Sand	C	PBG

Table 6
Monitoring Well Information – Currently Not Sampled
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
PBN-9106D	664	Not Sampled	2814	10/12/91	487,107	2,035,008	251.0	847.53	845.80	3.8	10.0	n/a	PZ	Sand	D	PBG
PBN-9306C	667	Not Sampled	2814	3/22/90	489,507	2,036,238	227.5	886.51	884.06	3.9	10.0	n/a	PZ	Sand	C	PBG
PBN-9302B	670	Not Sampled	2814	3/5/93	487,005	2,036,974	154.5	873.31	871.26	3.9	10.0	n/a	PZ	Sand	B	PBG
PBN-9302C	671	Not Sampled	2814	2/26/93	487,017	2,036,966	204.0	873.76	872.24	3.9	10.0	n/a	PZ	Sand	C	PBG
PBN-9302D	672	Not Sampled	2814	3/7/93	487,001	2,036,953	289.5	874.93	870.72	3.9	10.0	288	PZ	Sand	D	PBG
PBN-9404AR	676	Not Sampled	2814	2/18/94	490,017	2,035,038	118.0	873.63	871.30	4.0	15.0	n/a	OW	Sand	A	PBG
PBN-9401B	677	Not Sampled	2814	8/8/94	486,957	2,038,337	127.7	852.23	850.50	4.0	10.3	n/a	PZ	Sand	B	PBG
PBN-9401C	678	Not Sampled	2814	8/9/94	486,981	2,038,338	167.8	852.96	851.00	4.0	10.4	n/a	PZ	Sand	C	PBG
PBN-9401D	679	Not Sampled	2814	8/3/94	486,971	2,038,337	267.0	853.01	850.90	4.0	10.0	277	PZ	Sand	D	PBG
PBN-9402B	680	Not Sampled	2814	8/24/94	485,560	2,038,160	95.5	816.36	813.90	4.0	10.0	n/a	PZ	Sand	B	PBG
PBN-9402C	681	Not Sampled	2814	8/22/94	485,560	2,038,150	135.0	816.35	813.80	4.0	10.0	n/a	PZ	Sand	C	PBG
PBN-9402D	682	Not Sampled	2814	8/18/94	485,557	2,038,140	225.0	816.14	813.70	4.0	10.0	n/a	PZ	Sand	D	PBG
LON-9502BR	683	Not Sampled	2814	6/1/95	491,573	2,036,166	203.5	927.54	919.30	4.0	18.5	n/a	PZ	Sand	B	PBG
PBN-9304A	684	Not Sampled	2814	10/12/93	484,886	2,035,343	50.0	805.93	804.00	4.0	15.0	n/a	OW	Sand	A	PBG
PBN-9304B	685	Not Sampled	2814	10/19/93	484,897	2,035,329	86.0	805.77	804.00	4.0	10.0	n/a	PZ	Sand	B	PBG
PBN-9304C	686	Not Sampled	2814	10/21/93	484,866	2,035,315	115.0	806.41	804.50	4.0	10.0	n/a	PZ	Sand	C	PBG
PBN-9902A	688	Not Sampled	2814	6/22/99	484,805	2,035,024	60.0	811.54	808.91	4.0	15.0	n/a	OW	Sand	A	PBG
PBN-9902B	689	Not Sampled	2814	7/8/99	484,803	2,035,020	111.0	810.72	808.41	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-9902C	690	Not Sampled	2814	7/7/99	484,800	2,035,029	168.0	811.23	809.16	4.0	5.0	n/a	PZ	Sand	C	PBG
PBN-9901A	696	Not Sampled	2814	6/22/99	484,812	2,034,889	59.0	810.38	808.39	4.0	15.0	n/a	OW	Sand	A	PBG
PBN-9901B	697	Not Sampled	2814	6/29/99	484,808	2,034,889	107.0	809.93	808.46	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-9901C	698	Not Sampled	2814	6/28/99	484,799	2,034,890	163.0	810.00	808.45	4.0	5.0	n/a	PZ	Sand	C	PBG
PBN-9901D	699	Not Sampled	2814	6/23/99	484,790	2,034,891	216.0	810.95	808.52	4.0	5.0	216	PZ	Sand	D	PBG
S1102	701	Not Sampled	3499	11/5/79	484,693	2,036,063	64.6	809.25	807.70	4.0	20.0	n/a	OW	Sand	A	PBG
S1103	702	Not Sampled	3499	11/2/79	484,689	2,036,056	120.1	809.02	807.50	4.0	5.1	n/a	PZ	Sand	C	PBG
S1106	705	Not Sampled	3499	11/14/79	484,794	2,039,567	135.7	839.91	838.10	4.0	5.0	n/a	PZ	Sand	C	PBG
S1133	708	Not Sampled	3499	2/19/80	484,746	2,032,920	97.0	828.28	828.20	4.0	5.2	n/a	PZ	Sand	B	PBG
S1149	711	Not Sampled	3499	10/10/83	485,128	2,036,476	60.8	807.75	806.10	5.0	25.0	n/a	OW	Sand	A	PBG
S1152B	713	Not Sampled	3499	9/26/85	484,582	2,036,049	73.6	813.26	810.30	4.0	5.0	n/a	OW	Sand	B	PBG
SPN-8901C	714	Not Sampled	3499	3/29/89	484,722	2,032,922	121.0	830.09	827.80	4.0	5.0	n/a	PZ	Sand	C	PBG
SPN-8902A	715	Not Sampled	3499	2/22/89	484,748	2,033,808	71.0	823.67	820.80	4.0	20.0	n/a	OW	Sand	A	PBG
SPN-8902B	716	Not Sampled	3499	3/15/89	484,741	2,033,827	98.8	823.61	820.30	4.0	5.0	n/a	PZ	Sand	B	PBG
SPN-8902C	717	Not Sampled	3499	4/14/89	484,745	2,033,868	129.0	822.48	820.00	4.0	5.0	n/a	PZ	Sand	C	PBG
SPN-9102D	724	Not Sampled	3499	10/9/91	484,733	2,033,650	182.8	824.11	821.60	3.8	10.0	n/a	PZ	Sand	D	PBG
S1152AR	727	Not Sampled	3499	4/12/95	484,582	2,036,036	56.0	812.48	809.80	4.0	15.0	n/a	OW	Sand	A	PBG
PBM-1201	764	Not Sampled	2814	11/15/12	491,516	2,035,458	118.5	882.56	880.24	2.5	15.0	n/a	OW	Sand	A	PBG
PBM-1202	765	Not Sampled	2814	11/19/12	491,507	2,035,442	118.5	881.48	879.01	2.5	15.0	n/a	OW	Sand	A	PBG
PBM-1203	766	Not Sampled	2814	11/20/12	491,496	2,035,425	118.4	880.18	877.69	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1301A	767	Not Sampled	2814	9/16/13	491,295	2,035,639	130.0	899.97	897.35	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1301B	768	Not Sampled	2814	9/12/13	491,310	2,035,602	159.5	897.32	894.58	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1301C	769	Not Sampled	2814	9/10/13	491,265	2,035,609	200.0	897.14	894.54	2.5	5.0	n/a	PZ	Sand	C	PBG

Table 6
Monitoring Well Information – Currently Not Sampled
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
PBN-1402A	785	Not Sampled	2814	2/4/14	490,204	2,035,272	113.6	878.31	876.47	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1402B	786	Not Sampled	2814	2/10/14	490,204	2,035,277	132.9	878.77	876.47	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1402C	787	Not Sampled	2814	2/18/14	490,204	2,035,282	162.8	878.74	876.47	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-1403A	788	Not Sampled	2814	2/27/14	489,290	2,035,682	135.7	901.24	899.00	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1403B	789	Not Sampled	2814	2/26/14	489,290	2,035,687	157.2	901.22	899.05	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1403C	790	Not Sampled	2814	2/20/14	489,290	2,035,693	192.0	901.64	899.27	2.5	5.0	n/a	PZ	Sand	C	PBG

Notes
OW = Water Table Observation Well
PZ = Piezometer
DBG = Deterrent Burning Ground Plume
Central = Central Plume
PBG = Propellant Burning Ground Plume
Screen Level references the typical well depth configuration

Table 7
Residential Well Information – Current (2024) Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	Well Depth (feet)	Well Diameter (inches)	Bedrock Depth (feet)	Aquifer	Plume Area
USDA 3	126	Annual	3497	10/21/80	270	6	235	Rock	Central
USDA 6	128	Annual	3497	3/7/06	140	8	n/a	Sand	Central
WE-TM599	129	Annual	3497	10/2/06	120	5	n/a	Sand	Central
WE-RM383	153	Annual	3497	6/10/03	81	6	n/a	Sand	Central
WE-RR542	156	Annual	3497	9/20/03	100	6	n/a	Sand	Central
WE-QR441	157	Annual	3497	1/29/02	118	5	n/a	Sand	Central
WE-QN039	158	Annual	3497	11/15/01	100	6	n/a	Sand	Central
WE-RD430	159	Annual	3497	12/10/02	80	6	n/a	Sand	Central
WE-SQ017	164	Annual	3497	3/10/05	180	5	n/a	Sand	Central
WE-SQ001	165	Annual	3497	1/15/05	179	6	n/a	Sand	Central
WE-RR598	169	Annual	3497	3/10/04	106	6	n/a	Sand	Central
WE-SQ002	170	Annual	3497	1/20/05	100	6	n/a	Sand	Central
WE-TF023	174	Annual	3497	2/22/06	178	5	n/a	Sand	Central
WE-UK125	431	Annual	3497	12/29/07	283	5	243	Rock	Central
WE-UA297	433	Annual	3497	7/17/07	180	6	n/a	Sand	Central
WE-XD828	434	Annual	3497	8/19/13	80	6	n/a	Sand	Central
WE-XK342	435	Quarterly	3497	8/27/14	80	6	n/a	Sand	Central
WE-YW972	436	Annual	3497	5/14/18	121	6	n/a	Sand	Central
WE-ZE512	437	Annual	3497	12/22/18	324	6	205	Rock	Central
WE-AAB891	799	Annual	3497	4/29/20	139	n/a	n/a	Sand	Central
USDA 1	828	Annual	3497	11/4/79	575	12	263	Rock	Central
USDA 2	829	Annual	3497	7/18/96	227	6	n/a	Sand	Central
WE-AAF735	837	Annual	3497	10/27/20	140	5	n/a	Sand	Central
E12092	838	Annual	3497	10/27/20	86	5	n/a	Sand	Central
WE-AAU638	919	Annual	3497	10/3/22	81	6	n/a	Sand	Central
S7703A	163	Annual	3497	7/26/19	344	6	216	Rock	DBG
E12615	411	Annual	3497	n/a	26	n/a	n/a	Sand	DBG
S7816	412	Annual	3497	n/a	n/a	n/a	n/a	unknown	DBG
E12655	414	Annual	3497	n/a	n/a	n/a	n/a	Sand	DBG
E12645	415	Annual	3497	n/a	110	n/a	n/a	Sand	DBG
E12649B	417	Annual	3497	n/a	n/a	n/a	n/a	Sand	DBG
E12649A	418	Annual	3497	n/a	20	n/a	n/a	Sand	DBG
S7832	419	Annual	3497	10/14/22	102	6	n/a	Sand	DBG
S7830	422	Annual	3497	n/a	n/a	n/a	n/a	unknown	DBG
E12601	423	Annual	3497	7/6/06	100	5	n/a	Sand	DBG
S7820	424	Annual	3497	n/a	n/a	n/a	n/a	unknown	DBG
S7880	425	Annual	3497	5/8/89	80	6	n/a	Sand	DBG
S7814	426	Annual	3497	n/a	n/a	n/a	n/a	unknown	DBG
E12526	427	Annual	3497	n/a	n/a	n/a	n/a	unknown	DBG
S7882	428	Annual	3497	n/a	n/a	n/a	n/a	Sand	DBG
E12455	796	Annual	3497	6/20/19	132	6	n/a	Sand	DBG
E12375A	803	Quarterly	3497	3/1/93	159	n/a	n/a	Sand	DBG
E12637	817	Annual	3497	n/a	85	6	n/a	Sand	DBG
S7856	839	Annual	3497	n/a	n/a	n/a	n/a	unknown	DBG
S7849	842	Annual	3497	1/5/89	219	6	169	Rock	DBG
E12653	860	Annual	3497	7/25/08	29	1	n/a	Sand	DBG
S7722	874	Annual	3497	5/28/88	260	6	217	Rock	DBG
E12534	891	Annual	3497	11/16/99	88	2	n/a	Sand	DBG
E12629	904	Annual	3497	n/a	30	n/a	n/a	Sand	DBG
S7655	916	Quarterly	3497	n/a	110	6	n/a	Sand	DBG
S7877	967	Annual	3497	8/28/78	176	6	173	Rock	DBG

Table 7
Residential Well Information – Current (2024) Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	Well Depth (feet)	Well Diameter (inches)	Bedrock Depth (feet)	Aquifer	Plume Area
S8723	152	Annual	3497	8/25/99	301	6	265	Rock	PBG
S8732	800	Annual	3497	n/a	131	n/a	n/a	Sand	PBG
S8871	840	Annual	3497	11/27/20	303	6	267	Rock	PBG
S9093A	847	Annual	3497	9/16/08	221	6	206	Rock	PBG
S9059A	862	Annual	3497	n/a	180	n/a	n/a	Sand	PBG
S8795	875	Annual	3497	4/8/90	156	6	n/a	Sand	PBG
E11823	886	Annual	3497	8/10/59	122	4	n/a	Sand	PBG
PDS-3	911	Annual	3497	6/11/91	554	15	186	Rock	PBG
S8839	917	Annual	3497	n/a	310	n/a	n/a	Rock	PBG
S9104	924	Annual	3497	5/26/88	298	6	231	Rock	PBG
S9008A	931	Annual	3497	n/a	280	n/a	n/a	Rock	PBG
E11752A	948	Annual	3497	6/20/88	276	6	n/a	Sand	PBG
S9179	970	Annual	3497	8/25/75	240	6	170	Rock	PBG
S8745	998	Annual	3497	11/21/92	178	6	n/a	Sand	PBG

Notes
n/a = Not available
DBG = Deterrent Burning Ground Plume
Central = Central Plume
PBG = Propellant Burning Ground Plume

5.0 PROPOSED SAMPLING PROGRAM

The Army's proposed (future) groundwater sampling program includes both monitoring wells and residential wells associated with the Central Plume, DBG Plume, and PBG Plume. The sampling program will also include monitoring wells associated with the NC Area Plume. The Army's proposed (future) sampling program, presented below, was based on the current 2024 groundwater sampling program (**Section 4.0**). The Army proposes to start implementing the future sampling program in 2026.

The future monitoring and residential well sampling frequencies and locations for the PBG, DBG, Central, and NC Area plumes are illustrated in **Figures 41, 42, 44 and 45**, respectively. **Figure 43** displays the proposed changes to residential well sampling for the DBG Plume.

5.1 Monitoring Wells

The future groundwater sampling program includes 208 monitoring wells being sampled at varying frequencies: 4 quarterly (four times per year), 127 semi-annual (twice per year), 54 annual (once per year), and 23 biennial (once every two years); **Figures 41, 42, 44 and 45**. **Table 8** provides the well name, location, well construction information, and sample frequency for the 208 monitoring wells that the Army plans to sample. Additional information is provided in **Sections 5.3.1, 5.4.1, 5.5.1 and 5.6.1** on the monitoring wells that will be sampled in each groundwater plume. **Table 9** provides the location and well construction information for the 103 monitoring wells that the Army does not plan to sample. Currently, the Army has no intention of abandoning any monitoring wells.

The Army is evaluating to install an additional ten monitoring wells to better define the degree and extent of groundwater contamination. Three monitoring wells would be associated with the PBG Plume. Four monitoring wells would be associated with the Central Plume. Three monitoring wells would be associated with the NC Plume. After being installed, the monitoring wells would be added to the groundwater sampling program. Additional details about these potential new monitoring wells are provided in **Sections 5.3.3, 5.5.3 and 5.6.2**.

5.2 Residential Wells

The future groundwater sampling program includes 46 residential wells being sampled at varying frequencies: 3 quarterly (four times per year) and 43 annually. **Table 10** provides the well name, well construction information, and sample frequency for the 43 residential wells that the Army plans to sample. Additional information is provided below on the residential wells that will be sampled for each plume. Since 2021, the Army added ten residential wells to the sampling program: six near the PBG Plume, one near the DBG Plume, and three near the Central Plume. These additions to the sampling program were based on the potential risk to contaminated groundwater impacting the residential wells. The Army is proposing to no longer sample 19 residential wells associated with the DBG Plume, see **Section 5.4.2** for additional information.

Table 8
Monitoring Well Information – Future Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
NLN-8201A	252	Annual	3118	4/23/82	495,556	2,045,494	120.25	890.65	888.6	4	10	n/a	OW	Sand	A	Central
NLN-8201B	253	Annual	3118	4/22/82	495,566	2,045,487	132.5	891.28	889	4	2	n/a	PZ	Sand	B	Central
NLN-8201C	254	Annual	3118	4/7/82	495,552	2,045,485	142	890.54	888.6	4	2	n/a	PZ	Sand	C	Central
NLN-8203A	258	Annual	3118	5/5/82	494,954	2,045,545	115.5	884.12	881.8	4	10	n/a	OW	Sand	A	Central
NLN-8203B	259	Annual	3118	5/6/82	494,946	2,045,534	127.5	884.87	882.7	4	2	n/a	PZ	Sand	B	Central
NLN-8203C	260	Annual	3118	5/5/82	494,954	2,045,532	138.5	885.17	882.7	4	2	n/a	PZ	Sand	C	Central
NLN-8205B	265	Annual	3118	5/10/82	494,905	2,046,159	136.5	899.28	896.9	4	2	n/a	PZ	Sand	B	Central
NLN-8205C	266	Annual	3118	5/10/82	494,917	2,046,156	147.5	897.99	896.3	4	2	n/a	PZ	Sand	C	Central
NLN-9205AR	269	Annual	3118	11/13/92	494,913	2,046,170	132	897.82	895.3	4	15	n/a	OW	Sand	A	Central
NLM-1001	330	Annual	3646	4/14/10	496,509	2,044,604	106	880.22	878	4	15	n/a	OW	Sand	A	Central
NLN-1001A	331	Annual	3646	4/21/10	495,613	2,044,708	111.5	882.62	880.28	4	15	n/a	OW	Sand	A	Central
NLN-1001C	332	Annual	3646	4/19/10	495,615	2,044,701	154.5	882.52	880.36	4	5	n/a	PZ	Sand	C	Central
RIN-0701C	443	Annual	3487	10/12/07	497,385	2,041,541	180	863.86	860.76	2.5	5	n/a	PZ	Sand	C	Central
RIN-0702C	444	Annual	3487	10/16/07	494,729	2,042,699	201	887.98	885.81	2.5	5	n/a	PZ	Sand	C	Central
RIN-0703C	445	Annual	3487	10/17/07	489,062	2,044,835	207	857.55	854.83	2.5	5	n/a	PZ	Sand	C	Central
RIM-1003	491	Annual	3487	5/3/10	492,555	2,043,661	114.3	885.059	882.78	2.5	15	n/a	OW	Sand	A	Central
RIN-1002A	492	Annual	3487	5/4/10	492,556	2,046,082	92.2	862.808	860.462	2.5	15	n/a	OW	Sand	A	Central
RIN-1002C	493	Annual	3487	6/1/10	492,569	2,046,079	179.8	862.945	860.864	2.5	5	n/a	PZ	Sand	C	Central
RIN-1003A	495	Annual	3487	5/5/10	489,061	2,044,797	90.5	857.102	854.661	2.5	15	n/a	OW	Sand	A	Central
RIN-1005A	496	Annual	3487	5/17/10	489,311	2,045,864	60.5	828.61	826.735	2.5	15	n/a	OW	Sand	A	Central
RIN-1005C	497	Annual	3487	5/17/10	489,317	2,045,865	147	828.747	826.487	2.5	5	n/a	PZ	Sand	C	Central
RIN-1004B	498	Semi-Annual	3487	5/13/10	486,645	2,044,721	146.7	859.313	856.741	2.5	5	n/a	PZ	Sand	B	Central
S1120	502	Annual	3487	1/17/80	493,313	2,044,061	122.8	880.14	877.4	4	20.18	n/a	OW	Sand	A	Central
NPM-8901	506	Annual	3487	10/25/89	497,388	2,041,526	100	862.92	861.5	4	20	n/a	OW	Sand	A	Central
RPM-8901	507	Annual	3487	10/16/89	494,718	2,042,698	124.3	888.62	886.2	4	19.5	n/a	OW	Sand	A	Central
RPM-9101	509	Annual	3487	10/26/91	492,702	2,045,303	105.8	874.04	871.8	3.75	10	n/a	OW	Sand	A	Central
RIN-1501B	538	Annual	3487	10/23/15	492,538	2,046,945	123.5	845.87	842.86	2.5	10	n/a	PZ	Sand	B	Central
RIN-1501C	539	Annual	3487	10/27/15	492,538	2,046,939	165.2	845.86	842.8	2.5	5	n/a	PZ	Sand	C	Central
RIN-1501D	540	Annual	3487	10/30/15	492,578	2,046,076	237.8	863.54	860.86	2.5	5	n/a	PZ	Sand	D	Central
RIN-1502B	541	Annual	3487	9/22/15	489,765	2,046,626	103.4	824.29	821.41	2.5	5	n/a	PZ	Sand	B	Central
RIN-1502C	542	Annual	3487	9/25/15	489,768	2,046,631	143.1	824.4	821.44	2.5	5	n/a	PZ	Sand	C	Central
RIN-1502D	543	Annual	3487	10/2/15	489,772	2,046,636	213.3	824.33	821.35	2.5	5	213	PZ	Sand	D	Central
RIN-2301A	549	Annual	3487	10/5/23	496,430	2,043,649	111	877.88	876.06	2.5	15	n/a	OW	Sand	A	Central
RIN-2301B	550	Annual	3487	10/4/23	496,428	2,043,640	154.6	877.81	876.03	2.5	5	n/a	PZ	Sand	B	Central
RIN-2302A	551	Annual	3487	10/2/23	495,322	2,040,975	107.2	879.3	877.49	2.5	15	n/a	OW	Sand	A	Central
SEN-0501A	580	Semi-Annual	4330	1/27/05	484,159	2,043,454	32	784.56	784.64	3.75	15	n/a	OW	Sand	A	Central
SEN-0501B	581	Semi-Annual	4330	1/27/05	484,158	2,043,458	87	784.71	784.87	3.75	10	n/a	PZ	Sand	B	Central
SEN-0501D	582	Semi-Annual	4330	1/27/05	484,156	2,043,462	190	784.98	785.22	3.75	10	194	PZ	Sand	D	Central
SEN-0502A	583	Semi-Annual	4330	1/28/05	484,107	2,044,412	33	786.46	786.47	3.75	15	n/a	OW	Sand	A	Central
SEN-0502D	584	Semi-Annual	4330	1/12/05	484,103	2,044,417	187	786.24	786.76	3.75	10	190	PZ	Sand	D	Central
SEN-0503A	585	Semi-Annual	4330	1/26/05	484,524	2,044,148	55.5	809.56	809.63	3.75	15	n/a	OW	Sand	A	Central

Table 8
Monitoring Well Information – Future Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
SEN-0503B	586	Semi-Annual	4330	1/25/05	484,518	2,044,150	110	809.17	809.39	3.75	10	n/a	PZ	Sand	B	Central
SEN-0503D	587	Semi-Annual	4330	1/19/05	484,514	2,044,152	213	809.31	809.31	3.75	10	214	PZ	Sand	D	Central
S1111	751	Annual	3038	1/2/80	487,414	2,044,310	99	848.79	846.8	4	20.24	n/a	OW	Sand	A	Central
S1112	752	Annual	3038	1/4/80	490,050	2,045,210	91.7	838.03	836.4	4	20.26	n/a	OW	Sand	A	Central
ELN-8203A	210	Semi-Annual	2813	3/24/82	501,516	2,044,336	157.5	927.79	925.2	4	10	n/a	OW	Sand	A	DBG
ELN-8203B	211	Semi-Annual	2813	3/25/82	501,502	2,044,325	166	927.43	925.5	4	2	n/a	PZ	Sand	B	DBG
ELN-8203C	212	Semi-Annual	2813	3/24/82	501,517	2,044,323	176	926.93	925.3	4	2	n/a	PZ	Sand	C	DBG
ELM-8901	216	Semi-Annual	2813	1/18/89	501,113	2,043,592	165	922.57	920.5	4	19.5	n/a	OW	Sand	A	DBG
ELM-8907	220	Semi-Annual	2813	4/18/89	500,500	2,044,492	150.3	916.21	913.7	4	20	n/a	OW	Sand	A	DBG
ELM-8908	221	Semi-Annual	2813	4/1/89	500,503	2,044,033	145	906.05	903	4	20	n/a	OW	Sand	A	DBG
ELM-8909	222	Semi-Annual	2813	4/13/89	501,298	2,043,256	155	921.86	919.6	4	20	n/a	OW	Sand	A	DBG
ELN-8902B	224	Semi-Annual	2813	4/18/89	501,013	2,044,130	178.5	920.38	918	4	5	n/a	PZ	Sand	B	DBG
ELN-9107A	227	Semi-Annual	2813	11/10/91	500,568	2,045,411	126	897.72	895.3	3.75	10	n/a	OW	Sand	A	DBG
ELN-9107B	228	Semi-Annual	2813	11/9/91	500,527	2,045,437	145	895.96	893.9	3.75	10	n/a	OW	Sand	B	DBG
ELN-9402AR	231	Semi-Annual	2813	2/15/94	501,014	2,044,060	145	920.92	919	4	15	n/a	OW	Sand	A	DBG
ELM-9501	234	Semi-Annual	2813	6/27/95	498,219	2,046,902	69	843.28	840.7	4	15	n/a	OW	Sand	A	DBG
S1134R	236	Semi-Annual	2813	6/8/95	501,504	2,043,991	151	922.06	920.6	4	15	n/a	OW	Sand	A	DBG
DBM-8201	301	Semi-Annual	3037	3/23/82	500,846	2,043,148	174.68	918.76	916.7	4	20	n/a	OW	Sand	A	DBG
DBM-8202	302	Semi-Annual	3037	3/20/82	501,147	2,042,937	157.35	920.35	917.8	4	20	n/a	OW	Sand	A	DBG
DBM-8903	306	Semi-Annual	3037	2/16/89	500,499	2,043,488	133	898.94	896.4	4	20	n/a	OW	Sand	A	DBG
DBN-9501A	314	Semi-Annual	3037	10/24/95	500,312	2,043,686	120	889.1	886.7	3.75	10	n/a	OW	Sand	A	DBG
DBN-9501B	315	Semi-Annual	3037	10/20/95	500,315	2,043,703	172.5	889.65	887	3.75	10	n/a	PZ	Sand	B	DBG
DBN-9501C	316	Semi-Annual	3037	10/18/95	500,298	2,043,710	228.5	890.03	887.5	3.75	10	n/a	PZ	Sand	C	DBG
DBN-9501E	317	Semi-Annual	3037	10/10/95	500,286	2,043,697	255.5	890.17	887.9	3.75	10.3	229	PZ	Rock	E	DBG
ELN-0801B	455	Semi-Annual	2813	4/15/08	498,220	2,046,894	105	843.87	841.37	2.5	5	n/a	PZ	Sand	B	DBG
ELN-0801C	456	Semi-Annual	2813	4/15/08	498,213	2,046,896	150.5	843.82	841.42	2.5	5	n/a	PZ	Sand	C	DBG
ELN-0801E	457	Semi-Annual	2813	10/23/08	498,221	2,046,909	207.67	842.7	840.1	2.5	5	187	PZ	Rock	E	DBG
ELN-0802A	458	Biennial	2813	10/28/08	498,661	2,045,219	107.49	878.47	876.2	2.5	15	n/a	OW	Sand	A	DBG
ELN-0802C	459	Biennial	2813	10/30/08	498,663	2,045,211	180.77	878.58	876.1	2.5	5	n/a	PZ	Sand	C	DBG
ELN-1001B	460	Semi-Annual	2813	5/11/10	497,078	2,047,480	96.1	809.308	806.981	2.5	5	n/a	PZ	Sand	B	DBG
ELN-1001C	461	Semi-Annual	2813	5/12/10	497,094	2,047,476	160.2	809.237	806.579	2.5	5	n/a	PZ	Sand	C	DBG
ELN-1001E	462	Semi-Annual	2813	6/23/10	497,110	2,047,472	245.5	809.342	806.463	2.5	5	230	PZ	Rock	E	DBG
ELN-1002A	463	Semi-Annual	2813	6/8/10	496,066	2,049,181	70.3	835.132	832.545	2.5	15	n/a	OW	Sand	A	DBG
ELN-1002B	464	Semi-Annual	2813	6/9/10	496,056	2,049,188	116.2	835.151	832.391	2.5	5	n/a	PZ	Sand	B	DBG
ELN-1002C	465	Semi-Annual	2813	6/15/10	496,075	2,049,195	164.1	835.149	832.132	2.5	5	n/a	PZ	Sand	C	DBG
ELN-1002E	466	Semi-Annual	2813	6/17/10	496,063	2,049,200	236.5	834.753	831.971	2.5	5	219	PZ	Rock	E	DBG
ELN-1003A	467	Semi-Annual	2813	7/7/10	497,862	2,048,208	31.2	801.868	799.887	2.5	15	n/a	OW	Sand	A	DBG
ELN-1003B	468	Semi-Annual	2813	7/6/10	497,867	2,048,198	96.5	801.404	798.737	2.5	5	n/a	PZ	Sand	B	DBG
ELN-1003C	469	Semi-Annual	2813	7/6/10	497,873	2,048,186	160.1	801.823	799.244	2.5	5	n/a	PZ	Sand	C	DBG
ELN-1003E	470	Semi-Annual	2813	7/1/10	497,876	2,048,172	230.6	801.619	799.115	2.5	5	213	PZ	Rock	E	DBG
DBN-1001B	472	Semi-Annual	3037	5/25/10	501,062	2,043,113	159.5	912.074	909.77	2.5	5	n/a	PZ	Sand	B	DBG

Table 8
Monitoring Well Information – Future Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
DBN-1001C	473	Semi-Annual	3037	5/27/10	501,063	2,043,094	197	911.996	909.78	2.5	5	n/a	PZ	Sand	C	DBG
DBN-1001E	474	Semi-Annual	3037	6/30/10	501,065	2,043,076	279.9	912.496	909.949	2.5	5	258	PZ	Rock	E	DBG
DBN-1002C	476	Semi-Annual	3037	6/17/10	500,487	2,044,488	210.1	916.116	913.72	2.5	5	n/a	PZ	Sand	C	DBG
DBN-1002E	477	Semi-Annual	3037	7/12/10	500,511	2,044,485	280.55	916.24	913.84	2.5	5	265	PZ	Rock	E	DBG
ELN-1502A	533	Semi-Annual	2813	10/19/15	499,322	2,046,218	130.3	902.15	899.2	2.5	15	n/a	OW	Sand	A	DBG
ELN-1502C	534	Semi-Annual	2813	10/14/15	499,317	2,046,221	203	902.36	899.3	2.5	5	n/a	PZ	Sand	C	DBG
ELN-1503A	535	Quarterly	2813	10/8/15	499,385	2,047,058	88.7	862.42	859.26	2.5	15	n/a	OW	Sand	A	DBG
ELN-1503C	536	Quarterly	2813	10/7/15	499,377	2,047,057	162.6	862.29	859.54	2.5	5	n/a	PZ	Sand	C	DBG
ELN-1504B	537	Semi-Annual	2813	9/11/15	497,531	2,048,387	39.8	780.51	778.34	2	5	n/a	PZ	Sand	B	DBG
ELN-2301B	547	Quarterly	2813	9/28/23	497,963	2,049,031	93.9	800.79	798.76	2.5	5	n/a	PZ	Sand	B	DBG
ELN-2301C	548	Quarterly	2813	9/27/23	497,963	2,049,024	158.5	800.83	798.81	2.5	5	n/a	PZ	Sand	C	DBG
S1121	755	Semi-Annual	3038	1/18/80	496,303	2,047,578	59.3	815.58	813.9	4	20.19	n/a	OW	Sand	A	DBG
RIM-0703	440	Annual	3487	10/4/07	499,282	2,034,376	113	889.23	886.53	2.5	15	n/a	OW	Sand	A	NC
RIM-0705	442	Semi-Annual	3487	10/10/07	497,844	2,035,152	106	884.38	881.3	2.5	15	n/a	OW	Sand	A	NC
RIM-1002	478	Semi-Annual	3487	4/29/10	499,282	2,034,869	110.2	891.011	888.514	2.5	15	n/a	OW	Sand	A	NC
RIN-1007C	479	Annual	3487	6/15/10	497,858	2,035,155	175.3	883.81	881.412	2.5	5	n/a	PZ	Sand	C	NC
RIN-1001A	480	Semi-Annual	3487	4/28/10	497,066	2,035,221	106.8	884.382	882.05	2.5	15	n/a	OW	Sand	A	NC
RIN-1001C	481	Annual	3487	5/24/10	497,097	2,035,225	181.41	884.021	882.012	2.5	5	n/a	PZ	Sand	C	NC
S1125	504	Semi-Annual	3487	12/26/79	496,508	2,036,418	126.5	895.93	894.9	4	20.22	n/a	OW	Sand	A	NC
SWN-0501B	237	Biennial	3493	12/15/05	480,635	2,039,879	155.6	860.07	860.4	4	10	n/a	PZ	Sand	B	PBG
SWN-0501C	238	Biennial	3493	12/13/05	480,634	2,039,894	206.6	860.28	860.6	4	10	n/a	PZ	Sand	C	PBG
SWN-0501D	239	Biennial	3493	12/9/05	480,635	2,039,906	262.9	860.38	860.5	4	10	n/a	PZ	Sand	D	PBG
SWN-0501E	240	Biennial	3493	11/30/05	480,635	2,039,917	290.3	860.53	860.7	2	10	253	PZ	Rock	E	PBG
SWN-0502B	241	Biennial	3493	12/22/05	479,887	2,039,265	155.8	856.1	856.3	4	10	n/a	PZ	Sand	B	PBG
SWN-0502C	242	Biennial	3493	12/20/05	479,885	2,039,280	201.5	856.39	856.5	4	10	n/a	PZ	Sand	C	PBG
SWN-0502D	243	Biennial	3493	12/7/05	479,886	2,039,273	244.9	856.19	856.3	4	10	n/a	PZ	Sand	D	PBG
SWN-0502E	244	Biennial	3493	12/13/05	479,893	2,039,267	260	856.27	856.5	2	10	240	PZ	Rock	E	PBG
PBM-9801	360	Semi-Annual	2814	10/13/98	491,877	2,035,466	123.5	890.46	887.85	4	15	n/a	OW	Sand	A	PBG
PBM-0001	367	Semi-Annual	2814	7/14/00	491,611	2,035,455	134.5	890.23	887.54	4	25	n/a	OW	Sand	A	PBG
PBM-0002	368	Semi-Annual	2814	8/4/00	491,527	2,035,422	131.5	886.46	884.75	4	25	n/a	OW	Sand	A	PBG
PBM-0006	372	Semi-Annual	2814	8/1/00	491,477	2,035,323	124.5	879.02	875.89	4	25	n/a	OW	Sand	A	PBG
PBM-0008	374	Semi-Annual	2814	8/12/00	491,355	2,035,323	122	876.62	874.66	4	25	n/a	OW	Sand	A	PBG
PBN-2301B	544	Semi-Annual	2814	5/24/23	481,919	2,036,933	120.3	840.02	837.69	2.5	5	n/a	PZ	Sand	B	PBG
PBN-2301C	545	Semi-Annual	2814	5/23/23	481,924	2,036,929	180.2	839.91	837.67	2.5	5	n/a	PZ	Sand	C	PBG
PBN-2301D	546	Semi-Annual	2814	5/19/23	481,930	2,036,925	252	840.02	837.8	2.5	5	253	PZ	Sand	D	PBG
PBN-9101C	561	Semi-Annual	3493	10/25/91	477,125	2,038,954	152.5	830.11	828	3.75	10	n/a	PZ	Sand	C	PBG
PBN-9102B	562	Biennial	3493	9/28/91	476,019	2,038,141	115	821.19	819	3.75	10	n/a	PZ	Sand	B	PBG
PBN-9102C	563	Biennial	3493	9/30/91	476,028	2,038,105	161.3	821.9	819.9	3.75	10	n/a	PZ	Sand	C	PBG
SWN-9102C	569	Biennial	3493	10/27/91	479,341	2,035,141	152.5	836.41	834.4	3.75	10	n/a	PZ	Sand	C	PBG
SWN-9102D	570	Biennial	3493	10/23/91	479,341	2,035,185	185	836.66	834.5	4	10	n/a	PZ	Sand	D	PBG
SWN-9103B	571	Semi-Annual	3493	10/4/91	479,353	2,036,656	113.4	836.63	834.7	3.75	10	n/a	PZ	Sand	B	PBG

Table 8
Monitoring Well Information – Future Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
SWN-9103C	572	Semi-Annual	3493	10/2/91	479,351	2,036,622	162.8	836.8	834.6	4	10	n/a	PZ	Sand	C	PBG
SWN-9103D	573	Semi-Annual	3493	10/1/91	479,352	2,036,701	209.1	837.1	835	4	10	210	PZ	Sand	D	PBG
SWN-9103E	574	Semi-Annual	3493	11/10/91	479,352	2,036,753	237.9	837.38	835	3.75	10	210	PZ	Rock	E	PBG
SWN-9104C	575	Semi-Annual	3493	10/13/91	479,357	2,037,722	164	834.87	832.8	3.75	10	n/a	PZ	Sand	C	PBG
SWN-9104D	576	Semi-Annual	3493	10/9/91	479,359	2,037,678	197	835.33	833.5	3.75	10	n/a	PZ	Sand	D	PBG
SWN-9105B	577	Annual	3493	10/12/91	478,954	2,038,812	112.5	832.73	830.5	3.75	10	n/a	PZ	Sand	B	PBG
SWN-9105C	578	Annual	3493	10/11/91	478,924	2,038,828	147	832.88	830.8	3.75	10	n/a	PZ	Sand	C	PBG
SWN-9105D	579	Annual	3493	10/10/91	478,885	2,038,855	200.5	833.35	831.2	3.75	10	n/a	PZ	Sand	D	PBG
PBN-1002A	589	Semi-Annual	2814	5/20/10	488,451	2,035,897	130.8	893.897	891.7	2.5	15	n/a	OW	Sand	A	PBG
PBN-1002B	590	Semi-Annual	2814	5/19/10	488,447	2,035,927	176.5	894.268	892.27	2.5	5	n/a	PZ	Sand	B	PBG
PBN-1002C	591	Semi-Annual	2814	6/9/10	488,450	2,035,908	216.8	893.48	891.48	2.5	5	n/a	PZ	Sand	C	PBG
PBN-1003C	592	Annual	2814	6/3/10	487,681	2,034,448	189.6	848.205	846.51	2.5	5	n/a	PZ	Sand	C	PBG
PBN-1001A	593	Semi-Annual	2814	5/3/10	485,984	2,035,770	79.3	840.374	838.17	2.5	15	n/a	OW	Sand	A	PBG
PBN-1001B	594	Semi-Annual	2814	6/2/10	485,976	2,035,768	139.9	839.93	838.23	2.5	5	n/a	PZ	Sand	B	PBG
PBN-1001C	595	Semi-Annual	2814	6/8/10	485,968	2,035,767	199.7	840.014	837.71	2.5	5	n/a	PZ	Sand	C	PBG
PBN-8202A	613	Semi-Annual	2814	5/1/82	491,539	2,035,491	118.5	886.15	884.09	4	10	n/a	OW	Sand	A	PBG
PBN-8202B	614	Semi-Annual	2814	3/9/82	491,537	2,035,480	133	885.49	883.48	4	2	n/a	PZ	Sand	B	PBG
PBN-8202C	615	Semi-Annual	2814	3/8/82	491,529	2,035,490	141.2	885.43	882.47	4	2	n/a	PZ	Sand	C	PBG
PBN-8205A	622	Semi-Annual	2814	3/13/82	490,334	2,035,262	112.5	878.52	875.8	4	10	n/a	OW	Sand	A	PBG
PBN-8205B	623	Semi-Annual	2814	3/11/82	490,343	2,035,252	124.25	877.8	875.88	4	2	n/a	PZ	Sand	B	PBG
PBN-8205C	624	Semi-Annual	2814	3/11/82	490,330	2,035,250	133.5	878.31	875.8	4	2	n/a	PZ	Sand	C	PBG
PBN-8502A	632	Semi-Annual	2814	10/1/85	489,416	2,035,667	138.09	898.88	895.8	5	9	n/a	OW	Sand	A	PBG
PBN-8503A	633	Annual	2814	10/3/85	489,407	2,034,266	94.82	851.45	848.1	5	9	n/a	OW	Sand	A	PBG
PBM-8907	637	Annual	2814	3/3/89	487,689	2,034,443	92.72	849.45	846.6	4	10	n/a	OW	Sand	A	PBG
PBM-8909	639	Biennial	2814	3/1/89	492,402	2,035,472	124.39	883.66	880.6	4	20	n/a	OW	Sand	A	PBG
PBN-8902C	645	Semi-Annual	2814	3/19/89	489,415	2,035,630	193.3	897.12	894.5	4	5.2	n/a	PZ	Sand	C	PBG
PBN-8903B	646	Annual	2814	3/8/89	489,457	2,034,281	125	847.93	844.9	4	5	n/a	PZ	Sand	B	PBG
PBN-8903C	647	Annual	2814	3/9/89	489,457	2,034,316	160	846.96	844.1	4	5	n/a	PZ	Sand	C	PBG
PBN-8910D	653	Semi-Annual	2814	4/29/89	491,142	2,035,388	237	884.42	880.9	4	5	n/a	PZ	Sand	D	PBG
PBN-8912A	654	Semi-Annual	2814	3/2/89	486,338	2,034,980	103.4	855.86	852.6	4	20	n/a	OW	Sand	A	PBG
PBN-8912B	655	Semi-Annual	2814	4/15/89	486,312	2,034,979	138	856.34	852.6	4	5	n/a	PZ	Sand	B	PBG
PBN-9112C	665	Semi-Annual	2814	10/24/91	486,280	2,034,972	183.4	854.48	852.2	3.75	10	n/a	PZ	Sand	C	PBG
PBN-9112D	666	Semi-Annual	2814	10/16/91	486,253	2,034,965	231	853.31	851.2	3.75	10	n/a	PZ	Sand	D	PBG
PBN-9301B	668	Semi-Annual	2814	3/19/93	489,365	2,036,994	160.5	875.03	872.2	3.86	10	n/a	PZ	Sand	B	PBG
PBN-9301C	669	Semi-Annual	2814	3/16/93	489,353	2,037,006	227.5	874.64	872.22	3.86	10	n/a	PZ	Sand	C	PBG
PBN-9303B	673	Semi-Annual	2814	3/9/93	486,123	2,036,945	93.5	816.16	813.49	3.86	10	n/a	PZ	Sand	B	PBG
PBN-9303C	674	Semi-Annual	2814	3/14/93	486,126	2,036,969	164.5	815.05	812.45	3.86	10	n/a	PZ	Sand	C	PBG
PBN-9303D	675	Semi-Annual	2814	3/11/93	486,127	2,036,990	224.5	813.98	811.41	3.86	10	223	PZ	Sand	D	PBG
PBN-9401B	677	Biennial	2814	8/8/94	486,957	2,038,337	127.7	852.23	850.5	4	10.3	n/a	PZ	Sand	B	PBG
PBN-9401C	678	Biennial	2814	8/9/94	486,981	2,038,338	167.8	852.96	851	4	10.4	n/a	PZ	Sand	C	PBG
PBN-9401D	679	Biennial	2814	8/3/94	486,971	2,038,337	267	853.01	850.9	4	10	277	PZ	Sand	D	PBG

Table 8
Monitoring Well Information – Future Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
PBN-9402B	680	Biennial	2814	8/24/94	485,560	2,038,160	95.5	816.36	813.9	4	10	n/a	PZ	Sand	B	PBG
PBN-9402C	681	Biennial	2814	8/22/94	485,560	2,038,150	135	816.35	813.8	4	10	n/a	PZ	Sand	C	PBG
PBN-9402D	682	Biennial	2814	8/18/94	485,557	2,038,140	225	816.14	813.7	4	10	n/a	PZ	Sand	D	PBG
PBN-9304A	684	Semi-Annual	2814	10/12/93	484,886	2,035,343	50	805.93	804	4	15	n/a	OW	Sand	A	PBG
PBN-9304B	685	Semi-Annual	2814	10/19/93	484,897	2,035,329	86	805.77	804	4	10	n/a	PZ	Sand	B	PBG
PBN-9304C	686	Semi-Annual	2814	10/21/93	484,866	2,035,315	115	806.41	804.5	4	10	n/a	PZ	Sand	C	PBG
PBN-9304D	687	Semi-Annual	2814	10/19/93	484,890	2,035,315	210	806.09	804.1	4	10	210	PZ	Sand	D	PBG
PBN-9903A	692	Semi-Annual	2814	6/23/99	483,859	2,035,680	76	826.91	825.18	4	15	n/a	OW	Sand	A	PBG
PBN-9903B	693	Semi-Annual	2814	7/8/99	483,859	2,035,687	112	827.17	825	4	5	n/a	PZ	Sand	B	PBG
PBN-9903C	694	Semi-Annual	2814	7/15/99	483,861	2,035,693	163	827.33	824.99	4	5	n/a	PZ	Sand	C	PBG
PBN-9903D	695	Semi-Annual	2814	7/13/99	483,861	2,035,698	208	827.52	825.1	4	5	196	PZ	Sand	D	PBG
S1147	709	Annual	3499	10/10/83	484,928	2,034,512	70.8	817.07	815.7	5	25	n/a	OW	Sand	A	PBG
S1148	710	Semi-Annual	3499	10/10/83	484,691	2,035,563	56.7	803.72	802.1	5	25	n/a	OW	Sand	A	PBG
SPN-8903B	718	Annual	3499	3/22/89	484,935	2,034,532	93.7	818.14	815.1	4	5	n/a	PZ	Sand	B	PBG
SPN-8903C	719	Annual	3499	4/13/89	484,907	2,034,501	127.7	818.13	815.3	4	5	n/a	PZ	Sand	C	PBG
SPN-8904B	720	Semi-Annual	3499	3/9/89	484,691	2,035,540	75	804.23	801.6	4	5	n/a	PZ	Sand	B	PBG
SPN-8904C	721	Semi-Annual	3499	3/30/89	484,694	2,035,642	106.5	803.25	800.7	4	5	n/a	PZ	Sand	C	PBG
SPN-9103D	725	Annual	3499	10/8/91	484,909	2,034,440	200.5	819.29	816.7	3.75	10	n/a	PZ	Sand	D	PBG
SPN-9104D	726	Semi-Annual	3499	10/1/91	484,693	2,035,601	206	802.61	800.8	3.75	10	212	PZ	Sand	D	PBG
PBN-1301A	767	Annual	2814	9/16/13	491,295	2,035,639	130	899.97	897.35	2.5	15	n/a	OW	Sand	A	PBG
PBN-1301B	768	Annual	2814	9/12/13	491,310	2,035,602	159.5	897.32	894.58	2.5	5	n/a	PZ	Sand	B	PBG
PBN-1301C	769	Annual	2814	9/10/13	491,265	2,035,609	200	897.14	894.54	2.5	5	n/a	PZ	Sand	C	PBG
PBN-1302A	770	Semi-Annual	2814	10/16/13	484,705	2,036,460	84.7	830.23	828.3	2.5	15	n/a	OW	Sand	A	PBG
PBN-1302B	771	Semi-Annual	2814	10/17/13	484,705	2,036,453	136.2	829.65	827.6	2.5	5	n/a	PZ	Sand	B	PBG
PBN-1302C	772	Semi-Annual	2814	10/22/13	484,705	2,036,448	187.6	828.98	827	2.5	5	n/a	PZ	Sand	C	PBG
PBN-1302D	773	Semi-Annual	2814	10/29/13	484,705	2,036,442	245.1	828.35	826.5	2.5	5	245	PZ	Sand	D	PBG
PBN-1303A	774	Semi-Annual	2814	11/5/13	484,651	2,036,981	130.5	884.88	883	2.5	15	n/a	OW	Sand	A	PBG
PBN-1303B	775	Semi-Annual	2814	11/12/13	484,651	2,036,968	176.5	883.71	881.6	2.5	5	n/a	PZ	Sand	B	PBG
PBN-1303C	776	Semi-Annual	2814	11/20/13	484,652	2,036,963	232	883.67	881.6	2.5	5	n/a	PZ	Sand	C	PBG
PBN-1303D	777	Semi-Annual	2814	11/22/13	484,652	2,036,958	287	883.42	881.6	2.5	5	287	PZ	Sand	D	PBG
PBN-1304A	778	Semi-Annual	2814	12/3/13	484,642	2,037,502	116	871.81	869.4	2.5	15	n/a	OW	Sand	A	PBG
PBN-1304B	779	Semi-Annual	2814	12/10/13	484,642	2,037,496	163.1	871.49	869.8	2.5	5	n/a	PZ	Sand	B	PBG
PBN-1304C	780	Semi-Annual	2814	12/17/13	484,642	2,037,489	218	872	869.7	2.5	5	n/a	PZ	Sand	C	PBG
PBN-1304D	781	Semi-Annual	2814	1/14/14	484,642	2,037,484	273	872.03	869.5	2.5	5	273	PZ	Sand	D	PBG
PBN-1401A	782	Semi-Annual	2814	2/19/14	491,036	2,035,501	132.2	887.3	884.57	2.5	15	n/a	OW	Sand	A	PBG
PBN-1401B	783	Semi-Annual	2814	2/12/14	491,035	2,035,494	163.7	887.09	884.57	2.5	5	n/a	PZ	Sand	B	PBG
PBN-1401C	784	Semi-Annual	2814	2/10/14	491,035	2,035,488	203.3	887.08	884.57	2.5	5	n/a	PZ	Sand	C	PBG
PBN-1404B	791	Semi-Annual	2814	3/11/14	487,745	2,035,891	179.5	895.08	892.18	2.5	5	n/a	PZ	Sand	B	PBG
PBN-1404C	792	Semi-Annual	2814	3/4/14	487,742	2,035,888	239.3	895.04	892.18	2.5	5	n/a	PZ	Sand	C	PBG
PBN-1404D	793	Semi-Annual	2814	2/26/14	487,737	2,035,885	299.8	894.49	892.18	2.5	5	300	PZ	Sand	D	PBG
PBN-1405F	794	Biennial	2814	3/25/14	484,824	2,035,411	319.7	806.29	803.77	2.5	5	212	PZ	Rock	F	PBG

Table 8
Monitoring Well Information – Future Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
PBN-8902BR	795	Semi-Annual	2814	3/24/14	489,418	2,035,684	160	898.87	896.82	2.5	5	n/a	PZ	Sand	B	PBG
PBM-9001D	981	Semi-Annual	3485	8/25/90	477,175	2,038,945	210.5	831.52	829	4	10	n/a	PZ	Sand	D	PBG
PBM-9002D	982	Biennial	3485	8/18/90	475,994	2,038,132	204.5	821.31	818.7	4	10	n/a	PZ	Sand	D	PBG

Notes

OW = Water Table Observation Well

PZ = Piezometer

DBG = Deterrent Burning Ground Plume

Central = Central Plume

NC = Nitrocellulose Production Area Plume

PBG = Propellant Burning Ground Plume

Screen Level references the typical well depth configuration

Table 9
Monitoring Well Information – No Future Sampling
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
NLN-8202A	255	Not Sampled	3118	4/30/82	495,648	2,046,075	102.9	873.61	872.53	4.0	10.0	n/a	OW	Sand	A	Central
NLN-8202B	256	Not Sampled	3118	4/23/82	495,646	2,046,087	115.0	873.69	871.97	4.0	2.0	n/a	PZ	Sand	B	Central
NLN-8204A	261	Not Sampled	3118	5/8/82	494,911	2,045,873	125.5	892.72	891.00	4.0	10.0	n/a	OW	Sand	A	Central
NLN-8204B	262	Not Sampled	3118	5/8/82	494,899	2,045,877	137.5	893.44	891.60	4.0	2.0	n/a	PZ	Sand	B	Central
NLN-8204C	263	Not Sampled	3118	5/7/82	494,901	2,045,867	150.0	893.54	891.60	4.0	2.0	n/a	PZ	Sand	C	Central
NLM-9202R	270	Not Sampled	3118	12/21/92	494,989	2,046,317	118.2	885.15	882.90	4.0	15.0	n/a	OW	Sand	A	Central
NLM-0301R	271	Not Sampled	3646	7/23/03	495,613	2,045,778	112.0	881.20	877.92	4.0	15.0	n/a	OW	Sand	A	Central
NLM-0302R	272	Not Sampled	3646	1/9/04	496,404	2,045,533	127.0	894.50	891.70	4.0	15.0	n/a	OW	Sand	A	Central
NLM-0401	296	Not Sampled	3646	8/3/04	495,912	2,046,255	112.0	869.29	866.66	4.0	15.0	n/a	OW	Sand	A	Central
NLN-0701A	297	Not Sampled	3646	6/6/07	495,491	2,045,250	125.0	887.47	884.87	4.0	15.0	n/a	OW	Sand	A	Central
NLN-0701C	298	Not Sampled	3646	6/5/07	495,491	2,045,242	155.0	887.29	884.79	4.0	5.0	n/a	PZ	Sand	C	Central
RIM-1004	494	Not Sampled	3487	5/5/10	489,552	2,044,244	70.5	836.40	833.60	2.5	15.0	n/a	OW	Sand	A	Central
S1150	505	Not Sampled	3487	10/10/83	496,772	2,037,797	138.0	897.56	895.60	5.0	25.0	n/a	OW	Sand	A	Central
S1113	753	Not Sampled	3038	11/23/79	491,611	2,048,037	66.1	821.58	820.00	4.0	20.2	n/a	OW	Sand	A	Central
S1114	754	Not Sampled	3038	11/20/79	491,603	2,048,038	105.4	821.46	820.10	4.0	5.0	n/a	PZ	Sand	C	Central
ELN-8904A	225	Not Sampled	2813	3/30/89	501,790	2,044,600	162.0	926.34	924.10	4.0	20.0	n/a	OW	Sand	A	DBG
ELN-8904B	226	Not Sampled	2813	4/2/89	501,721	2,044,645	199.0	926.61	924.80	4.0	5.0	n/a	PZ	Sand	B	DBG
ELM-9110	229	Not Sampled	2813	11/13/91	501,635	2,044,708	154.0	923.03	920.80	3.8	15.0	n/a	OW	Sand	A	DBG
PBM-9901	361	Not Sampled	2814	6/4/99	491,934	2,035,484	130.0	891.56	888.90	4.0	105.0	n/a	OW	Sand	A	PBG
PBM-9902	362	Not Sampled	2814	6/4/99	491,664	2,035,482	132.0	890.94	888.35	4.0	110.0	n/a	OW	Sand	A	PBG
PBM-9903	363	Not Sampled	2814	6/4/99	491,628	2,035,319	126.0	882.42	880.87	4.0	105.0	n/a	OW	Sand	A	PBG
PBM-0003	369	Not Sampled	2814	8/8/00	491,440	2,035,388	120.5	875.95	876.89	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-0004	370	Not Sampled	2814	7/25/00	491,356	2,035,354	125.5	877.62	875.64	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-0005	371	Not Sampled	2814	7/19/00	491,566	2,035,322	128.0	883.58	881.22	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-0007	373	Not Sampled	2814	7/24/00	491,417	2,035,323	120.9	874.47	872.56	4.0	25.0	n/a	OW	Sand	A	PBG
PBM-9803	526	Not Sampled	2814	10/7/98	491,595	2,035,352	121.7	885.16	882.64	4.0	15.0	n/a	OW	Sand	A	PBG
S1109	600	Not Sampled	2814	2/14/80	488,537	2,032,975	107.3	856.64	855.10	4.0	20.4	n/a	OW	Sand	A	PBG
S1117	601	Not Sampled	2814	2/13/80	490,355	2,034,837	119.1	867.92	862.30	4.0	20.2	n/a	OW	Sand	A	PBG
PBM-8201	605	Not Sampled	2814	3/18/82	491,409	2,034,559	100.7	857.36	855.70	4.0	20.0	n/a	PZ	Sand	A	PBG
PBM-8203	607	Not Sampled	2814	3/16/82	490,778	2,034,771	108.8	868.42	862.70	4.0	20.0	n/a	PZ	Sand	A	PBG
PBM-8204	608	Not Sampled	2814	3/17/82	490,553	2,035,006	115.5	875.72	869.00	4.0	20.0	n/a	PZ	Sand	A	PBG
PBM-8205	609	Not Sampled	2814	5/3/82	490,547	2,035,178	123.8	877.11	874.50	4.0	20.0	n/a	PZ	Sand	A	PBG
PBN-8201A	610	Not Sampled	2814	3/18/82	492,093	2,035,482	117.8	884.59	881.50	4.0	10.0	n/a	OW	Sand	A	PBG
PBN-8201B	611	Not Sampled	2814	3/10/82	492,091	2,035,469	131.5	883.77	881.50	4.0	2.0	n/a	PZ	Sand	B	PBG
PBN-8201C	612	Not Sampled	2814	3/10/82	492,101	2,035,476	141.0	883.98	881.50	4.0	2.0	n/a	PZ	Sand	C	PBG
PBN-8203A	616	Not Sampled	2814	3/15/82	490,314	2,034,600	96.5	860.01	857.60	4.0	10.0	n/a	OW	Sand	A	PBG
PBN-8203B	617	Not Sampled	2814	3/15/82	490,311	2,034,613	108.5	860.26	857.60	4.0	2.0	n/a	PZ	Sand	B	PBG
PBN-8203C	618	Not Sampled	2814	3/15/82	490,300	2,034,606	117.5	860.17	857.60	4.0	2.0	n/a	PZ	Sand	C	PBG
PBN-8204B	620	Not Sampled	2814	3/13/82	490,027	2,035,049	120.5	874.74	873.00	4.0	2.0	n/a	PZ	Sand	B	PBG
PBN-8204C	621	Not Sampled	2814	3/12/82	490,026	2,035,062	131.5	875.59	873.00	4.0	2.0	n/a	PZ	Sand	C	PBG
PBM-8501	625	Not Sampled	2814	9/22/85	489,712	2,034,851	121.6	862.73	859.30	5.0	9.0	n/a	OW	Sand	A	PBG

Table 9
Monitoring Well Information – No Future Sampling
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
PBM-8502	626	Not Sampled	2814	9/17/85	489,417	2,034,654	101.7	849.42	845.40	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8503	627	Not Sampled	2814	9/18/85	489,414	2,035,277	150.5	886.29	882.90	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8504	628	Not Sampled	2814	9/24/85	488,819	2,035,043	125.4	866.47	863.80	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8505	629	Not Sampled	2814	9/28/85	488,223	2,035,056	111.0	863.97	861.30	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8506	630	Not Sampled	2814	10/4/85	487,043	2,035,032	98.2	848.18	845.10	5.0	9.0	n/a	OW	Sand	A	PBG
PBN-8501A	631	Not Sampled	2814	9/18/85	489,413	2,035,044	121.9	874.51	871.30	5.0	9.0	n/a	OW	Sand	A	PBG
PBN-8504A	634	Not Sampled	2814	9/30/85	487,634	2,035,066	112.7	860.03	857.20	5.0	9.0	n/a	OW	Sand	A	PBG
PBM-8905	635	Not Sampled	2814	3/6/89	489,403	2,033,827	98.1	855.64	852.30	4.0	20.0	n/a	OW	Sand	A	PBG
PBM-8906	636	Not Sampled	2814	4/30/89	489,509	2,036,227	136.0	886.34	883.70	4.0	20.0	n/a	OW	Sand	A	PBG
PBM-8908	638	Not Sampled	2814	3/14/89	487,520	2,035,745	125.0	888.68	885.50	4.0	20.0	n/a	OW	Sand	A	PBG
PBM-8911	640	Not Sampled	2814	3/7/89	493,411	2,035,391	111.0	884.45	881.60	4.0	20.0	n/a	OW	Sand	A	PBG
PBN-8901B	641	Not Sampled	2814	1/22/89	489,397	2,035,022	159.9	872.55	870.00	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-8901C	642	Not Sampled	2814	4/19/89	489,395	2,035,102	198.1	878.03	875.50	4.0	5.0	n/a	PZ	Sand	C	PBG
PBN-8901D	643	Not Sampled	2814	1/21/89	489,397	2,035,047	238.2	874.19	871.50	4.0	5.0	n/a	PZ	Sand	D	PBG
PBN-8904B	648	Not Sampled	2814	3/19/89	487,673	2,035,060	144.0	859.32	856.70	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-8904C	649	Not Sampled	2814	4/16/89	487,651	2,035,092	180.5	859.87	857.70	4.0	5.0	n/a	PZ	Sand	C	PBG
PBN-8910A	650	Not Sampled	2814	2/22/89	491,156	2,035,501	128.0	889.82	886.80	4.0	20.0	n/a	OW	Sand	A	PBG
PBN-8910B	651	Not Sampled	2814	2/28/89	491,159	2,035,539	166.7	892.09	889.10	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-8910C	652	Not Sampled	2814	2/3/89	491,154	2,035,464	192.0	887.11	884.70	4.0	5.0	n/a	PZ	Sand	C	PBG
LOM-8901	656	Not Sampled	2814	2/17/89	492,014	2,036,131	157.5	918.08	915.90	4.0	20.0	n/a	PZ	Sand	A	PBG
LON-8902A	657	Not Sampled	2814	2/19/89	491,571	2,036,136	159.0	927.95	918.50	4.0	20.0	n/a	OW	Sand	A	PBG
LON-8903A	659	Not Sampled	2814	2/20/89	491,581	2,036,311	158.0	926.36	919.20	4.0	20.0	n/a	OW	Sand	A	PBG
LON-8903B	660	Not Sampled	2814	2/20/89	491,579	2,036,275	198.0	927.41	919.50	4.0	5.0	n/a	PZ	Sand	B	PBG
LOM-9101	661	Not Sampled	2814	10/10/91	492,618	2,036,184	151.0	917.76	915.50	3.8	10.0	n/a	PZ	Sand	A	PBG
LOM-9102	662	Not Sampled	2814	10/25/91	493,326	2,036,375	148.0	912.46	910.30	3.8	10.0	n/a	OW	Sand	A	PBG
PBN-9106C	663	Not Sampled	2814	10/22/91	487,104	2,035,032	201.0	848.71	846.10	3.8	10.0	n/a	PZ	Sand	C	PBG
PBN-9106D	664	Not Sampled	2814	10/12/91	487,107	2,035,008	251.0	847.53	845.80	3.8	10.0	n/a	PZ	Sand	D	PBG
PBN-9306C	667	Not Sampled	2814	3/22/90	489,507	2,036,238	227.5	886.51	884.06	3.9	10.0	n/a	PZ	Sand	C	PBG
PBN-9302B	670	Not Sampled	2814	3/5/93	487,005	2,036,974	154.5	873.31	871.26	3.9	10.0	n/a	PZ	Sand	B	PBG
PBN-9302C	671	Not Sampled	2814	2/26/93	487,017	2,036,966	204.0	873.76	872.24	3.9	10.0	n/a	PZ	Sand	C	PBG
PBN-9302D	672	Not Sampled	2814	3/7/93	487,001	2,036,953	289.5	874.93	870.72	3.9	10.0	288	PZ	Sand	D	PBG
PBN-9404AR	676	Not Sampled	2814	2/18/94	490,017	2,035,038	118.0	873.63	871.30	4.0	15.0	n/a	OW	Sand	A	PBG
LON-9502BR	683	Not Sampled	2814	6/1/95	491,573	2,036,166	203.5	927.54	919.30	4.0	18.5	n/a	PZ	Sand	B	PBG
PBN-9902A	688	Not Sampled	2814	6/22/99	484,805	2,035,024	60.0	811.54	808.91	4.0	15.0	n/a	OW	Sand	A	PBG
PBN-9902B	689	Not Sampled	2814	7/8/99	484,803	2,035,020	111.0	810.72	808.41	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-9902C	690	Not Sampled	2814	7/7/99	484,800	2,035,029	168.0	811.23	809.16	4.0	5.0	n/a	PZ	Sand	C	PBG
PBN-9902D	691	Not Sampled	2814	7/1/99	484,798	2,035,025	222.5	811.53	809.50	4.0	5.0	217	PZ	Sand	D	PBG
PBN-9901A	696	Not Sampled	2814	6/22/99	484,812	2,034,889	59.0	810.38	808.39	4.0	15.0	n/a	OW	Sand	A	PBG
PBN-9901B	697	Not Sampled	2814	6/29/99	484,808	2,034,889	107.0	809.93	808.46	4.0	5.0	n/a	PZ	Sand	B	PBG
PBN-9901C	698	Not Sampled	2814	6/28/99	484,799	2,034,890	163.0	810.00	808.45	4.0	5.0	n/a	PZ	Sand	C	PBG
PBN-9901D	699	Not Sampled	2814	6/23/99	484,790	2,034,891	216.0	810.95	808.52	4.0	5.0	216	PZ	Sand	D	PBG

Table 9
Monitoring Well Information – No Future Sampling
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	NAD83 Northing (feet)	NAD83 Easting (feet)	Well Depth (feet)	Top of Casing Elevation	Ground Elevation	Well Diameter (inches)	Screen Length (feet)	Bedrock Depth (feet)	Well Type	Aquifer	Screen Level	Plume Area
S1102	701	Not Sampled	3499	11/5/79	484,693	2,036,063	64.6	809.25	807.70	4.0	20.0	n/a	OW	Sand	A	PBG
S1103	702	Not Sampled	3499	11/2/79	484,689	2,036,056	120.1	809.02	807.50	4.0	5.1	n/a	PZ	Sand	C	PBG
S1106	705	Not Sampled	3499	11/14/79	484,794	2,039,567	135.7	839.91	838.10	4.0	5.0	n/a	PZ	Sand	C	PBG
S1133	708	Not Sampled	3499	2/19/80	484,746	2,032,920	97.0	828.28	828.20	4.0	5.2	n/a	PZ	Sand	B	PBG
S1149	711	Not Sampled	3499	10/10/83	485,128	2,036,476	60.8	807.75	806.10	5.0	25.0	n/a	OW	Sand	A	PBG
S1152B	713	Not Sampled	3499	9/26/85	484,582	2,036,049	73.6	813.26	810.30	4.0	5.0	n/a	OW	Sand	B	PBG
SPN-8901C	714	Not Sampled	3499	3/29/89	484,722	2,032,922	121.0	830.09	827.80	4.0	5.0	n/a	PZ	Sand	C	PBG
SPN-8902A	715	Not Sampled	3499	2/22/89	484,748	2,033,808	71.0	823.67	820.80	4.0	20.0	n/a	OW	Sand	A	PBG
SPN-8902B	716	Not Sampled	3499	3/15/89	484,741	2,033,827	98.8	823.61	820.30	4.0	5.0	n/a	PZ	Sand	B	PBG
SPN-8902C	717	Not Sampled	3499	4/14/89	484,745	2,033,868	129.0	822.48	820.00	4.0	5.0	n/a	PZ	Sand	C	PBG
SPN-9102D	724	Not Sampled	3499	10/9/91	484,733	2,033,650	182.8	824.11	821.60	3.8	10.0	n/a	PZ	Sand	D	PBG
S1152AR	727	Not Sampled	3499	4/12/95	484,582	2,036,036	56.0	812.48	809.80	4.0	15.0	n/a	OW	Sand	A	PBG
PBM-1201	764	Not Sampled	2814	11/15/12	491,516	2,035,458	118.5	882.56	880.24	2.5	15.0	n/a	OW	Sand	A	PBG
PBM-1202	765	Not Sampled	2814	11/19/12	491,507	2,035,442	118.5	881.48	879.01	2.5	15.0	n/a	OW	Sand	A	PBG
PBM-1203	766	Not Sampled	2814	11/20/12	491,496	2,035,425	118.4	880.18	877.69	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1402A	785	Not Sampled	2814	2/4/14	490,204	2,035,272	113.6	878.31	876.47	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1402B	786	Not Sampled	2814	2/10/14	490,204	2,035,277	132.9	878.77	876.47	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1402C	787	Not Sampled	2814	2/18/14	490,204	2,035,282	162.8	878.74	876.47	2.5	5.0	n/a	PZ	Sand	C	PBG
PBN-1403A	788	Not Sampled	2814	2/27/14	489,290	2,035,682	135.7	901.24	899.00	2.5	15.0	n/a	OW	Sand	A	PBG
PBN-1403B	789	Not Sampled	2814	2/26/14	489,290	2,035,687	157.2	901.22	899.05	2.5	5.0	n/a	PZ	Sand	B	PBG
PBN-1403C	790	Not Sampled	2814	2/20/14	489,290	2,035,693	192.0	901.64	899.27	2.5	5.0	n/a	PZ	Sand	C	PBG

Notes
OW = Water Table Observation Well
PZ = Piezometer
DBG = Deterrent Burning Ground Plume
Central = Central Plume
PBG = Propellant Burning Ground Plume
Screen Level references the typical well depth configuration

Table 10
Residential Well Information – Future Sampling Frequency
Badger Army Ammunition Plant

Well Name	Well ID	Sample Frequency	License	Date Installed	Well Depth (feet)	Well Diameter (inches)	Bedrock Depth (feet)	Aquifer	Plume Area
USDA 3	126	Annual	3497	10/21/80	270	6	235	Rock	Central
USDA 6	128	Annual	3497	3/7/06	140	8	n/a	Sand	Central
WE-TM599	129	Annual	3497	10/2/06	120	5	n/a	Sand	Central
WE-RM383	153	Annual	3497	6/10/03	81	6	n/a	Sand	Central
WE-RR542	156	Annual	3497	9/20/03	100	6	n/a	Sand	Central
WE-QR441	157	Annual	3497	1/29/02	118	5	n/a	Sand	Central
WE-QN039	158	Annual	3497	11/15/01	100	6	n/a	Sand	Central
WE-RD430	159	Annual	3497	12/10/02	80	6	n/a	Sand	Central
WE-SQ017	164	Annual	3497	3/10/05	180	5	n/a	Sand	Central
WE-SQ001	165	Annual	3497	1/15/05	179	6	n/a	Sand	Central
WE-RR598	169	Annual	3497	3/10/04	106	6	n/a	Sand	Central
WE-SQ002	170	Annual	3497	1/20/05	100	6	n/a	Sand	Central
WE-TF023	174	Annual	3497	2/22/06	178	5	n/a	Sand	Central
WE-UK125	431	Annual	3497	12/29/07	283	5	243	Rock	Central
WE-UA297	433	Annual	3497	7/17/07	180	6	n/a	Sand	Central
WE-XD828	434	Annual	3497	8/19/13	80	6	n/a	Sand	Central
WE-XK342	435	Quarterly	3497	8/27/14	80	6	n/a	Sand	Central
WE-YW972	436	Annual	3497	5/14/18	121	6	n/a	Sand	Central
WE-ZE512	437	Annual	3497	12/22/18	324	6	205	Rock	Central
WE-AAB891	799	Annual	3497	4/29/20	139	n/a	n/a	Sand	Central
USDA 1	828	Annual	3497	11/4/79	575	12	263	Rock	Central
USDA 2	829	Annual	3497	7/18/96	227	6	n/a	Sand	Central
WE-AAF735	837	Annual	3497	10/27/20	140	5	n/a	Sand	Central
E12092	838	Annual	3497	10/27/20	86	5	n/a	Sand	Central
WE-AAU638	919	Annual	3497	10/3/22	81	6	n/a	Sand	Central
S7703A	163	Annual	3497	7/26/19	344	6	216	Rock	DBG
E12655	414	Annual	3497	n/a	n/a	n/a	n/a	n/a	DBG
E12649B	417	Annual	3497	n/a	n/a	n/a	n/a	Sand	DBG
E12455	796	Annual	3497	6/20/19	132	4	n/a	Sand	DBG
E12375A	803	Quarterly	3497	3/1/93	159	n/a	n/a	Sand	DBG
S7722	874	Annual	3497	5/28/88	260	6	217	Rock	DBG
S7655	916	Quarterly	3497	n/a	110	6	n/a	Sand	DBG
S8723	152	Annual	3497	8/25/99	301	6	265	Rock	PBG
S8732	800	Annual	3497	n/a	131	n/a	n/a	Sand	PBG
S8871	840	Annual	3497	11/27/20	303	6	267	Rock	PBG
S9093A	847	Annual	3497	9/16/08	221	6	206	Rock	PBG
S9059A	862	Annual	3497	n/a	180	n/a	n/a	Sand	PBG
S8795	875	Annual	3497	4/8/90	156	6	n/a	Sand	PBG
E11823	886	Annual	3497	8/10/59	122	4	n/a	Sand	PBG
PDS-3	911	Annual	3497	6/11/91	554	15	186	Rock	PBG
S8839	917	Annual	3497	n/a	310	n/a	n/a	Rock	PBG
S9104	924	Annual	3497	5/26/88	298	6	231	Rock	PBG
S9008A	931	Annual	3497	n/a	280	n/a	n/a	Rock	PBG
E11752A	948	Annual	3497	6/20/88	275.5	6	n/a	Rock	PBG
S9179	970	Annual	3497	8/25/75	240	6	170	Rock	PBG
S8745	998	Annual	3497	11/21/92	178	6	n/a	Sand	PBG

Notes
n/a = Not available
DBG = Deterrent Burning Ground Plume
Central = Central Plume
PBG = Propellant Burning Ground Plume

5.3 Propellant Burning Ground Plume Sampling

5.3.1 Included Wells

Wells associated with the PBG Plume include monitoring wells (observation wells and piezometers) and residential wells. Monitoring wells included in the proposed sampling program are listed in **Table 11**. Residential wells included in the proposed sampling program are listed in **Table 12**. Each table includes the proposed lab analytes (methods) for each well. Field parameters (**Section 7.1**) are measured each time a monitoring well is sampled.

The future groundwater sampling program for the PBG Plume includes 107 monitoring wells sampled at varying frequencies: 71 semi-annual, 15 annual, and 21 biennial. Monitoring wells will be sampled for a mixture of DNT (all six DNT isomers), VOCs and nitrate. Fifteen monitoring wells located near the PBG cap will be tested for nitrate. The current sampling program only tested three monitoring wells for nitrate. The sample frequencies for each monitoring well are listed in **Table 11** and shown on **Figure 41**.

Monitoring Wells Added to Sampling Program

The Army is proposing to add 25 existing monitoring wells (**Table 11**) to the future groundwater sampling program. These 25 monitoring wells are not a part of the current (2024) sampling program. These 25 monitoring wells were all sampled between August and September 2020. The addition of 14 monitoring wells will provide better definition of the eastern edge of the PBG Plume as it shifts towards the east. The remaining 11 monitoring wells will improve the contaminant monitoring through the plume's axis (centerline).

Wells PBN-1301A, B, C are located 250 feet southeast (slightly downgradient) of the PBG cap and PBN-8202A. DNT concentrations in PBN-8202A and other wells near the PBG cap have been increasing since 2017. During August 2020, DNT was not detected in PBN-1301A, B, C. Wells PBN-1301A, B, C will be sampled annually due to the upgradient increasing DNT concentrations and monitor a potential shift of the PBG Plume to the east.

Wells PBN-1002A, B, C are located 3,100 feet south (on-site and downgradient) of the PBG cap. During September 2020, CTET was detected in PBN-1002A and PBN-1002B above the NR 140 ES and NR 140 PAL, respectively. TCE was also detected in PBN-1002B above the NR 140 PAL. Wells PBN-1002A, B, C will be sampled semi-annually to enhance monitoring of the PBG Plume's axis.

Wells PBN-1001A, B, C are located 5,500 feet south (on-site and downgradient) of the PBG cap. During August 2020, CTET was detected in PBN-1001B above the NR 140 ES and above the NR 140 PAL in both PBN-1001A and PBN-1001C. TCE was also detected in PBN-1001B above the NR 140 PAL. PBN-1001C has been semi-annually sampled since 2015 to monitor decreasing ethyl ether concentrations. Wells PBN-1002A, B, C will be sampled semi-annually to enhance monitoring of the PBG Plume's axis.

Wells PBN-9304A, B, C, D are located 300 feet north (on-site) of the BAAP boundary. During August 2020, total DNT was detected in PBN-9304B above the NR 140 ES. CTET was detected in PBN-9304B and PBN-9304C above the NR 140 PAL. TCE was also detected in PBN-9304C

above the NR 140 PAL. PBN-9304D has been semi-annually sampled since 2015 to monitor decreasing ethyl ether concentrations. Wells PBN-9304A, B, C, D will be sampled semi-annually to further define DNT concentrations near the BAAP boundary and enhance monitoring of the PBG Plume's axis.

Wells PBN-9401B, C, D are located 5,300 feet south (on-site and downgradient) of the PBG cap and 800 feet east of the estimated extent of the PBG Plume. During August 2020, CTET was detected in PBN-9401B and PBN-9401C but below the NR 140 PAL. Wells PBN-9401B, C, D will be sampled biennially to monitor the PBG Plume as it migrates towards the east.

Wells PBN-9402B, C, D are located 400 feet south of PBN-9401B, C, D and 600 feet east of the estimated extent of the PBG Plume. During August 2020, CTET was detected in PBN-9402B and PBN-9402C but below the NR 140 PAL. Wells PBN-9402B, C, D will be sampled biennially to monitor the PBG Plume as it migrates towards the east.

Wells SWN-0501B, C, D, E are located 2.3 miles southeast (off-site and downgradient) of the PBG cap and 1,750 feet east of the estimated extent of the PBG Plume. These wells are located on the north side of a subdivision with residential wells (The Windings). During September 2020, CTET was detected in SWN-0501B and SWN-0501C but below the NR 140 PAL. Ethyl ether was detected in SWN-0501D and SWN-0501E but below the NR 140 PAL. These wells had been routinely sampled from 2006 to 2014. Wells SWN-0501B, C, D, E will be sampled biennially to monitor the PBG Plume as it migrates towards the east.

Wells SWN-0502B, C, D, E are located 900 feet southwest of SWN-0501B, C, D, E and 900 feet east of the estimated extent of the PBG Plume. These wells are located on the west side of a subdivision with residential wells (The Windings). During September 2020, no DNT or VOC compounds were detected in SWN-0502B, C, D, E. These wells had been routinely sampled from 2006 to 2014. Wells SWN-0502B, C, D, E will be sampled biennially to monitor the PBG Plume as it migrates towards the east.

Table 11
Included Monitoring Wells
PBG Plume

Well Name	Well ID	Well Depth (feet)	Screen Level	Added Well	Sample Frequency	Lab Analyte		
						DNT	VOCs	Nitrate
SWN-0501B	237	155.6	B	X	Biennial	X	X	
SWN-0501C	238	206.6	C	X	Biennial	X	X	
SWN-0501D	239	262.9	D	X	Biennial	X	X	
SWN-0501E	240	290.3	E	X	Biennial	X	X	
SWN-0502B	241	155.8	B	X	Biennial	X	X	
SWN-0502C	242	201.5	C	X	Biennial	X	X	
SWN-0502D	243	244.9	D	X	Biennial	X	X	
SWN-0502E	244	260	E	X	Biennial	X	X	
PBM-9801	360	123.5	A		Semi-Annual	X	X	X

Well Name	Well ID	Well Depth (feet)	Screen Level	Added Well	Sample Frequency	Lab Analyte		
						DNT	VOCs	Nitrate
PBM-0001	367	134.5	A		Semi-Annual	X	X	X
PBM-0002	368	131.5	A		Semi-Annual	X	X	X
PBM-0006	372	124.5	A		Semi-Annual	X	X	X
PBM-0008	374	122	A		Semi-Annual	X	X	X
PBN-2301B	544	120.3	B		Semi-Annual	X	X	
PBN-2301C	545	180.2	C		Semi-Annual	X	X	
PBN-2301D	546	252	D		Semi-Annual	X	X	
PBN-9101C	561	152.5	C		Semi-Annual	X	X	
PBN-9102B	562	115	B		Biennial	X	X	
PBN-9102C	563	161.3	C		Biennial	X	X	
SWN-9102C	569	152.5	C		Biennial	X	X	
SWN-9102D	570	185	D		Biennial	X	X	
SWN-9103B	571	113.4	B		Semi-Annual	X	X	
SWN-9103C	572	162.8	C		Semi-Annual	X	X	
SWN-9103D	573	209.1	D		Semi-Annual	X	X	
SWN-9103E	574	237.9	E		Semi-Annual	X	X	
SWN-9104C	575	164	C		Semi-Annual	X	X	
SWN-9104D	576	197	D		Semi-Annual	X	X	
SWN-9105B	577	112.5	B		Annual	X	X	
SWN-9105C	578	147	C		Annual	X	X	
SWN-9105D	579	200.5	D		Annual	X	X	
PBN-1002A	589	130.8	A	X	Semi-Annual	X	X	
PBN-1002B	590	176.5	B	X	Semi-Annual	X	X	
PBN-1002C	591	216.8	C	X	Semi-Annual	X	X	
PBN-1003C	592	189.6	C		Annual	X	X	
PBN-1001A	593	79.3	A	X	Semi-Annual	X	X	
PBN-1001B	594	139.9	B	X	Semi-Annual	X	X	
PBN-1001C	595	199.7	C		Semi-Annual	X	X	
PBN-8202A	613	118.5	A		Semi-Annual	X	X	X
PBN-8202B	614	133	B		Semi-Annual	X	X	X
PBN-8202C	615	141.2	C		Semi-Annual	X	X	X
PBN-8205A	622	112.5	A		Semi-Annual	X	X	X
PBN-8205B	623	124.25	B		Semi-Annual	X	X	X
PBN-8205C	624	133.5	C		Semi-Annual	X	X	X
PBN-8502A	632	138.09	A		Semi-Annual	X	X	
PBN-8503A	633	94.82	A		Annual	X	X	
PBM-8907	637	92.72	A		Annual	X	X	
PBM-8909	639	124.39	A		Biennial	X	X	

Well Name	Well ID	Well Depth (feet)	Screen Level	Added Well	Sample Frequency	Lab Analyte		
						DNT	VOCs	Nitrate
PBN-8902C	645	193.3	C		Semi-Annual	X	X	
PBN-8903B	646	125	B		Annual	X	X	
PBN-8903C	647	160	C		Annual	X	X	
PBN-8910D	653	237	D		Semi-Annual	X	X	X
PBN-8912A	654	103.4	A		Semi-Annual	X	X	
PBN-8912B	655	138	B		Semi-Annual	X	X	
PBN-9112C	665	183.4	C		Semi-Annual	X	X	
PBN-9112D	666	231	D		Semi-Annual	X	X	
PBN-9301B	668	160.5	B		Semi-Annual	X	X	
PBN-9301C	669	227.5	C		Semi-Annual	X	X	
PBN-9303B	673	93.5	B		Semi-Annual	X	X	
PBN-9303C	674	164.5	C		Semi-Annual	X	X	
PBN-9303D	675	224.5	D		Semi-Annual	X	X	
PBN-9401B	677	127.7	B	X	Biennial	X	X	
PBN-9401C	678	167.8	C	X	Biennial	X	X	
PBN-9401D	679	267	D	X	Biennial	X	X	
PBN-9402B	680	95.5	B	X	Biennial	X	X	
PBN-9402C	681	135	C	X	Biennial	X	X	
PBN-9402D	682	225	D	X	Biennial	X	X	
PBN-9304A	684	50	A	X	Semi-Annual	X	X	
PBN-9304B	685	86	B	X	Semi-Annual	X	X	
PBN-9304C	686	115	C	X	Semi-Annual	X	X	
PBN-9304D	687	210	D		Semi-Annual	X	X	
PBN-9903A	692	76	A		Semi-Annual	X	X	
PBN-9903B	693	112	B		Semi-Annual	X	X	
PBN-9903C	694	163	C		Semi-Annual	X	X	
PBN-9903D	695	208	D		Semi-Annual	X	X	
S1147	709	70.8	A		Annual	X	X	
S1148	710	56.7	A		Semi-Annual	X	X	
SPN-8903B	718	93.7	B		Annual	X	X	
SPN-8903C	719	127.7	C		Annual	X	X	
SPN-8904B	720	75	B		Semi-Annual	X	X	
SPN-8904C	721	106.5	C		Semi-Annual	X	X	
SPN-9103D	725	200.5	D		Annual	X	X	
SPN-9104D	726	206	D		Semi-Annual	X	X	
PBN-1301A	767	130	A	X	Annual	X	X	
PBN-1301B	768	159.5	B	X	Annual	X	X	
PBN-1301C	769	200	C	X	Annual	X	X	

Well Name	Well ID	Well Depth (feet)	Screen Level	Added Well	Sample Frequency	Lab Analyte		
						DNT	VOCs	Nitrate
PBN-1302A	770	84.7	A		Semi-Annual	X	X	
PBN-1302B	771	136.2	B		Semi-Annual	X	X	
PBN-1302C	772	187.6	C		Semi-Annual	X	X	
PBN-1302D	773	245.1	D		Semi-Annual	X	X	
PBN-1303A	774	130.5	A		Semi-Annual	X	X	
PBN-1303B	775	176.5	B		Semi-Annual	X	X	
PBN-1303C	776	232	C		Semi-Annual	X	X	
PBN-1303D	777	287	D		Semi-Annual	X	X	
PBN-1304A	778	116	A		Semi-Annual	X	X	
PBN-1304B	779	163.1	B		Semi-Annual	X	X	
PBN-1304C	780	218	C		Semi-Annual	X	X	
PBN-1304D	781	273	D		Semi-Annual	X	X	
PBN-1401A	782	132.2	A		Semi-Annual	X	X	X
PBN-1401B	783	163.7	B		Semi-Annual	X	X	X
PBN-1401C	784	203.3	C		Semi-Annual	X	X	X
PBN-1404B	791	179.5	B		Semi-Annual	X	X	
PBN-1404C	792	239.3	C		Semi-Annual	X	X	
PBN-1404D	793	299.8	D		Semi-Annual	X	X	
PBN-1405F	794	319.7	F		Biennial	X	X	
PBN-8902BR	795	160	B		Semi-Annual	X	X	
PBM-9001D	981	210.5	D		Semi-Annual	X	X	
PBM-9002D	982	204.5	D		Biennial	X	X	

The future groundwater sampling program for the PBG Plume includes 14 residential wells sampled annually. The Army has already been sampling these 14 residential wells. Each residential well will be sampled for DNT (all six DNT isomers) and VOCs. The sample frequencies for each residential well are listed in **Table 12** and shown on **Figure 41**. Four of these residential wells are screened in the sand aquifer. The COCs for the PBG Plume are found in monitoring wells screened in the sand aquifer. The remaining ten residential wells that will be sampled are screened in the bedrock aquifer. The COCs of carbon tetrachloride, ethyl ether and trichloroethene have been detected in off-site monitoring wells screened at the top of the bedrock. The selection of these 14 residential wells to be sampled was based on a potential risk of groundwater contamination to impact the wells.

Table 12
Included Residential Wells
PBG Plume

Well Name	Well ID	Well Depth (feet)	Aquifer	Sample Frequency	Lab Analyte	
					DNT	VOCs
S8723	152	301	Rock	Annual	X	X
S8732	800	131	Sand	Annual	X	X
S8871	840	303	Rock	Annual	X	X
S9093A	847	221	Rock	Annual	X	X
S9059A	862	180	Sand	Annual	X	X
S8795	875	156	Sand	Annual	X	X
E11823	886	122	Sand	Annual	X	X
PDS-3	911	554	Rock	Annual	X	X
S8839	917	310	Rock	Annual	X	X
S9104	924	298	Rock	Annual	X	X
S9008A	931	280	Rock	Annual	X	X
E11752A	948	275.5	Rock	Annual	X	X
S9179	970	240	Rock	Annual	X	X
S8745	998	178	Sand	Annual	X	X

5.3.2 Excluded Wells

There are 85 monitoring wells associated with the PBG Plume that are not included in the future sampling plan. Construction information on these 85 monitoring wells is provided in **Table 9**. The locations of all monitoring wells associated with BAAP are shown on **Figure 6**. These 85 monitoring wells are currently not needed to monitor groundwater contamination associated with the PBG Plume.

All residential wells either located within the limits of the PBG Plume or near the plume edge (**Figure 41**) are included in the future groundwater sampling program.

5.3.3 Future Well Installation

The Army proposes to install a nest of three monitoring wells, southeast of BAAP, to monitor groundwater contamination that has migrated from the BAAP. The monitoring wells will be used to monitor the leading edge of the PBG Plume before it enters the Wisconsin River. **Table 13** Additional Monitoring Well Information outlines the proposed well depths, elevations, and well designations. The proposed monitoring well locations are shown on **Figure 41**. The installation of these three monitoring wells was originally proposed by the Army in a letter to the WDNR, *2022 Monitoring Well Installation Plan, September 29, 2022 (Repository document #1097).* The well installation is pending right-of-way property access approval.

A nest of three monitoring wells (PBN-2501B, PBN-2501C & PBN-2501D) will be installed approximately 9,800 feet southeast of the BAAP boundary and near the Wisconsin River (**Figure 41**). As shown on **Figure 41**, well nest PBN-9101C and PBM-9001D are located 2,400 feet northwest of the Wisconsin River. There are no current monitoring wells located between PBN-9101C and the Wisconsin River.

During June 2013, the Army investigated the PBG Plume near the Wisconsin River. The findings of the investigation were documented in the *Surface Waters Impact Investigation Report (BTS, LLC), November 2013 (Repository document #957).* Groundwater samples were collected from temporary wells in the area where PBN-2501B,C,D will be installed. The investigation determined the horizontal and vertical extent of chlorinated solvents.

The additional monitoring wells (PBN-2501B, PBN-2501C & PBN-2501D) will determine the contaminant concentrations before the PBG Plume discharges into the Wisconsin River. The monitoring wells will be installed as a nest to provide a vertical profile of groundwater contamination. The screen depths of PBN-2501B and PBN-2501C will be placed approximately one-third and two-thirds of the depth between the water table and bedrock, respectively. The screen depth of PBN-2501D will be placed at the top of the bedrock. The five-foot well screens will be completed in the sand and gravel aquifer. The estimated depth to the water table is four feet and the depth to the bedrock is 147 feet. PBN-2501B, PBN-2501C and PBN-2501D will be installed to depths of 51, 98 and 147 feet, respectively.

A well driller licensed in Wisconsin will install the monitoring wells. The monitoring wells will be installed and developed in accordance with Chapter NR 141 Groundwater Monitoring Well Requirements. Once the wells are installed, dedicated groundwater sampling pumps will be installed in each new monitoring well.

Once installed, the three monitoring wells would be added to the BAAP groundwater monitoring program. The Army proposes the new wells will be sampled semi-annually (twice per year) for the six DNT isomers and VOCs.

Table 13
Proposed Monitoring Wells
PBG Plume

Plume Area	Location Information	Proposed Well Name	Well Depth* (feet)	Well Level	Ground * Elevation (feet MSL)	Groundwater ** Elevation (feet MSL)	Well Bottom * Elevation (feet MSL)	Bedrock* Elevation (feet MSL)	Screen Length (feet)
Propellant Burning Ground Plume	Downgradient of BAAP, leading plume edge & near Wisconsin River	PBN-2501B	57	B	748	738	691	595	5
		PBN-2501C	104	C	748	738	644	595	5
		PBN-2501D	153	D	748	738	595	595	5

Notes:
* All footages are preliminary and subject to change
** Groundwater elevation based on lowest level since 2020
MSL = Mean Sea Level
Well Level Designation
A = shallow zone in sand and gravel aquifer
B = intermediate zone in sand and gravel aquifer
C = deep zone in sand and gravel aquifer
D = bottom zone in sand and gravel aquifer - above bedrock

5.4 Deterrent Burning Ground Plume Sampling

5.4.1 Included Wells

Wells associated with the DBG Plume include monitoring wells (observation wells and piezometers) and residential wells. Monitoring wells included in the proposed sampling program are listed in **Table 14**. Residential wells included in the proposed sampling program are listed in **Table 15**. Each table includes the proposed lab analytes (methods) for each well. Field parameters (**Section 7.1**) are measured each time a monitoring well is sampled.

The future groundwater sampling program for the DBG Plume includes 49 monitoring wells sampled at varying frequencies: four quarterly, 43 semi-annual, and two biennial. Monitoring wells will be sampled for a mixture of DNT (all six DNT isomers), VOCs and sulfate. Sixteen monitoring wells located near the DBG cap or Landfill #5 will be tested for sulfate. The current sampling program tested the same sixteen monitoring wells for sulfate. The sample frequencies for each monitoring well are listed in **Table 14** and shown on **Figure 42**. VOC and sulfate samples will only be collected once per year.

Monitoring wells ELN-1503A and ELN-1503C will be quarterly sampled due to their proximity to the DBG Plume edge and an increase in DNT concentrations in ELN-1503A. The total DNT concentration in ELN-1503A exceeded the NR 140 ES (0.05 µg/l) for the first time in November 2021. Since 2021, DNT has been routinely detected above the NR 140 PAL (0.005 µg/l) in ELN-1503A.

Monitoring wells ELN-2301B and ELN-2301C will be quarterly sampled due to their proximity to the downgradient leading of the DBG Plume. These two monitoring wells help determine the eastern boundary of the southeastern portion of the DBG Plume (**Figure 42**). Since they were installed in 2023, DNT has not been detected in either ELN-2301B or ELN-2301C.

The sampling frequency of well nest ELN-1003A, B, C, E has been reduced from quarterly to semi-annually. This decrease in sample frequency is due to the DNT concentrations decreasing in both ELN-1003B and ELN-1003C since 2022.

The sampling frequency of ELN-1504B has been reduced from quarterly to semi-annually. This decrease in sample frequency is due to the limited DNT detections in ELN-1504B. Between 2015 and 2024, DNT was only detected once (April 2021) in ELN-1504B. The lack of DNT detections in ELN-1504B indicates that the DBG Plume is not migrating in that direction.

