



**PLUM POINT ENERGY STATION**

**GROUNDWATER MONITORING AND CORRECTIVE ACTION**  
**2022 ANNUAL REPORT**

**PREPARED IN COMPLIANCE WITH THE  
EPA FINAL RULE FOR THE DISPOSAL OF  
COAL COMBUSTION RESIDUALS  
TITLE 40 OF THE CODE OF FEDERAL REGULATIONS, PART 257**

**JANUARY 25, 2023**

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PLUM POINT ENERGY STATION  
GROUNDWATER MONITORING AND CORRECTIVE ACTION  
2022 ANNUAL REPORT

Prepared for

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## EXECUTIVE SUMMARY

Plum Point Services Company, LLC (PPSC), operates a landfill for the disposal of coal combustion residuals (CCRs) at the Plum Point Energy Station located near Osceola, Arkansas. The landfill is regulated by the Environmental Protection Agency (EPA) Coal Combustion Residuals rule, promulgated at Title 40 of the Code of Federal Regulations (40 CFR), Part 257, and published on April 17, 2015. Landfills regulated by this rule are required to implement and maintain a groundwater monitoring program to determine if the CCR landfill is impacting groundwater quality at the facility's compliance boundary. For this purpose, semiannual groundwater detection monitoring is required. This report presents results from semiannual detection monitoring events performed during 2022 in accordance with 40 CFR Part 257.

The landfill's groundwater monitoring program uses a certified monitoring well network comprised of ten monitoring wells (FTN Associates, Ltd. [FTN] 2017a). Groundwater sample collection is performed in accordance with the landfill's groundwater sampling and analysis plan (FTN 2017b) and data are evaluated in accordance with the landfill's certified statistical analysis plan (FTN 2017c).

FTN was contracted to sample groundwater and statistically evaluate the data from the semiannual monitoring events performed during 2022. Results from these events are summarized as follows:

1. Detection monitoring was performed during April and October 2022 for the first and second half of 2022 monitoring periods, respectively. Groundwater samples from each event were submitted to a third-party Arkansas-licensed laboratory for analysis of the appendix III list of parameters, excluding pH, which is field-measured.
2. The direction of groundwater flow varied between the first and second half of 2022 monitoring events. The April 2022 and October 2022 potentiometric surface maps show groundwater flow generally to the south and to the east-northeast, respectively, across the active landfill cells.
3. Of the appendix III parameters evaluated, only fluoride has an EPA-promulgated maximum contaminant level (MCL). None of the measured values in groundwater exceeded the MCL for fluoride.

4. Time-series plots and box-and-whiskers diagrams show variability across the well network for the following appendix III parameters: calcium, chloride, fluoride, sulfate, and total dissolved solids (TDS). The remaining appendix III parameters, boron and pH, show relatively similar values across all wells, with measured boron being below the laboratory RDL for the period of record at all wells.
5. As discussed in the 2021 groundwater monitoring and corrective action report, statistical evaluation of the second half of 2021 data set identified confirmed statistically significant increases (SSIs) for calcium, sulfate, and TDS at MW-116 and for sulfate and TDS at MW-117. PPSC completed a successful alternate source demonstration (ASD) in response to the SSIs in accordance with §257.94(e)(2). The ASD was certified by an Arkansas-registered professional engineer on April 5, 2022, and is included with this report in accordance with §257.94(e)(2). Based on the successful ASD, PPSC continued with detection monitoring in the first half of 2022 in accordance with §257.94.
6. Statistical evaluation of the first half of 2022 data set identified confirmed SSIs for calcium, sulfate, and TDS at MW-117. PPSC completed a successful ASD in response to the SSIs in accordance with §257.94(e)(2). The ASD was certified by an Arkansas-registered professional engineer on September 27, 2022, and is included with this report in accordance with §257.94(e)(2). Based on the successful ASD, PPSC continued with detection monitoring in the second half of 2022 accordance with §257.94.
7. Statistical evaluation of the second half of 2022 data set identified a confirmed SSI for sulfate at MW-117. PPSC completed a successful ASD in response to the SSI in accordance with §257.94(e)(2). The ASD was certified by an Arkansas-registered professional engineer on January 25, 2023, and is included with this report in accordance with §257.94(e)(2). Based on the successful ASD, PPSC will continue with detection monitoring in the first half of 2023 accordance with §257.94.

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## 1.0 BACKGROUND

Plum Point Services Company, LLC (PPSC), operates a landfill for the disposal of coal combustion residuals (CCRs) at the Plum Point Energy Station in Mississippi County, Arkansas. The plant and landfill are located approximately 2 miles south of the city of Osceola, as shown on Figure 1.1. The landfill is regulated by the Environmental Protection Agency (EPA) Coal Combustion Residuals rule, promulgated at Title 40 of the Code of Federal Regulations (40 CFR), Part 257, and published on April 17, 2015. The regulation, referred to hereafter as the CCR rule, requires regulated landfills to implement and maintain a groundwater monitoring program to determine if the CCR landfill is impacting groundwater quality at the facility's compliance boundary. For this purpose, groundwater detection monitoring is required on a semiannual frequency. A groundwater sampling program that meets the requirements of the CCR rule was implemented by PPSC during 2015, and the first semiannual detection monitoring event was performed at the landfill during the second half of 2017.

FTN Associates, Ltd. (FTN), was contracted to sample groundwater and statistically evaluate the data from the semiannual monitoring events performed during 2022. This report presents the results of groundwater sampling and the associated statistical evaluations, and is intended to satisfy the reporting requirements of §257.90(e)(1) through (5). The following sections provide a brief description of the sampling area, operational history of the plant and landfill, regional and site-specific hydrogeological setting, and general regional and site groundwater quality.

### 1.1 Sampling Area

The landfill area encompasses approximately 245 acres located approximately 1 mile west of the Mississippi River and 2 miles south of Osceola, Arkansas. The landfill is bordered by Arkansas Highway 239 to the east, Arkansas Highway 198 to the south, and the BNSF rail line to the west. Beyond these features and immediately north of the landfill are agricultural fields, and topography is relatively flat. A vicinity map of Plum Point Energy Station and the landfill is provided as Figure 1.2.



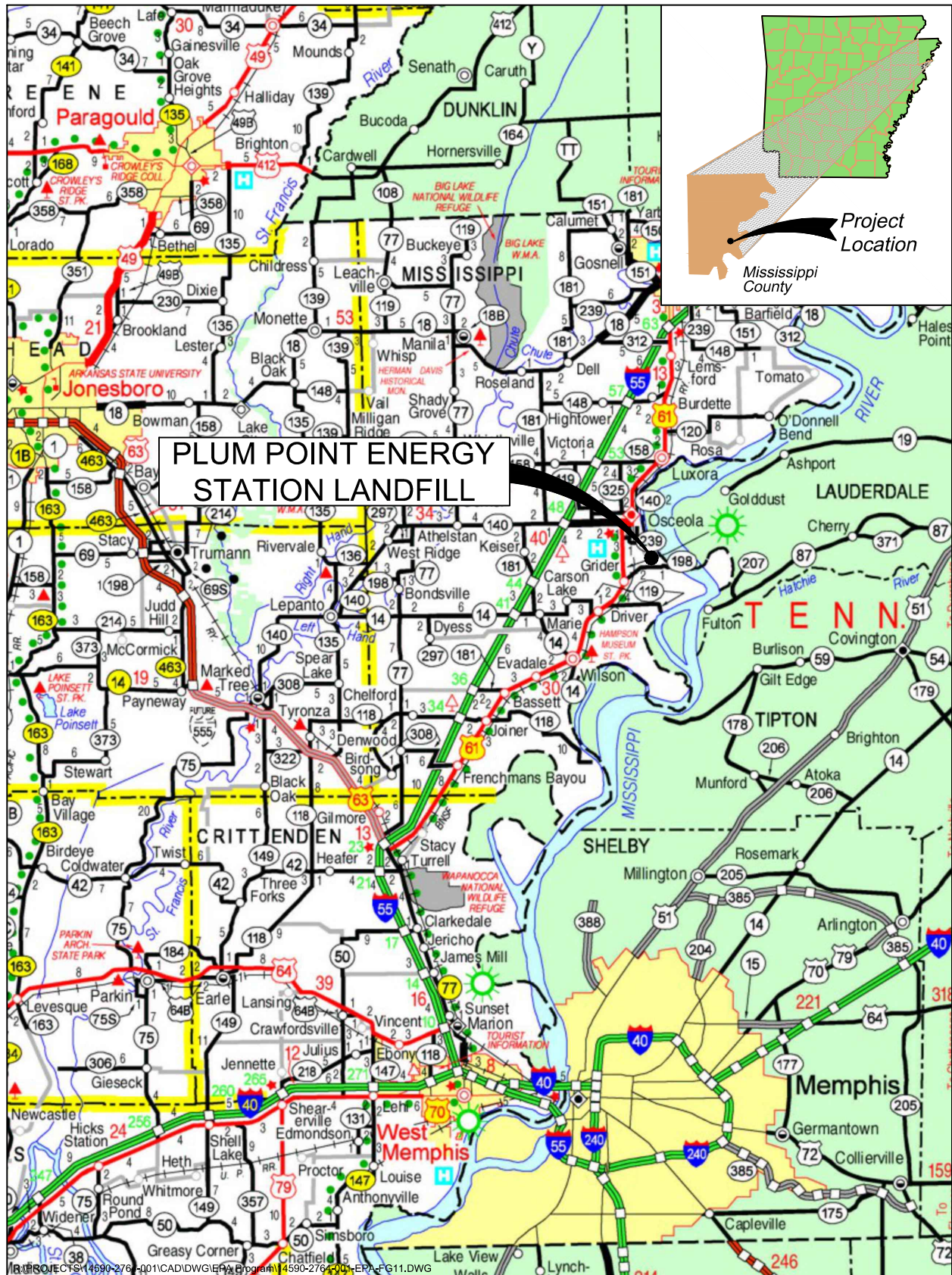


Figure 1.1. Location map, Plum Point Energy Station.

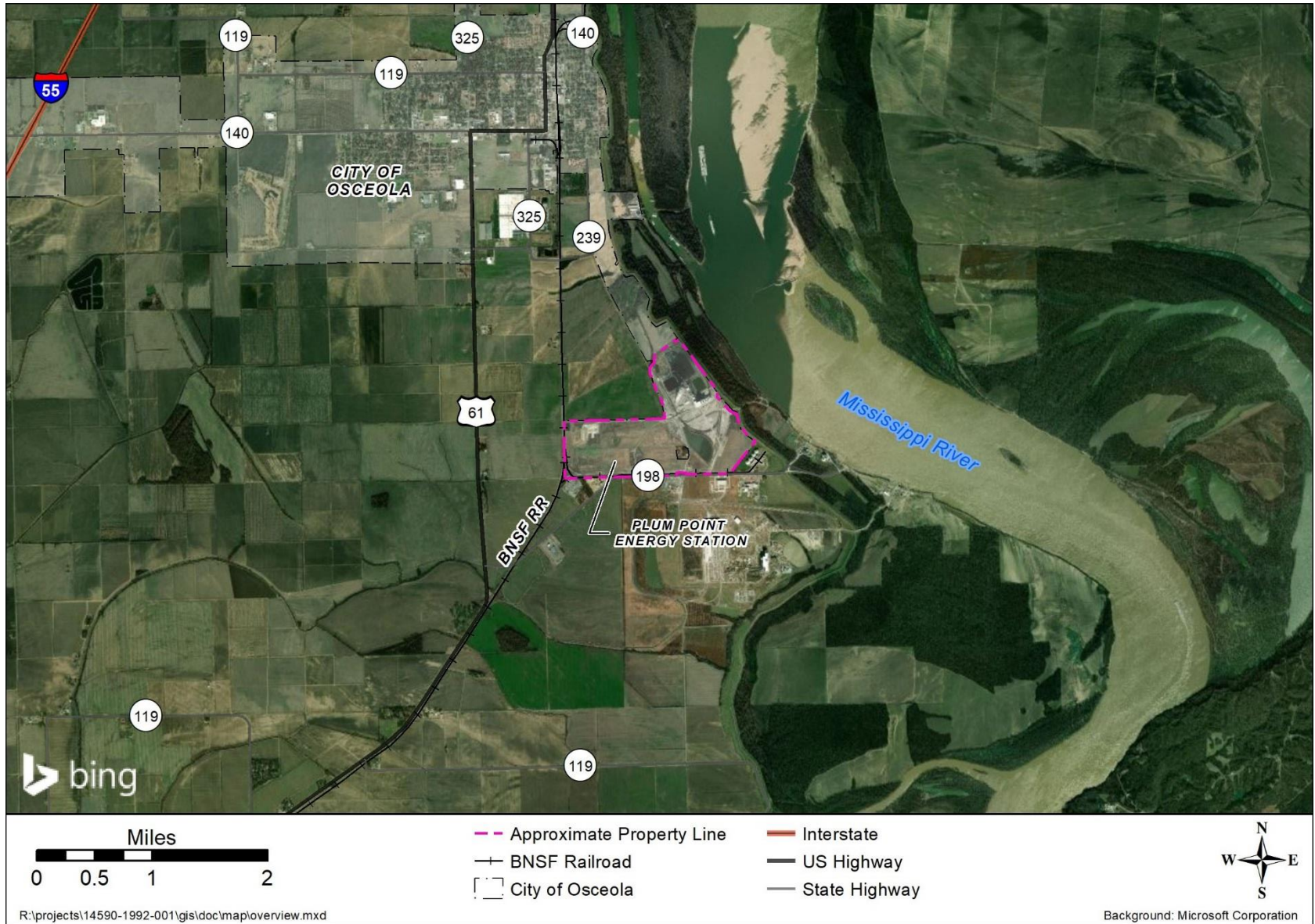


Figure 1.2. Vicinity map, Plum Point Energy Station.

## **1.2 Operational History**

The plant has been in operation since 2010 and generates electricity through the combustion of coal. Approximately 500,000 tons of CCR material is produced and deposited in the landfill each year. The landfill is permitted by the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ), under permit no. 0303-S3N-R1 and became active during March 2010. The landfill currently has two active disposal cells, cells 1 and 3, which are shown on Figure 1.3. The combined area of the two active CCR disposal cells is approximately 30 acres.

Groundwater detection monitoring was initiated at the landfill in November 2007, in accordance with Arkansas Pollution Control and Ecology Commission (APCEC) Rule No. 22 requirements. The landfill's groundwater monitoring system was expanded and designed to conform to the requirements of the CCR rule. The groundwater monitoring network was certified by FTN in October 2017 (FTN 2017a). Details regarding the certified groundwater monitoring network are provided in Section 2.0 and in the landfill groundwater monitoring network certification report (FTN 2017a).