Table 14
Included Monitoring Wells
DBG Plume

Well Name	Well ID	Well Depth (feet)	Screen Level	Sample Frequency	Lab Analyte		
					DNT	VOCs	Sulfate
ELN-8203A	210	157.5	A	Semi-Annual	X	X	X
ELN-8203B	211	166	B	Semi-Annual	X	X	X
ELN-8203C	212	176	C	Semi-Annual	X	X	X
ELM-8901	216	165	A	Semi-Annual	X	X	X
ELM-8907	220	150.3	A	Semi-Annual	X	X	X
ELM-8908	221	145	A	Semi-Annual	X	X	X
ELM-8909	222	155	A	Semi-Annual	X	X	X
ELN-8902B	224	178.5	B	Semi-Annual	X	X	X
ELN-9107A	227	126	A	Semi-Annual	X	X	X
ELN-9107B	228	145	B	Semi-Annual	X	X	X
ELN-9402AR	231	145	A	Semi-Annual	X	X	X
ELM-9501	234	69	A	Semi-Annual	X	X	
S1134R	236	151	A	Semi-Annual	X	X	X
DBM-8201	301	174.68	A	Semi-Annual	X	X	X
DBM-8202	302	157.35	A	Semi-Annual	X	X	X
DBM-8903	306	133	A	Semi-Annual	X	X	
DBN-9501A	314	120	A	Semi-Annual	X	X	
DBN-9501B	315	172.5	B	Semi-Annual	X	X	
DBN-9501C	316	228.5	C	Semi-Annual	X	X	
DBN-9501E	317	255.5	E	Semi-Annual	X	X	
ELN-0801B	455	105	B	Semi-Annual	X	X	
ELN-0801C	456	150.5	C	Semi-Annual	X	X	
ELN-0801E	457	207.67	E	Semi-Annual	X	X	
ELN-0802A	458	107.49	A	Biennial	X	X	
ELN-0802C	459	180.77	C	Biennial	X	X	
ELN-1001B	460	96.1	B	Semi-Annual	X	X	
ELN-1001C	461	160.2	C	Semi-Annual	X	X	
ELN-1001E	462	245.5	E	Semi-Annual	X	X	
ELN-1002A	463	70.3	A	Semi-Annual	X	X	
ELN-1002B	464	116.2	B	Semi-Annual	X	X	
ELN-1002C	465	164.1	C	Semi-Annual	X	X	
ELN-1002E	466	236.5	E	Semi-Annual	X	X	
ELN-1003A	467	31.2	A	Semi-Annual	X	X	
ELN-1003B	468	96.5	B	Semi-Annual	X	X	
ELN-1003C	469	160.1	C	Semi-Annual	X	X	
ELN-1003E	470	230.6	E	Semi-Annual	X	X	
DBN-1001B	472	159.5	B	Semi-Annual	X	X	
DBN-1001C	473	197	C	Semi-Annual	X	X	

Well Name	Well ID	Well Depth (feet)	Screen Level	Sample Frequency	Lab Analyte		
					DNT	VOCs	Sulfate
DBN-1001E	474	279.9	E	Semi-Annual	X	X	
DBN-1002C	476	210.1	C	Semi-Annual	X	X	X
DBN-1002E	477	280.55	E	Semi-Annual	X	X	X
ELN-1502A	533	130.3	A	Semi-Annual	X	X	
ELN-1502C	534	203	C	Semi-Annual	X	X	
ELN-1503A	535	88.7	A	Quarterly	X	X	
ELN-1503C	536	162.6	C	Quarterly	X	X	
ELN-1504B	537	39.8	B	Semi-Annual	X	X	
ELN-2301B	547	93.9	B	Quarterly	X	X	
ELN-2301C	548	158.5	C	Quarterly	X	X	
S1121	755	59.3	A	Semi-Annual	X	X	

The future groundwater sampling program for the DBG Plume includes seven residential wells sampled at varying frequencies: two quarterly and five annually. Each residential well will be sampled for DNT (all six DNT isomers) and VOCs. VOC samples will only be collected once per year. The selection of these seven residential wells to be sampled was based on a potential risk of groundwater contamination to impact the wells. The sample frequencies for each residential well are listed in **Table 15** and shown on **Figure 42**. The COCs for the DBG Plume are detected in monitoring wells screened in the sand aquifer.

Residential wells E12375A and S7655 will be quarterly sampled due to their proximity to the DBG Plume. These two residential wells are also screened in the sand at the same depth as the DBG Plume. There were a few sporadic detections of DNT in E12375A. Since 2022, DNT has not been detected in E12375A. Since 2010, DNT has not been detected in S7655.

Table 15
Included Residential Wells
DBG Plume

Well Name	Well ID	Well Depth (feet)	Aquifer	Sample Frequency	Lab Analyte	
					DNT	VOCs
S7703A	163	344	Rock	Annual	X	X
E12655	414	n/a	n/a	Annual	X	X
E12649B	417	n/a	Sand	Annual	X	X
E12455	796	132	Sand	Annual	X	X
E12375A	803	159	Sand	Quarterly	X	X
S7722	874	260	Rock	Annual	X	X
S7655	916	110	Sand	Quarterly	X	X

5.4.2 Excluded Wells

There are three monitoring wells (ELN-8904A, ELN-8904B and ELM-9110) associated with the DBG Plume that are currently not included in the future sampling plan. Construction information on these three monitoring wells is provided in **Table 9**. The locations of all monitoring wells associated with BAAP are shown on **Figure 6**. These three monitoring wells are located east of Landfill #5 and not currently necessary to monitor groundwater contamination associated with the DBG Plume.

All residential wells either located within the limits of the DBG Plume or near the plume edge (**Figure 42**) are included in the future groundwater sampling program. The Army will annually sample seven residential wells near the DBG Plume.

The Army is proposing to stop sampling 19 residential wells located southeast of the DBG Plume and adjacent to Weigand's Bay (**Figure 43**). Available well construction information for these 19 residential wells is provided in **Table 16**. Eight residential wells do not have well construction information. These eight wells are most likely screened in the sand because groundwater is less than 60 feet deep and they are located near a body of water.

This reduction in residential well sampling is based on the lack of risk for groundwater contamination, from BAAP, to impact the wells. Since 2007, the Army has done extensive sampling of these 19 residential wells; annual testing for DNT and VOCs. During 2010, the Army installed a nest of four monitoring wells ELN-1002A, B, C, E near the residential wells to help monitor the potential migration of groundwater contamination (**Figure 43**). Based on the groundwater sampling results from ELN-1002A, B, C, E over the past 14 years, there is minimal risk of the DBG Plume impacting these 19 residential wells. The Army proposes to continue sampling well nest ELN-1002A, B, C, E. If future groundwater monitoring well sampling results indicate that there is risk to nearby residential wells, the Army will add the necessary residential wells to the sampling program. Further information about groundwater results from the residential wells and nearby monitoring wells is provided below to support the Army's decision.

Table 16
Residential Wells - Remove From Sampling
DBG Plume

Well Name	Well ID	License No.	Depth (feet)	Screened Aquifer	Bedrock Depth (feet)
E12645	415	3497	110	Sand	n/a
E12629	904	3497	30	Sand	n/a
S7814	426	3497	n/a	n/a	n/a
S7877	967	3497	176	Rock	173
S7856	839	3497	n/a	n/a	n/a
S7849	842	3497	219	Rock	169
E12653	860	3497	84	Sand	n/a

Well Name	Well ID	License No.	Depth (feet)	Screened Aquifer	Bedrock Depth (feet)
E12637	817	3497	85	Sand	n/a
E12526	427	3497	n/a	n/a	n/a
S7882	428	3497	n/a	n/a	n/a
E12534	891	3497	88	Sand	n/a
E12649A	418	3497	31	Sand	n/a
E12615	411	3497	26	Sand	n/a
S7816	412	3497	n/a	n/a	n/a
S7820	424	3497	n/a	n/a	n/a
S7830	422	3497	n/a	n/a	n/a
S7832	419	3497	n/a	n/a	n/a
S7880	425	3497	80	Sand	n/a
E12601	423	3497	100	Sand	n/a

Since 2007, the Army has done extensive sampling of the above listed 19 residential wells; annual testing for DNT and VOCs. All the DNT and VOC detections in these 19 residential wells from 2007 to 2024 are provided in **Table 17**. Since 2007, there have been no DNT or VOC detections in these six residential wells: E12645, E12629, E12637, S7830, S7849, and S7877. Two of these wells are screened in the bedrock, three are screened in the sand and one is likely screened in the sand. As shown on **Figure 43**, these six residential wells are spread throughout the area where the residential wells will be removed from sampling (inside yellow polygon). The following nine monitoring wells are located upgradient (northwest) of the 19 residential wells: ELN-1001B, C, E, and ELN-1002A, B, C, E, ELN-1504B and S1121 (**Figure 43**).

Between 2008 and 2012, there have been only seven detections of DNT in these residential wells. Between 2013 and 2024, there have no DNT detections in these residential wells. The three DNT detections in S7816 ranged from 0.015 to 0.03 µg/l. The two DNT detections in E12534 ranged from 0.007 to 0.02 µg/l. DNT was detected once in E12526 (0.031 µg/l) and once in S7877 (0.02 µg/l).

There were fifteen different VOCs detected in at least one of the residential wells. Of those fifteen VOCs, only 1,1,1-trichloroethane has been detected in one of the following upgradient off-site monitoring wells: ELN-1001B, C, E, and ELN-1002A, B, C, E, ELN-1504B and S1121. The highest 1,1,1-trichloroethane concentration in one those nine monitoring wells was 0.22 µg/l in ELN-1001B (2011). 1,1,1-Trichloroethane has only been detected three times in a residential well and the highest concentration was only 0.062 µg/l in 2016. The NR 140 PAL for 1,1,1-trichloroethane is 40 µg/l.

Since 2007, trichloroethene has been detected in four different residential wells. Of those four, three residential wells (E12615, E12649A and S7832) had trichloroethene detected above the NR 140 PAL (0.5 µg/l). Based on previous investigations conducted by the Army, it was determined that trichloroethene was present in residential shallow well jet pumps. Historically, trichloroethene has not been detected in monitoring wells associated with the DBG Plume. There

has been no source of trichloroethene identified at BAAP that is upgradient of the Weigand's Bay area.

The remaining thirteen VOCs detected in these residential wells, may be attributed to residential plumbing or interference during sampling or laboratory analysis. These VOCs do not appear to be attributable to a source near the DBG Plume.

Table 17
DNT & VOC Detection History 2007 - 2024
Residential Wells - Remove From Sampling
DBG Plume

Well Name	Well ID	Sample Date	Compound	Result (µg/L)	Result Flag	LOD (µg/L)	LOQ (µg/L)	NR 140 PAL (µg/L)	NR 140 ES (µg/L)
E12615	411	10/1/15	Benzene	0.012	J	0.008	0.1	0.5	5
E12615	411	8/6/07	Trichloroethene	**0.8**		0.15	0.5	0.5	5
E12615	411	8/25/10	Trichloroethene	0.36	J	0.1	0.3	0.5	5
E12615	411	8/24/11	Trichloroethene	0.27	J	0.1	0.5	0.5	5
E12615	411	8/20/13	Trichloroethene	0.19	J	0.1	0.5	0.5	5
E12615	411	10/1/15	Trichloroethene	**1.6**		0.02	0.1	0.5	5
E12615	411	9/2/16	Trichloroethene	**0.64**		0.02	0.1	0.5	5
E12615	411	8/23/17	Trichloroethene	0.23		0.1	0.2	0.5	5
E12615	411	8/21/18	Trichloroethene	0.22		0.1	0.2	0.5	5
E12615	411	8/12/20	Trichloroethene	**1.7**		0.1	0.2	0.5	5
E12615	411	8/16/21	Trichloroethene	0.29		0.1	0.2	0.5	5
E12615	411	8/9/22	Trichloroethene	**0.89**		0.1	0.2	0.5	5
S7816	412	8/6/07	Dichlorodifluoromethane	0.67		0.15	0.5	200	1000
S7816	412	2/23/10	Dichlorodifluoromethane	0.84		0.1	0.3	200	1000
S7816	412	5/26/10	Dichlorodifluoromethane	0.38		0.1	0.3	200	1000
S7816	412	8/31/10	Dichlorodifluoromethane	0.33		0.1	0.3	200	1000
S7816	412	2/24/11	Dichlorodifluoromethane	0.36	J	0.1	0.5	200	1000
S7816	412	6/1/11	Dichlorodifluoromethane	0.45	J	0.1	0.5	200	1000
S7816	412	8/30/11	Dichlorodifluoromethane	1.38		0.1	0.5	200	1000
S7816	412	11/29/11	Dichlorodifluoromethane	0.34	J	0.1	0.5	200	1000
S7816	412	2/28/12	Dichlorodifluoromethane	0.71		0.1	0.5	200	1000
S7816	412	6/5/12	Dichlorodifluoromethane	0.47	J	0.1	0.5	200	1000
S7816	412	8/28/12	Dichlorodifluoromethane	0.34	J	0.1	0.5	200	1000
S7816	412	11/28/12	Dichlorodifluoromethane	0.21	J	0.1	0.5	200	1000
S7816	412	2/25/13	Dichlorodifluoromethane	0.38	J	0.1	0.5	200	1000
S7816	412	5/29/13	Dichlorodifluoromethane	0.51		0.1	0.5	200	1000
S7816	412	8/20/13	Dichlorodifluoromethane	0.3	J	0.1	0.5	200	1000
S7816	412	8/6/14	Dichlorodifluoromethane	0.26	J	0.1	0.5	200	1000
S7816	412	8/25/16	Dichlorodifluoromethane	0.081	J	0.013	0.1	200	1000
S7816	412	8/28/17	Dichlorodifluoromethane	0.13	J	0.1	0.2	200	1000
S7816	412	8/21/18	Dichlorodifluoromethane	0.17	J	0.1	0.2	200	1000

Well Name	Well ID	Sample Date	Compound	Result (µg/L)	Result Flag	LOD (µg/L)	LOQ (µg/L)	NR 140 PAL (µg/L)	NR 140 ES (µg/L)
S7816	412	8/19/19	Dichlorodifluoromethane	0.16	J	0.1	0.2	200	1000
S7816	412	8/16/21	Dichlorodifluoromethane	0.27		0.1	0.2	200	1000
S7816	412	8/9/22	Dichlorodifluoromethane	0.33		0.1	0.2	200	1000
S7816	412	8/16/23	Dichlorodifluoromethane	0.17	J	0.1	0.2	200	1000
S7816	412	8/5/08	Total Dinitrotoluene	0.015	J	0.01	0.033	0.005	0.05
S7816	412	8/3/09	Total Dinitrotoluene	0.03	J	0.006	0.02	0.005	0.05
S7816	412	6/5/12	Total Dinitrotoluene	0.017	J	0.014	0.042	0.005	0.05
E12649A	418	8/6/07	Naphthalene	0.18	J	0.15	0.5	10	100
E12649A	418	8/6/07	Trichloroethene	0.4	J	0.15	0.5	0.5	5
E12649A	418	8/24/10	Trichloroethene	**0.6**		0.1	0.3	0.5	5
E12649A	418	8/24/11	Trichloroethene	0.49	J	0.1	0.5	0.5	5
E12649A	418	8/22/12	Trichloroethene	**0.61**		0.1	0.5	0.5	5
E12649A	418	8/20/13	Trichloroethene	**1.28**		0.1	0.5	0.5	5
E12649A	418	8/5/14	Trichloroethene	**0.76**		0.1	0.5	0.5	5
E12649A	418	10/2/15	Trichloroethene	0.42		0.02	0.1	0.5	5
E12649A	418	8/29/16	Trichloroethene	**4.7**		0.02	0.1	0.5	5
E12649A	418	8/28/17	Trichloroethene	**0.82**		0.1	0.2	0.5	5
E12649A	418	8/21/18	Trichloroethene	**2**		0.1	0.2	0.5	5
S7832	419	8/15/23	Tetrahydrofuran	1.3	J	1	2	10	50
S7832	419	8/15/23	trans-1,2-Dichloroethene	0.13	J	0.1	0.2	20	100
S7832	419	8/7/07	Trichloroethene	**3.03**		0.15	0.5	0.5	5
E12601	423	10/1/15	1,1,1-Trichloroethane	0.022	J	0.009	0.1	40	200
S7820	424	10/1/15	Chloroform	0.049	J	0.01	0.1	0.6	6
S7820	424	10/1/15	Dichlorodifluoromethane	0.029	J	0.013	0.1	200	1000
S7880	425	9/3/24	1,2-Dichloropropane	0.18	J	0.1	0.2	0.5	5
S7814	426	10/1/15	1,1,1-Trichloroethane	0.053	J	0.009	0.1	40	200
S7814	426	8/25/16	1,1,1-Trichloroethane	0.062	J	0.009	0.1	40	200
S7814	426	10/1/15	Chloroform	0.37		0.01	0.1	0.6	6
S7814	426	8/21/18	Chloromethane	0.11	J	0.1	0.2	3	30
S7814	426	8/24/10	Dichlorodifluoromethane	0.13	J	0.1	0.3	200	1000
S7814	426	8/24/11	Dichlorodifluoromethane	0.25	J	0.1	0.5	200	1000
S7814	426	8/23/12	Dichlorodifluoromethane	0.14	J	0.1	0.5	200	1000
S7814	426	8/21/13	Dichlorodifluoromethane	0.11	J	0.1	0.5	200	1000
S7814	426	8/5/14	Dichlorodifluoromethane	0.16	J	0.1	0.5	200	1000
S7814	426	10/1/15	Dichlorodifluoromethane	0.017	J	0.013	0.1	200	1000
S7814	426	10/1/15	Toluene	0.14		0.011	0.1	160	800
E12526	427	8/5/14	Chloroform	0.12	J	0.1	0.5	0.6	6
E12526	427	10/7/15	Chloroform	0.045	J	0.01	0.1	0.6	6
E12526	427	10/7/15	Total Dinitrotoluene	0.031	J	0.0082	0.031	0.005	0.05
S7882	428	10/1/15	2-Butanone	1.7		0.5	1	800	4000
S7882	428	10/1/15	Naphthalene	0.072	J	0.04	0.1	10	100
S7882	428	10/1/15	Styrene	0.054	J	0.024	0.1	10	100

Well Name	Well ID	Sample Date	Compound	Result (µg/L)	Result Flag	LOD (µg/L)	LOQ (µg/L)	NR 140 PAL (µg/L)	NR 140 ES (µg/L)
S7882	428	10/1/15	Toluene	1.8		0.011	0.1	160	800
S7882	428	10/1/15	trans-1,2-Dichloroethene	0.37		0.026	0.1	20	100
S7856	839	8/29/16	Trichloroethene	0.06	J	0.02	0.1	0.5	5
S7856	839	8/21/23	Trichloroethene	0.1	J	0.1	0.2	0.5	5
E12653	860	8/16/23	Chloroform	0.37		0.1	0.2	0.6	6
E12653	860	8/9/22	Methyl tert-butyl ether	0.85		0.1	0.2	12	60
E12653	860	8/29/24	Methyl tert-butyl ether	0.23		0.1	0.2	12	60
E12534	891	10/10/18	Carbon disulfide	0.24	J	0.2	0.4	200	1000
E12534	891	10/10/18	Chloromethane	0.13	J	0.1	0.2	3	30
E12534	891	7/16/09	Total Dinitrotoluene	0.007	J	0.006	0.02	0.005	0.05
E12534	891	6/4/12	Total Dinitrotoluene	0.02	J	0.014	0.042	0.005	0.05
S7877	967	8/4/08	Total Dinitrotoluene	0.02	J	0.01	0.033	0.005	0.05

Notes:
J = Analytical result is estimated between the LOD and LOQ
LOD = Limit of Detection
LOQ = Limit of Quantitation
All concentration values are expressed in micrograms-per-liter (µg/L)

The following nine monitoring wells are located upgradient (northwest) of the 19 residential wells: ELN-1001B, C, E, and ELN-1002A, B, C, E, ELN-1504B and S1121 (**Figure 43**). **Appendix A** contains total DNT concentration graphs for ELN-1001B, C, E and ELN-1002A, B, C, E covering the groundwater sampling period from December 2010 to April 2024.

Monitoring wells ELN-1002A, B, C, E are located just west of Weigand's Bay and upgradient from many residential wells located along Weigand's Bay (**Figure 43**). All the DNT and VOC detections in ELN-1002A, B, C, E from 2010 to 2024 are provided in **Table 18**.

Since they were installed in 2010, ELN-1002A, B, C, E have shown only two low DNT detections: 0.018 µg/l (2012) in ELN-1002E and 0.029 µg/l (2015) in ELN-1002B. Prior to 2017, there were some very low VOC detections but no trichloroethene detections. Based on the historical groundwater sampling results from ELN-1002A, B, C, E, there are no indications that contaminated groundwater from the DBG Plume has migrated in this direction.

Monitoring wells S1121 and ELN-1001B, C, E are located on the BAAP boundary and upgradient from many residential wells located along Weigand's Bay (**Figure 43**). Monitoring well ELN-1504B is located on the southern edge of the DBG Plume and upgradient from many residential wells. All the DNT and VOC detections in S1121, ELN-1001B, C, E and ELN-1504B from 2010 to 2024 are provided in **Table 19**.

Since 2010, there have been no detections in S1121 for either DNT or VOCs. Since it was installed in 2015, there was only one low DNT detection in 2021 (0.041 µg/l) and two very low detections of 1,1,1-trichloroethane in 2015 and 2016. Since they were installed in 2010, ELN-1001B, C, E have shown only four low DNT detections: 0.018 µg/l (2016) in ELN-1001B, 0.014

µg/l (2024) in ELN-1001B, 0.017 µg/l (2024) in ELN-1001C, and 0.014 µg/l (2024) in ELN-1001E. Between 2010 and 2017, low detections of 1,1,1-trichloroethane were detected in ELN-1001B and ELN-1001C. All these 1,1,1-trichloroethane detections were below 0.22 µg/l. The NR 140 PAL for 1,1,1-trichloroethane is 40 µg/l. Based on the historical groundwater sampling results from ELN-1001B, C, E, there are no indications that contaminated groundwater from the DBG Plume has migrated in this direction.

Table 18
DNT & VOC Detection History 2010 - 2024
ELN-1002A, B, C, E
DBG Plume

Well Name	Depth (feet)	Sample Date	Compound	Result (µg/L)	Result Flag	LOD (µg/L)	LOQ (µg/L)	NR 140 PAL (µg/L)	NR 140 ES (µg/L)
ELN-1002E	236.5	12/21/10	1,2,4-Trimethylbenzene	0.15	J	0.1	0.3	96	480
ELN-1002B	116.2	3/24/11	Tetrachloroethylene	0.12	J	0.1	0.5	0.5	5
ELN-1002E	236.5	3/24/11	Tetrachloroethylene	0.14	J	0.1	0.5	0.5	5
ELN-1002E	236.5	12/13/12	Total Dinitrotoluene	0.018	J	0.014	0.042	0.005	0.05
ELN-1002B	116.2	4/23/15	1,1,1-Trichloroethane	0.05	J	0.009	0.1	40	200
ELN-1002C	164.1	4/23/15	1,1,1-Trichloroethane	0.045	J	0.009	0.1	40	200
ELN-1002B	116.2	9/22/15	Total Dinitrotoluene	0.029	J	0.008	0.03	0.005	0.05
ELN-1002B	116.2	4/20/16	1,1,1-Trichloroethane	0.045	J	0.009	0.1	40	200
ELN-1002C	164.1	4/20/16	1,1,1-Trichloroethane	0.032	J	0.009	0.1	40	200

Table 19
DNT & VOC Detection History 2010 - 2024
S1121, ELN-1001B, C, E & ELN-1504B
DBG Plume

Well Name	Depth (feet)	Sample Date	Compound	Result (µg/L)	Result Flag	LOD (µg/L)	LOQ (µg/L)	NR 140 PAL (µg/L)	NR 140 ES (µg/L)
ELN-1001B	96.1	12/20/10	1,1,1-Trichloroethane	0.2	J	0.1	0.3	40	200
ELN-1001C	160.2	12/20/10	1,1,1-Trichloroethane	0.12	J	0.1	0.3	40	200
ELN-1001B	96.1	3/23/11	1,1,1-Trichloroethane	0.15	J	0.1	0.5	40	200
ELN-1001C	160.2	3/23/11	1,1,1-Trichloroethane	0.1	J	0.1	0.5	40	200
ELN-1001B	96.1	6/20/11	1,1,1-Trichloroethane	0.15	J	0.1	0.5	40	200
ELN-1001B	96.1	9/20/11	1,1,1-Trichloroethane	0.21	J	0.1	0.5	40	200
ELN-1001B	96.1	12/14/11	1,1,1-Trichloroethane	0.22	J	0.1	0.5	40	200

Well Name	Depth (feet)	Sample Date	Compound	Result (µg/L)	Result Flag	LOD (µg/L)	LOQ (µg/L)	NR 140 PAL (µg/L)	NR 140 ES (µg/L)
ELN-1001B	96.1	3/19/12	1,1,1-Trichloroethane	0.19	J	0.1	0.5	40	200
ELN-1001B	96.1	6/20/12	1,1,1-Trichloroethane	0.14	J	0.1	0.5	40	200
ELN-1001B	96.1	9/18/12	1,1,1-Trichloroethane	0.17	J	0.1	0.5	40	200
ELN-1001B	96.1	12/12/12	1,1,1-Trichloroethane	0.17	J	0.1	0.5	40	200
ELN-1001B	96.1	3/18/13	1,1,1-Trichloroethane	0.19	J	0.1	0.5	40	200
ELN-1001C	160.2	3/18/13	1,1,1-Trichloroethane	0.11	J	0.1	0.5	40	200
ELN-1001B	96.1	6/12/13	1,1,1-Trichloroethane	0.19	J	0.1	0.5	40	200
ELN-1001B	96.1	9/17/13	1,1,1-Trichloroethane	0.17	J	0.1	0.5	40	200
ELN-1001B	96.1	11/12/13	1,1,1-Trichloroethane	0.16	J	0.1	0.5	40	200
ELN-1001C	160.2	11/12/13	1,1,1-Trichloroethane	0.13	J	0.1	0.5	40	200
ELN-1001B	96.1	4/30/14	1,1,1-Trichloroethane	0.16	J	0.1	0.5	40	200
ELN-1001B	96.1	4/28/15	1,1,1-Trichloroethane	0.13		0.009	0.1	40	200
ELN-1001C	160.2	4/28/15	1,1,1-Trichloroethane	0.081	J	0.009	0.1	40	200
ELN-1504B	39.8	9/22/15	1,1,1-Trichloroethane	0.038	J	0.009	0.1	40	200
ELN-1001B	96.1	4/19/16	Total Dinitrotoluene	0.018	J	0.0082	0.031	0.005	0.05
ELN-1001B	96.1	4/19/16	1,1,1-Trichloroethane	0.14		0.009	0.1	40	200
ELN-1001C	160.2	4/19/16	1,1,1-Trichloroethane	0.09	J	0.009	0.1	40	200
ELN-1504B	39.8	4/20/16	1,1,1-Trichloroethane	0.023	J	0.009	0.1	40	200
ELN-1001B	96.1	4/18/17	1,1,1-Trichloroethane	0.14	J	0.1	0.2	40	200
ELN-1504B	39.8	4/22/21	Total Dinitrotoluene	0.041	J	0.0082	0.051	0.005	0.05
ELN-1001B	96.1	9/9/24	Total Dinitrotoluene	0.014	J	0.0078	0.049	0.005	0.05
ELN-1001C	160.2	9/9/24	Total Dinitrotoluene	0.017	J	0.0089	0.056	0.005	0.05
ELN-1001E	245.5	9/9/24	Total Dinitrotoluene	0.014	J	0.0076	0.048	0.005	0.05

5.4.3 Future Well Installation

The Army is not recommending any new monitoring wells be installed near the DBG Plume. During 2023, the Army installed two monitoring wells in a nest (ELN-2301B and ELN-2301C) east of the leading downgradient portion of the DBG Plume (**Figure 42**). The two monitoring wells were constructed so that the screen was submerged beneath the water table.

Both ELN-2301B and ELN-2301C have been sampled five times since they were installed: November 2023, April 2024, June 2024, September 2024 and November 2024. No DNT isomers have been detected, to date, in either ELN-2301B or ELN-2301C.

5.5 Central Plume Sampling

5.5.1 Included Wells

Wells associated with the Central Plume include monitoring wells (observation wells and piezometers) and residential wells. Monitoring wells included in the proposed sampling program are listed in **Table 20**. Residential wells included in the proposed sampling program are listed in **Table 21**. Each table includes the proposed lab analytes (methods) for each well. Field parameters (**Section 7.1**) are measured each time a monitoring well is sampled.

The future groundwater sampling program for the Central Plume includes 45 monitoring wells sampled at varying frequencies: nine semi-annual, and 36 annual. Monitoring wells will be sampled for a mixture of DNT (all six DNT isomers) and VOCs. The sample frequencies for each monitoring well are listed in **Table 20** and shown on **Figure 44**.

The nine monitoring wells that will be semi-annually sampled are in the southern portion of the Central Plume near The Water's Edge subdivision. These nine wells have been semi-annually sampled since 2016. This increased sampling frequency is due to the well's proximity to the residential subdivision and those residential wells.

Table 20
Included Monitoring Wells
Central Plume

Well Name	Well ID	Well Depth (feet)	Screen Level	Sample Frequency	Lab Analyte	
					DNT	VOCs
NLN-8201A	252	120.25	A	Annual	X	
NLN-8201B	253	132.5	B	Annual	X	
NLN-8201C	254	142	C	Annual	X	
NLN-8203A	258	115.5	A	Annual	X	
NLN-8203B	259	127.5	B	Annual	X	
NLN-8203C	260	138.5	C	Annual	X	
NLN-8205B	265	136.5	B	Annual	X	
NLN-8205C	266	147.5	C	Annual	X	
NLN-9205AR	269	132	A	Annual	X	
NLM-1001	330	106	A	Annual	X	
NLN-1001A	331	111.5	A	Annual	X	
NLN-1001C	332	154.5	C	Annual	X	
RIN-0701C	443	180	C	Annual	X	
RIN-0702C	444	201	C	Annual	X	
RIN-0703C	445	207	C	Annual	X	
RIM-1003	491	114.3	A	Annual	X	
RIN-1002A	492	92.2	A	Annual	X	

Well Name	Well ID	Well Depth (feet)	Screen Level	Sample Frequency	Lab Analyte	
					DNT	VOCs
RIN-1002C	493	179.8	C	Annual	X	
RIN-1003A	495	90.5	A	Annual	X	
RIN-1005A	496	60.5	A	Annual	X	
RIN-1005C	497	147	C	Annual	X	
RIN-1004B	498	146.7	B	Semi-Annual	X	
S1120	502	122.8	A	Annual	X	
NPM-8901	506	100	A	Annual	X	
RPM-8901	507	124.3	A	Annual	X	
RPM-9101	509	105.8	A	Annual	X	
RIN-1501B	538	123.5	B	Annual	X	
RIN-1501C	539	165.2	C	Annual	X	
RIN-1501D	540	237.8	D	Annual	X	
RIN-1502B	541	103.4	B	Annual	X	
RIN-1502C	542	143.1	C	Annual	X	
RIN-1502D	543	213.3	D	Annual	X	
RIN-2301A	549	111	A	Annual	X	
RIN-2301B	550	154.6	B	Annual	X	
RIN-2302A	551	107.2	A	Annual	X	
SEN-0501A	580	32	A	Semi-Annual	X	X
SEN-0501B	581	87	B	Semi-Annual	X	X
SEN-0501D	582	190	D	Semi-Annual	X	X
SEN-0502A	583	33	A	Semi-Annual	X	X
SEN-0502D	584	187	D	Semi-Annual	X	X
SEN-0503A	585	55.5	A	Semi-Annual	X	X
SEN-0503B	586	110	B	Semi-Annual	X	X
SEN-0503D	587	213	D	Semi-Annual	X	X
S1111	751	99	A	Annual	X	
S1112	752	91.7	A	Annual	X	

The future groundwater sampling program for the Central Plume includes 25 residential wells sampled at varying frequencies: one quarterly and 24 annually. Each residential well will be sampled for DNT (all six DNT isomers). Eight residential wells will also be sampled once each year for VOCs. According to the current (2024) sampling plan, these eight wells are already being sampled for VOCs. Chloroform is the COC of concern in these eight wells. The sample frequencies for each residential well are listed in **Table 21** and shown on **Figure 44**.

Residential well WE-XK342 will be quarterly sampled due a history of 2,6-DNT detections. During 2024, 2,6-DNT was not detected in WE-XK342.

Twenty-one residential wells are screened in the sand aquifer. The COCs for the Central Plume are found in monitoring wells screened in the sand aquifer. The remaining four residential wells that will be sampled are screened in the bedrock aquifer.

Table 21
Included Residential Wells
Central Plume

Well Name	Well ID	Well Depth (feet)	Aquifer	Sample Frequency	Lab Analyte	
					DNT	VOCs
USDA 3	126	270	Rock	Annual	X	
USDA 6	128	140	Sand	Annual	X	
WE-TM599	129	120	Sand	Annual	X	
WE-RM383	153	81	Sand	Annual	X	
WE-RR542	156	100	Sand	Annual	X	
WE-QR441	157	118	Sand	Annual	X	X
WE-QN039	158	100	Sand	Annual	X	X
WE-RD430	159	80	Sand	Annual	X	
WE-SQ017	164	180	Sand	Annual	X	X
WE-SQ001	165	179	Sand	Annual	X	X
WE-RR598	169	106	Sand	Annual	X	
WE-SQ002	170	100	Sand	Annual	X	
WE-TF023	174	178	Sand	Annual	X	
WE-UK125	431	283	Rock	Annual	X	
WE-UA297	433	180	Sand	Annual	X	
WE-XD828	434	80	Sand	Annual	X	
WE-XK342	435	80	Sand	Quarterly	X	X
WE-YW972	436	121	Sand	Annual	X	
WE-ZE512	437	324	Rock	Annual	X	
WE-AAB891	799	139	Sand	Annual	X	X
USDA 1	828	575	Rock	Annual	X	
USDA 2	829	227	Sand	Annual	X	
WE-AAF735	837	140	Sand	Annual	X	X
E12092	838	86	Sand	Annual	X	
WE-AAU638	919	81	Sand	Annual	X	X

5.5.2 Excluded Wells

There are fifteen monitoring wells (NLN-8202A, NLN-8202B, NLN-8204A, NLN-8204B, NLN-8204C, NLM-9202R, NLM-0301R, NLM-0302R, NLM-0401, NLN-0701A, NLN-0701C, RIM-1004, S1113, S1114 and S1150) associated with the Central Plume that are not included in

the future sampling plan. Construction information on these fifteen monitoring wells is provided in **Table 9**. The locations of all monitoring wells associated with BAAP are shown on **Figure 6**. These fifteen monitoring wells are not needed to monitor groundwater contamination associated with the Central Plume.

All residential wells either located within the limits of the Central Plume or near the plume edge (**Figure 44**) are included in the future groundwater sampling program.

5.5.3 Potential New Monitoring Wells

The Army is evaluating installing four monitoring wells in two well nests in the southern portion of Central Plume to monitor groundwater contamination that has migrated from the BAAP. The monitoring wells would be used to monitor the east and west edges of the Central Plume on the north side of a residential area titled The Water's Edge (**Figure 44**). **Table 21** Potential New Monitoring Wells outlines the proposed well depths, elevations, and well designations. The potential monitoring well locations are shown on **Figure 44**. The installation of these four monitoring wells was requested by the WDNR in a letter to the Army, *Response to 2022 Monitoring Well Installation Plan, October 22, 2022 (Repository document #1097).*

A nest of two monitoring wells (SEN-2501B & SEN-2501C) would be installed approximately 100 feet south of the BAAP boundary and near The Water's Edge subdivision (**Figure 44**). The well nest would be positioned in the northeast corner of Sunset Drive and Waters Edge Way on property owned by the USDA. This well nest would determine the western lateral extent of DNT contamination in the Central Plume. Potential new well SEN-2501B would be screened at the same depth as three residential wells (E12092, WE-RM383 and WE-XD828) that are located south of the potential new well nest. Since 2018, no DNT isomers have been detected in these three residential wells. The monitoring wells would be installed as a nest to provide a vertical profile of groundwater contamination. The screen depths of SEN-2501B and SEN-2501C would be placed approximately one-third and two-thirds of the depth between the water table and bedrock, respectively. The five-foot well screens would be completed in the sand and gravel aquifer. The estimated depth to the water table is 57 feet and the depth to the bedrock is 228 feet. SEN-2501B and SEN-2501C would be installed to depths of 123 and 189 feet, respectively.

A nest of two monitoring wells (SEN-2502B & SEN-2502C) would be installed approximately 800 feet south of the BAAP boundary and near The Water's Edge subdivision (**Figure 44**). The well nest would be positioned on the south side of farm field owned by the USDA. This well nest would determine the eastern lateral extent of DNT contamination in the Central Plume. Potential new well SEN-2502B would be screened at the same depth as five residential wells (WE-AAU638, WE-QR441, WE-RD430, WE-RR542 and WE-TM599) that are located south of the potential new well nest. Since 2015, no DNT isomers have been detected in these five residential wells. The monitoring wells would be installed as a nest to provide a vertical profile of groundwater contamination. The screen depths of SEN-2502B and SEN-2502C would be placed approximately one-third and two-thirds of the depth between the water table and bedrock, respectively. The five-foot well screens would be completed in the sand and gravel aquifer. The estimated depth to the water table is 61 feet and the depth to the bedrock is 232 feet. SEN-2501B and SEN-2501C would be installed to depths of 127 and 193 feet, respectively.

A well driller licensed in Wisconsin would install the monitoring wells. The monitoring wells would be installed and developed in accordance with Chapter NR 141 Groundwater Monitoring Well Requirements. Once the wells are installed, dedicated groundwater sampling pumps would be installed in each new monitoring well.

Once installed, the four monitoring wells would be added to the BAAP groundwater monitoring program. If installed, the new wells would be sampled semi-annually (twice per year) for the six DNT isomers and annually for VOCs.

Table 21
Potential New Monitoring Wells
Central Plume

Plume Area	Location Information	Proposed Well Name	Well Depth* (feet)	Well Level	Ground * Elevation (feet MSL)	Groundwater ** Elevation (feet MSL)	Well Bottom * Elevation (feet MSL)	Bedrock* Elevation (feet MSL)	Screen Length (feet)
Central Plume	Downgradient of BAAP, west side plume delineation	SEN-2501B	123	B	823	766	700	595	5
		SEN-2501C	189	C	823	766	634	595	5
	Downgradient of BAAP, east side plume delineation	SEN-2502B	127	B	827	766	700	595	5
		SEN-2502C	193	C	827	766	634	595	5

Notes:
* All footages are preliminary and subject to change
** Groundwater elevation based on lowest level since 2020
MSL = Mean Sea Level
Well Level Designation
A = shallow zone in sand and gravel aquifer
B = intermediate zone in sand and gravel aquifer
C = deep zone in sand and gravel aquifer
D = bottom zone in sand and gravel aquifer - above bedrock

5.6 Nitrocellulose Area Plume Sampling

5.6.1 Included Wells

The future groundwater sampling program for the NC Area Plume includes all seven monitoring wells near the NC Area Plume. The monitoring wells will be sampled at varying frequencies: four semi-annual and three annually. Monitoring wells will be sampled for DNT (all six DNT isomers). The sample frequencies for each monitoring well are listed in **Table 22** and shown on **Figure 45**. There are no monitoring wells being excluded from the sampling plan.

There are no residential wells associated with the NC Area Plume.

Table 22
Included Monitoring Wells
NC Area Plume

Well Name	Well ID	Well Depth (feet)	Screen Level	Sample Frequency	Lab Analyte
					DNT
RIM-0703	440	113	A	Annual	X
RIM-0705	442	106	A	Semi-Annual	X
RIM-1002	478	110.2	A	Semi-Annual	X
RIN-1007C	479	175.3	C	Annual	X
RIN-1001A	480	106.8	A	Semi-Annual	X
RIN-1001C	481	181.41	C	Annual	X
S1125	504	126.5	A	Semi-Annual	X

5.6.2 Potential New Monitoring Wells

The Army is evaluating installing three monitoring wells around the NC Area Plume to monitor groundwater contamination from the BAAP. The potential monitoring well locations are shown on **Figure 45**. The monitoring wells would be used to better define the degree and extent of groundwater impacted by DNT associated with the NC Plume. **Table 23** Potential New Monitoring Wells outlines the potential well depths, elevations, and well designations. The three monitoring wells would be constructed so that the screen intersects the water table and would be classified as water table wells.

The installation of these three monitoring wells was requested by the WDNR in two letters to the Army, *DNR Comments on Draft Proposed Plan for Site-Wide Groundwater, June 2, 2023* and *DNR Comments on Revised Draft Proposed Plan for Site-Wide Groundwater, October 19, 2023*.

Monitoring well RIN-2501A would be installed approximately 900 feet north (upgradient) of RIM-1002 (**Figure 45**). RIN-2501A would help determine the northern extent of DNT contamination in the NC Area Plume. RIN-2501A would be installed on property owned by the Ho-Chunk Nation. The screen depth of RIN-2501A would be placed to intersect the water table. The fifteen-foot well screen would be completed in the sand and gravel aquifer. The estimated

depth to the water table is 109 feet and the depth to the bedrock is 700 feet. RIN-2501A would be installed to a depth of 118 feet.

Monitoring well RIN-2502A would be installed approximately 500 feet southwest of the estimated NC Area Plume extent (**Figure 45**). RIN-2502A would help determine the western lateral extent of DNT contamination. RIN-2502A would be installed on property owned by the WDNR. The screen depth of RIN-2502A would be placed to intersect the water table. The fifteen-foot well screen would be completed in the sand and gravel aquifer. The estimated depth to the water table is 92 feet and the depth to the bedrock is 640 feet. RIN-2502A would be installed to a depth of 100 feet.

Monitoring well RIN-2503A would be installed approximately 200 feet south (downgradient) of the estimated NC Area Plume extent (**Figure 45**). RIN-2503A would help delineate the leading plume edge (southern extent) of DNT contamination. RIN-2503A would be installed on property owned by the WDNR. The screen depth of RIN-2503A would be placed to intersect the water table. The fifteen-foot well screen would be completed in the sand and gravel aquifer. The estimated depth to the water table is 105 feet and the depth to the bedrock is 640 feet. RIN-2503A would be installed to a depth of 113 feet.

A well driller licensed in Wisconsin would install the monitoring wells. The monitoring wells would be installed and developed in accordance with Chapter NR 141 Groundwater Monitoring Well Requirements. Once the wells are installed, dedicated groundwater sampling pumps would be installed in each new monitoring well.

Once installed, the three monitoring wells would be added to the BAAP groundwater monitoring program. If installed, the new wells would be sampled semi-annually (twice per year) for the six DNT isomers.

Table 23
Potential New Monitoring Wells
NC Area Plume

Plume Area	Location Information	Proposed Well Name	Well Depth* (feet)	Well Level	Ground * Elevation (feet MSL)	Groundwater ** Elevation (feet MSL)	Well Bottom * Elevation (feet MSL)	Bedrock* Elevation (feet MSL)	Screen Length (feet)
Nitrocellulose Production Area Plume	Upgradient plume delineation	RIN-2501A	118	A	891	782	773	700	15
	Downgradient & sidegradient plume delineation	RIN-2502A	100	A	872	780	772	640	15
	Leading plume edge delineation	RIN-2503A	113	A	885	780	772	640	15

Notes:
* All footages are preliminary and subject to change
** Groundwater elevation based on lowest level since 2020
MSL = Mean Sea Level
Well Level Designation
A = shallow zone in sand and gravel aquifer
B = intermediate zone in sand and gravel aquifer
C = deep zone in sand and gravel aquifer
D = bottom zone in sand and gravel aquifer - above bedrock

6.0 MASTER SAMPLING SCHEDULE

The overall monitoring well groundwater sampling schedule will include 208 monitoring wells being sampled at the following frequencies: 4 quarterly, 127 semi-annual, 54 annual, and 23 biennial. The overall residential well groundwater sampling schedule will include 46 residential wells being sampled at the following frequencies: 3 quarterly and 43 annually.

The PBG Plume sampling will include 107 monitoring wells: 71 semi-annual, 15 annual, and 21 biennial. Monitoring wells will be sampled for a mixture of DNT, VOCs and nitrate. The PBG Plume sampling will include 14 residential wells sampled annually. Each residential well will be sampled for DNT and VOCs.

The DBG Plume sampling will include 49 monitoring wells: four quarterly, 43 semi-annual, and two biennial. Monitoring wells will be sampled for a mixture of DNT, VOCs and sulfate. VOC and sulfate samples will only be collected once per year in the monitoring wells. The DBG Plume sampling will include seven residential wells: two quarterly and five annually. Each residential well will be sampled for DNT and VOCs. VOC samples will only be collected once per year in the residential wells.

The Central Plume sampling will include 45 monitoring wells: nine semi-annual, and 36 annual. Monitoring wells will be sampled for a mixture of DNT and VOCs. The Central Plume sampling will include 25 residential wells: one quarterly and 24 annually. Each residential well will be sampled for DNT. Eight residential wells will also be sampled once each year for VOCs.

The NC Area Plume sampling will include seven monitoring wells: four semi-annual, and three annual. Monitoring wells will be sampled for a mixture of DNT and VOCs. There are no residential wells associated with the NC Area Plume.

Sampling the monitoring wells and residential wells at BAAP has typically been conducted at different intervals and specific months for each groundwater plume. The longest interval between sampling a monitoring well is 24 months (biennial). The next longest interval between sampling a monitoring well or residential is 12 months (annual). Because of the variability in sampling periods, the master sampling schedule is comprised of a 24-month recurring cycle, which captures all sampling intervals in the groundwater monitoring program at BAAP.

Sampling will be conducted during the months of April, June, August, September, and November. The complete groundwater sampling schedule for 2026 and 2027 is included as **Appendix B**. **Table 24** summarizes the total samples collected each sampling month, during the 24-month cycle, along with notes on which plume will be sampled that month. The sample totals do not include any duplicate or trip blank samples.

Table 24
Sampling Round Totals
Future Groundwater Sampling Plan

Sampling Round	DNT Samples	VOC Samples	Nitrate Samples	Sulfate Samples	Notes
April 2026	125	118	15	16	PBG - Semi-Annual Sampling
					DBG - Annual VOC & Sulfate, Quarterly & Semi-Annual Sampling
					Central - Quarterly Sampling
					NC Area - Semi-Annual Sampling
June 2026	52	8	0	0	PBG - No Sampling
					DBG - Quarterly Sampling
					Central – Quarterly, Semi-Annual & Annual Sampling
					NC Area - No Sampling
August 2026	46	29	0	0	PBG - Annual Residential Sampling
					DBG - Quarterly & Annual Residential Sampling
					Central - Quarterly & Annual Residential Sampling
					NC Area - No Sampling
September 2026	163	109	15	0	PBG - Semi-Annual, Annual & Biennial Sampling
					DBG – Quarterly, Semi-Annual & Biennial Sampling
					Central - No Sampling
					NC Area - Semi-Annual & Annual Sampling
November 2026	16	8	0	0	PBG - No Sampling
					DBG - Quarterly Sampling
					Central - Quarterly & Semi-Annual Sampling
					NC Area - No Sampling
April 2027	125	118	15	16	PBG - Semi-Annual Sampling
					DBG - Annual VOC & Sulfate, Quarterly & Semi-Annual Sampling
					Central - Quarterly Sampling
					NC Area - Semi-Annual Sampling
June 2027	52	8	0	0	PBG - No Sampling
					DBG - Quarterly Sampling
					Central - Quarterly, Semi-Annual & Annual Sampling
					NC Area - No Sampling
August 2027	46	29	0	0	PBG - Annual Residential Sampling
					DBG - Quarterly & Annual Residential Sampling
					Central - Quarterly & Annual Residential Sampling
					NC Area - No Sampling
September 2027	140	86	15	0	PBG - Semi-Annual & Annual Sampling
					DBG - Quarterly & Semi-Annual Sampling
					Central - No Sampling
					NC Area - Semi-Annual & Annual Sampling
November 2027	16	8	0	0	PBG - No Sampling
					DBG - Quarterly Sampling
					Central - Quarterly & Semi-Annual Sampling
					NC Area - No Sampling

7.0 MONITORING WELL SAMPLING

7.1 Sampling Procedures

Groundwater samples will be collected from monitoring wells using low-flow sampling techniques with air bladder pumps that are dedicated to each monitoring well. Each monitoring well is equipped with hose barb attachments on the well cap to facilitate sampling with an air compressor. These groundwater sampling procedures are currently being conducted at BAAP.

Prior to initiating groundwater sampling activities, the depth to water from the top of the well casing (marked location) will be measured to the nearest hundredth of a foot. The top of each well casing is marked where the elevation was previously surveyed. The monitoring well will be slowly purged to limit any sediment disturbance and pump sediment free groundwater.

An in-line flow cell equipped with a multiparameter meter will be connected to the discharge tubing from the well cap. New discharge tubing will be used between wells. The following field parameters will be collected each time a monitoring well is sampled: depth to water, groundwater elevation, dissolved oxygen, oxygen reduction potential, pH, specific conductivity, and temperature.

To determine when purging has been completed and a sample of representative groundwater can be collected, water quality parameters will be measured in the purged water every two minutes. The monitoring wells will be purged until the field parameters stabilize. Based on previous groundwater sampling events, the monitoring wells at BAAP will stabilize in approximately 10 to 20 minutes. Stabilization occurs when at least three consecutive readings are within the following ranges:

Stabilization Parameters	Criteria
Temperature	+/- 0.1° Celsius
pH	+/- 0.1 standard units (S.U.)
Specific Conductance	+/- 5.0 microsiemens per centimeter (µS/cm) for values <1,000 or +/- 10.0 µS/cm for values >1,000
Dissolved Oxygen	+/- 0.2 milligrams per liter (mg/L)

7.2 Sample Collection

Following water quality parameter stabilization, the multiparameter meter will be disconnected from the discharge tubing. The section of discharge tubing connected to the multiparameter meter will be cut off. Removing this portion of tubing ensures there will be no cross-contamination from the multiparameter meter between wells. The appropriate sample containers will be used to capture groundwater samples directly from the discharge tubing. Sample containers will be filled in the following order: VOCs, DNT, nitrate and sulfate. The sample containers will be capped, labeled, and immediately placed in an iced sample cooler while sample chain-of-custody forms are completed. Groundwater sampling information recorded on

the chain-of-custody forms will include the sampling date, sampling time, sample location, sample identification, sample matrix, and analyses to be performed. The coolers containing the groundwater samples will be transported via overnight shipping or dropped off by the sampling personnel to the laboratory within 48 hours of sample collection.

7.3 Field Quality Control Samples

Field quality control samples will include VOC trip blanks and field duplicate samples. Each day groundwater samples will be collected for VOCs, a VOC trip blank will be placed in a sample cooler at the beginning of the day. The VOC trip blank will stay with the samples until they are delivered to the laboratory. Each trip blank will be prepared by the laboratory with deionized water. The analytical results from the VOC trip blanks can provide information about the potential introduction of contaminants to sample containers during the field collection event, sample storage, transportation, or the laboratory's analysis of the VOC samples collected that day.

Each sampling day a field duplicate sample will be collected from a selected well. A separate set of sampling containers will be collected from that chosen well. The analytical results from the field duplicates help determine the laboratory's accuracy and precision.

7.4 Laboratory Data Quality

All groundwater samples will be analyzed by a WDNR Chapter NR 149 certified laboratory and accredited by the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP). The laboratory will analyze quality control samples that include method blanks, laboratory control samples, matrix spikes, matrix spike duplicates, and surrogate spikes. A quality control review will be performed on the groundwater analytical data to verify that the laboratory results are accurate and reliable.

8.0 ANNUAL SAMPLING PLAN MODIFICATION PROCEDURE

This sampling plan has been designed as a living document and will be updated according to the following procedures. The plume isoconcentration maps, plume isoconcentration cross-sections and monitoring well concentration over time graphs will be updated on an as needed basis.

8.1 Army Review of Sampling Plan

The Army will review this sampling plan on an annual basis. Upon review, proposed updates will be submitted to the WDNR for consideration. The annual reviews will assess:

- Installation of additional monitoring wells (see Future Well Installation sections above)
- Construction of a new residential well within or near a groundwater plume that could be impacted by one of the groundwater contaminant plumes originating at BAAP
- Changes to Wisconsin or federal USEPA groundwater regulations and contaminant thresholds
- Changes to well conditions (damage, access, etc.)
- Changes in contaminant trends that deem either an increase or decrease in the well sampling frequency
- Proposed changes to include or exclude wells within the plan
- Updates to sampling frequency maps or sampling schedule

Approved changes will be incorporated into the revised plan and submitted to the WDNR.

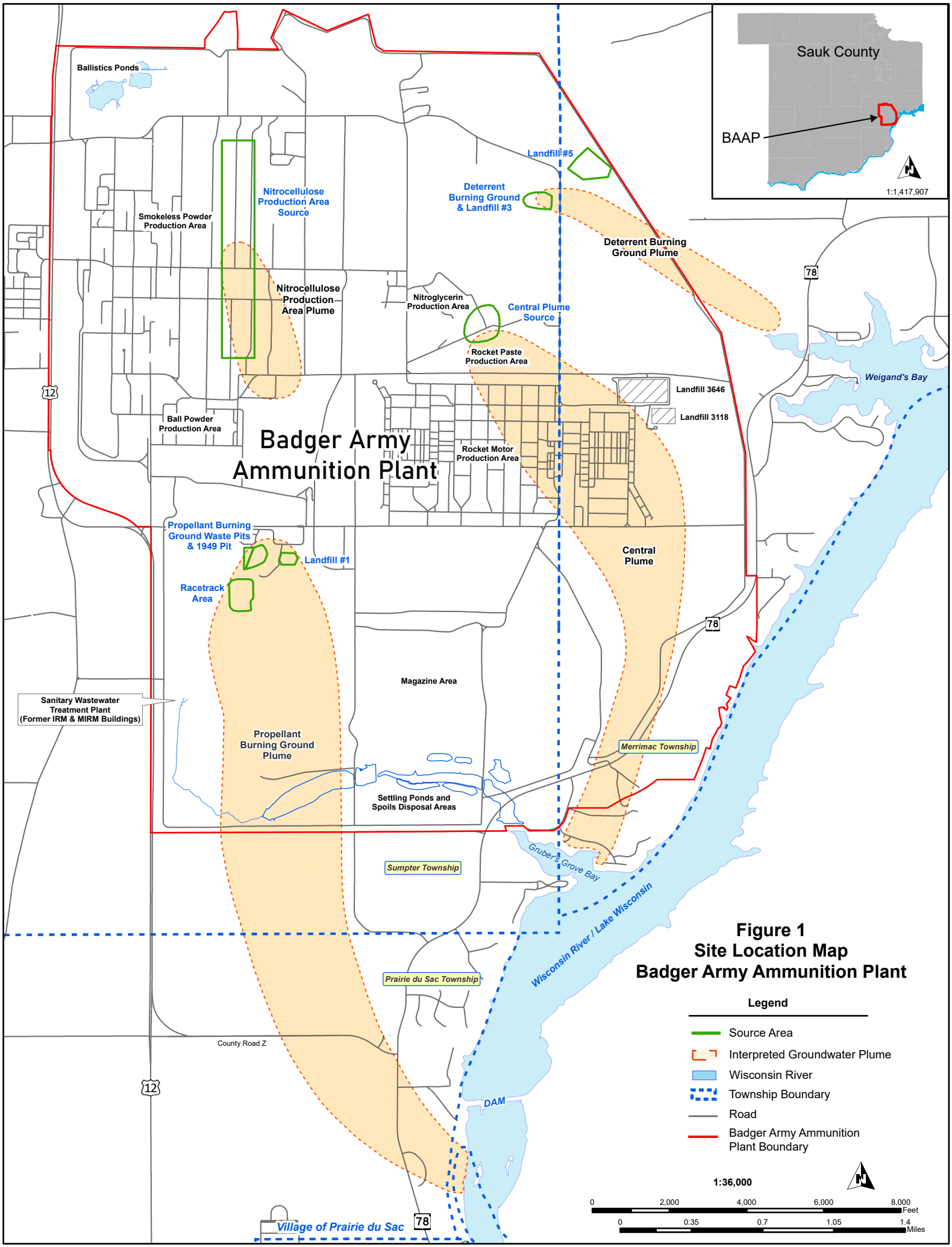
8.2 State or Federal Regulatory Directives

This sampling plan will be updated upon receipt of new or modified requirements from the WDNR or federal regulatory agencies. New directives may include actions such as:

- Changes to sampling frequency
- Changes to required laboratory analytes
- Changes to wells included or excluded from the sampling plan
- Installation of additional monitoring wells
- Abandonment of monitoring wells
- Updates to sampling frequency maps or sampling schedule

The sampling plan will be updated with any recommendations from either the Army or WDNR to improve monitoring the four groundwater plumes. Any planned future actions will be included in the updated plan.

Figures


Sauk County
BAAP
1:1,417,907
Ballistics Ponds
Landfill #5
Deterrent Burning Ground & Landfill #3
Nitrocellulose Production Area Source
Smokeless Powder Production Area
Deterrent Burning Ground Plume
Nitrocellulose Production Area Plume
Nitroglycerin Production Area
Central Plume Source
Rocket Paste Production Area
Weigand's Bay
Landfill 3646
Landfill 3118
Ball Powder Production Area
Badger Army Ammunition Plant
Rocket Motor Production Area
Propellant Burning Ground Waste Pits & 1949 Pit
Landfill #1
Racetrack Area
Central Plume
Magazine Area
Sanitary Wastewater Treatment Plant (Former IRM & MIRM Buildings)
Propellant Burning Ground Plume
Merrimac Township
Settling Ponds and Spoils Disposal Areas
Gruber's Grove Bay
Sumpter Township
Wisconsin River / Lake Wisconsin
Prairie du Sac Township
County Road Z
DAM
Village of Prairie du Sac
12
78
Figure 1
Site Location Map
Badger Army Ammunition Plant
Legend
Source Area
Interpreted Groundwater Plume
Wisconsin River
Township Boundary
Road
Badger Army Ammunition Plant Boundary
1:36,000
0 2,000 4,000 6,000 8,000 Feet
0 0.35 0.7 1.05 1.4 Miles

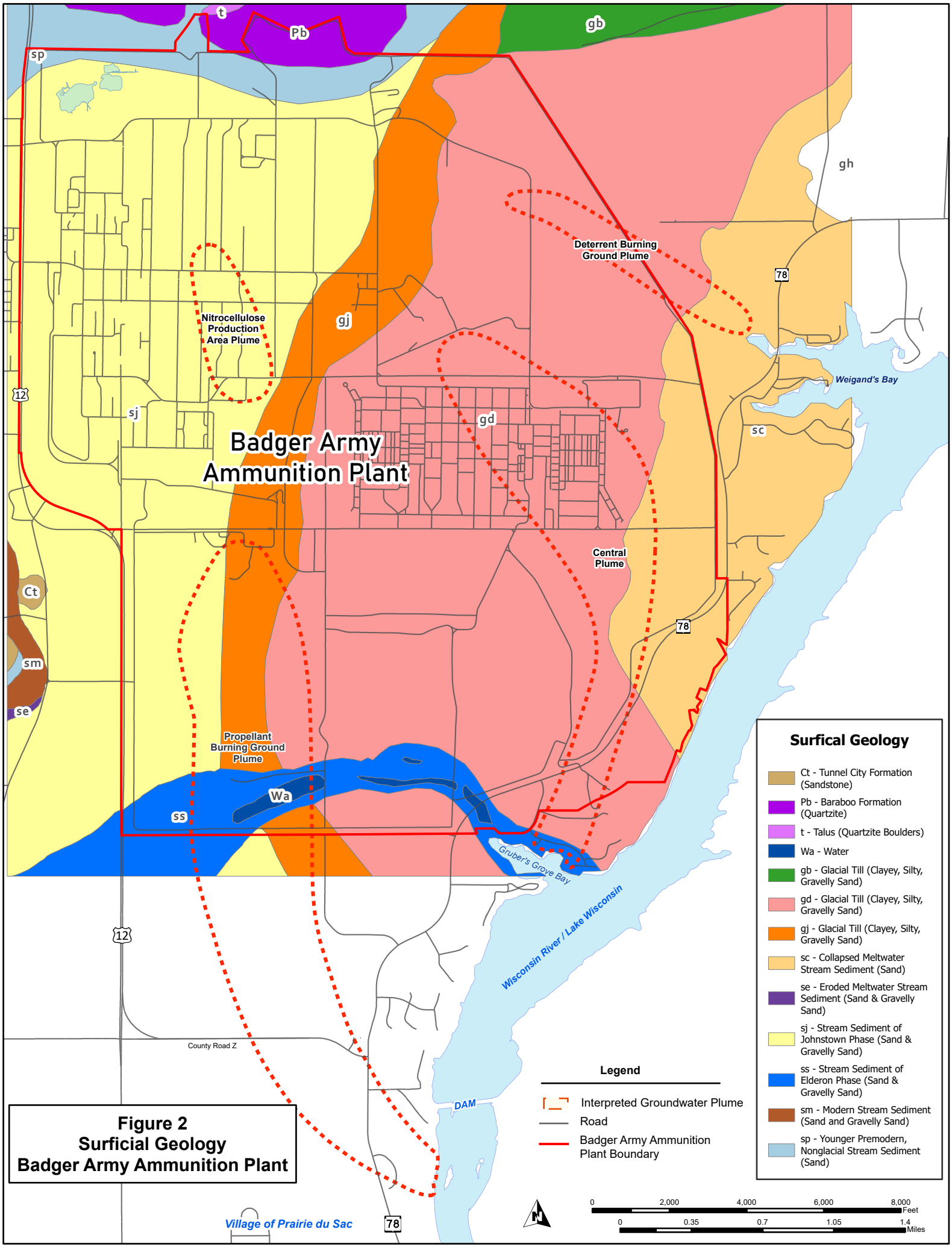
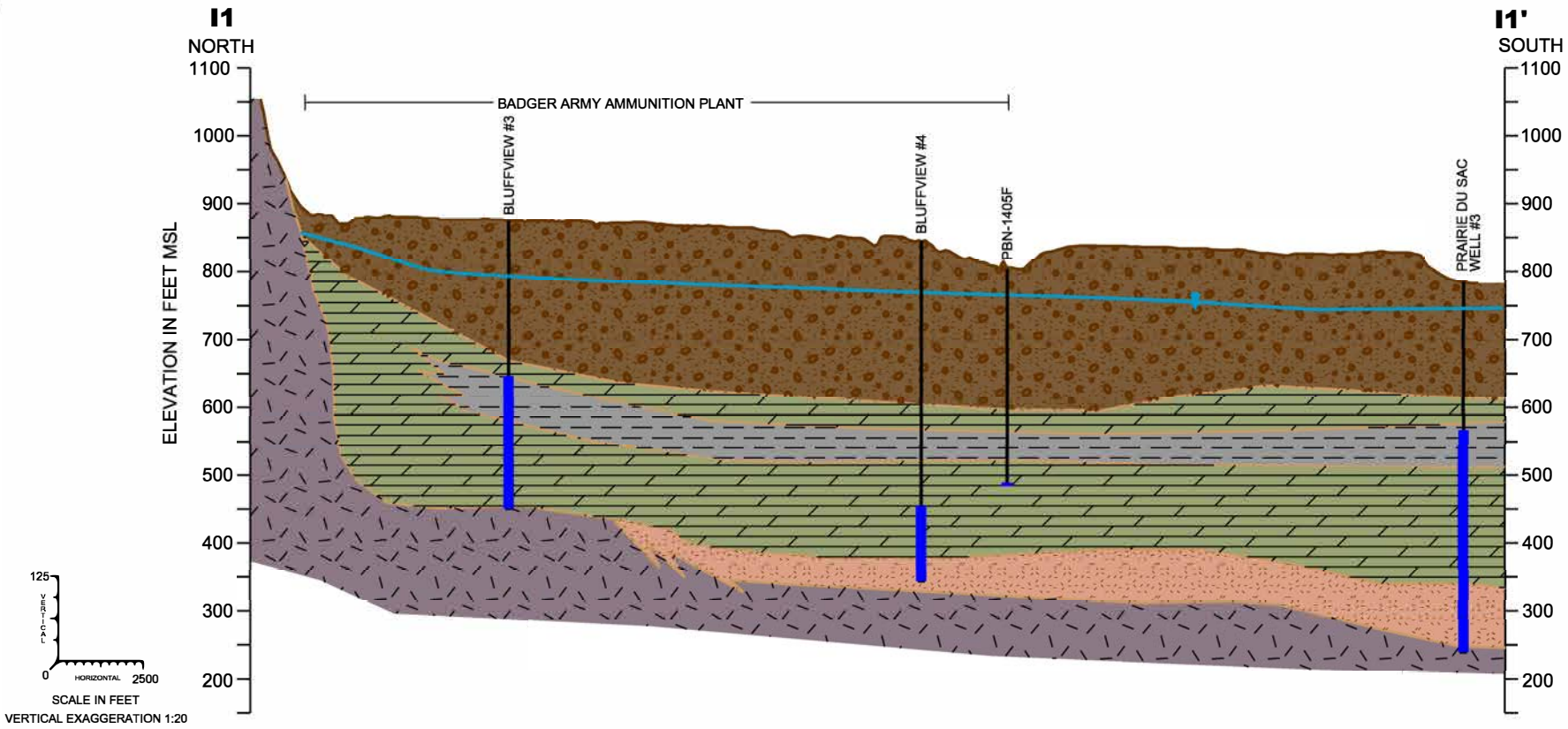
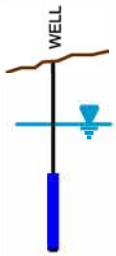


Figure 2
Surficial Geology
Badger Army Ammunition Plant



LEGEND



WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E & F)

GROUND SURFACE

WATER TABLE ELEVATION

WELL SCREEN

BOTTOM OF EXPLORATION

GEOLOGIC DESCRIPTIONS:

- SAND AND GRAVEL, AQUIFER
- EAU CLAIRE FORMATION, AQUITARD/AQUIFER (SHALE, DOLOMITE, SILTSTONE, SANDSTONE)
- EAU CLAIRE FORMATION, AQUITARD (SHALE)
- MT. SIMON FORMATION, AQUIFER (SANDSTONE)
- BARABOO FORMATION, AQUITARD (QUARTZITE)

NOTES:
ADAPTED FROM GOTKOWITZ AND OTHERS (2005), HYDROGEOLOGY AND SIMULATION OF GROUNDWATER FLOW IN SAUK COUNTY, WISCONSIN

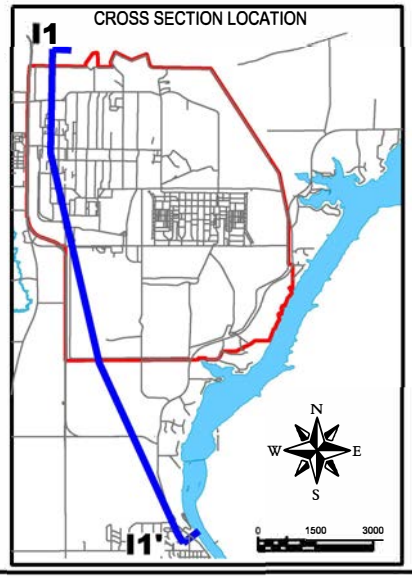
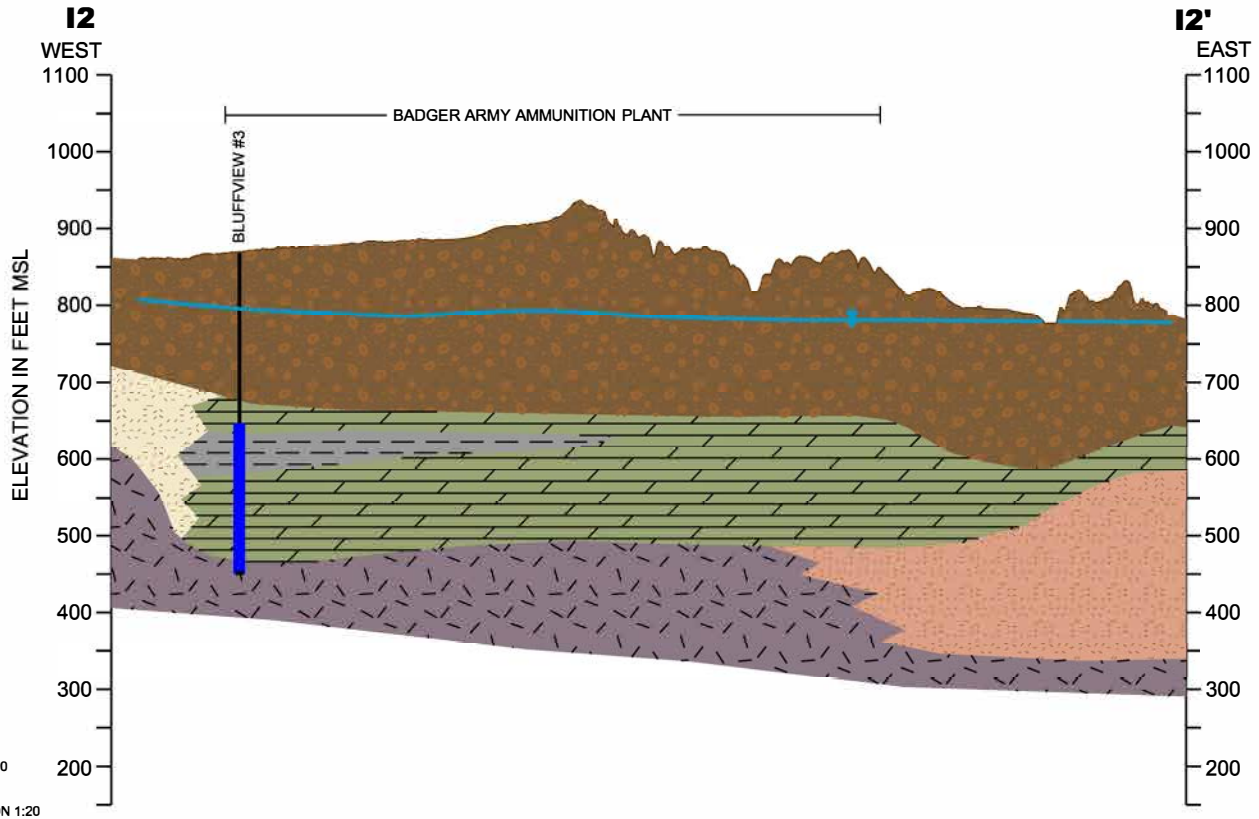


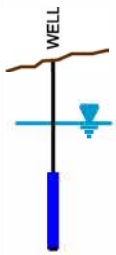
FIGURE 3

GENERALIZED GEOLOGIC CROSS SECTION NORTH-SOUTH BADGER ARMY AMMUNITION PLANT

SPECPRO PROFESSIONAL SERVICES



LEGEND



WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E & F)

GROUND SURFACE

WATER TABLE ELEVATION

WELL SCREEN

BOTTOM OF EXPLORATION

GEOLOGIC DESCRIPTIONS:

- SAND AND GRAVEL, AQUIFER
- WONEWOC FORMATION, AQUIFER (SANDSTONE)
- EAU CLAIRE FORMATION, AQUITARD/AQUIFER (SHALE, DOLOMITE, SILTSTONE, SANDSTONE)
- EAU CLAIRE FORMATION, AQUITARD (SHALE)
- MT. SIMON FORMATION, AQUIFER (SANDSTONE)
- BARABOO FORMATION, AQUITARD (QUARTZITE)

NOTES:
ADAPTED FROM GOTKOWITZ AND OTHERS (2005), HYDROGEOLOGY AND SIMULATION OF GROUNDWATER FLOW IN SAUK COUNTY, WISCONSIN

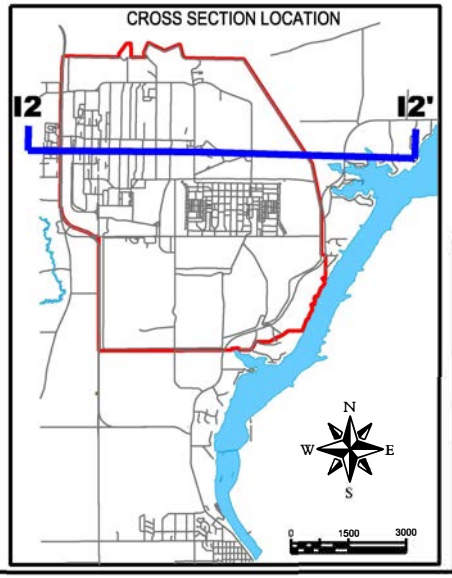
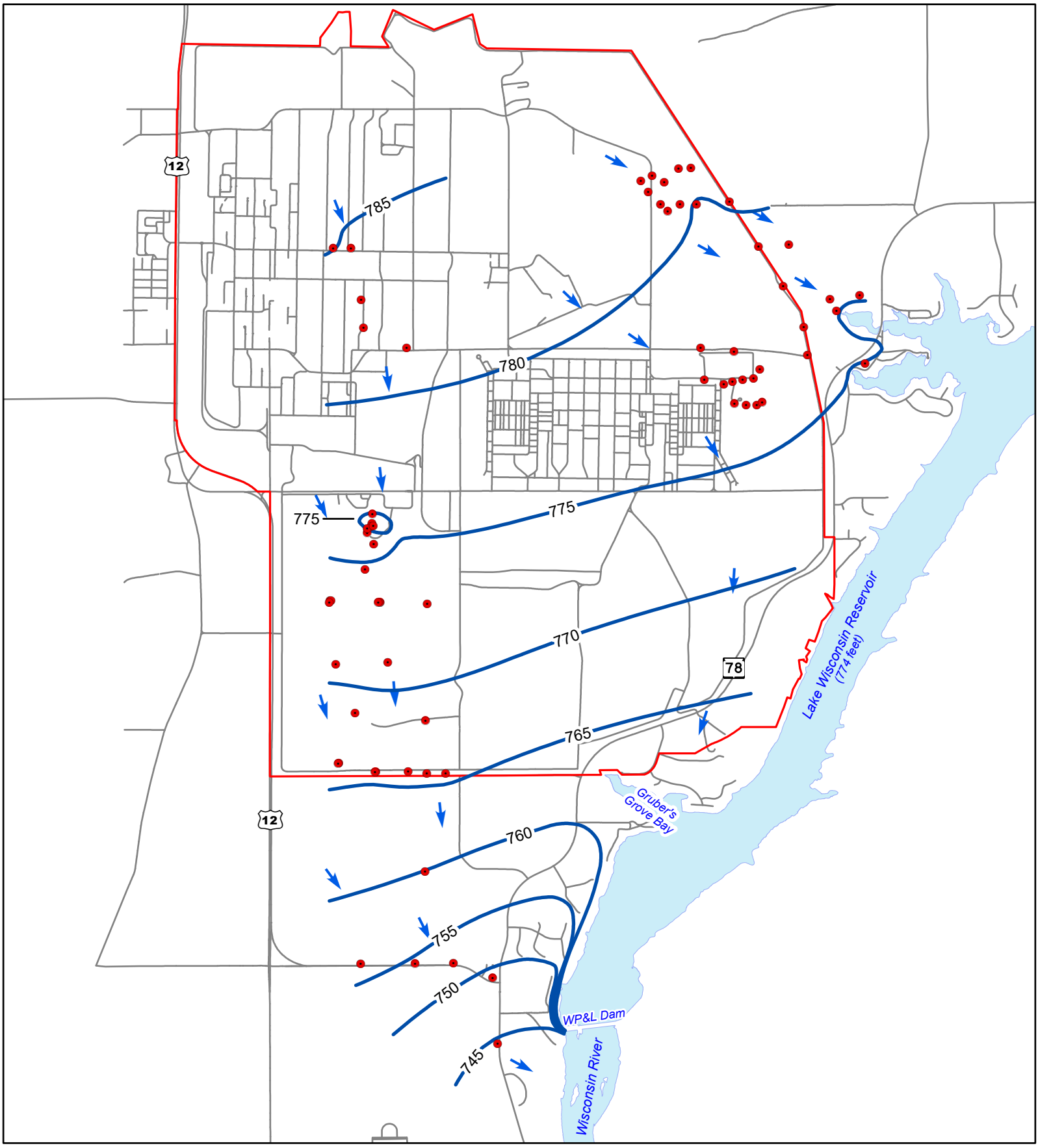


FIGURE 4

GENERALIZED GEOLOGIC CROSS SECTION WEST-EAST BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



Legend

- Badger Army Ammunition Plant Boundary
- Monitoring Well (used to draw contours)
- Groundwater Contour (2023)
  Contour Interval = 5 feet
- Groundwater Flow Direction
- Road

Figure 5

September 2023 Groundwater Contours
Badger Army Ammunition Plant

1:41,700

0 5,000 10,000 Feet

SPS
SPECPRO PROFESSIONAL SERVICES

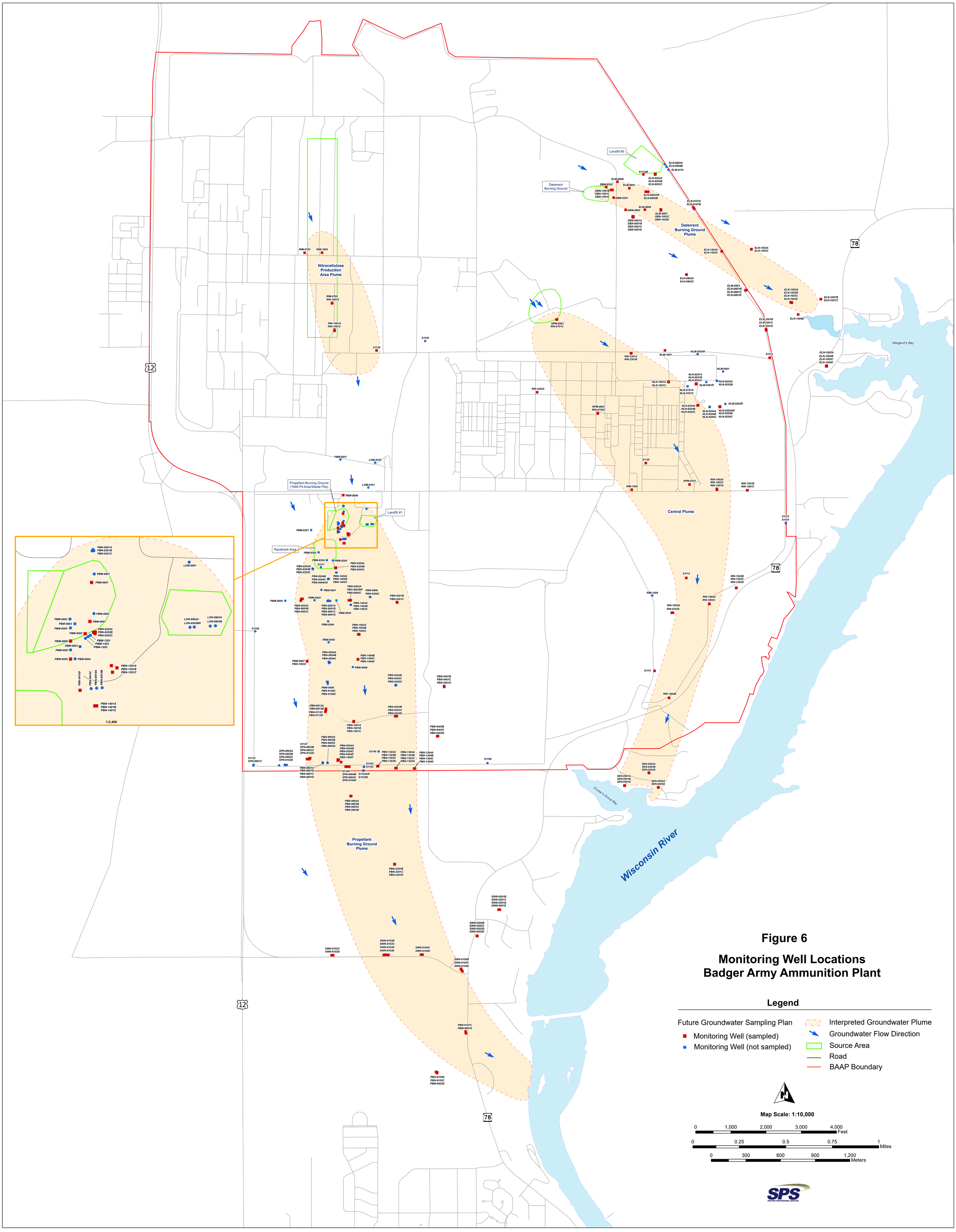


Figure 6

Monitoring Well Locations
Badger Army Ammunition Plant

Legend

Future Groundwater Sampling Plan
- Monitoring Well (sampled)
- Monitoring Well (not sampled)

- Interpreted Groundwater Plume
- Groundwater Flow Direction
- Source Area
- Road
- BAAP Boundary

Map Scale: 1:10,000

0 1,000 2,000 3,000 4,000 Feet

0 0.25 0.5 0.75 1 Miles

0 300 600 900 1,200 Meters

SPS
SPECPRO PROFESSIONAL SERVICES

Wisconsin River

LEGEND

- Wells Used To Construct Isoconcentrations
- Badger Army Ammunition Plant Boundary
- Source Area

Carbon Tetrachloride Concentration (µg/l)

2023 Groundwater Data

- 0.5 - 5.0
- > 5.0
- Groundwater Flow Direction

5.0 µg/l = NR 140 Enforcement Standard
0.5 µg/l = NR 140 Preventive Action Limit
µg/l = micrograms per liter

N
W E
S

0 500 1,000 2,000
Feet

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet

FIGURE 7

CARBON TETRACHLORIDE
2023 ISOCONCENTRATION MAP

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

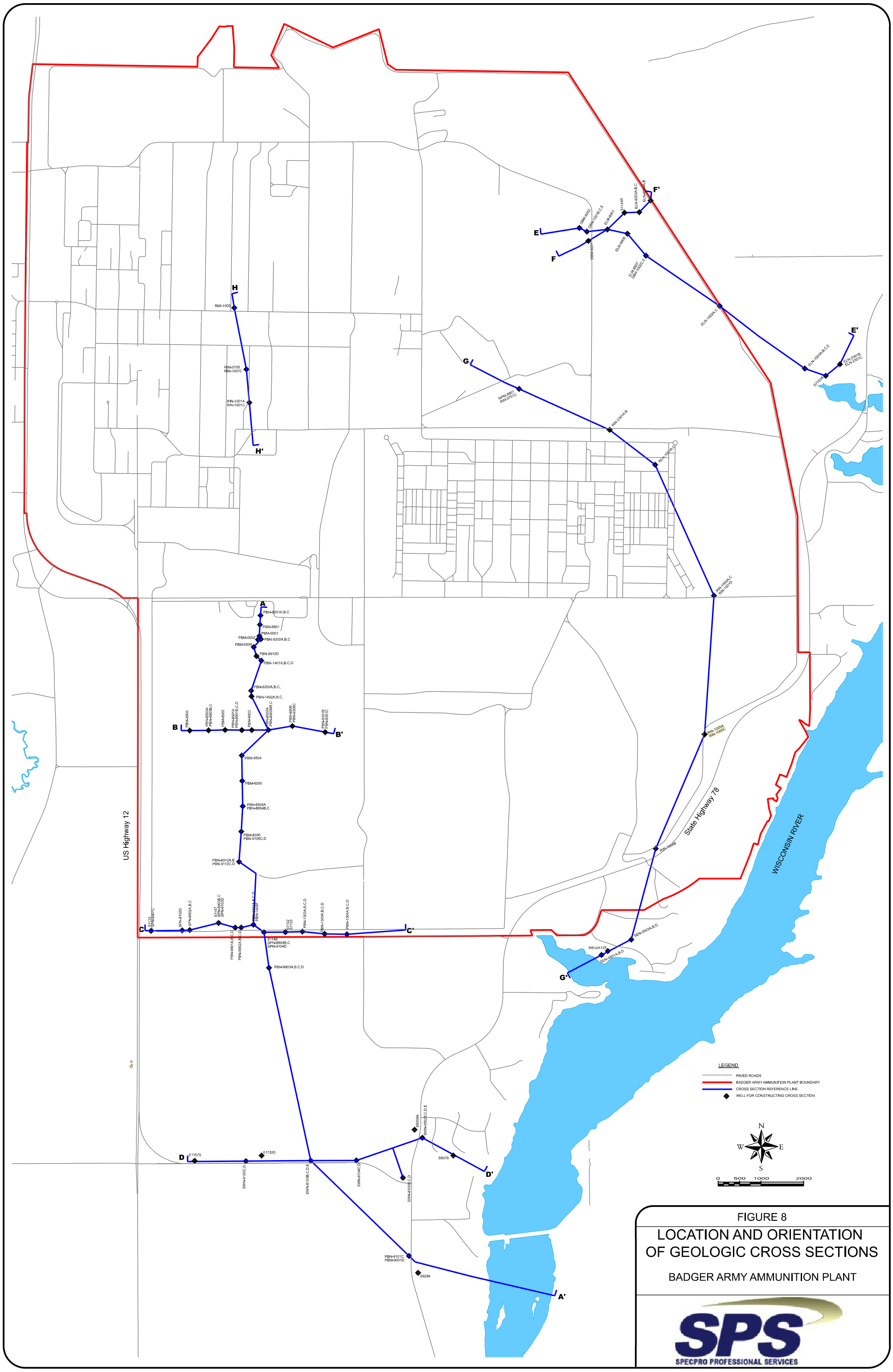
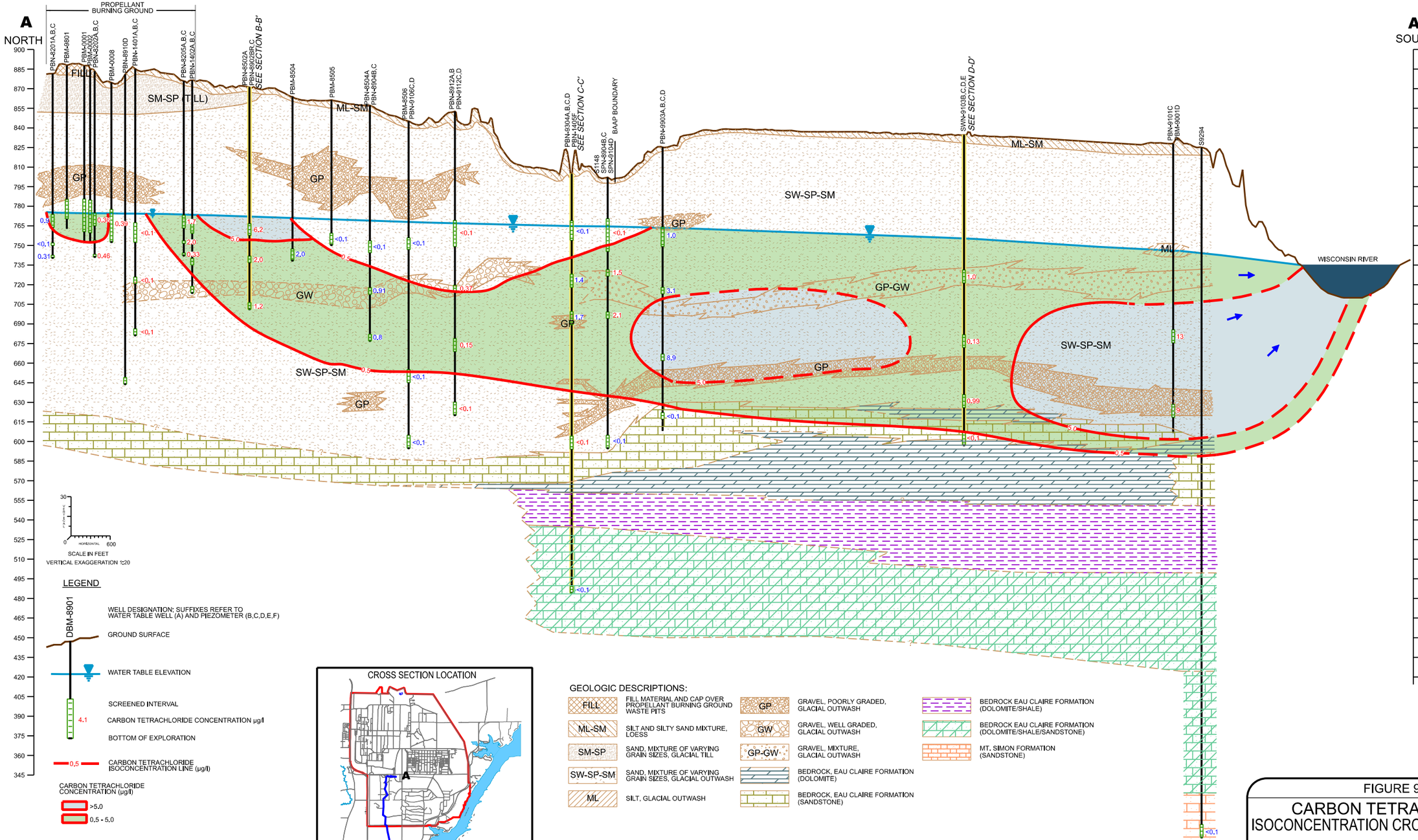


FIGURE 8

LOCATION AND ORIENTATION OF GEOLOGIC CROSS SECTIONS

BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



CROSS SECTION LOCATION

GEOLOGIC DESCRIPTIONS:

FILL	FILL MATERIAL AND CAP OVER PROPELLANT BURNING GROUND WASTE PITS	GP	GRAVEL, POORLY GRADED, GLACIAL OUTWASH		BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE)
ML-SM	SILT AND SILTY SAND MIXTURE, LOESS	GW	GRAVEL, WELL GRADED, GLACIAL OUTWASH		BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE/SANDSTONE)
SM-SP	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL	GP-GW	GRAVEL, MIXTURE, GLACIAL OUTWASH		MT. SIMON FORMATION (SANDSTONE)
SW-SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH		BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)		
ML	SILT, GLACIAL OUTWASH		BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)		

NOTES:

1. SEE FIGURE 6 FOR LOCATION AND ORIENTATION OF PROFILES
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. CARBON TETRACHLORIDE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2019/2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW

FIGURE 9

CARBON TETRACHLORIDE ISOCONCENTRATION CROSS SECTION A-A'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

B WEST

B' EAST

ELEVATION IN FEET MSL

925 900 875 850 825 800 775 750 725 700 675 650 625 600 575

PBM-8905 | PBN-8503A PBN-8903B,C | PBM-8502 | PBN-8501A PBN-8901B,C,D | PBM-8503 | PBN-8502A PBN-8902BR,C *SEE SECTION A-A'* | PBN-8906 PBN-9306C | PBN-9301B PBN-9301C

ML-CL

SM-SP (TILL)

GP

GP-GW

GP-GW

GP-GW

SW-SP-SM

SW-SP-SM

0.18 | 0.98 | 0.98 | 4.2 | 5.7 | 6.2 | 2.0 | 5.0 | 13 | 1.7

0.69 | 0.54 | 1.2

<0.1 | 0.59 | 0.5 | 0.29 | 0.67

<0.1

20 0 HORIZONTAL 200

SCALE IN FEET

VERTICAL EXAGGERATION 1:10

LEGEND

DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

2.3 — CARBON TETRACHLORIDE CONCENTRATION µg/l

BOTTOM OF EXPLORATION

5.0 — CARBON TETRACHLORIDE ISOCONCENTRATION LINE (µg/l)

CARBON TETRACHLORIDE CONCENTRATION (µg/l)

>5.0

0.5 - 5.0

GEOLOGIC DESCRIPTIONS:

ML-CL — SILT AND CLAY MIXTURE, LOESS

SM-SP — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL

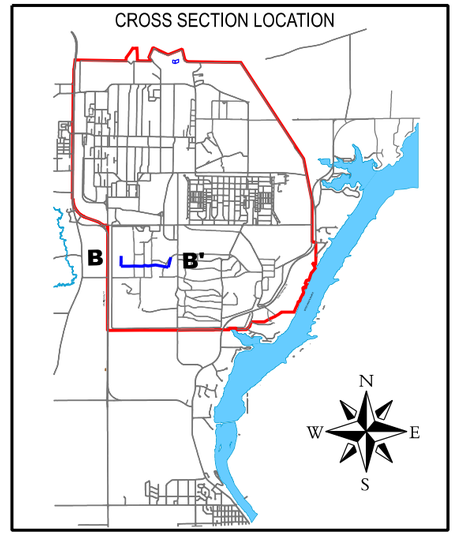
SW-SP-SM — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH

GP — GRAVEL, POORLY GRADED, GLACIAL OUTWASH

GP-GW — GRAVEL, MIXTURE, GLACIAL OUTWASH

BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)

CROSS SECTION LOCATION



NOTES:

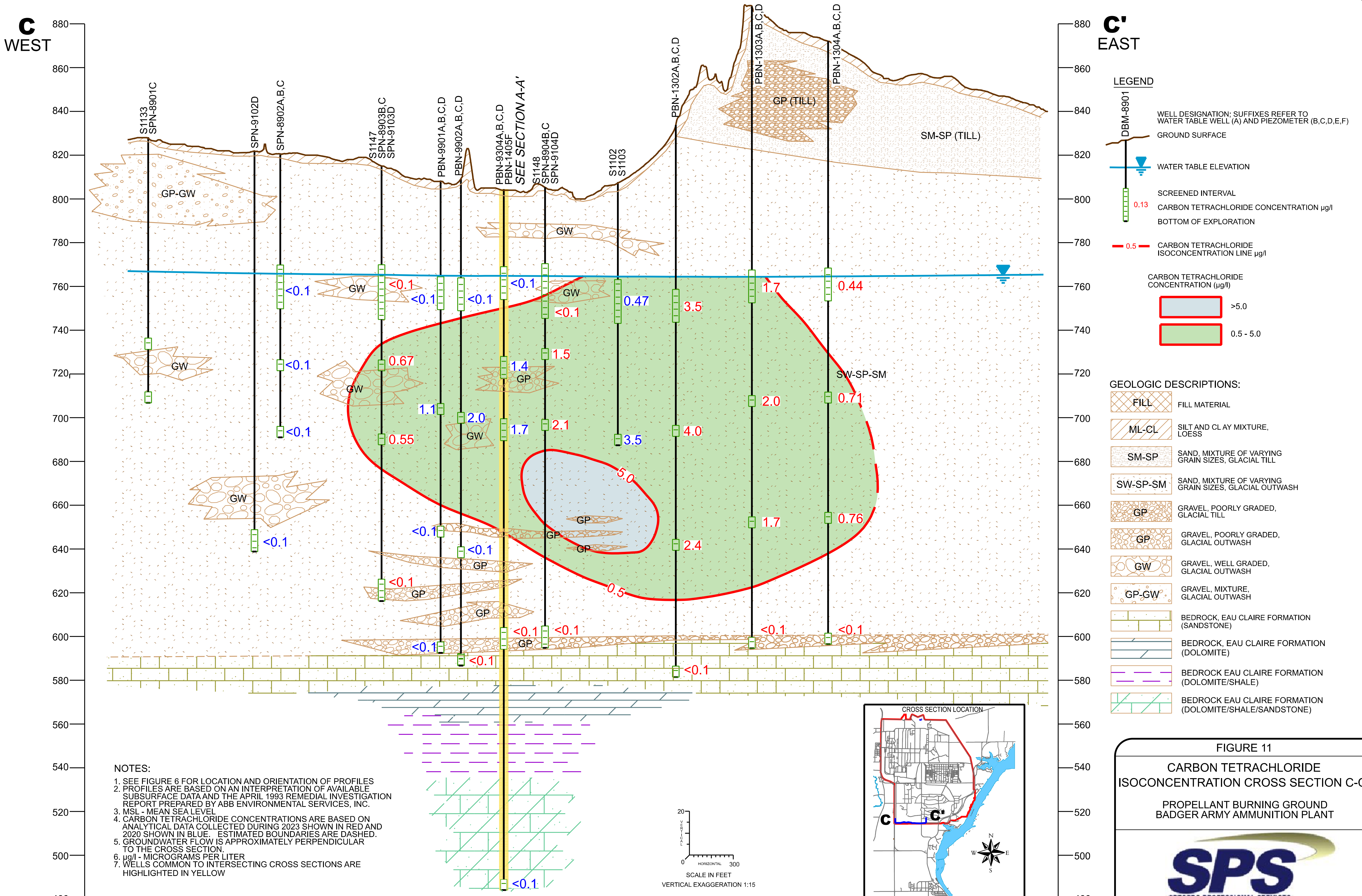
1. SEE FIGURE 6 FOR LOCATION AND ORIENTATION OF PROFILES
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. CARBON TETRACHLORIDE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW

FIGURE 10

CARBON TETRACHLORIDE ISOCONCENTRATION CROSS SECTION B-B'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



NOTES:

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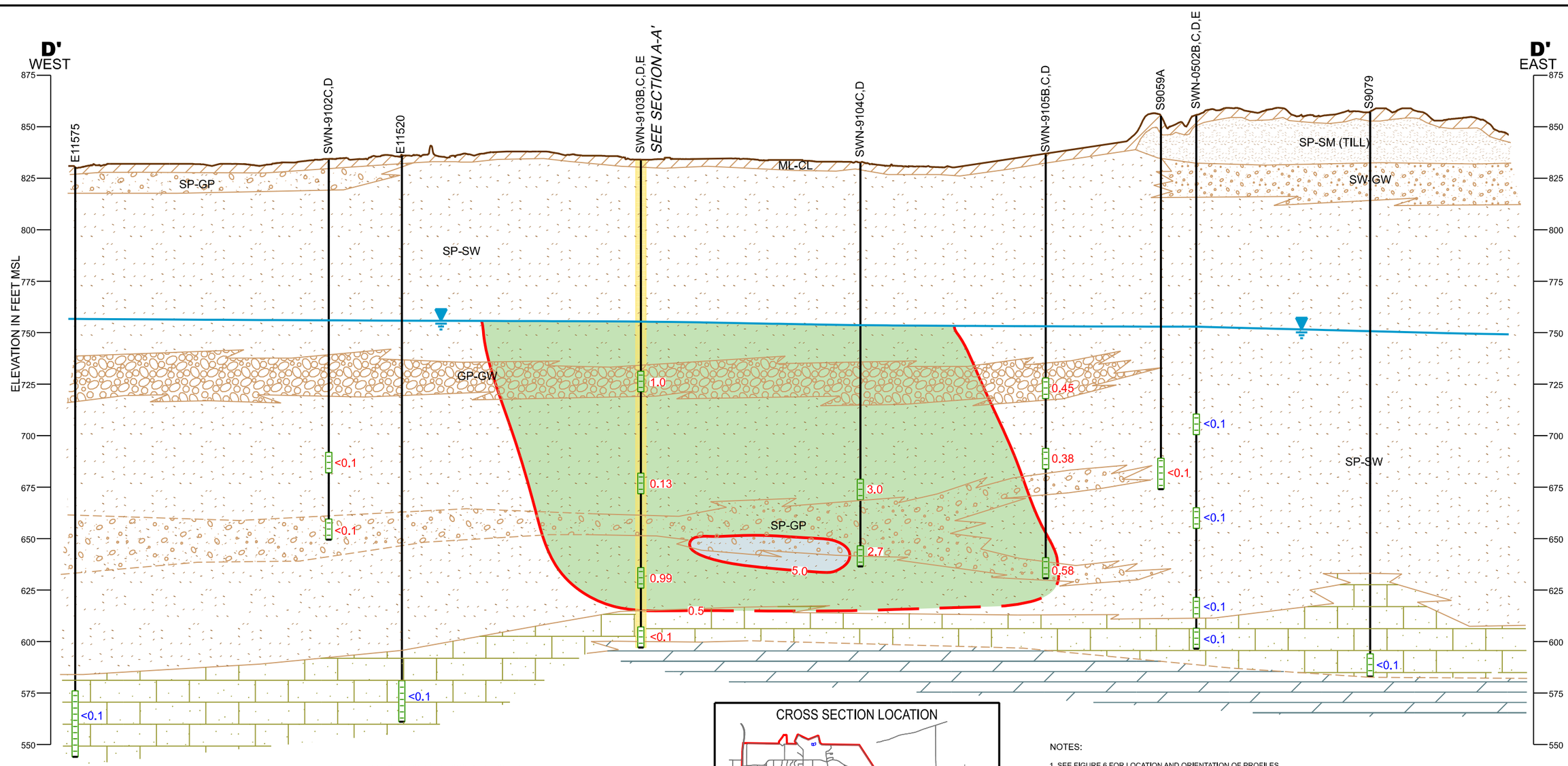
3. MSL - MEAN SEA LEVEL
4. CARBON TETRACHLORIDE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW

FIGURE 11

CARBON TETRACHLORIDE ISOCONCENTRATION CROSS SECTION C-C'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



LEGEND

DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

3.2 / 0.13 — CARBON TETRACHLORIDE CONCENTRATION µg/l

BOTTOM OF EXPLORATION

0.5 — CARBON TETRACHLORIDE ISOCONCENTRATION LINE (µg/l)

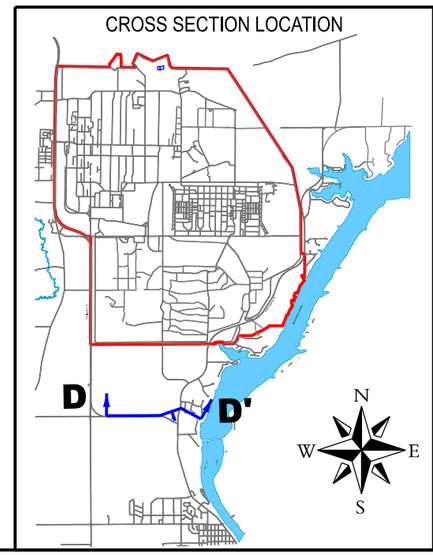
GEOLOGIC DESCRIPTIONS:

ML-CL	SILT AND CLAY MIXTURE, LOESS
SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
SP-GP	SAND AND GRAVEL, GLACIAL OUTWASH
SW-GW	SAND, GRAVEL, AND COBBLES, GLACIAL OUTWASH
SP-SW	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
GP-GW	GRAVEL, GLACIAL OUTWASH
	BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)
	BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)

CARBON TETRACHLORIDE CONCENTRATION (µg/l)

0.5 - 5.0 >5.0

CROSS SECTION LOCATION



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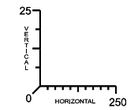
3. MSL - MEAN SEA LEVEL
4. CARBON TETRACHLORIDE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2018/2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW



SCALE IN FEET
VERTICAL EXAGGERATION 1:10

FIGURE 12

CARBON TETRACHLORIDE ISOCONCENTRATION CROSS SECTION D-D'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

Wisconsin River

LEGEND

- Wells Used To Construct Isoconcentrations
- Badger Army Ammunition Plant Boundary
- Source Area

Ethyl Ether Concentration (µg/l)

2023 Groundwater Data

- 100 - 1000
- > 1000
- Groundwater Flow Direction

1000 µg/l = NR 140 Enforcement Standard
100 µg/l = NR 140 Preventive Action Limit
µg/l = micrograms per liter

N
W E
S

0 500 1,000 2,000
Feet

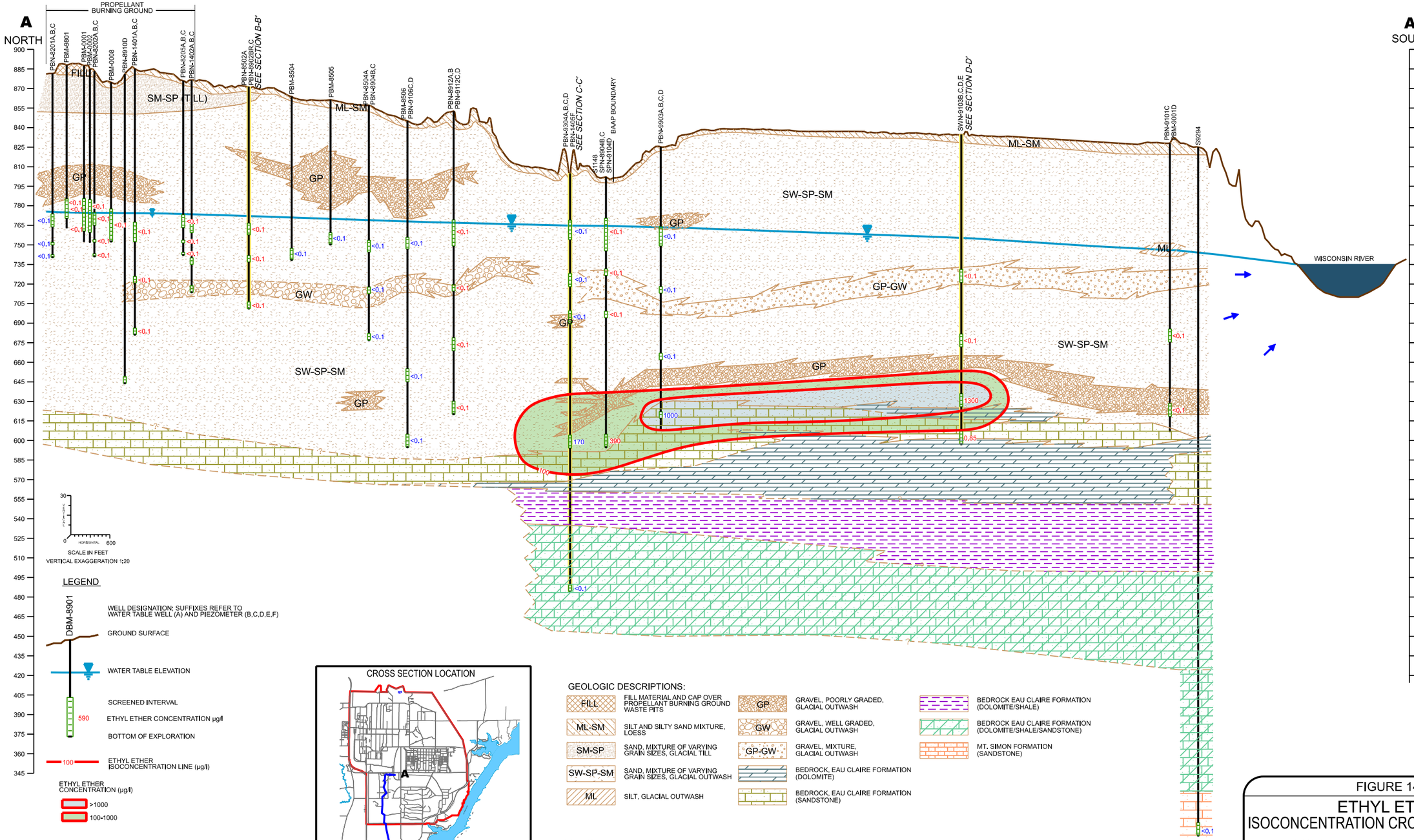
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet

FIGURE 13

ETHYL ETHER
2023 ISOCONCENTRATION MAP

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



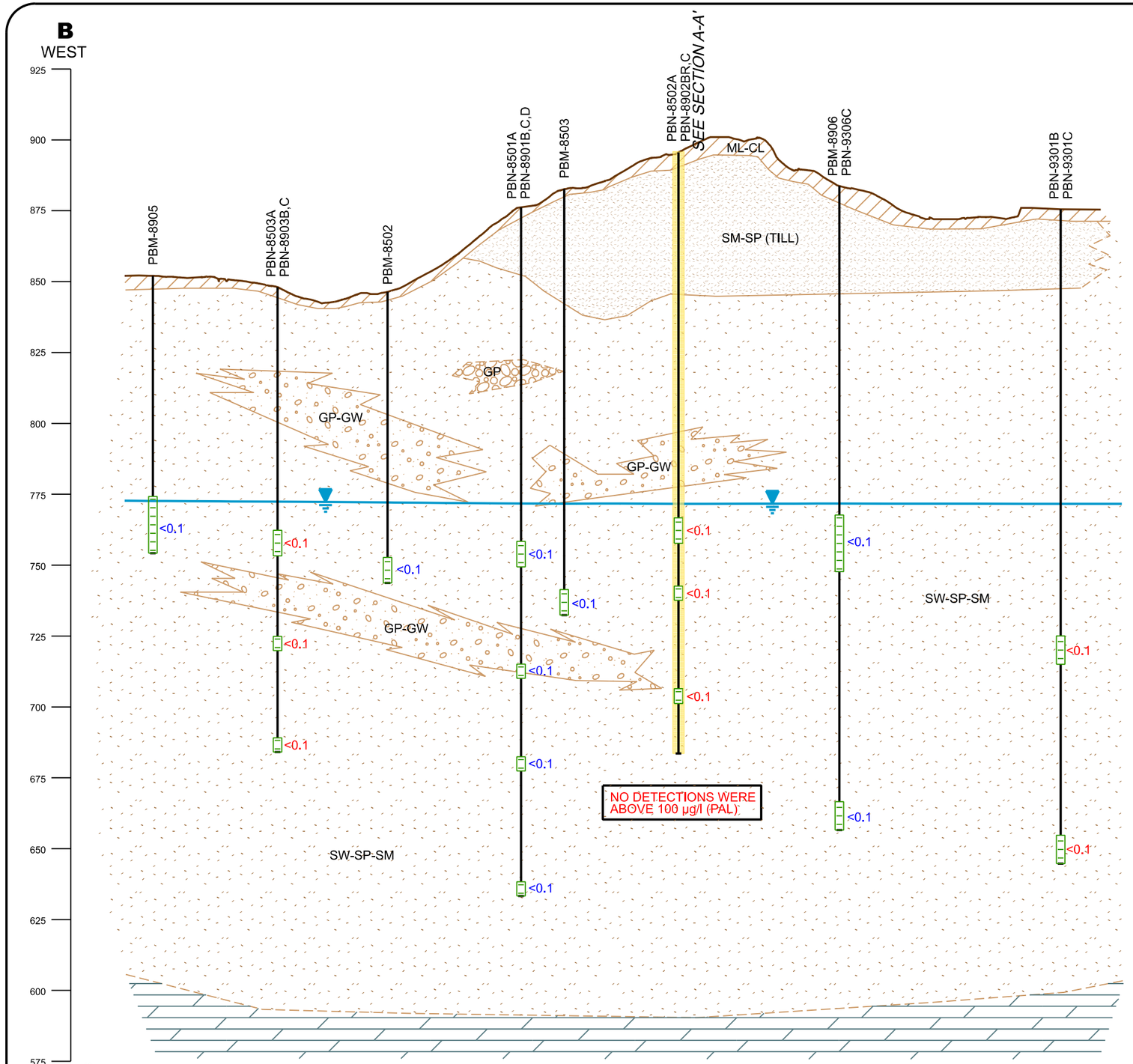
NOTES:
1. SEE FIGURE 6 FOR LOCATION AND ORIENTATION OF PROFILES
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. ETHYL ETHER CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2019/2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW

FIGURE 14

ETHYL ETHER ISOCONCENTRATION CROSS SECTION A-A'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPECPRO PROFESSIONAL SERVICES



LEGEND

DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

<0.1 — ETHYL ETHER CONCENTRATION µg/l

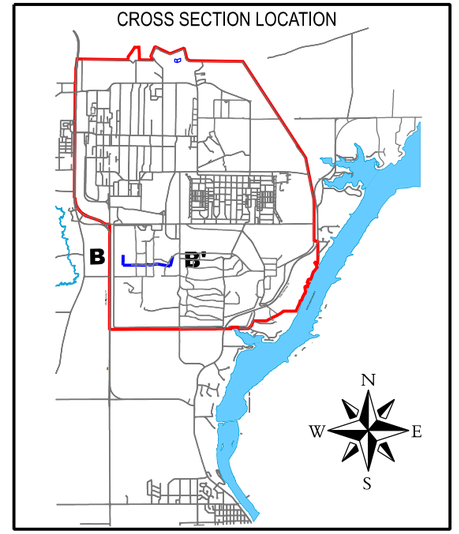
BOTTOM OF EXPLORATION

100 — ETHYL ETHER ISOCONCENTRATION LINE (µg/l)

GEOLOGIC DESCRIPTIONS:

ML-CL	SILT AND CLAY MIXTURE, LOESS
SM-SP	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
SW-SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
GP	GRAVEL, POORLY GRADED, GLACIAL OUTWASH
GP-GW	GRAVEL, MIXTURE, GLACIAL OUTWASH
	BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)

CROSS SECTION LOCATION



NOTES:

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5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW

FIGURE 15

ETHYL ETHER
ISOCONCENTRATION CROSS SECTION B-B'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

C WEST

C' EAST

S1133 SPN-8901C | SPN-9102D | SPN-8902A,B,C | S1147 SPN-8903B,C SPN-9103D | PBN-9901A,B,C,D | PBN-9902A,B,C,D | PBN-9304A,B,C,D PBN-1405F | *SEE SECTION A-A'* | S1148 SPN-8904B,C SPN-9104D | S1102 S1103 | PBN-1302A,B,C,D | PBN-1303A,B,C,D | PBN-1304A,B,C,D

GP-GW | GW | GP (TILL) | SM-SP (TILL) | SW-SP-SM | GP

<0.1 | 0.26 | 1.3 | 100 | 170 | 390

880 860 840 820 800 780 760 740 720 700 680 660 640 620 600 580 560 540 520 500 480

NOTES:
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2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. ETHYL ETHER CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW

VERTICAL 20 0 HORIZONTAL 300

SCALE IN FEET

VERTICAL EXAGGERATION 1:15

CROSS SECTION LOCATION

C C' N W E S

LEGEND

DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E,F)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

1.1 — ETHYL ETHER CONCENTRATION µg/l

BOTTOM OF EXPLORATION

100 — ETHYL ETHER ISOCONCENTRATION LINE µg/l

ETHYL ETHER CONCENTRATION (µg/l)

>1000

100-1000

GEOLOGIC DESCRIPTIONS:

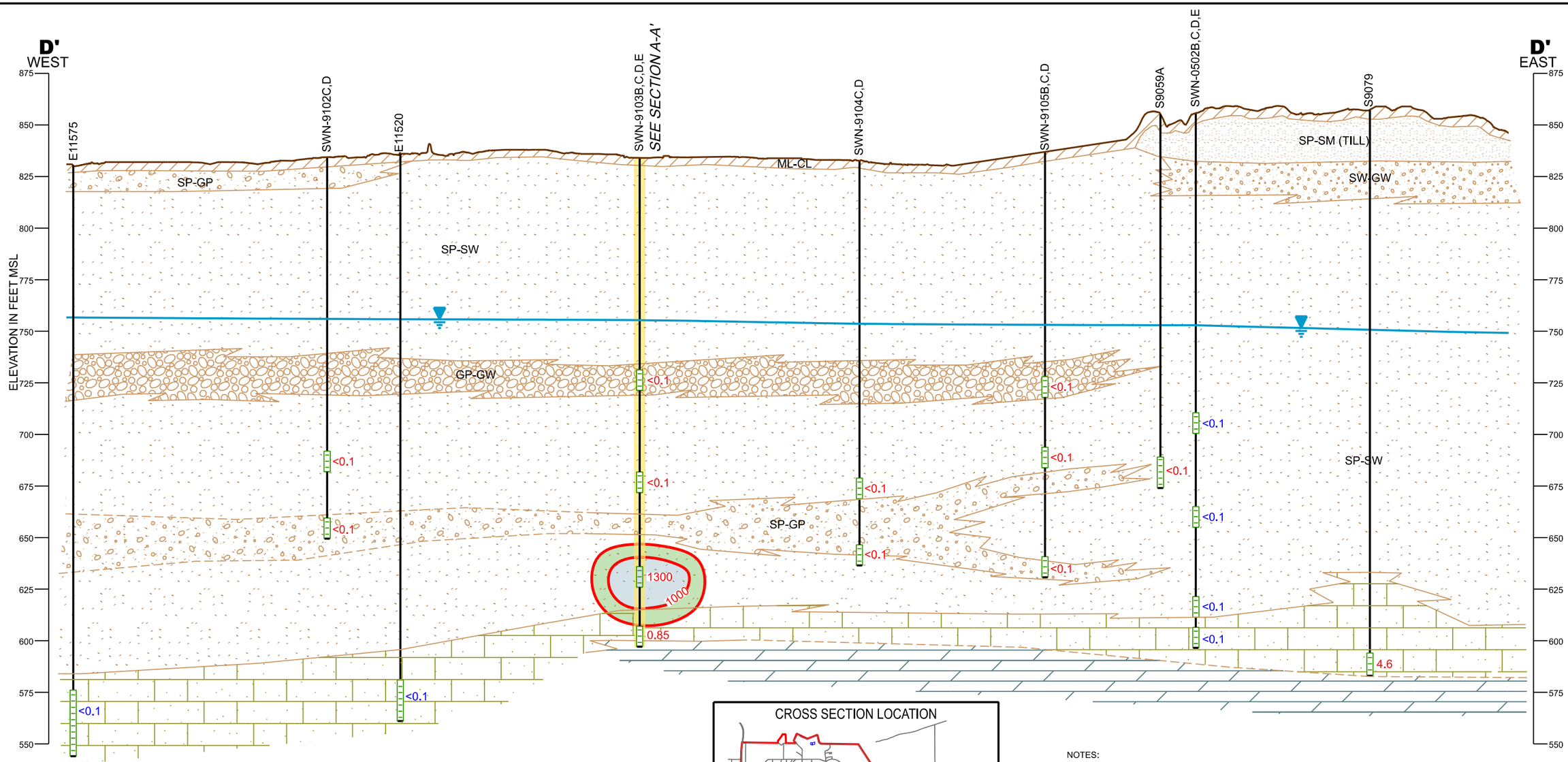
FILL	FILL MATERIAL
ML-CL	SILT AND CL AY MIXTURE, LOESS
SM-SP	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
SW-SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
GP	GRAVEL, POORLY GRADED, GLACIAL TILL
GP	GRAVEL, POORLY GRADED, GLACIAL OUTWASH
GW	GRAVEL, WELL GRADED, GLACIAL OUTWASH
GP-GW	GRAVEL, MIXTURE, GLACIAL OUTWASH
	BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)
	BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)
	BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE)
	BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE/SANDSTONE)

FIGURE 16

ETHYL ETHER
ISOCONCENTRATION CROSS SECTION C-C'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



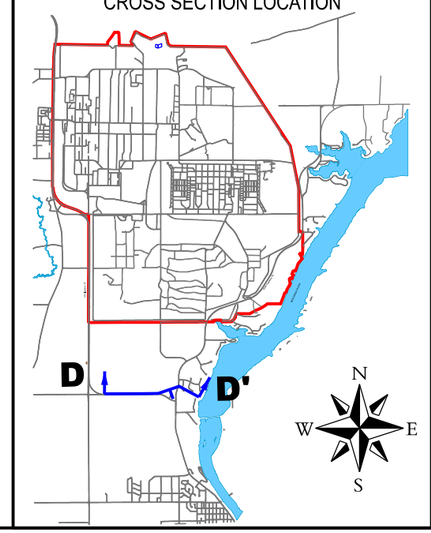
LEGEND

- DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)
- GROUND SURFACE
- WATER TABLE ELEVATION
- SCREENED INTERVAL
- <0.1 — ETHYL ETHER CONCENTRATION µg/l
- BOTTOM OF EXPLORATION
- 100 — ETHYL ETHER ISOCONCENTRATION LINE (µg/l)

GEOLOGIC DESCRIPTIONS:

ML-CL	SILT AND CLAY MIXTURE, LOESS
SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
SP-GP	SAND AND GRAVEL, GLACIAL OUTWASH
SW-GW	SAND, GRAVEL, AND COBBLES, GLACIAL OUTWASH
SP-SW	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
GP-GW	GRAVEL, GLACIAL OUTWASH
	BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)
	BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)

CROSS SECTION LOCATION



NOTES:

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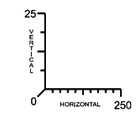
3. MSL - MEAN SEA LEVEL
4. ETHYL ETHER CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2018/2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW



SCALE IN FEET
VERTICAL EXAGGERATION 1:10

FIGURE 17

ETHYL ETHER
ISOCONCENTRATION CROSS SECTION D-D'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

Wisconsin River

LEGEND

- Wells Used To Construct Isoconcentrations
- Badger Army Ammunition Plant Boundary
- Source Area

Trichloroethene Concentration (µg/l)

2023 Groundwater Data

- 0.5 - 5.0
- Groundwater Flow Direction

5.0 µg/l = NR 140 Enforcement Standard
0.5 µg/l = NR 140 Preventive Action Limit
µg/l = micrograms per liter

N
W E
S

0 500 1,000 2,000
Feet

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet

FIGURE 18

TRICHLOROETHENE
2023 ISOCONCENTRATION MAP

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

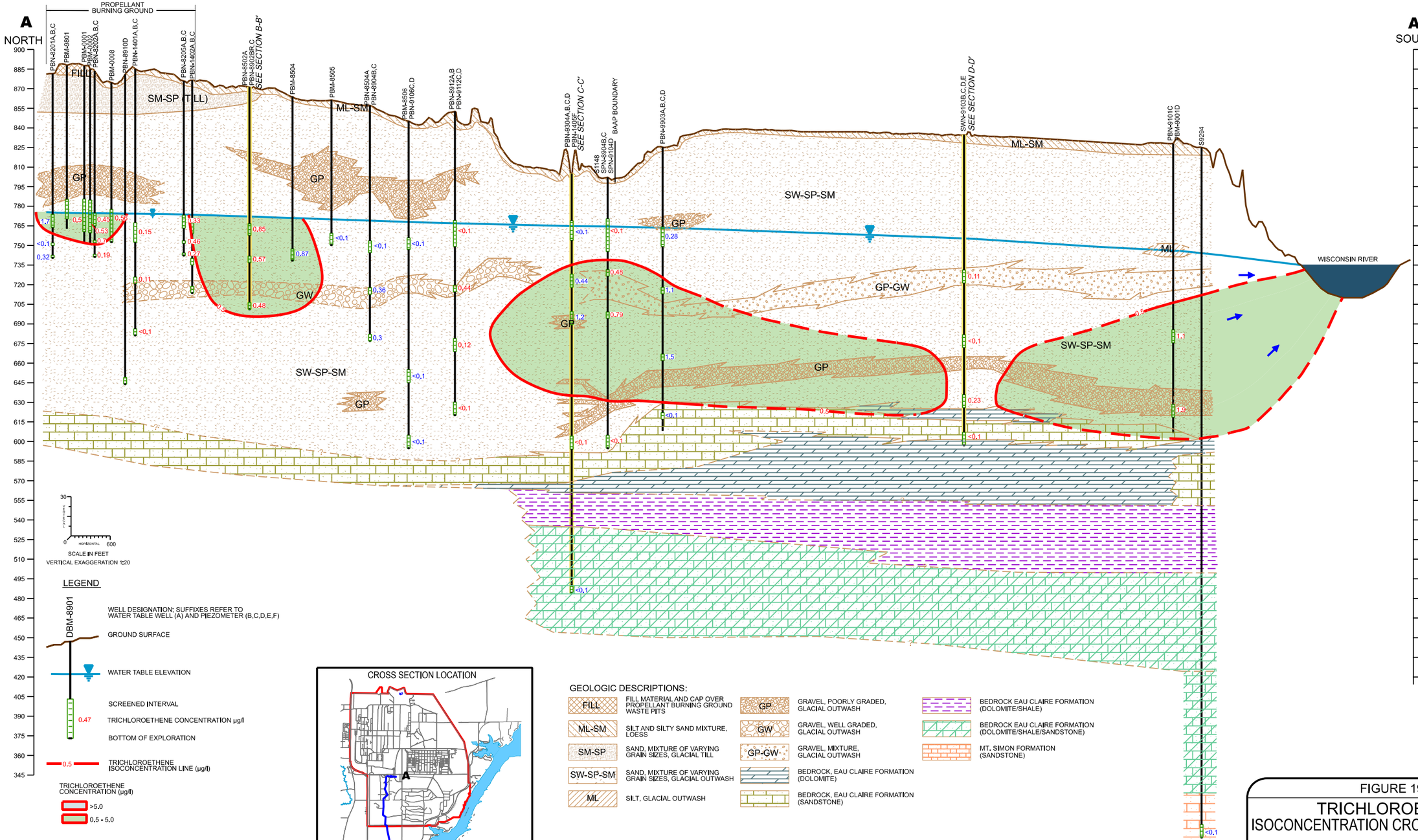
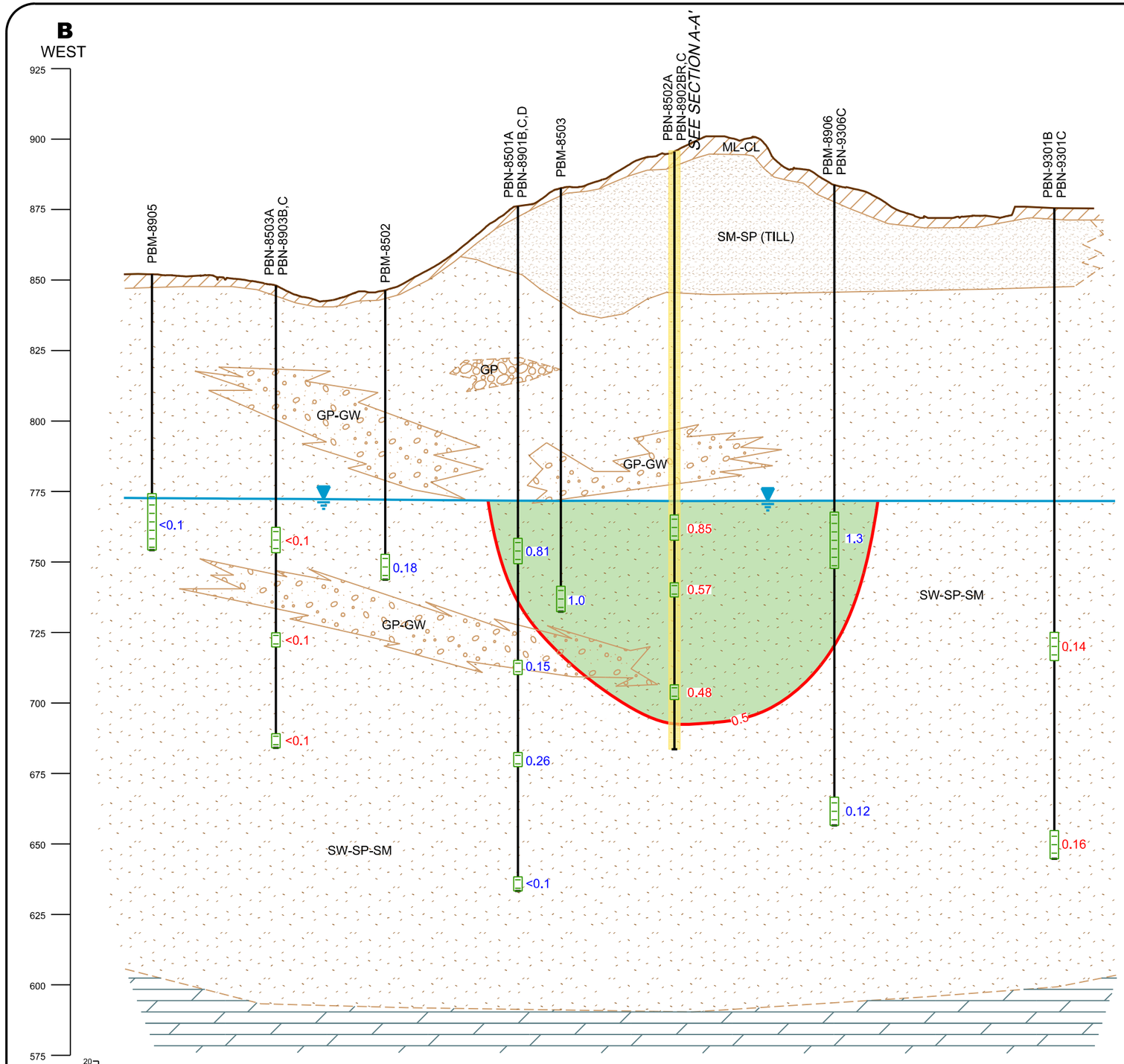


FIGURE 19

TRICHLOROETHENE ISOCONCENTRATION CROSS SECTION A-A'

PROPELLANT BURNING GROUND
BADGER army AMMUNITION PLANT

SPECPRO PROFESSIONAL SERVICES



LEGEND

DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

2.4 — TRICHLOROETHENE CONCENTRATION µg/l

BOTTOM OF EXPLORATION

0.5 — TRICHLOROETHENE ISOCONCENTRATION LINE (µg/l)

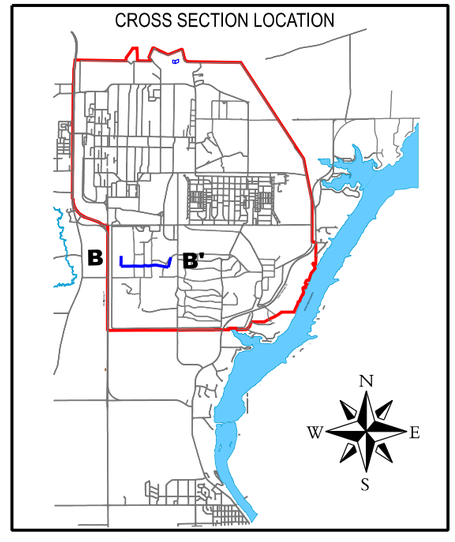
TRICHLOROETHENE CONCENTRATION (µg/l)

0.5 - 5.0

GEOLOGIC DESCRIPTIONS:

- ML-CL — SILT AND CLAY MIXTURE, LOESS
- SM-SP — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
- SW-SP-SM — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
- GP — GRAVEL, POORLY GRADED, GLACIAL OUTWASH
- GP-GW — GRAVEL, MIXTURE, GLACIAL OUTWASH
- BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)

CROSS SECTION LOCATION



NOTES:

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4. TRICHLOROETHENE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2020 IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW

FIGURE 20

TRICHLOROETHENE
ISOCONCENTRATION CROSS SECTION B-B'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

C WEST

C' EAST

S1133 SPN-8901C | SPN-9102D | SPN-8902A,B,C | S1147 SPN-8903B,C SPN-9103D | PBN-9901A,B,C,D | PBN-9902A,B,C,D | PBN-9304A,B,C,D PBN-1405F | *SEE SECTION A-A'* | S1148 SPN-8904B,C SPN-9104D | S1102 S1103 | PBN-1302A,B,C,D | PBN-1303A,B,C,D | PBN-1304A,B,C,D

GP-GW | GW | GP (TILL) | SM-SP (TILL) | SW-SP-SM | GP

<0.1 | 0.3 | 0.71 | 0.43 | 0.22 | 0.55 | 1.2 | 0.79 | 0.44 | 0.48 | 0.27 | 0.33 | 0.16 | 0.5

880 860 840 820 800 780 760 740 720 700 680 660 640 620 600 580 560 540 520 500 480

NOTES:
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2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. TRICHLOROETHENE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW

VERTICAL 20 0 HORIZONTAL 300

SCALE IN FEET

VERTICAL EXAGGERATION 1:15

CROSS SECTION LOCATION

C C' N W E S

LEGEND

DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E,F)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

0.36 — TRICHLOROETHENE CONCENTRATION µg/l

BOTTOM OF EXPLORATION

0.5 — TRICHLOROETHENE ISOCONCENTRATION LINE µg/l

TRICHLOROETHENE CONCENTRATION (µg/l)

0.5 - 5.0

GEOLOGIC DESCRIPTIONS:

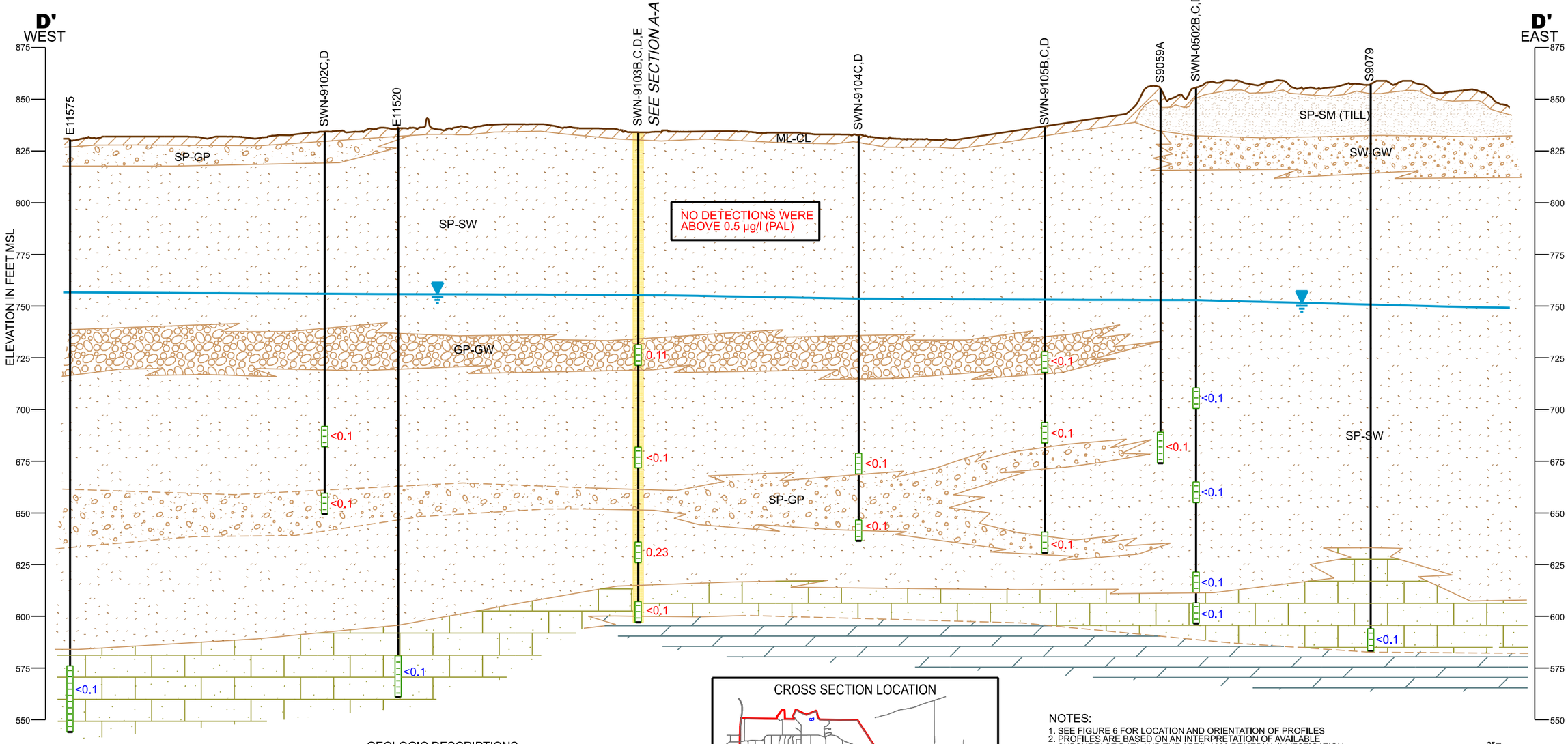
FILL	FILL MATERIAL
ML-CL	SILT AND CL AY MIXTURE, LOESS
SM-SP	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
SW-SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
GP	GRAVEL, POORLY GRADED, GLACIAL TILL
GP	GRAVEL, POORLY GRADED, GLACIAL OUTWASH
GW	GRAVEL, WELL GRADED, GLACIAL OUTWASH
GP-GW	GRAVEL, MIXTURE, GLACIAL OUTWASH
	BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)
	BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)
	BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE)
	BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE/SANDSTONE)

FIGURE 21

TRICHLOROETHENE ISOCONCENTRATION CROSS SECTION C-C'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS SPECPRO PROFESSIONAL SERVICES



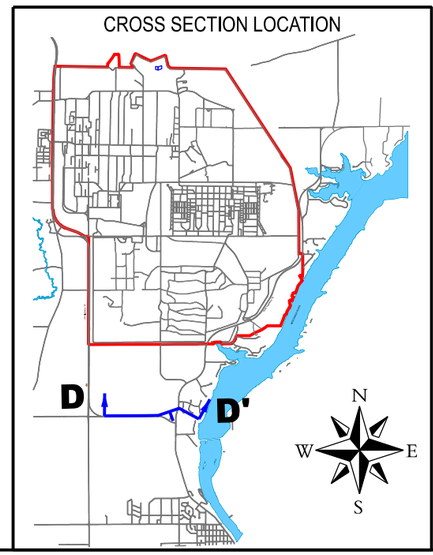
LEGEND

- DBM-8901 — WELL DESIGNATION: SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)
- GROUND SURFACE
- WATER TABLE ELEVATION
- SCREENED INTERVAL
- 1.2 — TRICHLOROETHENE CONCENTRATION µg/l
- BOTTOM OF EXPLORATION
- 0.5 — TRICHLOROETHENE ISOCONCENTRATION LINE (µg/l)

GEOLOGIC DESCRIPTIONS:

ML-CL	SILT AND CLAY MIXTURE, LOESS
SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
SP-GP	SAND AND GRAVEL, GLACIAL OUTWASH
SW-GW	SAND, GRAVEL, AND COBBLES, GLACIAL OUTWASH
SP-SW	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
GP-GW	GRAVEL, GLACIAL OUTWASH
	BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)
	BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)

CROSS SECTION LOCATION



NOTES:

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3. MSL - MEAN SEA LEVEL
4. TRICHLOROETHENE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2018/2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO THE CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW

25 VERTICAL — 0 — 250 HORIZONTAL

SCALE IN FEET
VERTICAL EXAGGERATION 1:10

FIGURE 22

TRICHLOROETHENE
ISOCONCENTRATION CROSS SECTION D-D'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

1949 Pit

PBG
Waste Pits

Landfill # 1

Racetrack Area

Former Waste Pit

N
W E
S

0 110 220 440
Feet

Wisconsin River

LEGEND

- Wells Used To Construct Isoconcentrations
- Badger Army Ammunition Plant Boundary
- Source Area

Total Dinitrotoluene Concentration (µg/l)

2023 Groundwater Data

- > 1.0
- 0.05 - 1.0
- 0.005 - 0.05

Groundwater Flow Direction

0.05 µg/l = NR 140 Enforcement Standard
0.005 µg/l = NR 140 Preventive Action Limit
µg/l = micrograms per liter

N
W E
S

0 500 1,000 2,000
Feet

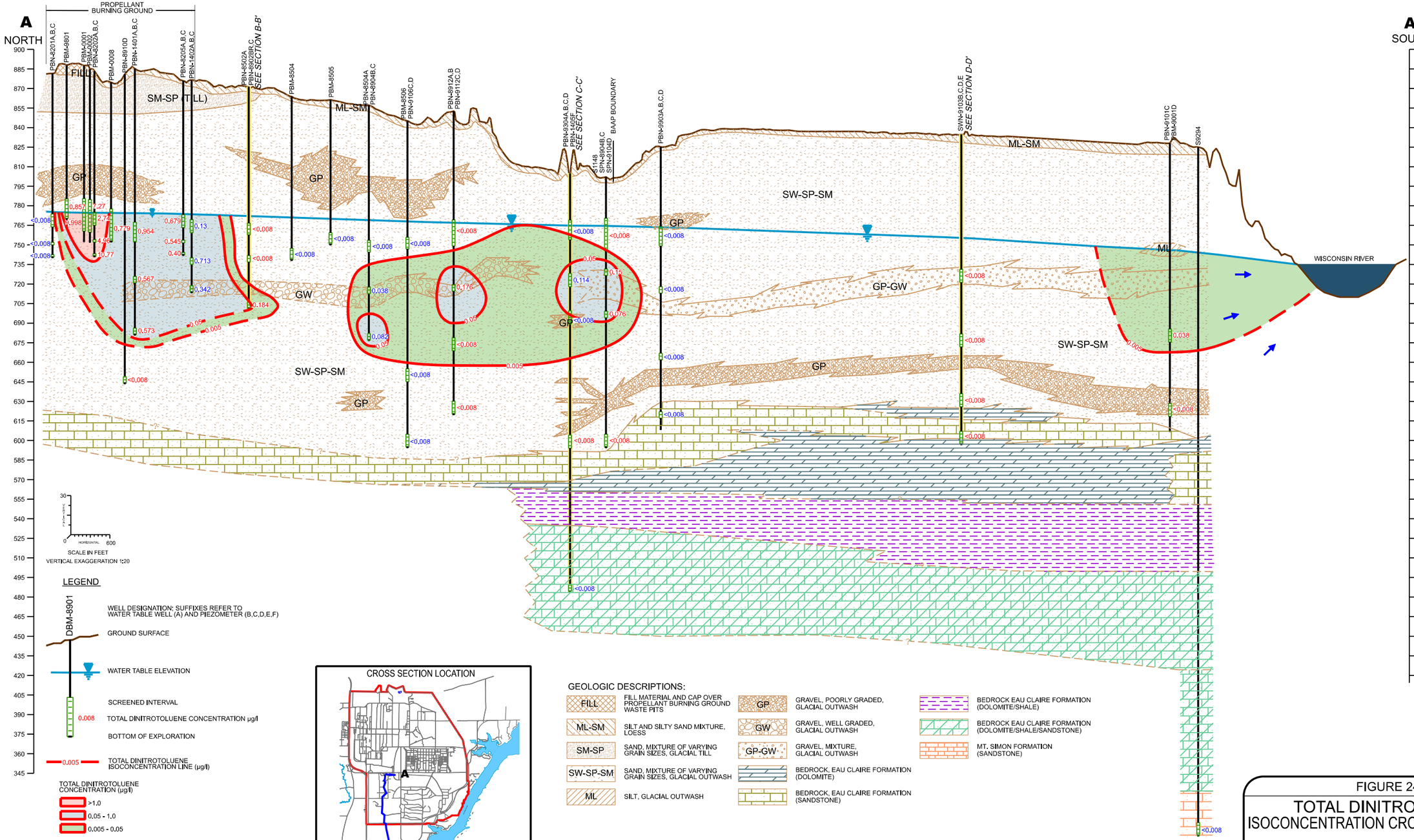
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet

FIGURE 23

TOTAL DINITROTOLUENE
2023 ISOCONCENTRATION MAP

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



CROSS SECTION LOCATION

GEOLOGIC DESCRIPTIONS:

FILL	FILL MATERIAL AND CAP OVER PROPELLANT BURNING GROUND WASTE PITS	GP	GRAVEL, POORLY GRADED, GLACIAL OUTWASH		BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE)
ML-SM	SILT AND SILTY SAND MIXTURE, LOESS	GW	GRAVEL, WELL GRADED, GLACIAL OUTWASH		BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE/SANDSTONE)
SM-SP	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL	GP-GW	GRAVEL, MIXTURE, GLACIAL OUTWASH		MT. SIMON FORMATION (SANDSTONE)
SW-SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH		BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)		
ML	SILT, GLACIAL OUTWASH		BEDROCK EAU CLAIRE FORMATION (SANDSTONE)		

NOTES:

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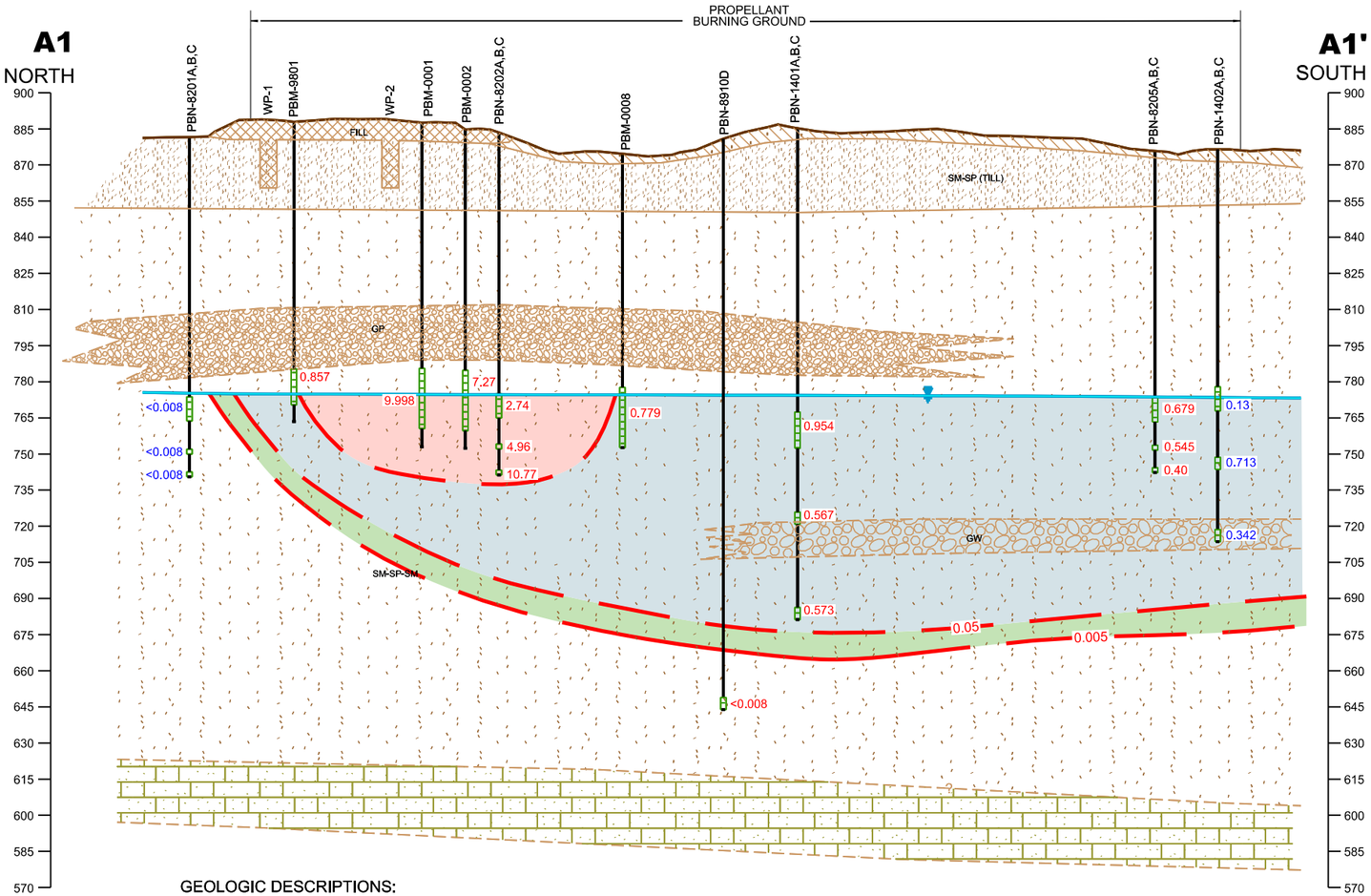
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. TOTAL DINITROTOLUENE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2019/2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS HORIZONTAL FROM NORTH TO SOUTH.
6. µg/l - MICROGRAMS PER LITER
7. GROUNDWATER ANALYTICAL DATA WAS NOT AVAILABLE FOR ALL WELLS; NOT EVERY WELL IS ROUNTINELY SAMPLED.
8. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW.

FIGURE 24

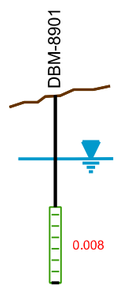
TOTAL DINITROTOLUENE ISOCONCENTRATION CROSS SECTION A-A'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



LEGEND



WELL DESIGNATION: SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E,F)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

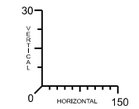
TOTAL DINITROTOLUENE CONCENTRATION µg/l

BOTTOM OF EXPLORATION

TOTAL DINITROTOLUENE ISOCONCENTRATION LINE (µg/l)

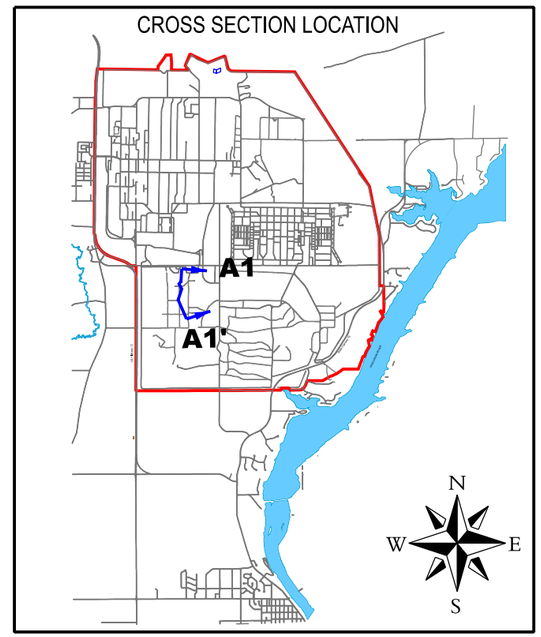
TOTAL DINITROTOLUENE ISOCONCENTRATION (µg/l)

- >1.0
- 0.05 - 1.0
- 0.005 - 0.05



SCALE IN FEET
VERTICAL EXAGGERATION 1:5

CROSS SECTION LOCATION



GEOLOGIC DESCRIPTIONS:

FILL	FILL MATERIAL AND CAP OVER PROPELLANT BURNING GROUND WASTE PITS	GP	GRAVEL, POORLY GRADED, GLACIAL OUTWASH		BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE)
ML-SM	SILT AND SILTY SAND MIXTURE, LOESS	GW	GRAVEL, WELL GRADED, GLACIAL OUTWASH		BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE/SANDSTONE)
SM-SP	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL	GP-GW	GRAVEL, MIXTURE, GLACIAL OUTWASH		MT. SIMON FORMATION (SANDSTONE)
SW-SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH		BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)		
ML	SILT, GLACIAL OUTWASH		BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)		

NOTES:

1. SEE FIGURE 6 FOR LOCATION AND ORIENTATION OF PROFILES
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. TOTAL DINITROTOLUENE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2020 SHOWN IN BLUE . ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS HORIZONTAL FROM NORTH TO SOUTH.
6. ug/l - MICROGRAMS PER LITER
7. GROUNDWATER ANALYTICAL DATA WAS NOT AVAILABLE FOR ALL WELLS: NOT EVERY WELL IS ROUNTINELY SAMPLED.
8. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW.

FIGURE 25

TOTAL DINITROTOLUENE ISOCONCENTRATION CROSS SECTION A1-A1'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

B WEST

B' EAST

ELEVATION IN FEET MSL

925 900 875 850 825 800 775 750 725 700 675 650 625 600 575

PBM-8905 | PBN-8503A PBN-8903B,C | PBM-8502 | PBN-8501A PBN-8901B,C,D | PBM-8503 | PBN-8502A PBN-8902BR,C | PBM-8906 PBN-9306C | PBN-9301B PBN-9301C

SEE SECTION A-A'

ML-CL

SM-SP (TILL)

GP

GP-GW

GP-GW

GP-GW

SW-SP-SM

SW-SP-SM

<0.008 <0.008 <0.008 <0.008 <0.008 <0.008 <0.008 <0.008 <0.008 <0.008 <0.008 <0.008 <0.008 <0.008 <0.008

0.05 0.247 0.184 0.053 0.005

20 VERTICAL 0 HORIZONTAL 200

SCALE IN FEET

VERTICAL EXAGGERATION 1:10

LEGEND

DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

0.008 — TOTAL DINITROTOLUENE CONCENTRATION µg/l

BOTTOM OF EXPLORATION

0.005 — TOTAL DINITROTOLUENE ISOCONCENTRATION LINE (µg/l)

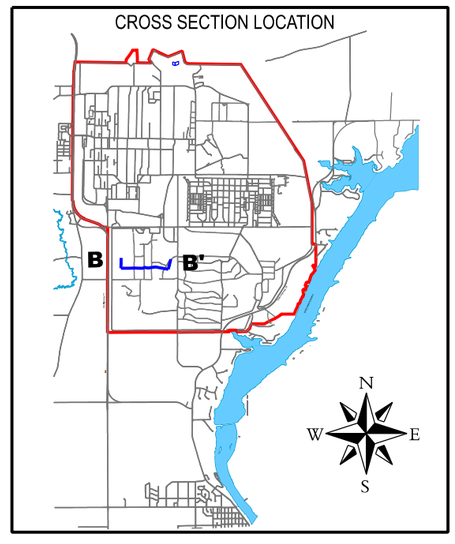
TOTAL DINITROTOLUENE CONCENTRATION (µg/l)

- >0.05
- 0.005 - 0.05

GEOLOGIC DESCRIPTIONS:

- ML-CL — SILT AND CLAY MIXTURE, LOESS
- SM-SP — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
- SW-SP-SM — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
- GP — GRAVEL, POORLY GRADED, GLACIAL OUTWASH
- GP-GW — GRAVEL, MIXTURE, GLACIAL OUTWASH
- BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)

CROSS SECTION LOCATION



NOTES:

1. SEE FIGURE 6 FOR LOCATION AND ORIENTATION OF PROFILES
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. TOTAL DINITROTOLUENE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS HORIZONTAL FROM NORTH TO SOUTH.
6. µg/l - MICROGRAMS PER LITER
7. GROUNDWATER ANALYTICAL DATA WAS NOT AVAILABLE FOR ALL WELLS; NOT EVERY WELL IS ROUNTINELY SAMPLED.
8. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW.

FIGURE 26

TOTAL DINITROTOLUENE ISOCONCENTRATION CROSS SECTION B-B'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

C WEST

C' EAST

S1133 SPN-8901C | SPN-9102D | SPN-8902A,B,C | S1147 SPN-8903B,C SPN-9103D | PBN-9901A,B,C,D | PBN-9902A,B,C,D | PBN-9304A,B,C,D PBN-1405F | *SEE SECTION A-A'* | S1148 SPN-8904B,C SPN-9104D | S1102 S1103 | PBN-1302A,B,C,D | PBN-1303A,B,C,D | PBN-1304A,B,C,D

GP (TILL) | SM-SP (TILL) | GP-GW | GW | GP | SW-SP-SM

<0.008 | 0.15 | 0.114 | 0.076 | 0.059

NOTES:
1. SEE FIGURE 6 FOR LOCATION AND ORIENTATION OF PROFILES
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. TOTAL DINITROTOLUENE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS HORIZONTAL FROM NORTH TO SOUTH.
6. µg/l - MICROGRAMS PER LITER
7. GROUNDWATER ANALYTICAL DATA WAS NOT AVAILABLE FOR ALL WELLS: NOT EVERY WELL IS ROUNTINELY SAMPLED.
8. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW.

VERTICAL 20 0 HORIZONTAL 300

SCALE IN FEET
VERTICAL EXAGGERATION 1:15

CROSS SECTION LOCATION

C C'

N W E S

LEGEND

DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E,F)
GROUND SURFACE
WATER TABLE ELEVATION
SCREENED INTERVAL
0.008 TOTAL DINITROTOLUENE CONCENTRATION µg/l
BOTTOM OF EXPLORATION

0.005 TOTAL DINITROTOLUENE ISOCONCENTRATION LINE µg/l

TOTAL DINITROTOLUENE CONCENTRATION (µg/l)
>0.05
0.005 - 0.05

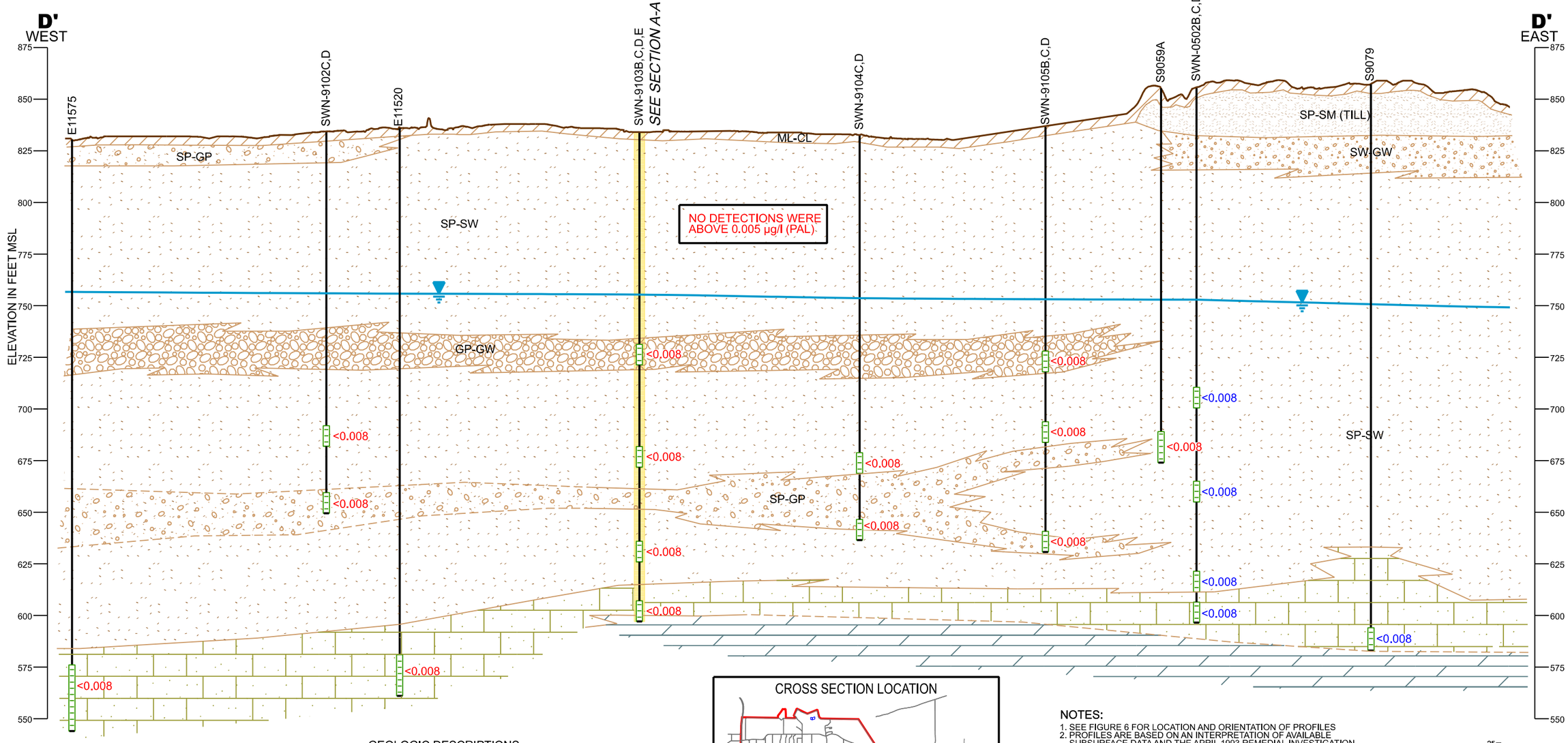
GEOLOGIC DESCRIPTIONS:
FILL — FILL MATERIAL
ML-CL — SILT AND CL AY MIXTURE, LOESS
SM-SP — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
SW-SP-SM — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
GP — GRAVEL, POORLY GRADED, GLACIAL TILL
GP — GRAVEL, POORLY GRADED, GLACIAL OUTWASH
GW — GRAVEL, WELL GRADED, GLACIAL OUTWASH
GP-GW — GRAVEL, MIXTURE, GLACIAL OUTWASH
BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)
BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)
BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE)
BEDROCK EAU CLAIRE FORMATION (DOLOMITE/SHALE/SANDSTONE)

FIGURE 27

TOTAL DINITROTOLUENE ISOCONCENTRATION CROSS SECTION C-C'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS SPECPRO PROFESSIONAL SERVICES



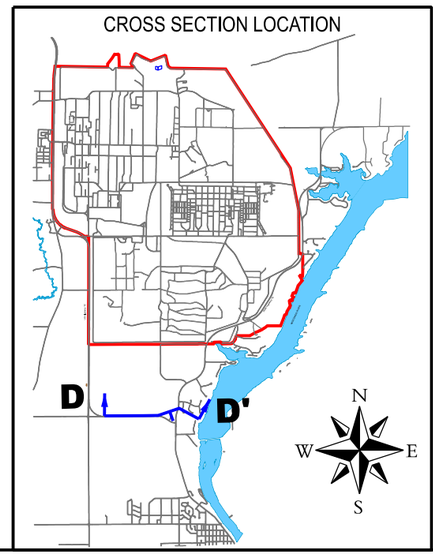
LEGEND

- DBM-8901 — WELL DESIGNATION: SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)
- GROUND SURFACE
- WATER TABLE ELEVATION
- SCREENED INTERVAL
- 0.008 — TOTAL DINITROTOLUENE CONCENTRATION µg/l
- BOTTOM OF EXPLORATION
- 0.005 — TOTAL DINITROTOLUENE ISOCONCENTRATION LINE (µg/l)

GEOLOGIC DESCRIPTIONS:

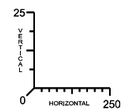
ML-CL	SILT AND CLAY MIXTURE, LOESS
SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
SP-GP	SAND AND GRAVEL, GLACIAL OUTWASH
SW-GW	SAND, GRAVEL, AND COBBLES, GLACIAL OUTWASH
SP-SW	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
GP-GW	GRAVEL, GLACIAL OUTWASH
	BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)
	BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)

CROSS SECTION LOCATION



NOTES:

1. SEE FIGURE 6 FOR LOCATION AND ORIENTATION OF PROFILES
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. TOTAL DINITROTOLUENE CONCENTRATIONS ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023 SHOWN IN RED AND 2018/2020 SHOWN IN BLUE. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS HORIZONTAL FROM NORTH TO SOUTH.
6. µg/l - MICROGRAMS PER LITER
7. GROUNDWATER ANALYTICAL DATA WAS NOT AVAILABLE FOR ALL WELLS; NOT EVERY WELL IS ROUNTINELY SAMPLED.
8. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW.



SCALE IN FEET
VERTICAL EXAGGERATION 1:10

FIGURE 28

TOTAL DINITROTOLUENE
ISOCONCENTRATION CROSS SECTION D-D'

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

Landfill #5

DBG Waste Pits
& Landfill #3

Wisconsin River

LEGEND

- Wells Used To Construct Isoconcentrations
- Badger Army Ammunition Plant Boundary
- Source Area

Total Dinitrotoluene Concentration (µg/l)

2023 Groundwater Data

- 0.005 - 0.05
- 0.05 - 1.0
- > 1.0
- Groundwater Flow Direction

0.05 µg/l = NR 140 Enforcement Standard
0.005 µg/l = NR 140 Preventive Action Limit
µg/l = micrograms per liter

N
W E
S

0 385 770 1,540
Feet

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet

FIGURE 29

TOTAL DINITROTOLUENE
2023 ISOCONCENTRATION MAP

DETERRENT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

E NORTHWEST

E' SOUTHEAST

DETERRENT BURNING GROUND

DBM-8202 | DBN-1001B,C,E | ELM-8901 | ELM-8908 | ELM-8907 | DBN-1002C,E | ELN-1502A,C | ELN-1003A,B,C,E | S7703A | ELN-2301B,C

SEE SECTION F-F'

BAAP BOUNDARY

ELEVATION IN FEET MSL

930 900 870 840 810 780 750 720 690 660 630 600 570

930 900 870 840 810 780 750 720 690 660 630 600 570 540 510 480

FILL

SP-SM (TILL)

SW-GW

ML-CL

SP-SM (TILL)

GP

SW-SP-SM

SW-GW

CL-ML

SW-GW

SW-GW

SW-SP-SM

SW-SP-SM

0.216 | 0.213 | 0.542 | 0.338 | 0.57 | 0.291 | <0.008 | 0.027 | ABANDONED | <0.008

<0.008 | 0.341 | 0.05 | 0.005 | <0.008 | 0.066 | <0.008

<0.008 | <0.008 | <0.008 | <0.008

NOTES:

1. SEE FIGURE 6 FOR LOCATION AND ORIENTATION OF PROFILES
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. TOTAL DINITROTOLUENE CONCENTRATIONS SHOWN IN RED ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS HORIZONTAL FROM NORTHWEST TO SOUTHEAST.
6. µg/l - MICROGRAMS PER LITER
7. GROUNDWATER ANALYTICAL DATA WAS NOT AVAILABLE FOR ALL WELLS; NOT EVERY WELL IS ROUNTINELY SAMPLED.
8. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW.

30 FEET VERTICAL | 0 | HORIZONTAL | 300

SCALE IN FEET

VERTICAL EXAGGERATION 1:10

LEGEND

DBM-8901 — WELL DESIGNATION: SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

0.024 — TOTAL DINITROTOLUENE CONCENTRATION µg/l

BOTTOM OF EXPLORATION

0.005 — TOTAL DINITROTOLUENE ISOCONCENTRATION LINE (µg/l)

GEOLOGIC DESCRIPTIONS:

FILL	FILL MATERIAL AND CAP OVER DETERRENT BURNING GROUND WASTE PITS
ML-CL	SILT AND CLAY MIXTURE, LOESS
SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
SW-GW	SAND, GRAVEL, AND COBBLES, GLACIAL OUTWASH
SW-SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
ML	SILT, GLACIAL OUTWASH
CL-ML	LAYERED CLAY AND SILT, GLACIAL OUTWASH
GP	GRAVEL, GLACIAL OUTWASH
	BEDROCK, SHALE, EAU CLAIRE FORMATION (INTERBEDDED SANDSTONE)
	BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)
	BEDROCK, SHALE, EAU CLAIRE FORMATION (INTERBEDDED SILTSTONE)

TOTAL DINITROTOLUENE CONCENTRATION (µg/l)

- >1.0
- 0.05 - 1.0
- 0.005 - 0.05

CROSS SECTION LOCATION

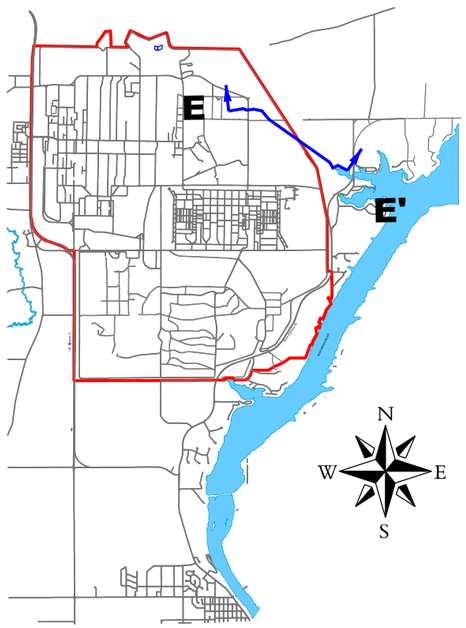
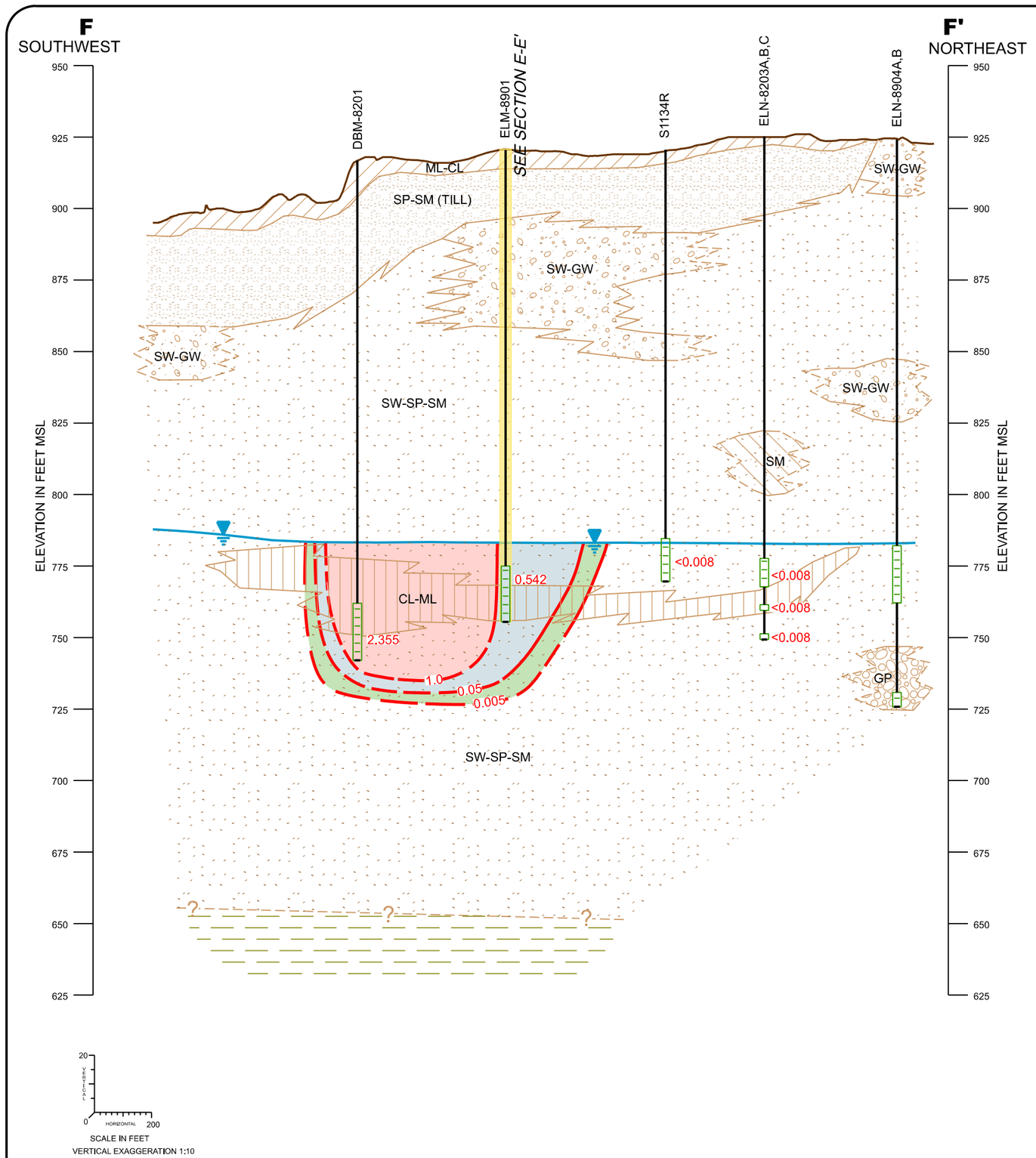


FIGURE 30

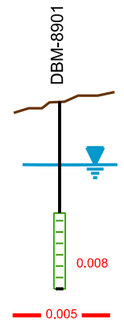
TOTAL DINITROTOLUENE ISOCONCENTRATION SECTION E-E'

DETERRENT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



LEGEND



WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

TOTAL DINITROTOLUENE CONCENTRATION µg/l

BOTTOM OF EXPLORATION

TOTAL DINITROTOLUENE ISOCONCENTRATION LINE (µg/l)

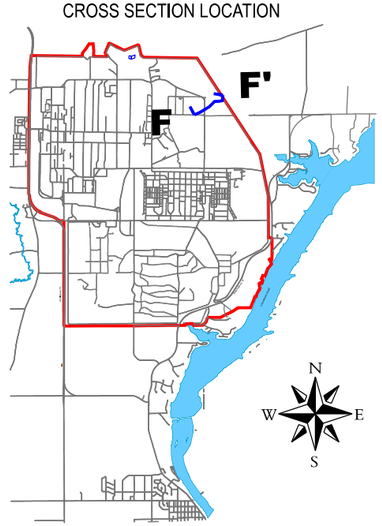
TOTAL DINITROTOLUENE CONCENTRATION (µg/l)

- >1.0
- 0.05 - 1.0
- 0.005 - 0.05

GEOLOGIC DESCRIPTIONS:

- ML-CL — SILT AND CLAY MIXTURE, LOESS
- SP-SM — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
- SW-GW — SAND, GRAVEL, AND COBBLES, GLACIAL OUTWASH
- SW-SP-SM — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
- SM — SILTY SAND, GLACIAL OUTWASH
- CL-ML — LAYERED CLAY AND SILT, GLACIAL OUTWASH
- GP — GRAVEL, GLACIAL OUTWASH
- BEDROCK, EAU CLAIRE FORMATION (SHALE, INTERBEDDED SANDSTONE)

CROSS SECTION LOCATION



NOTES:

1. SEE FIGURE 6 FOR LOCATION AND ORIENTATION OF PROFILES
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. TOTAL DINITROTOLUENE CONCENTRATIONS SHOWN IN RED ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS APPROXIMATELY PERPENDICULAR TO CROSS SECTION.
6. µg/l - MICROGRAMS PER LITER
7. GROUNDWATER ANALYTICAL DATA WAS NOT AVAILABLE FOR ALL WELLS; NOT EVERY WELL IS ROUNTINELY SAMPLED.
8. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW.

FIGURE 31

TOTAL DINITROTOLUENE ISOCONCENTRATION SECTION F-F'

DETERRENT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

Landfill #5

DBG Waste Pits
& Landfill #3

Wisconsin River

LEGEND

- Wells Used To Construct Isoconcentrations
- Badger Army Ammunition Plant Boundary
- Source Area

Sulfate Concentration (mg/l)

2023 Groundwater Data

- 125 - 250
- > 250
- Groundwater Flow Direction

Notes: The sulfate isoconcentrations in milligrams per liter (mg/l) are interpreted from groundwater data collected during 2023. Wisconsin has a "secondary" NR 140 Public Welfare Groundwater Quality Standard. The sulfate groundwater standard is based on a taste threshold and not considered to present a risk to human health. The NR 140 Preventive Action Limit is 125 mg/l and Enforcement Standard is 250 mg/l.

N
W E
S

0 385 770 1,540 Feet

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet

FIGURE 32

SULFATE
2023 ISOCONCENTRATION MAP

DETERRENT BURNING GROUND
& LANDFILL #5
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

Wisconsin River

LEGEND

- Wells Used To Construct Isoconcentrations
- Badger Army Ammunition Plant Boundary
- Source Area

Total Dinitrotoluene Concentration (µg/l)

2023 Groundwater Data

- 0.005 - 0.05
- > 0.05
- Groundwater Flow Direction

0.05 µg/l = NR 140 Enforcement Standard
0.005 µg/l = NR 140 Preventive Action Limit
µg/l = micrograms per liter

N
W E
S

0 480 960 1,920
Feet

Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet

FIGURE 33

TOTAL DINITROTOLUENE
2023 ISOCONCENTRATION MAP

CENTRAL PLUME
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

G NORTH

G' SOUTH

NPM-8901 RIN-0701C

RIN-2301A,B

NLN-1001A,C

RIN-1002A,C RIN-1501D

S1112

RIN-1005A,C

RIN-1004B BAAAP BOUNDARY

SEN-0503A,B,D

WE-UK125

SEN-0501A,B,D

GRUBER'S GROVE BAY

ML-CL

SP-SM (TILL)

ML-CL

SP-SM (TILL)

SW-GW

GP-GW

SW-SP

SW-SP

GP-GW

<0.008

0.159

<0.008

<0.008

<0.008

<0.008

<0.008

0.304

0.162

0.03

0.026

<0.008

<0.008

0.042

0.037

0.05

0.005

0.005

<0.008

<0.008

<0.008

<0.008

900 885 870 855 840 825 810 795 780 765 750 735 720 705 690 675 660 645 630 615 600 585 570 555

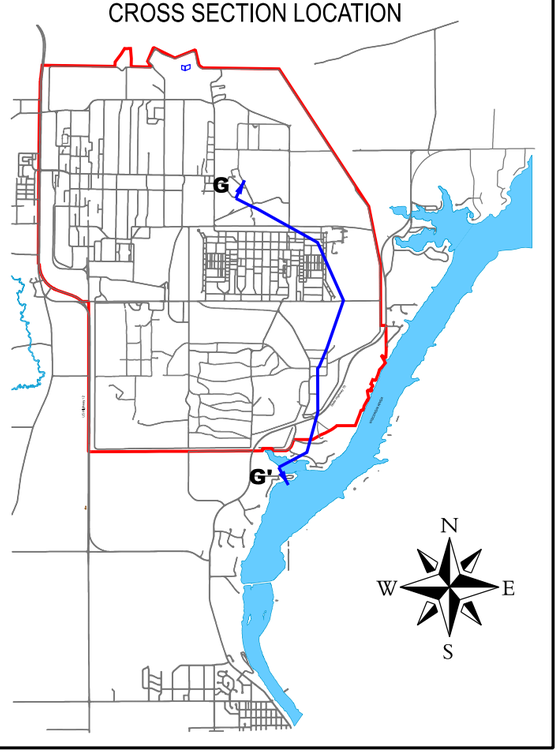
540 525 510

30 VERTICAL 0 HORIZONTAL 600

SCALE IN FEET

VERTICAL EXAGGERATION 1:20

CROSS SECTION LOCATION



LEGEND

DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

0.008 — TOTAL DINITROTOLUENE CONCENTRATION µg/l

BOTTOM OF EXPLORATION

0.005 — TOTAL DINITROTOLUENE ISOCONCENTRATION LINE (µg/l)

GEOLOGIC DESCRIPTIONS:

ML-CL	SILT AND CLAY MIXTURE, LOESS
SP-SM	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
SW-GW	SAND, GRAVEL, AND COBBLES, GLACIAL OUTWASH
SW-SP	SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
GP-GW	GRAVEL, GLACIAL OUTWASH
	BEDROCK, EAU CLAIRE FORMATION (SANDSTONE)

TOTAL DINITROTOLUENE CONCENTRATION (µg/l)

>0.05

0.005-0.05

NOTES:

1. SEE FIGURE 6 FOR LOCATION AND ORIENTATION OF PROFILES
2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
3. MSL - MEAN SEA LEVEL
4. TOTAL DINITROTOLUENE CONCENTRATIONS SHOWN IN RED ARE BASED ON ANALYTICAL DATA COLLECTED DURING 2023. ESTIMATED BOUNDARIES ARE DASHED.
5. GROUNDWATER FLOW IS HORIZONTAL FROM NORTH TO SOUTH.
6. µg/l - MICROGRAMS PER LITER
7. GROUNDWATER ANALYTICAL DATA WAS NOT AVAILABLE FOR ALL WELLS; NOT EVERY WELL IS ROUNTINELY SAMPLED.
8. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW.

FIGURE 34

TOTAL DINITROTOLUENE ISOCONCENTRATION SECTION G-G'

CENTRAL PLUME
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

LEGEND

- Wells Used To Construct Isoconcentrations
- Source Area

Total Dinitrotoluene Concentration (µg/l)

2023 Groundwater Data

- 0.005 - 0.05
- > 0.05
- Groundwater Flow Direction

0.05 µg/l = NR 140 Enforcement Standard
0.005 µg/l = NR 140 Preventive Action Limit
µg/l = micrograms per liter

N
W E
S

0 287.5 575 1,150 Feet

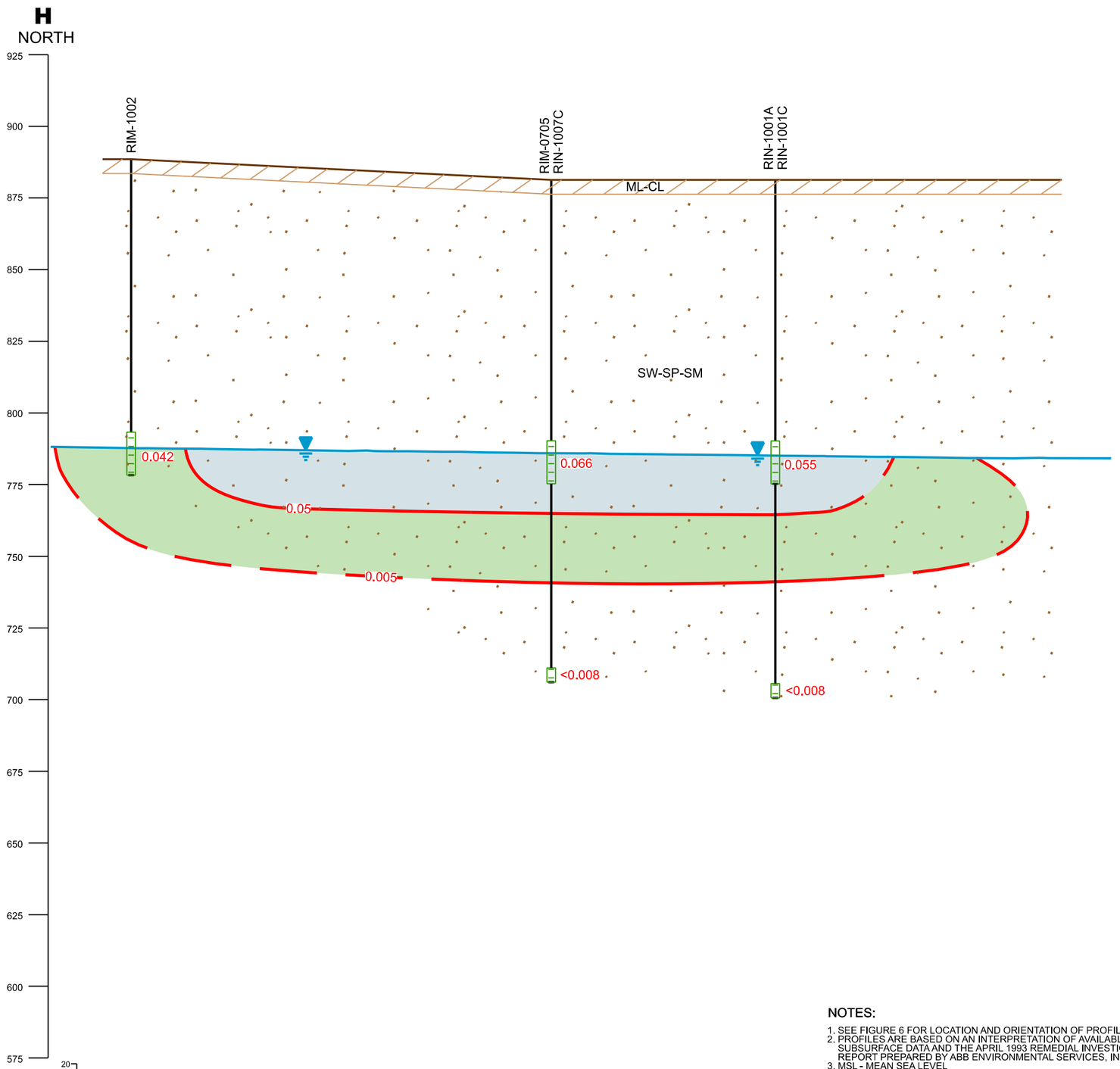
Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet

FIGURE 35

TOTAL DINITROTOLUENE
2023 ISOCONCENTRATION MAP

NITROCELLULOSE PRODUCTION AREA
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



LEGEND

DBM-8901 — WELL DESIGNATION; SUFFIXES REFER TO WATER TABLE WELL (A) AND PIEZOMETER (B,C,D,E)

GROUND SURFACE

WATER TABLE ELEVATION

SCREENED INTERVAL

0.008 — TOTAL DINITROTOLUENE CONCENTRATION µg/l

BOTTOM OF EXPLORATION

0.005 — TOTAL DINITROTOLUENE ISOCONCENTRATION LINE (µg/l)

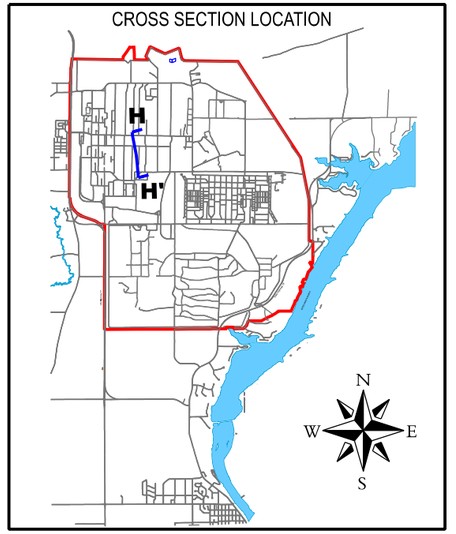
TOTAL DINITROTOLUENE CONCENTRATION (µg/l)

- >0.05
- 0.005 - 0.05

GEOLOGIC DESCRIPTIONS:

- ML-CL — SILT AND CLAY MIXTURE, LOESS
- SM-SP — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL TILL
- SW-SP-SM — SAND, MIXTURE OF VARYING GRAIN SIZES, GLACIAL OUTWASH
- GP — GRAVEL, POORLY GRADED, GLACIAL OUTWASH
- GP-GW — GRAVEL, MIXTURE, GLACIAL OUTWASH
- BEDROCK, EAU CLAIRE FORMATION (DOLOMITE)

CROSS SECTION LOCATION



NOTES:

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2. PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE DATA AND THE APRIL 1993 REMEDIAL INVESTIGATION REPORT PREPARED BY ABB ENVIRONMENTAL SERVICES, INC.
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6. µg/l - MICROGRAMS PER LITER
7. GROUNDWATER ANALYTICAL DATA WAS NOT AVAILABLE FOR ALL WELLS; NOT EVERY WELL IS ROUNTINELY SAMPLED.
8. WELLS COMMON TO INTERSECTING CROSS SECTIONS ARE HIGHLIGHTED IN YELLOW.

FIGURE 36

TOTAL DINITROTOLUENE ISOCONCENTRATION SECTION H-H'

NITROCELLULOSE PRODUCTION AREA
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

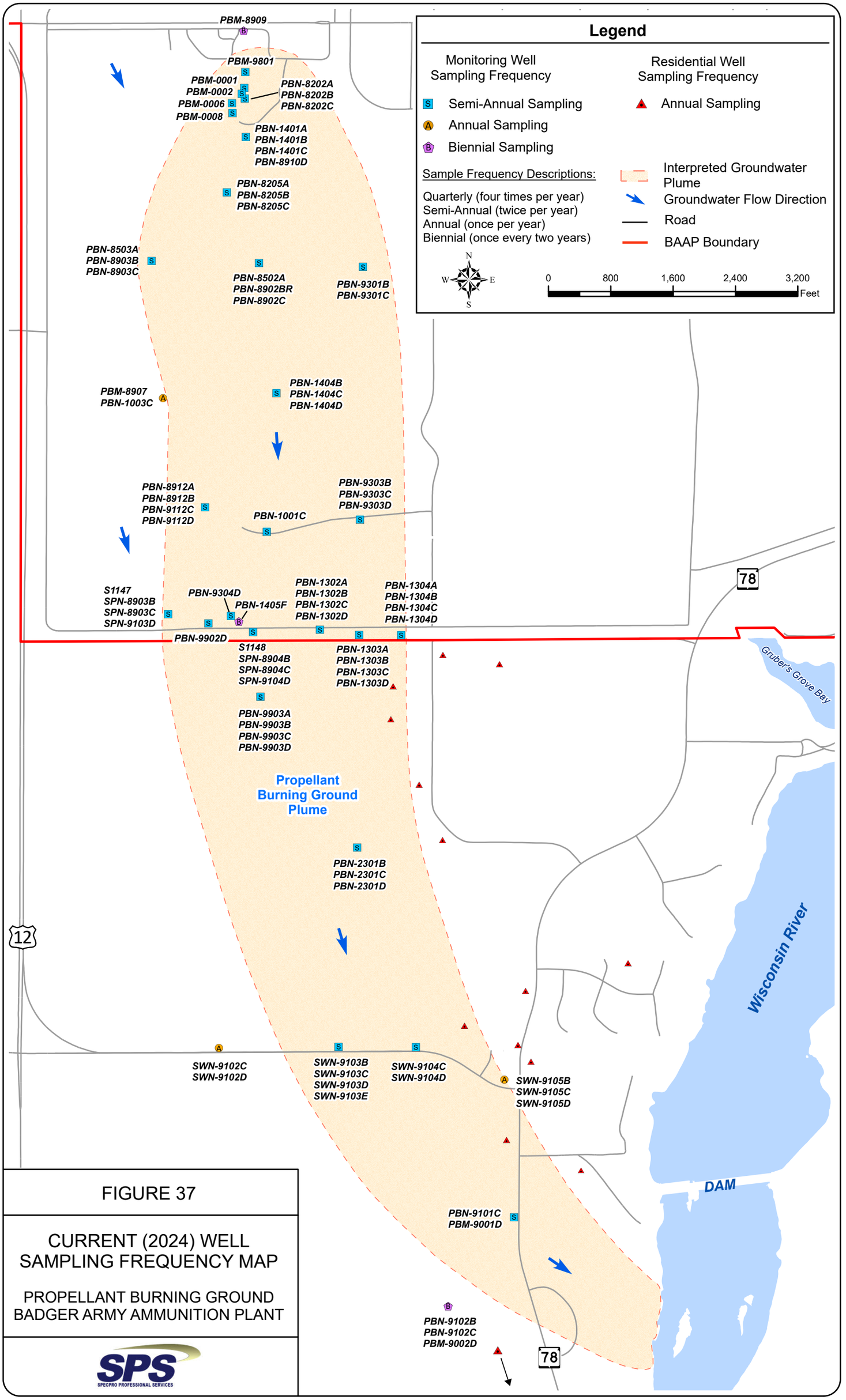
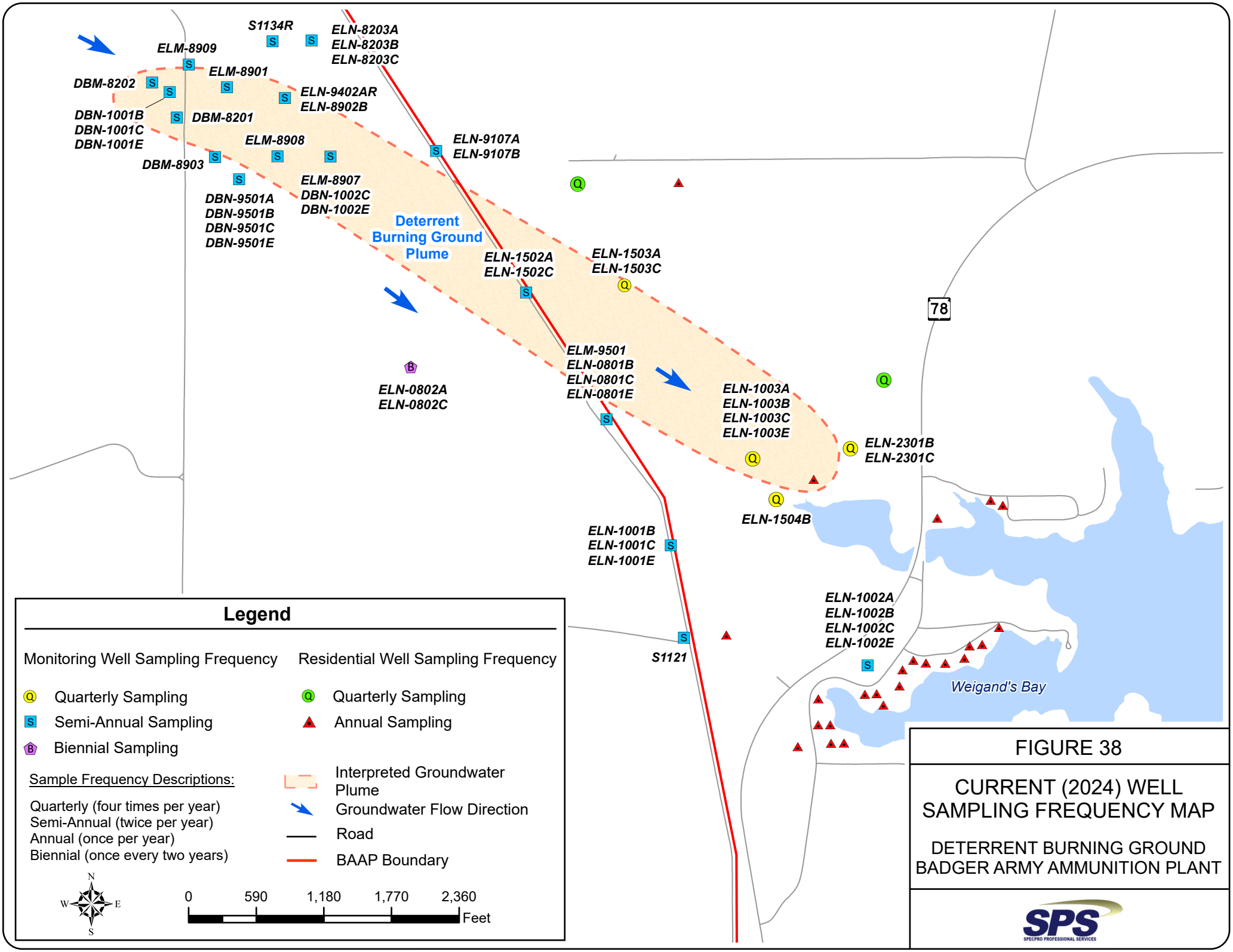


FIGURE 37

CURRENT (2024) WELL SAMPLING FREQUENCY MAP

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES


S1134R
ELN-8203A
ELN-8203B
ELN-8203C
ELM-8909
ELM-8901
DBM-8202
ELN-9402AR
ELN-8902B
DBN-1001B
DBN-1001C
DBN-1001E
DBM-8201
ELM-8908
ELN-9107A
ELN-9107B
DBM-8903
ELM-8907
DBN-1002C
DBN-1002E
DBN-9501A
DBN-9501B
DBN-9501C
DBN-9501E
Deterrent
Burning Ground
Plume
ELN-1502A
ELN-1502C
ELN-1503A
ELN-1503C
78
ELM-9501
ELN-0801B
ELN-0801C
ELN-0801E
ELN-0802A
ELN-0802C
ELN-1003A
ELN-1003B
ELN-1003C
ELN-1003E
ELN-2301B
ELN-2301C
ELN-1504B
ELN-1001B
ELN-1001C
ELN-1001E
ELN-1002A
ELN-1002B
ELN-1002C
ELN-1002E
S1121
Weigand's Bay
Legend
Monitoring Well Sampling Frequency
Q Quarterly Sampling
S Semi-Annual Sampling
B Biennial Sampling
Residential Well Sampling Frequency
Q Quarterly Sampling
Annual Sampling
Sample Frequency Descriptions:
Quarterly (four times per year)
Semi-Annual (twice per year)
Annual (once per year)
Biennial (once every two years)
Interpreted Groundwater Plume
Groundwater Flow Direction
Road
BAAP Boundary
N
W
E
S
0
590
1,180
1,770
2,360
Feet
FIGURE 38
CURRENT (2024) WELL SAMPLING FREQUENCY MAP
DETERRENT BURNING GROUND
BADGER ARMY AMMUNITION PLANT
SPS
SPECPRO PROFESSIONAL SERVICES

NPM-8901
RIN-0701C

NLM-1001

RIN-2301A
RIN-2301B

NLN-1001A
NLN-1001C

NLN-8201A
NLN-8201B
NLN-8201C

NLN-8203A
NLN-8203B
NLN-8203C

NLN-9205AR
NLN-8205B
NLN-8205C

RIN-2302A

RPM-8901
RIN-0702C

RIM-1003

RIN-1002A
RIN-1002C
RIN-1501D

RIN-1501B
RIN-1501C

Central Plume

RIN-1502B
RIN-1502C
RIN-1502D

78

RIM-1004

RIN-1005A
RIN-1005C

RIN-1003A
RIN-0703C

S1111

RIN-1004B

SEN-0503A
SEN-0503B
SEN-0503D

The Water's Edge

SEN-0502A
SEN-0502D

SEN-0501A
SEN-0501B
SEN-0501D

Gruber's Grove Bay

78

Legend

Monitoring Well Sampling Frequency	Residential Well Sampling Frequency
S Semi-Annual Sampling	Q Quarterly Sampling
A Annual Sampling	Annual Sampling

Sample Frequency Descriptions:

Quarterly (four times per year)
Semi-Annual (twice per year)
Annual (once per year)
Biennial (once every two years)

Interpreted Groundwater Plume
Groundwater Flow Direction
Road
BAAP Boundary

N W E S

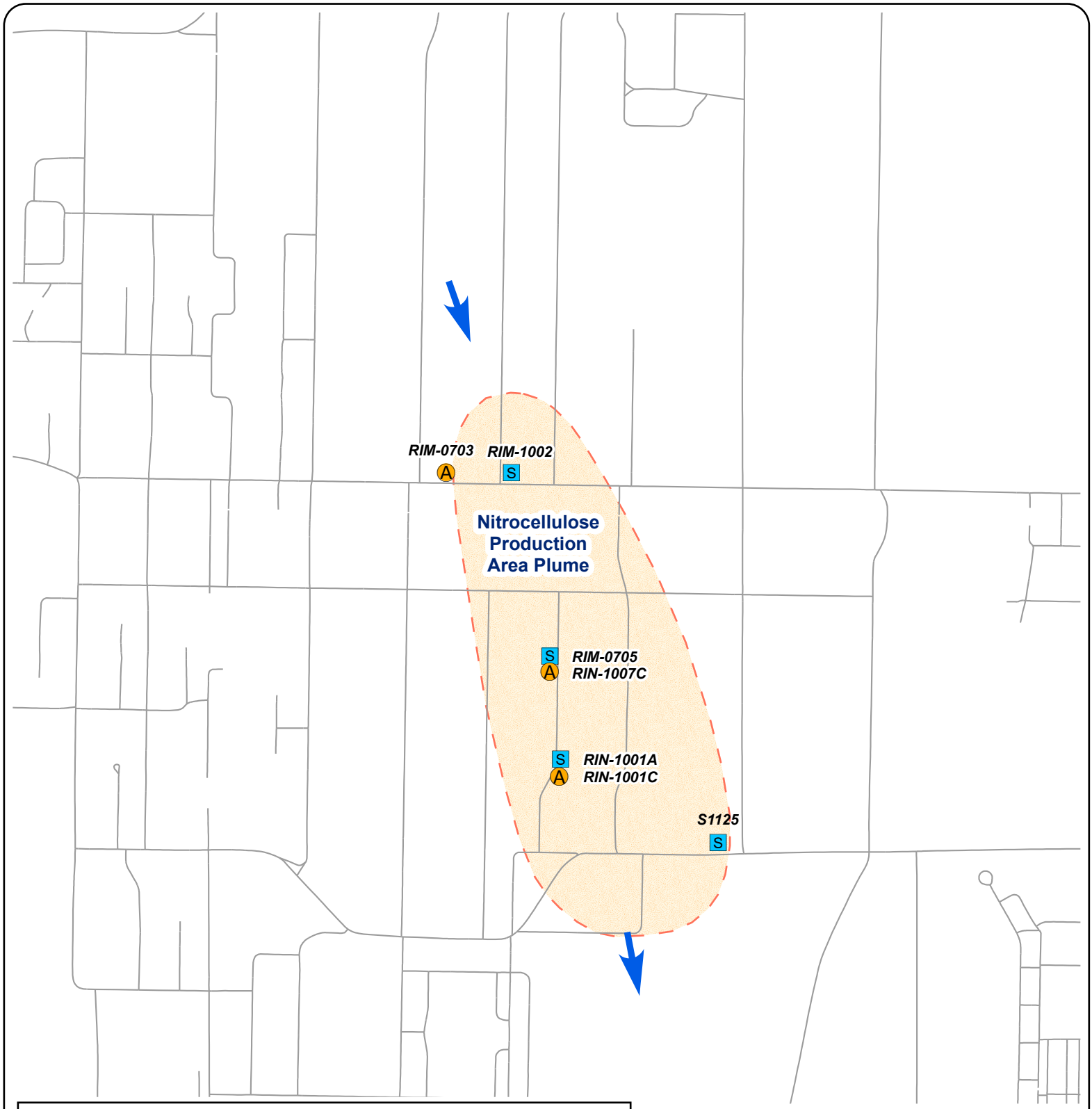
0 500 1,000 2,000 Feet

FIGURE 39

CURRENT (2024) WELL SAMPLING FREQUENCY MAP

CENTRAL PLUME
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



Legend

Monitoring Well Sampling Frequency

- S — Semi-Annual Sampling
- A — Annual Sampling

Sample Frequency Descriptions:

Semi-Annual (twice per year)
Annual (once per year)

- Interpreted Groundwater Plume
- Groundwater Flow Direction
- Road
- BAAP Boundary

N W E S

0 500 1,000 2,000 Feet

FIGURE 40

CURRENT (2024) WELL SAMPLING FREQUENCY MAP

NITROCELLULOSE PRODUCTION AREA
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

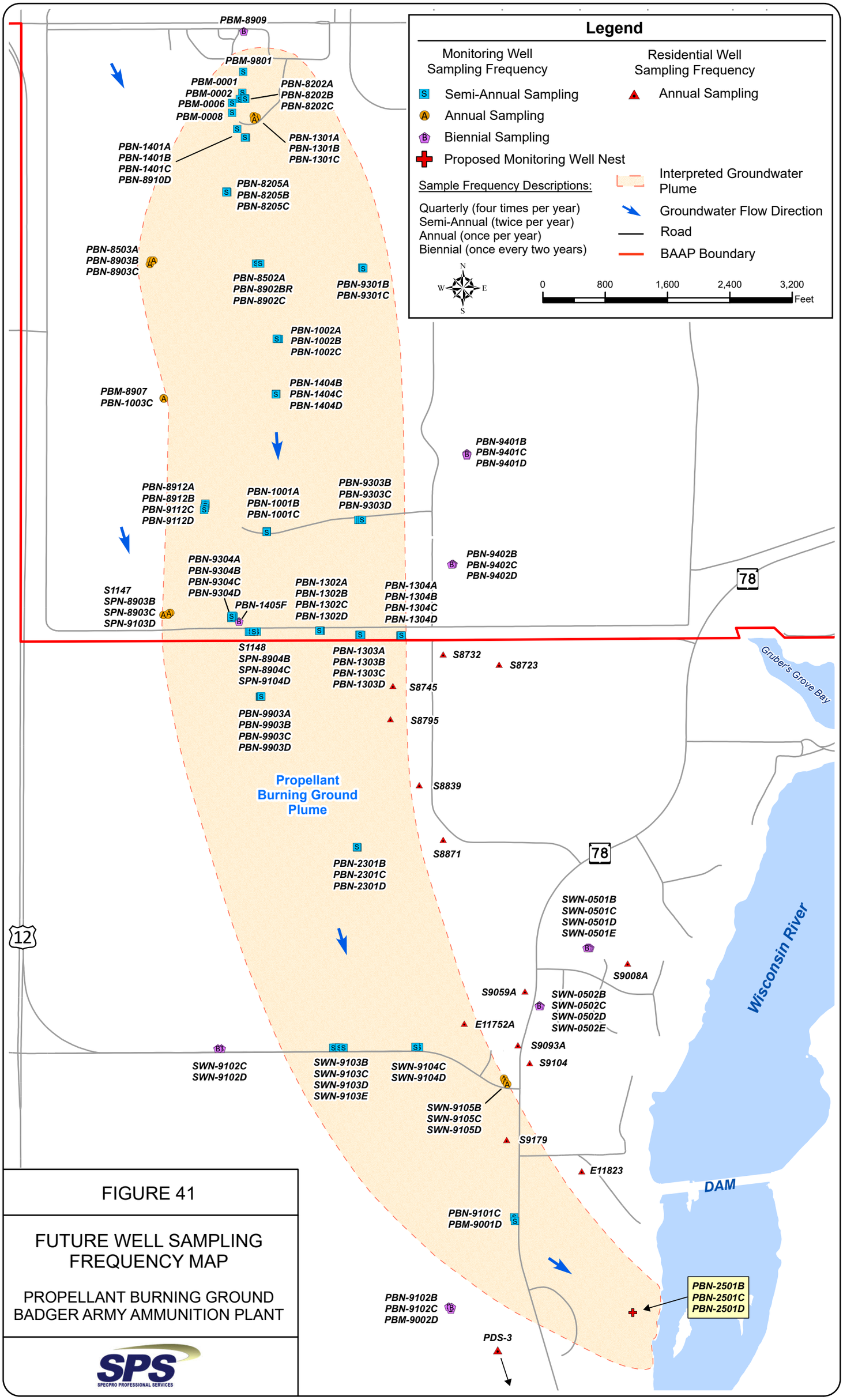


FIGURE 41

FUTURE WELL SAMPLING FREQUENCY MAP

PROPELLANT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

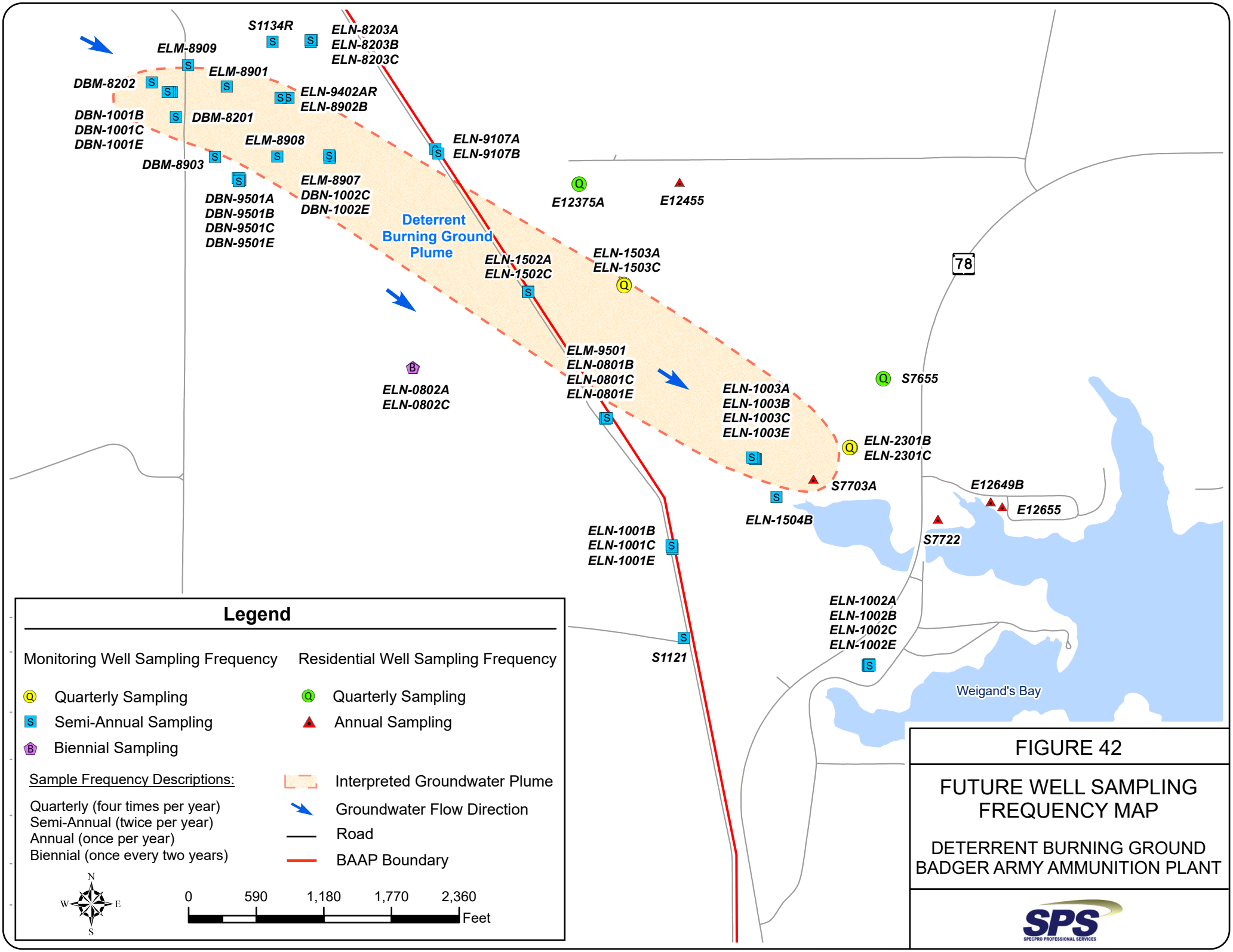


FIGURE 42

FUTURE WELL SAMPLING FREQUENCY MAP

DETERRENT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

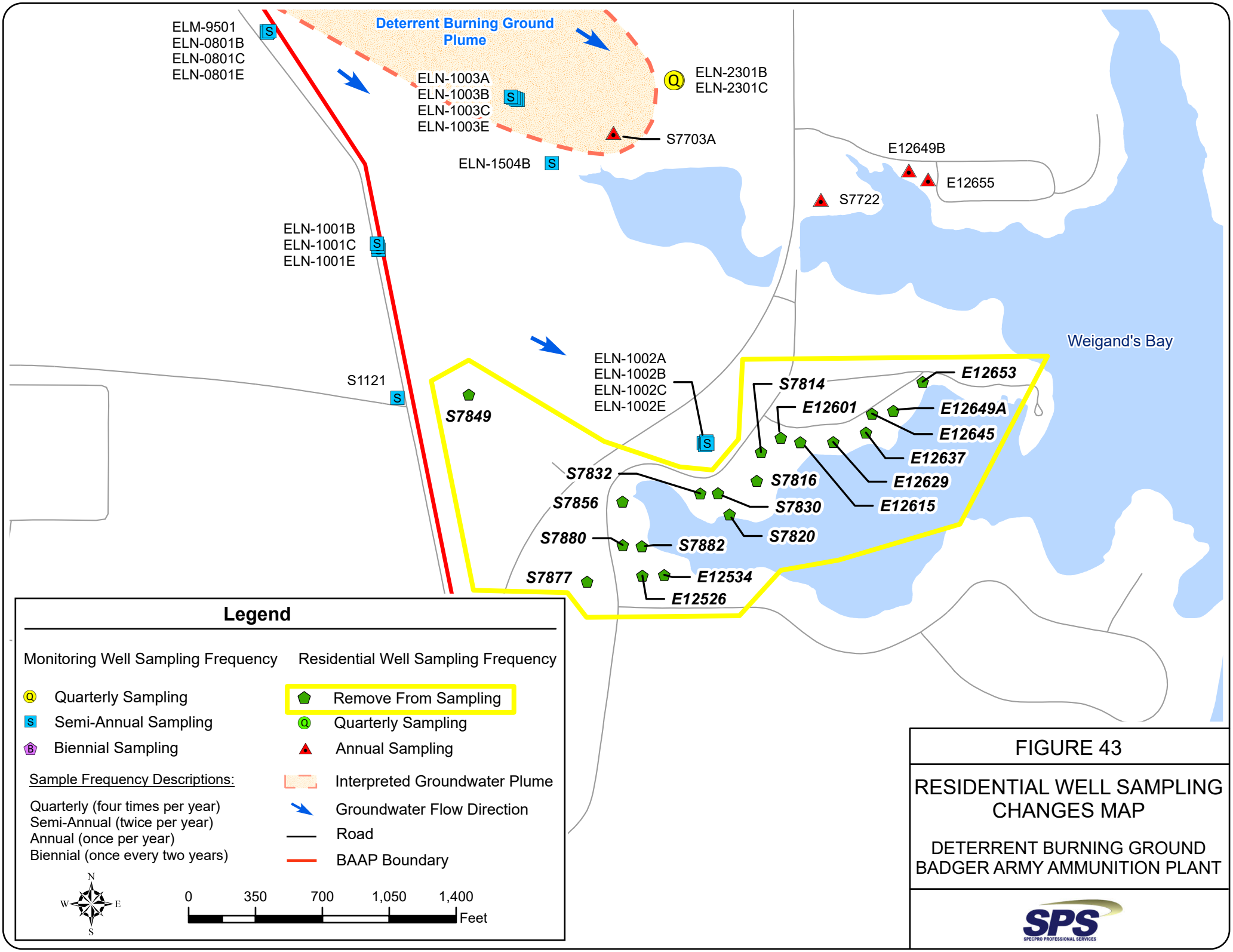


FIGURE 43

RESIDENTIAL WELL SAMPLING CHANGES MAP

DETERRENT BURNING GROUND
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

NPM-8901
RIN-0701C

NLM-1001

RIN-2301A
RIN-2301B

NLN-1001A
NLN-1001C

NLN-8201A
NLN-8201B
NLN-8201C

NLN-8203A
NLN-8203B
NLN-8203C

NLN-9205AR
NLN-8205B
NLN-8205C

RIN-2302A

RPM-8901
RIN-0702C

S1120

RPM-9101

RIM-1003

RIN-1002A
RIN-1002C
RIN-1501D

RIN-1501B
RIN-1501C

Central Plume

S1112

RIN-1502B
RIN-1502C
RIN-1502D

RIN-1005A
RIN-1005C

RIN-1003A
RIN-0703C

USDA 6

78

S1111

RIN-1004B

USDA 1
USDA 2

USDA 3

SEN-2501B
SEN-2501C

SEN-0503A
SEN-0503B
SEN-0503D

SEN-2502B
SEN-2502C

The Water's Edge

WE-XK342

WE-RM383
E12092
WE-XD828

SEN-0502A
SEN-0502D

SEN-0501A
SEN-0501B
SEN-0501D

Gruber's Grove Bay

WE-SQ001
WE-SQ017
WE-UK125

WE-RR598
WE-TF023
WE-QN039
WE-SQ002
WE-ZE512

WE-RR542
WE-TM599
WE-QR441
WE-AAU638
WE-RD430

WE-AAF735
WE-UA297
WE-AAB891
WE-YW972

Legend

Monitoring Well Sampling Frequency

- S — Semi-Annual Sampling
- A — Annual Sampling
- Potential New Monitoring Well Nest

Residential Well Sampling Frequency

- Q — Quarterly Sampling
- Annual Sampling

Sample Frequency Descriptions:

Quarterly (four times per year)
Semi-Annual (twice per year)
Annual (once per year)
Biennial (once every two years)

- Interpreted Groundwater Plume
- Groundwater Flow Direction
- Road
- BAAP Boundary

N W E S

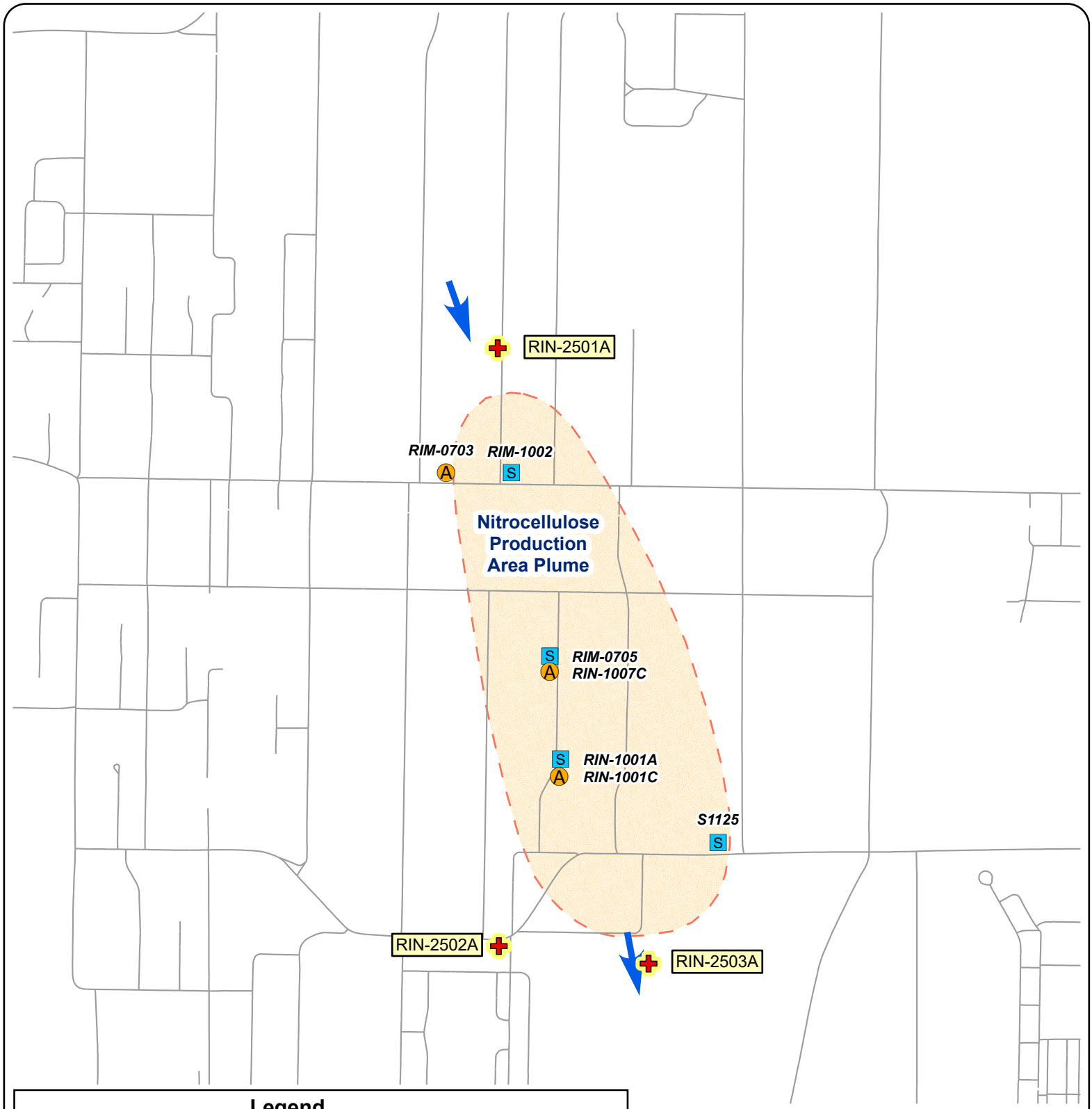
0 500 1,000 2,000 Feet

FIGURE 44

FUTURE WELL SAMPLING FREQUENCY MAP

CENTRAL PLUME
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES



Legend

Monitoring Well Sampling Frequency

- S — Semi-Annual Sampling
- A — Annual Sampling
- Potential New Monitoring Well

Sample Frequency Descriptions:

Semi-Annual (twice per year)
Annual (once per year)

- Interpreted Groundwater Plume
- Groundwater Flow Direction
- Road
- BAAP Boundary

N W E S

0 500 1,000 2,000 Feet

FIGURE 45

FUTURE WELL SAMPLING FREQUENCY MAP

NITROCELLULOSE PRODUCTION AREA
BADGER ARMY AMMUNITION PLANT

SPS
SPECPRO PROFESSIONAL SERVICES

Appendix A

Plume Concentration Over Time Graphs

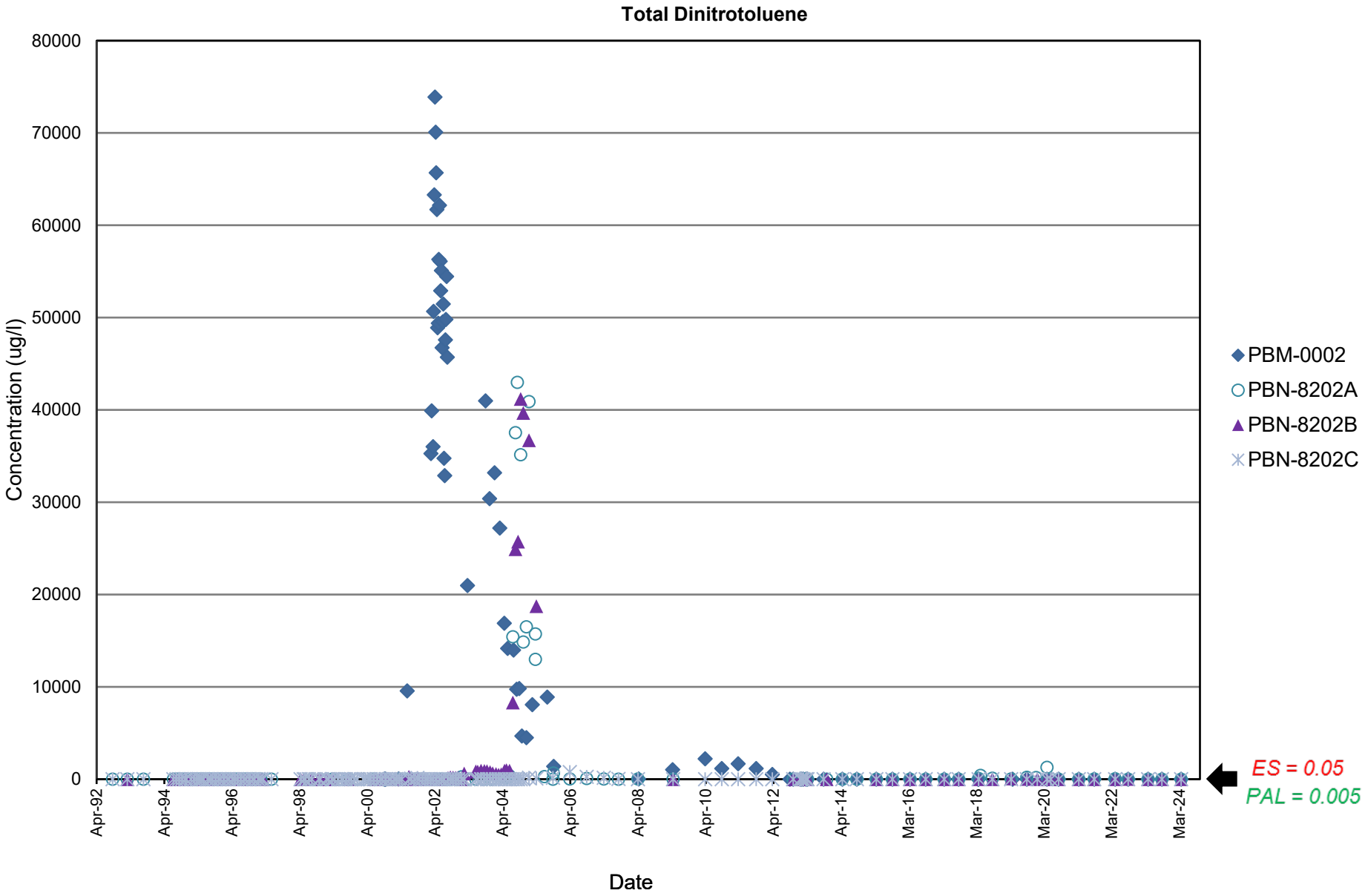
Concentration Graphs
Propellant Burning Ground Plume

Concentration Graphs
Deterrent Burning Ground Plume

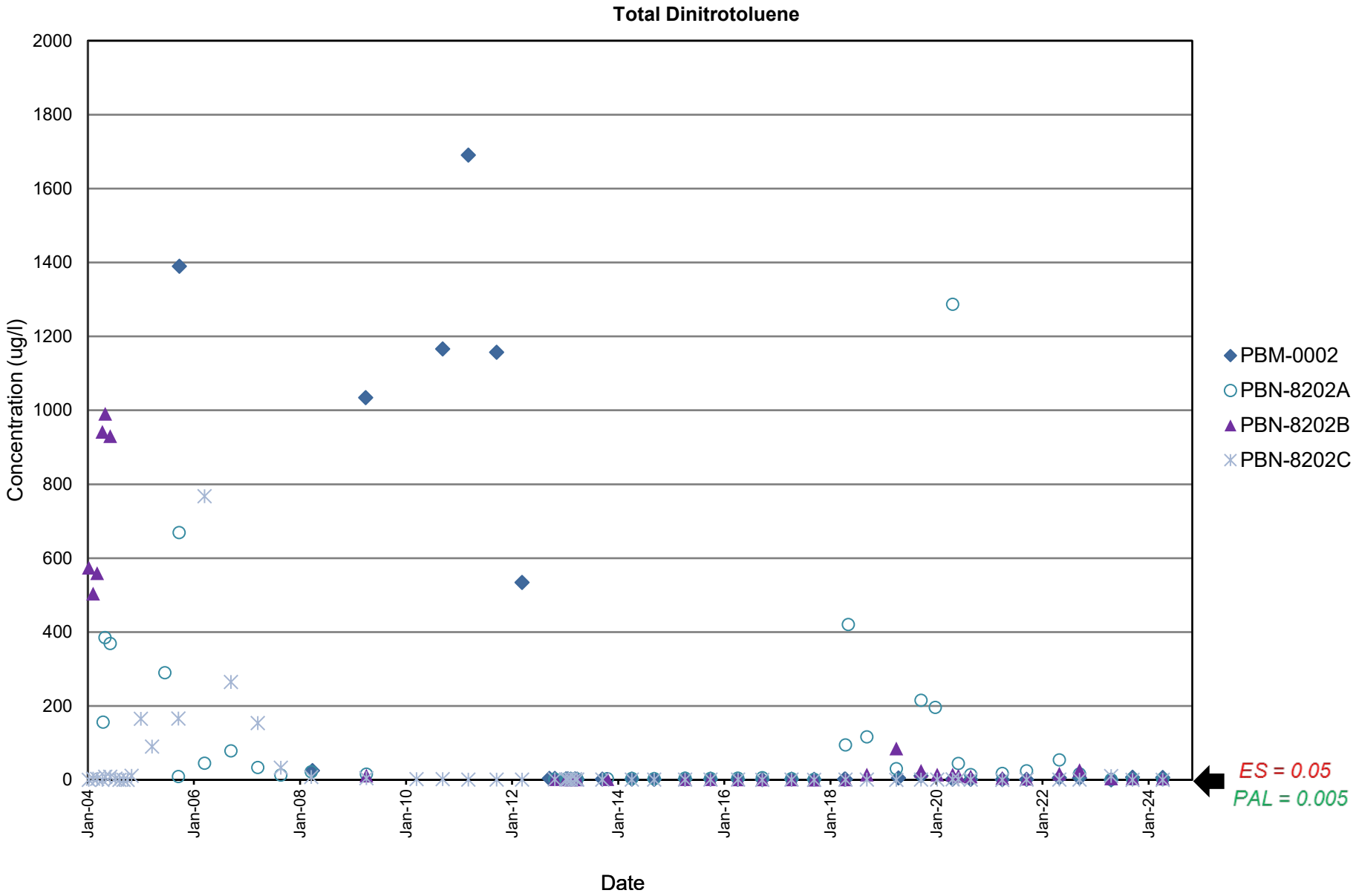
Concentration Graphs
Central Plume

Concentration Graphs
Nitrocellulose Production Area Plume

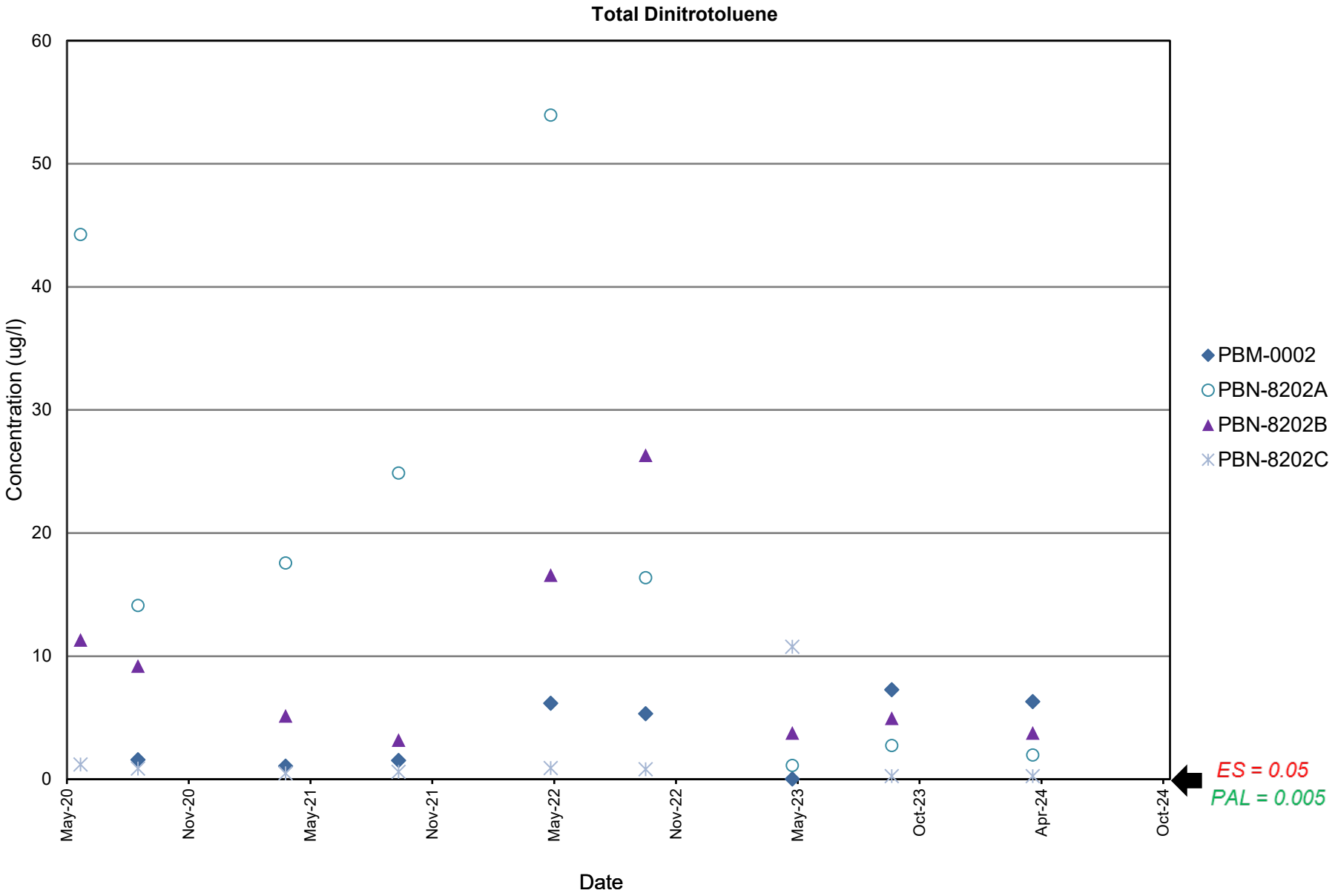
BAAP Groundwater Data | Propellant Burning Ground | Source Area



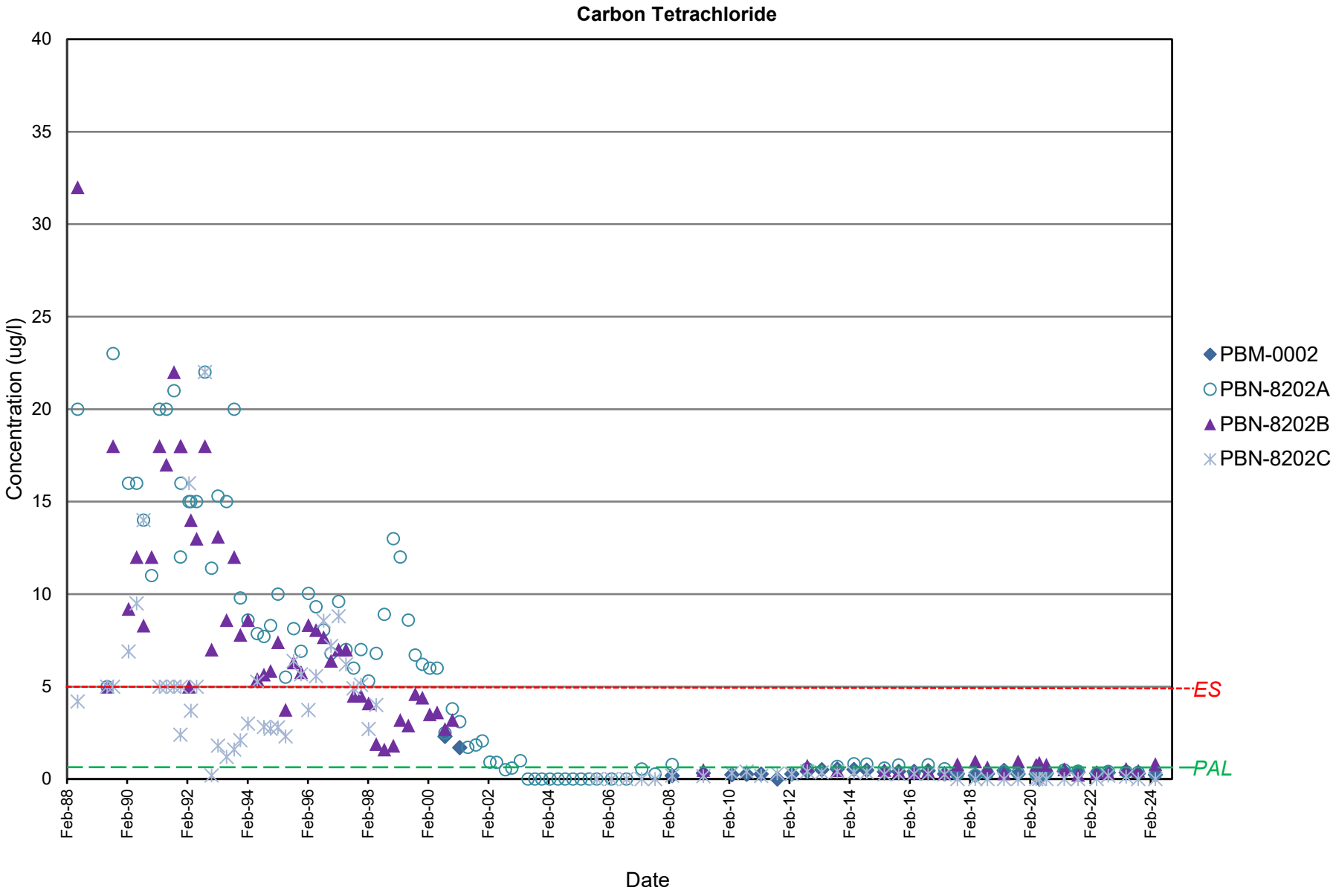
BAAP Groundwater Data | Propellant Burning Ground | Source Area



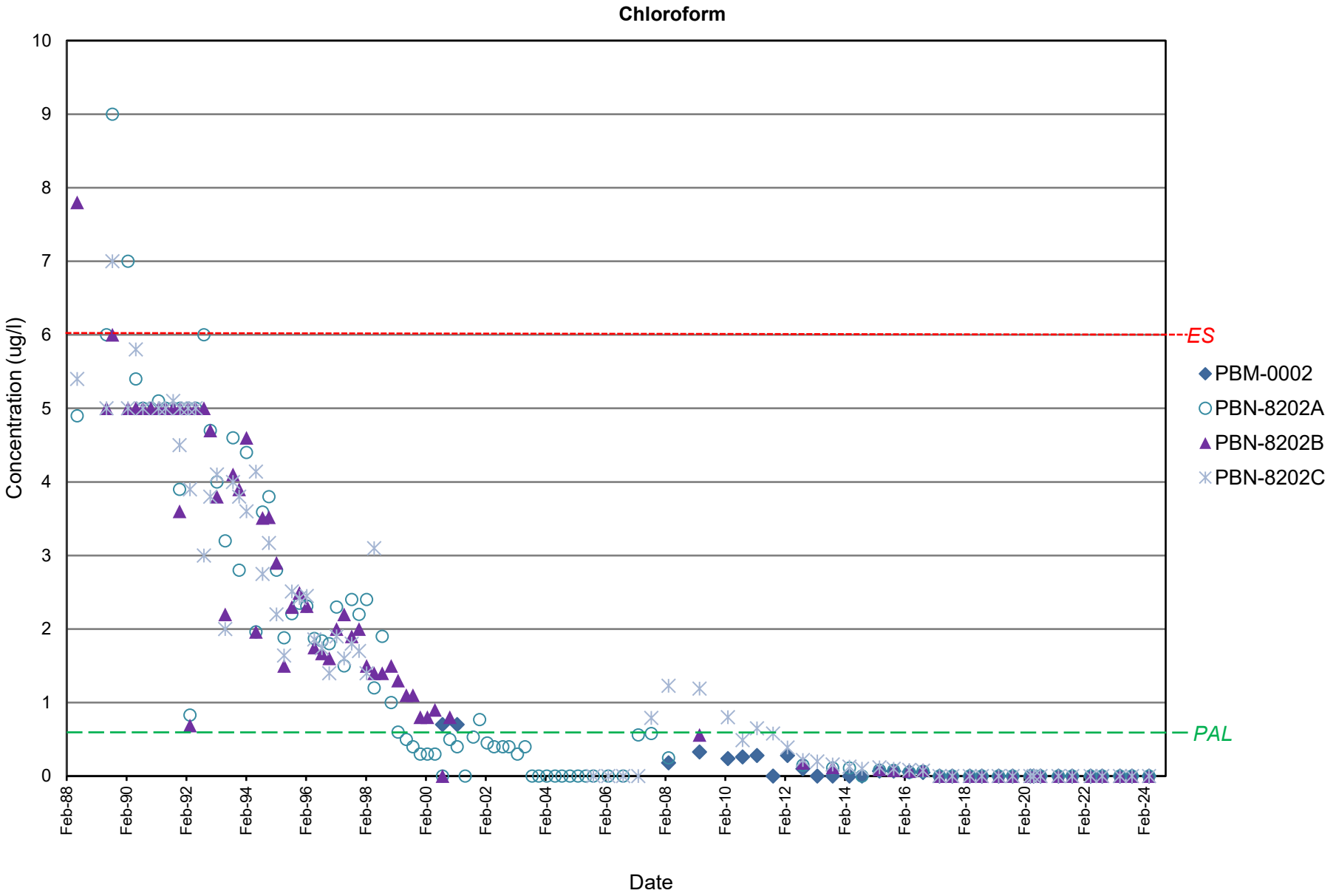
BAAP Groundwater Data | Propellant Burning Ground | Source Area



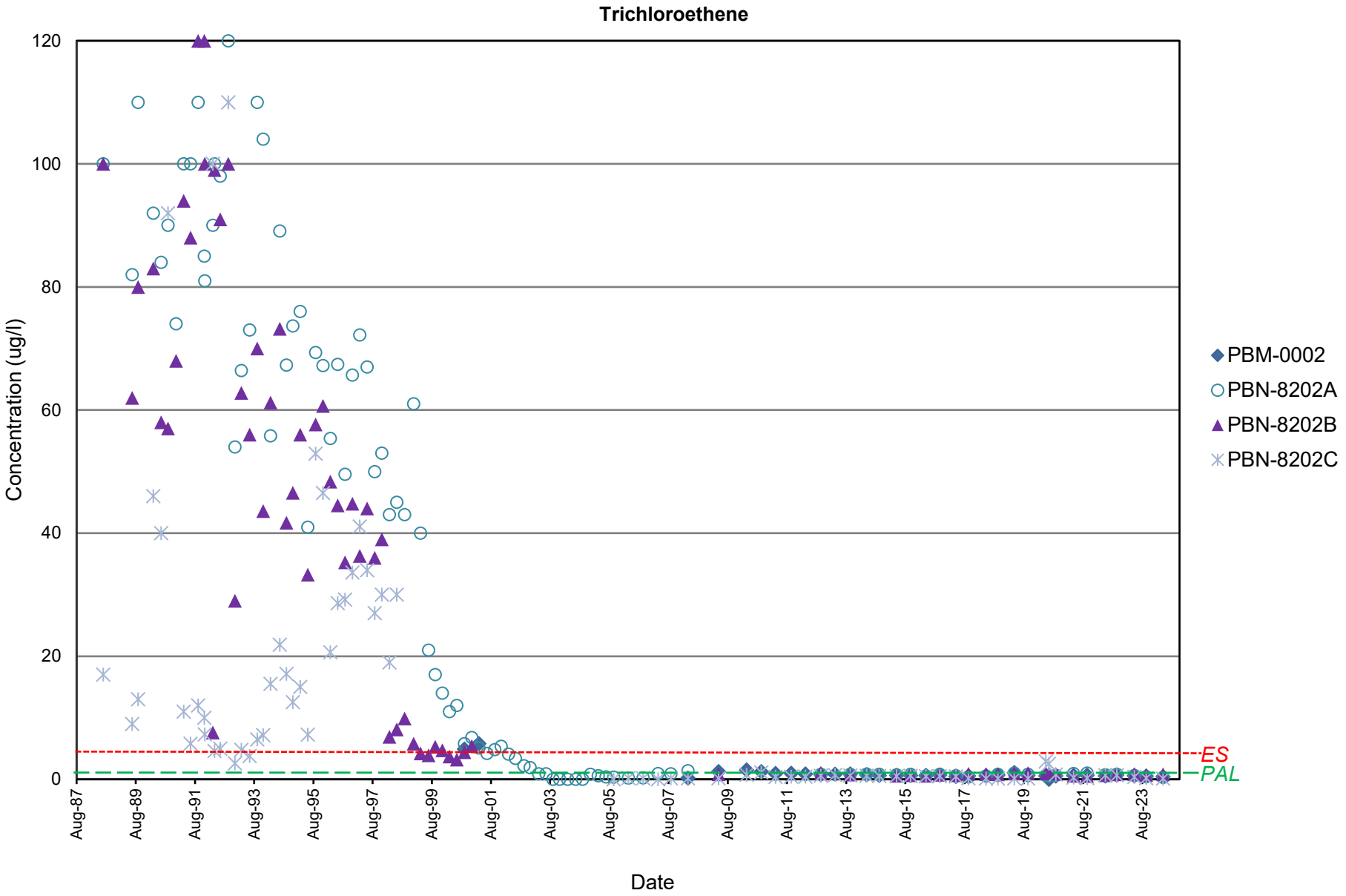
BAAP Groundwater Data | Propellant Burning Ground | Source Area



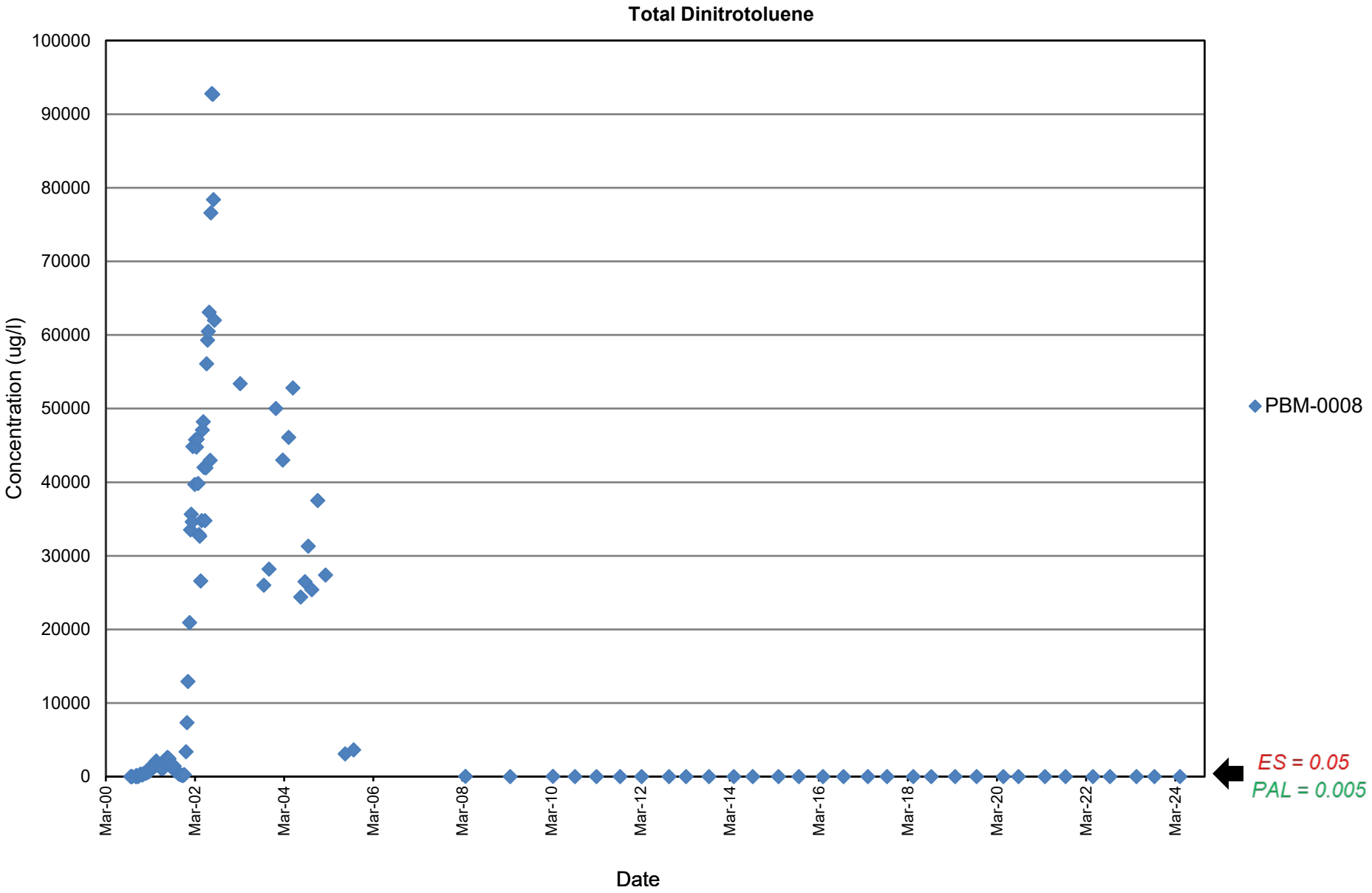
BAAP Groundwater Data | Propellant Burning Ground | Source Area



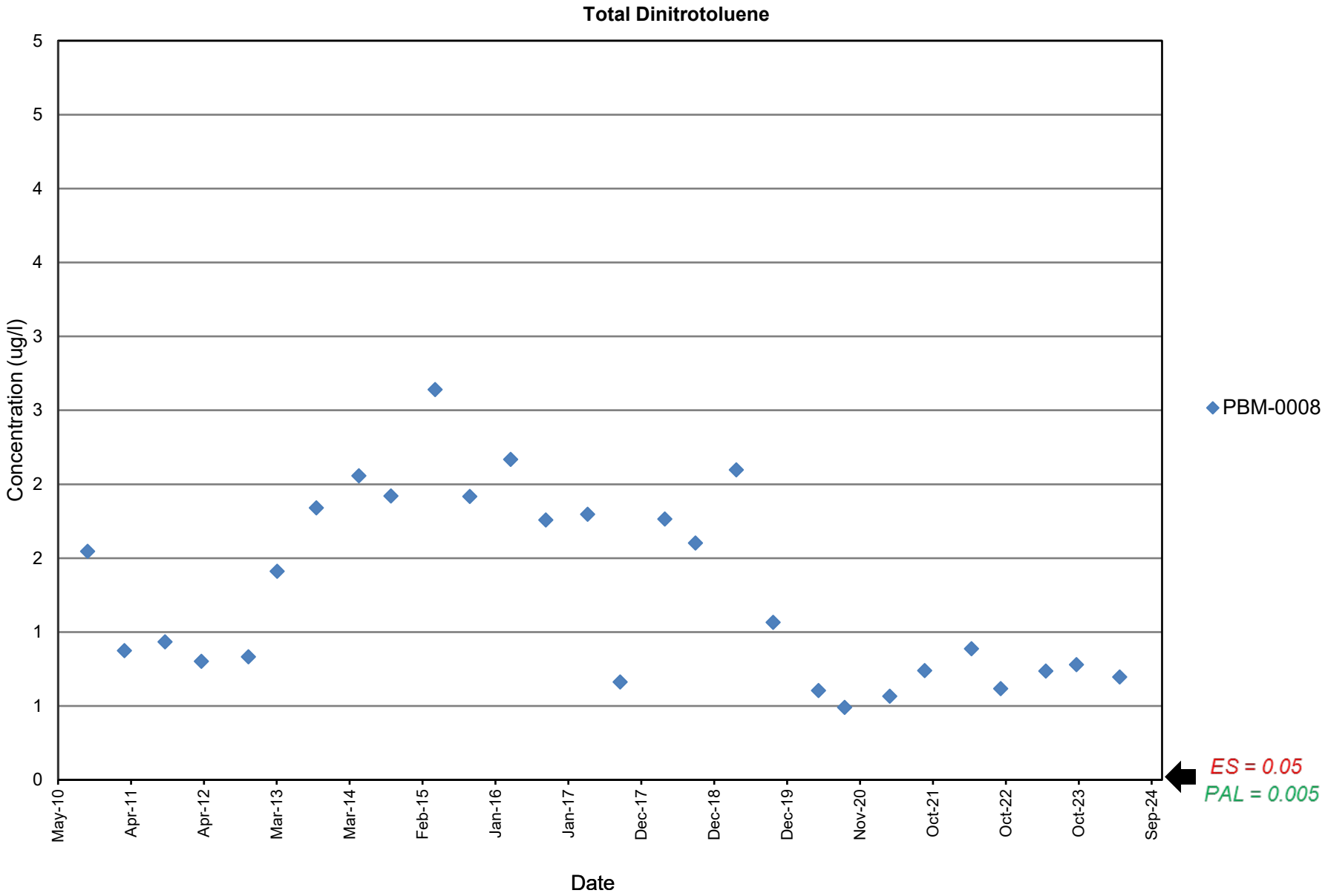
BAAP Groundwater Data | Propellant Burning Ground | Source Area



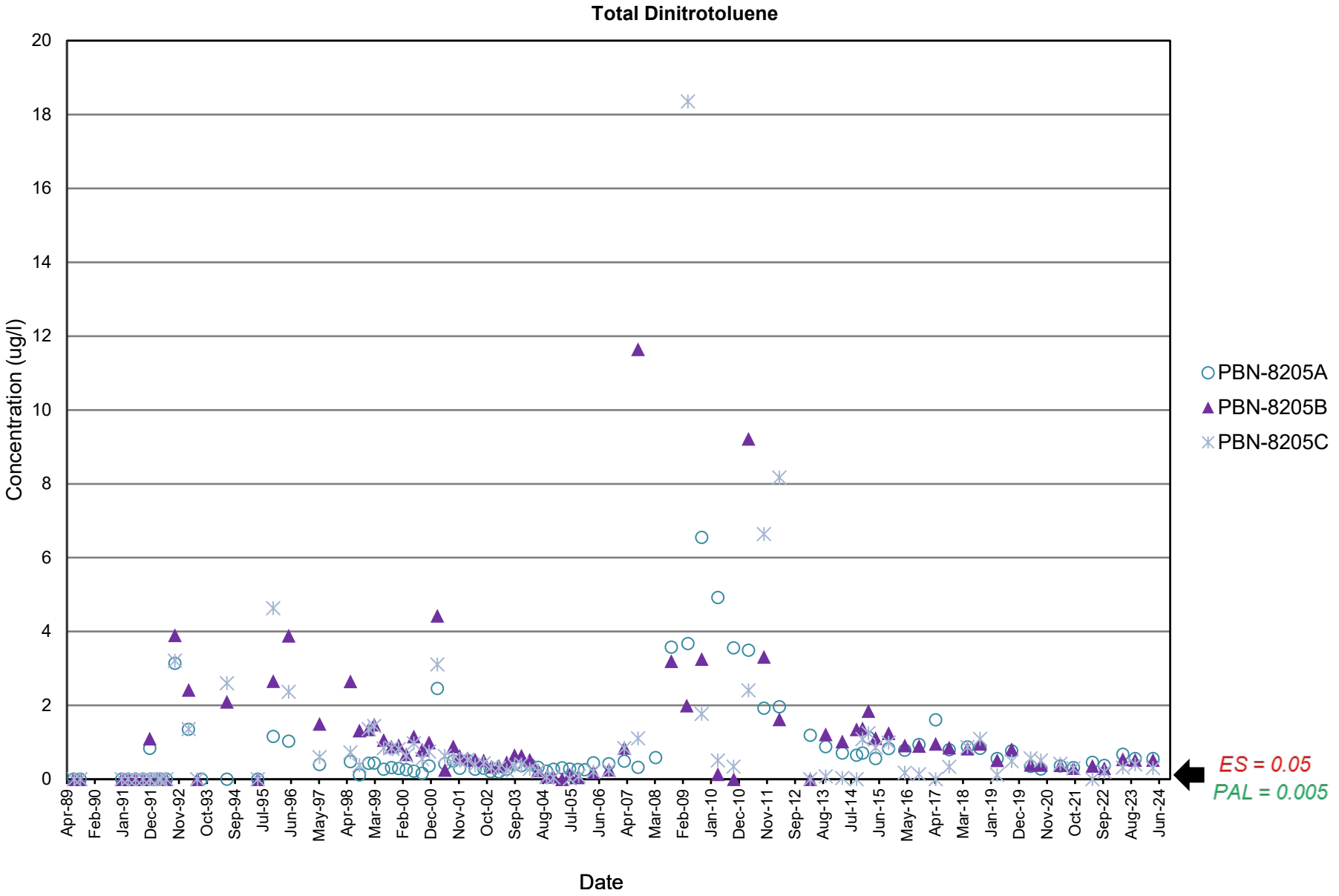
BAAP Groundwater Data | Propellant Burning Ground | Source Area



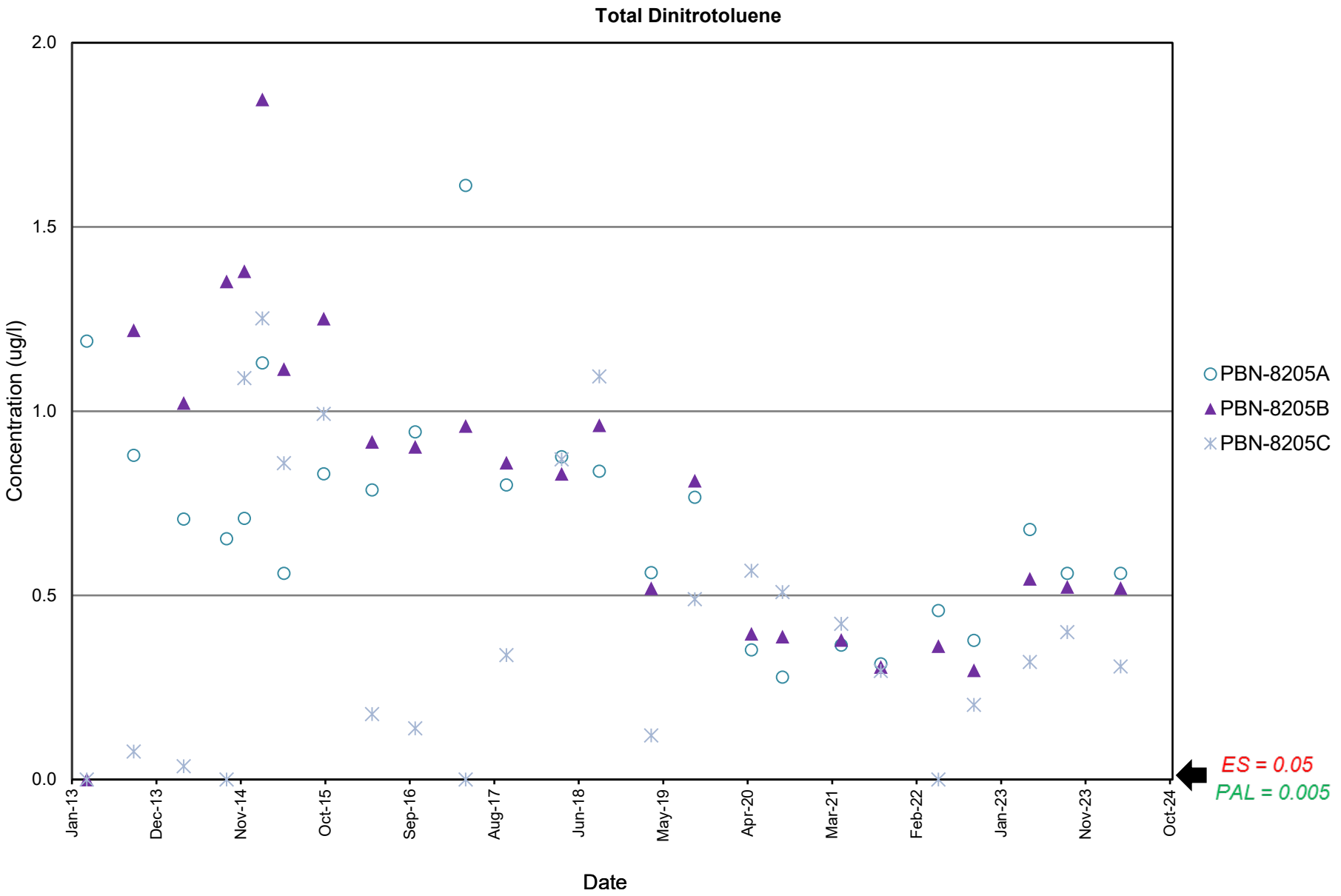
BAAP Groundwater Data | Propellant Burning Ground | Source Area



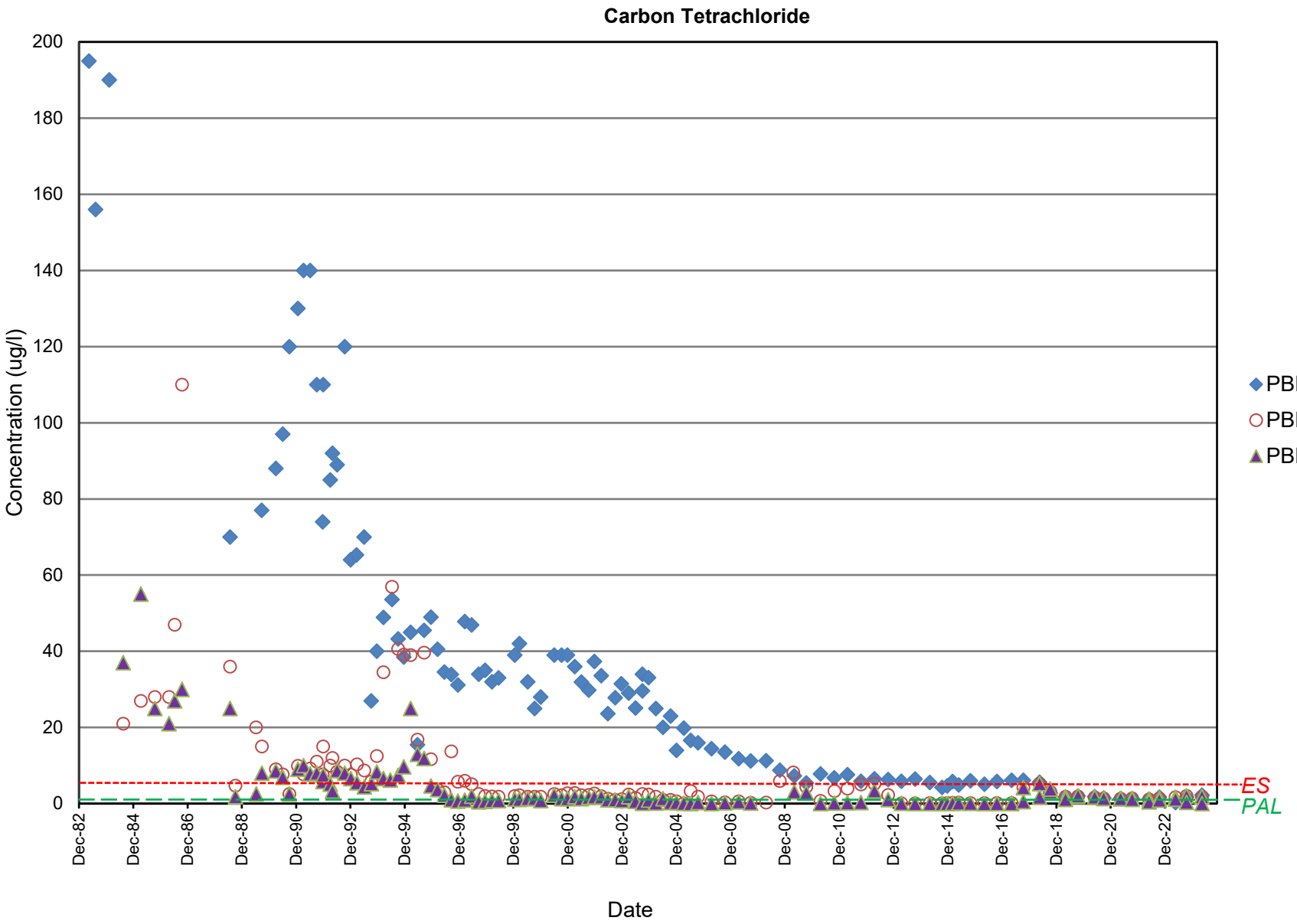
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



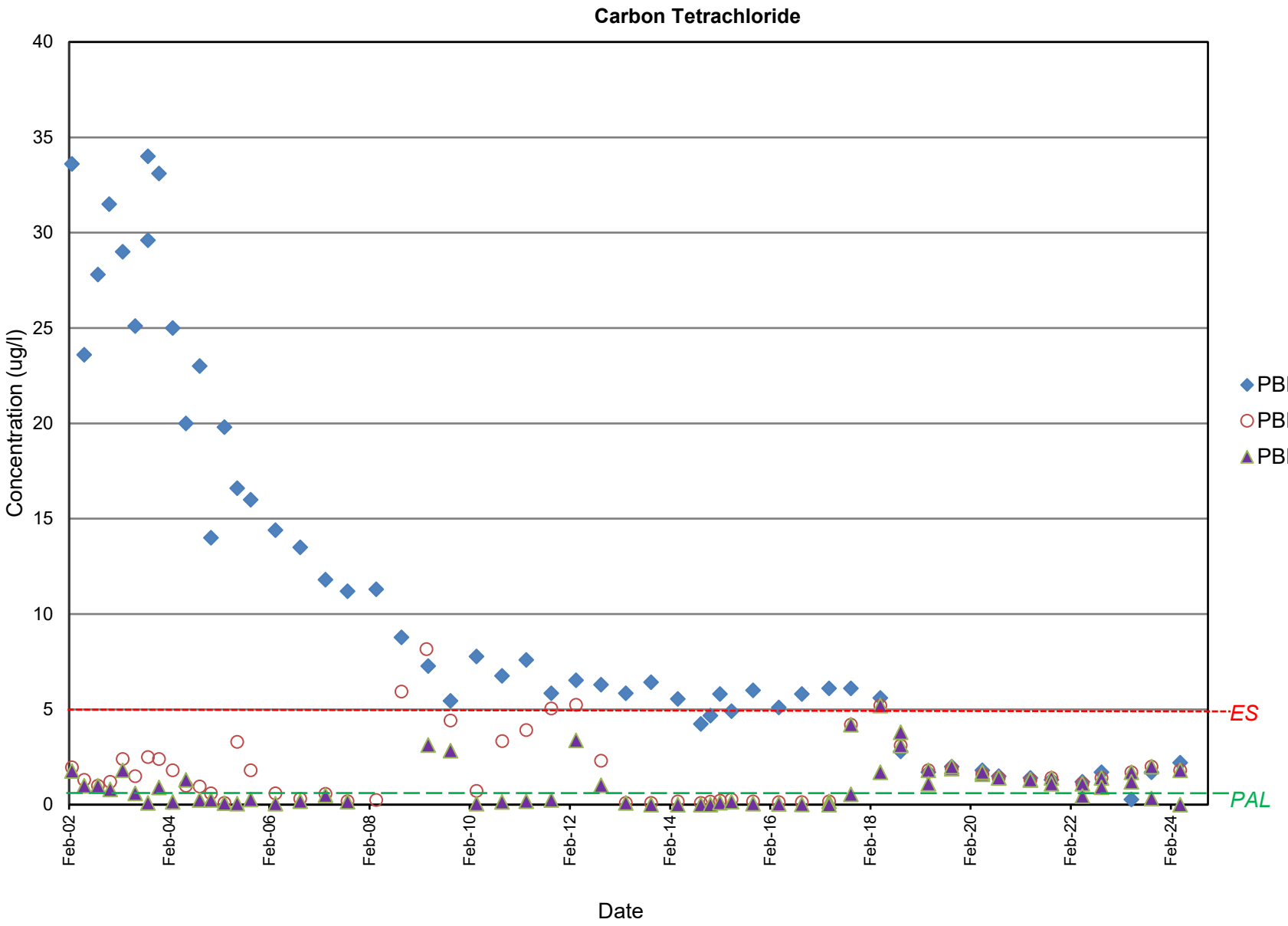
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



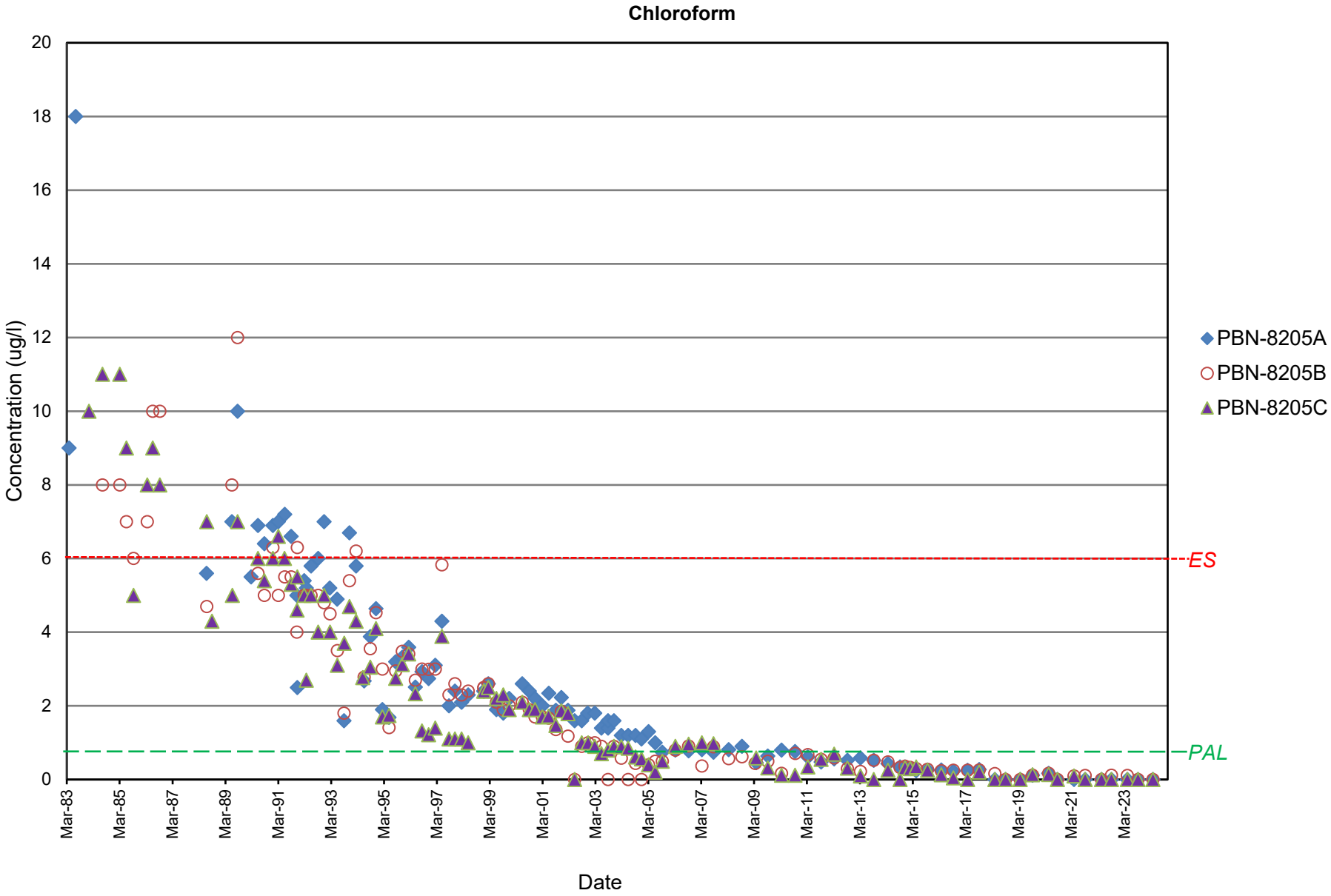
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



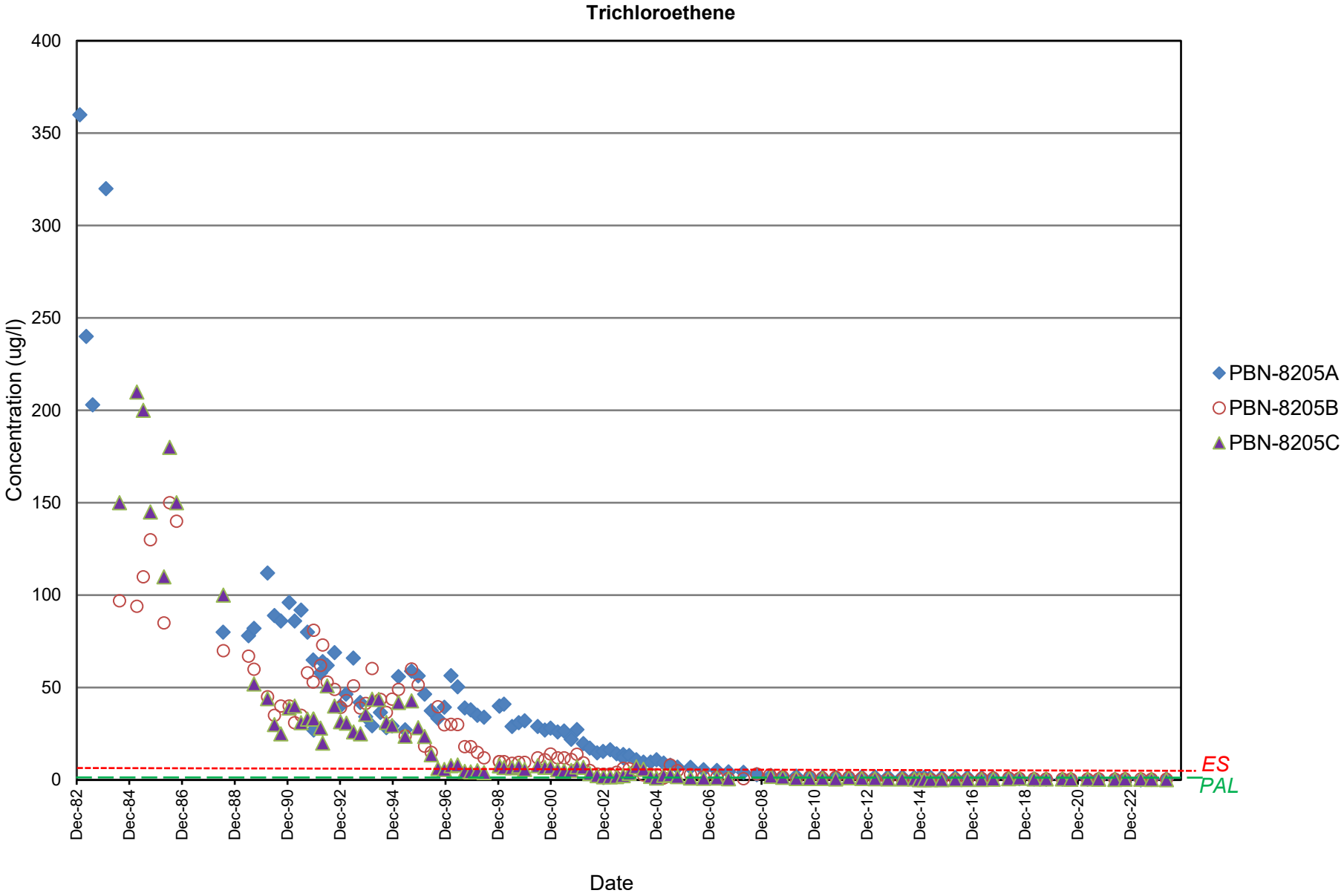
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



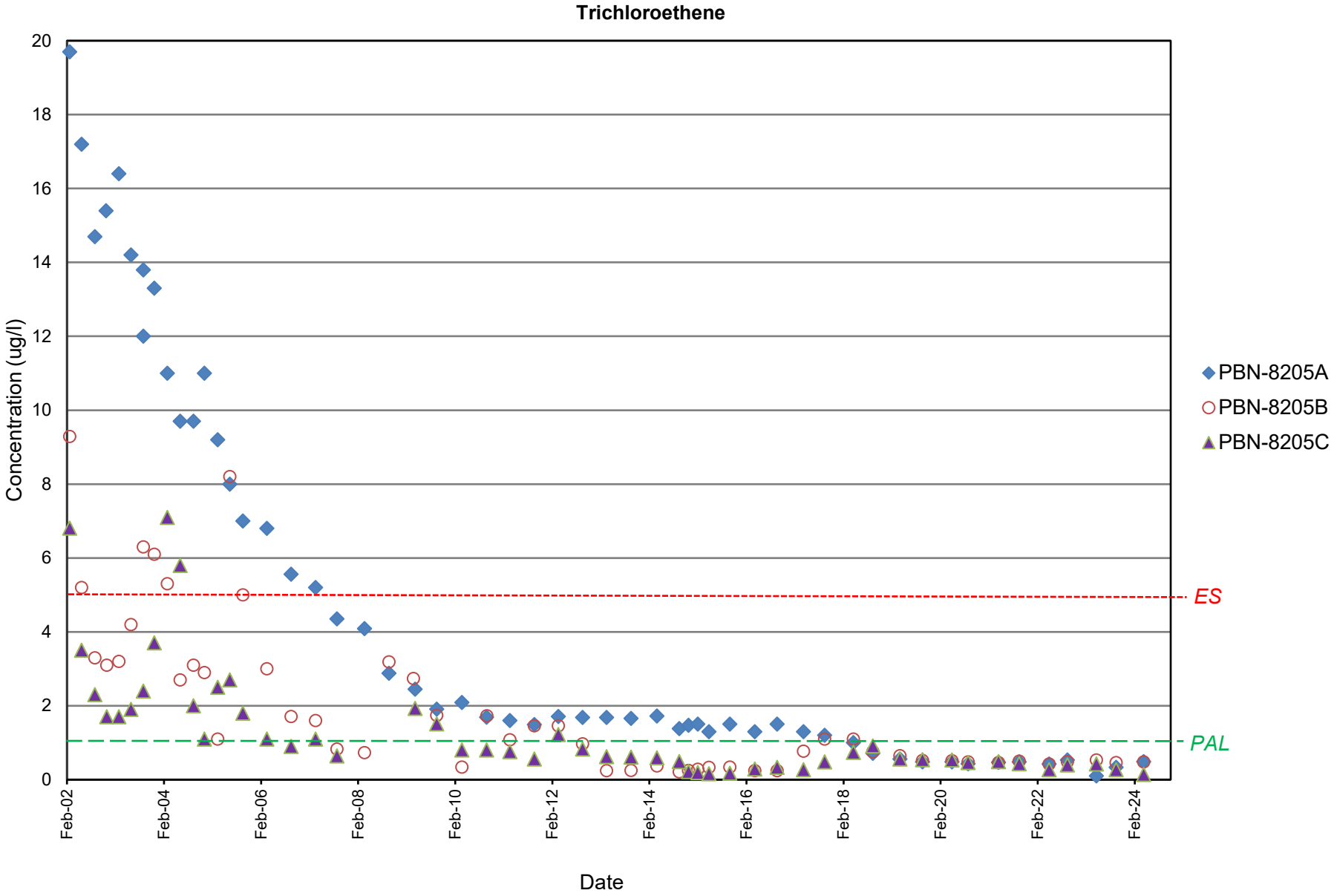
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



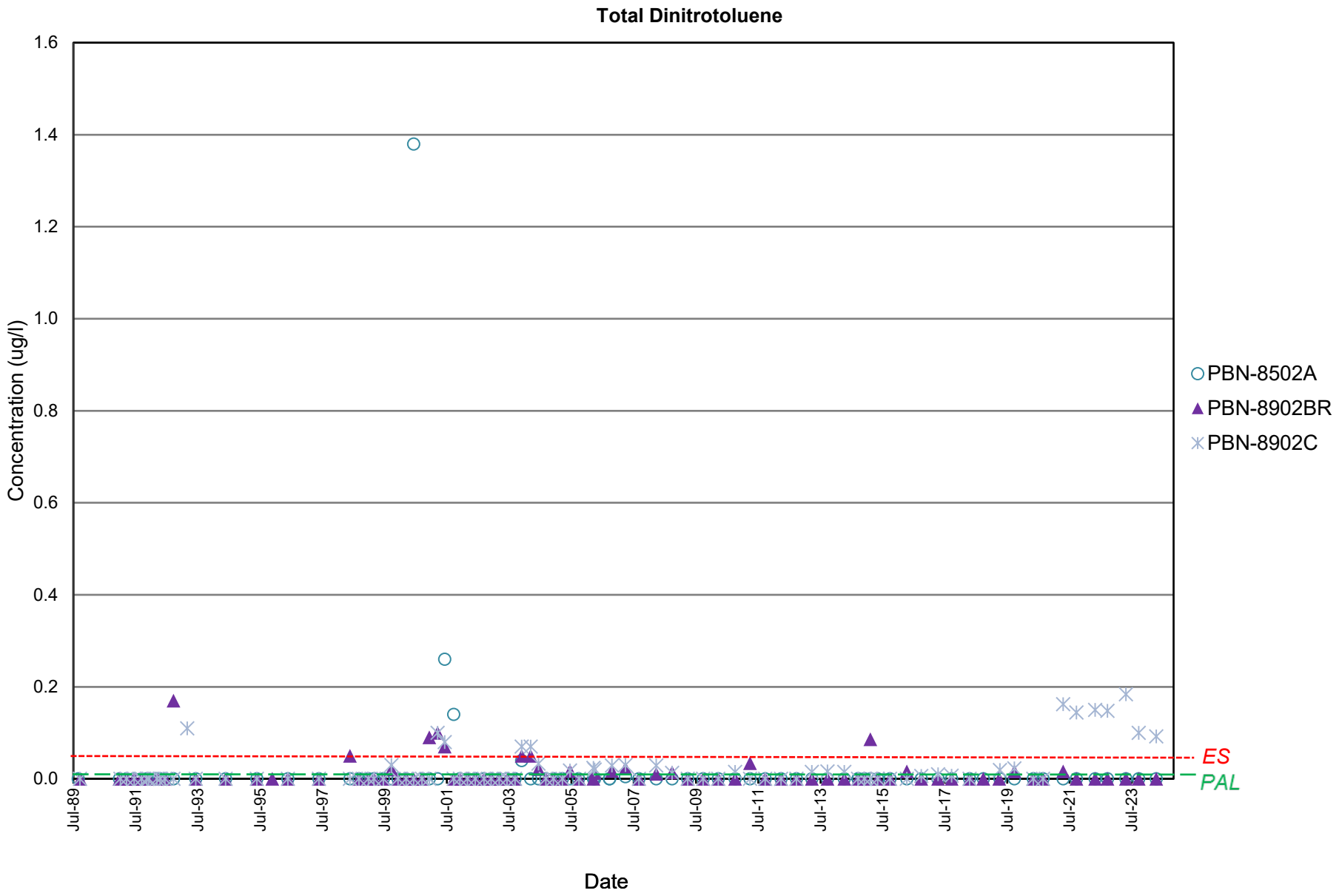
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



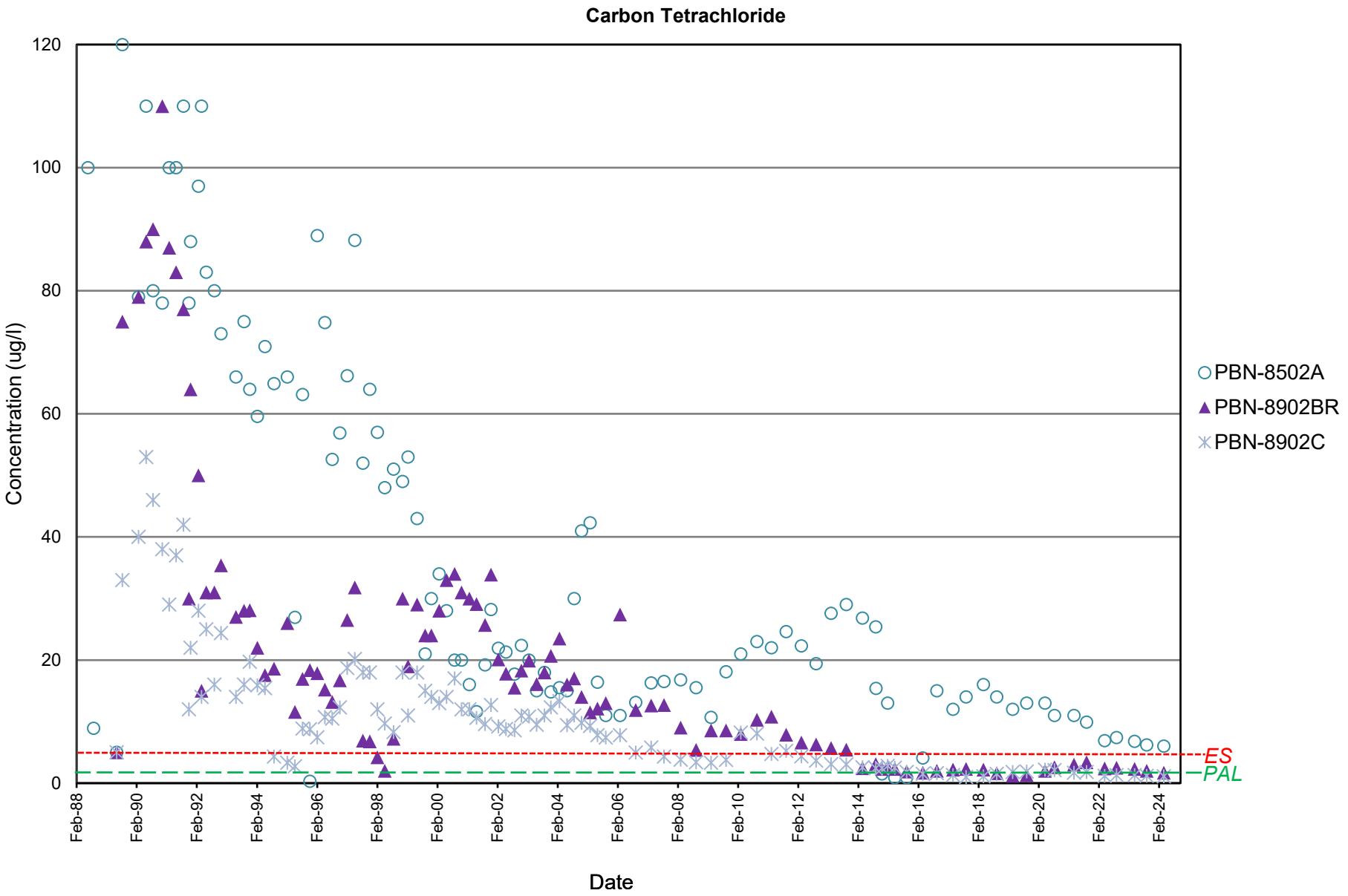
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



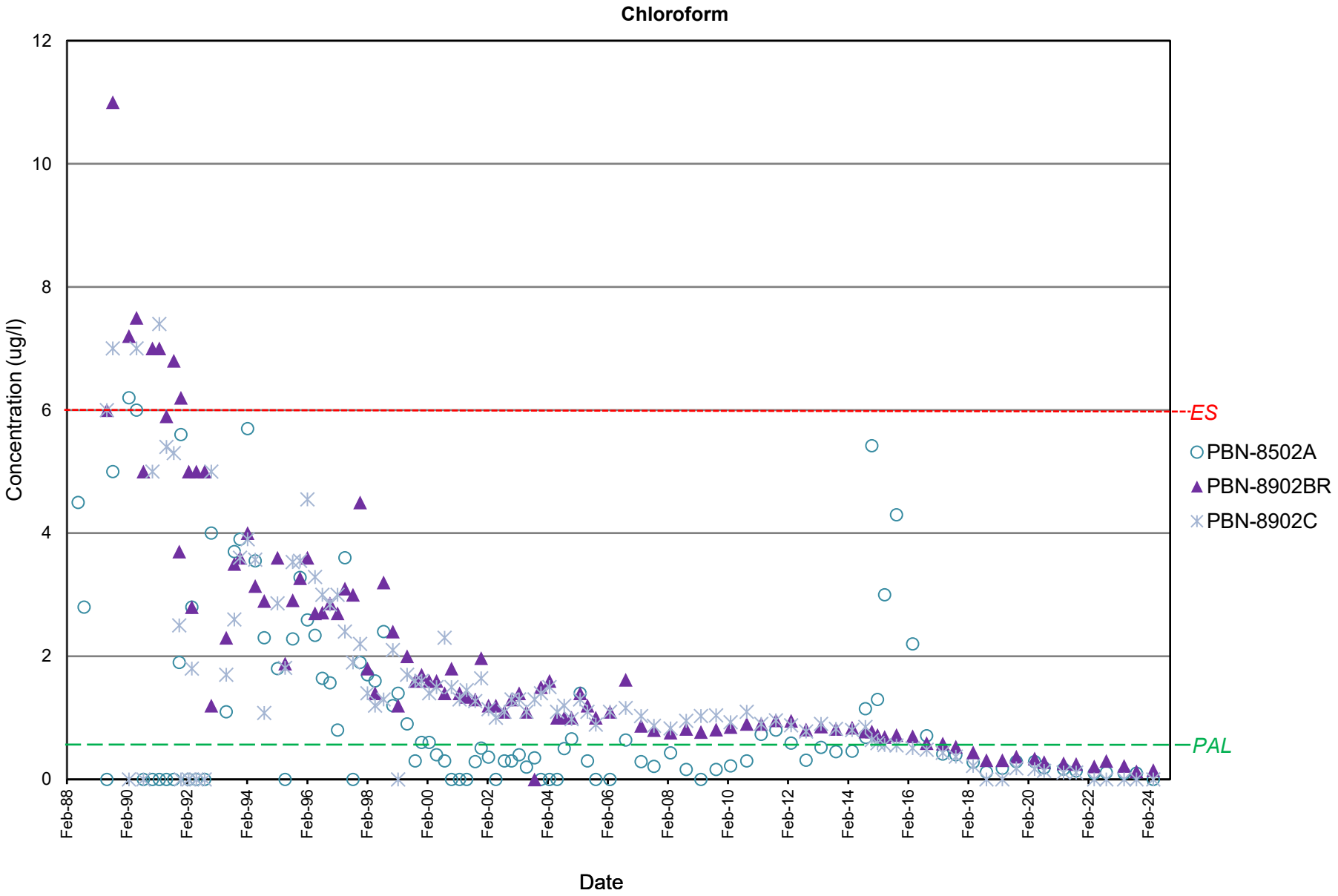
BAAP Groundwater Data | Propellant Burning Ground | Source Area