## **1.3 Regional Hydrogeology**

The landfill is located in the Mississippi Alluvial Plain physiographic region, as shown on Figure 1.4. The region was formed by the deposits of the Mississippi River and its tributaries and is generally flat-lying (Cushing, Boswell, & Hosman 1964). The uppermost aquifer in the region is the Mississippi River Valley alluvial aquifer (hereafter referred to as the alluvial aquifer). The alluvial aquifer is comprised of unconsolidated Quaternary-age alluvial and terrace deposit sands and gravels that generally grade upward to clays and silts, which form a semi-confining to confining layer over much of the aquifer. Regionally, the alluvium reaches depths of 100 ft to 200 ft below ground surface (bgs) (Ryling 1960; Cushing, Boswell, & Hosman 1964). Beneath the alluvial aquifer is a lower confining unit, described as the Tertiary-aged Jackson-Claiborne clay in older publications (Broom & Lyford 1981; Peterson, Broom, & Bush 1985); however, more recent publications indicate that sediments of the lower confining unit belong to the Tertiary-aged middle Claiborne confining unit (Hart, Clark, &

Bolyard 2008). The regional direction of groundwater flow is toward the southwest (Schrader 2015, Rodgers & Whaling 2020).

#### **1.4 Site Hydrogeology**

A detailed site investigation was performed in 2001 as part of the DEQ permit application for the landfill. The findings from the investigation were submitted to DEQ by Genesis Environmental Consulting, Inc. (GEC), in a geotechnical and hydrogeological investigation (GHI) report (GEC 2001). Findings from the GHI indicated that the confining unit above the alluvial aquifer ranges from 0 ft to over 30 ft thick, with an average thickness of 15 ft at the site. Confining unit soils are comprised of brown to grey clay, silty clay, and sandy clays. Underlying the confining unit are fine- to coarse-grained sands of the alluvial aquifer, with fine- to coarse-grained gravel encountered at depth. Based on one deep boring, completed to a depth of 200 ft below ground surface (bgs), the coarse-grained aquifer materials reach a depth of 190 ft bgs in the vicinity of the landfill.

Laboratory geotechnical testing of confining unit soils indicate a vertical permeability of  $4.8 \times 10^{-6}$  centimeters per second (cm/s) based on the geometric mean of reported test results (GEC 2001). Field results from one aquifer pumping test and multiple aquifer slug tests indicate that the uppermost alluvial aquifer has an average hydraulic conductivity of  $1.09 \times 10^{-2}$  cm/s (GEC 2001). The GHI reported an effective porosity for the aquifer of 27% (GEC 2001), which agrees with published values ranging from 10% to 30% for similar aquifer materials (EPA 1998, Yu et al. 2015).

The direction of groundwater flow at the landfill is variable and changes from eastward to westward on a seasonal basis (FTN 2017a). The direction of flow is influenced by the river stage of the adjacent Mississippi River (Kresse et al. 2014).

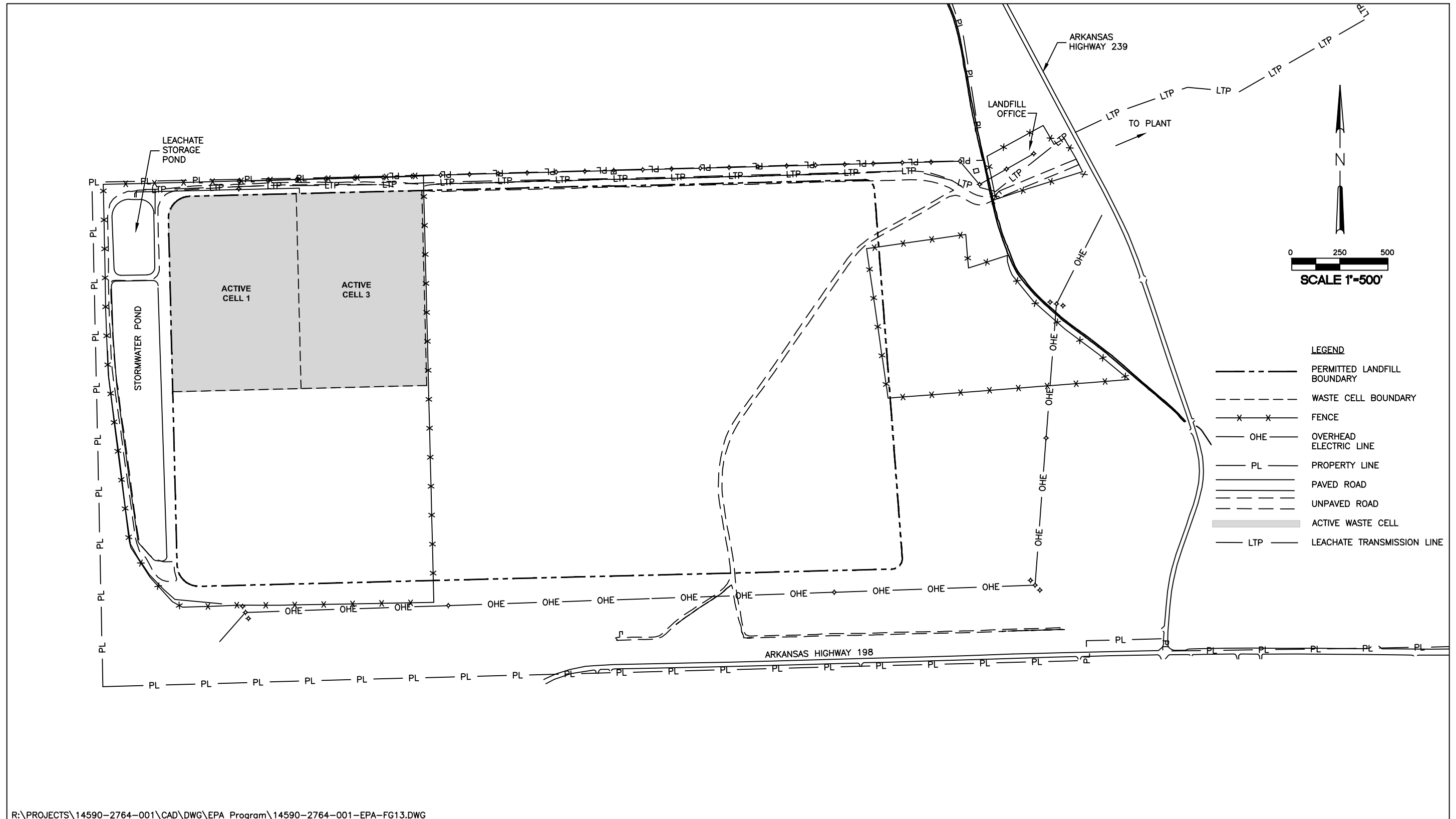


Figure 1.3. Landfill layout map, Plum Point Energy Station.

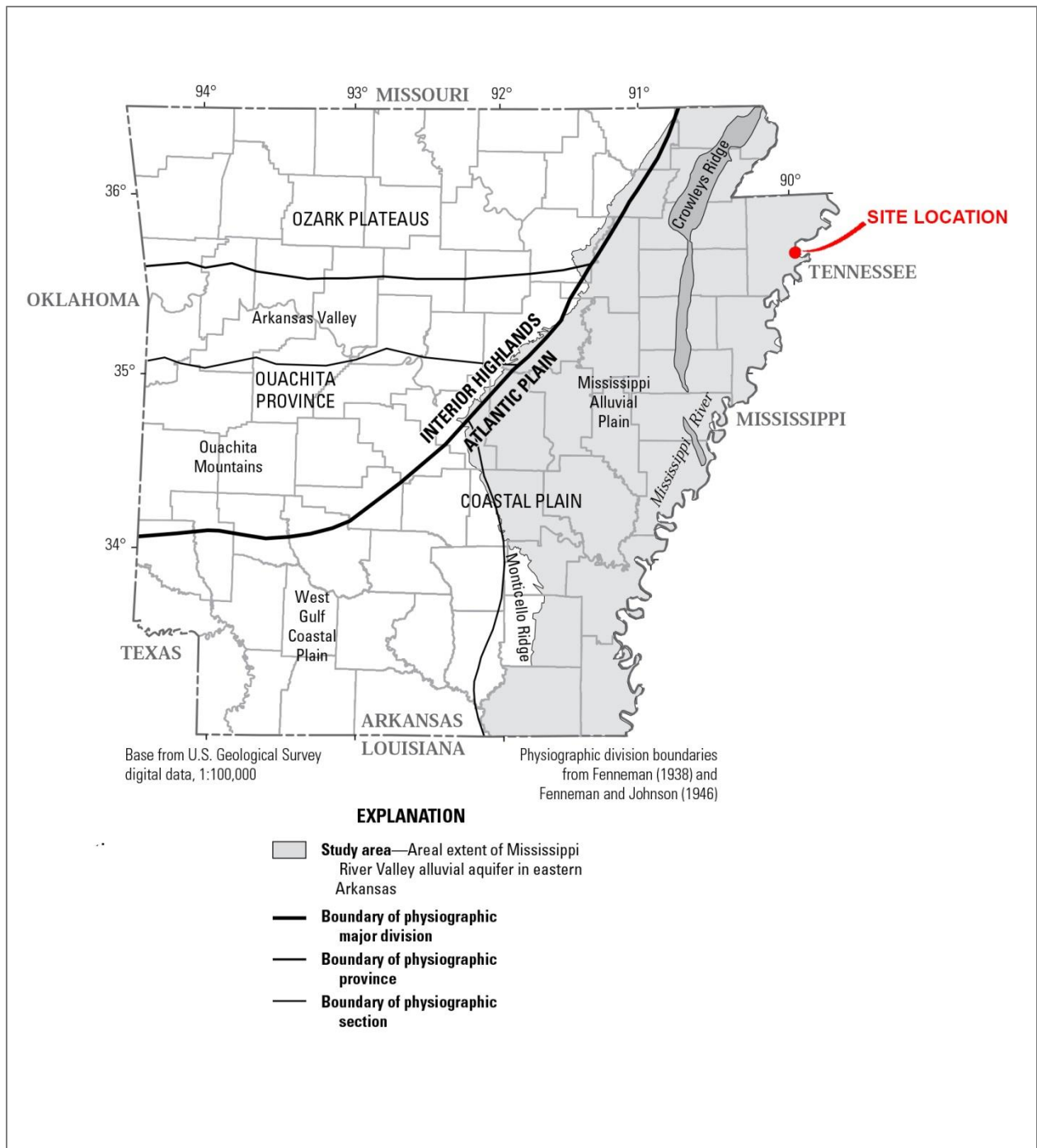


Figure 1.4. Physiographic location, Plum Point Energy Station (adapted from Schrader 2015).

## **1.5 General Groundwater Quality**

Regionally, groundwater in the alluvial aquifer is a calcium-bicarbonate water type with sodium, magnesium, chloride, sulfate, silica, and iron comprising the majority of the remaining dissolved ions (Kresse et al. 2014). Elevated concentrations of trace metals including iron, manganese, and arsenic are ubiquitous in the alluvial aquifer and thought to be elevated due to the presence of carbonaceous material within the aquifer that drives redox-sensitive parameters to dissolve in groundwater (Kresse & Fazio 2003, Gonthier 2003, Kresse & Clark 2008, Welch et al. 2009, Kresse et al. 2014). Concentrations of most parameters vary widely both laterally and vertically in the aquifer (Kresse et al. 2014). Groundwater at the top of the aquifer is generally influenced by the quality of natural recharge (e.g., precipitation and surface waterbodies) and anthropogenic activity. Conversely, groundwater quality at the base of the aquifer is influenced heavily by the underlying confining formation (Kresse et al. 2014).

## 2.0 MONITORING NETWORK AND SCHEDULE

The following sections describe the certified monitoring well network, changes made to the network during 2022, sampling schedule, network maintenance, sampling methodology, and required laboratory analyses.

### 2.1 Monitoring Well Network

The certified groundwater monitoring network for the CCR rule includes the 10 monitoring wells shown on Figure 2.1. The wells are constructed of 2-inch, schedule 40 polyvinyl chloride (PVC) pipe, with 10-ft slotted well screens. A summary of well construction details is included in Table 2.1 and is based on available well installation and survey records (FTN 2017a).

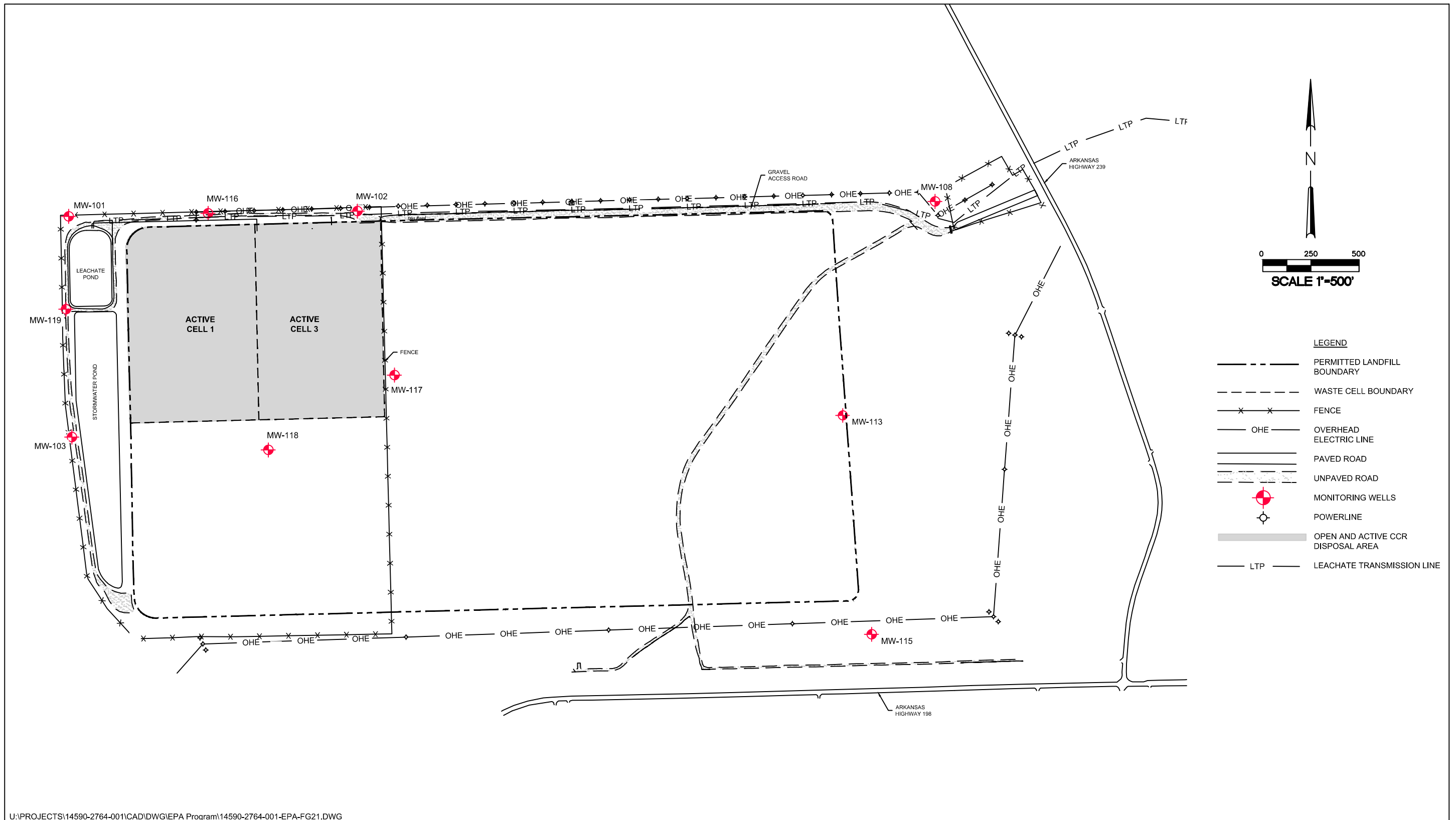
Table 2.1. Summary of well construction details.

Well Number	Well Installation Date	Ground Surface Elevation (ft NAVD <sup>[a]</sup> )	Measuring Point Elevation <sup>(b)</sup> (ft NAVD)	Total Depth (ft below measuring point)	Screened Interval (ft NAVD)
MW-101	4/9/2001	239.4	242.75	33.6	219.2-209.2
MW-102	4/9/2001	240.5	243.99	30.2	223.8-213.8
MW-103	9/26/2007	240.5	243.25	32.8	220.5-210.5
MW-108	4/11/2001	241.8	245.11	32.4	222.7-212.7
MW-113	4/07/2009	241.5	244.63	35.9	223.7-208.7
MW-115	9/25/2007	240.4	243.55	33.0	220.6-210.7
MW-116	6/23/2015	239.3	243.97	31.9	222.5-212.5
MW-117	6/24/2015	239.4	242.53	34.2	218.5-208.5
MW-118	6/24/2015	238.0	241.23	31.4	220.2-210.2
MW-119	10/6/2016	243.6	246.53	35.4	221.5-211.5

Notes:

- a. North American Vertical Datum of 1988.
- b. Measuring point is the surveyed and marked point on the top of casing (TOC) of each monitoring well.





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Figure 2.1. Monitoring well locations, Plum Point Energy Station.

Each monitoring well is screened in the alluvial aquifer, the uppermost aquifer in the vicinity of the landfill. The direction of groundwater flow beneath the site is seasonally variable. As a result, there is not a hydraulically upgradient location with respect to cells 1 and 3. As allowed by §257.91(a)(1), the groundwater program utilizes wells for background water quality that are not hydraulically upgradient of the CCR management area. Monitoring wells MW-108, MW-113, and MW-115 (Figure 2.1) are used for this purpose because they are positioned outside the potential zone of impact from cells 1 and 3. The rationale for this is based on the age of the landfill, the estimated maximum rate of groundwater flow, and the distance of MW-108, MW-113, and MW-115 from the CCR management area (FTN 2017a).

## **2.2 Network Improvements During 2022**

All of the 10 monitoring wells in the certified network were installed prior to 2022. No new wells were installed and none of the existing wells were altered or abandoned during 2022.

## **2.3 Sampling Schedule**

In accordance with the CCR rule and the landfill's groundwater sampling and analysis plan (GWSAP), detection monitoring is scheduled to occur semiannually. The first half 2022 detection monitoring event was conducted during April 2022, with verification sampling performed during June 2022. The second half 2022 detection monitoring event was conducted during October 2022, with verification sampling performed during December 2022 and January 2023. During the December 2022 event, one of the wells scheduled to be sampled (MW-108) had an insufficient quantity of water, and as such, the well was rescheduled for verification sampling during January 2023.

Detection monitoring for the 2023 monitoring year is tentatively scheduled for April and October 2023.

## **2.4 Monitoring Well Operation and Maintenance**

The integrity of each monitoring well was inspected prior to commencement of groundwater sampling activities. Well casing, concrete pads, and bollards were inspected for any

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indications of damage and dedicated sampling equipment was assessed for visible damage. Noted damages and recommended repairs, if any, were communicated to PPSC.

## 2.5 Sampling Methodology

To ensure that monitoring results are an accurate representation of groundwater quality, sample collection follows the guidelines for sample collection, preservation, shipment, chain-of-custody (COC) control, and quality control outlined in the landfill’s GWSAP (FTN 2017b). Groundwater sample collection during the 2022 monitoring events was performed in accordance with the landfill’s GWSAP and EPA guidelines (Puls & Barcelona 1996). Groundwater was sampled with a Geopump Peristaltic Series II Pump and linear low-density polyethylene tubing. Field parameters were measured during purging and sampling using a Hach 2100P portable turbidity meter and a handheld YSI MPS 556 or YSI ProPlus multiparameter instrument fitted with a flow-through cell. Field sampling forms for the 2022 monitoring events are provided in Appendix A.

## 2.6 Laboratory Analyses

Samples collected for each detection monitoring event are required to be analyzed for the 40 CFR Part 257 appendix III list of parameters provided in Table 2.2. Pace Analytical National (Pace), of Mt. Juliet, Tennessee, provided laboratory services during the detection monitoring period. Samples were analyzed in accordance with EPA’s *Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (SW-846) (EPA 1986b), or equivalent, and guidelines established by EPA. Laboratory reports from Pace are included in Appendix B.

Table 2.2. Appendix III parameters for groundwater detection monitoring.

<b>Appendix III to Part 257 – Parameters for Detection Monitoring</b>	
Boron	Sulfate
Calcium	Total dissolved solids (TDS)
Chloride	pH (field-measured)
Fluoride	

## **3.0 DATA PRESENTATION**

This section presents the data collected during the 2022 monitoring events. Water level data are presented in Section 3.1, field-measured groundwater quality data are presented in Section 3.2, laboratory analytical data are presented in Section 3.3, and a review of quality assurance and quality control (QA/QC) measures is presented in Section 3.4.

### **3.1 Water Level Data**

This section presents groundwater level measurements and groundwater flow characteristics determined from these measurements.

#### **3.1.1 Water Level Measurements and Hydrograph**

Static water levels were measured in all 10 monitoring wells prior to conducting any sampling activities for the April and October detection monitoring events. Water levels were measured using a Solinst 101 water level meter on April 4, 2022, and October 3, 2022, for the first and second half 2022 monitoring periods, respectively. Depth to water was measured to the nearest 0.01 ft from the measuring point (MP) located on the top of casing (TOC) of each well and recorded on the field water level data sheets included in Appendix A. Field water level measurements are tabulated in Table 3.1.

Hydrographs depicting water level elevations over time are included in Appendix C. As shown on the hydrograph, within-well water levels fluctuated seasonally as much as  $\pm 25$  ft over the period of record for the CCR rule program.

Table 3.1. Water level data.

Well ID	MP Elevation (ft NAVD88)	April 4, 2022		October 3, 2022	
		Depth to Water (ft below MP)	Water Elevation (ft NAVD88)	Depth to Water (ft below MP)	Water Elevation (ft NAVD88)
MW-101	242.75	16.64	226.11	22.41	220.34
MW-102	243.99	18.18	225.81	25.50	218.49
MW-103	243.25	17.96	225.29	23.39	219.86
MW-108	245.11	18.14	226.97	29.99	215.12
MW-113	244.63	18.63	226.00	28.47	216.16
MW-115	243.55	17.66	225.89	27.28	216.27
MW-116	243.97	18.61	225.36	24.96	219.01
MW-117	242.53	17.31	225.22	24.01	218.52
MW-118	241.23	16.20	225.03	22.06	219.17
MW-119	246.53	20.20	226.33	26.21	220.32

### 3.1.2 Direction of Groundwater Flow

Depth-to-water measurements were converted to feet NAVD88 and used to construct the potentiometric surface maps shown on Figures 3.1 and 3.2 (figures are included at the end of Section 3.0). As shown on Figure 3.1, groundwater flow was variable across the active landfill during the April 2022 monitoring event; however, the direction of flow across the active landfill area was generally toward the south. As shown on Figure 3.2, groundwater flow beneath the active landfill area was generally to the east-northeast during the October 2022 monitoring event.

### 3.1.3 Rate of Groundwater Flow

The rate of groundwater flow beneath the landfill is estimated based on Darcy's law, modified to account for the open space available for groundwater flow within the aquifer. The resulting equation used to estimate the average linear groundwater velocity, or rate of flow, is shown below (Kuo 1999):

$$V_x = K/n_e(dh/dl)$$

Where:  $V_x$  = linear velocity,  
 $K$  = hydraulic conductivity,  
 $n_e$  = effective porosity, and  
 $dh/dl$  = hydraulic gradient.

The hydraulic conductivity (K) and the effective porosity ( $n_e$ ) of the alluvial aquifer are  $1.09 \times 10^{-2}$  cm/sec and 27%, respectively, based on previous reports (GEC 2001). The hydraulic gradient (dh/dl) is calculated using water level elevations that most closely represent the flow line from upgradient to downgradient across cells 1 and 3. The hydraulic gradient was estimated to be  $1.1 \times 10^{-3}$  ft/ft during April 2022 and  $1.2 \times 10^{-3}$  ft/ft during October 2022 using the potentiometric surface maps shown on Figures 3.1 and 3.2, respectively. Based on these values,  $V_x$  was calculated to be approximately 44 ft/year during April 2022 and 49 ft/year during October 2022. The estimated flow rate for October 2022 is above historically reported values, which typically range from approximately 10 to 40 ft/year. The elevated  $V_x$  value is likely caused by regional increased groundwater loss to the adjacent Mississippi River. Data reported by the US Army Corps of Engineers show record low river gauge levels at Osceola, Arkansas, during October 2022 (<https://rivergages.mvr.usace.army.mil>).

### **3.2 Field-Measured Water Quality Data**

Groundwater sampling records for the 2022 monitoring events are included in Appendix A. Field-measured water quality parameters from the 2022 monitoring events are summarized in Table 3.2. A review of the field quality control samples is provided in Section 3.4.

As discussed in Section 4.3.3, a number of pH values recorded during the October 2022 event were abnormally low compared to historical values. After review of the calibration forms and discussions with field personnel, it was found that the pH sensor on the multi-parameter probe malfunctioned, causing lower than normal pH readings at MW-108 and MW-119. As such, these values were rejected from the historical database due to equipment failure and flagged with an “R” in Appendix D and in Table 3.2.

Table 3.2. Field-measured water quality data.

Well	Date	Conductivity ( $\mu$ mhos/cm)	pH (su)	Temperature (C)	Turbidity (NTU)
<b>First Half 2022 Monitoring Event, April 2022</b>					
MW-101	4/7/2022	531	6.8	16.5	2.9
MW-102	4/6/2022	574	6.6	16.7	3.4
MW-103	4/7/2022	380	6.8	16.5	9.5
MW-108	4/5/2022	725	6.8	18.5	4.0
MW-113	4/5/2022	476	6.6	17.7	4.4
MW-115	4/5/2022	534	6.7	17.4	2.3
MW-116	4/6/2022	478	6.9	16.3	2.6
MW-117	4/6/2022	487	6.5	16.4	2.2
MW-118	4/7/2022	437	6.6	16.2	2.2
MW-119	4/7/2022	548	6.6	17.6	2.4
<b>First Half 2022 Verification Sampling Event, June 2022</b>					
MW-117	6/20/2022	586	5.8	20.3	5.9
<b>Second Half 2022 Monitoring Event, October 2022</b>					
MW-101	10/5/2022	501	6.2	18.7	2.0
MW-102	10/5/2022	526	6.3	20.7	2.7
MW-103	10/5/2022	375	6.3	19.6	9.1
MW-108	10/4/2022	690	6.2 R	21.5	3.0
MW-113	10/4/2022	447	6.5	20.4	2.5
MW-115	10/3/2022	618	6.7	18.6	2.3
MW-116	10/5/2022	447	6.2	19.6	2.5
MW-117	10/5/2022	410	5.7	18.5	1.9
MW-118	10/5/2022	414	6.1	17.6	2.4
MW-119	10/5/2022	549	6.2 R	19.5	2.7
<b>Second Half 2022 Verification Sampling Event, December 2022 and January 2023</b>					
MW-108	1/11/2023	708	6.8	19.5	3.1
MW-119	12/16/2022	595	6.9	16.8	2.1

"R" flag indicates that the value has been rejected from the historical database due to laboratory, statistical, or equipment error.

### 3.3 Laboratory Analytical Data

Laboratory reports for sampling performed during the 2022 monitoring periods are included in Appendix B. A review of laboratory QC information is provided in Section 3.4. Reported values along with field-measured pH are summarized in Tables 3.3 and 3.4 for the first and second half of 2022 monitoring periods, respectively. EPA-promulgated maximum contaminant levels (MCLs) are shown for comparison purposes. Of the appendix III parameters listed in Tables 3.3 and 3.4, fluoride is the only parameter with an established MCL. As shown in Tables 3.3 and 3.4, none of the measured levels for fluoride were above the MCL of 4 mg/L. Data from these monitoring events are compiled in the landfill's historical groundwater database for appendix III parameters, included as Appendix D.

Table 3.3. Summary of appendix III results, first half of 2022.

Well ID	Date Collected	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
<b>First Half 2022 Detection Monitoring, April 2022</b>								
MW-101	4/7/2022	0.0597 J	105	0.848 J	0.228	7.63	388	6.8
MW-102	4/6/2022	0.0838 J	110	1.91	0.142 J	79.0	442	6.6
MW-103	4/7/2022	0.0552 J	71.6	0.926 J	0.128 J	7.84	278	6.8
MW-108	4/5/2022	0.132 J	151	1.38	0.138 J	24.0	478	6.8
MW-113	4/5/2022	0.0747 J	81.8	1.32	0.0846 J	5.70	326	6.6
MW-115	4/5/2022	0.0424 J	102	0.976 J	0.165	4.95 J	374	6.7
MW-116	4/6/2022	0.0842 J	81.4	2.64	0.132 J	55.6	338	6.9
MW-117	4/6/2022	0.0738 J	93.1	0.875 J	0.0916 J	9.03	341	6.5
MW-118	4/7/2022	0.0573 J	85.2	0.926 J	0.129 J	17.6	320	6.6
MW-119	4/7/2022	0.0670 J	107	1.82	0.195	37.1	397	6.6
<b>First Half 2022 Verification Sampling, June 2022</b>								
MW-117	6/20/2022	---	92.2	---	---	9.63	318	5.8
<b>Quality Control Samples</b>								
MW-117 DUP <sup>(a)</sup>	4/6/2022	0.0721 J	92.9	1.06	0.0925 J	9.31	344	---
EPA EB <sup>(a)</sup>	4/7/2022	<0.200	<1.00	<1.00	<0.150	<5.00	<10.0	---
MW-117 DUP <sup>(b)</sup>	6/20/2022	---	92.2	---	---	9.65	314	---
EPA EB-1 <sup>(b)</sup>	6/20/2022	---	<1.00	---	---	<5.00	<10.0	---
<b>EPA MCL</b>		---	---	---	<b>4</b>	---	---	---

Notes:

“J” flag indicates that the analyte was detected at a level below the laboratory RDL; therefore the value is an estimate.

- Duplicate sample and field equipment rinsate blank collected during the April sampling event.
- Duplicate sample and field equipment rinsate blank collected during the June sampling event.



Table 3.4. Summary of appendix III results, second half of 2022.