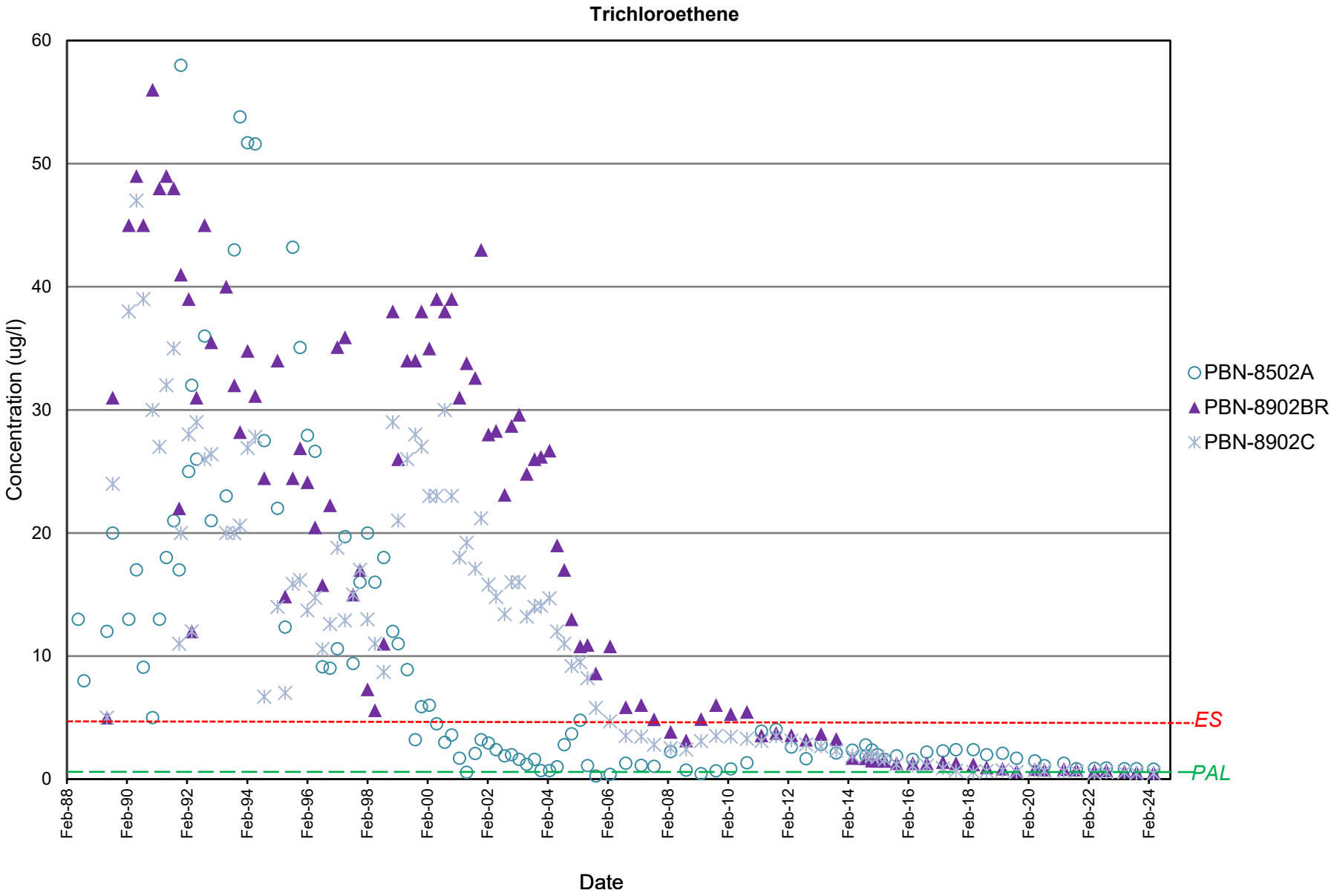
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



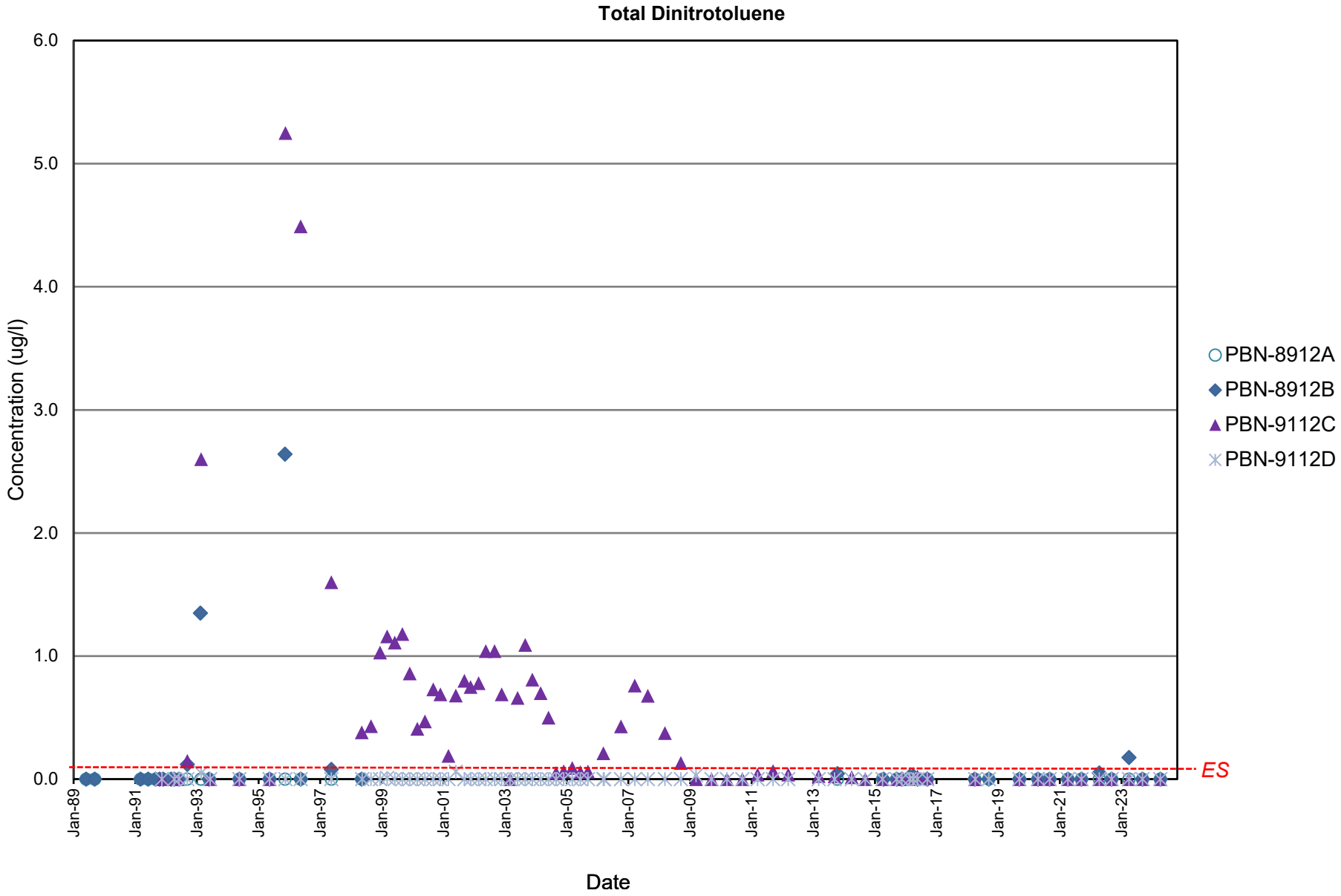
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



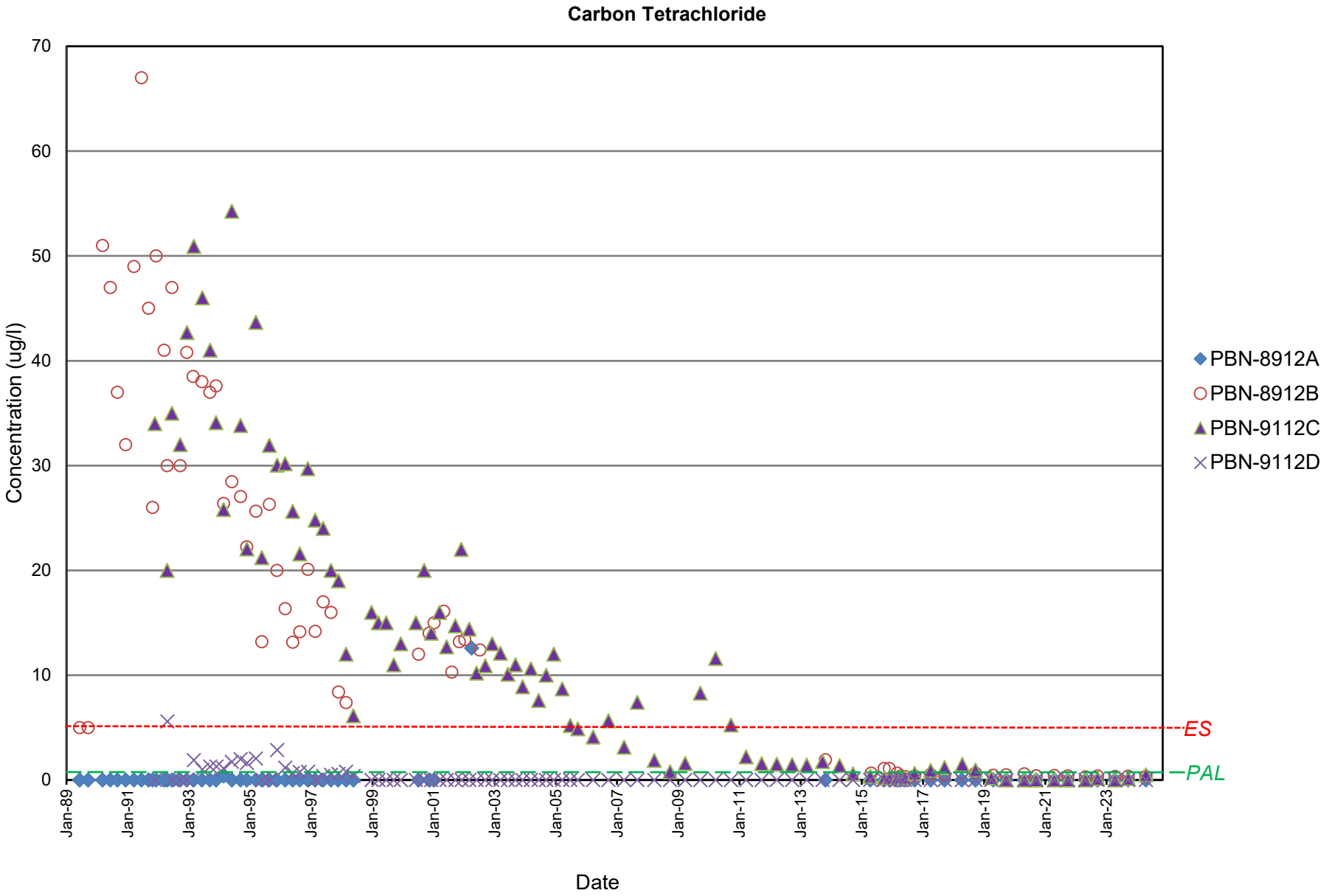
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



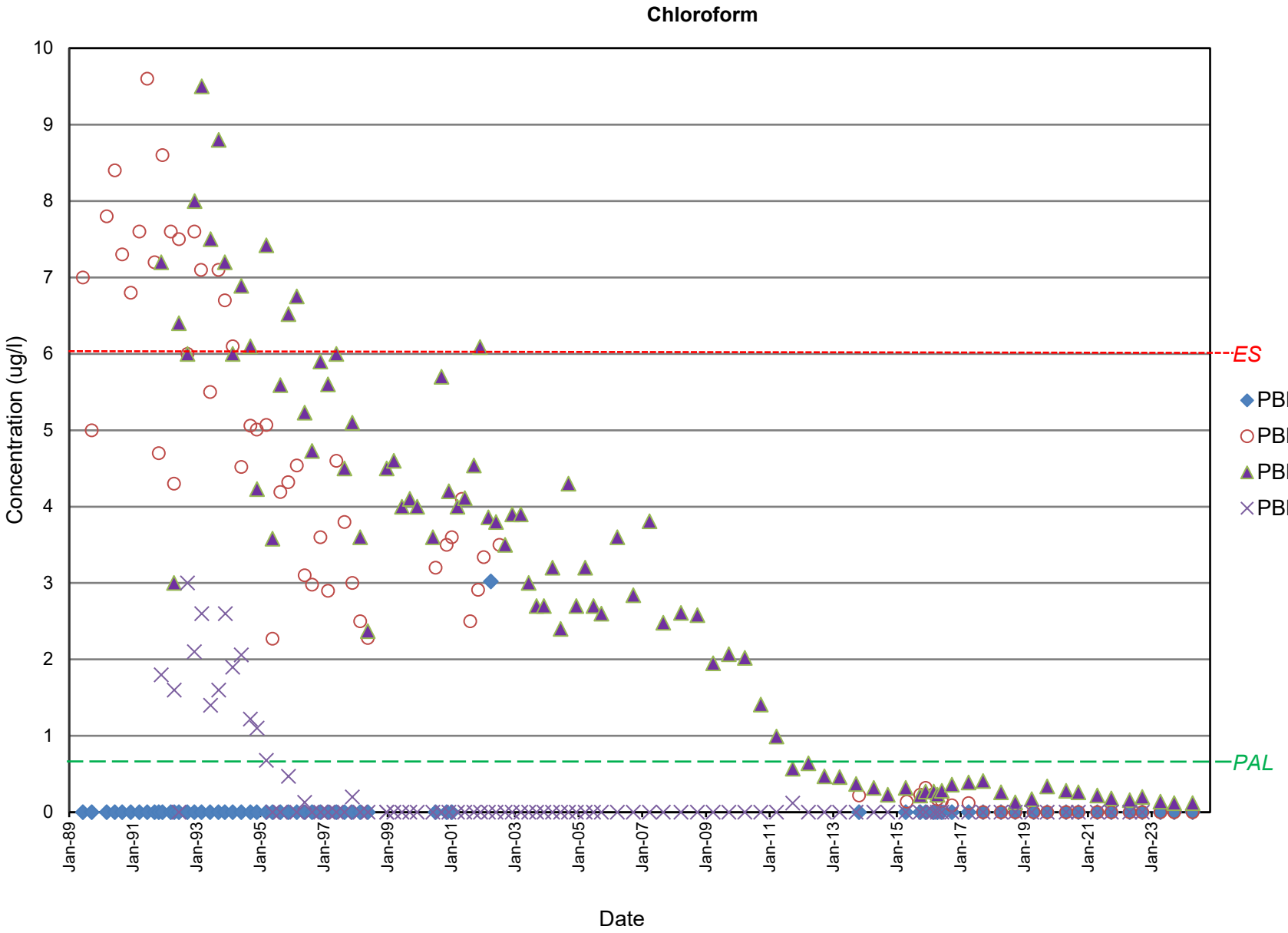
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



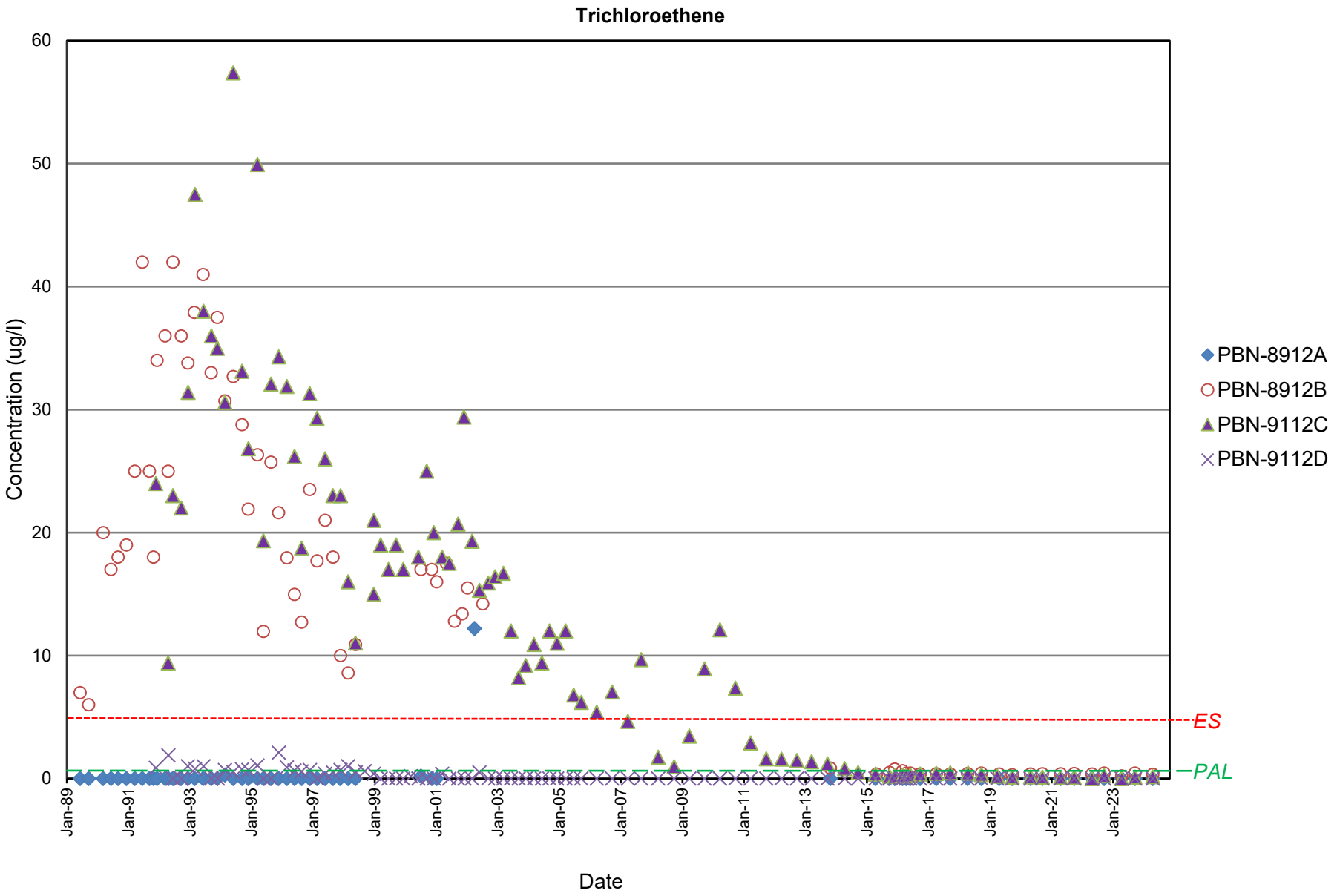
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



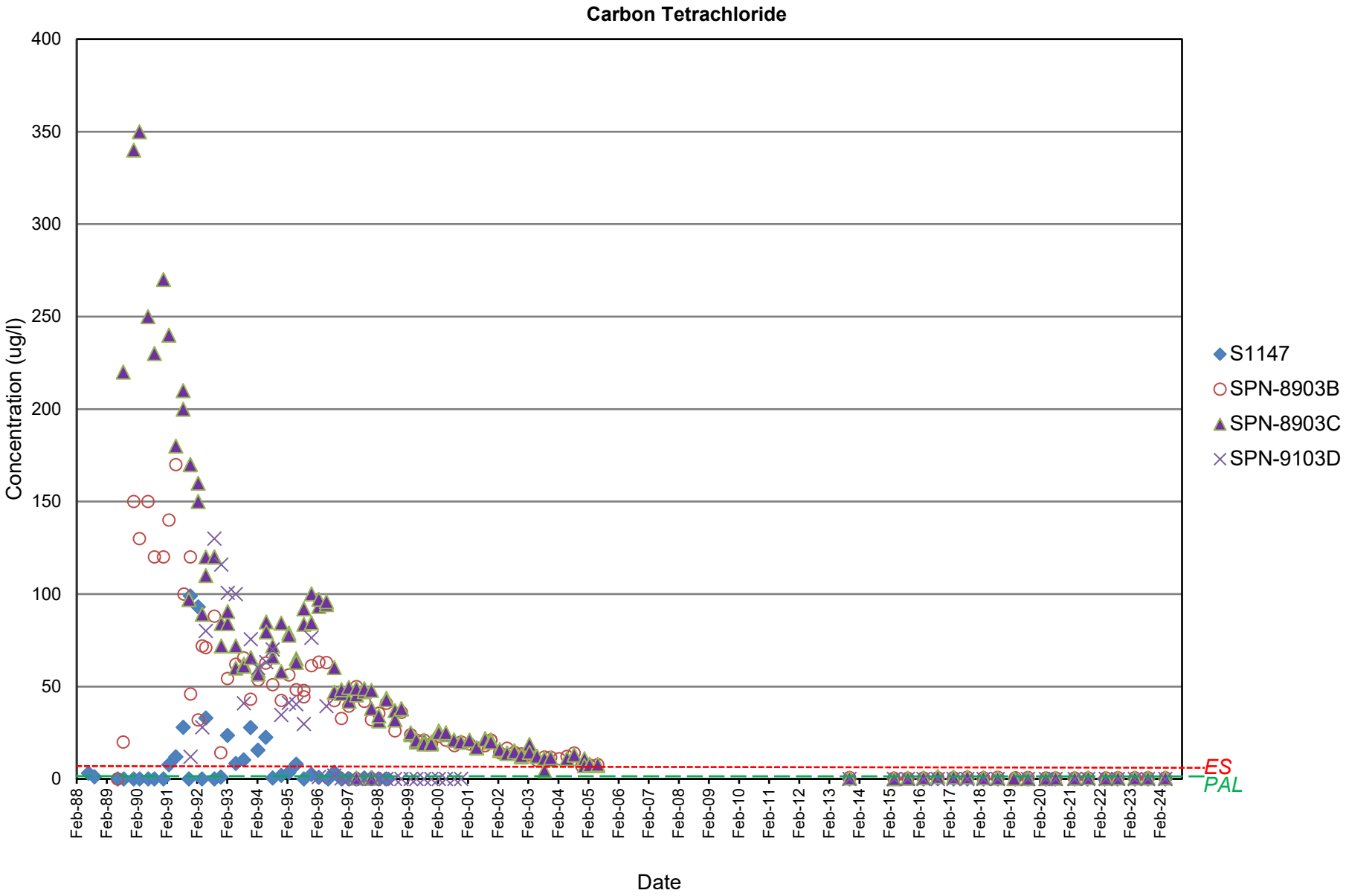
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



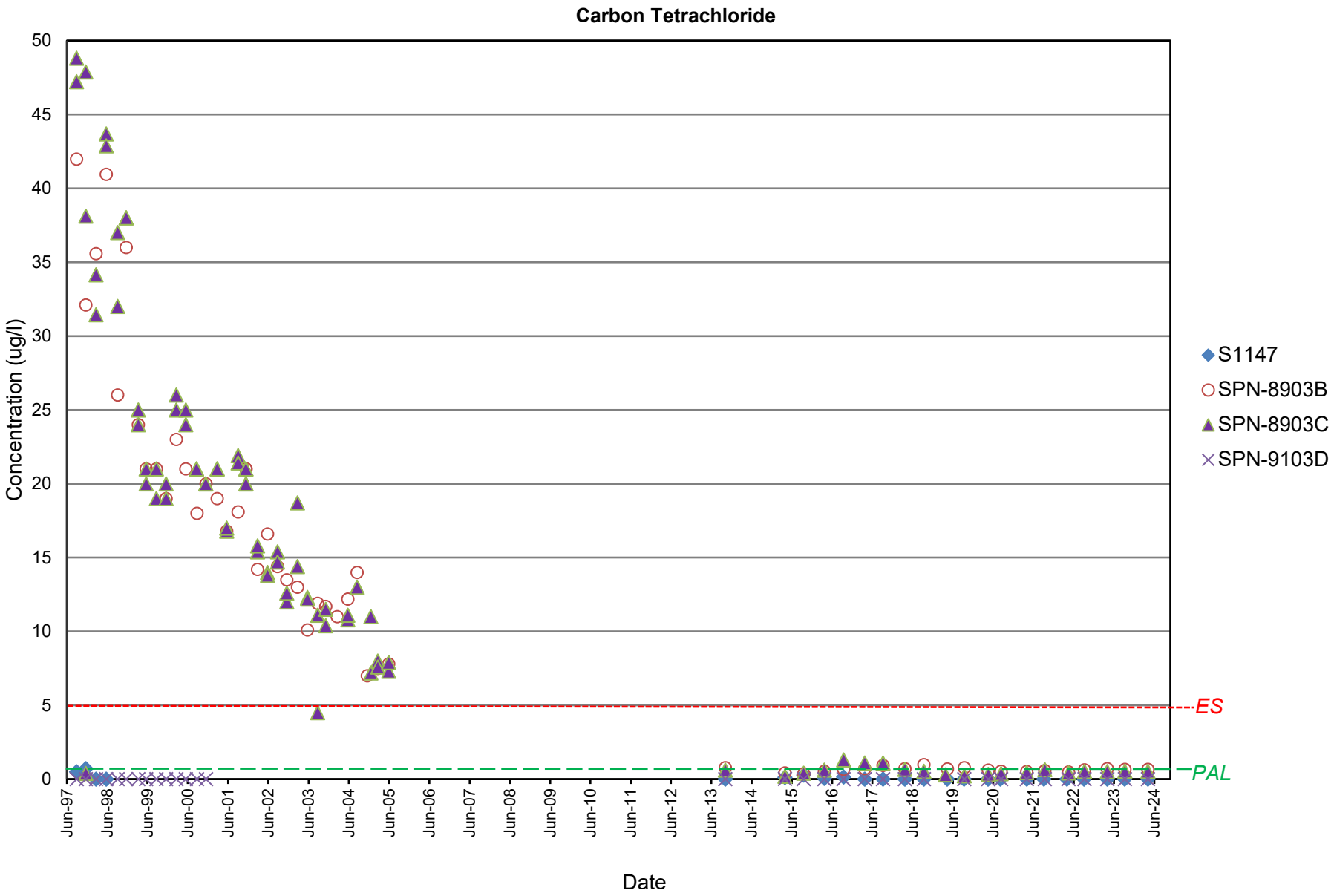
BAAP Groundwater Data | Propellant Burning Ground | Plume Center



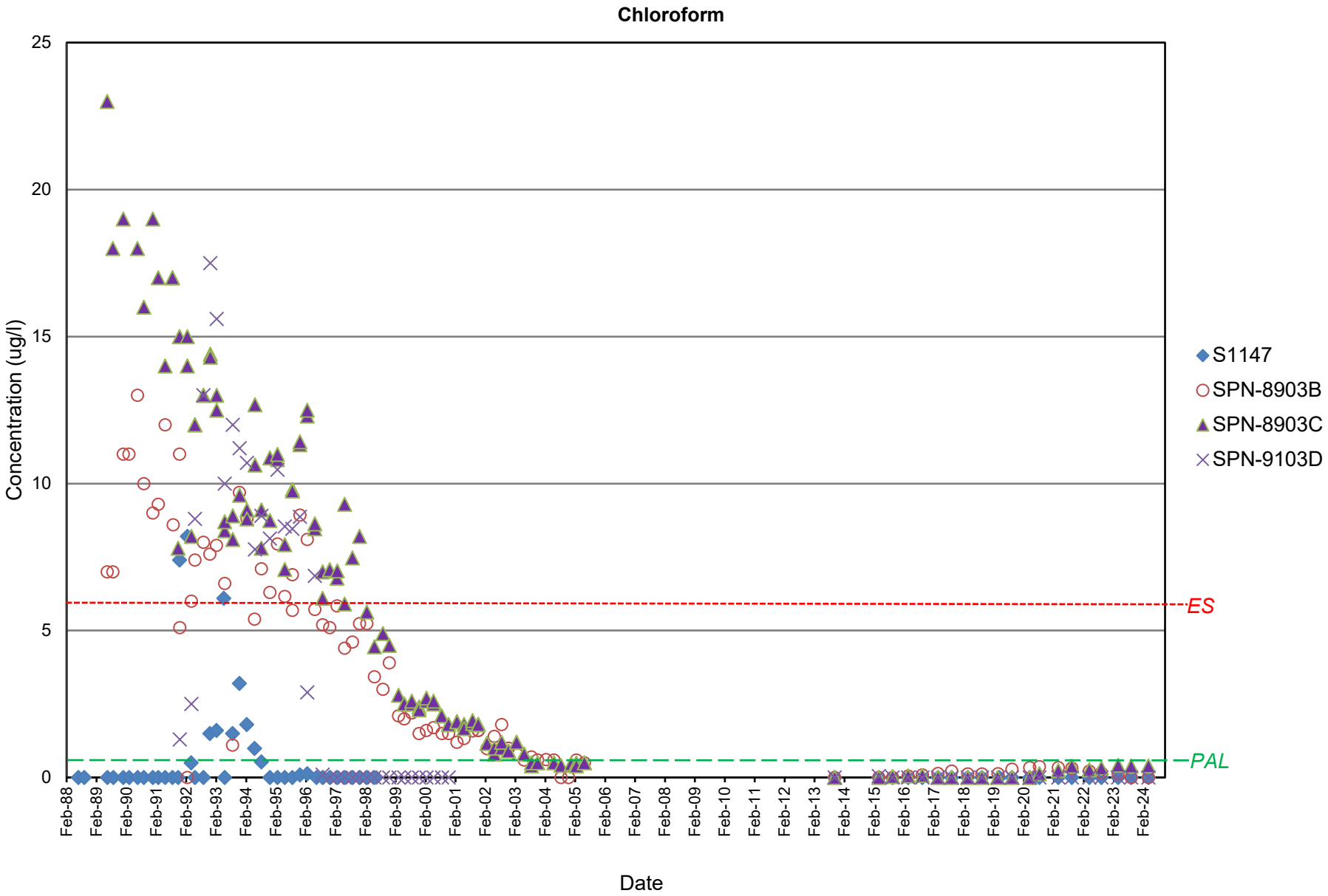
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Onsite



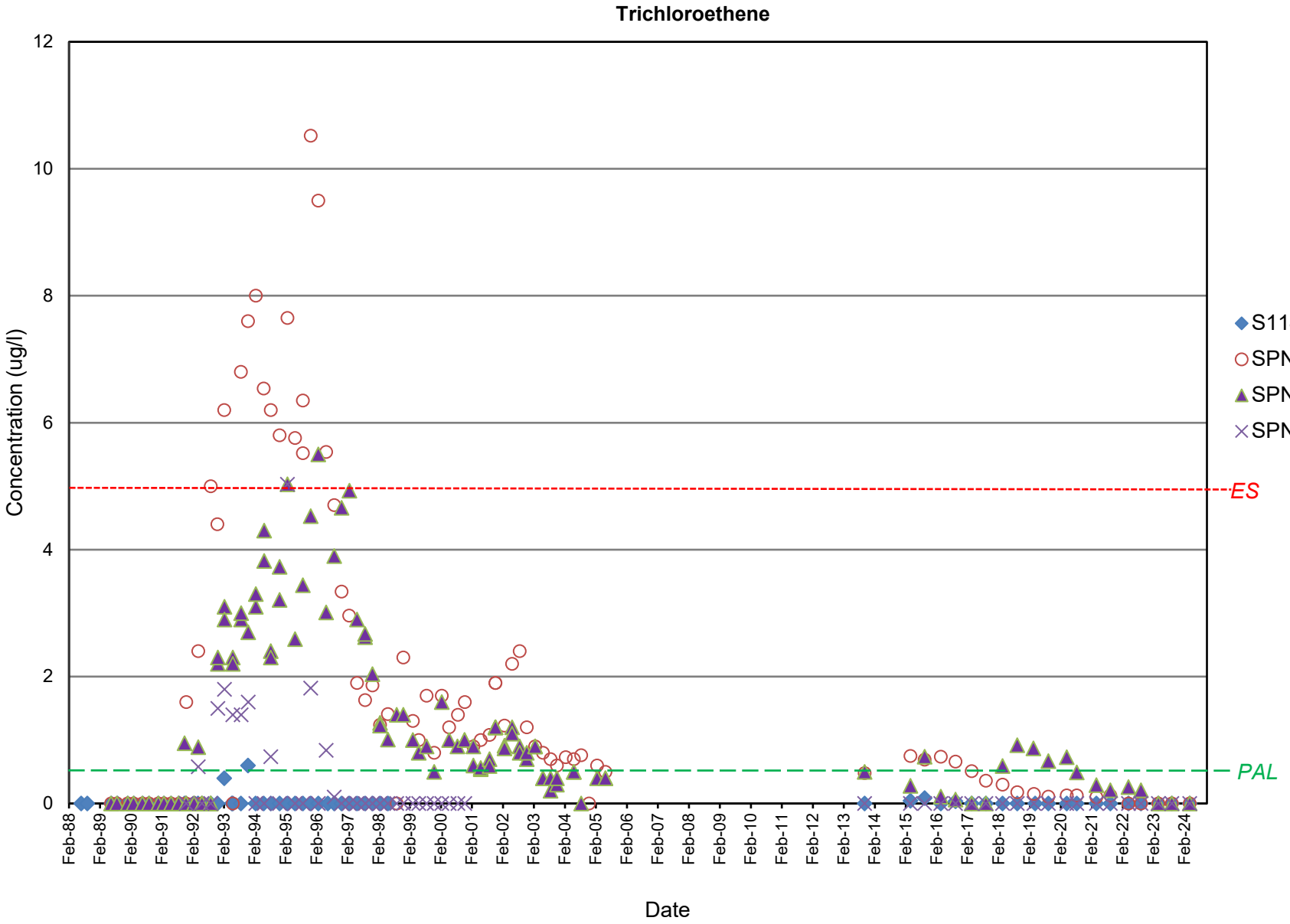
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Onsite



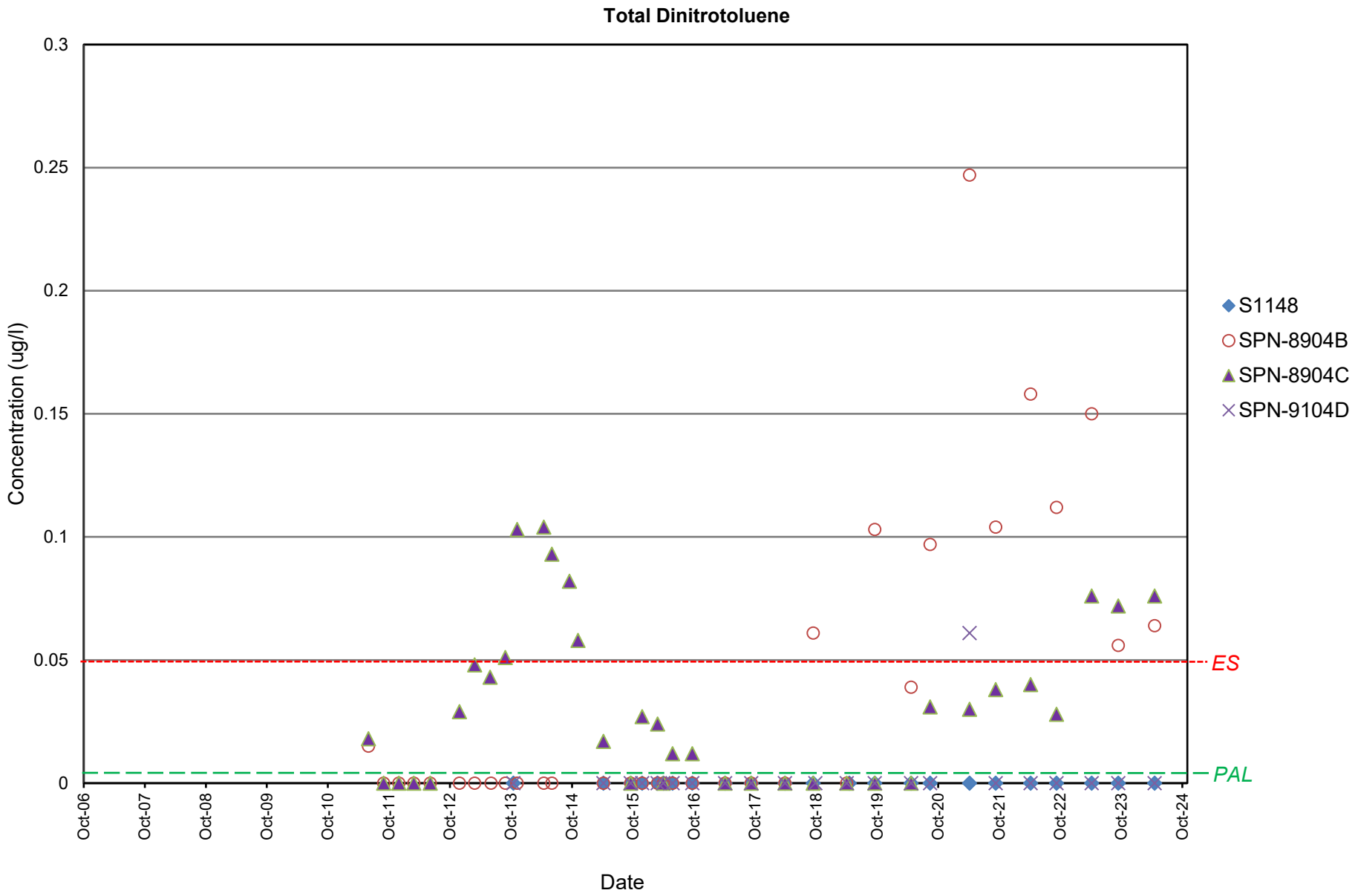
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Onsite



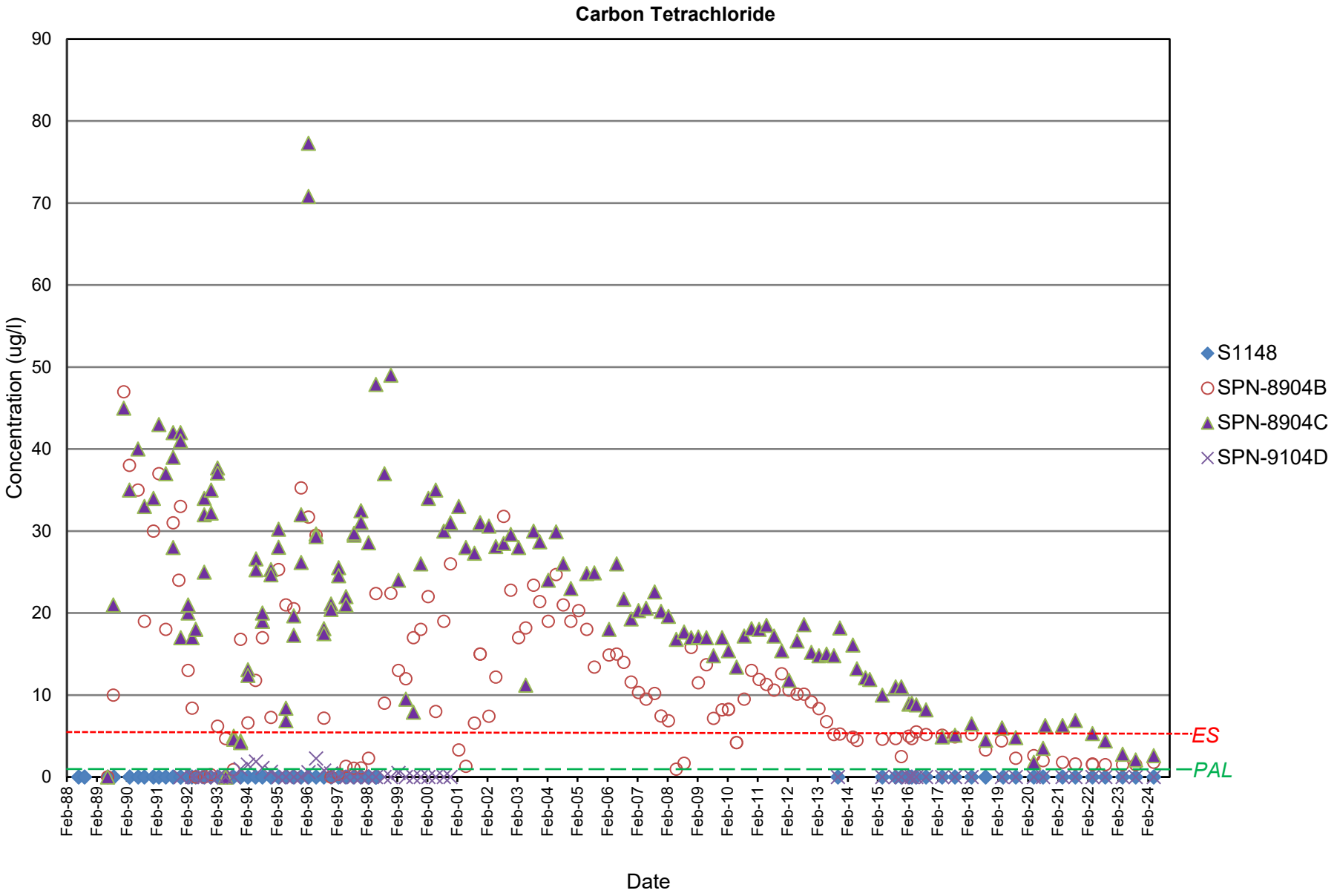
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Onsite



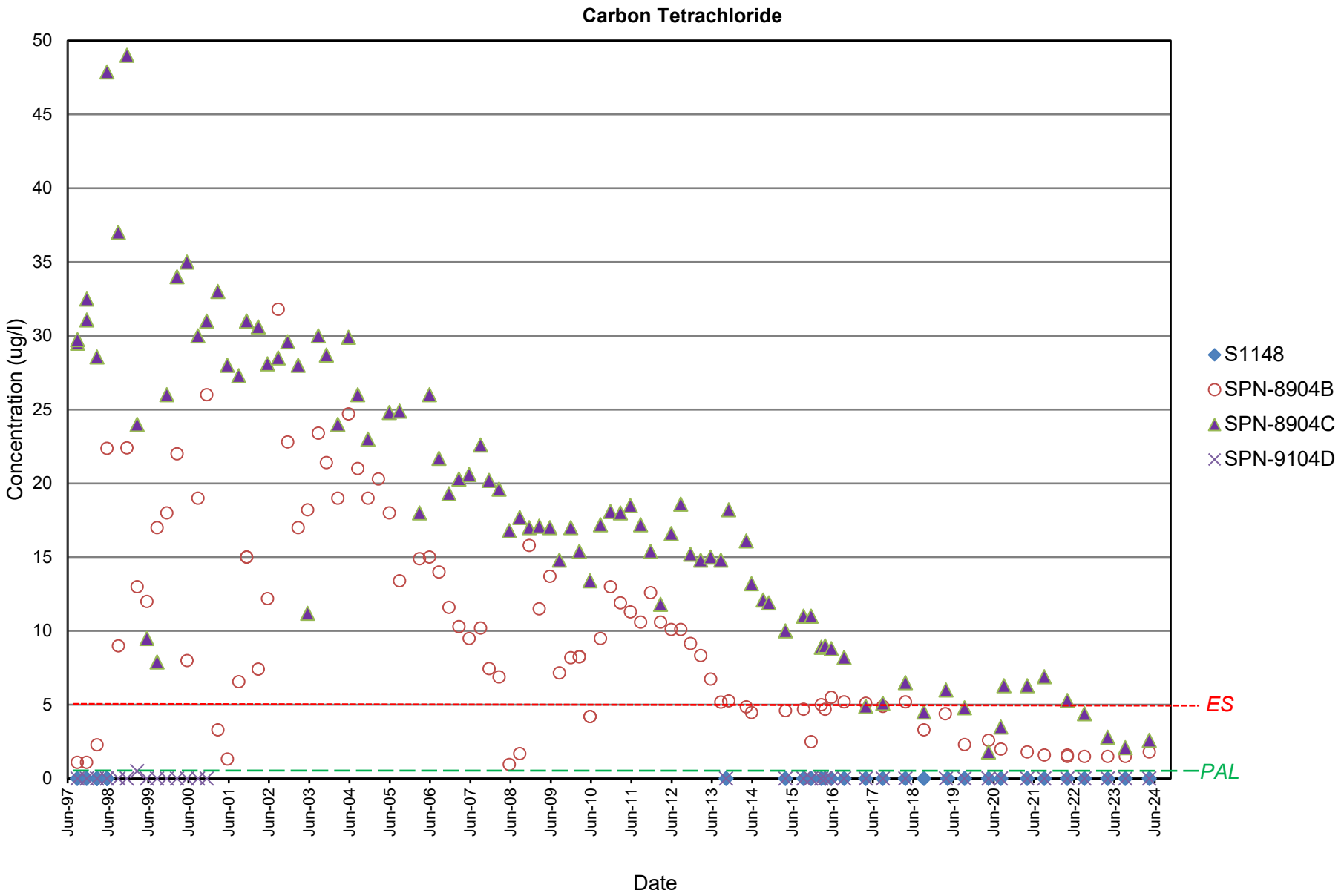
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Onsite



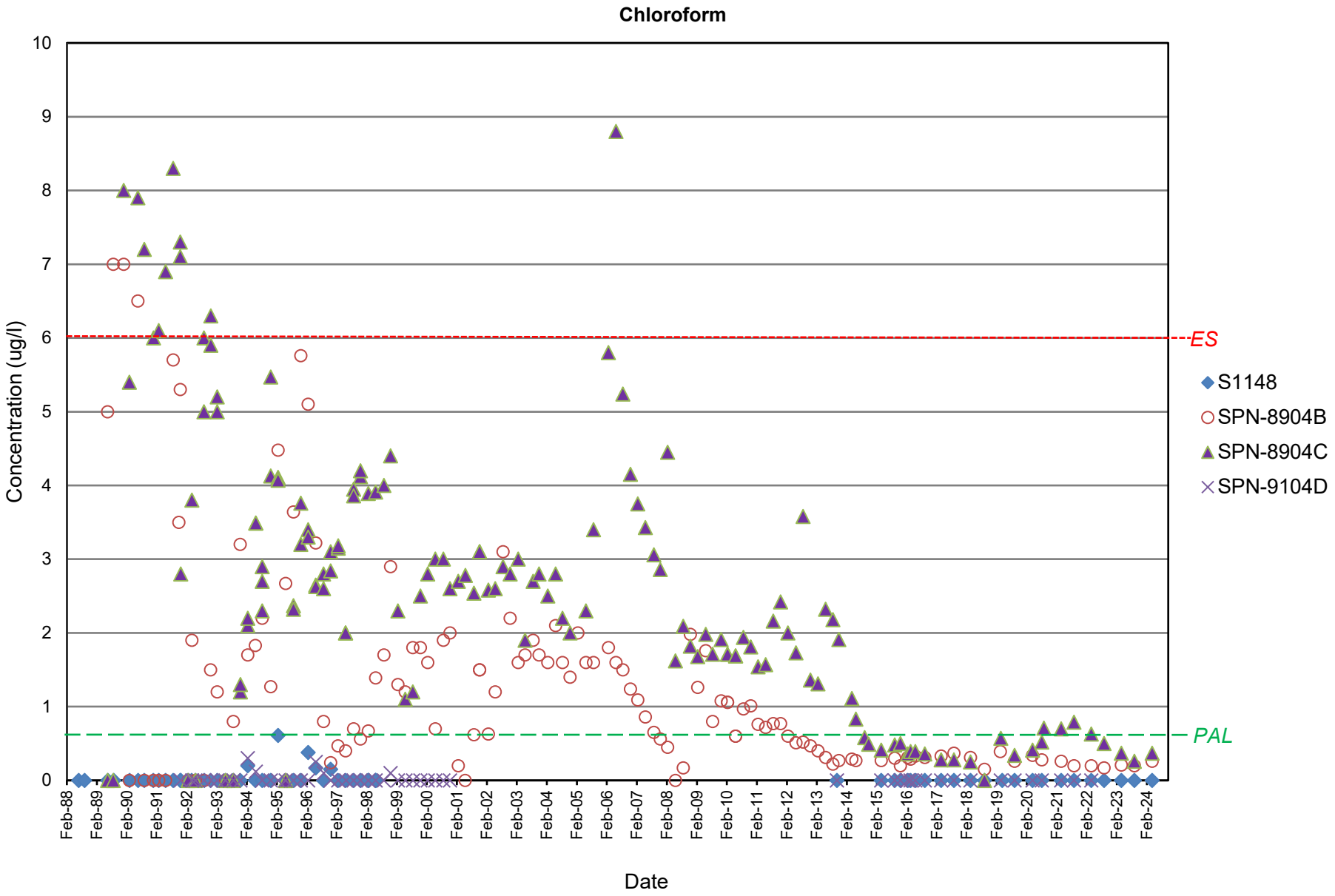
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Onsite



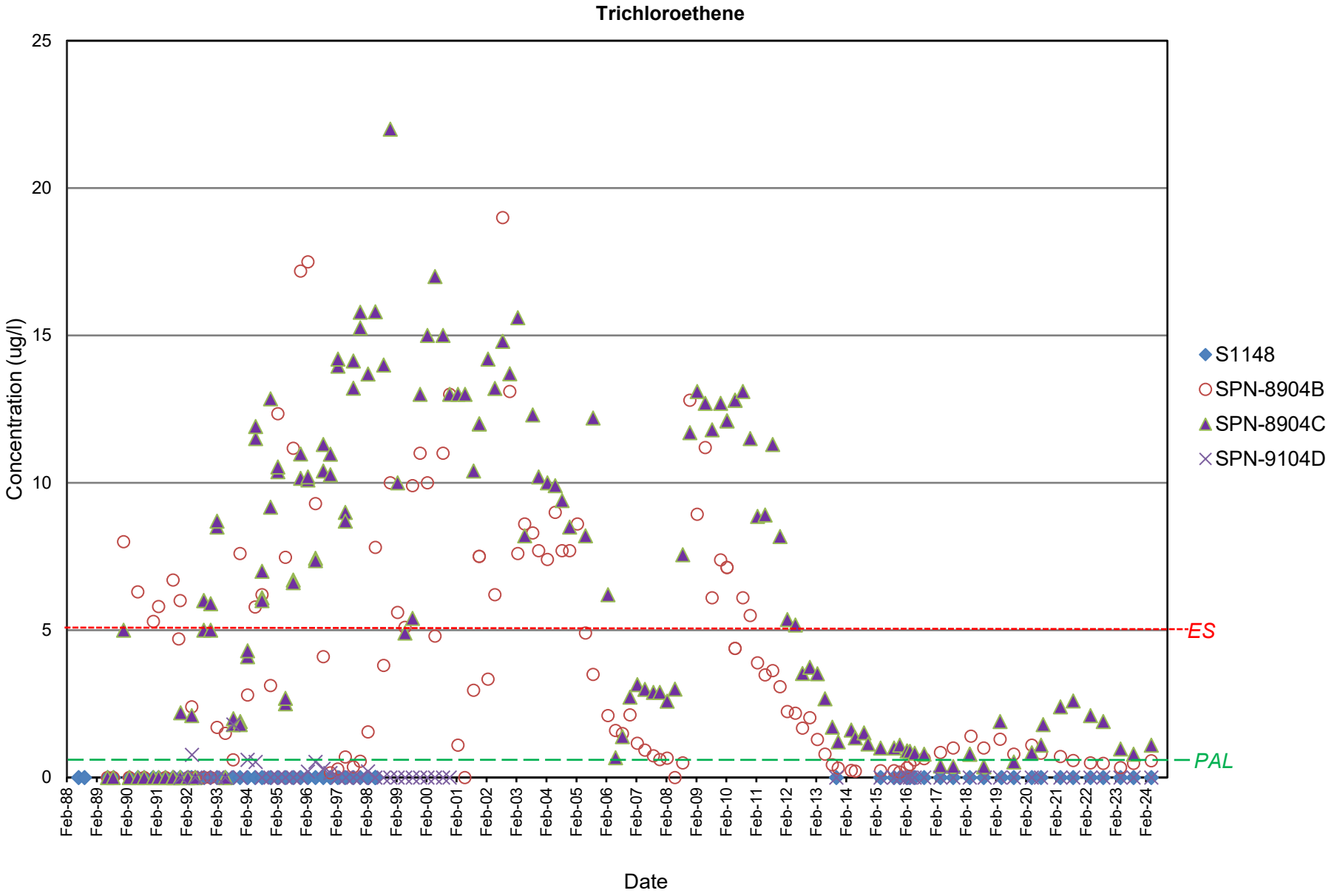
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Onsite



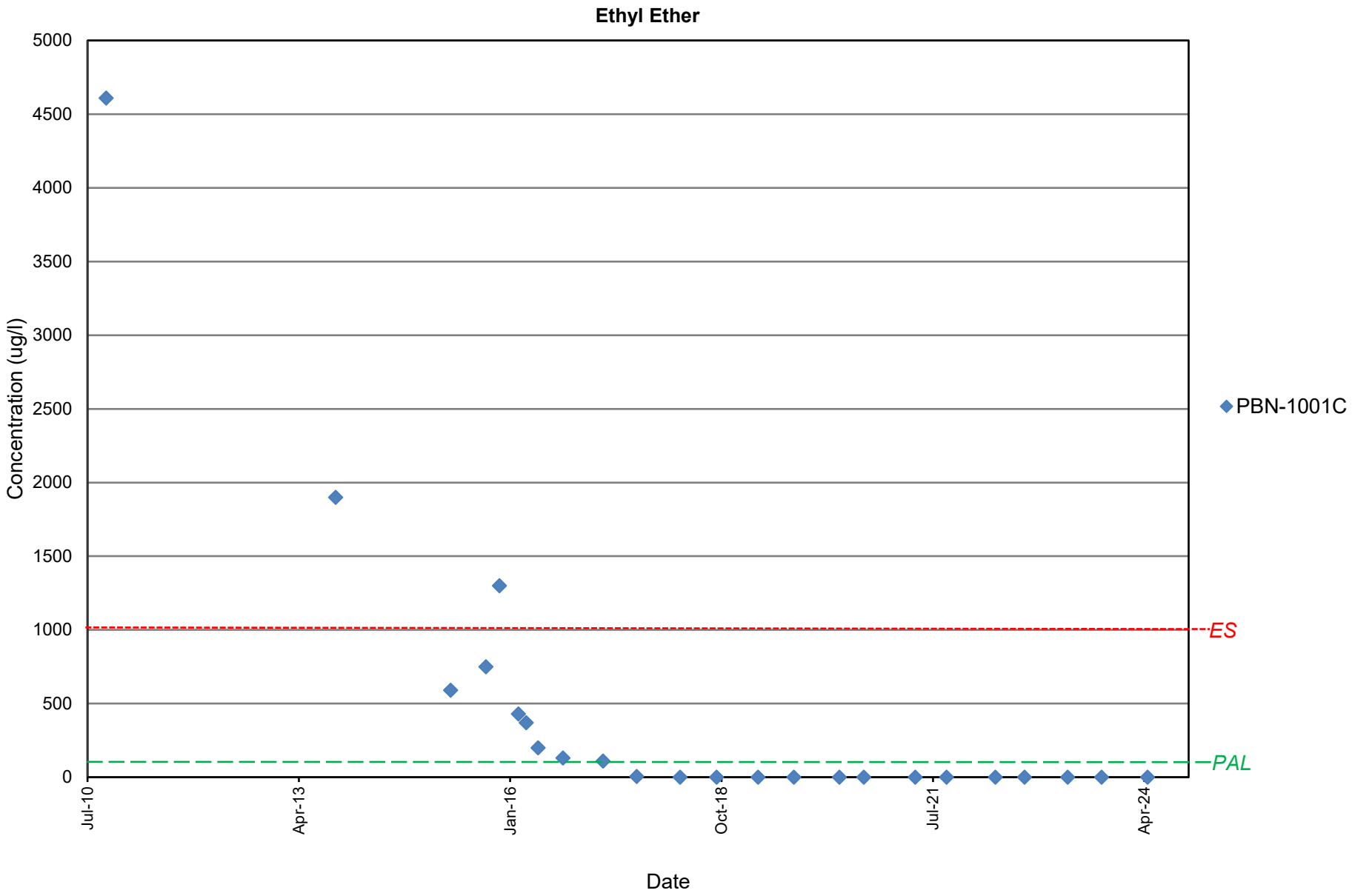
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Onsite



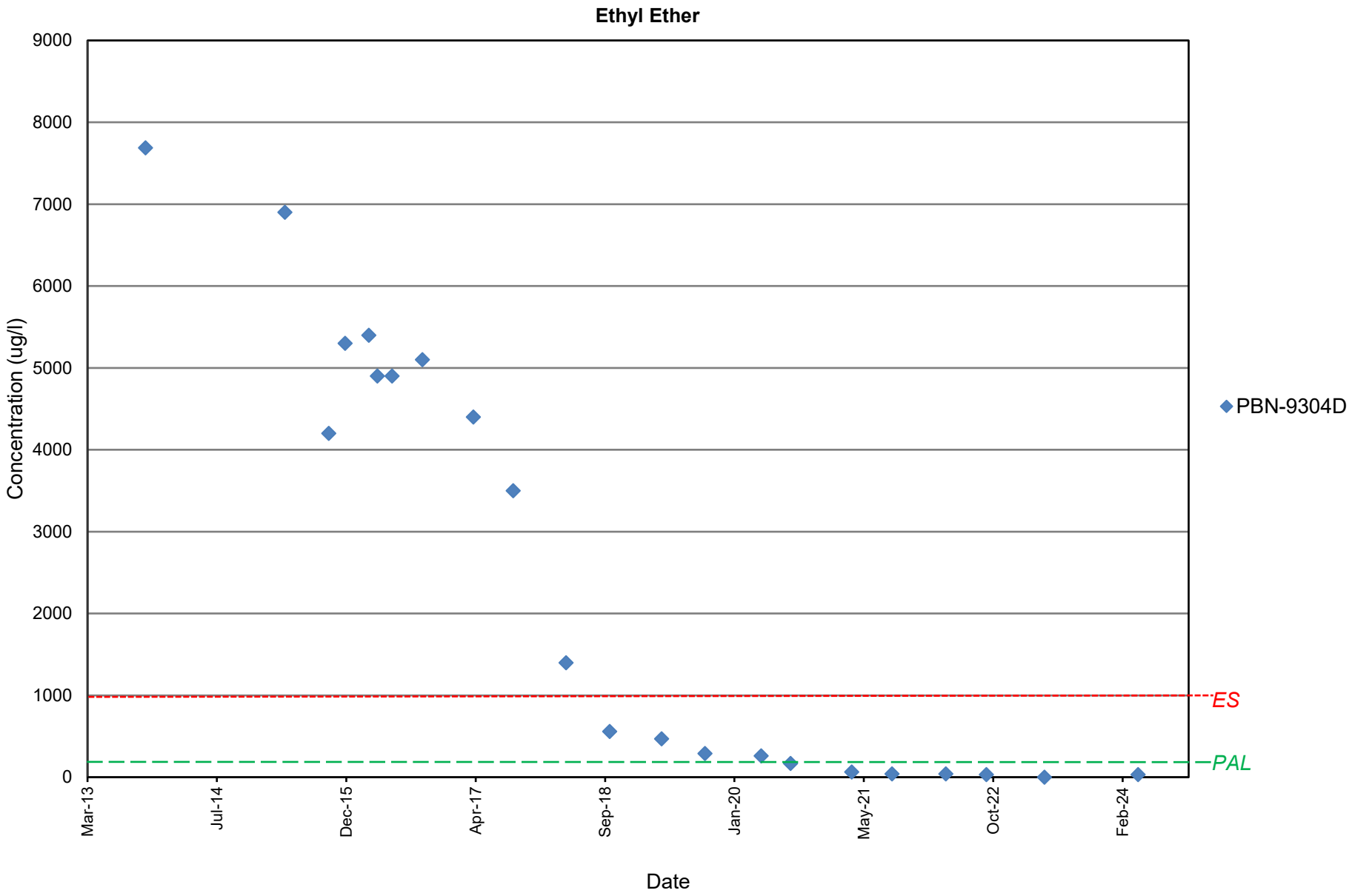
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Onsite



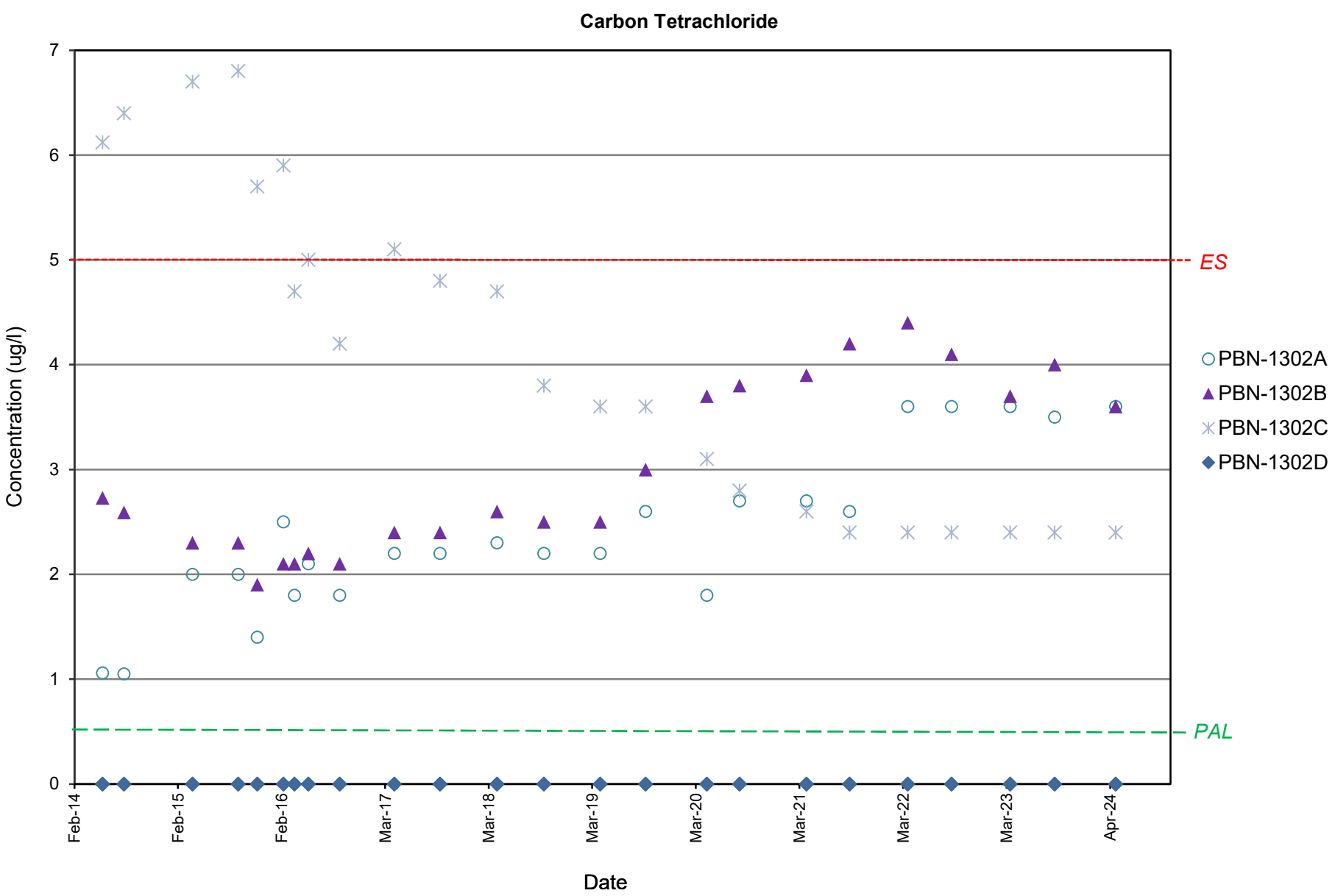
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Onsite



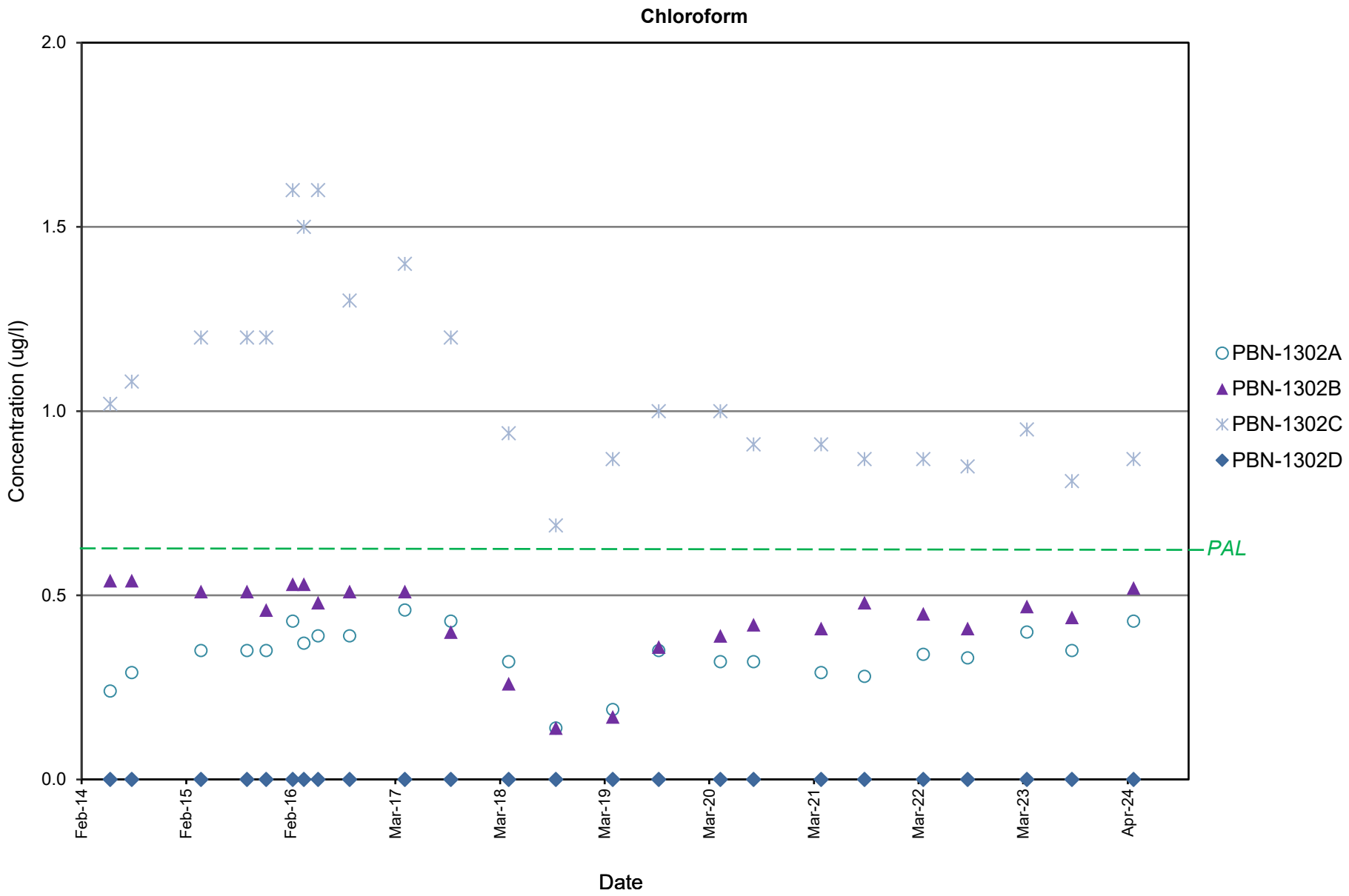
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Onsite



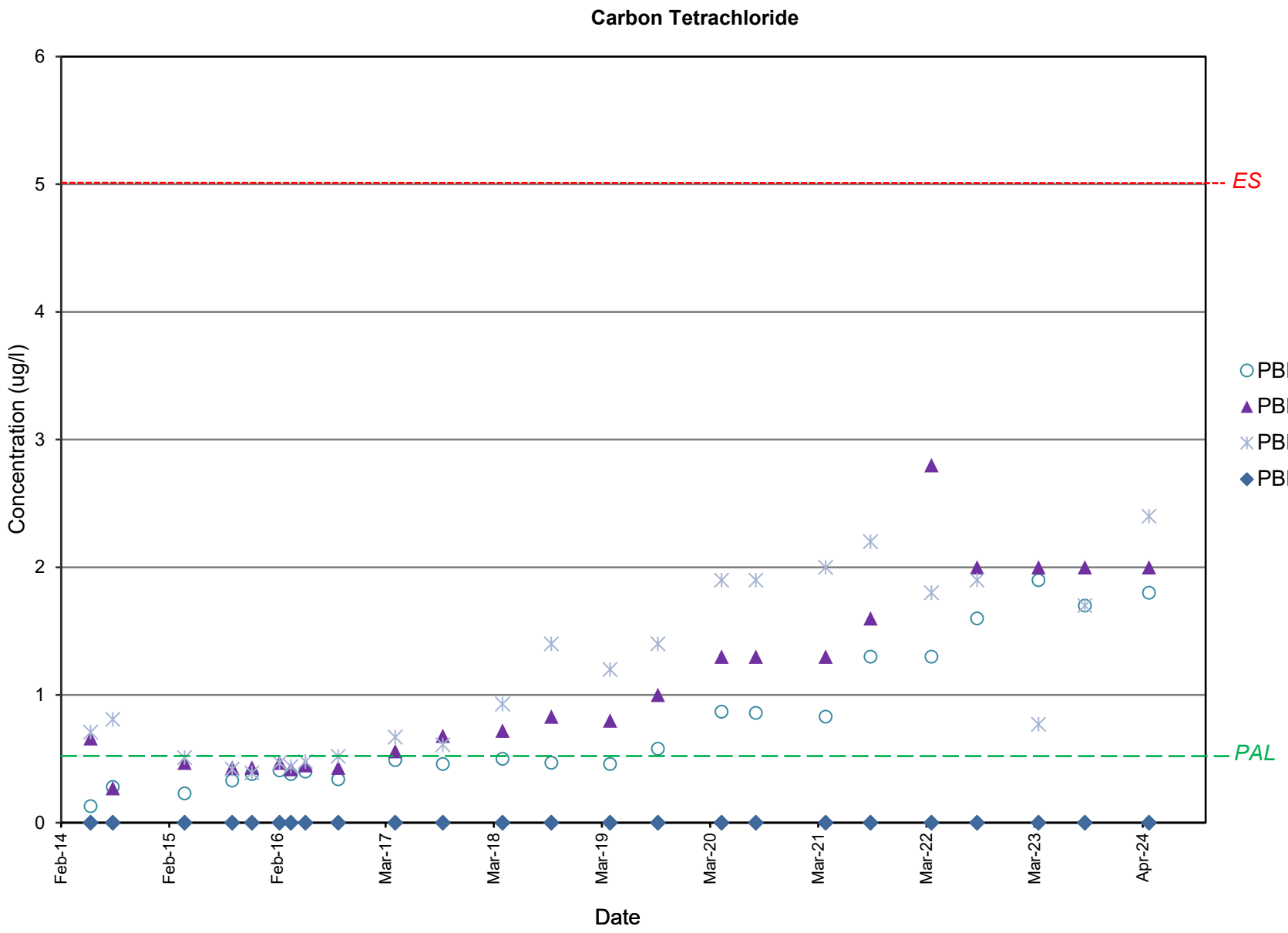
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Onsite



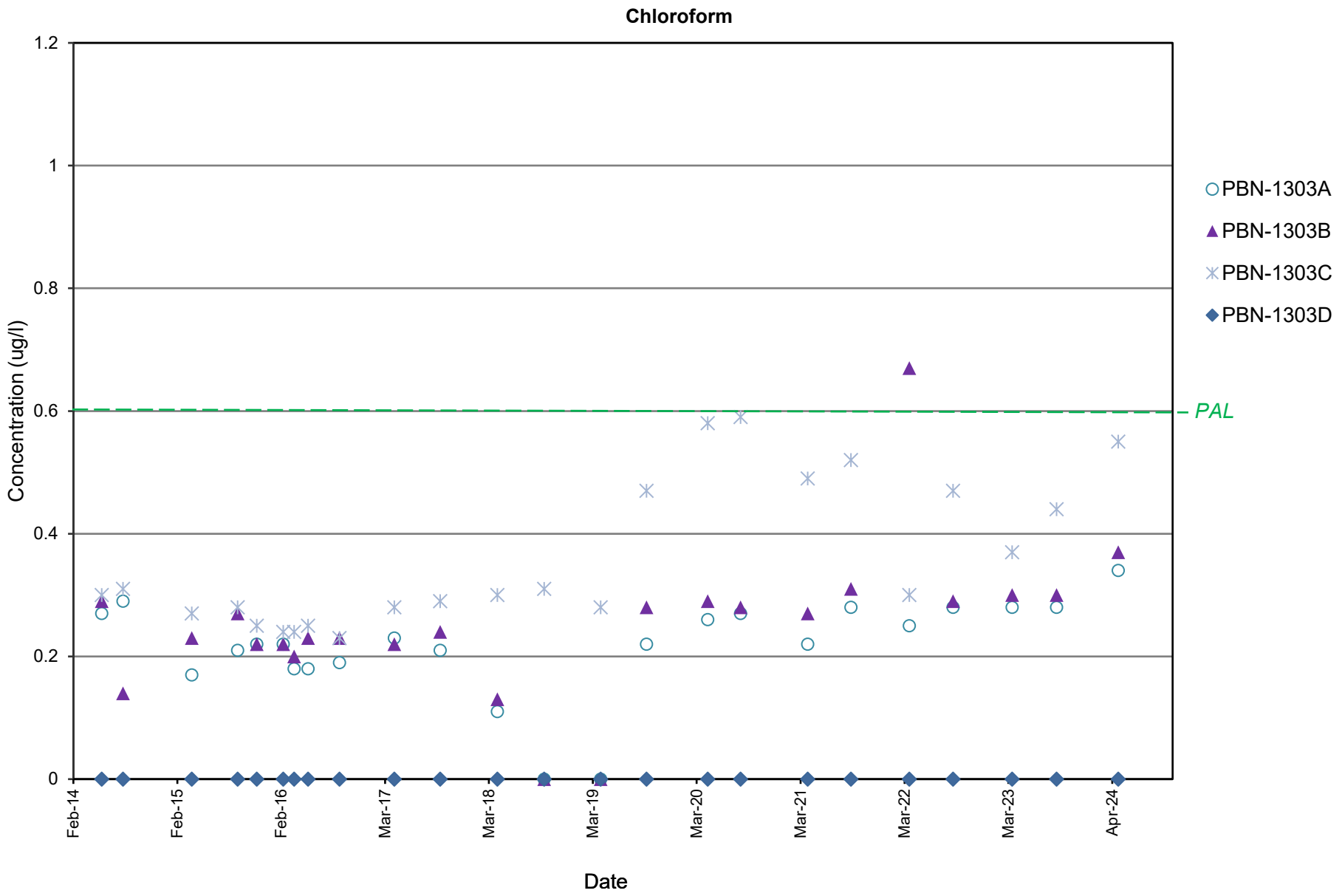
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Onsite



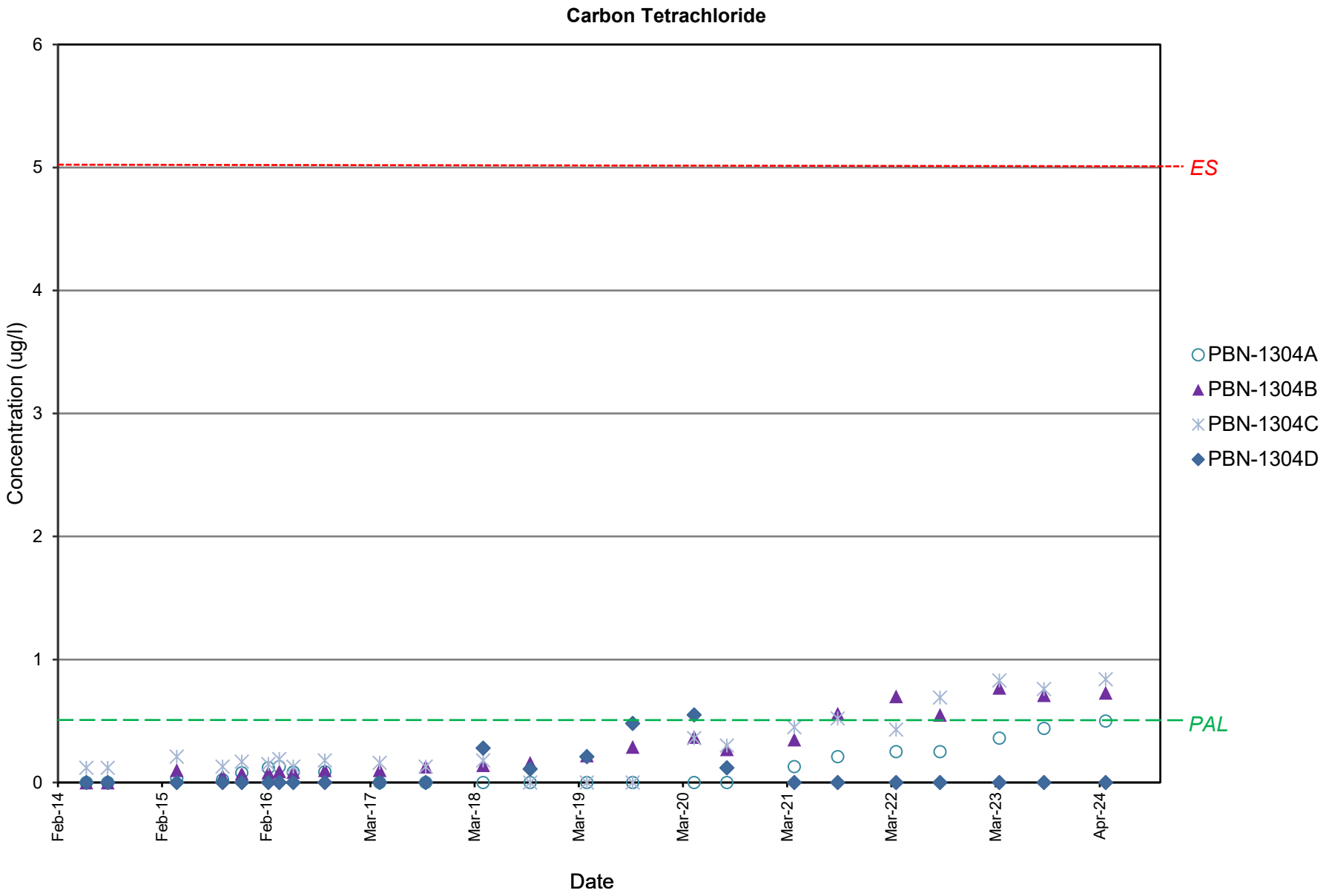
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Onsite



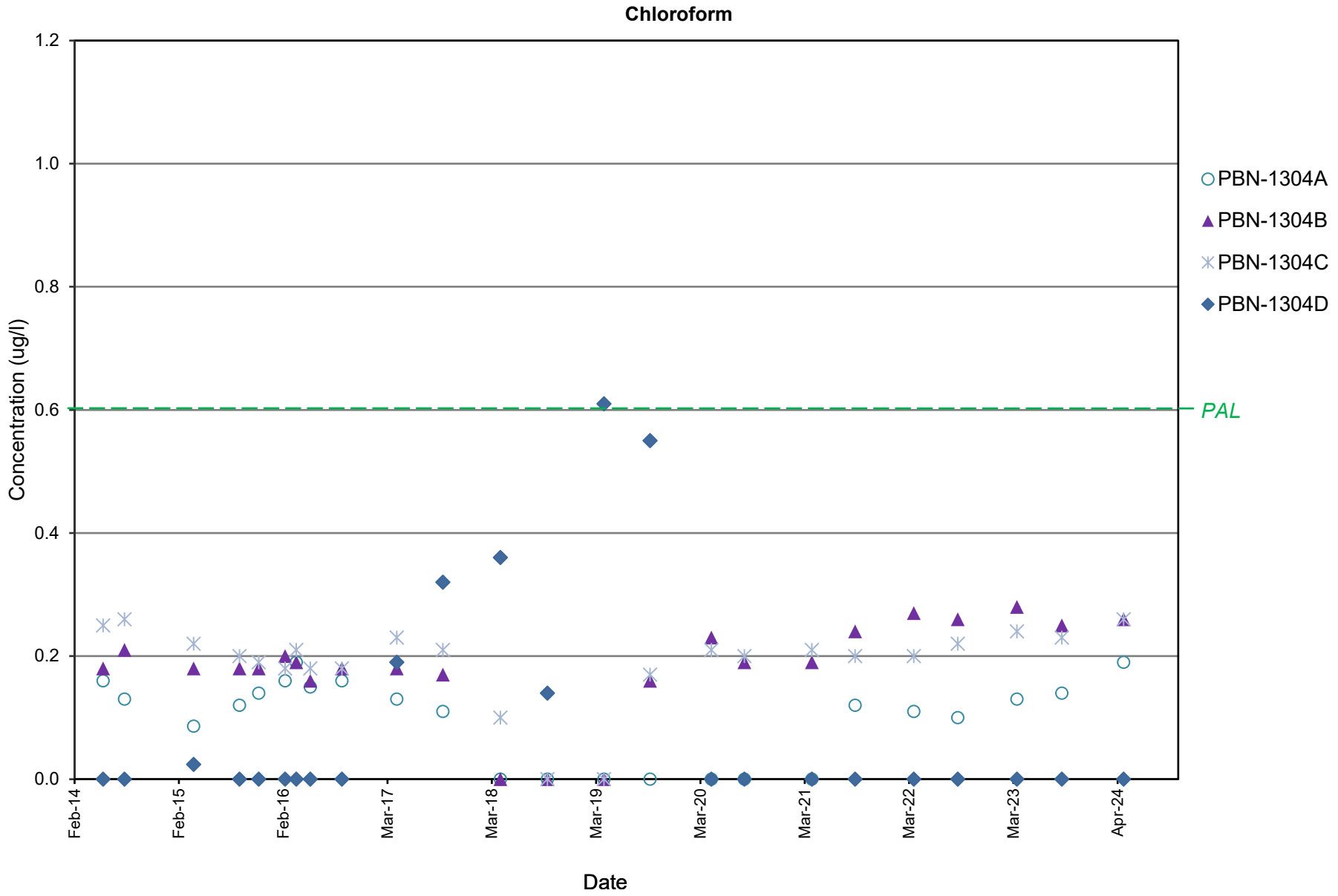
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Onsite



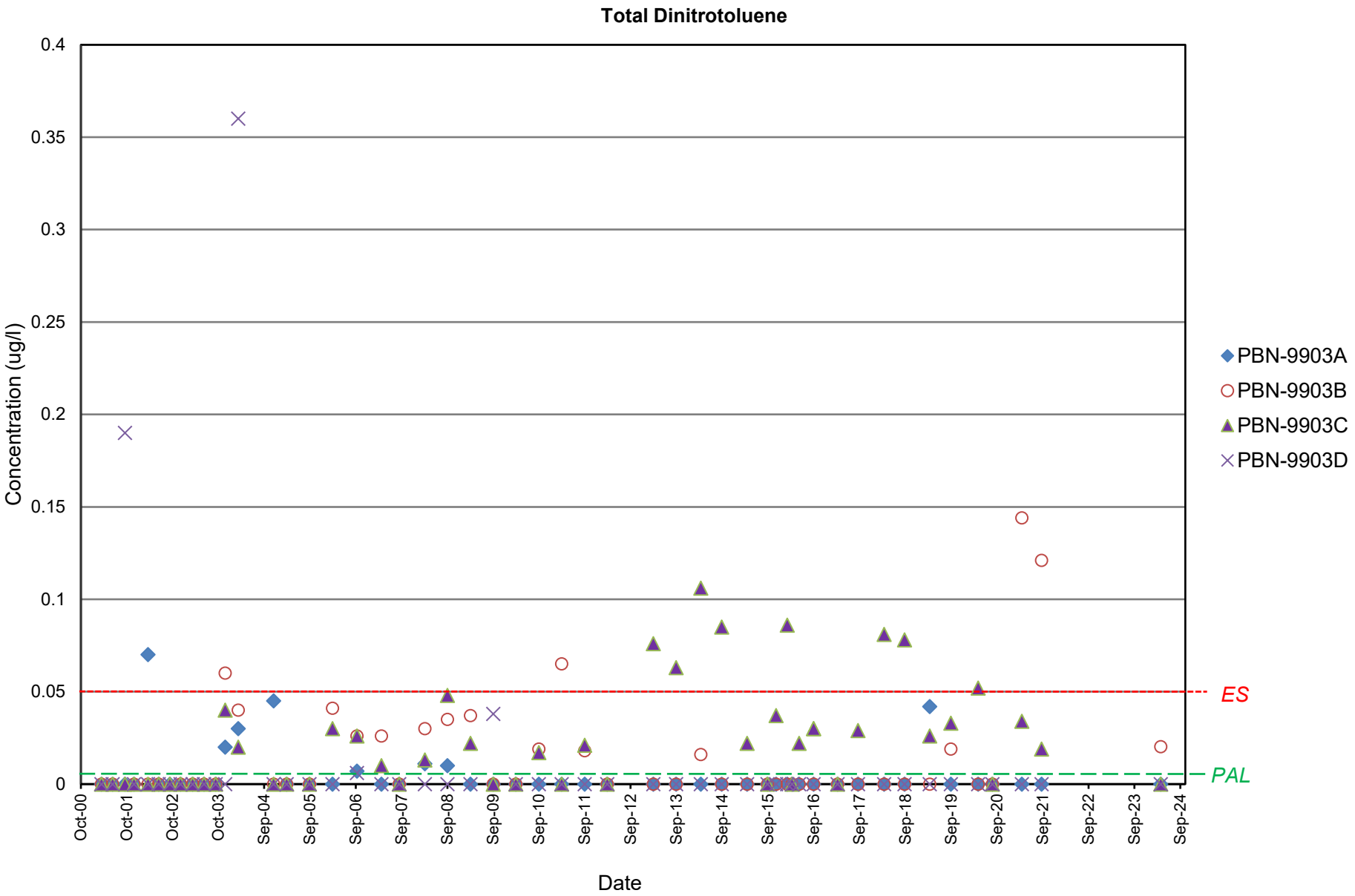
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Onsite



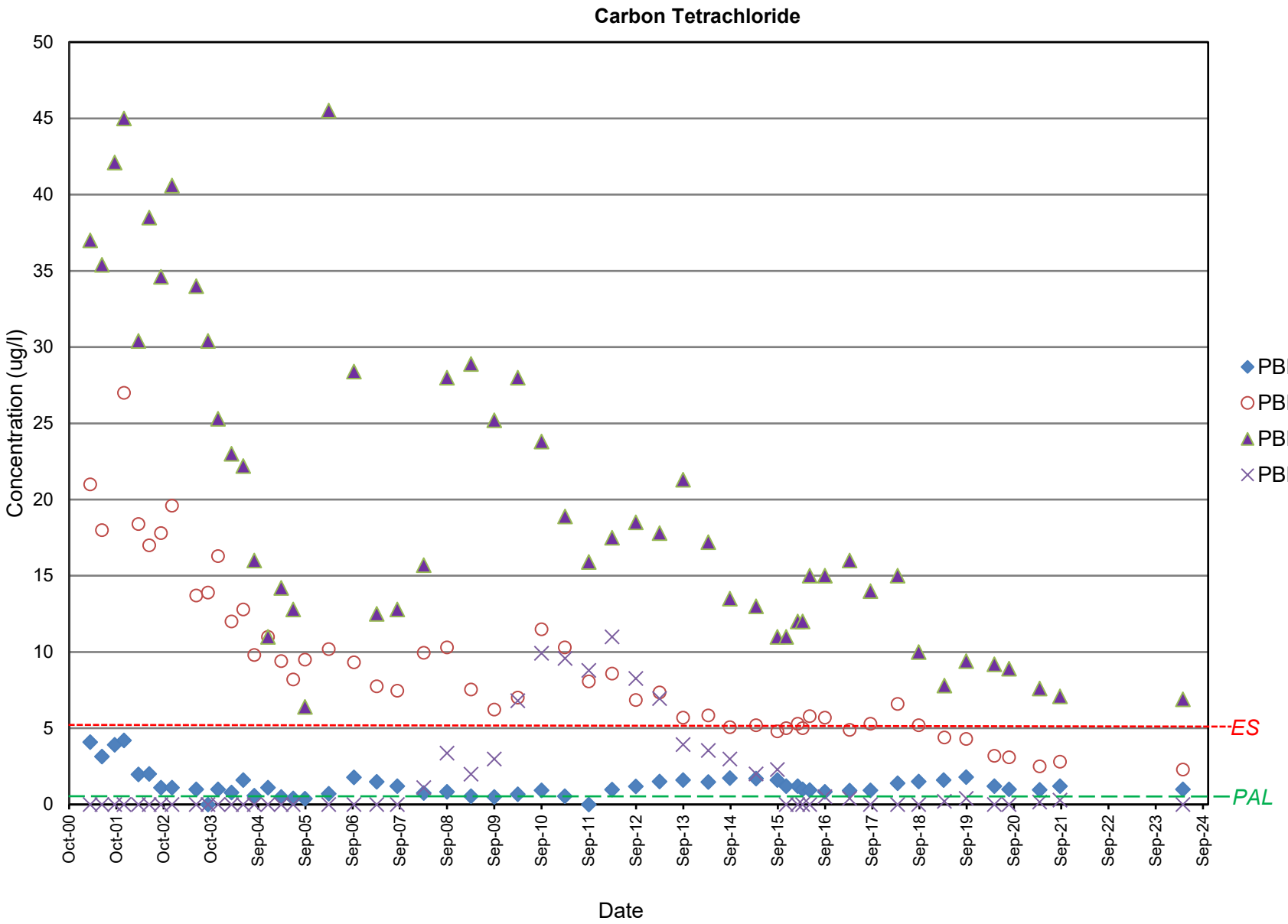
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Onsite



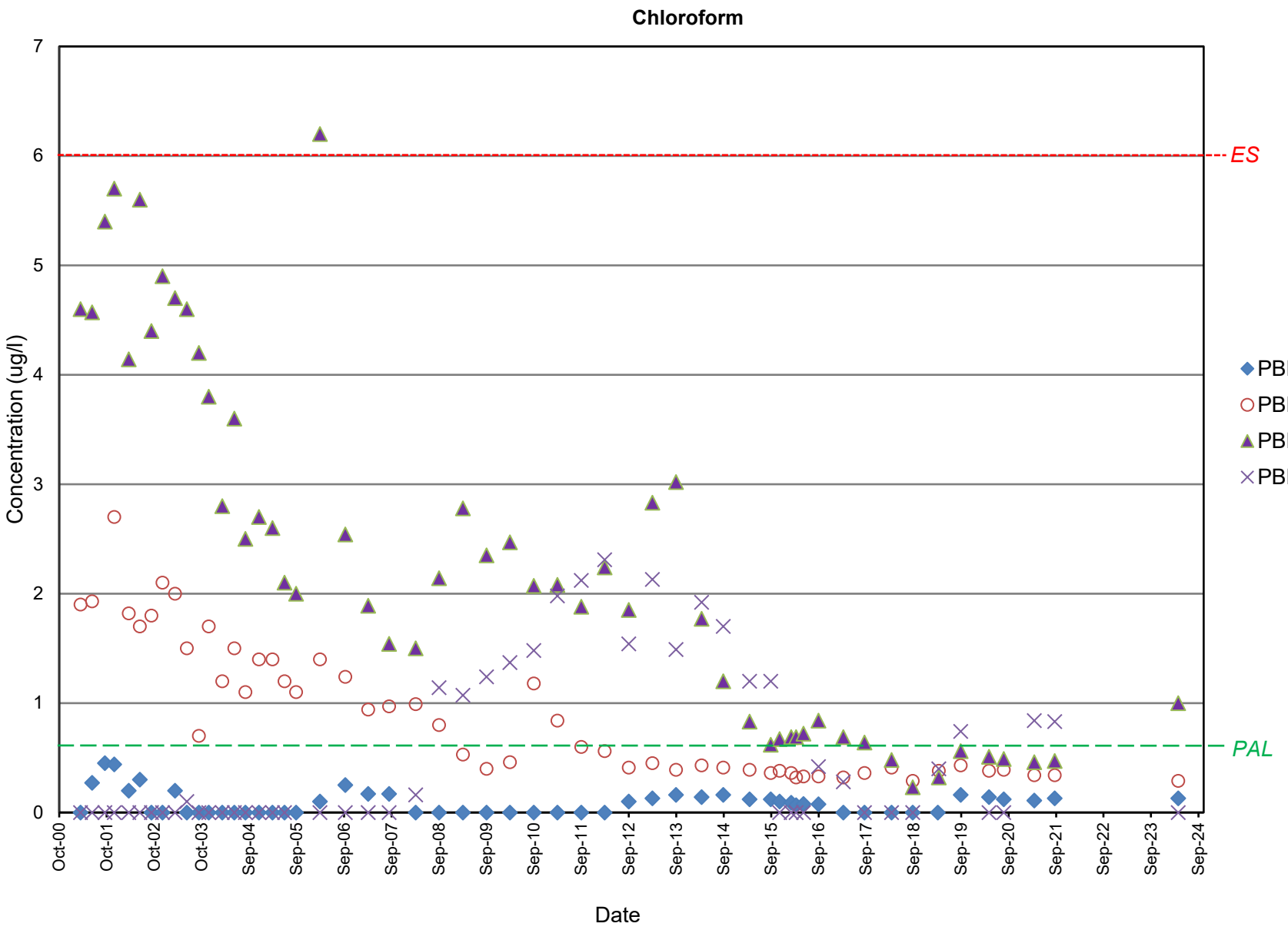
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