Well ID	Date Collected	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
<b>Second Half 2022 Detection Monitoring, October 2022</b>								
MW-101	10/5/2022	0.0526 J	110	0.860 J	0.258	7.93	388	6.2
MW-102	10/5/2022	0.0769 J	116	2.45	0.174	93.4	439	6.3
MW-103	10/5/2022	0.0727 J	79.8	0.949 J	0.188	11.8	285	6.3
MW-108	10/4/2022	0.0941 J	138	1.24	0.164	17.0	471	6.2 R
MW-113	10/4/2022	0.0747 J	73.1	0.709 J	0.0828 J	4.02 J	291	6.5
MW-115	10/3/2022	0.0370 J	109	0.742 J	0.208	3.68 J	377	6.7
MW-116	10/5/2022	0.0867 J	94.1	4.14	0.194	57.1	360	6.2
MW-117	10/5/2022	0.0725 J	88.0	0.953 J	0.122 J	10.3	311	5.7
MW-118	10/5/2022	0.0628 J	87.5	1.31	0.124 J	19.7	329	6.1
MW-119	10/5/2022	0.0671 J	119	1.98	0.230	46.2	444	6.2 R
<b>Second Half 2022 Verification Sampling, December 2022 and January 2023</b>								
MW-108	1/11/2023	--	--	--	--	--	--	6.8
MW-119	12/16/2022	--	--	--	--	--	--	6.9
<b>Quality Control Samples<sup>(a)</sup></b>								
MW-117 DUP <sup>(b)</sup>	10/5/2022	0.0821 J	87.2	0.928 J	0.0981 J	10.2	316	---
EPA EB <sup>(b)</sup>	10/5/2022	<0.200	<1.00	<1.00	<0.150	<5.00	<10.0	---
<b>EPA MCL</b>		---	---	---	<b>4</b>	---	---	---

## Notes:

“J” flag indicates that the analyte was detected at a level below the laboratory RDL; therefore the value is an estimate. “R” flag indicates that the value has been rejected from the historical database due to laboratory, statistical, or equipment error.

- The December 2022 and January 2023 sampling events did not include a duplicate sample or field equipment rinsate blank because the parameter being sampled for (pH) is a field parameter, and field parameters are not collected for quality control samples.
- Duplicate sample and field equipment rinsate blank collected during the October sampling event.

### 3.4 Quality Assurance and Quality Control

A review of laboratory and field QA/QC measures is presented below.

#### 3.4.1 Review of Laboratory Quality Control Samples

Based on a review of the data quality documentation provided by Pace in Appendix B, samples were received by the laboratory in good condition, properly preserved, at the correct temperature, and were analyzed within holding times. The overall quality of the data relative to the contaminants of concern was acceptable and generally met method-specific requirements for precision and accuracy.

### 3.4.2 Review of Field Quality Control Samples

The GWSAP requires a minimum of one duplicate sample and one equipment rinsate blank to be collected per sampling event, or one per 20 groundwater samples collected. Each type of QA/QC sample is described below.

- Field duplicates are two separate samples taken from the same well and collected as close to each other in time as practical. The relative percent difference (RPD) is calculated for parameters where the reported levels in the duplicate pairs are at least five times the laboratory RDL and where neither result is qualified or suspected of contamination. If RPD values are  $\leq 20\%$ , then level of precision associated with the sampling and analytical methods is considered acceptable.
- Field equipment rinsate blanks are prepared by pouring deionized water over decontaminated sampling equipment. Results from these samples are used to verify that proper protocols for equipment decontamination were followed in the field. When a detection occurs above the RDL in a field quality control blank, detections of that parameter in groundwater samples are flagged with a “B” in the historical database. Groundwater samples with detections in associated laboratory quality control blanks are flagged according to laboratory procedures. EPA guidance (1986) recommends that detections in quality control blanks not be used to correct groundwater data.

All QA/QC samples collected during 2022 were handled in the same manner as groundwater samples with respect to sample collection, packaging, shipping, preservation, and COC procedures. A summary of the QA/QC evaluation is provided below:

- Calculated RPDs were below the quality control limit of 20% for all duplicate pairs evaluated, indicating that field methods produced samples with an acceptable level of reproducibility.
- Results for the equipment rinsate blanks were all below their respective laboratory RDLs, indicating field decontamination methods were effective.

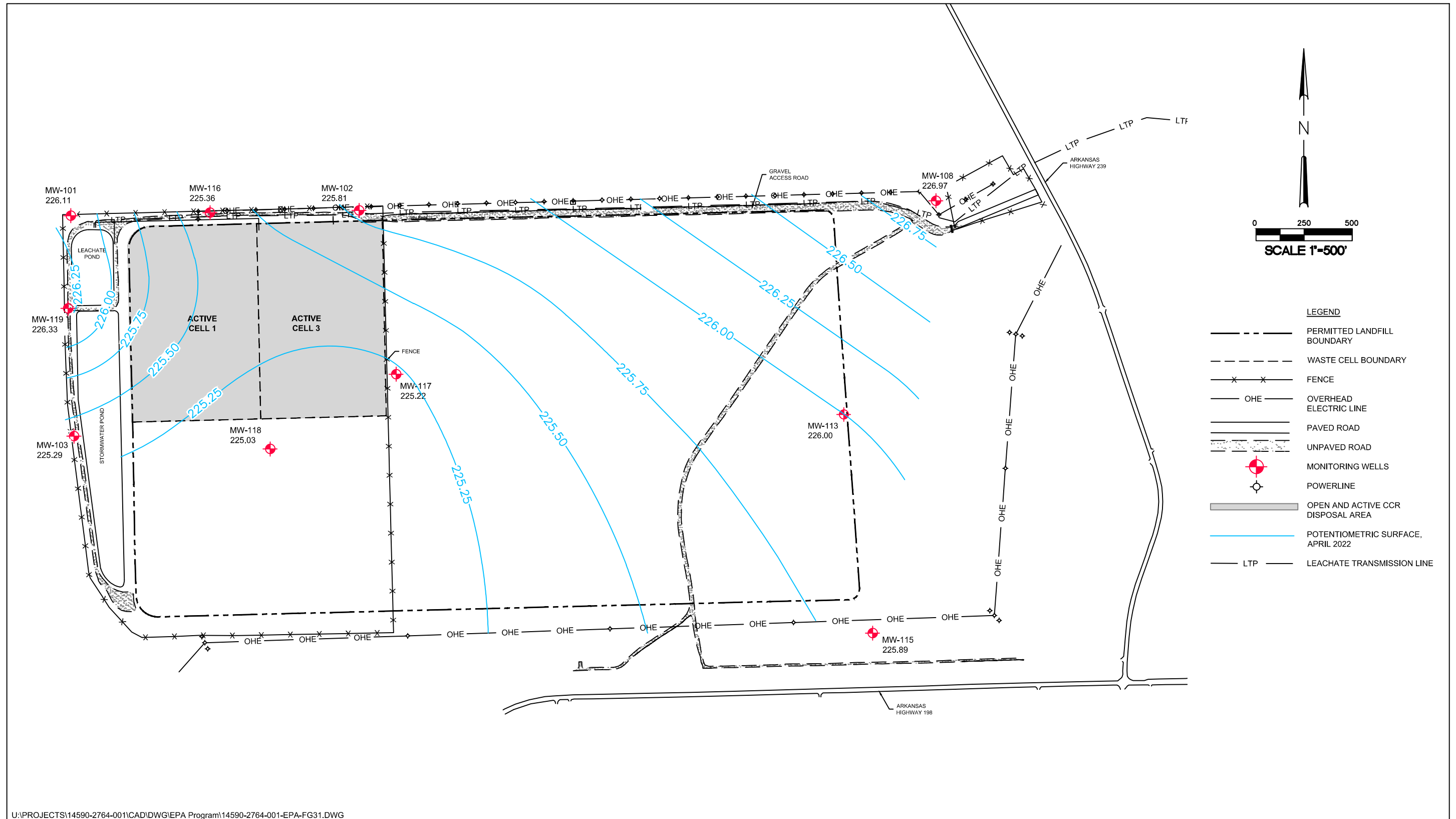


Figure 3.1. Potentiometric surface, April 4, 2022.

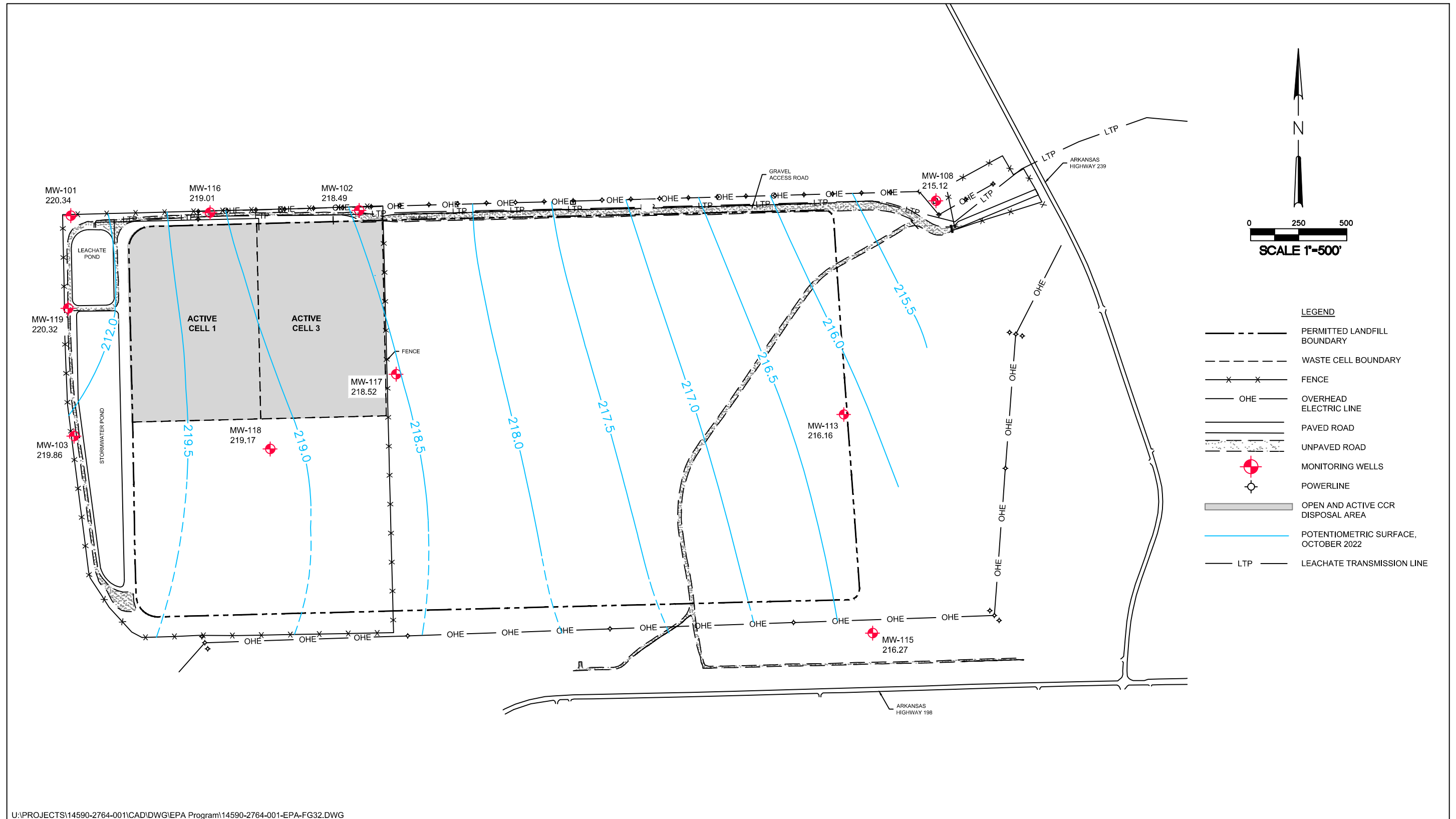


Figure 3.2. Potentiometric surface, October 3, 2022.

## 4.0 STATISTICAL EVALUATION

This section describes the statistical approach and evaluation of the detection monitoring data collected during 2022. Groundwater quality data were evaluated using the statistical software *Sanitas version 9.6*. Statistical analyses of the data were performed in accordance with the landfill's SAP.

### 4.1 Statistical Program Design

#### 4.1.1 Statistical Approach

The statistical approach for groundwater monitoring at the landfill is described in the facility's SAP and adheres to recommendations in EPA's *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*, released in March 2009 (Unified Guidance). Groundwater quality data collected for detection monitoring are evaluated with either an intrawell prediction limit combined with a "1 of 2" retesting strategy or with the Mann-Kendall/Sen's Slope test for trends. The technical basis for selecting these tests is discussed in the facility's SAP. Each test and its appropriate application is briefly discussed below.

A prediction limit tests for the likelihood that a new monitoring value (compliance value) comes from the same population as background data. Prediction limit analysis combined with retesting (verification sampling) is effective at reducing a monitoring program's site-wide false positive rate (SWFPR) and improving the statistical power of the monitoring program. The prediction limit test requires a minimum of 8 to 10 background values that are statistically independent and that exhibit stationarity. Retesting, or verification sampling, is performed if an initial sampling result exceeds a prediction limit. The "1 of 2" retesting strategy requires one verification sample be obtained within the same monitoring period as the initial sample. If the measured value in the verification sample also exceeds the prediction limit, then a statistically significant increase (SSI) (or statistically significant decrease [SSD] in the case of pH) is declared.

If data characteristics do not meet the requirements for a prediction limit test, the well-parameter pair is tested using the Mann-Kendall/Sen’s Slope test for trends, as recommended by the Unified Guidance. If a statistically significant increasing trend (or statistically significant decreasing trend in the case of pH) is indicated, then this is evidence of possible deteriorating groundwater quality. While there is no explicit retesting strategy for the Mann-Kendall/Sen’s Slope test (as there is for prediction limits), retesting can be applied (Cameron 2015).

Background data sets were updated, where applicable, prior to the first half of 2022 monitoring period. Results of the evaluation are summarized in Appendix E.

#### 4.1.2 Site-Wide False Positive Rate

The Unified Guidance recommends that detection monitoring programs have adequate statistical power and an SWFPR (alpha) value of 10% over a one-year period of testing. As a result, the semiannual SWFPR is fixed at 5%. The magnitude of the per-test alpha will vary depending on how many statistical tests are required per semiannual evaluation. Input values used to determine the per-test alpha for intrawell prediction limit analyses, combined with a “1 of 2” retesting strategy are listed in Table 4.1.

Table 4.1. Values used to determine test alpha and power curve.

<b>Certified Well Network</b>	
<b>Statistical Test</b>	<b>Intrawell Prediction Limit</b>
Number of Compliance Wells (w)	7
Minimum Background Sample Size (n)	8
Number of Constituents (c)	6
Resample Strategy	1 of 2
Semiannual SWFPR	0.05

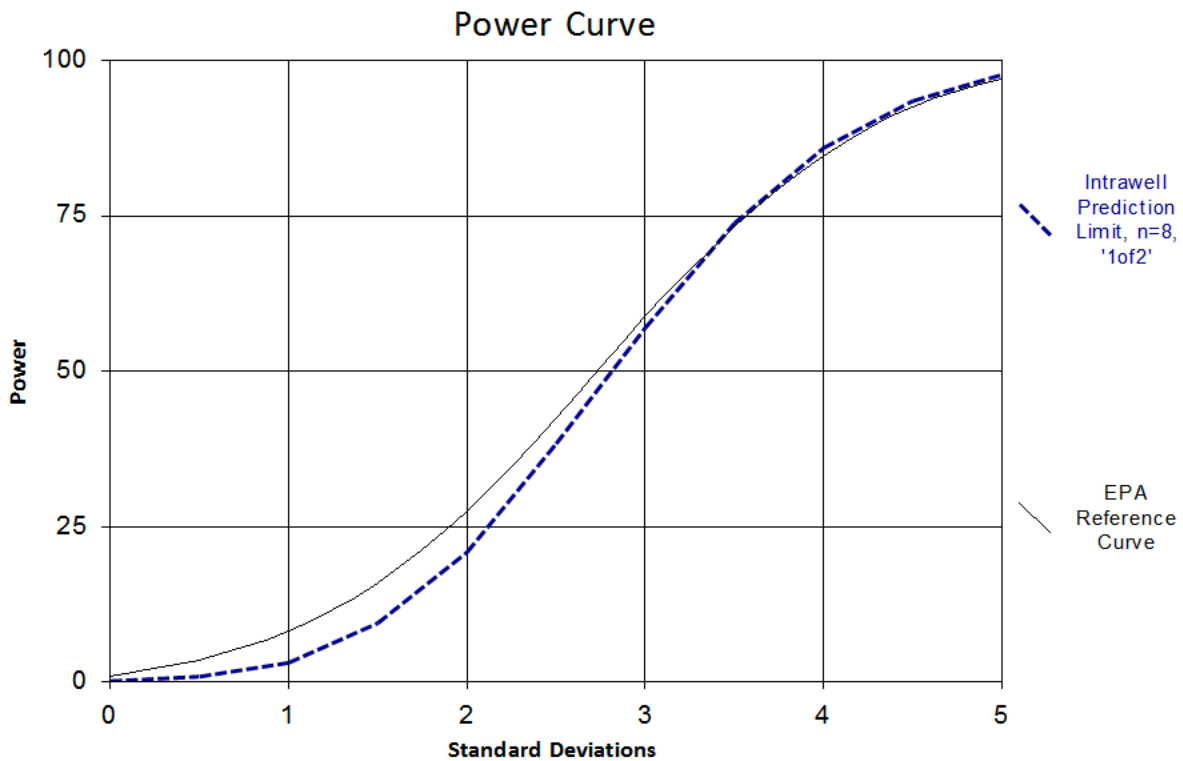
#### 4.1.3 Statistical Power

Statistical power is inversely related to the SWFPR and is an estimate of the rate at which false negative results will occur. To gauge statistical power, the Unified Guidance recommends the use of the EPA Reference Power Curve (ERPC) to estimate the ability of any individual test

to identify an SSI or SSD above background. Any single statistical test should have the ability to detect an SSI or SSD 55% to 60% of the time at three standard deviations ( $3\sigma$ ) above background and 80% to 85% of the time at  $4\sigma$  above background. Input values for the detection monitoring program’s power curve are listed in Table 4.1 and discussed below.

Figure 4.1 depicts the power curve for the well network plotted against the ERPC. This curve shows that any single test is expected to detect SSIs or SSDs approximately 57% of the time at levels  $3\sigma$  above background and 87% of the time at levels  $4\sigma$  above background. Given this comparison, the statistical power of the landfill’s detection monitoring program exceeds EPA recommendations.

Sanitas™ v.9.6.23 Sanitas software licensed to FTN Associates. UG



kappa = 2.841, based on 7 compliance wells and 6 constituents, evaluated semi-annually (this report reflects annual total).

Figure 4.1. ERPC versus landfill power curve for detection monitoring.

## **4.2 Exploratory Data Analysis**

Exploratory data analysis (EDA) includes viewing data graphically to identify apparent trends or excursions from normal ranges. To accomplish this, period-of-record data were screened using time-series plots, box-and-whiskers diagrams, and outlier tests. Time-series plots are used to visualize changes in data over time. Box-and-whiskers diagrams provide a graphic depiction of the mean, median, minimum, maximum, and interquartile range of a data set to assist with visualizing the variation in groundwater quality within and across wells. Outlier tests help identify values that are extremely different from other values in a given data set. Section 4.2.1 summarizes observations made from time-series and box-and-whiskers diagrams. Evaluation for the presence of outliers is discussed in Section 4.2.2. The graphical plots from the EDA evaluation are included in Appendix F.

### **4.2.1 Time-Series Plots and Box-and-Whiskers Diagrams**

The following observations are based on a review of the time-series plots and box-and-whiskers diagrams (Appendix F):

- Calcium, chloride, fluoride, sulfate, and TDS values are variable across the network.
- Measured pH and boron are generally similar across the well network, with measured levels of boron being below the laboratory RDL for the period of record at all wells.

### **4.2.2 Identification of Outliers**

Period-of-record data for statistically evaluated wells were evaluated to identify possible outliers in the April and October 2022 data sets (Appendix F). Dixon's outlier test was applied to data sets with a normal distribution, or to populations that could be mathematically transformed so they have a normal distribution. For data sets that did not have a normal distribution, the non-parametric Tukey's outlier screening was applied. Plots are included in Appendix F. Outlier testing identified one outlier in the April 2022 data set: TDS at MW-101 was statistically low compared to the period-of-record data set. No statistically significant outliers were identified in the October 2022 data set.



### 4.3 Statistical Evaluation Results

Groundwater quality data from the 2022 monitoring periods were statistically evaluated if they were detected at or above the laboratory RDL. Results detected below the RDL but above a method detection limit (“trace” values) are estimated values and therefore are not statistically evaluated. Trace values are flagged with a “J” in the laboratory reports provided in Appendix B and in the historical database included in Appendix D. Statistical analyses are not performed on nondetect data, which are flagged with a “U” in the laboratory reports (Appendix B) and represented in the historical database as less than (<) the RDL value for the method used (Appendix D).

#### 4.3.1 Intrawell Prediction Limit Analysis, First Half of 2022

In accordance with 257.93(h), intrawell prediction limit analyses were performed on all detected appendix III parameters, except as noted in Section 4.3.2, using the background data sets identified in Appendix E. Results from the first half of 2022 monitoring period are summarized in Table 4.2 and graphical plots of the evaluation are included in Appendix G.

As shown in Table 4.2, a previously confirmed SSI was identified for sulfate at MW-117 and unverified<sup>1</sup> SSIs were identified for calcium and TDS at MW-117. Measurements for all other well-parameter pairs were below calculated intrawell prediction limits. In accordance with the facility’s SAP and “1 of 2” retesting strategy, verification sampling was performed during June 2022 for the unverified SSIs. Sulfate at MW-117 was also resampled because the April 2022 value was very close to the calculated prediction limit. As shown in Table 4.2, verification sampling results confirmed all three SSIs.

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<sup>1</sup> Prior confirmed SSIs for calcium and TDS at MW-117 have been identified; however, the SSIs were based on older prediction limits that are no longer applicable. Therefore, these SSIs are considered unverified with respect to their current prediction limits.

Table 4.2. Summary of statistically significant results, intrawell prediction limit analysis, first half of 2022.

Parameter	Well	Prediction Limit (mg/L)	April 2022 Result (mg/L)	June 2022 Verification Result (mg/L)	SSI Confirmed?
Calcium	MW-117	92.01	93.1	92.2	Yes
Sulfate	MW-117	8.048	9.03	9.63	Yes*
TDS	MW-117	315.8	341	318	Yes

\*Previously confirmed.

In response to the confirmed SSIs for calcium, sulfate, and TDS at MW-117 identified during the first half of 2022 detection monitoring period, PPSC completed a successful alternate source demonstration (ASD) in accordance with §257.94(e)(2). The ASD was certified by an Arkansas-registered professional engineer on September 27, 2022, and is included with this report (Appendix H) as required by §257.94(e)(2). Based on the successful ASD, the facility continued with detection monitoring in accordance with §257.94.

#### 4.3.2 Mann-Kendall/Theil-Sen Trend Line Test, First Half of 2022

Well-parameter pairs tested for compliance using the Mann-Kendall/Theil-Sen trend line test due to significant trends in background data sets are identified in Table E.2 of Appendix E. Period-of-record data for each well-parameter pair were analyzed and test plots are included in Appendix G. The evaluation did not identify any statistically significant increasing trends in the period-of-record data sets.

#### 4.3.3 Intrawell Prediction Limit Analysis, Second Half of 2022

In accordance with 257.93(h), intrawell prediction limit analyses were performed on all detected appendix III parameters, except as noted in Section 4.3.4, using the background data sets identified in Appendix E. Results from the second half of 2022 monitoring period are summarized in Table 4.3 and graphical plots of the evaluation are included in Appendix G.

As shown in Table 4.3, a previously confirmed SSI for sulfate at MW-117 was identified along with unverified SSDs for pH at MW-108 and MW-119. As discussed in Section 3.2, the

SSDs for pH were caused by equipment failure and the data have been flagged as rejected in the historical database. Measurements for all other well-parameter pairs were below calculated intrawell prediction limits.

In accordance with the facility's SAP and "1 of 2" retesting strategy, verification sampling was performed during December 2022 and January 2023 for the unverified SSDs at compliance well MW-119 and background well MW-108, respectively. As shown in Table 4.3, verification sampling results disconfirmed the SSDs at each well.

Table 4.3. Summary of statistically significant results, intrawell prediction limit analysis, second half of 2022.

Parameter	Well	Prediction Limit (mg/L)	October 2022 Result (mg/L)	December 2022/ January 2023 Verification Result (mg/L)	SSI Confirmed?
pH	MW-108	6.3	6.2 R	6.8	No
pH	MW-119	6.3	6.2 R	6.9	No
Sulfate	MW-117	8.048	10.3	NA*	Yes*

Notes:

"R" flag indicates that the value has been rejected from the historical database due to laboratory, statistical, or equipment error.

\*SSI was previously confirmed; verification sampling was not performed.

In response to the confirmed SSI for sulfate at MW-117 identified during the second half of 2022 monitoring period, PPSC completed a successful ASD in accordance with §257.94(e)(2). The ASD was certified by an Arkansas-registered professional engineer on January 25, 2023, and is included with this report (Appendix H) as required by §257.94(e)(2). Based on the successful ASD, the facility will continue with detection monitoring in accordance with §257.94.

#### 4.3.4 Mann-Kendall Test/Theil-Sen Trend Line, Second Half of 2022

Well-parameter pairs tested for compliance using the Mann-Kendall/Theil-Sen trend line test due to significant trends in background data sets are identified in Table E.2 of Appendix E. Period-of-record data for each well-parameter pair were analyzed and test plots are included in Appendix G. The evaluation did not identify any statistically significant increasing trends in the period-of-record data sets.

## 5.0 CONCLUSIONS

The following recommendations and conclusions are based on a review of data for the landfill from the 2022 monitoring period:

1. The direction of groundwater flow at the landfill is seasonally variable. Groundwater flow was variable across the active landfill during the April 2022 monitoring event; however, the direction of flow across the active landfill area was generally toward the south. Groundwater flow beneath the active landfill area was generally to the east-northeast during the October 2022 monitoring event.
2. Of the parameters evaluated, only fluoride has an EPA-promulgated MCL. None of the reported values in groundwater were measured above the MCL for fluoride.
3. Time-series plots and box-and-whiskers diagrams show variability across the well network for calcium, chloride, fluoride, sulfate, and TDS. Values for boron and pH are relatively similar across all wells, with measured levels of boron being below the laboratory RDL for the period of record at all wells.
4. A comparison of the statistical power curve for the detection monitoring program to the EPA Reference Power Curve indicates that the detection rates for SSIs and SSDs meet EPA recommendations.
5. As discussed in the 2021 groundwater monitoring and corrective action report, statistical evaluation of the second half of 2021 data set identified confirmed SSIs for calcium, sulfate, and TDS at MW-116 and for sulfate and TDS at MW-117. PPSC completed a successful ASD in response to the SSIs in accordance with §257.94(e)(2). The ASD was certified by an Arkansas-registered professional engineer on April 5, 2022, and is included with this report in accordance with §257.94(e)(2). Based on the successful ASD, PPSC continued with detection monitoring during the first half of 2022 in accordance with §257.94.
6. Statistical evaluation of the first half of 2022 data set identified confirmed SSIs for calcium, sulfate, and TDS at MW-117. A successful ASD was completed for the SSIs on September 27, 2022, and is included with this report in accordance with §257.94(e)(2). The facility continued with detection monitoring during the second half of 2022 in accordance with §257.94.
7. Statistical evaluation of the second half of 2022 data set identified a confirmed SSI for sulfate at MW-117. A successful ASD was completed for the SSI on January 25, 2023, and is included with this report in accordance with §257.94(e)(2). The facility will continue with detection monitoring during the first half of 2023 in accordance with §257.94.