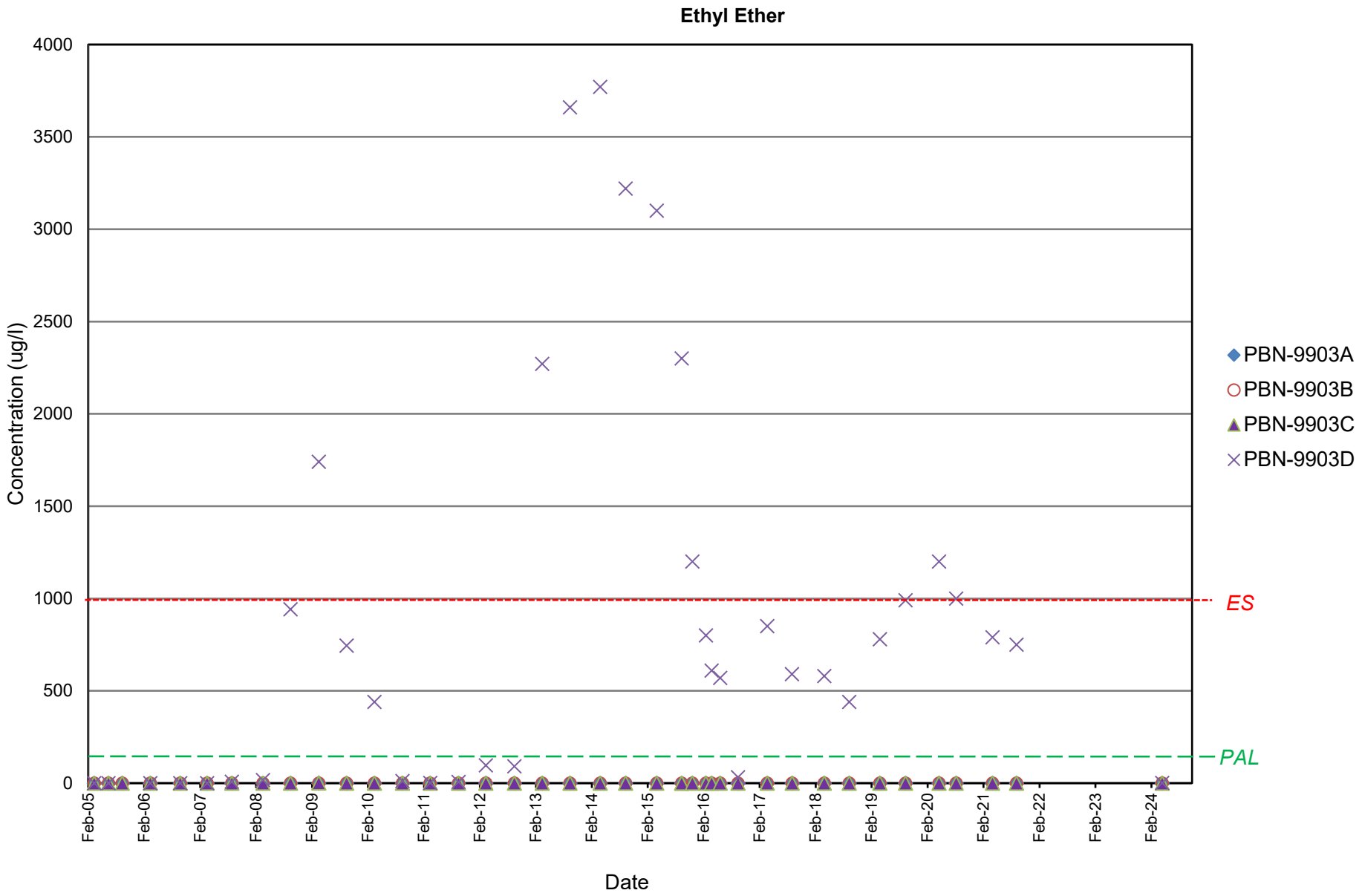
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



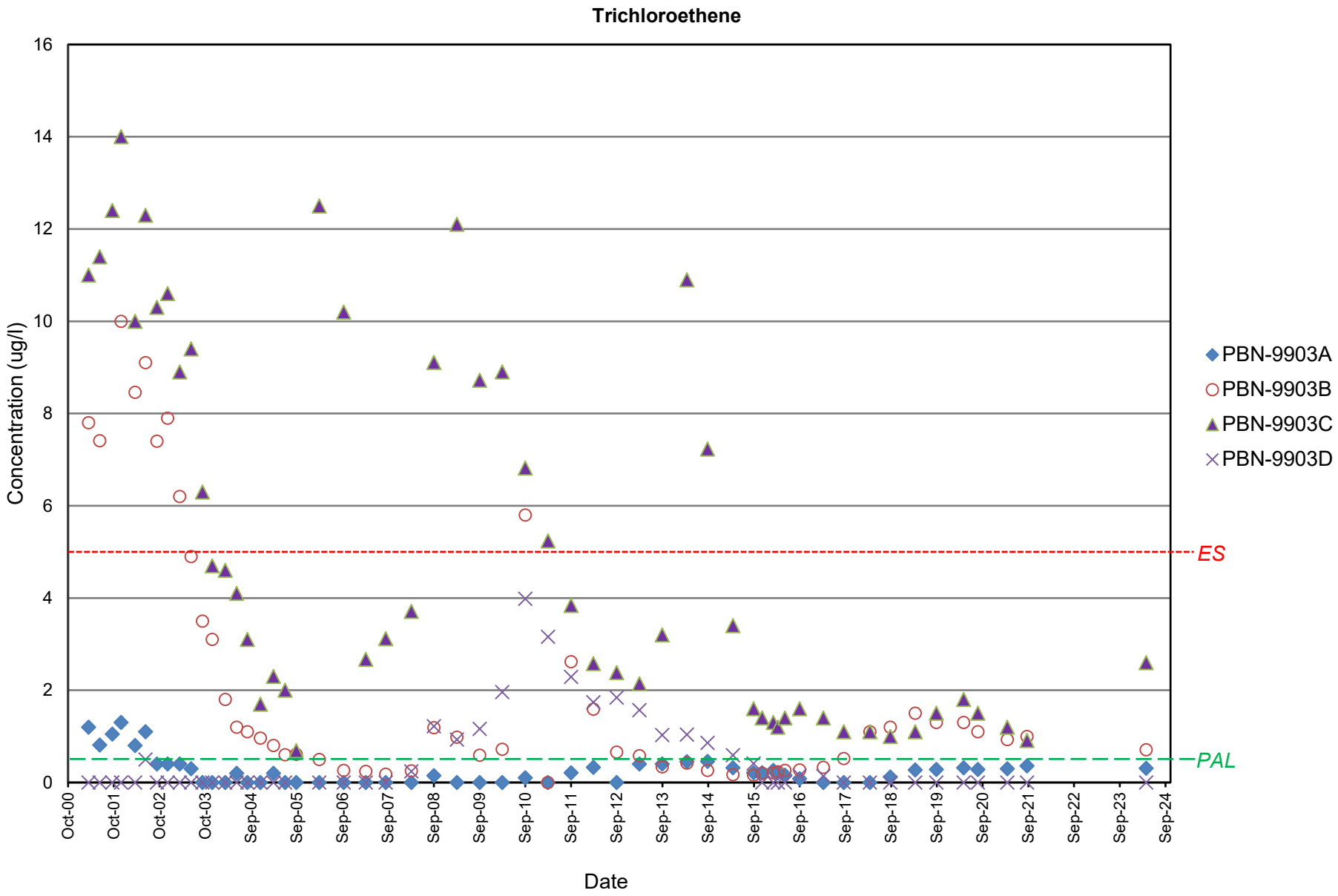
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



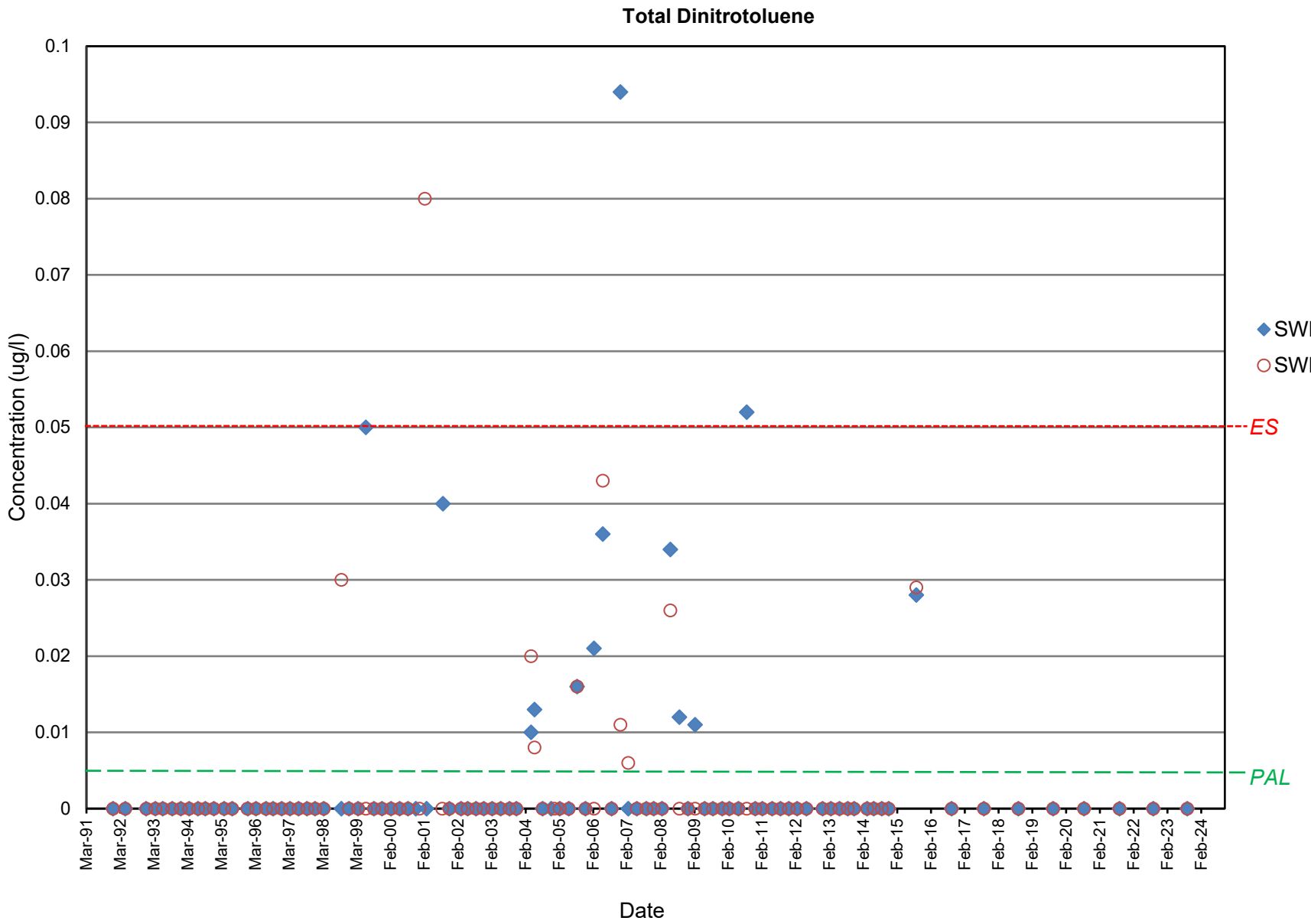
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



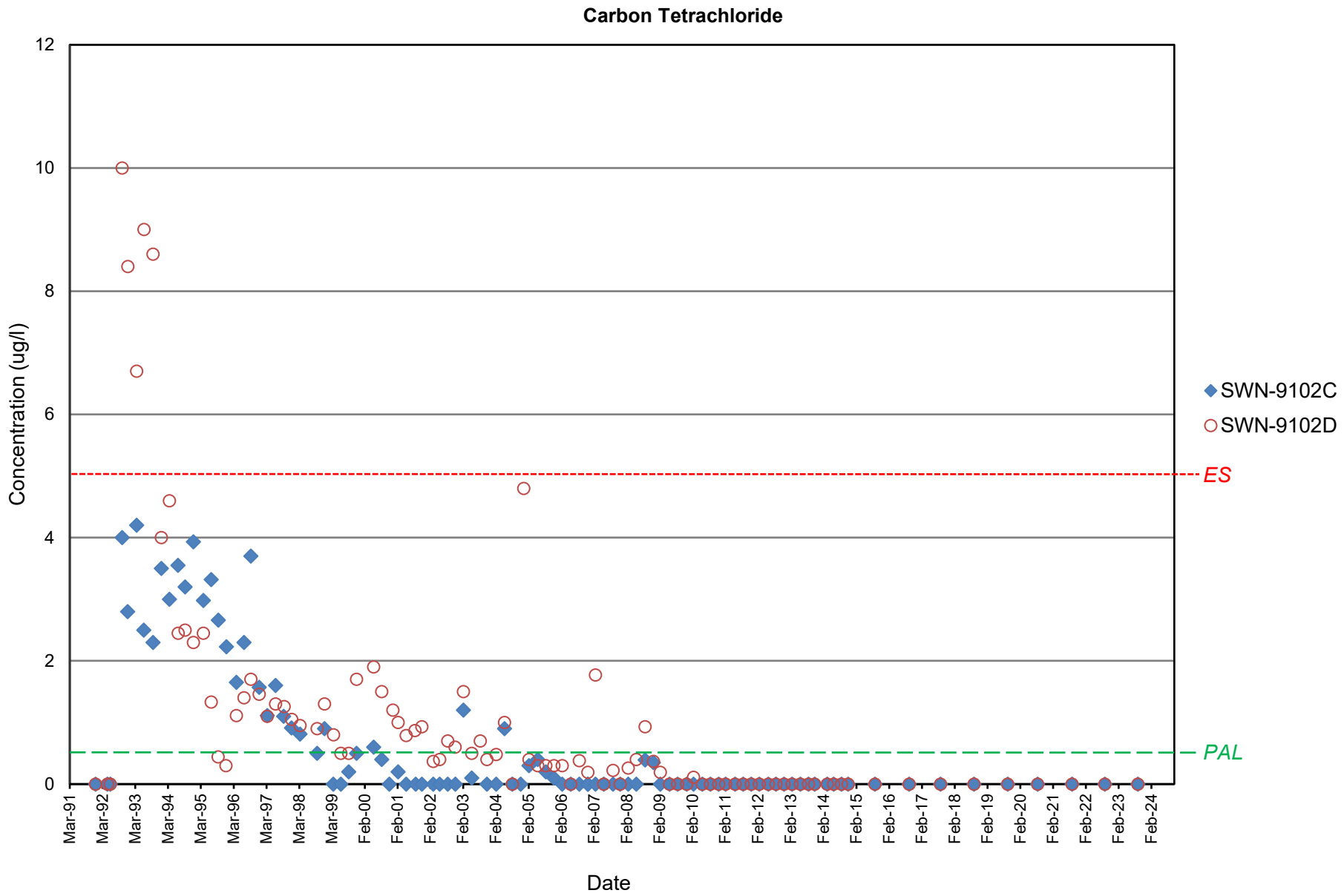
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



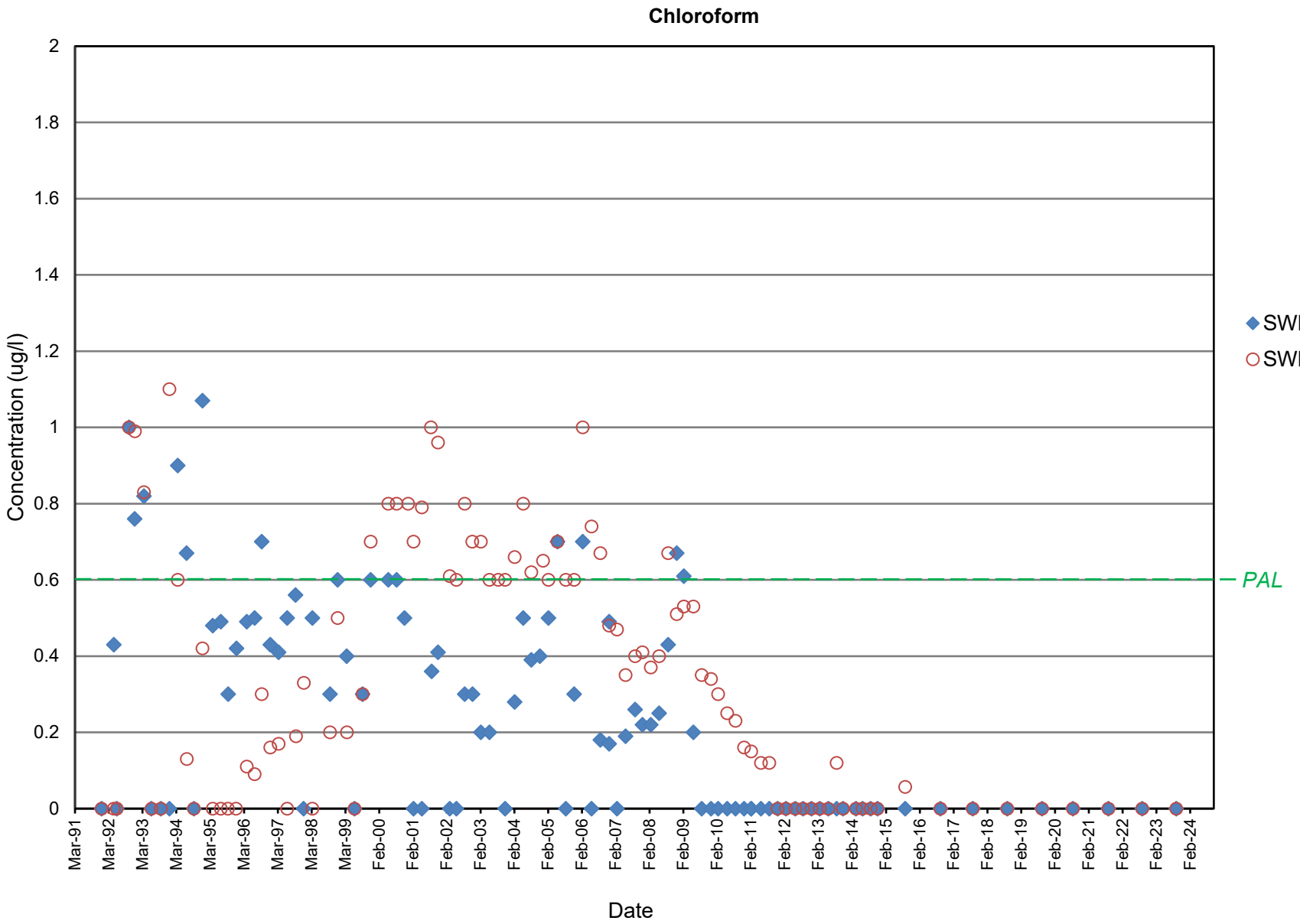
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



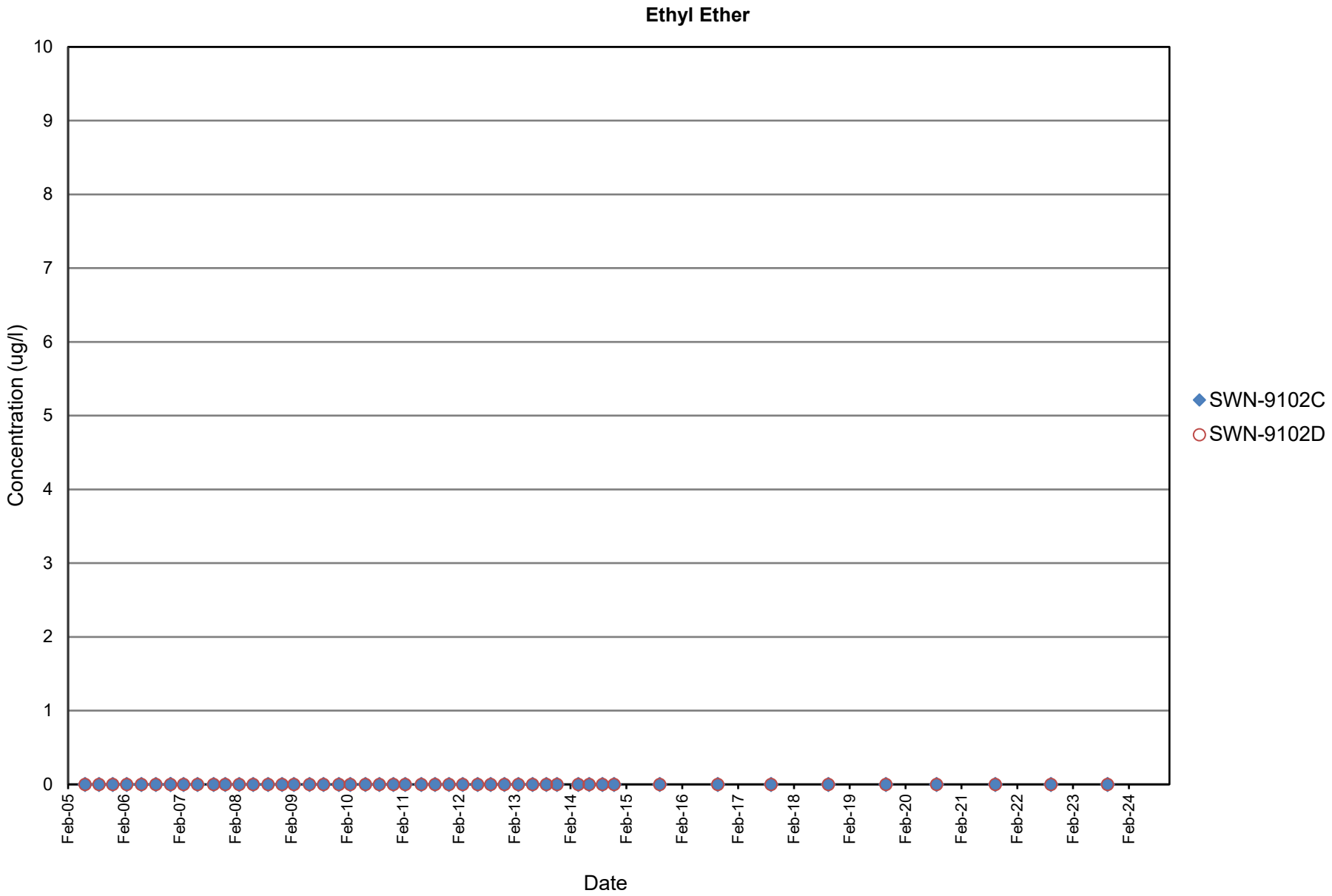
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



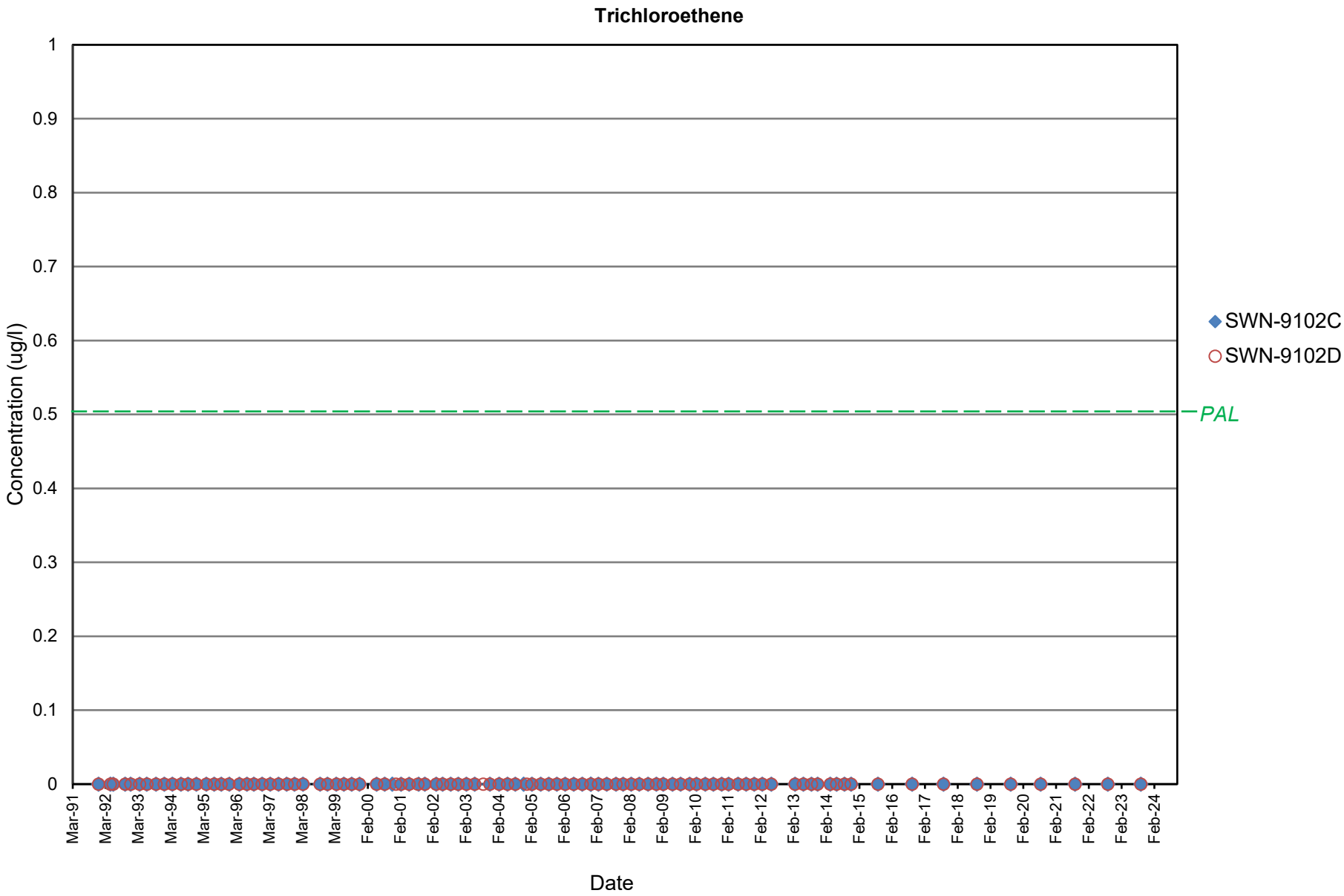
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



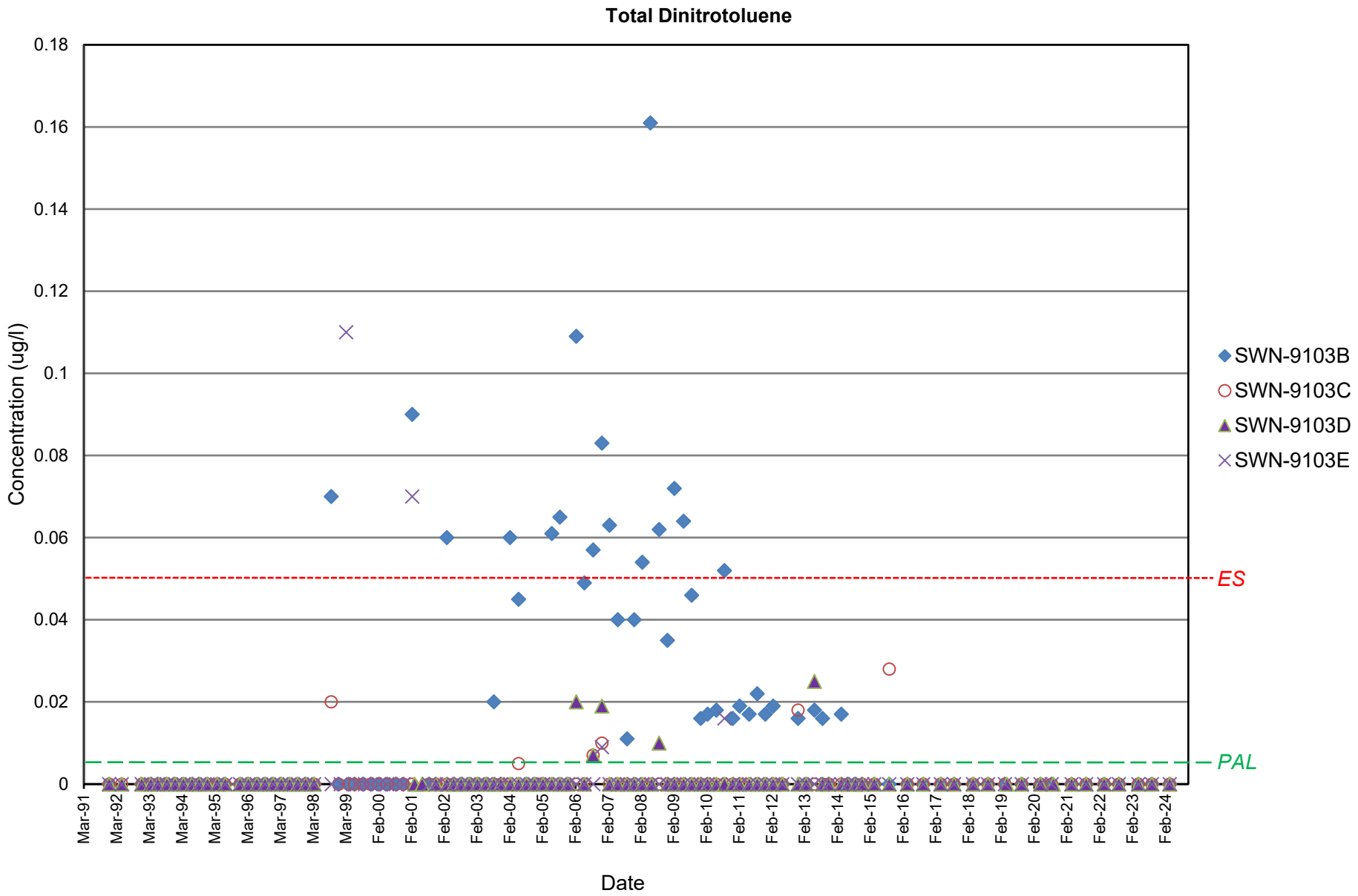
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



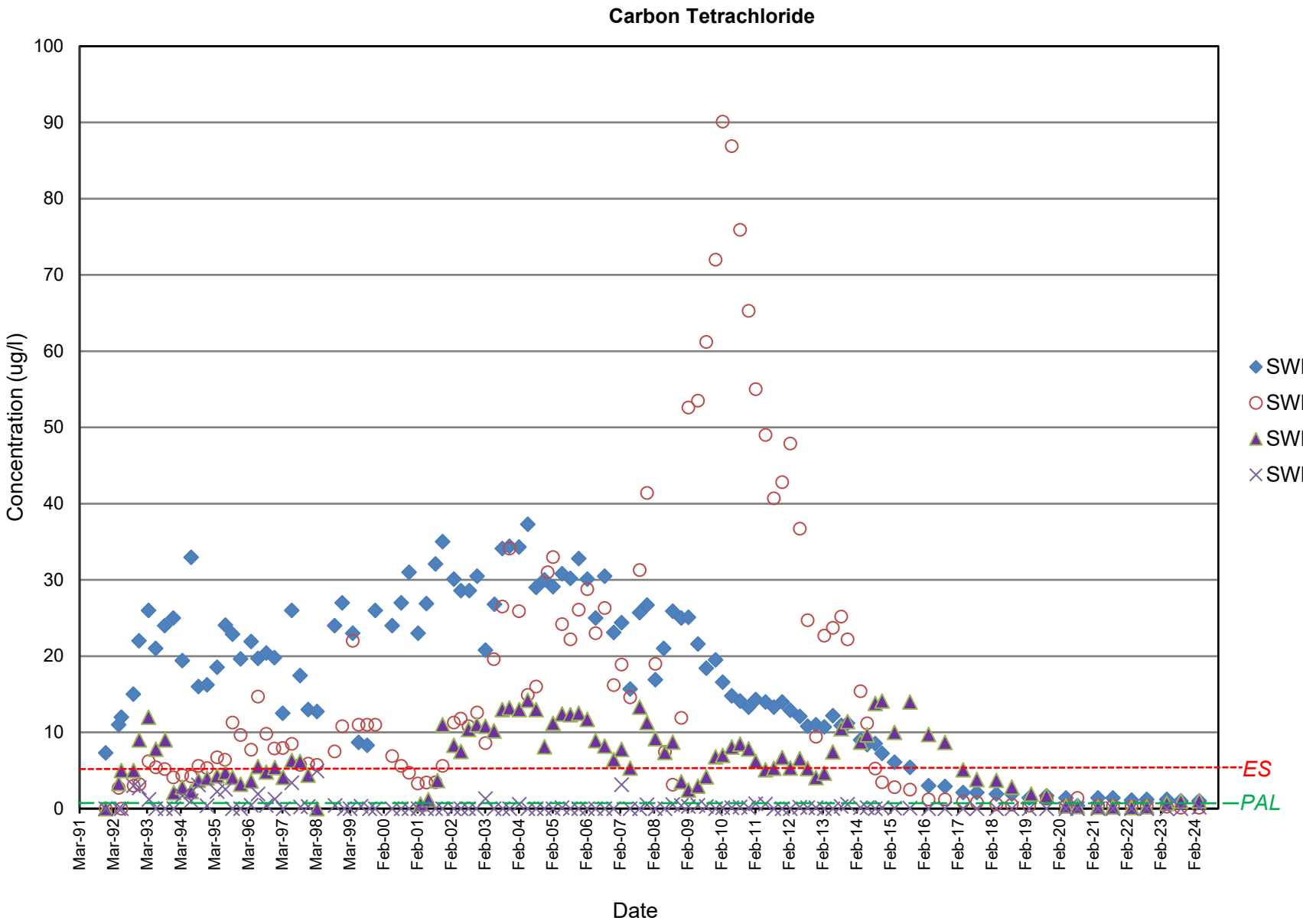
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



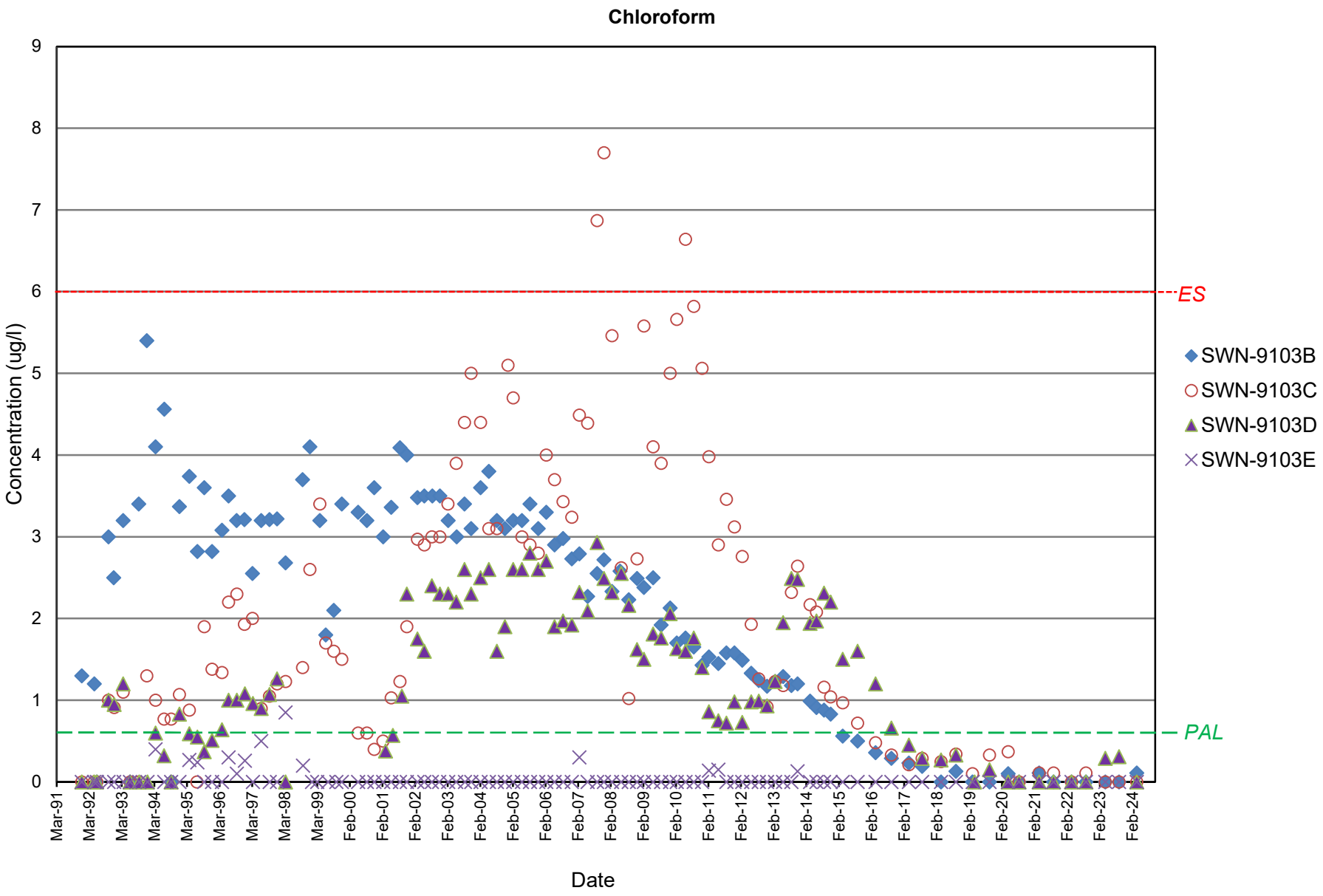
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



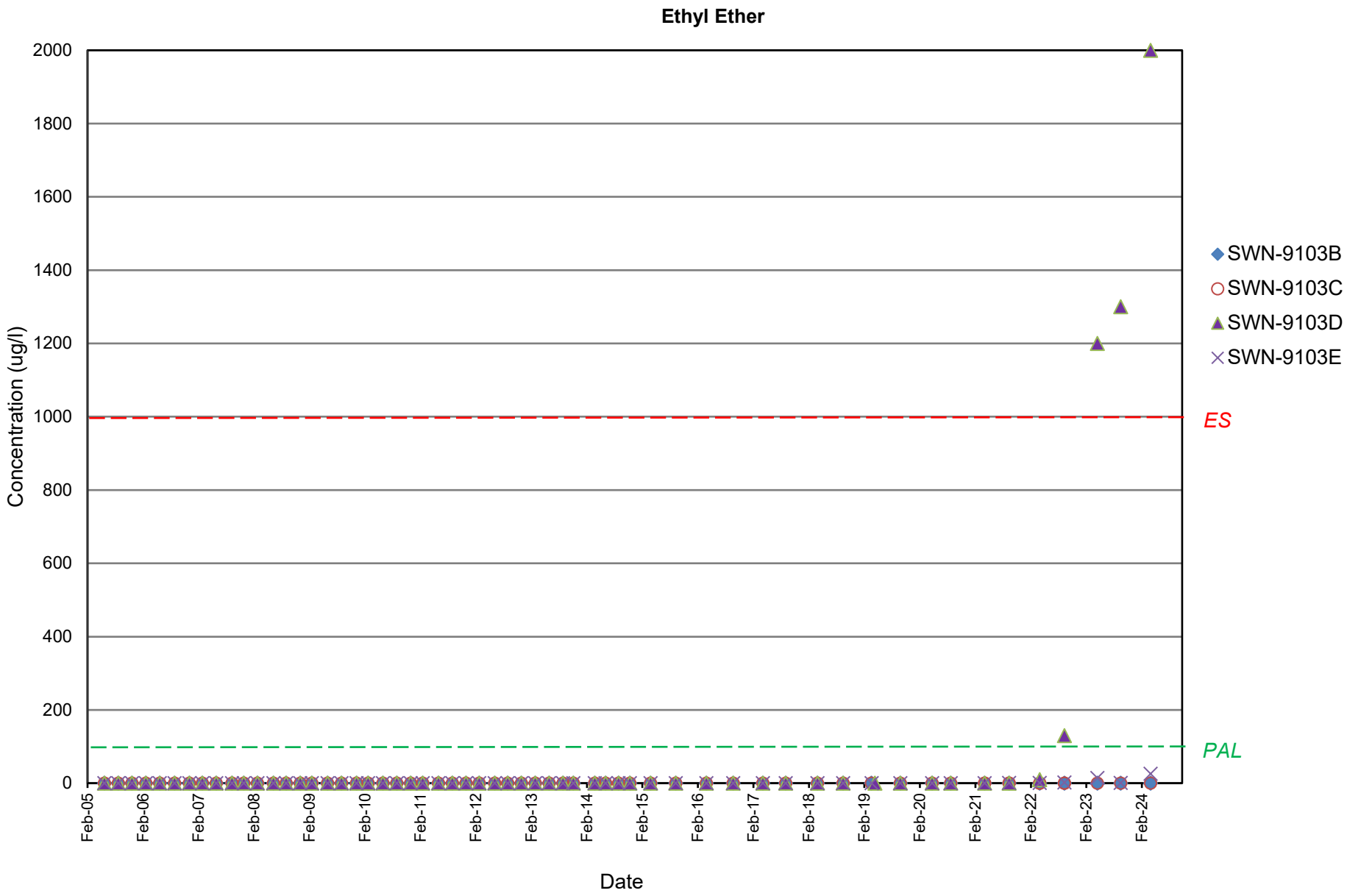
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



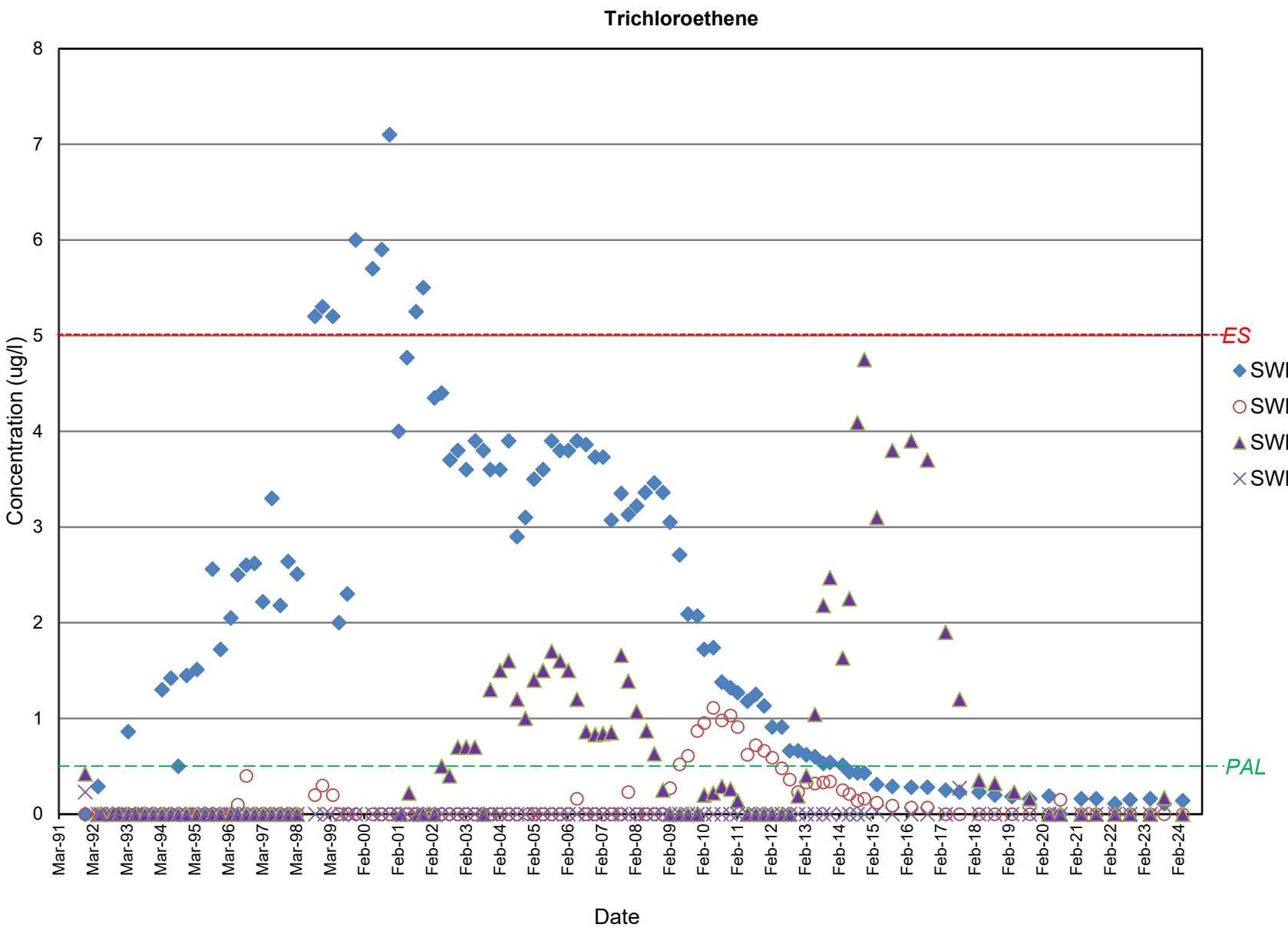
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



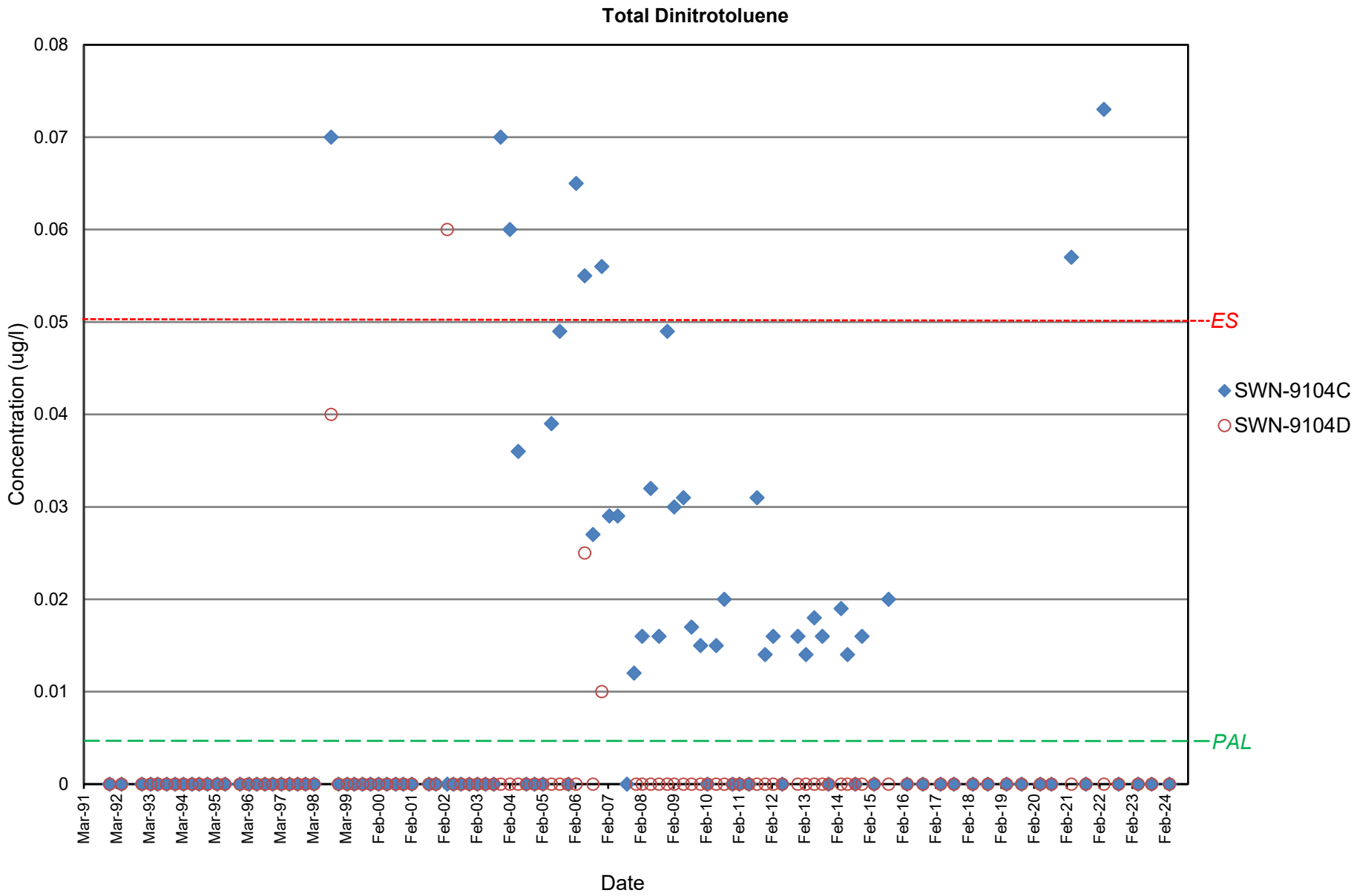
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



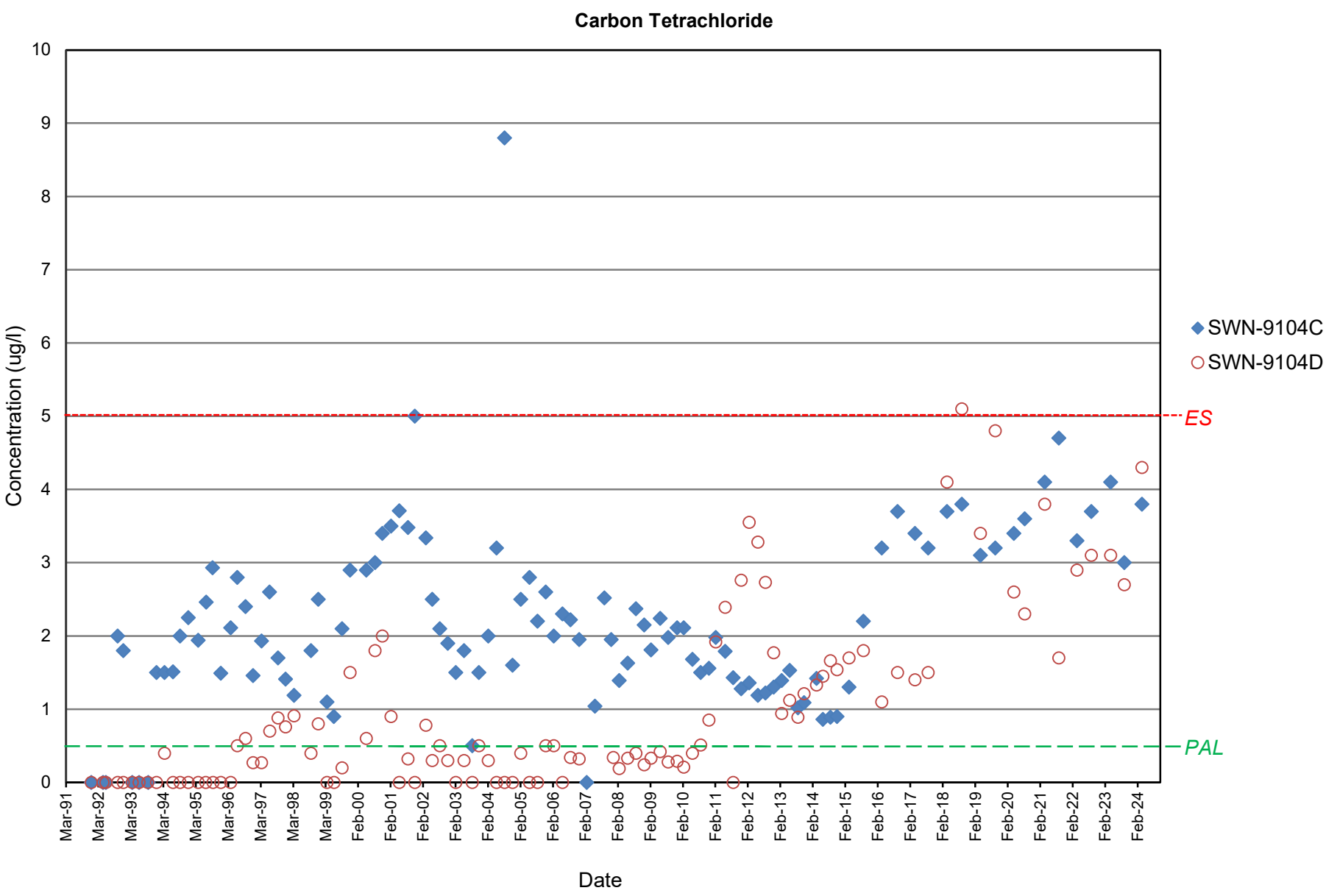
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



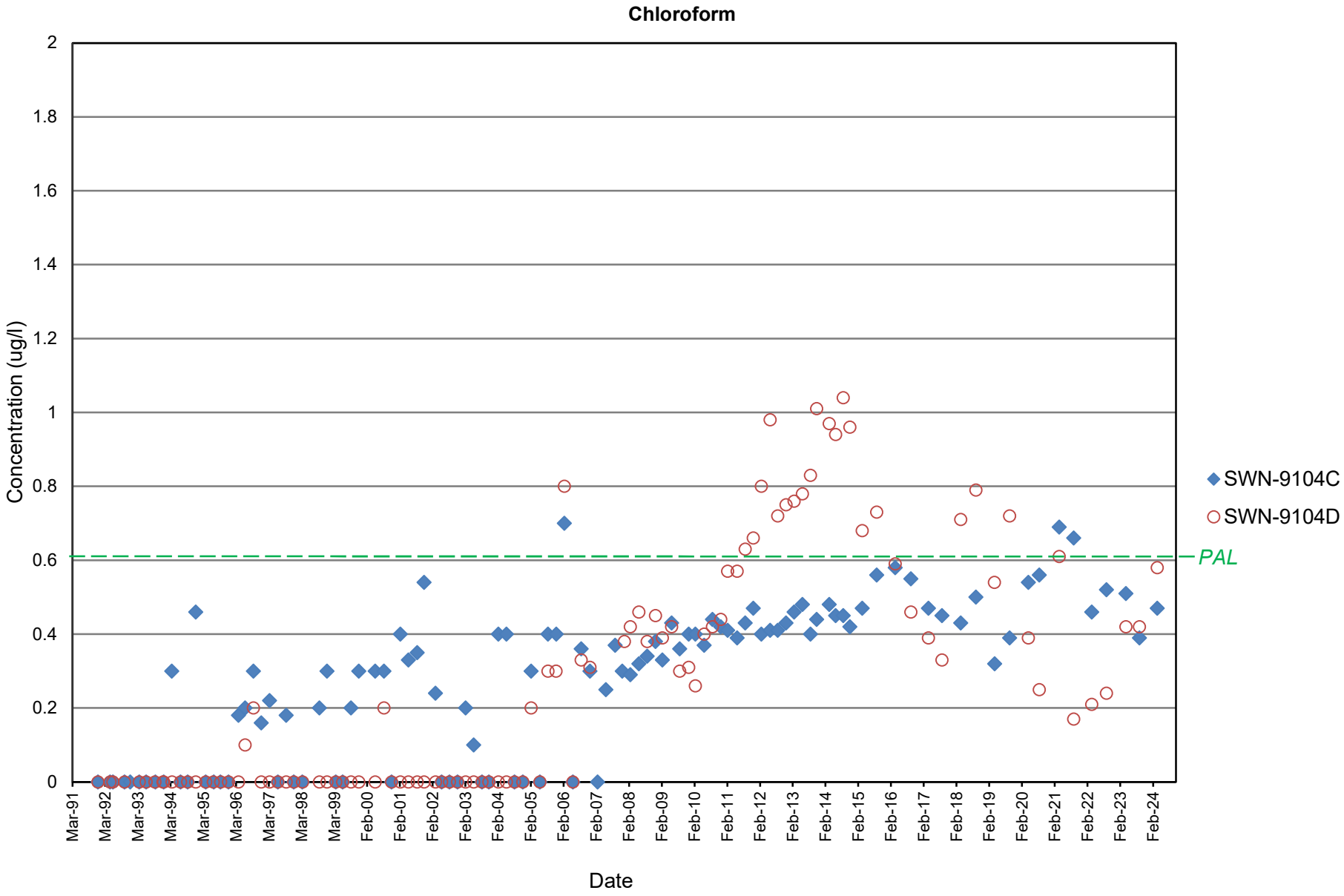
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



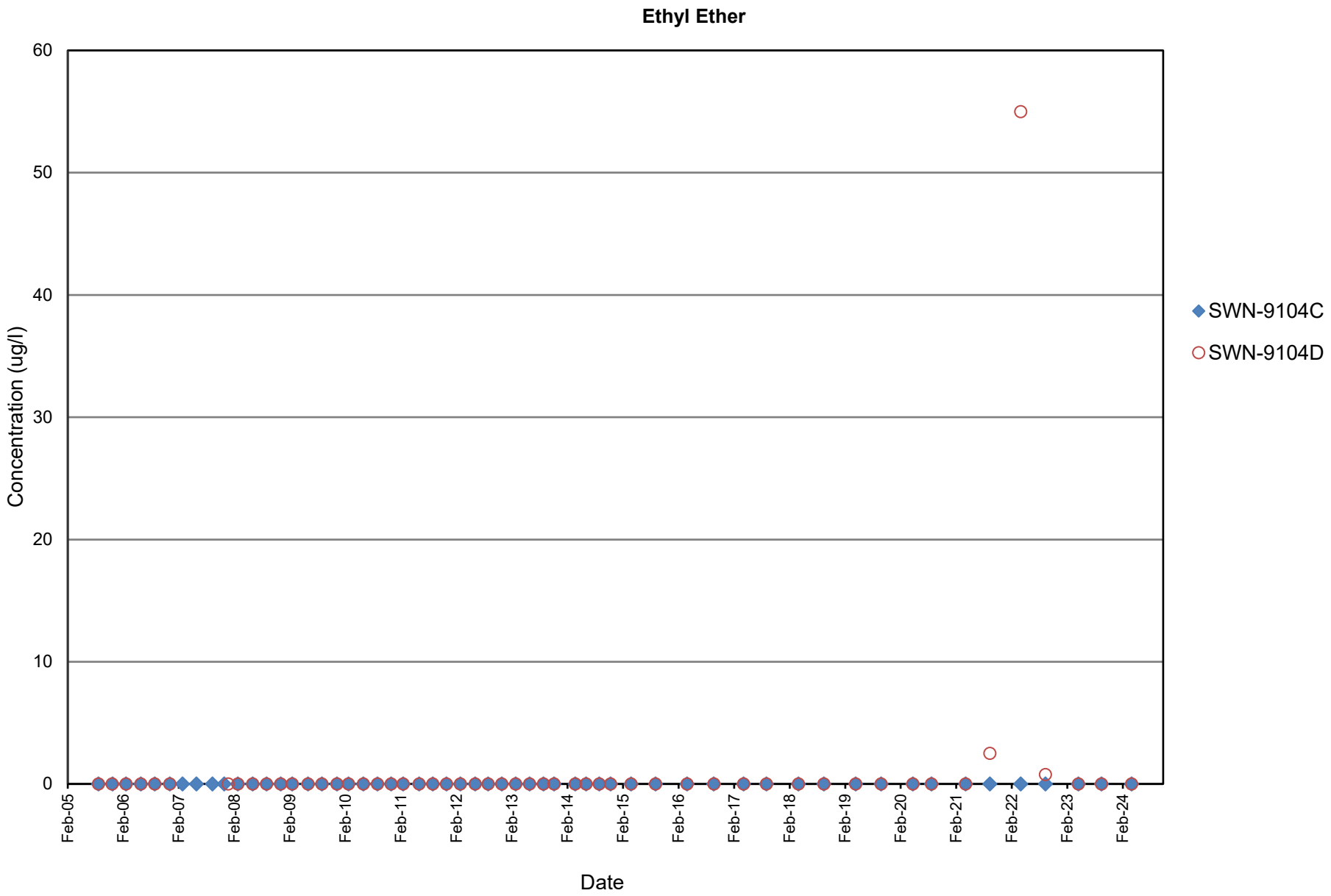
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



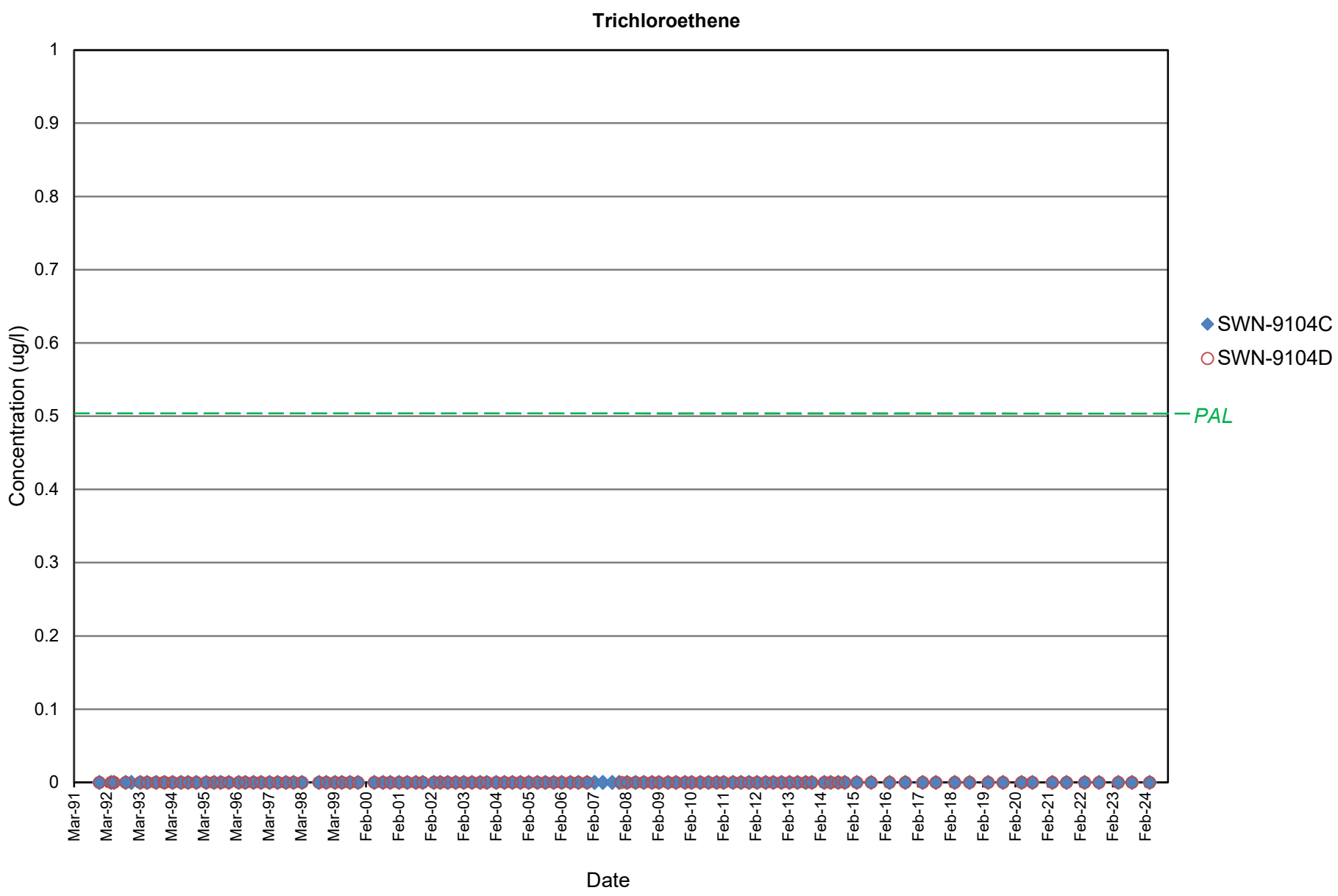
BAAP Groundwater Data | Propellant Burning Ground | Plume Center - Offsite



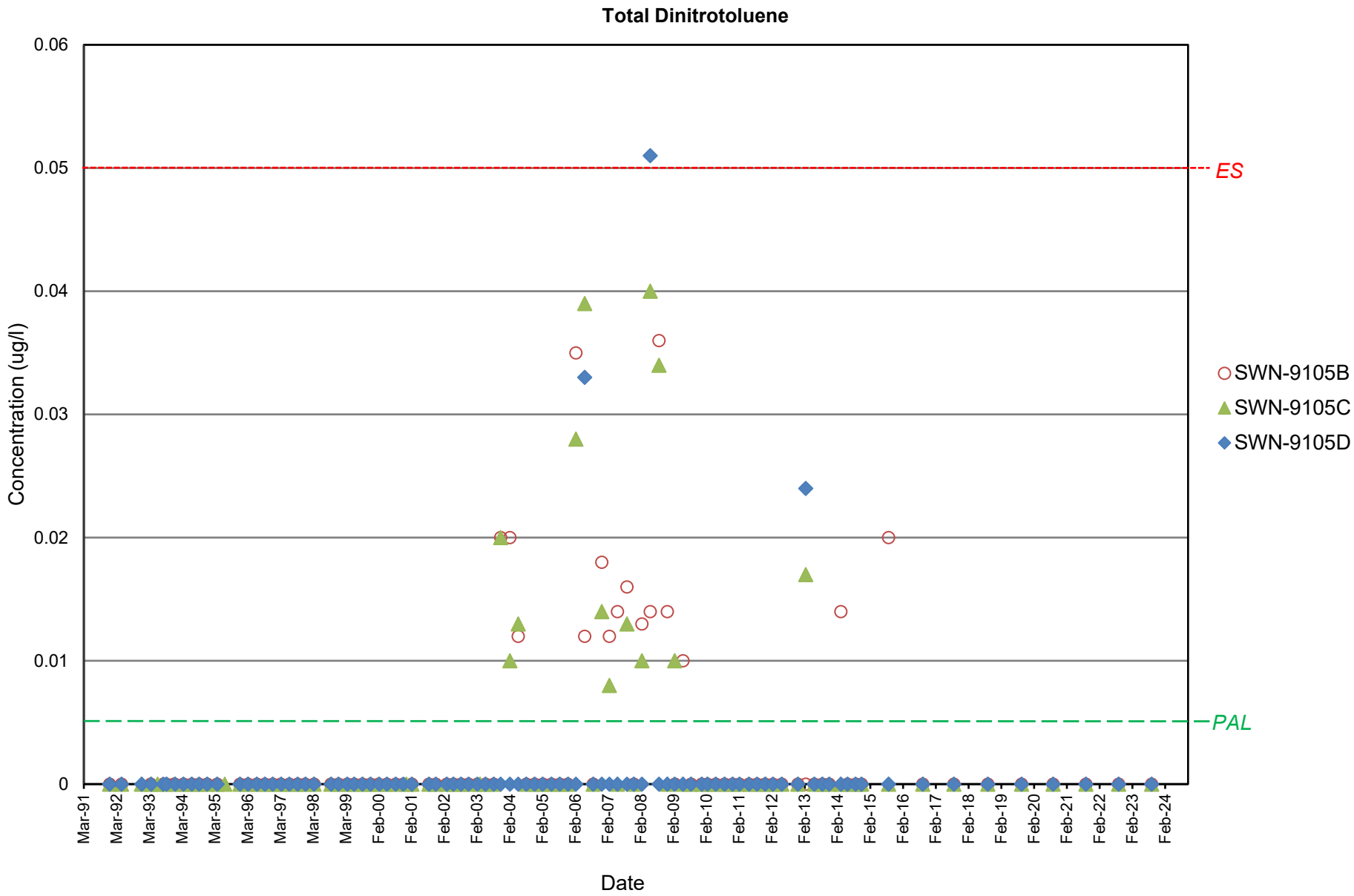
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



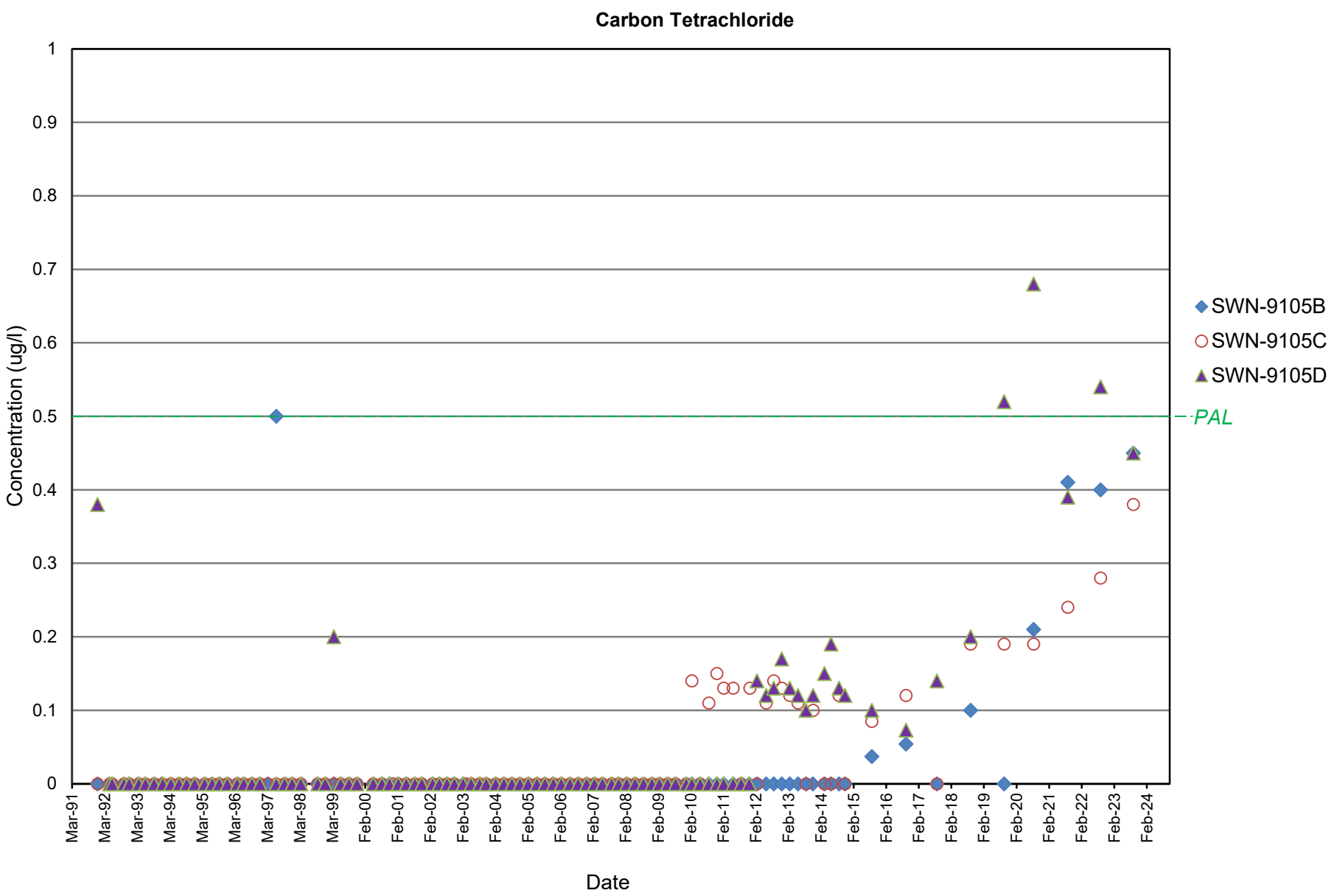
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



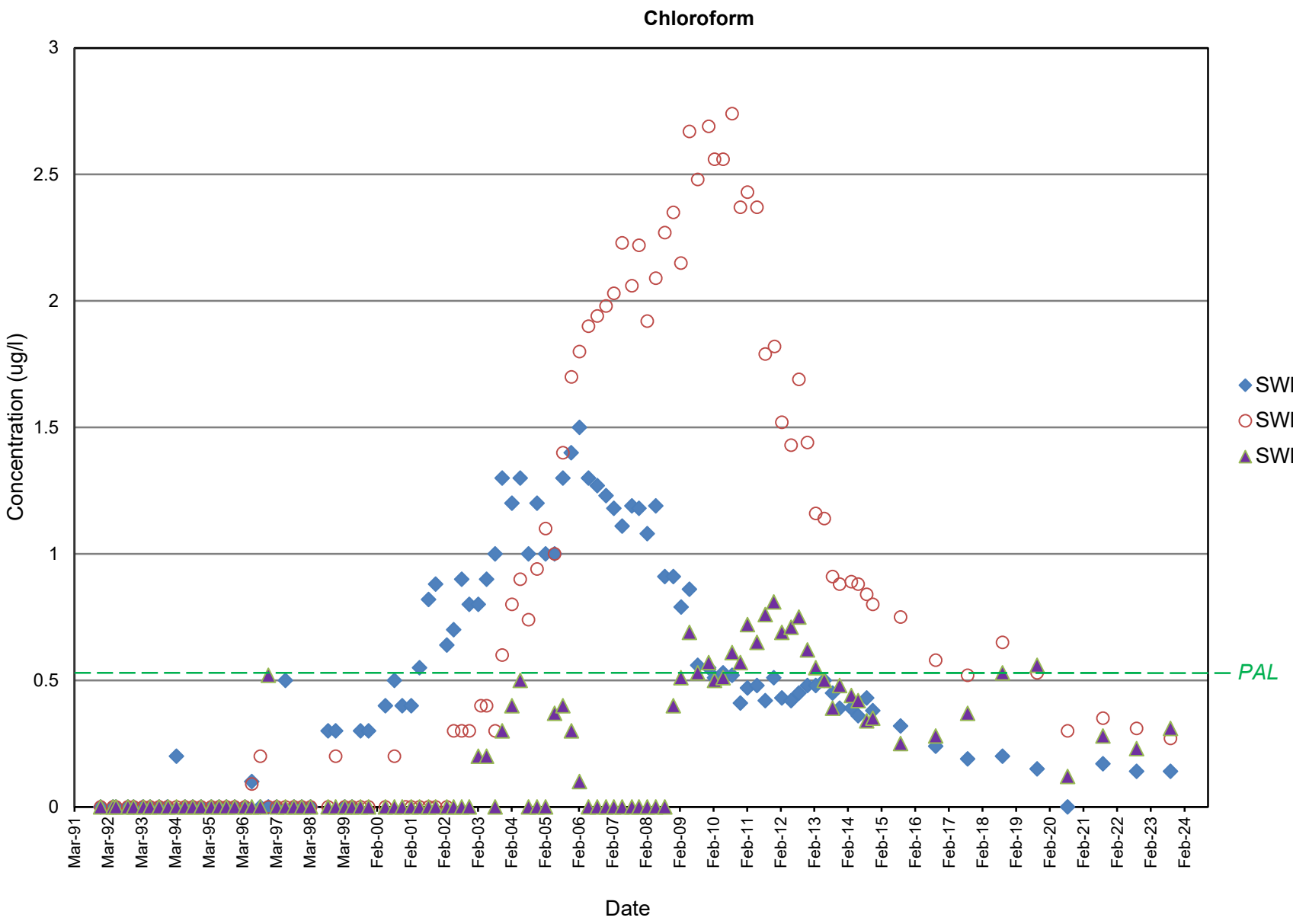
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



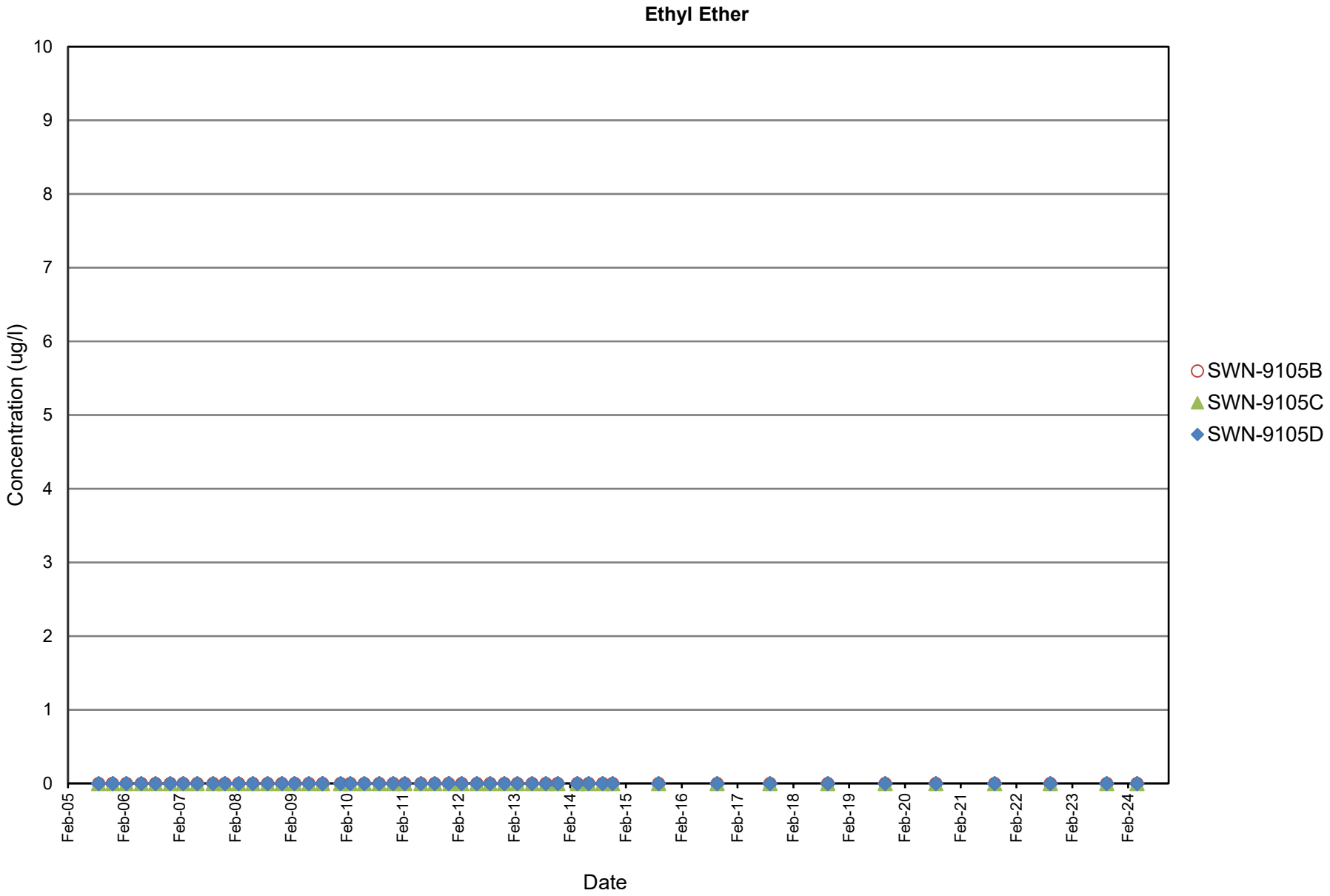
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



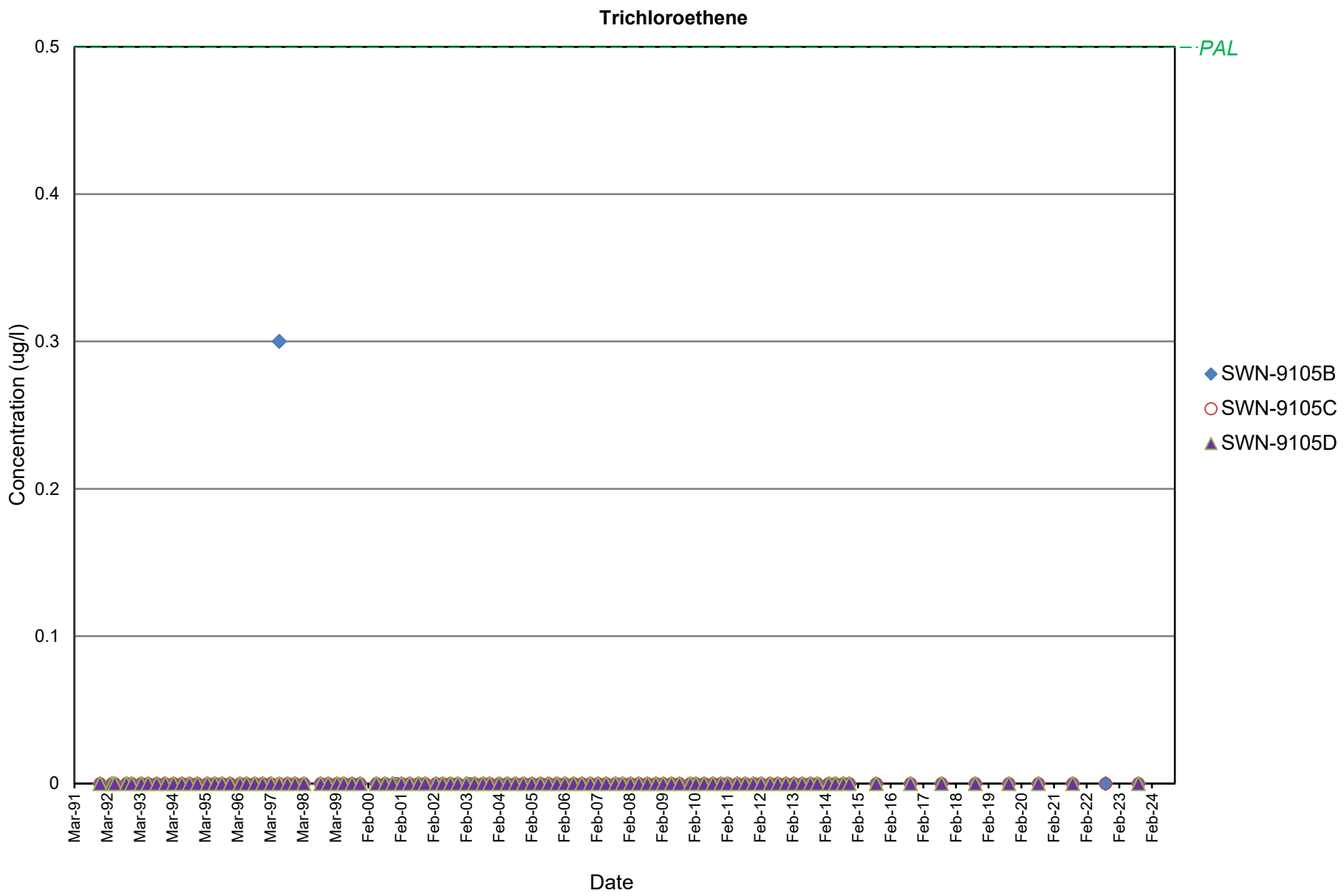
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



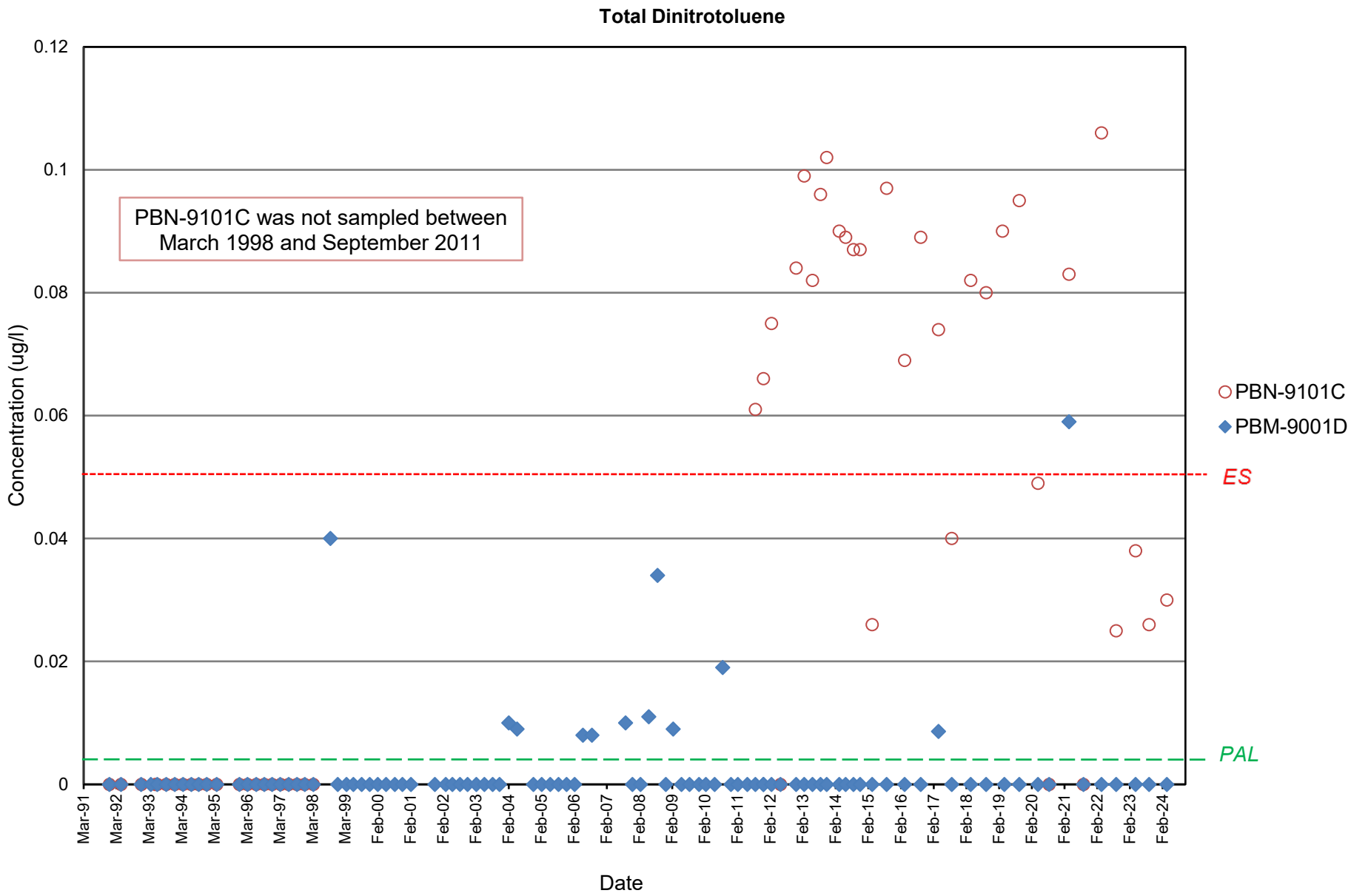
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



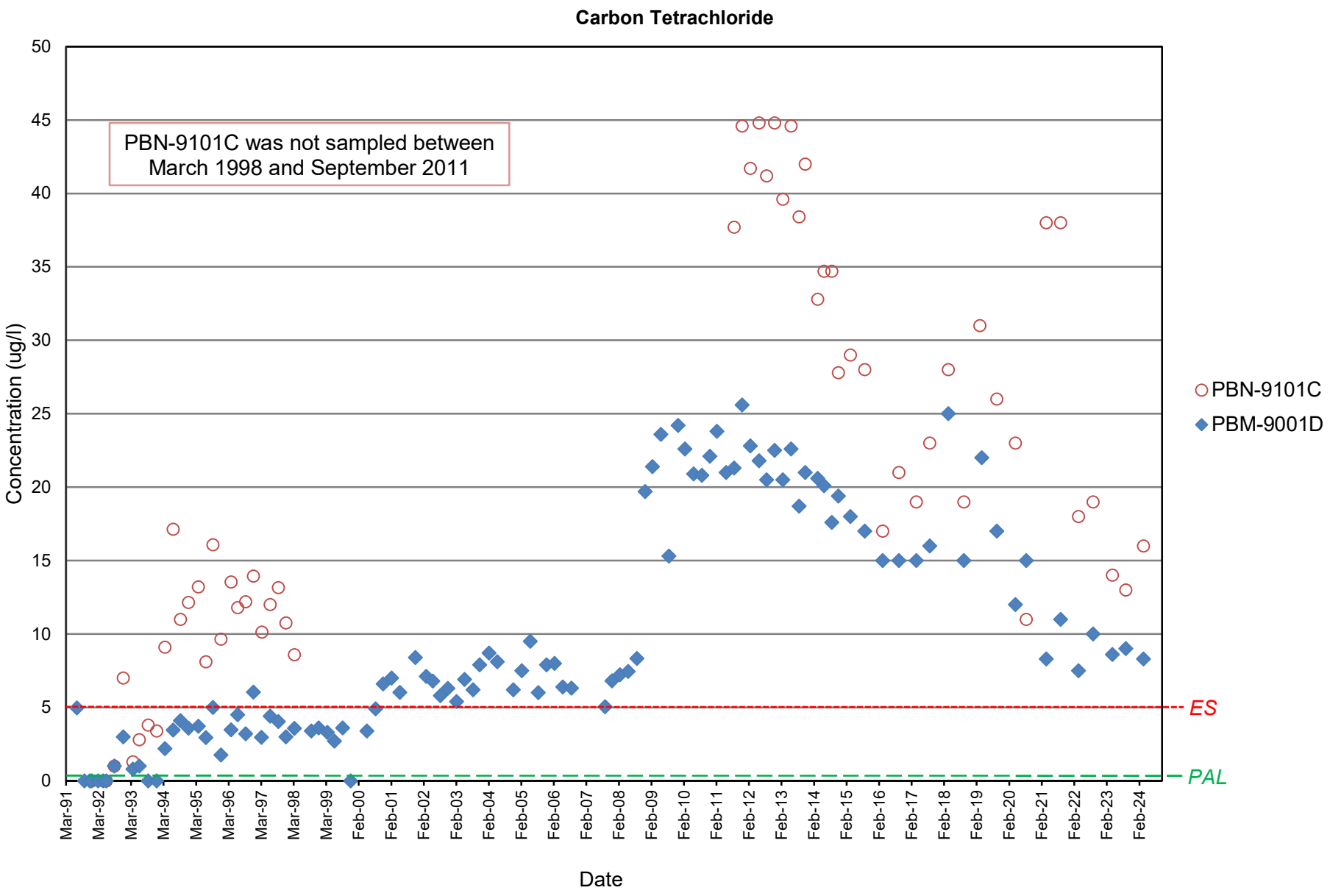
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



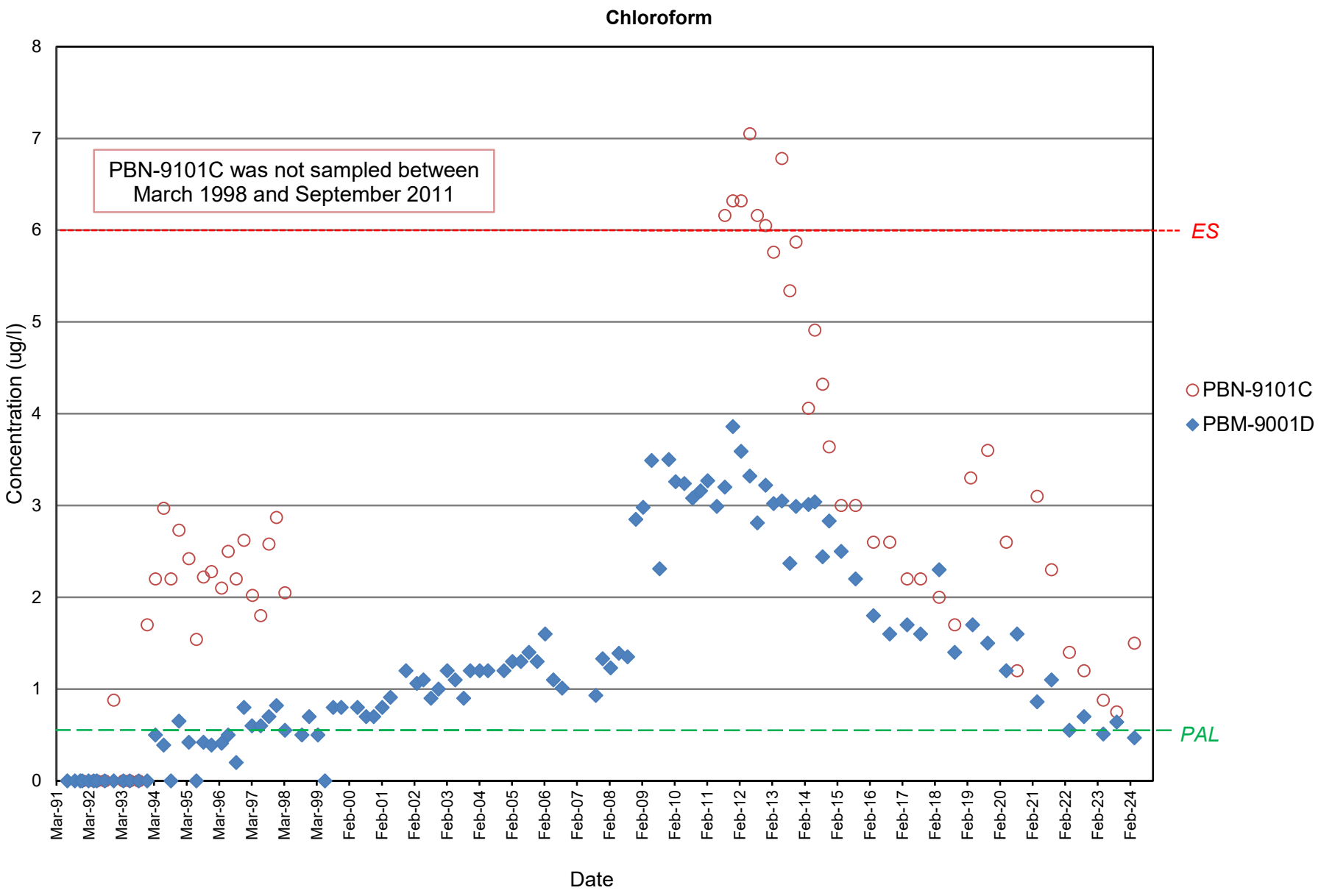
BAAP Groundwater Data | Propellant Burning Ground | Plume Leading Edge - Offsite



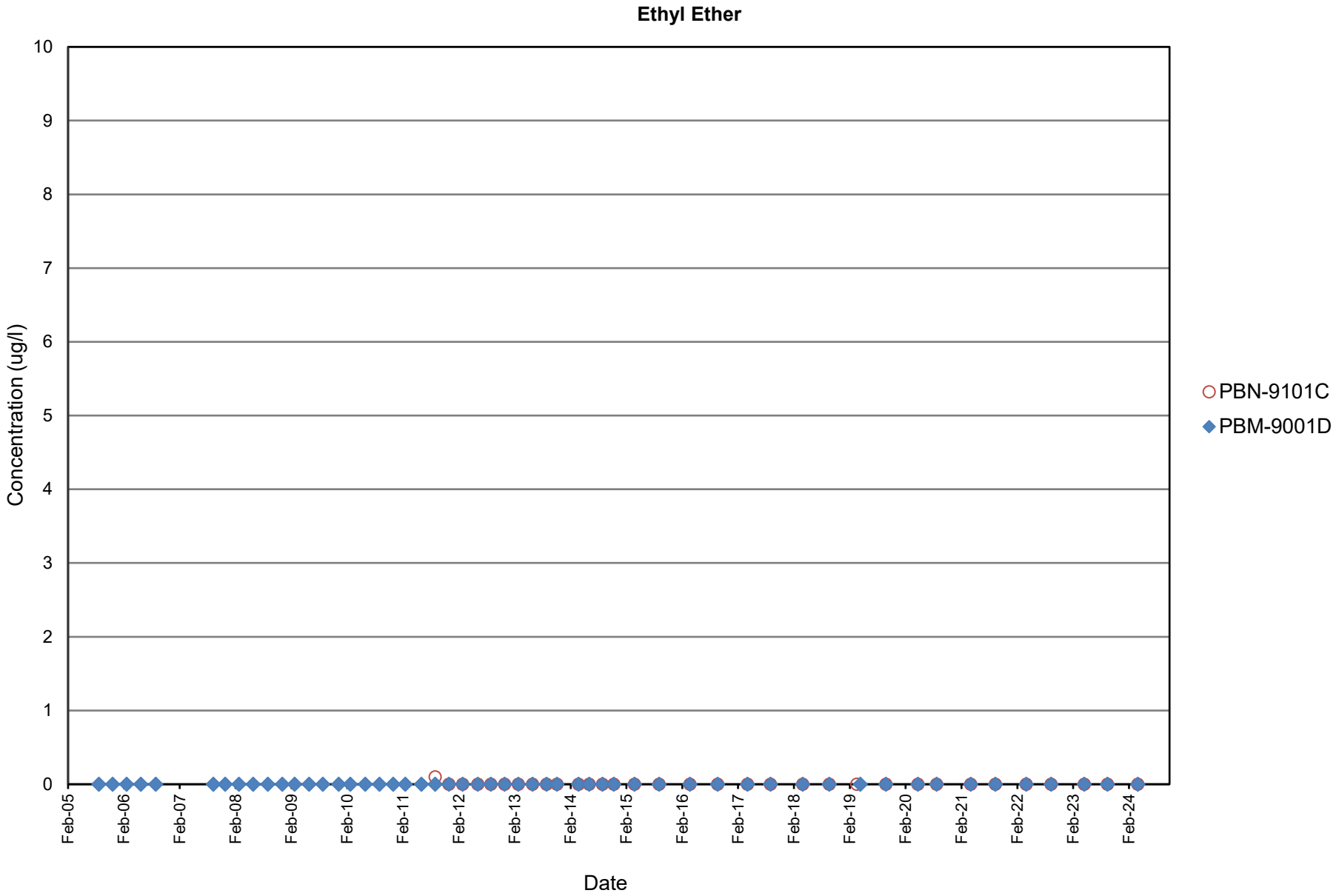
BAAP Groundwater Data | Propellant Burning Ground | Plume Leading Edge - Offsite