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# **APPENDIX A**

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## **Field Sampling Forms**



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**First Half 2022 Sampling Event**



### Groundwater Level Data Sheet

<b>Project Name:</b> Plum Point Energy Station 2022 Groundwater Services	<b>Project Number:</b> R14590-2764-001 EPA Program	<b>Investigator:</b> Michael Clayton	<b>Page 1 of 1</b>
<b>Weather Conditions:</b> Cloudy/rainy, 69°F	<b>Measuring Device:</b> Solinst 101		

Well ID	Date	Time	Depth to Water (feet below TOC)	Damages/Repairs		
MW-101	4/4/2022	1427	16.64	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-102	4/4/2022	1434	18.18	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-103	4/4/2022	1416	17.96	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-108	4/4/2022	1329	18.14	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-113	4/4/2022	1329	18.63	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-115	4/4/2022	1324	17.66	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-116	4/4/2022	1506	18.61	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-117	4/4/2022	1521	17.31	<input checked="" type="checkbox"/> Damaged well pad/casing <input checked="" type="checkbox"/> Damaged bollards <input checked="" type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-118	4/4/2022	1458	16.20	<input checked="" type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-119	4/4/2022	1422	20.20	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record

# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-101	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 4/7/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: partly cloudy	Air Temp. (°F): 59	Wind: west at 20 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	4/4/2022	4/7/2022	4/7/2022	4/7/2022	4/7/2022	
Time	24-hour	1427	1300	1313	1334	1342	
Depth to Water	feet	16.64	16.80	16.80	16.79	16.79	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC								
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No												
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408												
Time	24-hour	1305	1310	1315	1320	1325	1330							Remarks
Purge vol.	gallons													
Purge rate	mL/min	220	220	220	220	220	220							
pH	su	7.4	6.7	6.7	6.8	6.8	6.8							
Temp.	°C	16.6	16.7	16.7	16.7	16.6	16.5							
Conductivity	µS/cm	532	535	533	533	531	531							
DO	mg/L	1.8	0.6	0.5	0.4	0.4	0.4							
ORP	mV	127.5	97.4	67.3	70.2	75.1	76.3							
Turbidity	NTU	5.9	4.0	2.7	3.2	2.8	2.9							
Color/tint	--	clear	clear	clear	clear	clear	clear							
Odor	--	none	none	none	none	none	none							

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-101	4/7/2022	1340	3	0	
EPA EB	4/7/2022	1415	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-102	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 4/6/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: cloudy/rainy	Air Temp. (°F): 55	Wind: north at 9 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	4/4/2022	4/6/2022	4/6/2022	4/6/2022	4/6/2022	
Time	24-hour	1434	1410	1443	1452	1507	
Depth to Water	feet	18.18	18.00	18.40	18.40	18.40	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC							
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1415	1420	1425	1430	1435	1440	1445	1450				Remarks
Purge vol.	gallons												
Purge rate	mL/min	190	190	190	190	190	190	190	190				
pH	su	6.9	6.3	6.3	6.4	6.4	6.5	6.6	6.6				
Temp.	°C	16.7	16.5	16.5	16.5	16.5	16.6	16.6	16.7				
Conductivity	µS/cm	569	574	576	576	575	575	575	574				
DO	mg/L	1.3	0.8	0.8	0.8	0.7	0.7	0.7	0.7				
ORP	mV	69.1	106.2	111.4	107.2	107.4	102.3	98.8	98.3				
Turbidity	NTU	3.4	3.2	3.6	2.8	3.1	3.5	3.8	3.4				
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear				
Odor	--	none	none	none	none	none	none	none	none				

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-102	4/6/2022	1500	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-103	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 4/7/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather:	Air Temp. (°F):	Wind:			
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Total depth from TOC	feet		
		TOC below/above ground	feet		
Damages/repairs needed:					

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	4/4/2022	4/7/2022	4/7/2022	4/7/2022	4/7/2022	
Time	24-hour	1416	1110	1131	1142	1154	
Depth to Water	feet	17.96	17.98	17.98	17.98	17.98	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC								
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No												
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408												
Time	24-hour	1115	1120	1125	1130	1135	1140							Remarks
Purge vol.	gallons													
Purge rate	mL/min	200	200	200	200	200	200							
pH	su	7.3	6.7	6.6	6.7	6.8	6.8							
Temp.	°C	16.4	16.2	16.3	16.3	16.3	16.5							
Conductivity	µS/cm	381	381	380	381	380	380							
DO	mg/L	3.1	2.0	1.9	1.7	1.6	1.6							
ORP	mV	109.2	102.7	103.4	97.3	85.3	87.5							
Turbidity	NTU	11.0	16.1	13.7	13.3	11.7	9.5							
Color/tint	--	clear	clear	clear	clear	clear	clear							
Odor	--	none	none	none	none	none	none							

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-103	4/7/2022	1150	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-108	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 4/5/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: partly cloudy	Air Temp. (°F): 66	Wind: east at 2 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	4/4/2022	4/5/2022	4/5/2022	4/5/2022	4/5/2022	
Time	24-hour	1329	1250	1313	1332	1344	
Depth to Water	feet	18.14	18.07	18.07	18.07	18.07	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible						Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC				
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No										
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1255	1300	1305	1310	1315	1320	1325	1330				Remarks
Purge vol.	gallons												
Purge rate	mL/min	240	240	240	240	240	240	240	240				
pH	su	7.1	6.7	6.5	6.5	6.6	6.7	6.8	6.8				
Temp.	°C	18.9	18.4	18.2	18.7	18.8	18.9	18.9	18.5				
Conductivity	µS/cm	726	732	731	727	729	727	724	725				
DO	mg/L	2.8	1.8	1.7	1.5	1.4	1.3	1.2	1.2				
ORP	mV	123.7	96.2	98.3	95.3	83.2	73.6	72.2	70.4				
Turbidity	NTU	3.0	2.9	3.9	4.1	3.4	2.9	3.4	4.0				
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear				
Odor	--	none	none	none	none	none	none	none	none				

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-108	4/5/2022	1340	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-113	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 4/5/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: partly cloudy	Air Temp. (°F): 64	Wind: east at 7 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	4/4/2022	4/5/2022	4/5/2022	4/5/2022	4/5/2022	
Time	24-hour	1329	1135	1203	1223	1234	
Depth to Water	feet	18.63	18.55	18.55	18.55	18.55	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible						Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC				
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No										
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1140	1145	1150	1155	1200	1205	1210	1215	1220			Remarks
Purge vol.	gallons												
Purge rate	mL/min	220	220	220	220	160	160	160	160	160			
pH	su	7.1	6.6	5.8	5.7	6.1	6.2	6.4	6.5	6.6			
Temp.	°C	18.3	18.6	17.5	17.4	17.6	17.6	17.6	17.6	17.7			
Conductivity	µS/cm	481	483	480	480	479	478	477	476	476			
DO	mg/L	1.9	0.8	0.7	0.6	0.4	0.3	0.3	0.3	0.4			
ORP	mV	150.7	116.3	114.1	108.2	96.4	84.5	79.6	77.4	76.1			
Turbidity	NTU	9.9	4.7	3.6	11.9	2.5	7.1	3.7	5.8	4.4			
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear	clear			
Odor	--	none	none	none	none	none	none	none	none	none			

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-113	4/5/2022	1230	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-115	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 4/5/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: cloudy	Air Temp. (°F): 57	Wind: northeast at 10 mph				
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		Total depth from TOC		feet		
		TOC below/above ground		feet		
Damages/repairs needed:						

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					Remarks
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	
Date	mm/dd/yy	4/4/2022	4/5/2022	4/5/2022	4/5/2022	4/5/2022	
Time	24-hour	1324	1020	1052	1103	1118	
Depth to Water	feet	17.66	17.79	17.82	17.82	17.82	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC							
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1025	1030	1035	1040	1045	1050	1055	1100					Remarks
Purge vol.	gallons													
Purge rate	mL/min	170	170	170	170	170	170	170	170					
pH	su	7.2	6.8	6.4	6.5	6.5	6.5	6.6	6.7					
Temp.	°C	17.2	17.0	17.0	17.0	17.1	17.2	17.3	17.4					
Conductivity	µS/cm	538	542	538	536	535	534	533	534					
DO	mg/L	1.0	0.6	0.5	0.4	0.4	0.4	0.4	0.3					
ORP	mV	106.5	87.4	100.2	98.9	92.4	85.3	83.4	79.3					
Turbidity	NTU	4.2	2.5	3.0	2.8	2.7	2.9	3.3	2.3					
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear					
Odor	--	none	none	none	none	none	none	none	none					

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-115	4/5/2022	1115	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-116	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 4/6/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: cloudy	Air Temp. (°F): 57	Wind: north at 9 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	4/4/2022	4/6/2022	4/6/2022	4/6/2022	4/6/2022	
Time	24-hour	1506	1520	1557	1607	1624	
Depth to Water	feet	18.61	18.50	18.50	18.50	18.50	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible					Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC					
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No										
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1525	1530	1535	1540	1545	1550	1555	1600	1605			Remarks
Purge vol.	gallons												
Purge rate	mL/min	200	200	200	200	200	200	200	200	200			
pH	su	7.0	6.7	6.6	6.7	6.8	6.8	6.9	6.8	6.9			
Temp.	°C	16.0	16.0	16.0	16.2	16.1	16.5	16.2	16.3	16.3			
Conductivity	µS/cm	473	470	471	474	475	475	477	477	478			
DO	mg/L	3.0	2.8	2.8	2.7	2.7	2.6	2.5	2.5	2.5			
ORP	mV	109.8	114.4	115.0	99.0	99.1	97.5	92.0	92.1	91.0			
Turbidity	NTU	5.2	4.0	3.1	3.8	3.5	3.3	3.3	4.0	2.6			
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear	clear			
Odor	--	none	none	none	none	none	none	none	none	none			

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-116	4/6/2022	1620	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-117	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 4/6/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: cloudy/rainy	Air Temp. (°F): 55	Wind: north at 8 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	4/4/2022	4/6/2022	4/6/2022	4/6/2022	4/6/2022	
Time	24-hour	1521	1225	1252	1308	1325	
Depth to Water	feet	17.31	17.14	17.14	17.14	17.14	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC						
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No										
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408										
Time	24-hour	1230	1235	1240	1245	1250	1255	1300	1305				Remarks
Purge vol.	gallons												
Purge rate	mL/min	190	190	190	190	190	190	190	190				
pH	su	6.8	6.6	6.4	6.4	6.4	6.5	6.5	6.5				
Temp.	°C	17.2	16.6	16.5	16.3	16.4	16.3	16.3	16.4				
Conductivity	µS/cm	488	491	490	489	489	489	489	487				
DO	mg/L	1.1	0.5	0.4	0.3	0.3	0.4	0.4	0.4				
ORP	mV	104.7	107.3	108.5	105.7	103.1	100.3	99.2	96.4				
Turbidity	NTU	8.8	3.1	2.7	2.5	2.5	2.6	2.9	2.2				
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear				
Odor	--	none	none	none	none	none	none	none	none				

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-117	4/6/2022	1315	3	0	
MW-117 DUP	4/6/2022	1320	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-118	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 4/7/2022	Sampler Organization: FTN Associates, Ltd.

### Site Description

Weather: clear	Air Temp. (°F): 53	Wind: west at 14 mph			
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Total depth from TOC	feet		
		TOC below/above ground	feet		
Damages/repairs needed:					

### Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	4/4/2022	4/7/2022	4/7/2022	4/7/2022	4/7/2022	
Time	24-hour	1458	1015	1038	1045	1102	
Depth to Water	feet	16.20	17.93	17.90	17.90	17.90	
Product/Thickness	LNAPL/DNAPL feet						

### Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC									
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No													
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408													
Time	24-hour	1020	1025	1030	1035	1040	1045								Remarks
Purge vol.	gallons														
Purge rate	mL/min	160	160	160	160	160	160								
pH	su	6.7	6.6	6.6	6.6	6.6	6.6								
Temp.	°C	16.1	16.1	16.1	16.1	16.3	16.2								
Conductivity	µS/cm	456	451	443	441	438	437								
DO	mg/L	0.7	0.4	0.3	0.3	0.3	0.3								
ORP	mV	96.2	102.8	92.1	83.4	83.2	84.3								
Turbidity	NTU	2.8	2.3	2.5	2.2	1.9	2.2								
Color/tint	--	clear	clear	clear	clear	clear	clear								
Odor	--	none	none	none	none	none	none								

### Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-118	4/7/2022	1055	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-119	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 4/7/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: partly cloudy	Air Temp. (°F): 59	Wind: west at 20 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	4/4/2022	4/7/2022	4/7/2022	4/7/2022	4/7/2022	
Time	24-hour	1422	1205	1217	1241	1253	
Depth to Water	feet	20.20	20.58	20.58	20.58	20.58	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible						Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC				
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No										
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1210	1215	1220	1225	1230	1235	1240					Remarks
Purge vol.	gallons												
Purge rate	mL/min	240	240	240	240	240	240	240					
pH	su	6.9	6.5	6.4	6.4	6.5	6.6	6.6					
Temp.	°C	17.9	17.8	17.7	17.7	17.7	17.6	17.6					
Conductivity	µS/cm	555	556	554	552	549	548	548					
DO	mg/L	1.6	1.2	0.9	0.8	0.7	0.7	0.7					
ORP	mV	135.1	111.0	94.0	98.4	95.6	92.5	86.8					
Turbidity	NTU	5.5	3.5	2.0	1.7	2.5	2.5	2.3					
Color/tint	--	clear	clear	clear	clear	clear	clear	clear					
Odor	--	none	none	none	none	none	none	none					

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-119	4/7/2022	1250	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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**First Half 2022 Verification Sampling Event**



### Groundwater Level Data Sheet

<b>Project Name:</b> Plum Point Energy Station 2022 Groundwater Services	<b>Project Number:</b> R14590-2764-001 EPA Program	<b>Investigator:</b> Michael Clayton	<b>Page 1 of 1</b>
<b>Weather Conditions:</b> Clear, 84°F	<b>Measuring Device:</b> Solinst 101		

Well ID	Date	Time	Depth to Water (feet below TOC)	Damages/Repairs		
MW-101	6/20/2022	1125	15.09	<input type="checkbox"/> Damaged well pad/casing <input checked="" type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-102	6/20/2022	1131	16.71	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-103	6/20/2022	1114	15.98	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input checked="" type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input checked="" type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-108	6/20/2022	0952	19.15	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input checked="" type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-113	6/20/2022	0944	18.31	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-115	6/20/2022	0937	17.89	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-116	6/20/2022	1129	16.73	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-117	6/20/2022	1142	15.37	<input checked="" type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input checked="" type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-118	6/20/2022	1053	13.95	<input checked="" type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-119	6/20/2022	1121	19.01	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record

# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-117	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 6/20/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: clear	Air Temp. (°F): 92	Wind: southeast at 5 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	6/20/2022	6/20/2022	6/20/2022	6/20/2022	6/20/2022	
Time	24-hour	1142	1250	1323	1338	1423	
Depth to Water	feet	15.37	15.37	15.37	15.37	15.37	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC							
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1255	1300	1305	1310	1315	1320	1325	1330	1335			Remarks
Purge vol.	gallons												
Purge rate	mL/min	150	150	150	150	150	150	150	150	150			
pH	su	4.7	4.5	4.5	4.7	5.0	5.4	5.8	5.7	5.8			
Temp.	°C	22.1	20.7	20.3	20.1	20.1	20.3	20.1	20.3	20.3			
Conductivity	µS/cm	673	597	595	588	585	586	586	584	586			
DO	mg/L	1.2	1.1	1.0	1.0	1.0	0.9	0.9	0.9	0.9			
ORP	mV	163.2	177.6	163.7	109.8	69.1	56.9	39.1	37.1	28.9			
Turbidity	NTU	6.7	4.5	6.5	6.5	5.9	6.9	6.5	5.8	5.9			
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear	clear			
Odor	--	none	none	none	none	none	none	none	none	none			

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-117	6/20/2022	1350	3	0	
MW-117 DUP	6/20/2022	1355	3	0	
EPA EB-1	6/20/2022	1410	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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**Second Half 2022 Sampling Event**





### Groundwater Level Data Sheet

<b>Project Name:</b> Plum Point Energy Station 2022 Groundwater Services	<b>Project Number:</b> R14590-2764-001 EPA Program	<b>Investigator:</b> Michael Clayton	<b>Page 1 of 1</b>
<b>Weather Conditions:</b> Clear, 74°F, NNE @ 9 mph	<b>Measuring Device:</b> Solinst 101		

Well ID	Date	Time	Depth to Water (feet below TOC)	Damages/Repairs		
MW-101	10/3/2022	1216	22.41	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-102	10/3/2022	1229	25.50	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-103	10/3/2022	1208	23.39	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input checked="" type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-108	10/3/2022	1054	29.99	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-113	10/3/2022	1049	28.47	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-115	10/3/2022	1040	27.28	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input checked="" type="checkbox"/> See GW sample record
MW-116	10/3/2022	1223	24.96	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input checked="" type="checkbox"/> See GW sample record
MW-117	10/3/2022	1237	24.01	<input checked="" type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-118	10/3/2022	1202	22.06	<input checked="" type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input checked="" type="checkbox"/> See GW sample record
MW-119	10/3/2022	1212	26.21	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record

# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-101	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/5/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: clear	Air Temp. (°F): 65	Wind: southeast at 4 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	10/3/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022	
Time	24-hour	1216	1105	1131	1139	1154	
Depth to Water	feet	22.41	22.50	22.56	22.56	22.56	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC								
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No												
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408												
Time	24-hour	1110	1115	1120	1125	1130	1135							Remarks
Purge vol.	gallons													
Purge rate	mL/min	260	260	260	260	260	260							
pH	su	6.6	6.2	6.1	6.2	6.2	6.2							
Temp.	°C	19.7	19.0	18.9	18.9	18.9	18.7							
Conductivity	µS/cm	507	506	503	503	502	501							
DO	mg/L	1.2	1.1	1.1	1.3	1.3	1.3							
ORP	mV	-18.4	-31.3	-32.5	-34.1	-35.8	-35.6							
Turbidity	NTU	7.7	3.8	2.8	2.8	2.0	2.0							
Color/tint	--	clear	clear	clear	clear	clear	clear							
Odor	--	none	none	none	none	none	none							

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-101	10/5/2022	1143	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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## Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-102	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/5/2022	Sampler Organization: FTN Associates, Ltd.

### Site Description

Weather: clear	Air Temp. (°F): 79	Wind: northeast at 4 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%; vertical-align: top;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

### Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	10/3/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022	
Time	24-hour	1229	1315	1358	1422	1447	
Depth to Water	feet	25.50	25.64	26.35	26.35	26.33	
Product/Thickness	LNAPL/DNAPL feet						

### Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC							
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1320	1325	1330	1335	1340	1345	1350	1355	1400	1405	1410	Remarks
Purge vol.	gallons												Flushed YSI flow cell
Purge rate	mL/min	180	180	180	180	180	180	1890	180	50	50	50	between 1350 & 1355
pH	su	5.7	5.5	5.4	5.6	5.7	5.9	5.9	6.1	5.9	6.0	6.2	
Temp.	°C	20.2	19.5	19.4	19.5	19.6	19.7	19.5	18.8	19.2	20.2	20.4	
Conductivity	µS/cm	495	497	497	504	511	518	521	523	523	523	524	
DO	mg/L	2.0	1.5	0.7	0.7	0.7	0.7	0.7	2.1	0.9	0.9	0.9	
ORP	mV	-22.2	-23.0	-26.0	-32.7	-35.5	-40.9	-40.7	-37.0	-36.9	-44.3	-47.4	
Turbidity	NTU	6.0	6.1	9.9	10.8	9.4	7.1	4.6	4.7	3.9	3.4	3.2	
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
Odor	--	none	none	none	none	none	none	none	none	none	none	none	

### Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-102	10/5/2022	1428	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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## Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-102	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/5/2022	Sampler Organization: FTN Associates, Ltd.

### Site Description

Weather: clear	Air Temp. (°F): 79	Wind: northeast at 4 mph			
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Total depth from TOC	feet		
		TOC below/above ground	feet		
Damages/repairs needed:					

### Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					Remarks
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	
Date	mm/dd/yy	10/3/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022	
Time	24-hour	1229	1315	1358	1422	1447	
Depth to Water	feet	25.50	25.64	26.35	26.35	26.33	
Product/Thickness	LNAPL/DNAPL feet						

### Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC				
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408								
Time	24-hour	1415	1420								Remarks
Purge vol.	gallons	50	50								Flushed YSI flow cell
Purge rate	mL/min										between 1350 & 1355
pH	su	6.3	6.3								
Temp.	°C	20.6	20.7								
Conductivity	µS/cm	524	526								
DO	mg/L	0.8	0.7								
ORP	mV	-49.5	-50.5								
Turbidity	NTU	2.7	2.7								
Color/tint	--	clear	clear								
Odor	--	none	none								

### Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-102	10/5/2022	1428	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-108	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/4/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: clear	Air Temp. (°F): 65	Wind: east-northeast at 5 mph
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2    Well locked? Total depth from TOC: feet <input checked="" type="checkbox"/> Yes TOC below/above ground: feet <input type="checkbox"/> No
Damages/repairs needed:		

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	10/3/2022	10/4/2022	10/4/2022	10/4/2022	10/4/2022	
Time	24-hour	1054	1050	1107	1147	1216	
Depth to Water	feet	29.99	30.11	30.40	30.16	30.21	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC							
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1055	1100	1105	1110	1115	1120	1125	1130	1135	1140	1145	Remarks
Purge vol.	gallons												
Purge rate	mL/min	90	90	90	50	50	50	50	50	50	50	50	
pH	su	6.5	5.5	5.4	5.7	5.9	6.0	6.0	6.0	6.1	6.2	6.2	
Temp.	°C	22.5	21.8	21.0	21.3	21.3	21.2	21.2	21.3	21.3	21.3	21.5	
Conductivity	µS/cm	631	647	667	674	676	685	688	689	690	692	690	
DO	mg/L	4.0	2.7	2.7	2.6	2.1	1.8	1.5	1.4	1.4	1.3	1.2	
ORP	mV	37.3	-1.9	-1.0	-7.7	-14.3	-19.4	-19.7	-22.5	-25.4	-28.8	-29.7	
Turbidity	NTU	6.4	7.5	4.0	3.5	2.8	5.9	6.1	6.2	5.5	4.4	3.0	
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
Odor	--	none	none	none	none	none	none	none	none	none	none	none	

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-108	10/4/2022	1253	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-113	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/4/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: clear	Air Temp. (°F): 62	Wind: east-northeast at 4 mph
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2    Well locked? Total depth from TOC: feet <input checked="" type="checkbox"/> Yes TOC below/above ground: feet <input type="checkbox"/> No
Damages/repairs needed:		

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	10/3/2022	10/4/2022	10/4/2022	10/4/2022	10/4/2022	
Time	24-hour	1049	0940	1003	1019	1040	
Depth to Water	feet	28.47	28.57	28.57	28.57	28.57	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC							
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	0945	0950	0955	1000	1005	1010	1015					Remarks
Purge vol.	gallons												
Purge rate	mL/min	160	160	160	160	160	160	160					
pH	su	6.5	6.4	6.5	6.4	6.4	6.4	6.4					
Temp.	°C	19.9	20.1	20.0	20.0	20.0	20.0	20.4					
Conductivity	µS/cm	450	449	447	447	447	449	447					
DO	mg/L	3.4	2.5	2.3	2.3	2.3	2.3	2.2					
ORP	mV	-4.3	-12.5	-16.1	-18.2	-19.9	-22.1	-24.0					
Turbidity	NTU	3.6	2.9	2.9	2.3	2.6	3.9	2.5					
Color/tint	--	clear	clear	clear	clear	clear	clear	clear					
Odor	--	none	none	none	none	none	none	none					

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-113	10/4/2022	1023	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-115	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/3/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: clear	Air Temp. (°F): 77	Wind: north-northeast at 9 mph
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2    Well locked? Total depth from TOC: feet <input checked="" type="checkbox"/> Yes TOC below/above ground: feet <input type="checkbox"/> No
Damages/repairs needed: Wasps in well area		

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	10/3/2022	10/3/2022	10/3/2022	10/3/2022	10/3/2022	
Time	24-hour	1040	1340	1413	1442	1452	
Depth to Water	feet	27.28	27.28	27.28	27.28	27.28	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible					Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC					
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No										
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1350	1355	1400	1405	1410	1415	1420	1425	1430	1435	1440	Remarks
Purge vol.	gallons												
Purge rate	mL/min	240	240	240	240	240	240	240	240	240	240	240	
pH	su	6.2	6.1	6.2	6.2	6.2	6.3	6.4	6.4	6.5	6.6	6.7	
Temp.	°C	18.6	18.5	18.4	18.3	18.2	18.2	18.6	18.5	18.5	18.6	18.6	
Conductivity	µS/cm	624	623	622	620	619	620	617	619	619	617	618	
DO	mg/L	4.1	4.2	4.0	4.0	4.0	3.8	3.6	3.6	3.4	3.4	2.9	
ORP	mV	21.0	16.9	12.7	11.4	8.8	6.9	2.4	-0.7	-1.9	-3.5	-8.0	
Turbidity	NTU	5.2	2.9	2.5	2.1	2.2	2.1	1.9	2.2	1.9	3.0	2.3	
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
Odor	--	none	none	none	none	none	none	none	none	none	none	none	

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-115	10/3/2022	1448	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-116	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/5/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: clear	Air Temp. (°F):	Wind:			
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Total depth from TOC	feet		
		TOC below/above ground	feet		
Damages/repairs needed: Wasps in well area					

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					Remarks
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	
Date	mm/dd/yy	10/3/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022	
Time	24-hour	1223	1205	1223	1242	1259	
Depth to Water	feet	24.96	25.12	25.12	25.12	25.12	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters:			Pump description:						Bailer description:					
<input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			<input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible						<input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC					
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408												
Time	24-hour	1210	1215	1220	1225	1230	1235	1240						Remarks
Purge vol.	gallons													
Purge rate	mL/min	300	300	300	300	300	300	300						
pH	su	6.5	6.0	5.8	6.0	6.0	6.2	6.2						
Temp.	°C	19.9	19.1	19.1	19.2	19.5	19.6	19.6						
Conductivity	µS/cm	442	442	444	446	446	448	447						
DO	mg/L	2.0	1.5	1.5	1.4	1.4	1.4	1.3						
ORP	mV	9.3	-16.7	-22.9	-28.3	-31.1	-36.7	-37.3						
Turbidity	NTU	4.9	3.4	3.0	5.1	3.5	3.3	2.5						
Color/tint	--	clear	clear	clear	clear	clear	clear	clear						
Odor	--	none	none	none	none	none	none	none						

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-116	10/5/2022	1253	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-117	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/5/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: clear	Air Temp. (°F): 80	Wind: east at 4 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	10/3/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022	
Time	24-hour	1237	1530	1553	1607	1637	
Depth to Water	feet	24.01	24.21	24.21	24.21	24.21	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC							
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1535	1540	1545	1550	1555	1600	1605					Remarks
Purge vol.	gallons												
Purge rate	mL/min	310	310	310	310	310	310	310					
pH	su	6.1	5.3	5.2	5.4	5.6	5.7	5.7					
Temp.	°C	19.5	18.9	18.8	18.8	18.8	18.8	18.5					
Conductivity	µS/cm	416	413	406	410	411	409	410					
DO	mg/L	2.6	2.6	2.5	2.5	2.5	2.6	2.6					
ORP	mV	-3.2	-10.6	-27.7	-32.7	-36.2	-37.9	-37.9					
Turbidity	NTU	2.3	2.6	2.4	2.0	2.4	2.1	1.9					
Color/tint	--	clear	clear	clear	clear	clear	clear	clear					
Odor	--	none	none	none	none	none	none	none					

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-117	10/5/2022	1613	3	0	
MW-117 DUP	10/5/2022	1616	3	0	
EPA EB	10/5/2022	1645	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-118	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/5/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: clear	Air Temp. (°F): 43	Wind: west-northwest at 1 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed: Yellow jacket nest in well area												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	10/3/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022	
Time	24-hour	1202	0750	0817	0828	0843	
Depth to Water	feet	22.06	22.19	22.21	22.21	22.21	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC								
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No												
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408												
Time	24-hour	0800	0805	0810	0815	0820	0825							Remarks
Purge vol.	gallons													
Purge rate	mL/min	210	210	210	210	210	210							
pH	su	5.8	5.9	6.0	6.0	6.0	6.1							
Temp.	°C	17.0	17.1	17.4	17.3	17.3	17.6							
Conductivity	µS/cm	429	421	420	418	415	414							
DO	mg/L	5.9	5.1	4.6	4.0	3.8	3.6							
ORP	mV	9.7	-5.5	-11.2	-14.8	-18.3	-21.4							
Turbidity	NTU	8.6	2.8	2.0	3.0	2.3	2.4							
Color/tint	--	clear	clear	clear	clear	clear	clear							
Odor	--	none	none	none	none	none	none							

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-118	10/5/2022	0833	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-119	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/5/2022	Sampler Organization: FTN Associates, Ltd.

### Site Description

Weather: clear	Air Temp. (°F): 64	Wind: south-southeast at 2 mph
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2    Well locked? Total depth from TOC: feet <input checked="" type="checkbox"/> Yes TOC below/above ground: feet <input type="checkbox"/> No
Damages/repairs needed:		

### Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	10/3/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022	
Time	24-hour	1212	1005	1031	1043	1053	
Depth to Water	feet	26.21	26.33	26.33	26.33	26.33	
Product/Thickness	LNAPL/DNAPL feet						

### Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible			Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC								
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1010	1015	1020	1025	1030	1035	1040					Remarks
Purge vol.	gallons												
Purge rate	mL/min	280	280	280	200	200	200	200					
pH	su	6.5	6.2	6.1	6.1	6.2	6.3	6.2					
Temp.	°C	20.0	19.3	19.5	19.6	19.6	19.6	19.5					
Conductivity	µS/cm	562	563	562	557	554	550	549					
DO	mg/L	1.6	1.2	1.2	1.1	1.0	0.9	0.9					
ORP	mV	5.7	-7.1	-12.7	-20.7	-25.1	-26.5	-27.9					
Turbidity	NTU	6.2	5.6	4.2	3.8	2.8	2.9	2.7					
Color/tint	--	clear	clear	clear	clear	clear	clear	clear					
Odor	--	none	none	none	none	none	none	none					

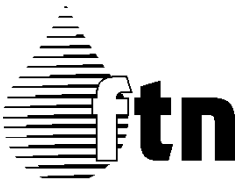
### Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-119	10/5/2022	1048	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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**Second Half 2022 Verification Sampling Event**



### Groundwater Level Data Sheet

<b>Project Name:</b> Plum Point Energy Station 2022 Groundwater Services	<b>Project Number:</b> R14590-2764-001 EPA Program	<b>Investigator:</b> Michael Clayton	<b>Page 1 of 1</b>
<b>Weather Conditions:</b> clear, 40°F, WSW @ 13 mph	<b>Measuring Device:</b> Solinst 101		

Well ID	Date	Time	Depth to Water (feet below TOC)	Damages/Repairs		
MW-101	12/15/2022	1031	25.63	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-102	12/15/2022	1036	28.72	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-103	12/15/2022	1021	25.64	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input checked="" type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-108	12/15/2022	0937	31.85	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-113	12/15/2022	0931	30.70	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-115	12/15/2022	0925	29.10	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-116	12/15/2022	1035	28.24	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-117	12/15/2022	1043	27.19	<input checked="" type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-118	12/15/2022	1014	25.23	<input checked="" type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
MW-119	12/15/2022	1026	29.10	<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record
				<input type="checkbox"/> Damaged well pad/casing <input type="checkbox"/> Damaged bollards <input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Damaged TOC <input type="checkbox"/> Damaged lock <input type="checkbox"/> Unkept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See GW sample record

# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-108	Sampler: Michael Clayton
Project Number: R14590-2496-001 (EPA)	Date: 12/15/2022	Sampler Organization: FTN Associates, Ltd.