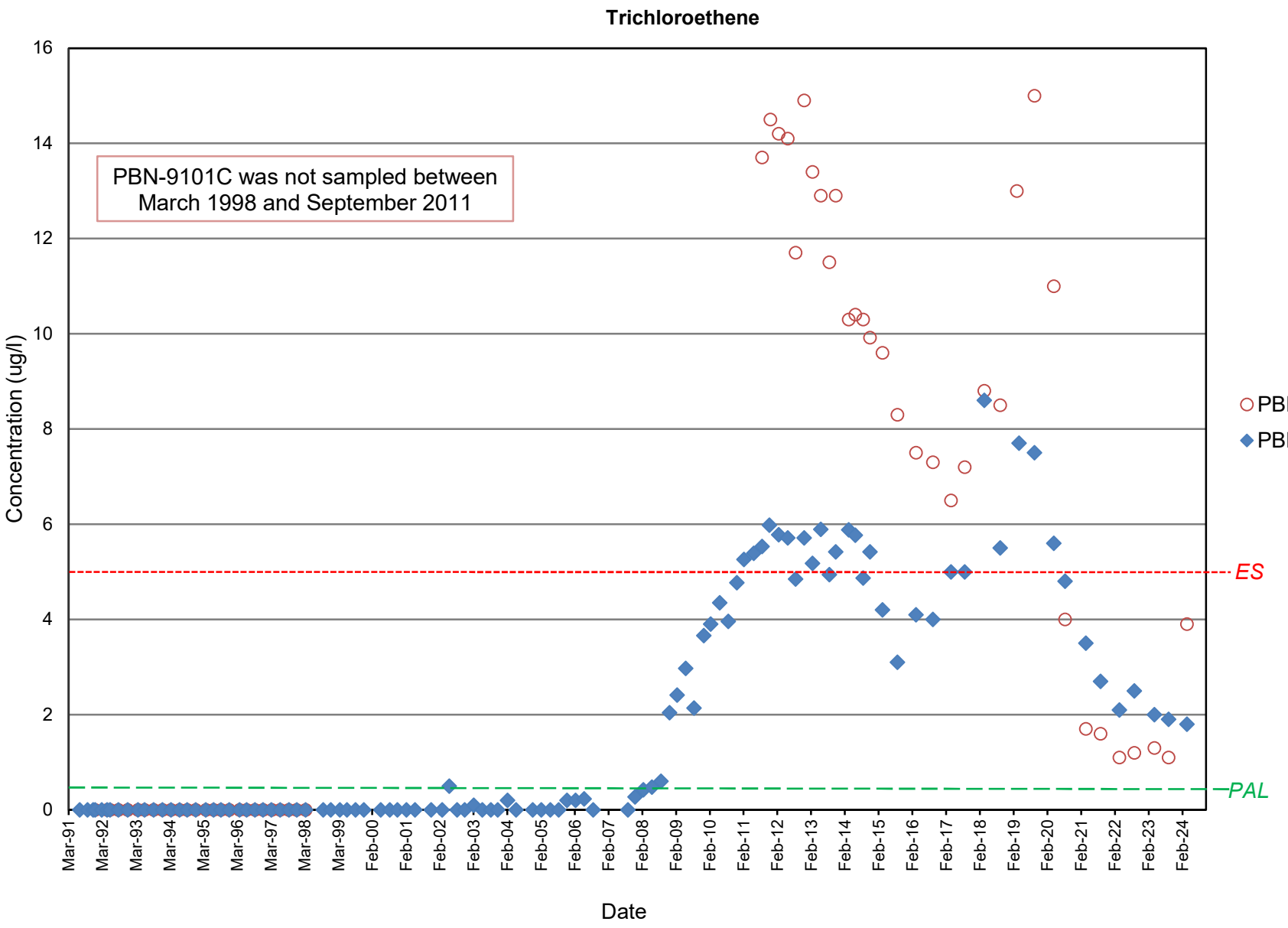
BAAP Groundwater Data | Propellant Burning Ground | Plume Leading Edge - Offsite



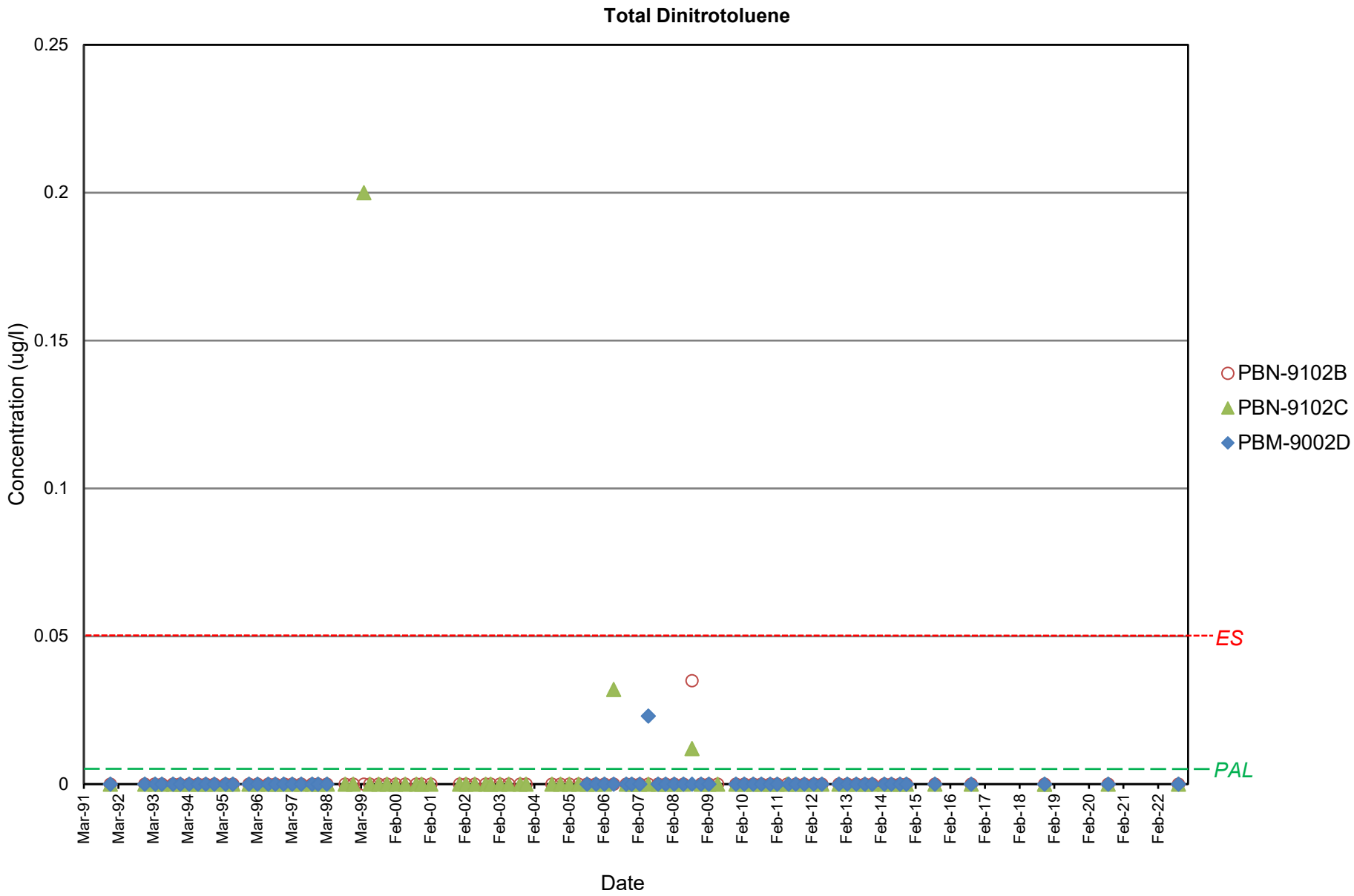
BAAP Groundwater Data | Propellant Burning Ground | Plume Leading Edge - Offsite



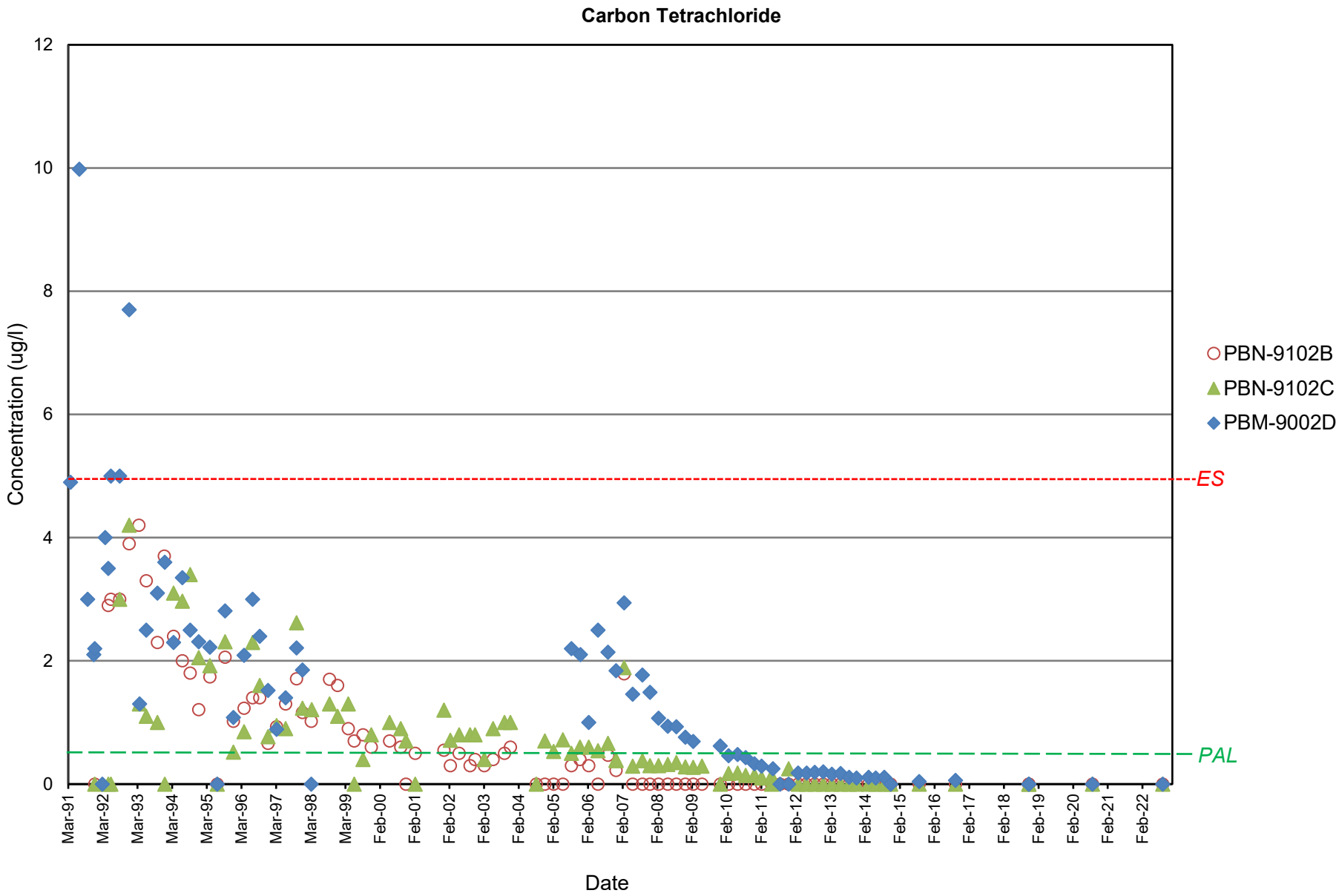
BAAP Groundwater Data | Propellant Burning Ground | Plume Leading Edge - Offsite



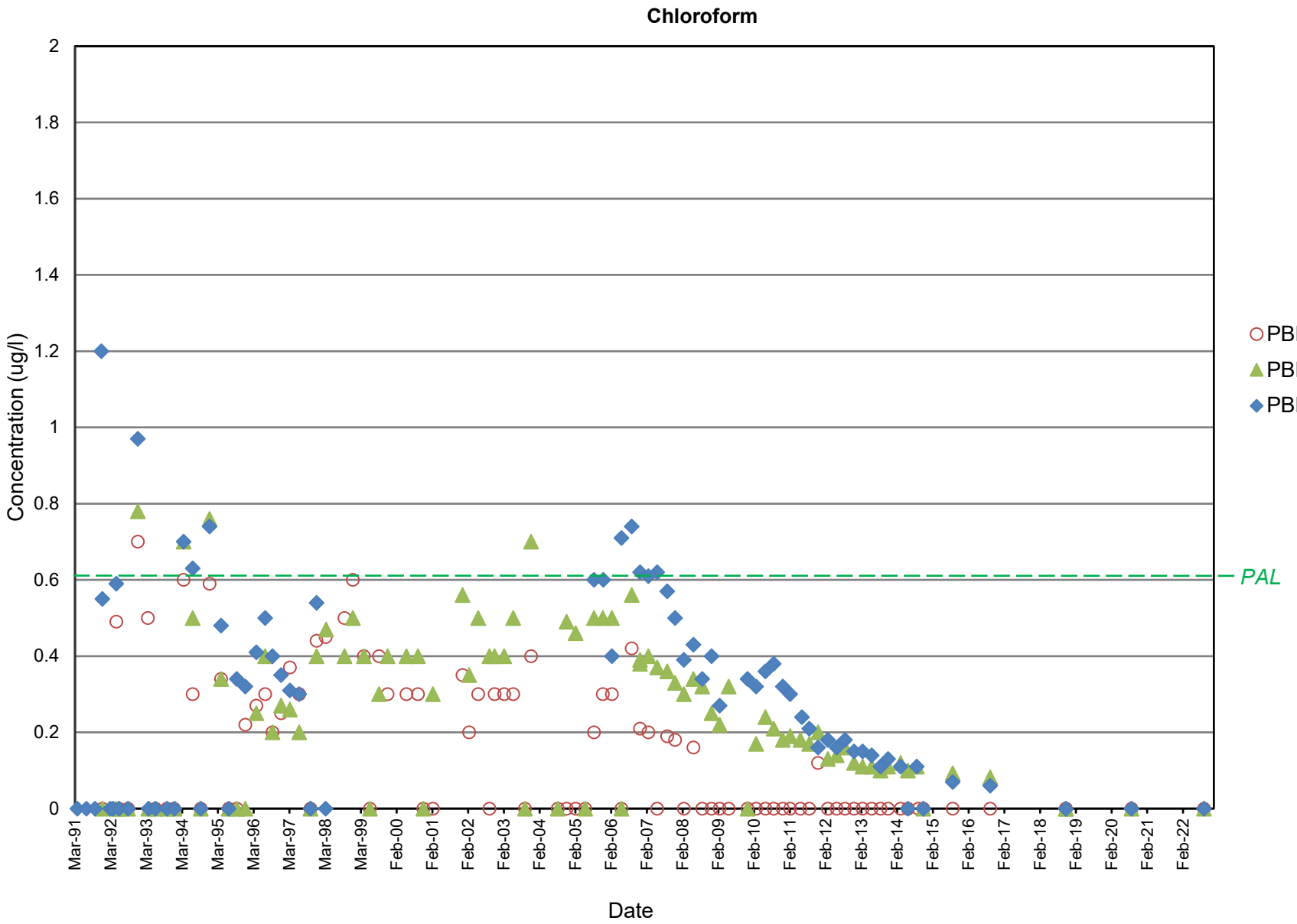
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



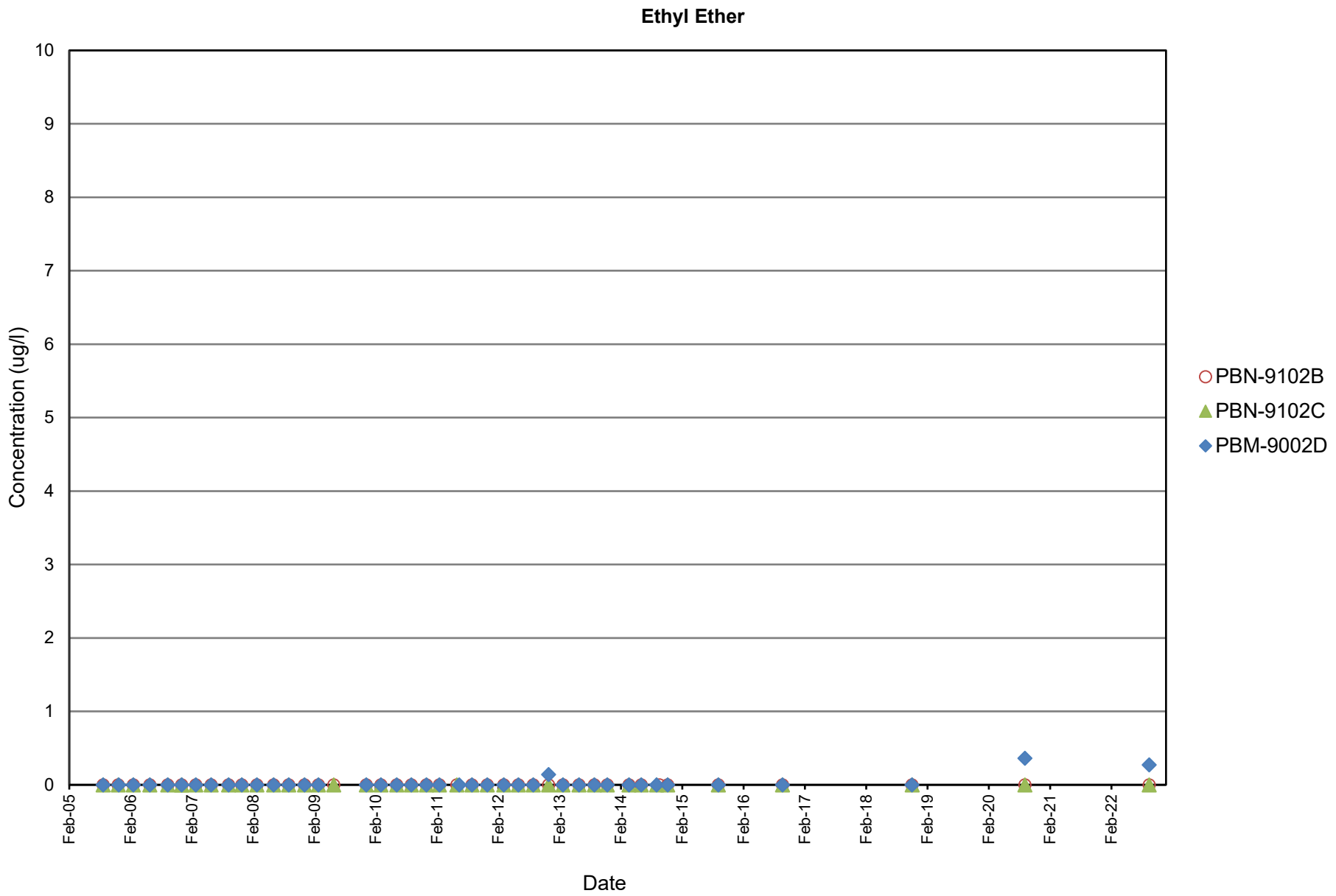
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



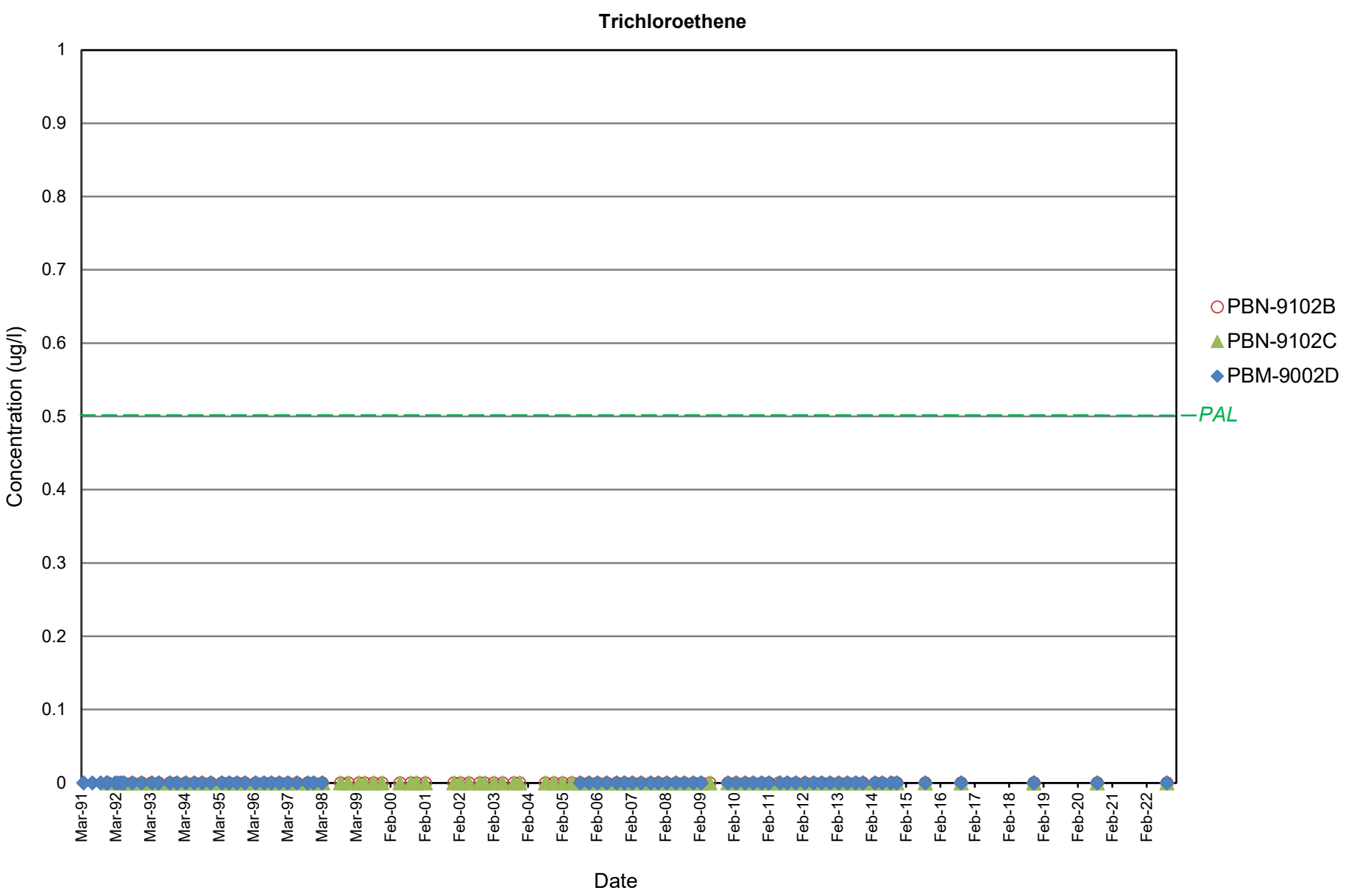
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



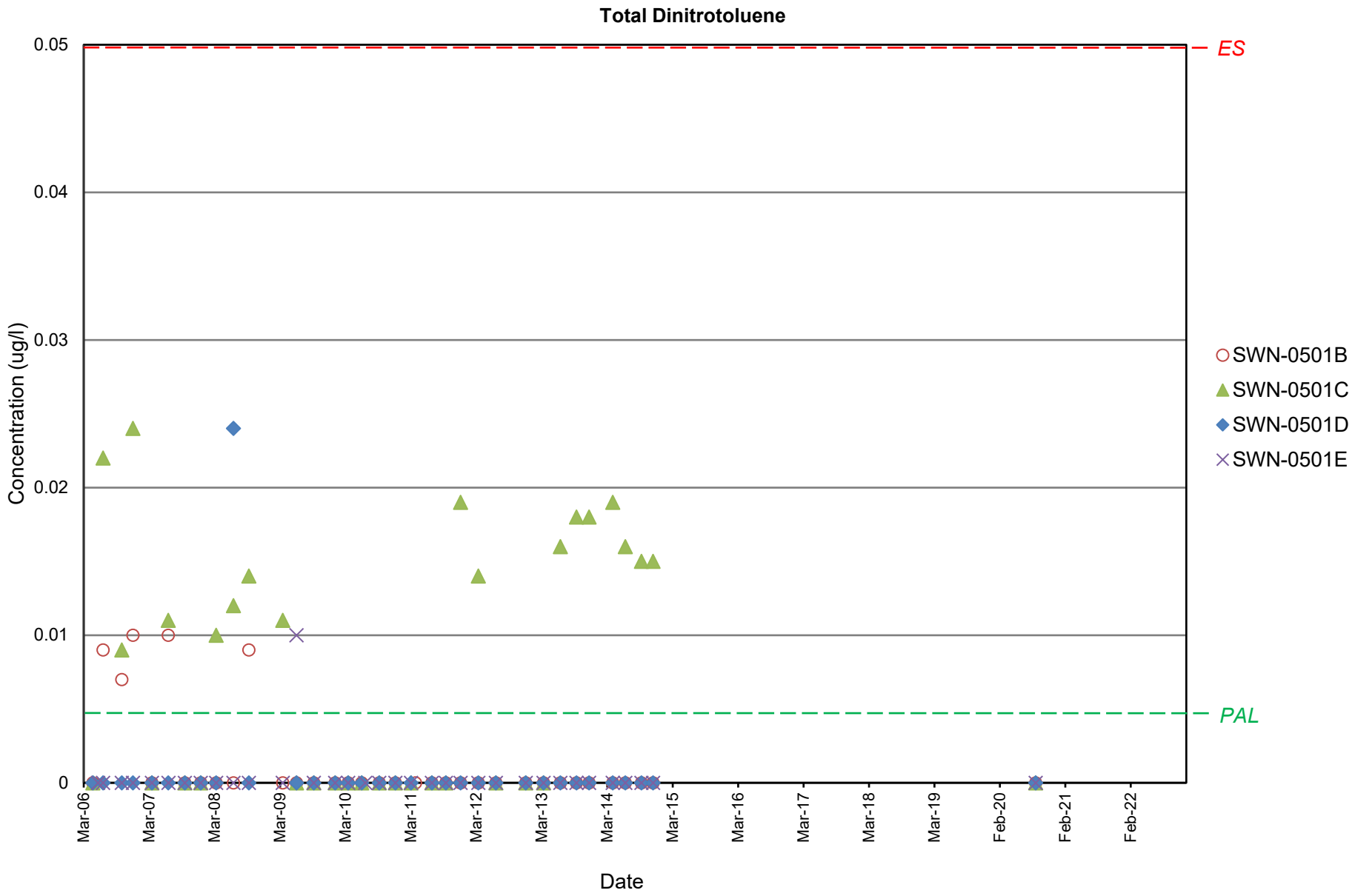
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



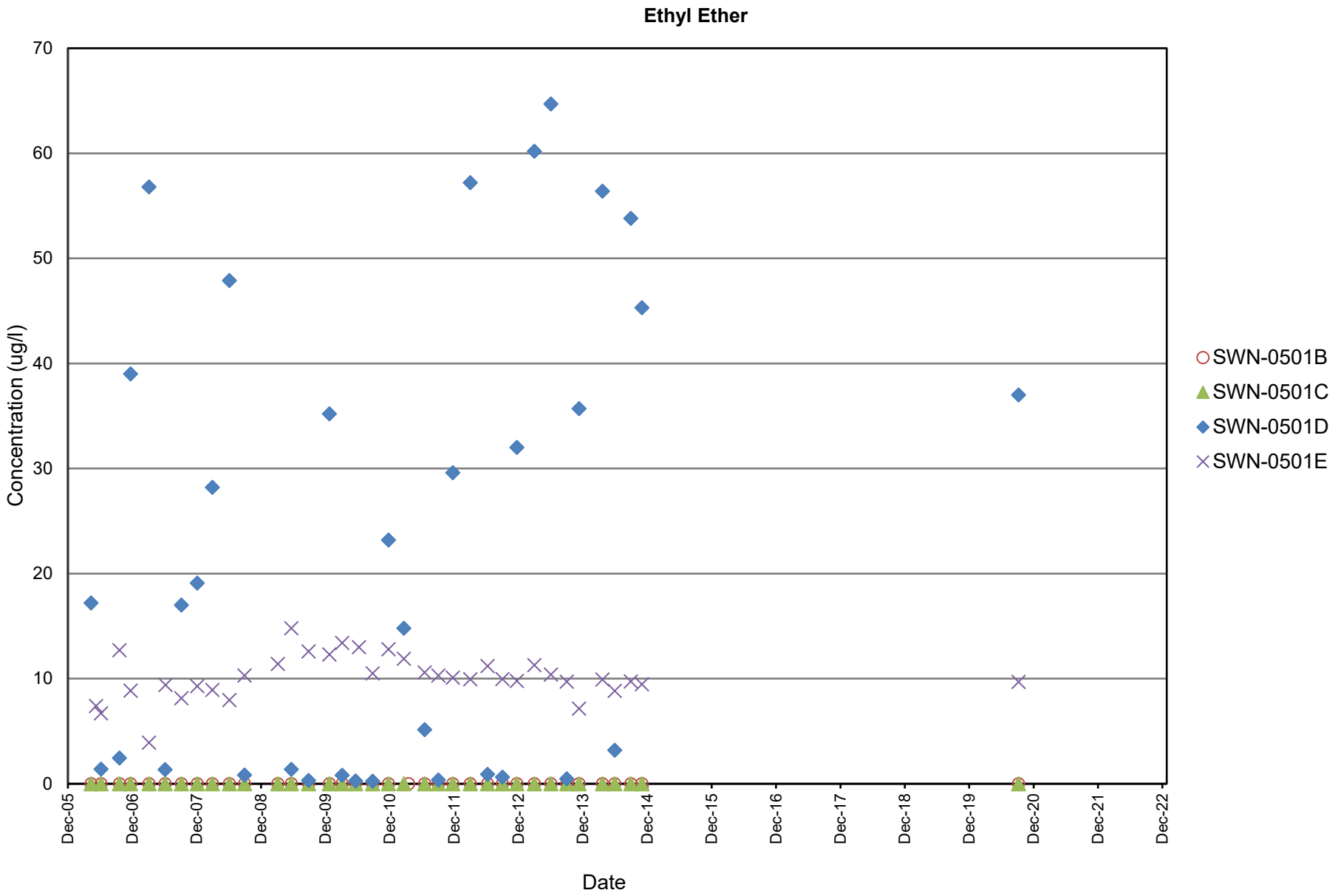
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



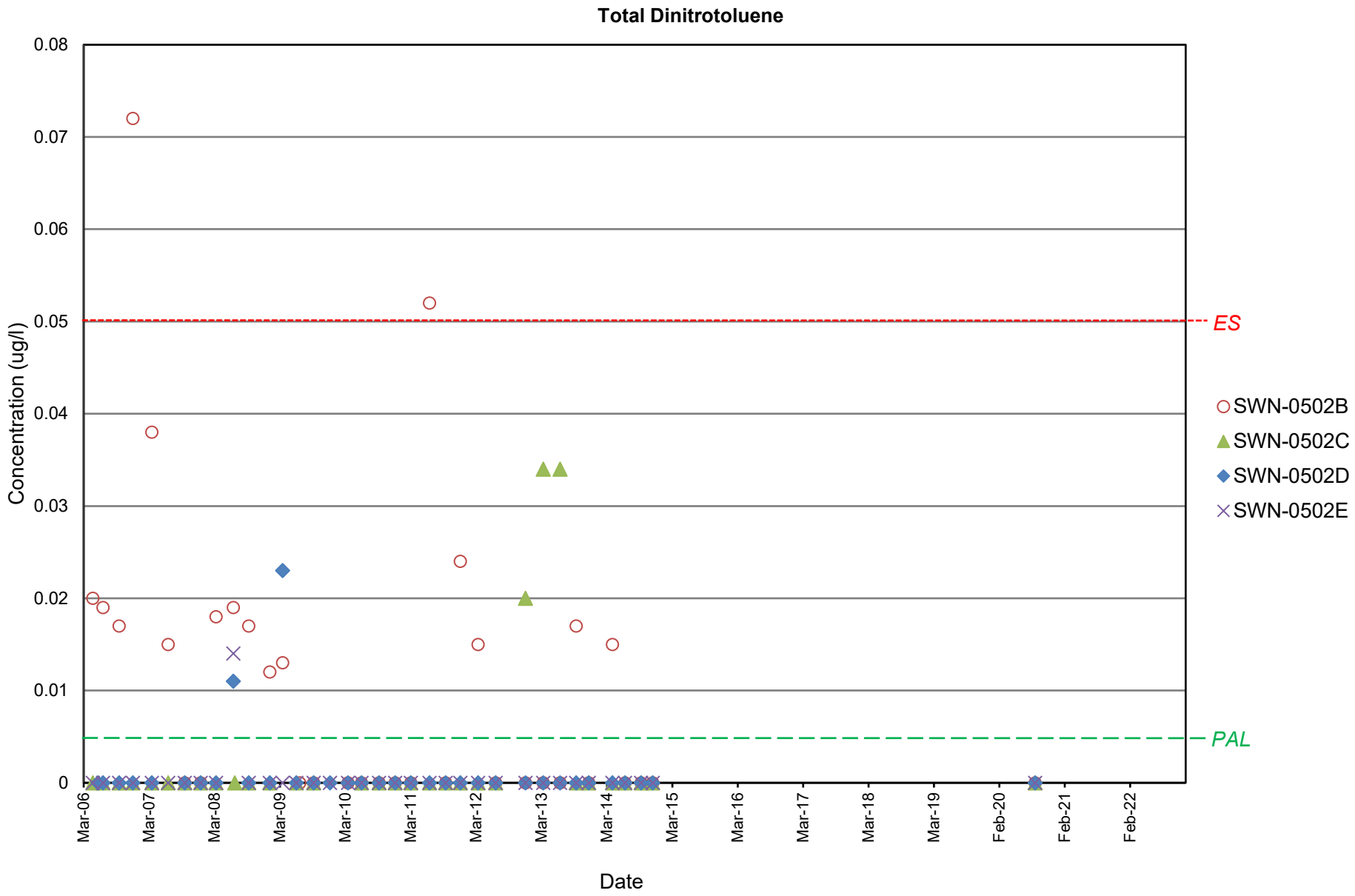
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



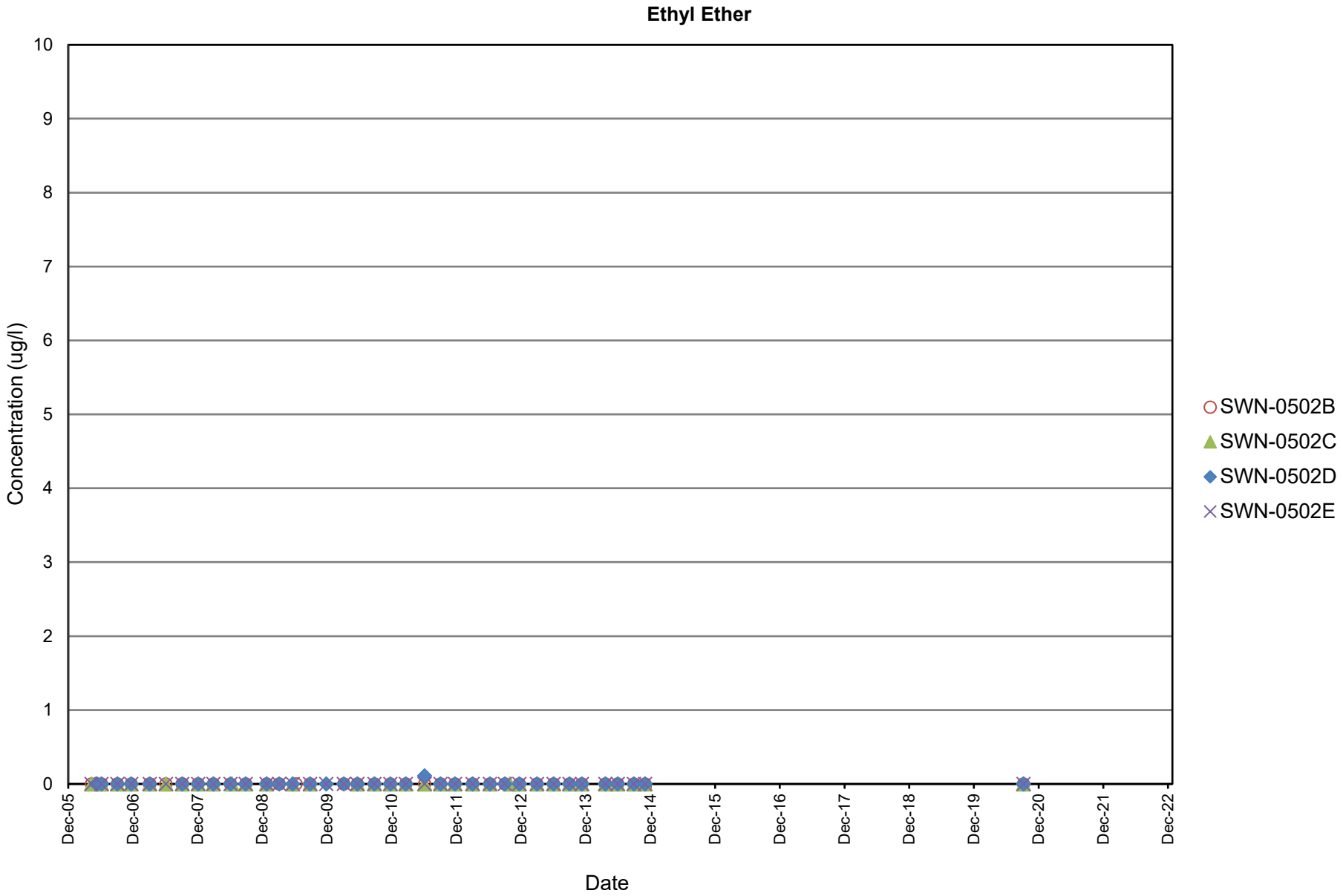
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



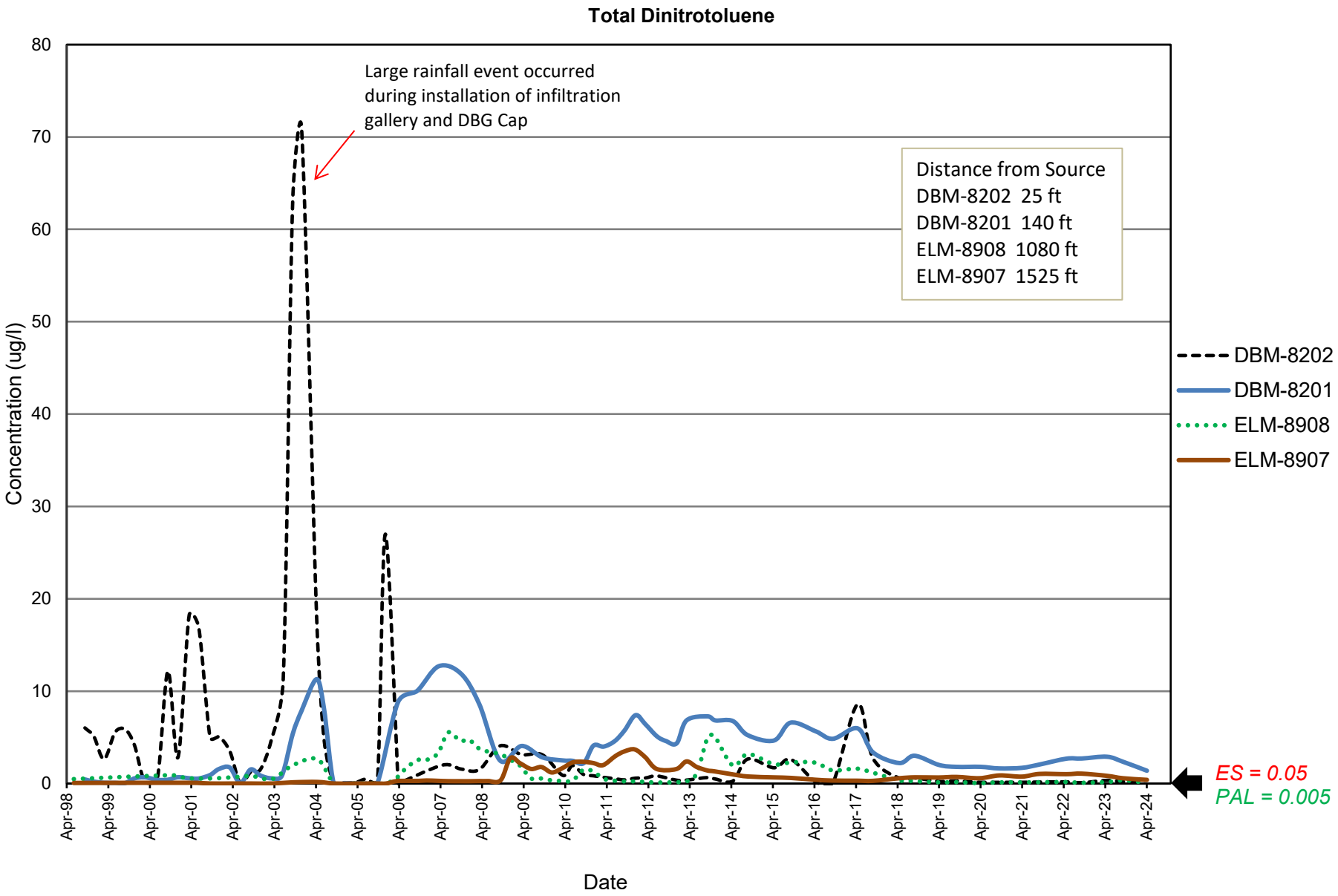
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



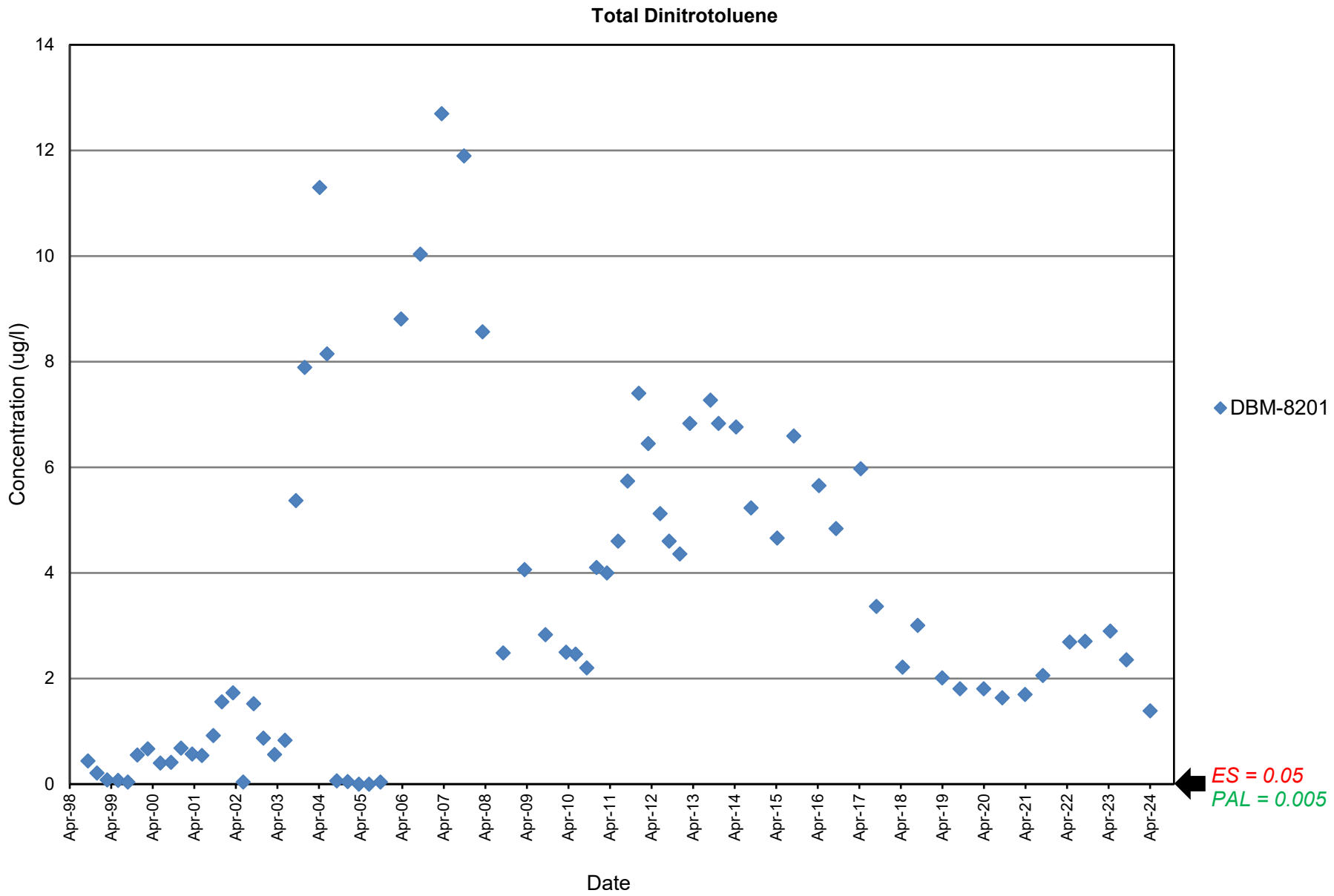
BAAP Groundwater Data | Propellant Burning Ground | Plume Edge - Offsite



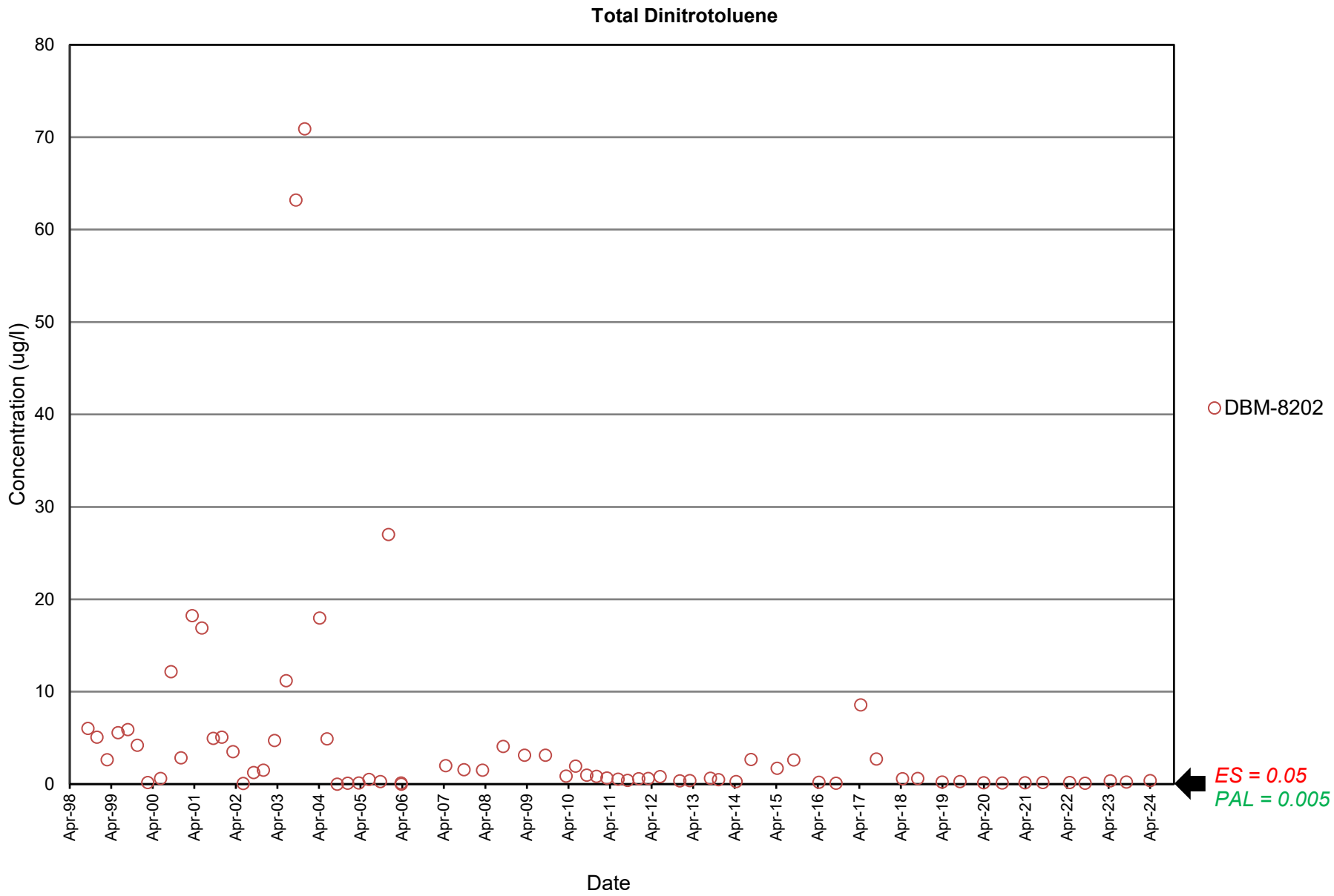
BAAP Groundwater Data | Deterrent Burning Ground | Plume Trend



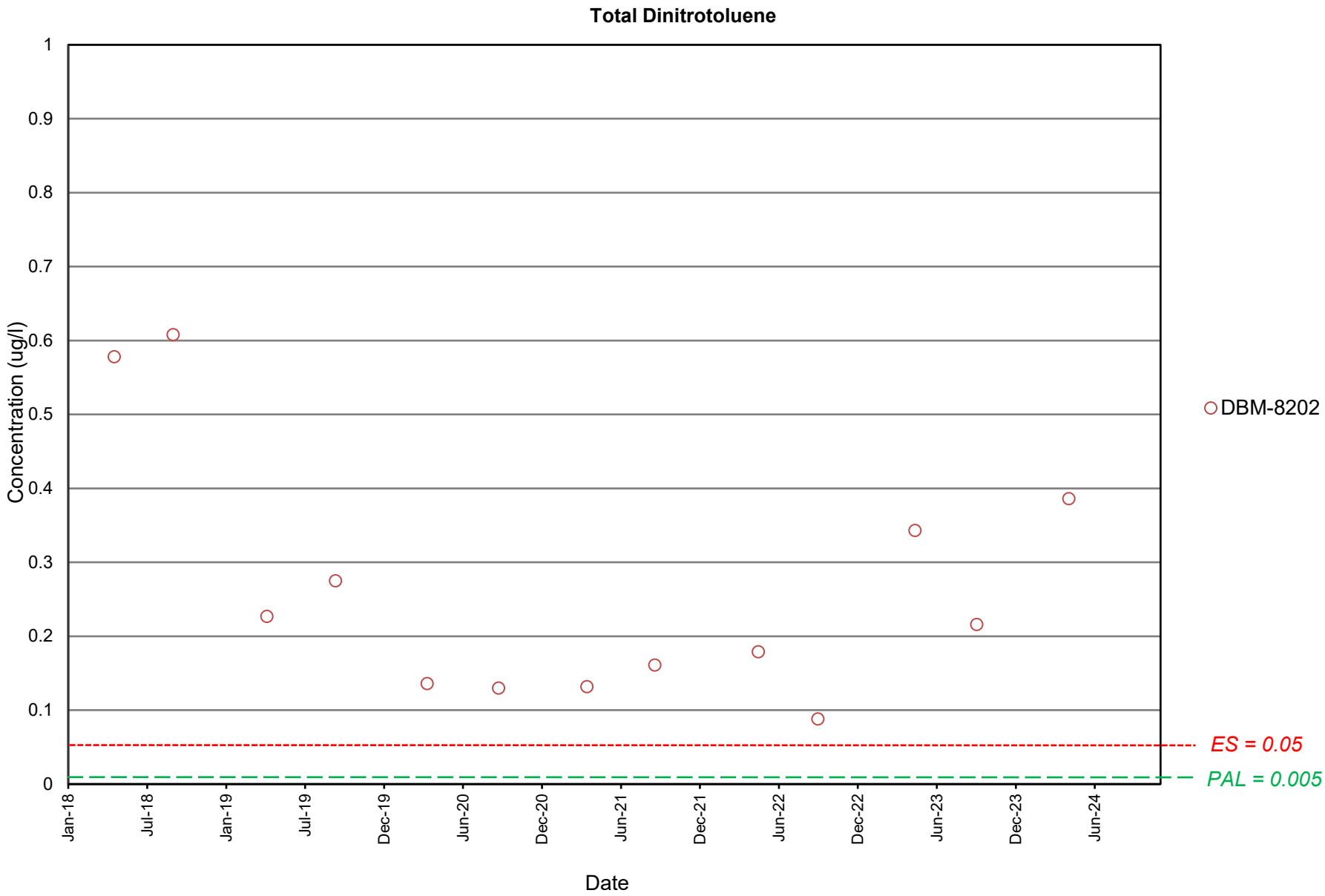
BAAP Groundwater Data | Deterrent Burning Ground | Source Area



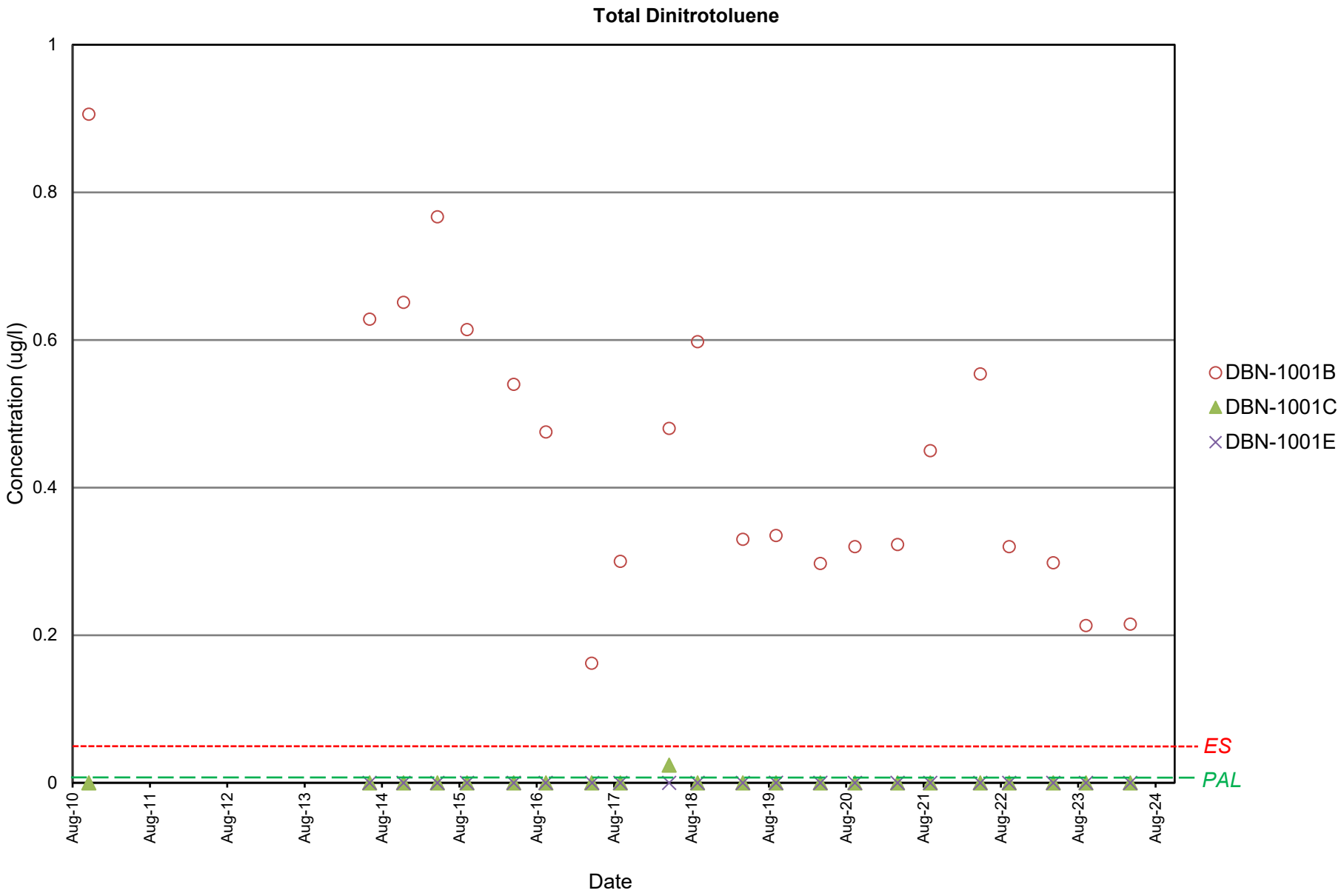
BAAP Groundwater Data | Deterrent Burning Ground | Source Area



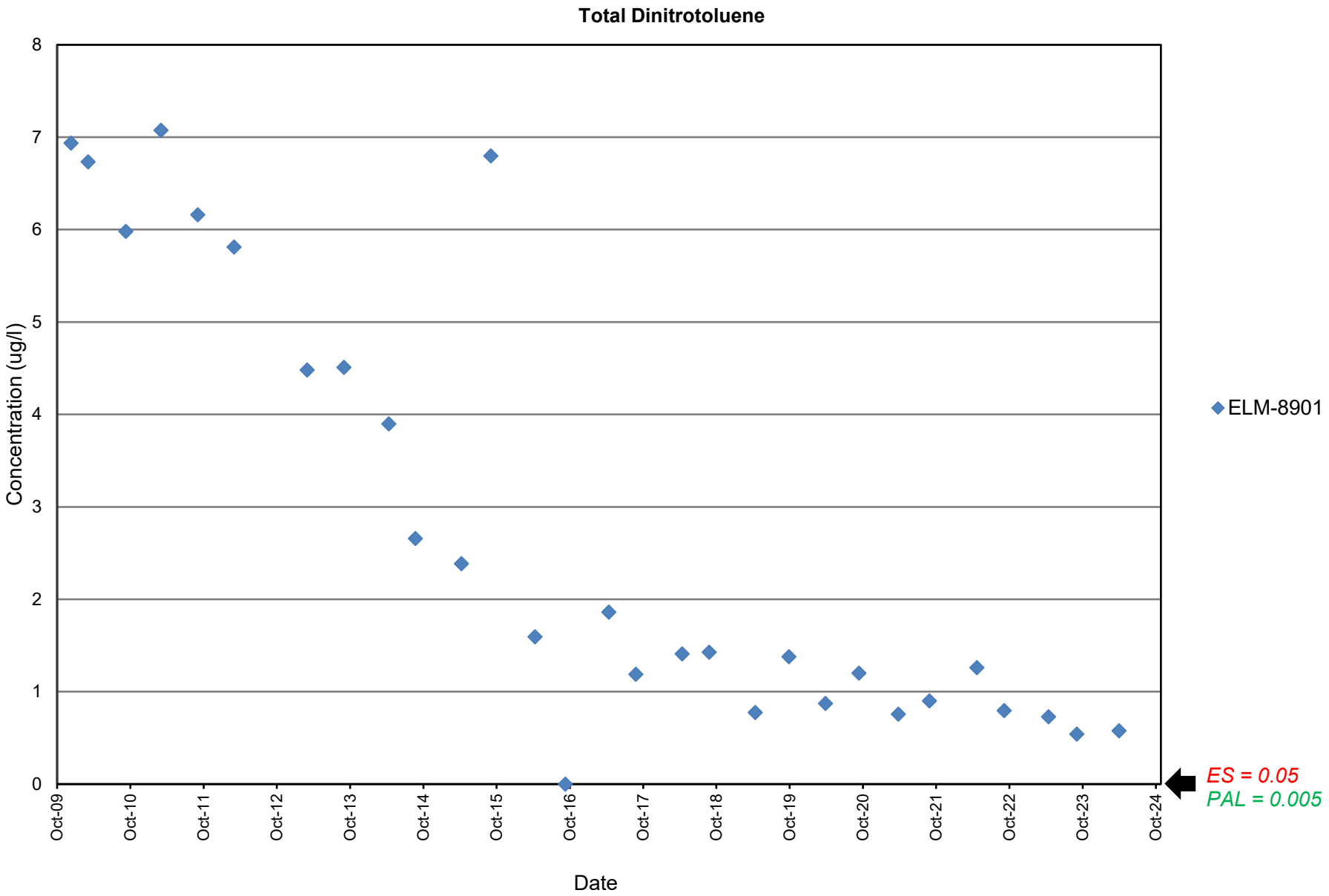
BAAP Groundwater Data | Deterrent Burning Ground | Source Area



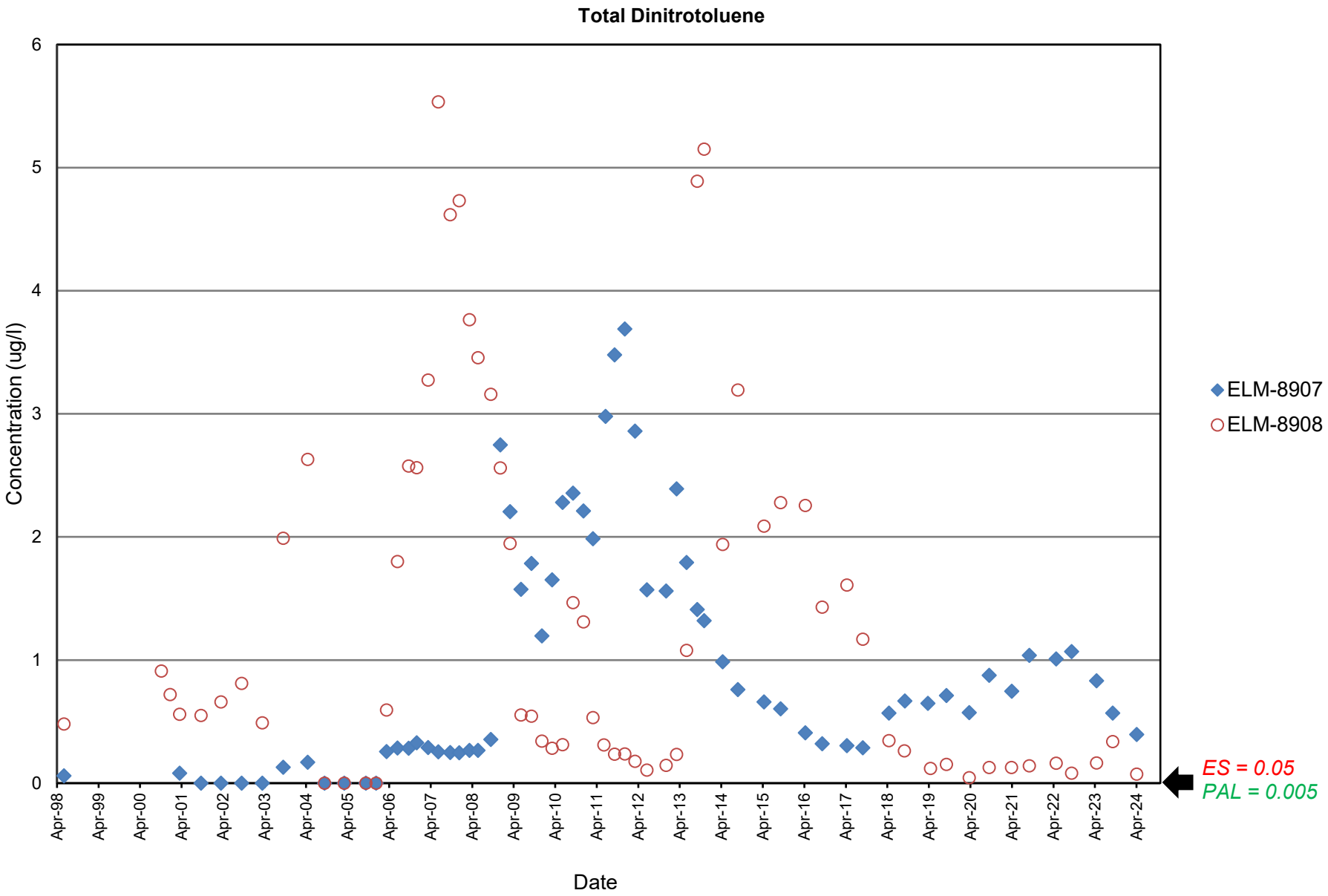
BAAP Groundwater Data | Deterrent Burning Ground | Source Area



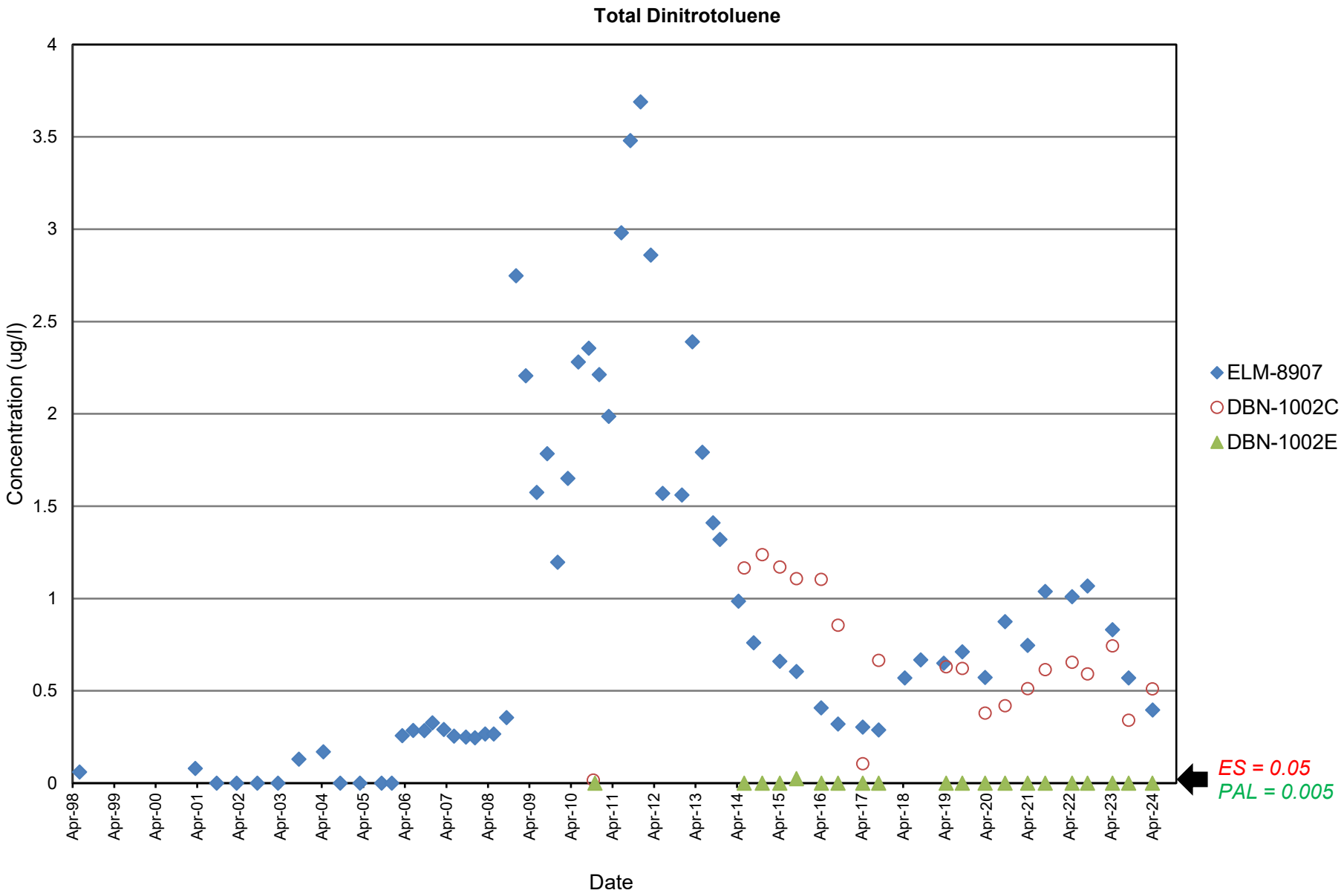
BAAP Groundwater Data | Deterrent Burning Ground | Plume Center



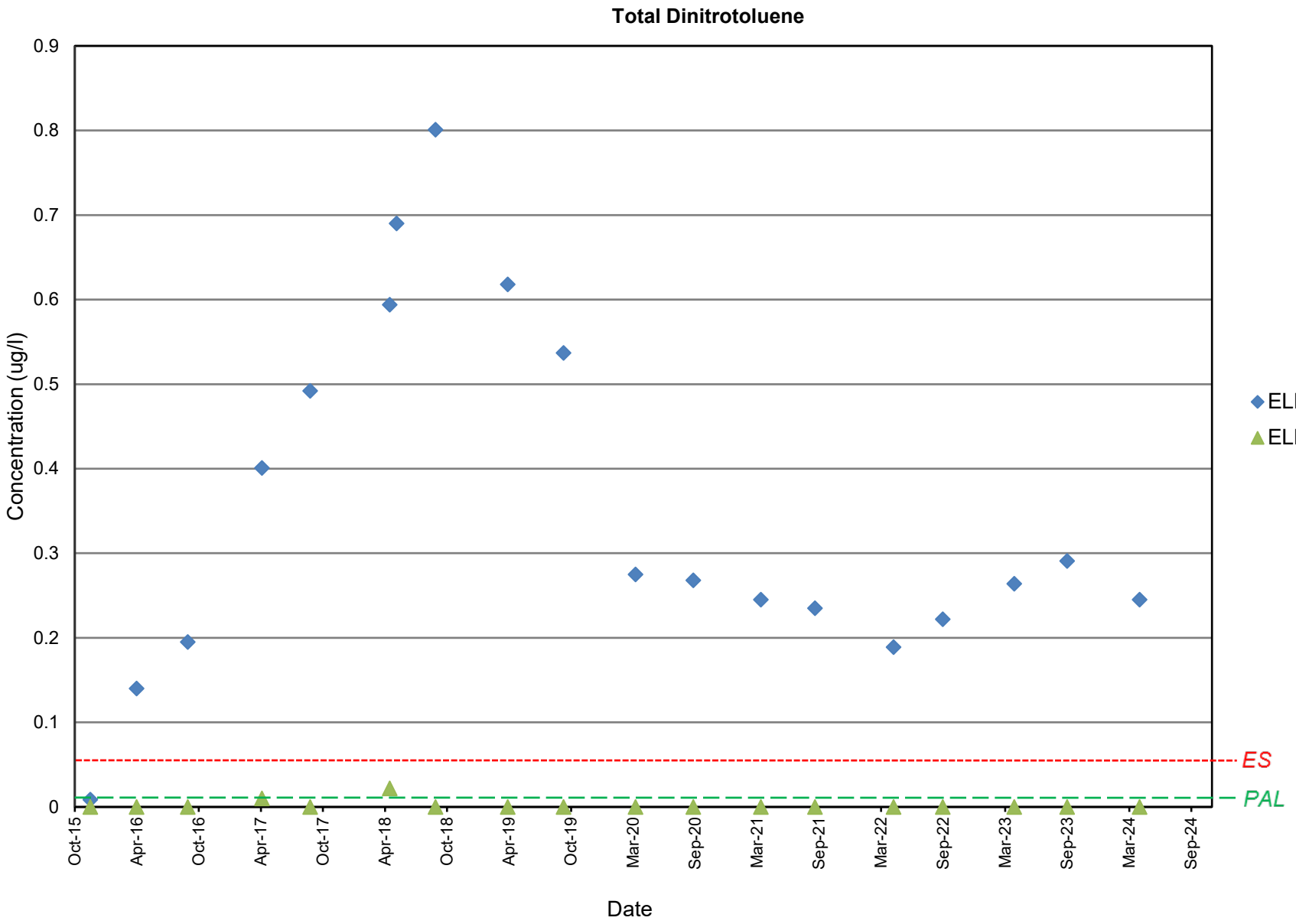
BAAP Groundwater Data | Deterrent Burning Ground | Plume Center



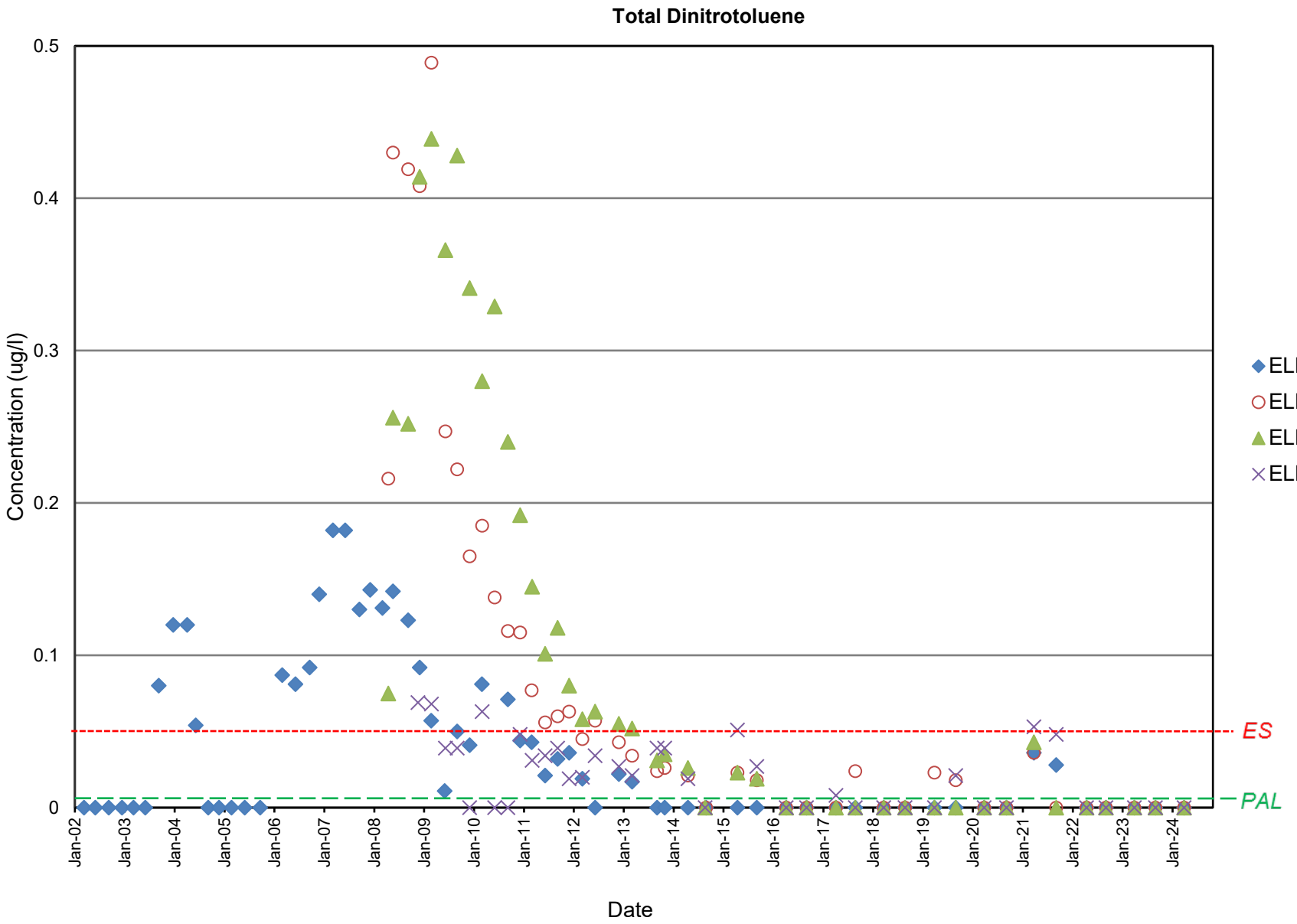
BAAP Groundwater Data | Deterrent Burning Ground | Plume Center



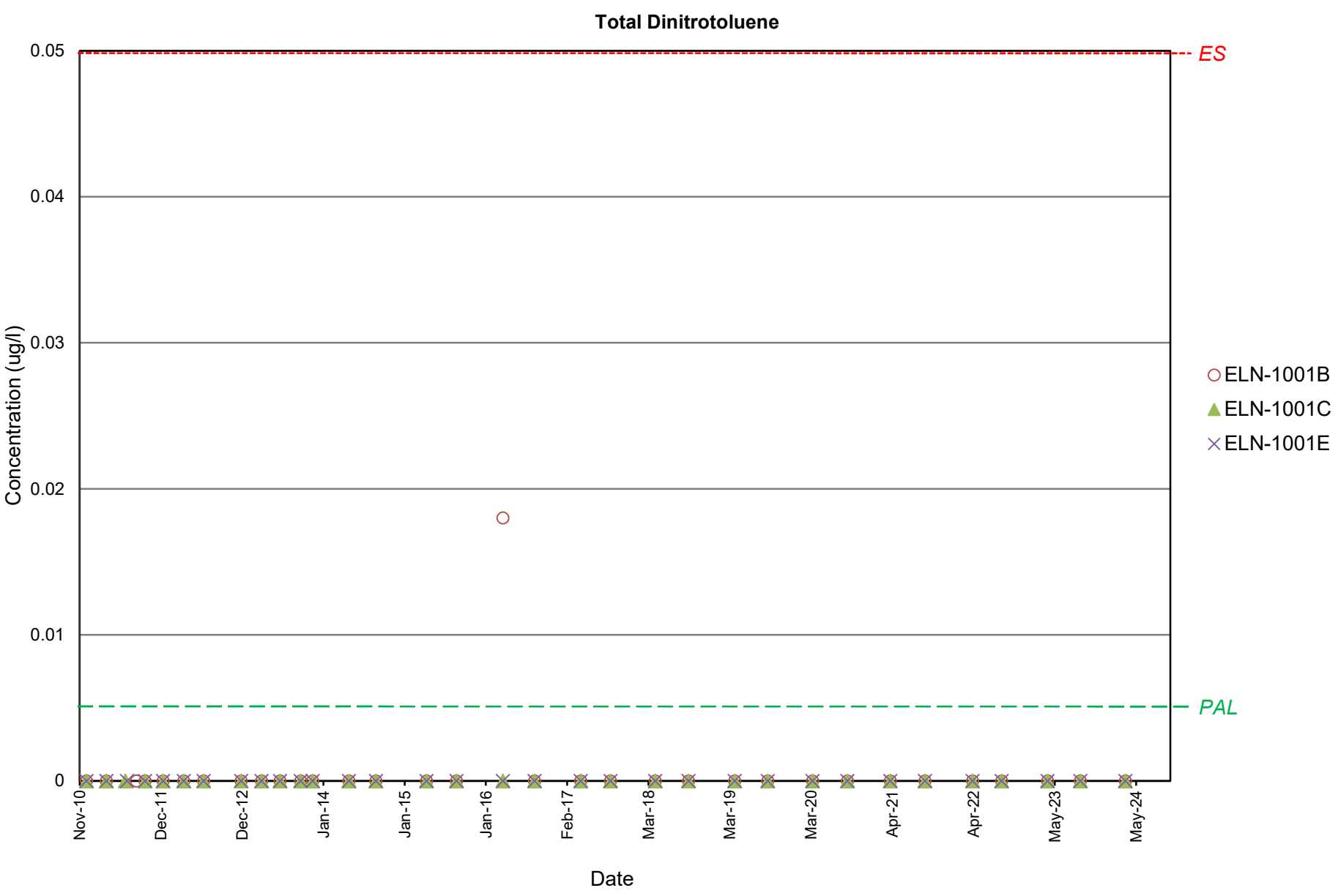
BAAP Groundwater Data | Deterrent Burning Ground | Plume Center - Downgradient



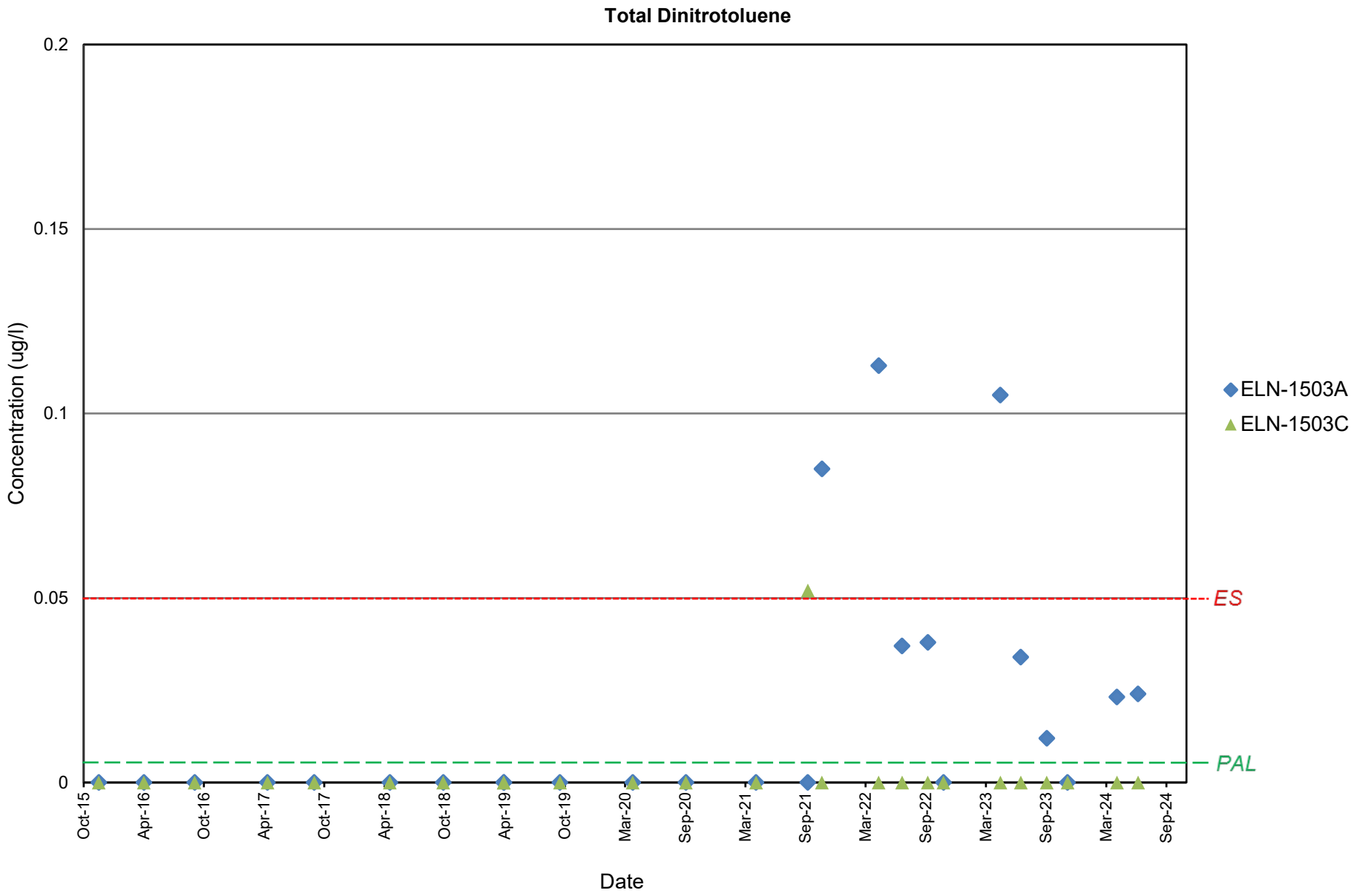
BAAP Groundwater Data | Deterrent Burning Ground | Plume Edge - Downgradient



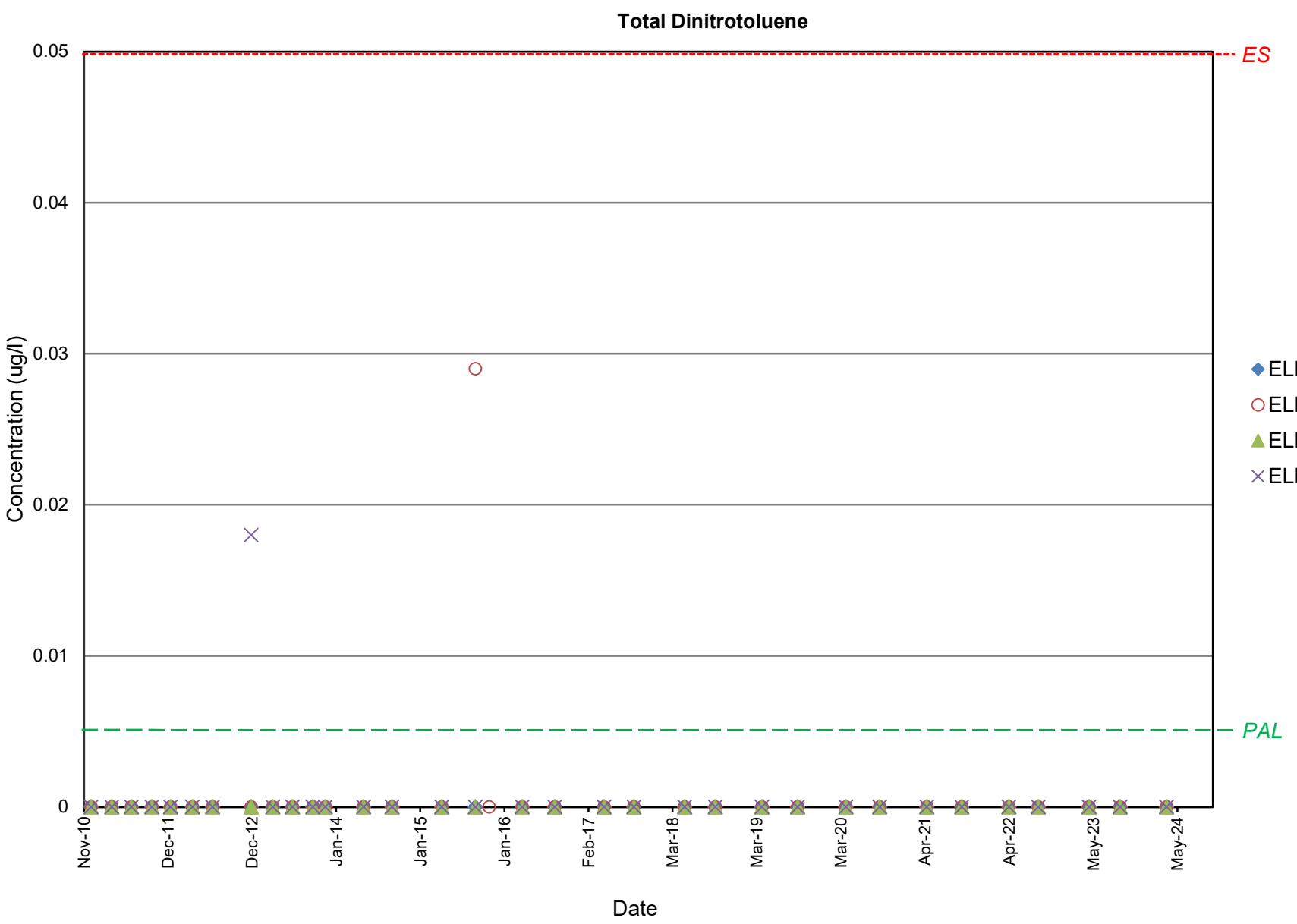
BAAP Groundwater Data | Deterrent Burning Ground | Plume Edge - Off-Site



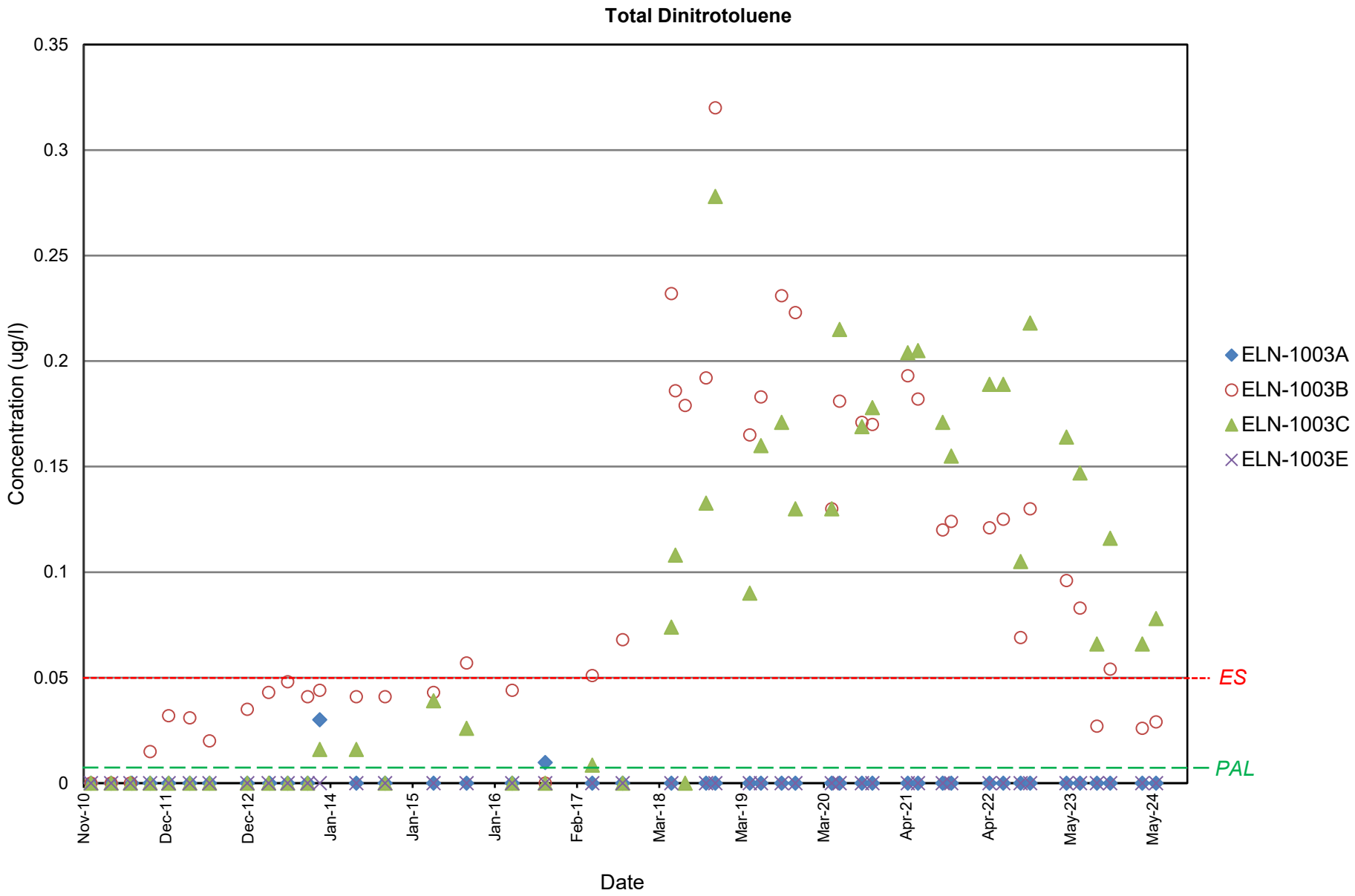
BAAP Groundwater Data | Deterrent Burning Ground | Plume Edge - Off-Site



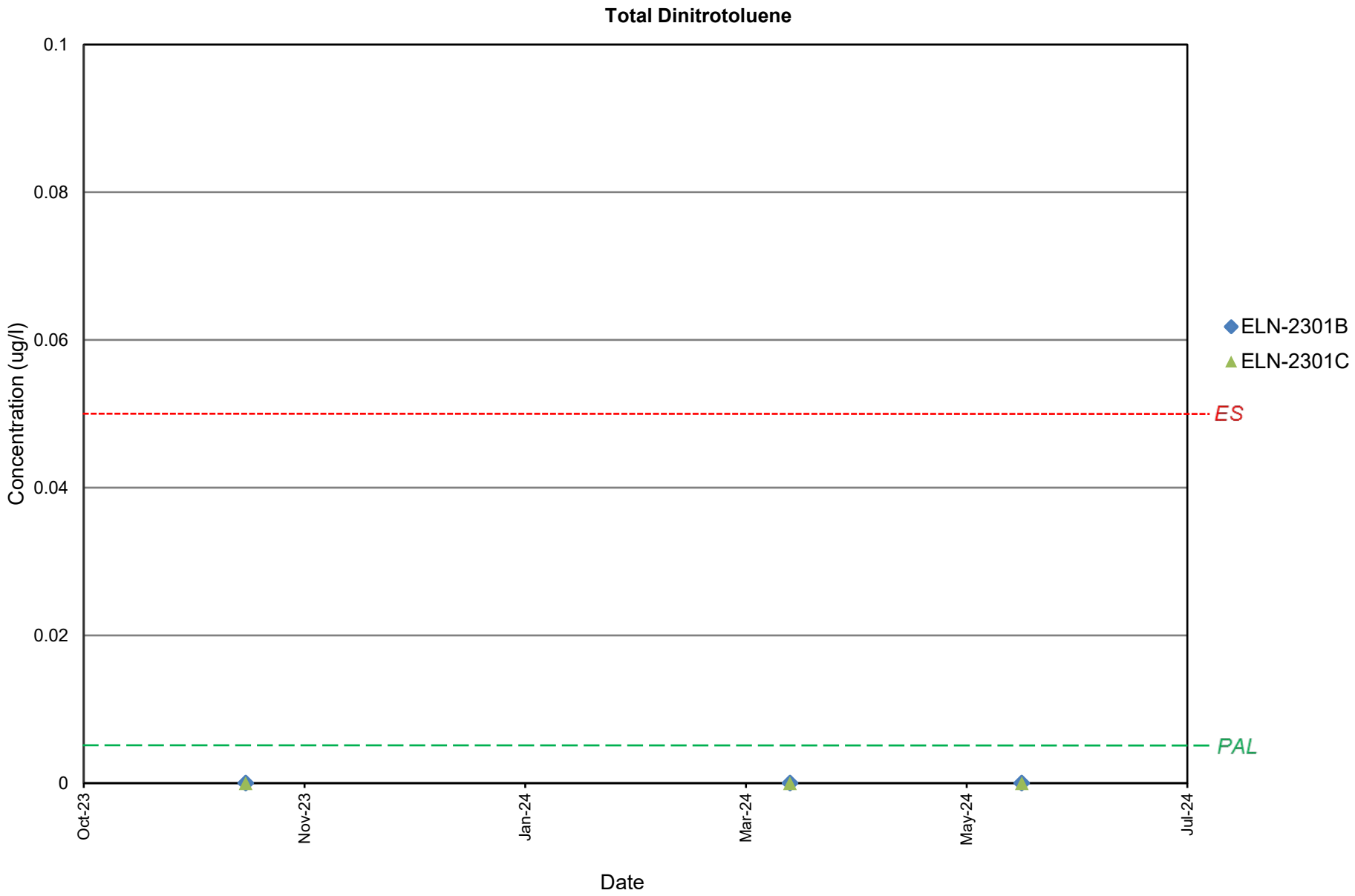
BAAP Groundwater Data | Deterrent Burning Ground | Plume Edge - Off-Site



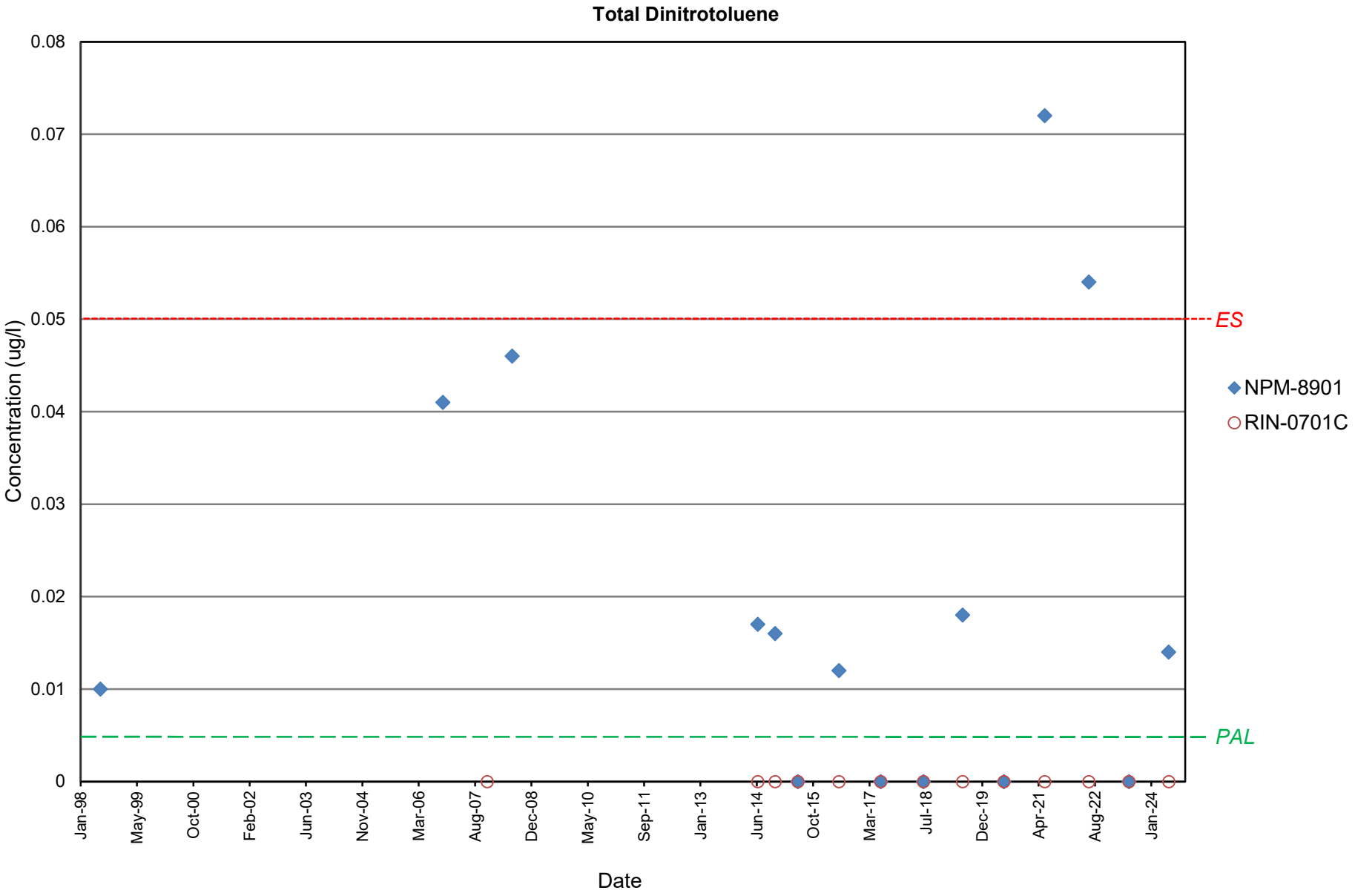
BAAP Groundwater Data | Deterrent Burning Ground | Plume Leading Edge - Off-Site



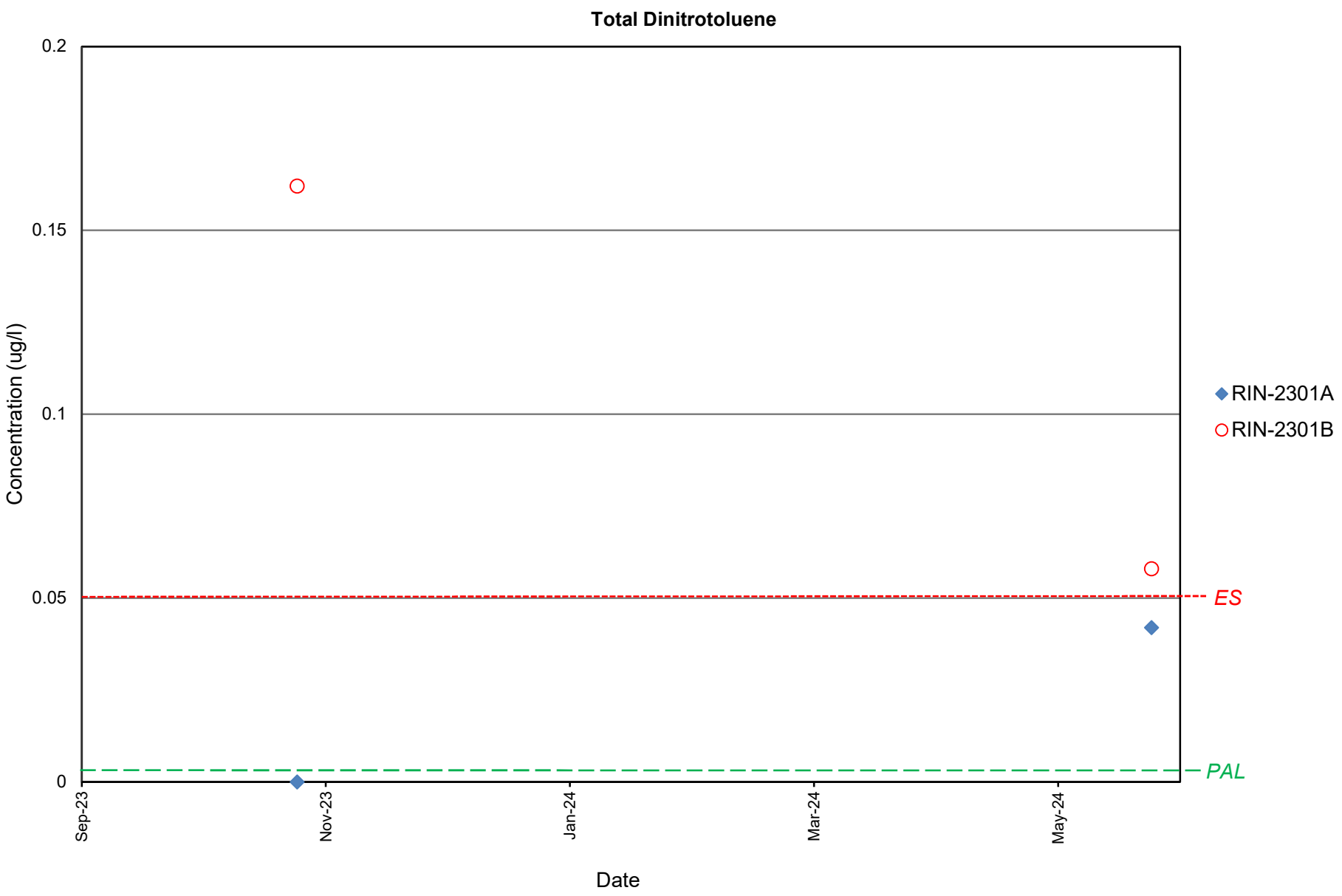
BAAP Groundwater Data | Deterrent Burning Ground | Plume Edge - Off-Site



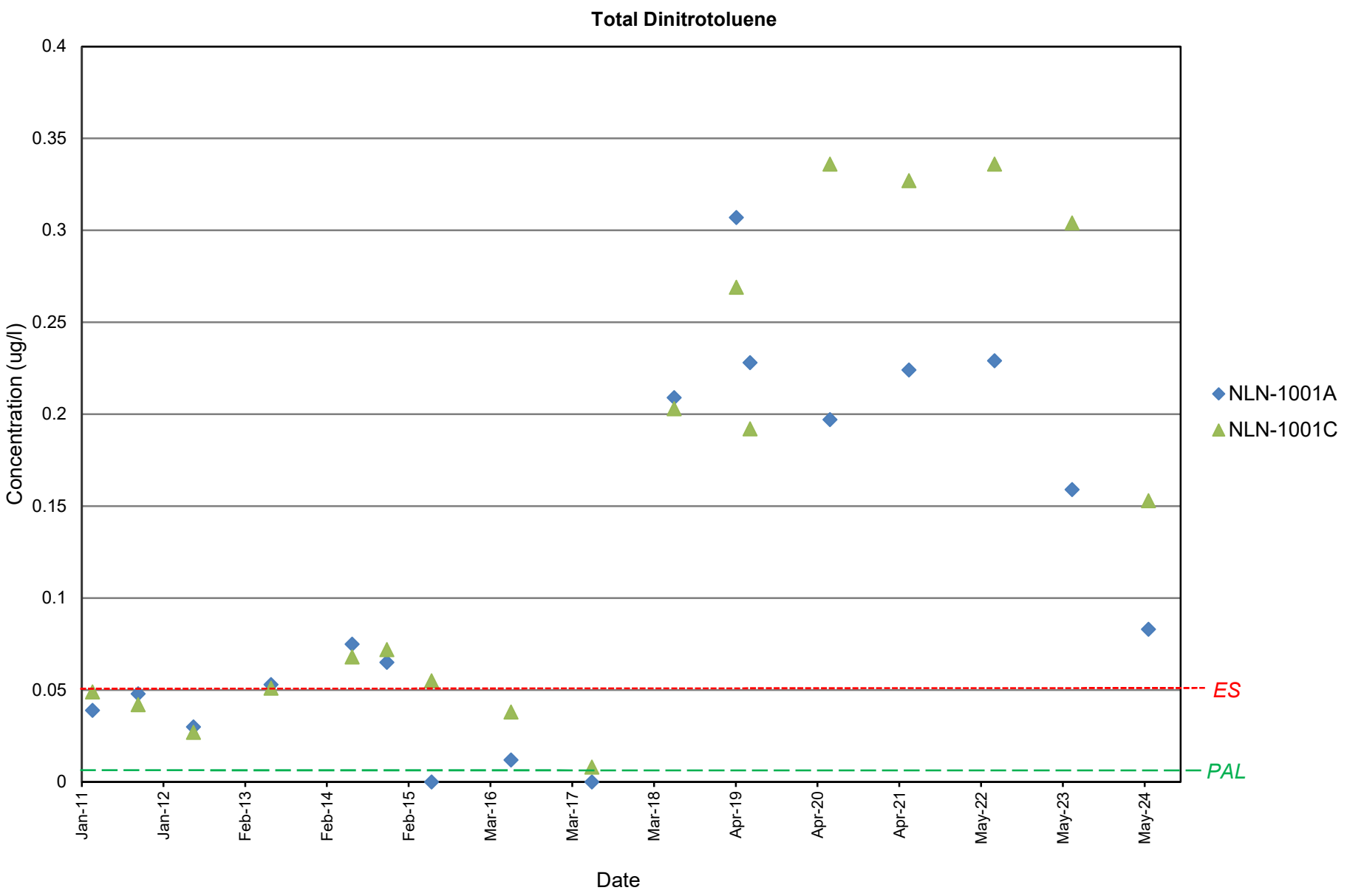
BAAP Groundwater Data | Central Plume | Plume Center



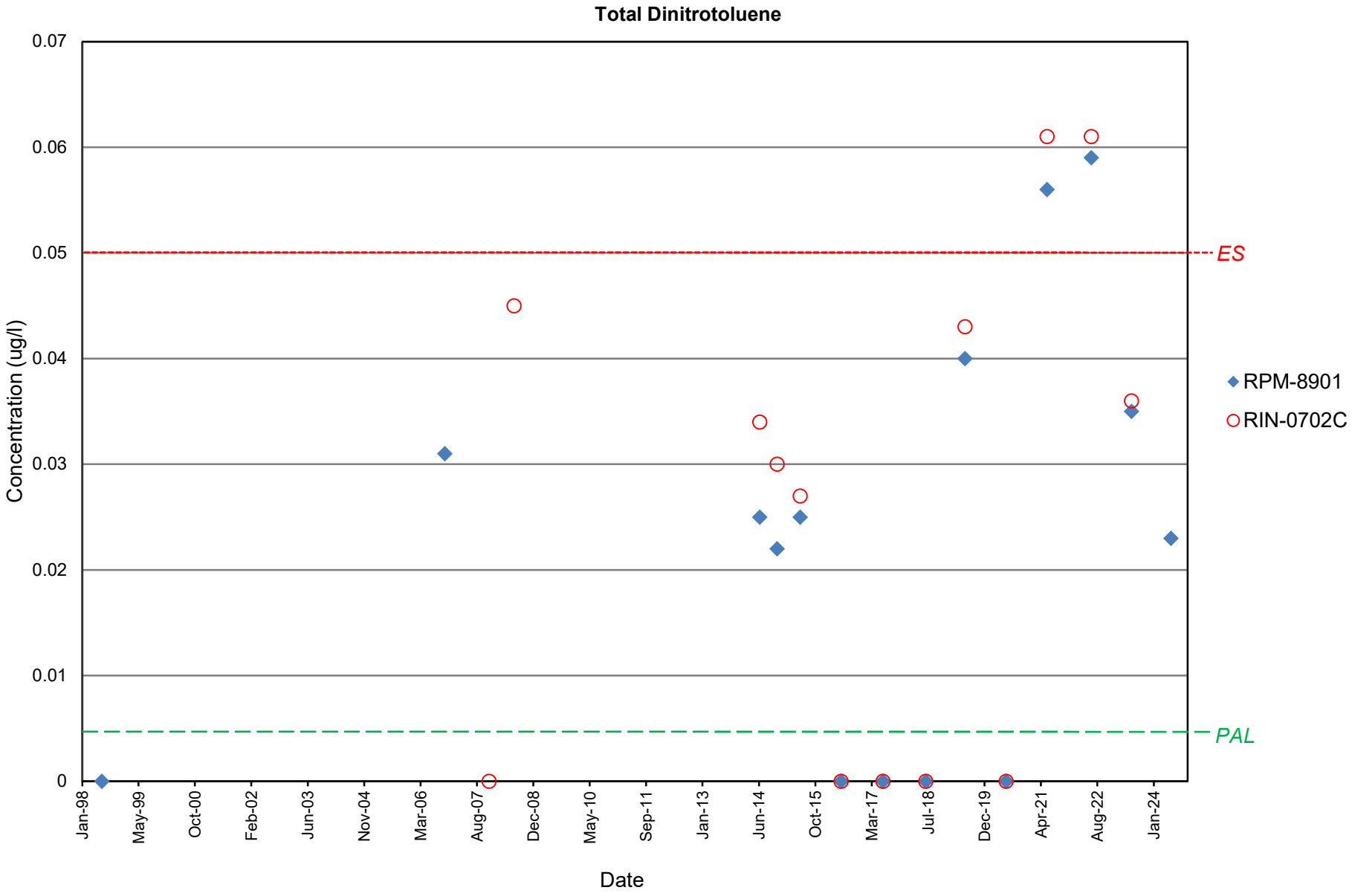
BAAP Groundwater Data | Central Plume | Plume Edge



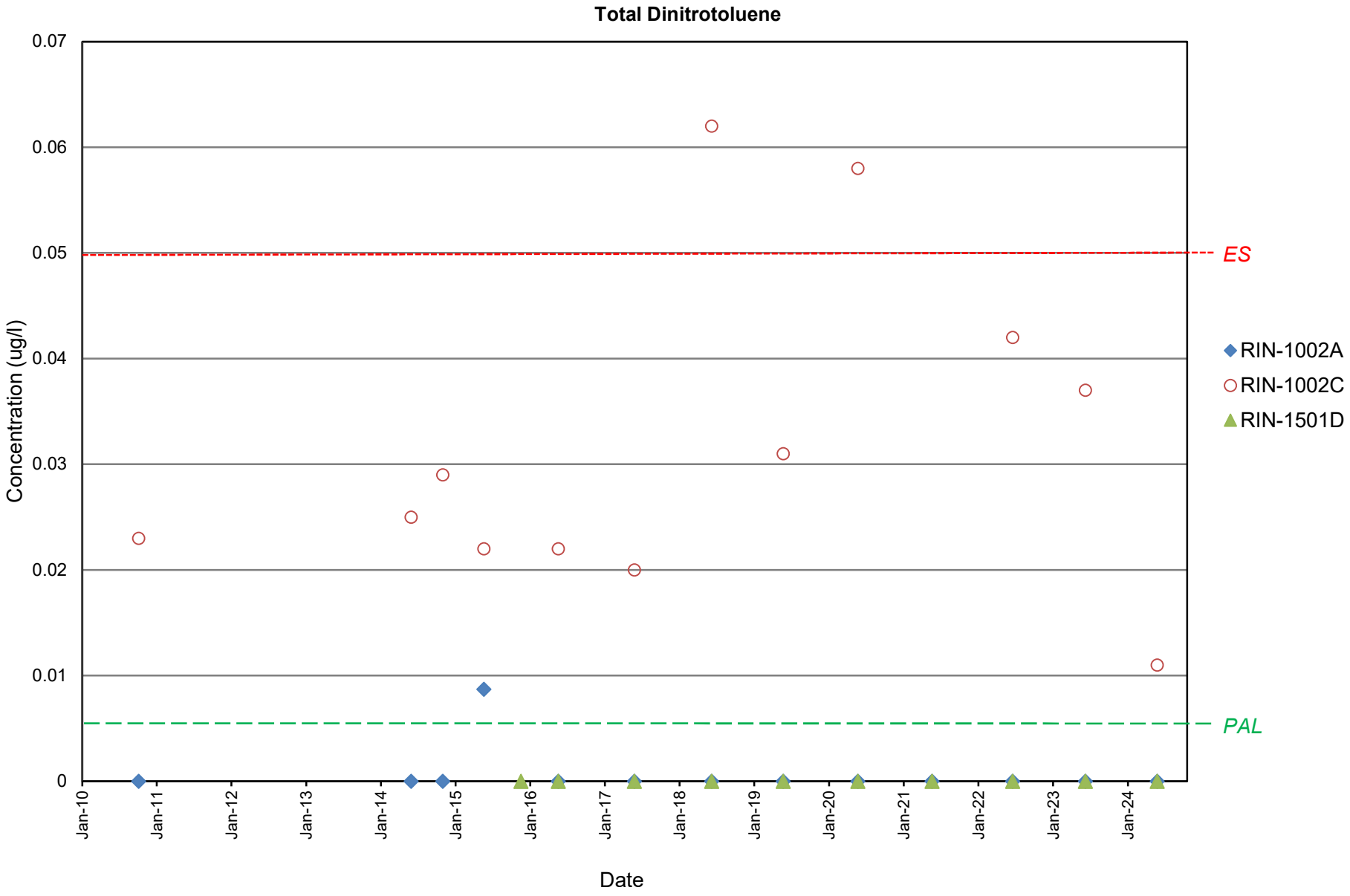
BAAP Groundwater Data | Central Plume | Plume Edge



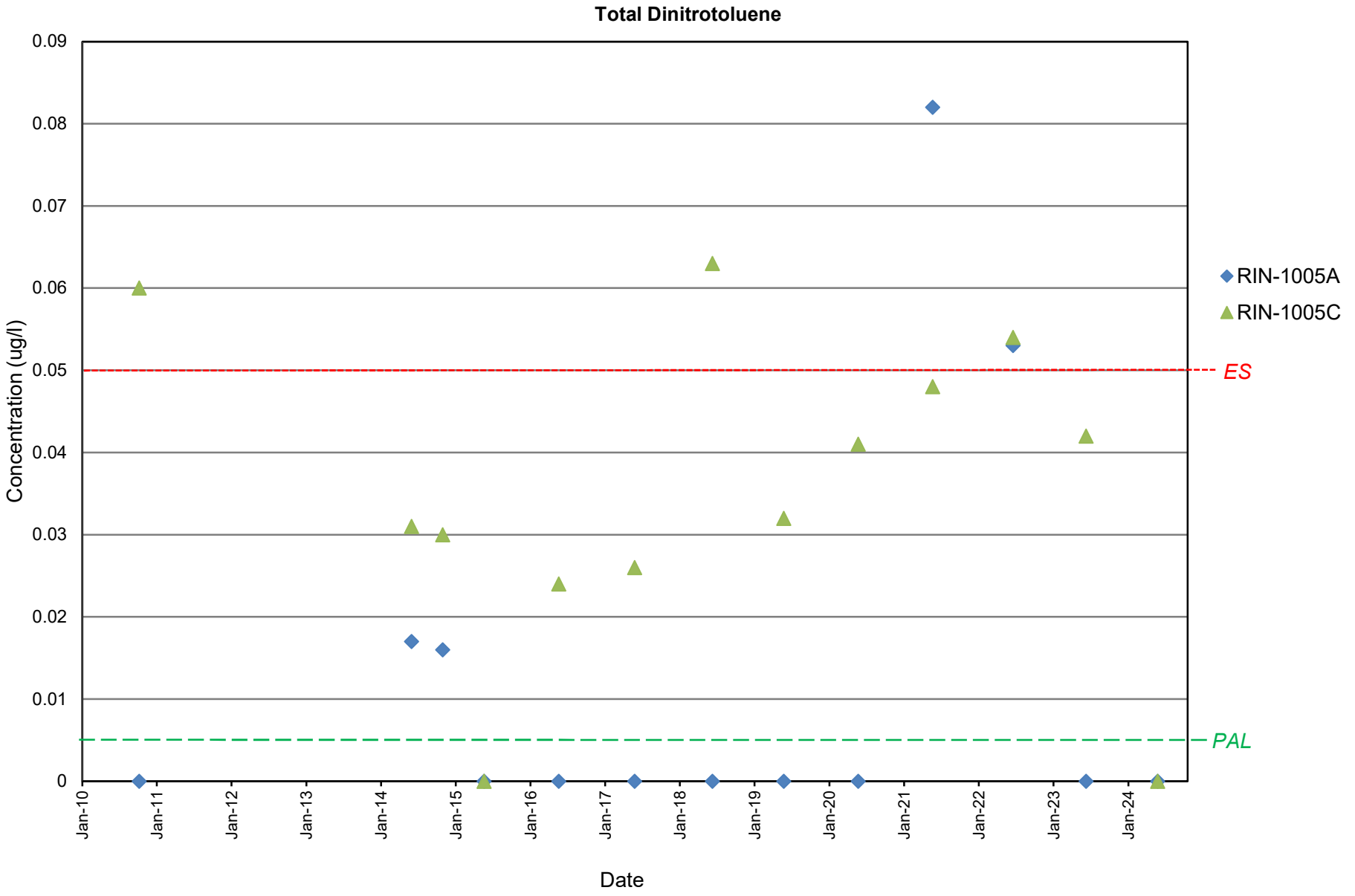
BAAP Groundwater Data | Central Plume | Plume Center



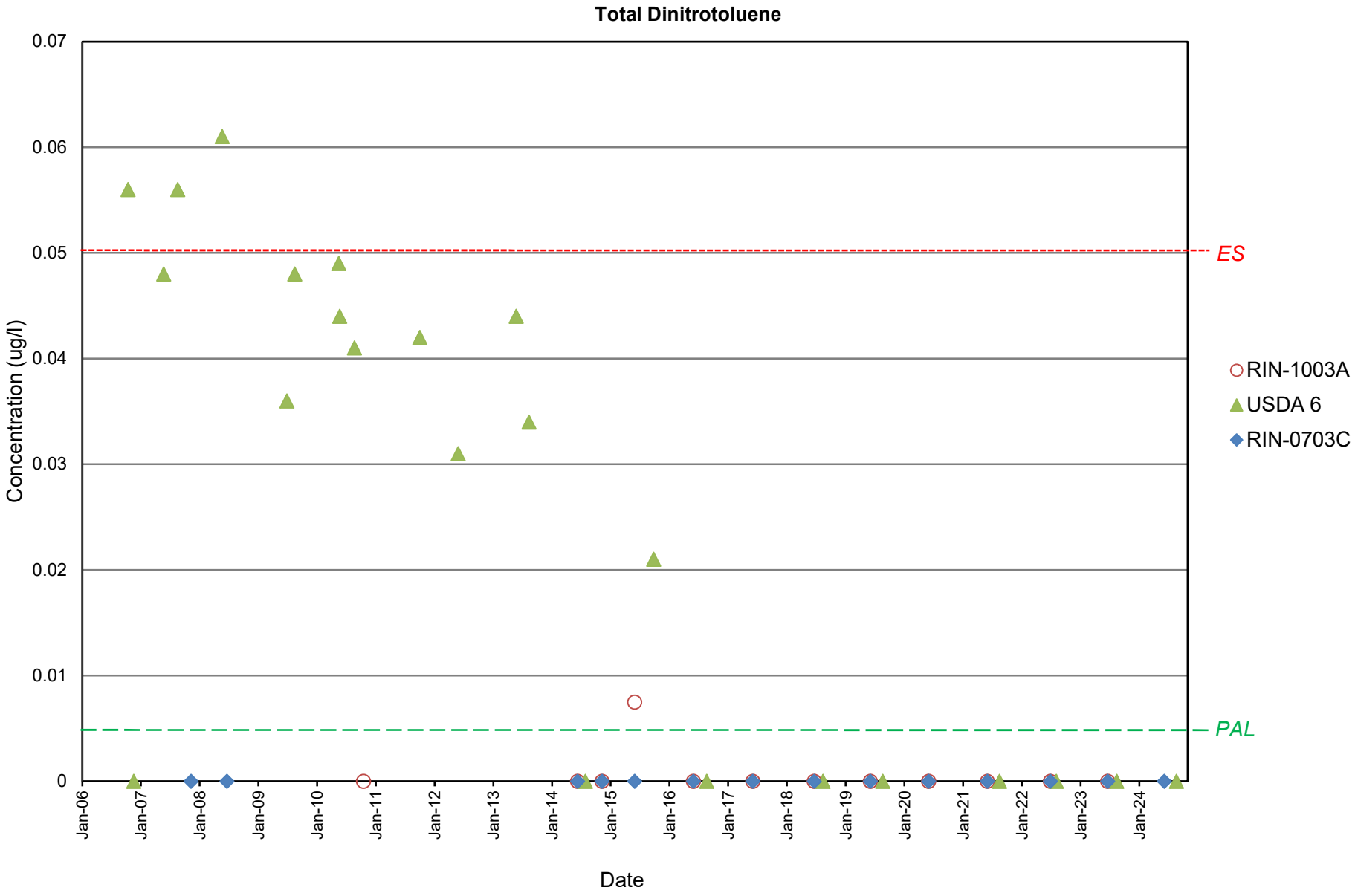
BAAP Groundwater Data | Central Plume | Plume Edge



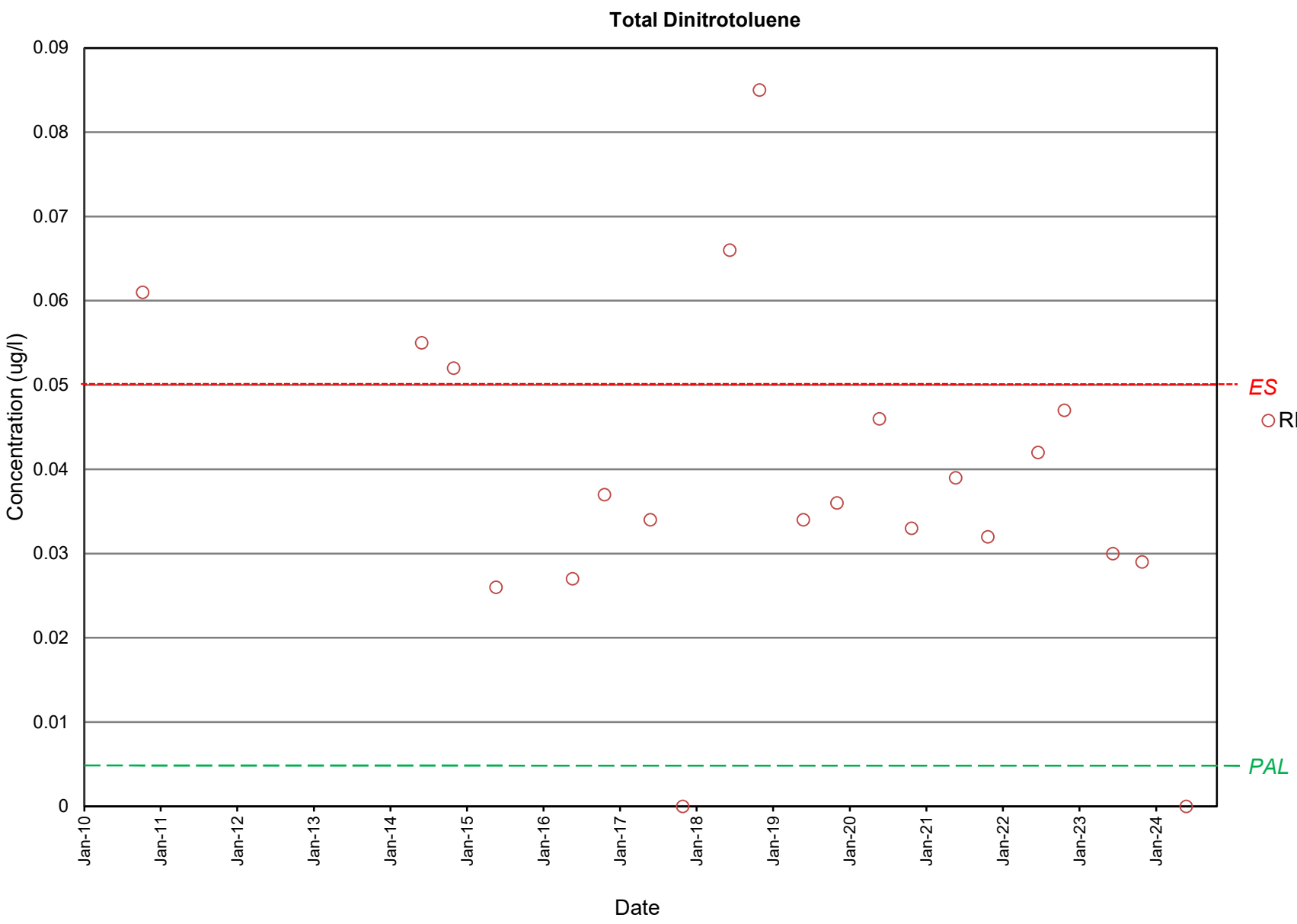
BAAP Groundwater Data | Central Plume | Plume Edge



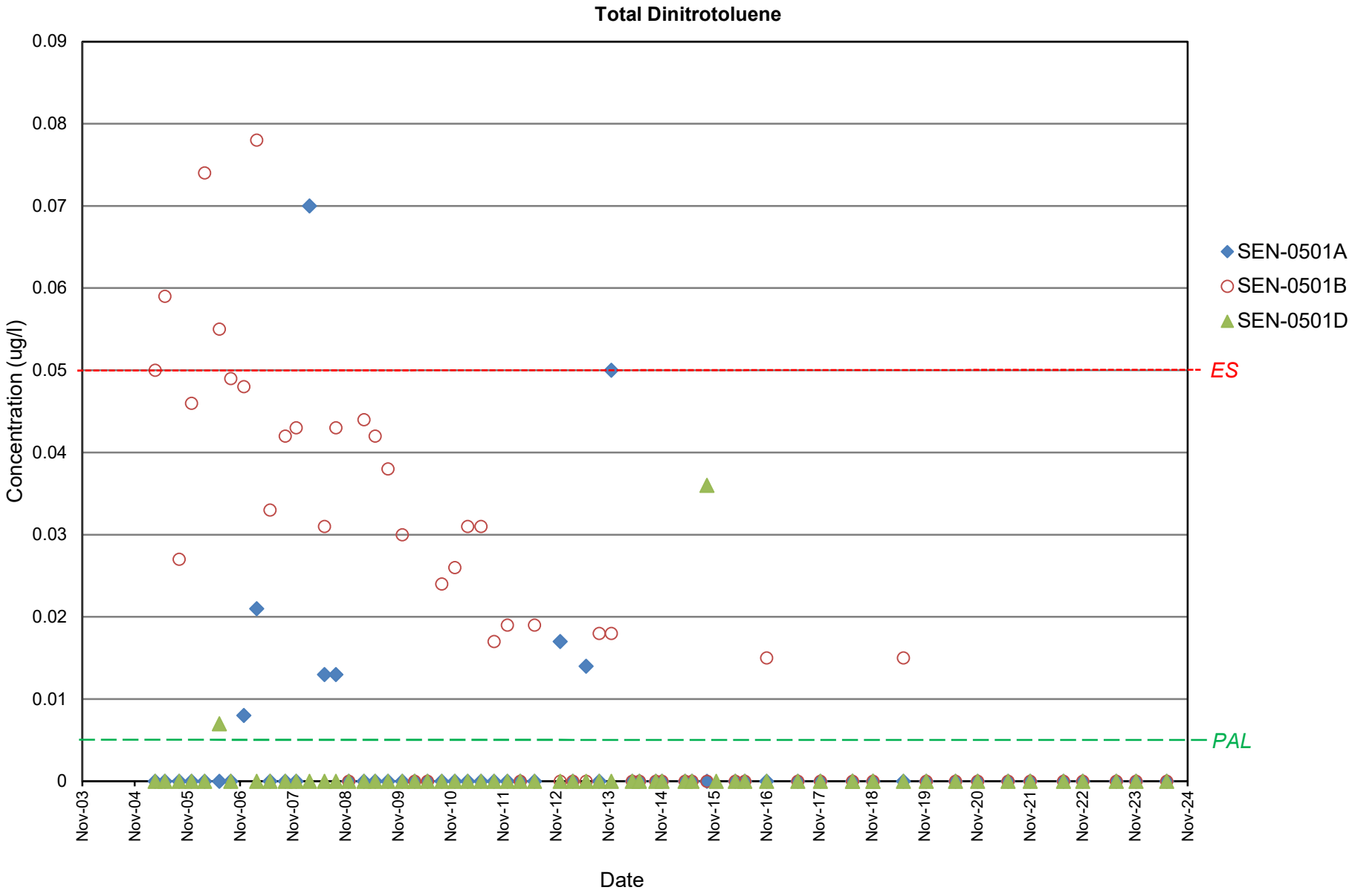
BAAP Groundwater Data | Central Plume | Plume Center



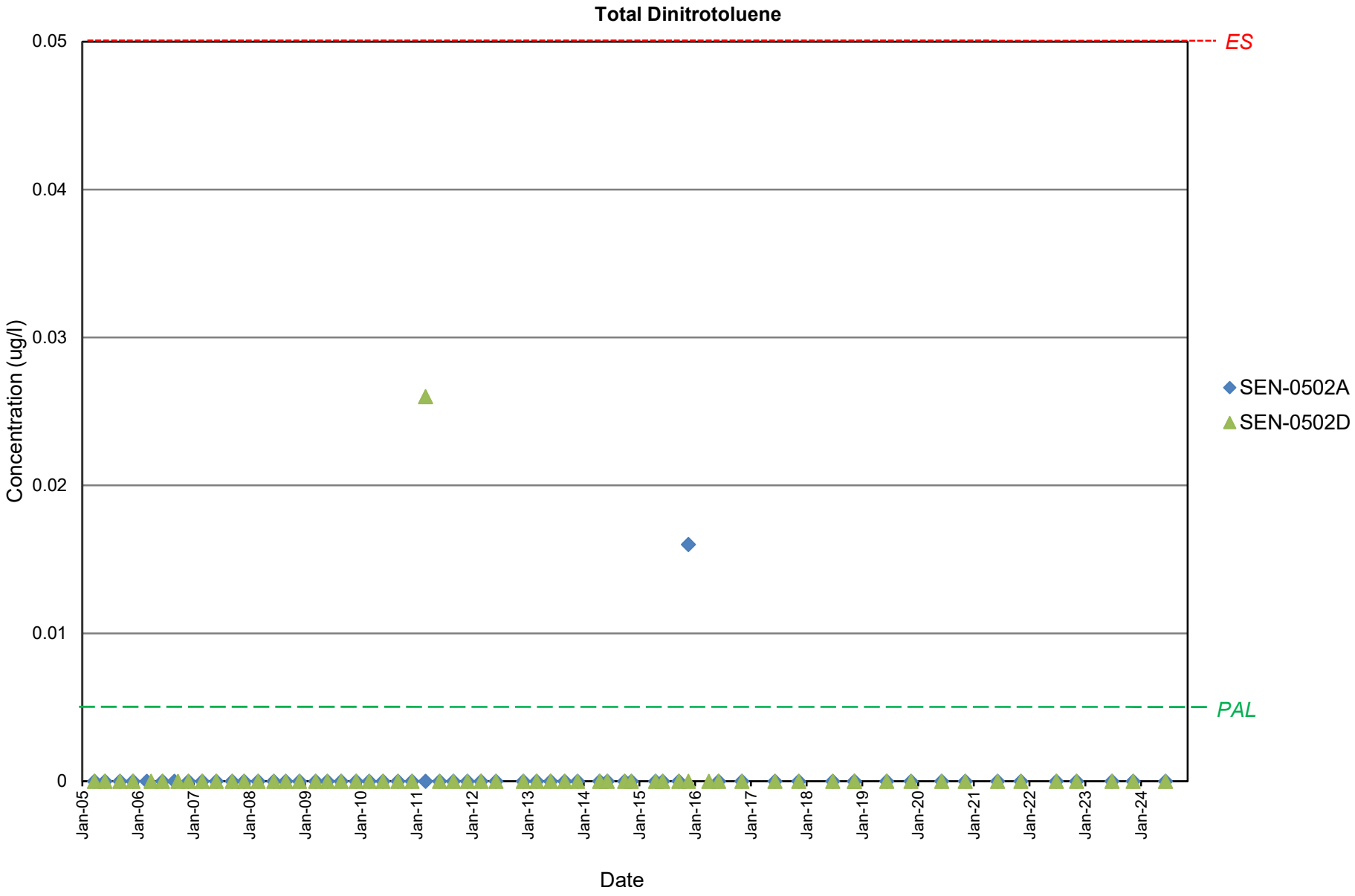
BAAP Groundwater Data | Central Plume | Plume Center



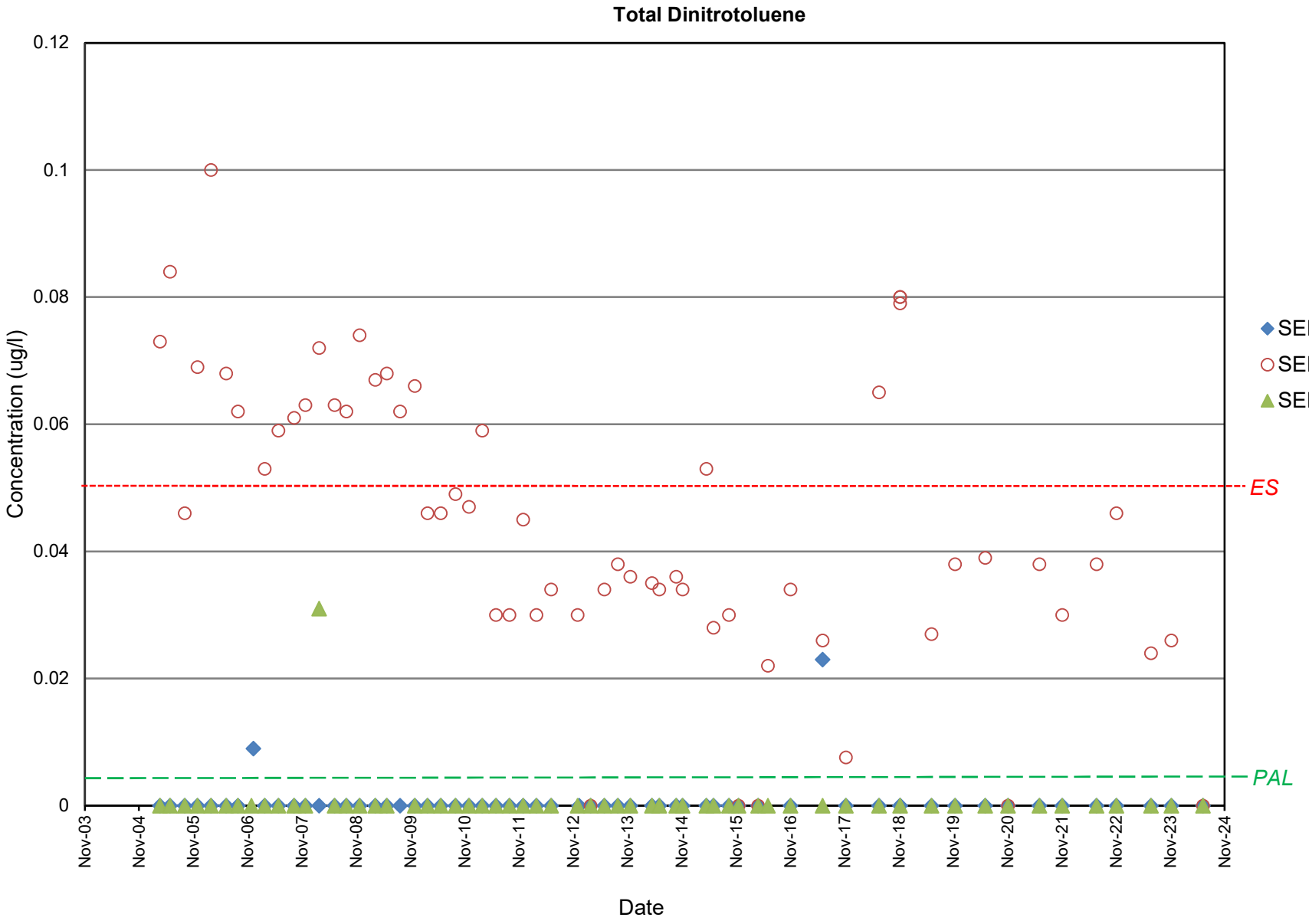
BAAP Groundwater Data | Central Plume | Plume Edge - Offsite



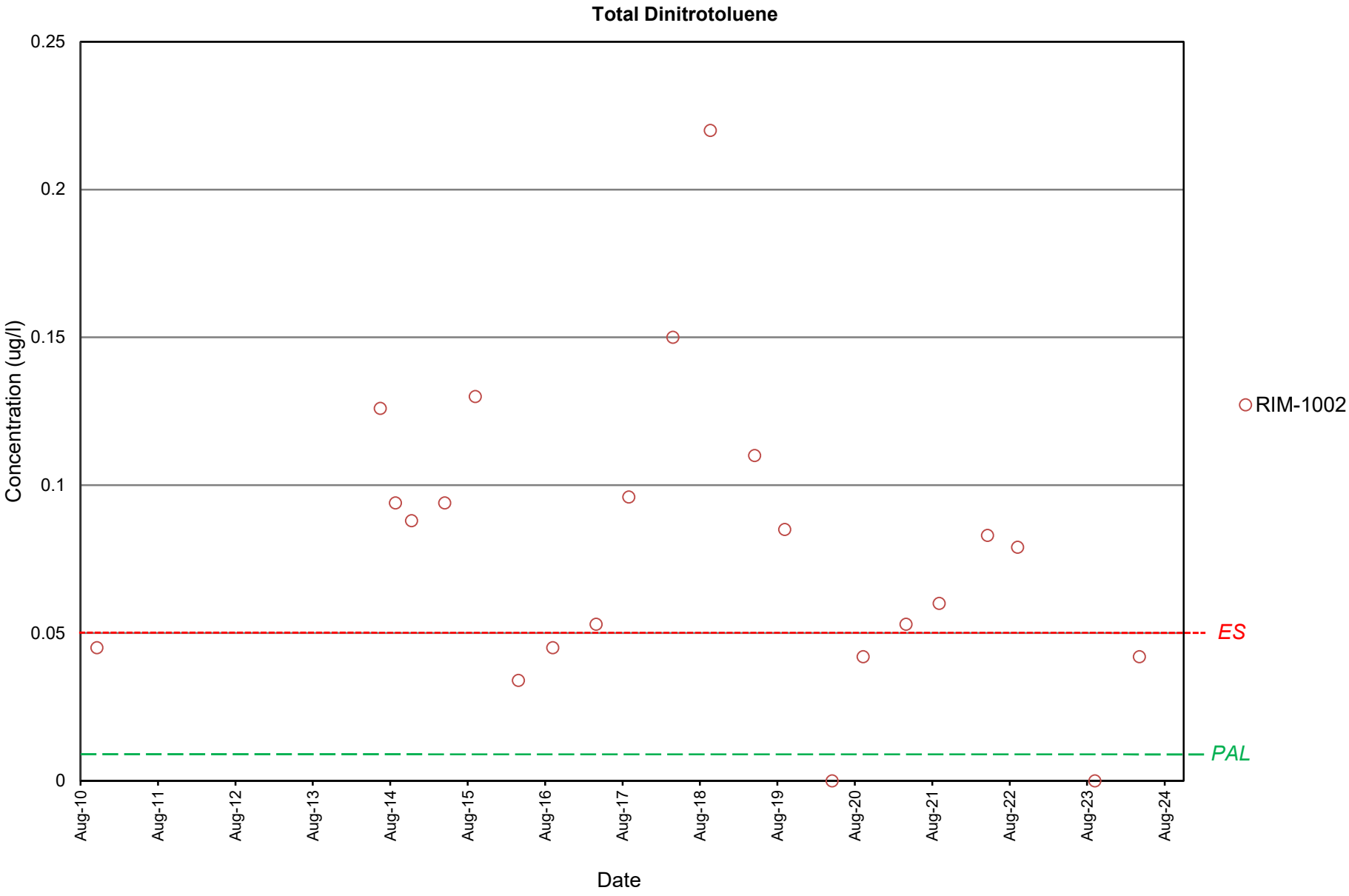
BAAP Groundwater Data | Central Plume | Plume Leading Edge - Offsite



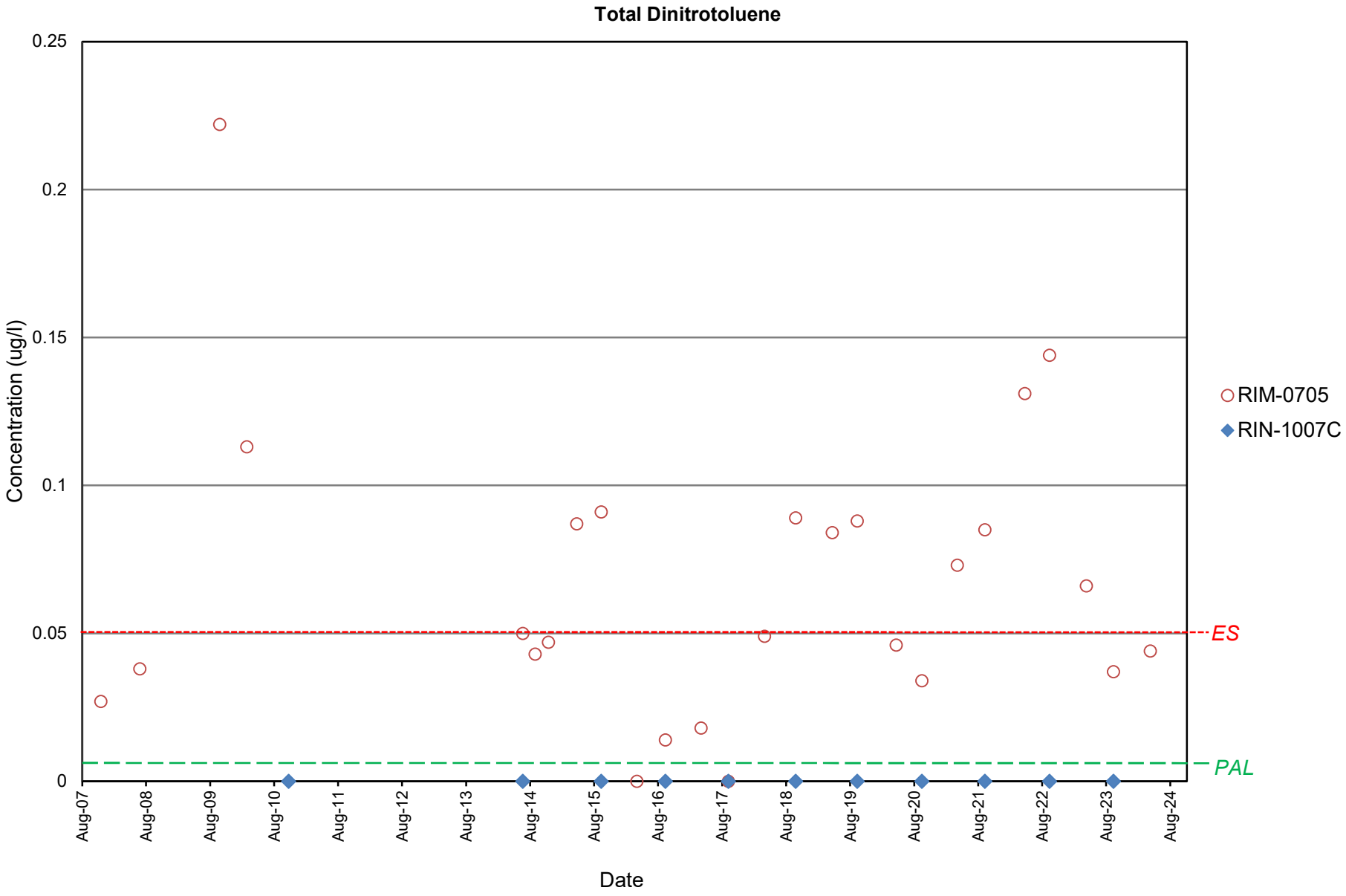
BAAP Groundwater Data | Central Plume | Plume Leading Edge - Offsite



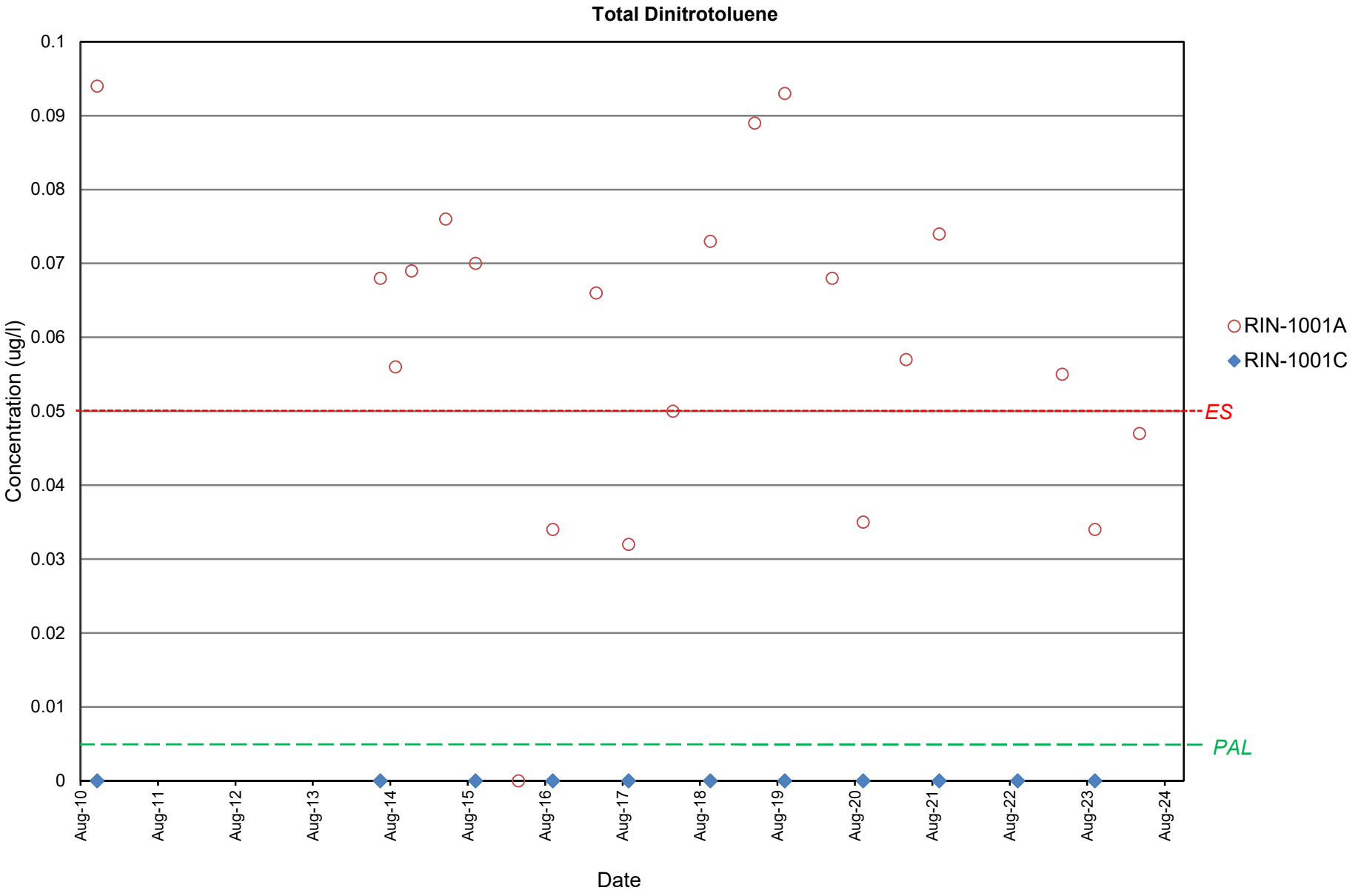
BAAP Groundwater Data | Nitrocellulose Production Area Plume | Plume Center



BAAP Groundwater Data | Nitrocellulose Production Area Plume | Plume Center



BAAP Groundwater Data | Nitrocellulose Production Area Plume | Plume Center



Appendix B

Groundwater Sampling Schedules (2026-2027)

April 2026
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
WE-XK342	435	Central	X				Residential	Quarterly
E12375A	803	DBG	X				Residential	Quarterly
S7655	916	DBG	X				Residential	Quarterly
ELN-8203A	210	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-8203B	211	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-8203C	212	DBG	X	X		X	Monitoring Well	Semi-Annual
ELM-8901	216	DBG	X	X		X	Monitoring Well	Semi-Annual
ELM-8907	220	DBG	X	X		X	Monitoring Well	Semi-Annual
ELM-8908	221	DBG	X	X		X	Monitoring Well	Semi-Annual
ELM-8909	222	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-8902B	224	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-9107A	227	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-9107B	228	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-9402AR	231	DBG	X	X		X	Monitoring Well	Semi-Annual
ELM-9501	234	DBG	X	X			Monitoring Well	Semi-Annual
S1134R	236	DBG	X	X		X	Monitoring Well	Semi-Annual
DBM-8201	301	DBG	X	X		X	Monitoring Well	Semi-Annual
DBM-8202	302	DBG	X	X		X	Monitoring Well	Semi-Annual
DBM-8903	306	DBG	X	X			Monitoring Well	Semi-Annual
DBN-9501A	314	DBG	X	X			Monitoring Well	Semi-Annual
DBN-9501B	315	DBG	X	X			Monitoring Well	Semi-Annual
DBN-9501C	316	DBG	X	X			Monitoring Well	Semi-Annual
DBN-9501E	317	DBG	X	X			Monitoring Well	Semi-Annual
ELN-0801B	455	DBG	X	X			Monitoring Well	Semi-Annual
ELN-0801C	456	DBG	X	X			Monitoring Well	Semi-Annual
ELN-0801E	457	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1001B	460	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1001C	461	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1001E	462	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1002A	463	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1002B	464	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1002C	465	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1002E	466	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1003A	467	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1003B	468	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1003C	469	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1003E	470	DBG	X	X			Monitoring Well	Semi-Annual
DBN-1001B	472	DBG	X	X			Monitoring Well	Semi-Annual
DBN-1001C	473	DBG	X	X			Monitoring Well	Semi-Annual
DBN-1001E	474	DBG	X	X			Monitoring Well	Semi-Annual
DBN-1002C	476	DBG	X	X		X	Monitoring Well	Semi-Annual
DBN-1002E	477	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-1502A	533	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1502C	534	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1503A	535	DBG	X	X			Monitoring Well	Quarterly
ELN-1503C	536	DBG	X	X			Monitoring Well	Quarterly
ELN-1504B	537	DBG	X	X			Monitoring Well	Semi-Annual
ELN-2301B	547	DBG	X	X			Monitoring Well	Quarterly
ELN-2301C	548	DBG	X	X			Monitoring Well	Quarterly
S1121	755	DBG	X	X			Monitoring Well	Semi-Annual
RIM-0705	442	NC Area	X				Monitoring Well	Semi-Annual
RIM-1002	478	NC Area	X				Monitoring Well	Semi-Annual
RIN-1001A	480	NC Area	X				Monitoring Well	Semi-Annual

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
S1125	504	NC Area	X				Monitoring Well	Semi-Annual
PBM-9801	360	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0001	367	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0002	368	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0006	372	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0008	374	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-2301B	544	PBG	X	X			Monitoring Well	Semi-Annual
PBN-2301C	545	PBG	X	X			Monitoring Well	Semi-Annual
PBN-2301D	546	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9101C	561	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103B	571	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103C	572	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103D	573	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103E	574	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9104C	575	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9104D	576	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1002A	589	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1002B	590	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1002C	591	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1001A	593	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1001B	594	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1001C	595	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8202A	613	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8202B	614	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8202C	615	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205A	622	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205B	623	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205C	624	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8502A	632	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8902C	645	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8910D	653	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8912A	654	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8912B	655	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9112C	665	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9112D	666	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9301B	668	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9301C	669	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303B	673	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303C	674	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303D	675	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304A	684	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304B	685	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304C	686	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304D	687	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903A	692	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903B	693	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903C	694	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903D	695	PBG	X	X			Monitoring Well	Semi-Annual
S1148	710	PBG	X	X			Monitoring Well	Semi-Annual
SPN-8904B	720	PBG	X	X			Monitoring Well	Semi-Annual
SPN-8904C	721	PBG	X	X			Monitoring Well	Semi-Annual
SPN-9104D	726	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302A	770	PBG	X	X			Monitoring Well	Semi-Annual

April 2026
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
PBN-1302B	771	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302C	772	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302D	773	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303A	774	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303B	775	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303C	776	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303D	777	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304A	778	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304B	779	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304C	780	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304D	781	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1401A	782	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1401B	783	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1401C	784	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1404B	791	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1404C	792	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1404D	793	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8902BR	795	PBG	X	X			Monitoring Well	Semi-Annual
PBM-9001D	981	PBG	X	X			Monitoring Well	Semi-Annual
Totals			125	118	15	16		

Well Name	Well ID	Plume Area	DNT	VOC	Well Type	Sample Frequency
WE-XK342	435	Central	X		Residential	Quarterly
NLN-8201A	252	Central	X		Monitoring Well	Annual
NLN-8201B	253	Central	X		Monitoring Well	Annual
NLN-8201C	254	Central	X		Monitoring Well	Annual
NLN-8203A	258	Central	X		Monitoring Well	Annual
NLN-8203B	259	Central	X		Monitoring Well	Annual
NLN-8203C	260	Central	X		Monitoring Well	Annual
NLN-8205B	265	Central	X		Monitoring Well	Annual
NLN-8205C	266	Central	X		Monitoring Well	Annual
NLN-9205AR	269	Central	X		Monitoring Well	Annual
NLM-1001	330	Central	X		Monitoring Well	Annual
NLN-1001A	331	Central	X		Monitoring Well	Annual
NLN-1001C	332	Central	X		Monitoring Well	Annual
RIN-0701C	443	Central	X		Monitoring Well	Annual
RIN-0702C	444	Central	X		Monitoring Well	Annual
RIN-0703C	445	Central	X		Monitoring Well	Annual
RIM-1003	491	Central	X		Monitoring Well	Annual
RIN-1002A	492	Central	X		Monitoring Well	Annual
RIN-1002C	493	Central	X		Monitoring Well	Annual
RIN-1003A	495	Central	X		Monitoring Well	Annual
RIN-1005A	496	Central	X		Monitoring Well	Annual
RIN-1005C	497	Central	X		Monitoring Well	Annual
RIN-1004B	498	Central	X		Monitoring Well	Semi-Annual
S1120	502	Central	X		Monitoring Well	Annual
NPM-8901	506	Central	X		Monitoring Well	Annual
RPM-8901	507	Central	X		Monitoring Well	Annual
RPM-9101	509	Central	X		Monitoring Well	Annual
RIN-1501B	538	Central	X		Monitoring Well	Annual
RIN-1501C	539	Central	X		Monitoring Well	Annual
RIN-1501D	540	Central	X		Monitoring Well	Annual
RIN-1502B	541	Central	X		Monitoring Well	Annual
RIN-1502C	542	Central	X		Monitoring Well	Annual
RIN-1502D	543	Central	X		Monitoring Well	Annual
RIN-2301A	549	Central	X		Monitoring Well	Annual
RIN-2301B	550	Central	X		Monitoring Well	Annual
RIN-2302A	551	Central	X		Monitoring Well	Annual
SEN-0501A	580	Central	X	X	Monitoring Well	Semi-Annual
SEN-0501B	581	Central	X	X	Monitoring Well	Semi-Annual
SEN-0501D	582	Central	X	X	Monitoring Well	Semi-Annual
SEN-0502A	583	Central	X	X	Monitoring Well	Semi-Annual
SEN-0502D	584	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503A	585	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503B	586	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503D	587	Central	X	X	Monitoring Well	Semi-Annual
S1111	751	Central	X		Monitoring Well	Annual

June 2026
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Well Type	Sample Frequency
S1112	752	Central	X		Monitoring Well	Annual
E12375A	803	DBG	X		Residential	Quarterly
S7655	916	DBG	X		Residential	Quarterly
ELN-1503A	535	DBG	X		Monitoring Well	Quarterly
ELN-1503C	536	DBG	X		Monitoring Well	Quarterly
ELN-2301B	547	DBG	X		Monitoring Well	Quarterly
ELN-2301C	548	DBG	X		Monitoring Well	Quarterly
Totals			52	8		

August 2026
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Well Type	Sample Frequency
USDA 3	126	Central	X		Residential	Annual
USDA 6	128	Central	X		Residential	Annual
WE-TM599	129	Central	X		Residential	Annual
WE-RM383	153	Central	X		Residential	Annual
WE-RR542	156	Central	X		Residential	Annual
WE-QR441	157	Central	X	X	Residential	Annual
WE-QN039	158	Central	X	X	Residential	Annual
WE-RD430	159	Central	X		Residential	Annual
WE-SQ017	164	Central	X	X	Residential	Annual
WE-SQ001	165	Central	X	X	Residential	Annual
WE-RR598	169	Central	X		Residential	Annual
WE-SQ002	170	Central	X		Residential	Annual
WE-TF023	174	Central	X		Residential	Annual
WE-UK125	431	Central	X		Residential	Annual
WE-UA297	433	Central	X		Residential	Annual
WE-XD828	434	Central	X		Residential	Annual
WE-XK342	435	Central	X	X	Residential	Quarterly
WE-YW972	436	Central	X		Residential	Annual
WE-ZE512	437	Central	X		Residential	Annual
WE-AAB891	799	Central	X	X	Residential	Annual
USDA 1	828	Central	X		Residential	Annual
USDA 2	829	Central	X		Residential	Annual
WE-AAF735	837	Central	X	X	Residential	Annual
E12092	838	Central	X		Residential	Annual
WE-AAU638	919	Central	X	X	Residential	Annual
S7703A	163	DBG	X	X	Residential	Annual
E12655	414	DBG	X	X	Residential	Annual
E12649B	417	DBG	X	X	Residential	Annual
E12455	796	DBG	X	X	Residential	Annual
E12375A	803	DBG	X	X	Residential	Quarterly
S7722	874	DBG	X	X	Residential	Annual
S7655	916	DBG	X	X	Residential	Quarterly
S8723	152	PBG	X	X	Residential	Annual
S8732	800	PBG	X	X	Residential	Annual
S8871	840	PBG	X	X	Residential	Annual
S9093A	847	PBG	X	X	Residential	Annual
S9059A	862	PBG	X	X	Residential	Annual
S8795	875	PBG	X	X	Residential	Annual
E11823	886	PBG	X	X	Residential	Annual
PDS-3	911	PBG	X	X	Residential	Annual
S8839	917	PBG	X	X	Residential	Annual
S9104	924	PBG	X	X	Residential	Annual
S9008A	931	PBG	X	X	Residential	Annual
E11752A	948	PBG	X	X	Residential	Annual
S9179	970	PBG	X	X	Residential	Annual

August 2026
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Well Type	Sample Frequency
S8745	998	PBG	X	X	Residential	Annual
Totals			46	29		

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
ELN-8203A	210	DBG	X				Monitoring Well	Semi-Annual
ELN-8203B	211	DBG	X				Monitoring Well	Semi-Annual
ELN-8203C	212	DBG	X				Monitoring Well	Semi-Annual
ELM-8901	216	DBG	X				Monitoring Well	Semi-Annual
ELM-8907	220	DBG	X				Monitoring Well	Semi-Annual
ELM-8908	221	DBG	X				Monitoring Well	Semi-Annual
ELM-8909	222	DBG	X				Monitoring Well	Semi-Annual
ELN-8902B	224	DBG	X				Monitoring Well	Semi-Annual
ELN-9107A	227	DBG	X				Monitoring Well	Semi-Annual
ELN-9107B	228	DBG	X				Monitoring Well	Semi-Annual
ELN-9402AR	231	DBG	X				Monitoring Well	Semi-Annual
ELM-9501	234	DBG	X				Monitoring Well	Semi-Annual
S1134R	236	DBG	X				Monitoring Well	Semi-Annual
DBM-8201	301	DBG	X				Monitoring Well	Semi-Annual
DBM-8202	302	DBG	X				Monitoring Well	Semi-Annual
DBM-8903	306	DBG	X				Monitoring Well	Semi-Annual
DBN-9501A	314	DBG	X				Monitoring Well	Semi-Annual
DBN-9501B	315	DBG	X				Monitoring Well	Semi-Annual
DBN-9501C	316	DBG	X				Monitoring Well	Semi-Annual
DBN-9501E	317	DBG	X				Monitoring Well	Semi-Annual
ELN-0801B	455	DBG	X				Monitoring Well	Semi-Annual
ELN-0801C	456	DBG	X				Monitoring Well	Semi-Annual
ELN-0801E	457	DBG	X				Monitoring Well	Semi-Annual
ELN-0802A	458	DBG	X	X			Monitoring Well	Biennial
ELN-0802C	459	DBG	X	X			Monitoring Well	Biennial
ELN-1001B	460	DBG	X				Monitoring Well	Semi-Annual
ELN-1001C	461	DBG	X				Monitoring Well	Semi-Annual
ELN-1001E	462	DBG	X				Monitoring Well	Semi-Annual
ELN-1002A	463	DBG	X				Monitoring Well	Semi-Annual
ELN-1002B	464	DBG	X				Monitoring Well	Semi-Annual
ELN-1002C	465	DBG	X				Monitoring Well	Semi-Annual
ELN-1002E	466	DBG	X				Monitoring Well	Semi-Annual
ELN-1003A	467	DBG	X				Monitoring Well	Semi-Annual
ELN-1003B	468	DBG	X				Monitoring Well	Semi-Annual
ELN-1003C	469	DBG	X				Monitoring Well	Semi-Annual
ELN-1003E	470	DBG	X				Monitoring Well	Semi-Annual
DBN-1001B	472	DBG	X				Monitoring Well	Semi-Annual
DBN-1001C	473	DBG	X				Monitoring Well	Semi-Annual
DBN-1001E	474	DBG	X				Monitoring Well	Semi-Annual
DBN-1002C	476	DBG	X				Monitoring Well	Semi-Annual
DBN-1002E	477	DBG	X				Monitoring Well	Semi-Annual
ELN-1502A	533	DBG	X				Monitoring Well	Semi-Annual
ELN-1502C	534	DBG	X				Monitoring Well	Semi-Annual
ELN-1503A	535	DBG	X				Monitoring Well	Quarterly
ELN-1503C	536	DBG	X				Monitoring Well	Quarterly
ELN-1504B	537	DBG	X				Monitoring Well	Semi-Annual
ELN-2301B	547	DBG	X				Monitoring Well	Quarterly
ELN-2301C	548	DBG	X				Monitoring Well	Quarterly
S1121	755	DBG	X				Monitoring Well	Semi-Annual
RIM-0703	440	NC Area	X				Monitoring Well	Annual
RIM-0705	442	NC Area	X				Monitoring Well	Semi-Annual
RIM-1002	478	NC Area	X				Monitoring Well	Semi-Annual
RIN-1007C	479	NC Area	X				Monitoring Well	Annual
RIN-1001A	480	NC Area	X				Monitoring Well	Semi-Annual

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
RIN-1001C	481	NC Area	X				Monitoring Well	Annual
S1125	504	NC Area	X				Monitoring Well	Semi-Annual
SWN-0501B	237	PBG	X	X			Monitoring Well	Biennial
SWN-0501C	238	PBG	X	X			Monitoring Well	Biennial
SWN-0501D	239	PBG	X	X			Monitoring Well	Biennial
SWN-0501E	240	PBG	X	X			Monitoring Well	Biennial
SWN-0502B	241	PBG	X	X			Monitoring Well	Biennial
SWN-0502C	242	PBG	X	X			Monitoring Well	Biennial
SWN-0502D	243	PBG	X	X			Monitoring Well	Biennial
SWN-0502E	244	PBG	X	X			Monitoring Well	Biennial
PBM-9801	360	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0001	367	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0002	368	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0006	372	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0008	374	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-2301B	544	PBG	X	X			Monitoring Well	Semi-Annual
PBN-2301C	545	PBG	X	X			Monitoring Well	Semi-Annual
PBN-2301D	546	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9101C	561	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9102B	562	PBG	X	X			Monitoring Well	Biennial
PBN-9102C	563	PBG	X	X			Monitoring Well	Biennial
SWN-9102C	569	PBG	X	X			Monitoring Well	Biennial
SWN-9102D	570	PBG	X	X			Monitoring Well	Biennial
SWN-9103B	571	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103C	572	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103D	573	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103E	574	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9104C	575	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9104D	576	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9105B	577	PBG	X	X			Monitoring Well	Annual
SWN-9105C	578	PBG	X	X			Monitoring Well	Annual
SWN-9105D	579	PBG	X	X			Monitoring Well	Annual
PBN-1002A	589	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1002B	590	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1002C	591	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1003C	592	PBG	X	X			Monitoring Well	Annual
PBN-1001A	593	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1001B	594	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1001C	595	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8202A	613	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8202B	614	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8202C	615	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205A	622	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205B	623	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205C	624	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8502A	632	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8503A	633	PBG	X	X			Monitoring Well	Annual
PBM-8907	637	PBG	X	X			Monitoring Well	Annual
PBM-8909	639	PBG	X	X			Monitoring Well	Biennial
PBN-8902C	645	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8903B	646	PBG	X	X			Monitoring Well	Annual
PBN-8903C	647	PBG	X	X			Monitoring Well	Annual
PBN-8910D	653	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8912A	654	PBG	X	X			Monitoring Well	Semi-Annual

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
PBN-8912B	655	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9112C	665	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9112D	666	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9301B	668	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9301C	669	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303B	673	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303C	674	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303D	675	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9401B	677	PBG	X	X			Monitoring Well	Biennial
PBN-9401C	678	PBG	X	X			Monitoring Well	Biennial
PBN-9401D	679	PBG	X	X			Monitoring Well	Biennial
PBN-9402B	680	PBG	X	X			Monitoring Well	Biennial
PBN-9402C	681	PBG	X	X			Monitoring Well	Biennial
PBN-9402D	682	PBG	X	X			Monitoring Well	Biennial
PBN-9304A	684	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304B	685	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304C	686	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304D	687	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903A	692	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903B	693	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903C	694	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903D	695	PBG	X	X			Monitoring Well	Semi-Annual
S1147	709	PBG	X	X			Monitoring Well	Annual
S1148	710	PBG	X	X			Monitoring Well	Semi-Annual
SPN-8903B	718	PBG	X	X			Monitoring Well	Annual
SPN-8903C	719	PBG	X	X			Monitoring Well	Annual
SPN-8904B	720	PBG	X	X			Monitoring Well	Semi-Annual
SPN-8904C	721	PBG	X	X			Monitoring Well	Semi-Annual
SPN-9103D	725	PBG	X	X			Monitoring Well	Annual
SPN-9104D	726	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1301A	767	PBG	X	X			Monitoring Well	Annual
PBN-1301B	768	PBG	X	X			Monitoring Well	Annual
PBN-1301C	769	PBG	X	X			Monitoring Well	Annual
PBN-1302A	770	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302B	771	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302C	772	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302D	773	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303A	774	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303B	775	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303C	776	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303D	777	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304A	778	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304B	779	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304C	780	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304D	781	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1401A	782	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1401B	783	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1401C	784	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1404B	791	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1404C	792	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1404D	793	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1405F	794	PBG	X	X			Monitoring Well	Biennial
PBN-8902BR	795	PBG	X	X			Monitoring Well	Semi-Annual
PBM-9001D	981	PBG	X	X			Monitoring Well	Semi-Annual

September 2026 (Biennial Event)
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
PBM-9002D	982	PBG	X	X			Monitoring Well	Biennial
Totals			163	109	15	0		

November 2026
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOCs	Well Type	Sample Frequency
WE-XK342	435	Central	X		Residential	Quarterly
RIN-1004B	498	Central	X		Monitoring Well	Semi-Annual
SEN-0501A	580	Central	X	X	Monitoring Well	Semi-Annual
SEN-0501B	581	Central	X	X	Monitoring Well	Semi-Annual
SEN-0501D	582	Central	X	X	Monitoring Well	Semi-Annual
SEN-0502A	583	Central	X	X	Monitoring Well	Semi-Annual
SEN-0502D	584	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503A	585	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503B	586	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503D	587	Central	X	X	Monitoring Well	Semi-Annual
E12375A	803	DBG	X		Residential	Quarterly
S7655	916	DBG	X		Residential	Quarterly
ELN-1503A	535	DBG	X		Monitoring Well	Quarterly
ELN-1503C	536	DBG	X		Monitoring Well	Quarterly
ELN-2301B	547	DBG	X		Monitoring Well	Quarterly
ELN-2301C	548	DBG	X		Monitoring Well	Quarterly
Totals			16	8		

April 2027
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
WE-XK342	435	Central	X				Residential	Quarterly
E12375A	803	DBG	X				Residential	Quarterly
S7655	916	DBG	X				Residential	Quarterly
ELN-8203A	210	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-8203B	211	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-8203C	212	DBG	X	X		X	Monitoring Well	Semi-Annual
ELM-8901	216	DBG	X	X		X	Monitoring Well	Semi-Annual
ELM-8907	220	DBG	X	X		X	Monitoring Well	Semi-Annual
ELM-8908	221	DBG	X	X		X	Monitoring Well	Semi-Annual
ELM-8909	222	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-8902B	224	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-9107A	227	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-9107B	228	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-9402AR	231	DBG	X	X		X	Monitoring Well	Semi-Annual
ELM-9501	234	DBG	X	X			Monitoring Well	Semi-Annual
S1134R	236	DBG	X	X		X	Monitoring Well	Semi-Annual
DBM-8201	301	DBG	X	X		X	Monitoring Well	Semi-Annual
DBM-8202	302	DBG	X	X		X	Monitoring Well	Semi-Annual
DBM-8903	306	DBG	X	X			Monitoring Well	Semi-Annual
DBN-9501A	314	DBG	X	X			Monitoring Well	Semi-Annual
DBN-9501B	315	DBG	X	X			Monitoring Well	Semi-Annual
DBN-9501C	316	DBG	X	X			Monitoring Well	Semi-Annual
DBN-9501E	317	DBG	X	X			Monitoring Well	Semi-Annual
ELN-0801B	455	DBG	X	X			Monitoring Well	Semi-Annual
ELN-0801C	456	DBG	X	X			Monitoring Well	Semi-Annual
ELN-0801E	457	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1001B	460	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1001C	461	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1001E	462	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1002A	463	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1002B	464	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1002C	465	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1002E	466	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1003A	467	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1003B	468	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1003C	469	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1003E	470	DBG	X	X			Monitoring Well	Semi-Annual
DBN-1001B	472	DBG	X	X			Monitoring Well	Semi-Annual
DBN-1001C	473	DBG	X	X			Monitoring Well	Semi-Annual
DBN-1001E	474	DBG	X	X			Monitoring Well	Semi-Annual
DBN-1002C	476	DBG	X	X		X	Monitoring Well	Semi-Annual
DBN-1002E	477	DBG	X	X		X	Monitoring Well	Semi-Annual
ELN-1502A	533	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1502C	534	DBG	X	X			Monitoring Well	Semi-Annual
ELN-1503A	535	DBG	X	X			Monitoring Well	Quarterly
ELN-1503C	536	DBG	X	X			Monitoring Well	Quarterly
ELN-1504B	537	DBG	X	X			Monitoring Well	Semi-Annual
ELN-2301B	547	DBG	X	X			Monitoring Well	Quarterly
ELN-2301C	548	DBG	X	X			Monitoring Well	Quarterly
S1121	755	DBG	X	X			Monitoring Well	Semi-Annual
RIM-0705	442	NC Area	X				Monitoring Well	Semi-Annual
RIM-1002	478	NC Area	X				Monitoring Well	Semi-Annual
RIN-1001A	480	NC Area	X				Monitoring Well	Semi-Annual

April 2027
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
S1125	504	NC Area	X				Monitoring Well	Semi-Annual
PBM-9801	360	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0001	367	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0002	368	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0006	372	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0008	374	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-2301B	544	PBG	X	X			Monitoring Well	Semi-Annual
PBN-2301C	545	PBG	X	X			Monitoring Well	Semi-Annual
PBN-2301D	546	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9101C	561	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103B	571	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103C	572	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103D	573	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103E	574	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9104C	575	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9104D	576	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1002A	589	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1002B	590	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1002C	591	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1001A	593	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1001B	594	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1001C	595	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8202A	613	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8202B	614	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8202C	615	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205A	622	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205B	623	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205C	624	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8502A	632	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8902C	645	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8910D	653	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8912A	654	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8912B	655	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9112C	665	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9112D	666	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9301B	668	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9301C	669	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303B	673	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303C	674	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303D	675	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304A	684	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304B	685	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304C	686	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304D	687	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903A	692	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903B	693	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903C	694	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903D	695	PBG	X	X			Monitoring Well	Semi-Annual
S1148	710	PBG	X	X			Monitoring Well	Semi-Annual
SPN-8904B	720	PBG	X	X			Monitoring Well	Semi-Annual
SPN-8904C	721	PBG	X	X			Monitoring Well	Semi-Annual
SPN-9104D	726	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302A	770	PBG	X	X			Monitoring Well	Semi-Annual

April 2027
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
PBN-1302B	771	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302C	772	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302D	773	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303A	774	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303B	775	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303C	776	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303D	777	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304A	778	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304B	779	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304C	780	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304D	781	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1401A	782	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1401B	783	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1401C	784	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1404B	791	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1404C	792	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1404D	793	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8902BR	795	PBG	X	X			Monitoring Well	Semi-Annual
PBM-9001D	981	PBG	X	X			Monitoring Well	Semi-Annual
Totals			125	118	15	16		

Well Name	Well ID	Plume Area	DNT	VOC	Well Type	Sample Frequency
WE-XK342	435	Central	X		Residential	Quarterly
NLN-8201A	252	Central	X		Monitoring Well	Annual
NLN-8201B	253	Central	X		Monitoring Well	Annual
NLN-8201C	254	Central	X		Monitoring Well	Annual
NLN-8203A	258	Central	X		Monitoring Well	Annual
NLN-8203B	259	Central	X		Monitoring Well	Annual
NLN-8203C	260	Central	X		Monitoring Well	Annual
NLN-8205B	265	Central	X		Monitoring Well	Annual
NLN-8205C	266	Central	X		Monitoring Well	Annual
NLN-9205AR	269	Central	X		Monitoring Well	Annual
NLM-1001	330	Central	X		Monitoring Well	Annual
NLN-1001A	331	Central	X		Monitoring Well	Annual
NLN-1001C	332	Central	X		Monitoring Well	Annual
RIN-0701C	443	Central	X		Monitoring Well	Annual
RIN-0702C	444	Central	X		Monitoring Well	Annual
RIN-0703C	445	Central	X		Monitoring Well	Annual
RIM-1003	491	Central	X		Monitoring Well	Annual
RIN-1002A	492	Central	X		Monitoring Well	Annual
RIN-1002C	493	Central	X		Monitoring Well	Annual
RIN-1003A	495	Central	X		Monitoring Well	Annual
RIN-1005A	496	Central	X		Monitoring Well	Annual
RIN-1005C	497	Central	X		Monitoring Well	Annual
RIN-1004B	498	Central	X		Monitoring Well	Semi-Annual
S1120	502	Central	X		Monitoring Well	Annual
NPM-8901	506	Central	X		Monitoring Well	Annual
RPM-8901	507	Central	X		Monitoring Well	Annual
RPM-9101	509	Central	X		Monitoring Well	Annual
RIN-1501B	538	Central	X		Monitoring Well	Annual
RIN-1501C	539	Central	X		Monitoring Well	Annual
RIN-1501D	540	Central	X		Monitoring Well	Annual
RIN-1502B	541	Central	X		Monitoring Well	Annual
RIN-1502C	542	Central	X		Monitoring Well	Annual
RIN-1502D	543	Central	X		Monitoring Well	Annual
RIN-2301A	549	Central	X		Monitoring Well	Annual
RIN-2301B	550	Central	X		Monitoring Well	Annual
RIN-2302A	551	Central	X		Monitoring Well	Annual
SEN-0501A	580	Central	X	X	Monitoring Well	Semi-Annual
SEN-0501B	581	Central	X	X	Monitoring Well	Semi-Annual
SEN-0501D	582	Central	X	X	Monitoring Well	Semi-Annual
SEN-0502A	583	Central	X	X	Monitoring Well	Semi-Annual
SEN-0502D	584	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503A	585	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503B	586	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503D	587	Central	X	X	Monitoring Well	Semi-Annual
S1111	751	Central	X		Monitoring Well	Annual

June 2027
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Well Type	Sample Frequency
S1112	752	Central	X		Monitoring Well	Annual
E12375A	803	DBG	X		Residential	Quarterly
S7655	916	DBG	X		Residential	Quarterly
ELN-1503A	535	DBG	X		Monitoring Well	Quarterly
ELN-1503C	536	DBG	X		Monitoring Well	Quarterly
ELN-2301B	547	DBG	X		Monitoring Well	Quarterly
ELN-2301C	548	DBG	X		Monitoring Well	Quarterly
Totals			52	8		

August 2027
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Well Type	Sample Frequency
USDA 3	126	Central	X		Residential	Annual
USDA 6	128	Central	X		Residential	Annual
WE-TM599	129	Central	X		Residential	Annual
WE-RM383	153	Central	X		Residential	Annual
WE-RR542	156	Central	X		Residential	Annual
WE-QR441	157	Central	X	X	Residential	Annual
WE-QN039	158	Central	X	X	Residential	Annual
WE-RD430	159	Central	X		Residential	Annual
WE-SQ017	164	Central	X	X	Residential	Annual
WE-SQ001	165	Central	X	X	Residential	Annual
WE-RR598	169	Central	X		Residential	Annual
WE-SQ002	170	Central	X		Residential	Annual
WE-TF023	174	Central	X		Residential	Annual
WE-UK125	431	Central	X		Residential	Annual
WE-UA297	433	Central	X		Residential	Annual
WE-XD828	434	Central	X		Residential	Annual
WE-XK342	435	Central	X	X	Residential	Quarterly
WE-YW972	436	Central	X		Residential	Annual
WE-ZE512	437	Central	X		Residential	Annual
WE-AAB891	799	Central	X	X	Residential	Annual
USDA 1	828	Central	X		Residential	Annual
USDA 2	829	Central	X		Residential	Annual
WE-AAF735	837	Central	X	X	Residential	Annual
E12092	838	Central	X		Residential	Annual
WE-AAU638	919	Central	X	X	Residential	Annual
S7703A	163	DBG	X	X	Residential	Annual
E12655	414	DBG	X	X	Residential	Annual
E12649B	417	DBG	X	X	Residential	Annual
E12455	796	DBG	X	X	Residential	Annual
E12375A	803	DBG	X	X	Residential	Quarterly
S7722	874	DBG	X	X	Residential	Annual
S7655	916	DBG	X	X	Residential	Quarterly
S8723	152	PBG	X	X	Residential	Annual
S8732	800	PBG	X	X	Residential	Annual
S8871	840	PBG	X	X	Residential	Annual
S9093A	847	PBG	X	X	Residential	Annual
S9059A	862	PBG	X	X	Residential	Annual
S8795	875	PBG	X	X	Residential	Annual
E11823	886	PBG	X	X	Residential	Annual
PDS-3	911	PBG	X	X	Residential	Annual
S8839	917	PBG	X	X	Residential	Annual
S9104	924	PBG	X	X	Residential	Annual
S9008A	931	PBG	X	X	Residential	Annual
E11752A	948	PBG	X	X	Residential	Annual
S9179	970	PBG	X	X	Residential	Annual

August 2027
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Well Type	Sample Frequency
S8745	998	PBG	X	X	Residential	Annual
Totals			46	29		

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
ELN-8203A	210	DBG	X				Monitoring Well	Semi-Annual
ELN-8203B	211	DBG	X				Monitoring Well	Semi-Annual
ELN-8203C	212	DBG	X				Monitoring Well	Semi-Annual
ELM-8901	216	DBG	X				Monitoring Well	Semi-Annual
ELM-8907	220	DBG	X				Monitoring Well	Semi-Annual
ELM-8908	221	DBG	X				Monitoring Well	Semi-Annual
ELM-8909	222	DBG	X				Monitoring Well	Semi-Annual
ELN-8902B	224	DBG	X				Monitoring Well	Semi-Annual
ELN-9107A	227	DBG	X				Monitoring Well	Semi-Annual
ELN-9107B	228	DBG	X				Monitoring Well	Semi-Annual
ELN-9402AR	231	DBG	X				Monitoring Well	Semi-Annual
ELM-9501	234	DBG	X				Monitoring Well	Semi-Annual
S1134R	236	DBG	X				Monitoring Well	Semi-Annual
DBM-8201	301	DBG	X				Monitoring Well	Semi-Annual
DBM-8202	302	DBG	X				Monitoring Well	Semi-Annual
DBM-8903	306	DBG	X				Monitoring Well	Semi-Annual
DBN-9501A	314	DBG	X				Monitoring Well	Semi-Annual
DBN-9501B	315	DBG	X				Monitoring Well	Semi-Annual
DBN-9501C	316	DBG	X				Monitoring Well	Semi-Annual
DBN-9501E	317	DBG	X				Monitoring Well	Semi-Annual
ELN-0801B	455	DBG	X				Monitoring Well	Semi-Annual
ELN-0801C	456	DBG	X				Monitoring Well	Semi-Annual
ELN-0801E	457	DBG	X				Monitoring Well	Semi-Annual
ELN-1001B	460	DBG	X				Monitoring Well	Semi-Annual
ELN-1001C	461	DBG	X				Monitoring Well	Semi-Annual
ELN-1001E	462	DBG	X				Monitoring Well	Semi-Annual
ELN-1002A	463	DBG	X				Monitoring Well	Semi-Annual
ELN-1002B	464	DBG	X				Monitoring Well	Semi-Annual
ELN-1002C	465	DBG	X				Monitoring Well	Semi-Annual
ELN-1002E	466	DBG	X				Monitoring Well	Semi-Annual
ELN-1003A	467	DBG	X				Monitoring Well	Semi-Annual
ELN-1003B	468	DBG	X				Monitoring Well	Semi-Annual
ELN-1003C	469	DBG	X				Monitoring Well	Semi-Annual
ELN-1003E	470	DBG	X				Monitoring Well	Semi-Annual
DBN-1001B	472	DBG	X				Monitoring Well	Semi-Annual
DBN-1001C	473	DBG	X				Monitoring Well	Semi-Annual
DBN-1001E	474	DBG	X				Monitoring Well	Semi-Annual
DBN-1002C	476	DBG	X				Monitoring Well	Semi-Annual
DBN-1002E	477	DBG	X				Monitoring Well	Semi-Annual
ELN-1502A	533	DBG	X				Monitoring Well	Semi-Annual
ELN-1502C	534	DBG	X				Monitoring Well	Semi-Annual
ELN-1503A	535	DBG	X				Monitoring Well	Quarterly
ELN-1503C	536	DBG	X				Monitoring Well	Quarterly
ELN-1504B	537	DBG	X				Monitoring Well	Semi-Annual
ELN-2301B	547	DBG	X				Monitoring Well	Quarterly
ELN-2301C	548	DBG	X				Monitoring Well	Quarterly
S1121	755	DBG	X				Monitoring Well	Semi-Annual
RIM-0703	440	NC Area	X				Monitoring Well	Annual
RIM-0705	442	NC Area	X				Monitoring Well	Semi-Annual
RIM-1002	478	NC Area	X				Monitoring Well	Semi-Annual
RIN-1007C	479	NC Area	X				Monitoring Well	Annual
RIN-1001A	480	NC Area	X				Monitoring Well	Semi-Annual
RIN-1001C	481	NC Area	X				Monitoring Well	Annual
S1125	504	NC Area	X				Monitoring Well	Semi-Annual

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
PBM-9801	360	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0001	367	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0002	368	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0006	372	PBG	X	X	X		Monitoring Well	Semi-Annual
PBM-0008	374	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-2301B	544	PBG	X	X			Monitoring Well	Semi-Annual
PBN-2301C	545	PBG	X	X			Monitoring Well	Semi-Annual
PBN-2301D	546	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9101C	561	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103B	571	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103C	572	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103D	573	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9103E	574	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9104C	575	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9104D	576	PBG	X	X			Monitoring Well	Semi-Annual
SWN-9105B	577	PBG	X	X			Monitoring Well	Annual
SWN-9105C	578	PBG	X	X			Monitoring Well	Annual
SWN-9105D	579	PBG	X	X			Monitoring Well	Annual
PBN-1002A	589	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1002B	590	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1002C	591	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1003C	592	PBG	X	X			Monitoring Well	Annual
PBN-1001A	593	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1001B	594	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1001C	595	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8202A	613	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8202B	614	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8202C	615	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205A	622	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205B	623	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8205C	624	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8502A	632	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8503A	633	PBG	X	X			Monitoring Well	Annual
PBM-8907	637	PBG	X	X			Monitoring Well	Annual
PBN-8902C	645	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8903B	646	PBG	X	X			Monitoring Well	Annual
PBN-8903C	647	PBG	X	X			Monitoring Well	Annual
PBN-8910D	653	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-8912A	654	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8912B	655	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9112C	665	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9112D	666	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9301B	668	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9301C	669	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303B	673	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303C	674	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9303D	675	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304A	684	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304B	685	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304C	686	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9304D	687	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903A	692	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903B	693	PBG	X	X			Monitoring Well	Semi-Annual
PBN-9903C	694	PBG	X	X			Monitoring Well	Semi-Annual

September 2027 (No Biennial Event)
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOC	Nitrates	Sulfate	Well Type	Sample Frequency
PBN-9903D	695	PBG	X	X			Monitoring Well	Semi-Annual
S1147	709	PBG	X	X			Monitoring Well	Annual
S1148	710	PBG	X	X			Monitoring Well	Semi-Annual
SPN-8903B	718	PBG	X	X			Monitoring Well	Annual
SPN-8903C	719	PBG	X	X			Monitoring Well	Annual
SPN-8904B	720	PBG	X	X			Monitoring Well	Semi-Annual
SPN-8904C	721	PBG	X	X			Monitoring Well	Semi-Annual
SPN-9103D	725	PBG	X	X			Monitoring Well	Annual
SPN-9104D	726	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1301A	767	PBG	X	X			Monitoring Well	Annual
PBN-1301B	768	PBG	X	X			Monitoring Well	Annual
PBN-1301C	769	PBG	X	X			Monitoring Well	Annual
PBN-1302A	770	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302B	771	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302C	772	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1302D	773	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303A	774	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303B	775	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303C	776	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1303D	777	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304A	778	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304B	779	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304C	780	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1304D	781	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1401A	782	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1401B	783	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1401C	784	PBG	X	X	X		Monitoring Well	Semi-Annual
PBN-1404B	791	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1404C	792	PBG	X	X			Monitoring Well	Semi-Annual
PBN-1404D	793	PBG	X	X			Monitoring Well	Semi-Annual
PBN-8902BR	795	PBG	X	X			Monitoring Well	Semi-Annual
PBM-9001D	981	PBG	X	X			Monitoring Well	Semi-Annual
Totals			140	86	15	0		

November 2027
Groundwater Sampling Schedule

Well Name	Well ID	Plume Area	DNT	VOCs	Well Type	Sample Frequency
WE-XK342	435	Central	X		Residential	Quarterly
RIN-1004B	498	Central	X		Monitoring Well	Semi-Annual
SEN-0501A	580	Central	X	X	Monitoring Well	Semi-Annual
SEN-0501B	581	Central	X	X	Monitoring Well	Semi-Annual
SEN-0501D	582	Central	X	X	Monitoring Well	Semi-Annual
SEN-0502A	583	Central	X	X	Monitoring Well	Semi-Annual
SEN-0502D	584	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503A	585	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503B	586	Central	X	X	Monitoring Well	Semi-Annual
SEN-0503D	587	Central	X	X	Monitoring Well	Semi-Annual
E12375A	803	DBG	X		Residential	Quarterly
S7655	916	DBG	X		Residential	Quarterly
ELN-1503A	535	DBG	X		Monitoring Well	Quarterly
ELN-1503C	536	DBG	X		Monitoring Well	Quarterly
ELN-2301B	547	DBG	X		Monitoring Well	Quarterly
ELN-2301C	548	DBG	X		Monitoring Well	Quarterly
Totals			16	8		