### Site Description

Weather: partly cloudy	Air Temp. (°F): 46	Wind: west-southwest at 11 mph	
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter    inches    2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Total depth from TOC    feet	
		TOC below/above ground    feet	
Damages/repairs needed:			

### Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	12/15/2022	12/15/2022				
Time	24-hour	0937	1200				
Depth to Water	feet	31.85	31.88				
Product/Thickness	LNAPL/DNAPL feet						

### Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible			Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC		
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input type="checkbox"/> No					
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408					
Time	24-hour						Remarks
Purge vol.	gallons						
Purge rate	mL/min						
pH	su						
Temp.	°C						
Conductivity	µS/cm						
DO	mg/L						
ORP	mV						
Turbidity	NTU						
Color/tint	--						
Odor	--						

### Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-108	12/15/2022	1200	0	0	Insufficient water quantity to collect sample.

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-108	Sampler: Michael Clayton
Project Number: R14590-2496-001 (EPA)	Date: 1/11/2023	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: cloudy	Air Temp. (°F): 67	Wind: south-southwest at 14 mph				
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		Total depth from TOC		feet		
		TOC below/above ground		feet		
Damages/repairs needed:						

## Water Level Data

Measuring point description: <input type="checkbox"/> Mark/notch on TOC <input checked="" type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					Remarks
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	
Date	mm/dd/yy	1/11/2023	1/11/2023	1/11/2023	1/11/2023	1/11/2023	
Time	24-hour	1255	1350	1423	1433	1449	
Depth to Water	feet	29.44	29.44	29.64	29.69	29.73	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC								
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input type="checkbox"/> No												
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408												
Time	24-hour	1400	1405	1410	1415	1420	1425	1430							Remarks
Purge vol.	gallons														
Purge rate	mL/min	35	35	35	35	35	35	35							
pH	su	6.8	6.7	6.8	6.8	6.8	6.8	6.8							
Temp.	°C	19.4	19.3	19.2	19.1	19.0	19.2	19.5							
Conductivity	µS/cm	755	744	732	727	711	709	708							
DO	mg/L	3.1	2.0	1.5	1.2	1.1	0.9	1.0							
ORP	mV	95.5	67.6	52.8	52.9	48.9	44.7	41.4							
Turbidity	NTU	20.7	11.3	7.1	5.1	4.6	3.4	3.1							
Color/tint	--	clear	clear	clear	clear	clear	clear	clear							
Odor	--	none	none	none	none	none	none	none							

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-108	1/11/2023	1435	0	0	No sample bottles collected, just field data.

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-119	Sampler: Michael Clayton
Project Number: R14590-2496-001 (EPA)	Date: 12/16/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: cloudy	Air Temp. (°F): 42	Wind: west at 14 mph	
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter    inches    2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Total depth from TOC    feet	
		TOC below/above ground    feet	
Damages/repairs needed:			

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	12/15/2022	12/16/2022	12/16/2022	12/16/2022	12/16/2022	
Time	24-hour	1026	1110	1147			
Depth to Water	feet	29.10	29.00	29.00			
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input checked="" type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC							
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1115	1120	1125	1130	1135	1140	1145						Remarks
Purge vol.	gallons													
Purge rate	mL/min	190	190	190	190	190	190	190						
pH	su	6.9	6.9	6.9	6.9	6.9	6.9	6.9						
Temp.	°C	16.3	16.4	16.5	16.8	16.6	16.8	16.8						
Conductivity	µS/cm	582	588	585	594	598	596	595						
DO	mg/L	1.1	0.9	0.8	0.7	0.9	0.8	0.9						
ORP	mV	162.3	155.2	98.7	71.5	65.9	55.3	53.4						
Turbidity	NTU	3.7	2.7	2.5	2.9	2.5	2.1	2.1						
Color/tint	--	clear	clear	clear	clear	clear	clear	clear						
Odor	--	none	none	none	none	none	none	none						

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-119	12/16/2022	1145	0	0	No sample bottles collected, just field data.

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# **APPENDIX B**

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**Laboratory Reports**

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**First Half 2022 Sampling Event**

**Plum Point Services Co., LLC**

Sample Delivery Group: L1480403  
Samples Received: 04/08/2022  
Project Number: R14590-2794-001  
Description: Plum Point Energy Station

Report To: Dana Derrington  
2739 SCR 623  
Osceola, AR 72370

Entire Report Reviewed By:












Mark W. Beasley  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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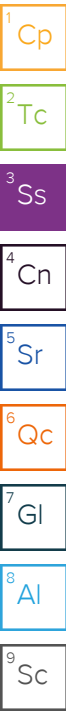
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# SAMPLE SUMMARY

## MW-101 L1480403-01 GW

Collected by Michael Clayton    Collected date/time 04/07/22 13:40    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 14:41	04/12/22 14:41	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:16	ZSA	Mt. Juliet, TN



## MW-102 L1480403-02 GW

Collected by Michael Clayton    Collected date/time 04/06/22 15:00    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 14:55	04/12/22 14:55	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:18	ZSA	Mt. Juliet, TN

## MW-103 L1480403-03 GW

Collected by Michael Clayton    Collected date/time 04/07/22 11:50    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 15:09	04/12/22 15:09	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:21	ZSA	Mt. Juliet, TN

## MW-108 L1480403-04 GW

Collected by Michael Clayton    Collected date/time 04/05/22 13:40    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1846171	1	04/10/22 15:44	04/10/22 16:48	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 15:22	04/12/22 15:22	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 16:41	ZSA	Mt. Juliet, TN

## MW-113 L1480403-05 GW

Collected by Michael Clayton    Collected date/time 04/05/22 12:30    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 15:36	04/12/22 15:36	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:24	ZSA	Mt. Juliet, TN

## MW-115 L1480403-06 GW

Collected by Michael Clayton    Collected date/time 04/05/22 11:15    Received date/time 04/08/22 09:30

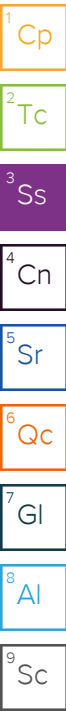
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 15:49	04/12/22 15:49	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:26	ZSA	Mt. Juliet, TN

# SAMPLE SUMMARY

## MW-116 L1480403-07 GW

Collected by Michael Clayton  
 Collected date/time 04/06/22 16:20  
 Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1846171	1	04/10/22 15:44	04/10/22 16:48	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 16:03	04/12/22 16:03	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:29	ZSA	Mt. Juliet, TN



## MW-117 L1480403-08 GW

Collected by Michael Clayton  
 Collected date/time 04/06/22 13:15  
 Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 17:11	04/12/22 17:11	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:32	ZSA	Mt. Juliet, TN

## MW-118 L1480403-09 GW

Collected by Michael Clayton  
 Collected date/time 04/07/22 10:55  
 Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 17:52	04/12/22 17:52	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:40	ZSA	Mt. Juliet, TN

## MW-119 L1480403-10 GW

Collected by Michael Clayton  
 Collected date/time 04/07/22 12:50  
 Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1846171	1	04/10/22 15:44	04/10/22 16:48	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 18:06	04/12/22 18:06	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:43	ZSA	Mt. Juliet, TN

## MW-117 DUP L1480403-11 GW

Collected by Michael Clayton  
 Collected date/time 04/06/22 13:20  
 Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 18:19	04/12/22 18:19	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:45	ZSA	Mt. Juliet, TN

## EPA EB L1480403-12 GW

Collected by Michael Clayton  
 Collected date/time 04/07/22 14:15  
 Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 18:33	04/12/22 18:33	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:48	ZSA	Mt. Juliet, TN

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Mark W. Beasley  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	388000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	848	J	379	1000	1	04/12/2022 14:41	<a href="#">WG1847040</a>
Fluoride	228		64.0	150	1	04/12/2022 14:41	<a href="#">WG1847040</a>
Sulfate	7630		594	5000	1	04/12/2022 14:41	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	59.7	J	20.0	200	1	04/18/2022 17:16	<a href="#">WG1846822</a>
Calcium	105000		79.3	1000	1	04/18/2022 17:16	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	442000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1910		379	1000	1	04/12/2022 14:55	<a href="#">WG1847040</a>
Fluoride	142	J	64.0	150	1	04/12/2022 14:55	<a href="#">WG1847040</a>
Sulfate	79000		594	5000	1	04/12/2022 14:55	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	83.8	J	20.0	200	1	04/18/2022 17:18	<a href="#">WG1846822</a>
Calcium	110000		79.3	1000	1	04/18/2022 17:18	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	278000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	926	J	379	1000	1	04/12/2022 15:09	<a href="#">WG1847040</a>
Fluoride	128	J	64.0	150	1	04/12/2022 15:09	<a href="#">WG1847040</a>
Sulfate	7840		594	5000	1	04/12/2022 15:09	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	55.2	J	20.0	200	1	04/18/2022 17:21	<a href="#">WG1846822</a>
Calcium	71600		79.3	1000	1	04/18/2022 17:21	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	478000		10000	1	04/10/2022 16:48	<a href="#">WG1846171</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1380		379	1000	1	04/12/2022 15:22	<a href="#">WG1847040</a>
Fluoride	138	J	64.0	150	1	04/12/2022 15:22	<a href="#">WG1847040</a>
Sulfate	24000		594	5000	1	04/12/2022 15:22	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	132	J	20.0	200	1	04/18/2022 16:41	<a href="#">WG1846822</a>
Calcium	151000	V	79.3	1000	1	04/18/2022 16:41	<a href="#">WG1846822</a>

- 1  
Cp
- 2  
Tc
- 3  
Ss
- 4  
Cn
- 5  
Sr
- 6  
Qc
- 7  
Gl
- 8  
Al
- 9  
Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	326000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1320		379	1000	1	04/12/2022 15:36	<a href="#">WG1847040</a>
Fluoride	84.6	J	64.0	150	1	04/12/2022 15:36	<a href="#">WG1847040</a>
Sulfate	5700		594	5000	1	04/12/2022 15:36	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	74.7	J	20.0	200	1	04/18/2022 17:24	<a href="#">WG1846822</a>
Calcium	81800		79.3	1000	1	04/18/2022 17:24	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	374000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	976	J	379	1000	1	04/12/2022 15:49	<a href="#">WG1847040</a>
Fluoride	165		64.0	150	1	04/12/2022 15:49	<a href="#">WG1847040</a>
Sulfate	4950	J	594	5000	1	04/12/2022 15:49	<a href="#">WG1847040</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	42.4	J	20.0	200	1	04/18/2022 17:26	<a href="#">WG1846822</a>
Calcium	102000		79.3	1000	1	04/18/2022 17:26	<a href="#">WG1846822</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	338000		10000	1	04/10/2022 16:48	<a href="#">WG1846171</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	2640		379	1000	1	04/12/2022 16:03	<a href="#">WG1847040</a>
Fluoride	132	J	64.0	150	1	04/12/2022 16:03	<a href="#">WG1847040</a>
Sulfate	55600		594	5000	1	04/12/2022 16:03	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	84.2	J	20.0	200	1	04/18/2022 17:29	<a href="#">WG1846822</a>
Calcium	81400		79.3	1000	1	04/18/2022 17:29	<a href="#">WG1846822</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	341000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	875	J	379	1000	1	04/12/2022 17:11	<a href="#">WG1847040</a>
Fluoride	91.6	J	64.0	150	1	04/12/2022 17:11	<a href="#">WG1847040</a>
Sulfate	9030		594	5000	1	04/12/2022 17:11	<a href="#">WG1847040</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	73.8	J	20.0	200	1	04/18/2022 17:32	<a href="#">WG1846822</a>
Calcium	93100		79.3	1000	1	04/18/2022 17:32	<a href="#">WG1846822</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	320000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	926	J	379	1000	1	04/12/2022 17:52	<a href="#">WG1847040</a>
Fluoride	129	J	64.0	150	1	04/12/2022 17:52	<a href="#">WG1847040</a>
Sulfate	17600		594	5000	1	04/12/2022 17:52	<a href="#">WG1847040</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	57.3	J	20.0	200	1	04/18/2022 17:40	<a href="#">WG1846822</a>
Calcium	85200		79.3	1000	1	04/18/2022 17:40	<a href="#">WG1846822</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	397000		10000	1	04/10/2022 16:48	<a href="#">WG1846171</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1820		379	1000	1	04/12/2022 18:06	<a href="#">WG1847040</a>
Fluoride	195		64.0	150	1	04/12/2022 18:06	<a href="#">WG1847040</a>
Sulfate	37100		594	5000	1	04/12/2022 18:06	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	67.0	J	20.0	200	1	04/18/2022 17:43	<a href="#">WG1846822</a>
Calcium	107000		79.3	1000	1	04/18/2022 17:43	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	344000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1060		379	1000	1	04/12/2022 18:19	<a href="#">WG1847040</a>
Fluoride	92.5	J	64.0	150	1	04/12/2022 18:19	<a href="#">WG1847040</a>
Sulfate	9310		594	5000	1	04/12/2022 18:19	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	72.1	J	20.0	200	1	04/18/2022 17:45	<a href="#">WG1846822</a>
Calcium	92900		79.3	1000	1	04/18/2022 17:45	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	ND		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	U		379	1000	1	04/12/2022 18:33	<a href="#">WG1847040</a>
Fluoride	U		64.0	150	1	04/12/2022 18:33	<a href="#">WG1847040</a>
Sulfate	U		594	5000	1	04/12/2022 18:33	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	U		20.0	200	1	04/18/2022 17:48	<a href="#">WG1846822</a>
Calcium	U		79.3	1000	1	04/18/2022 17:48	<a href="#">WG1846822</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3780075-1 04/09/22 13:23

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1478933-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1478933-01 04/09/22 13:23 • (DUP) R3780075-3 04/09/22 13:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	573000	572000	1	0.175		5

L1480461-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1480461-03 04/09/22 13:23 • (DUP) R3780075-4 04/09/22 13:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	3790000	3730000	1	1.73		5

Laboratory Control Sample (LCS)

(LCS) R3780075-2 04/09/22 13:23

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8710000	99.0	77.4-123	

Method Blank (MB)

(MB) R3780062-1 04/10/22 16:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1479870-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1479870-04 04/10/22 16:48 • (DUP) R3780062-3 04/10/22 16:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1620000	1660000	1	2.74		5

4 Cn

5 Sr

6 Qc

L1480590-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1480590-05 04/10/22 16:48 • (DUP) R3780062-4 04/10/22 16:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	976000	940000	1	3.76		5

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3780062-2 04/10/22 16:48

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8330000	94.7	77.4-123	

Method Blank (MB)

(MB) R3780665-1 04/12/22 10:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	U		594	5000

L1480389-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1480389-01 04/12/22 11:58 • (DUP) R3780665-3 04/12/22 12:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	121000	123000	1	1.36	FF	15
Fluoride	224	307	1	31.1	P1	15
Sulfate	U	U	1	0.000		15

L1480403-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1480403-08 04/12/22 17:11 • (DUP) R3780665-6 04/12/22 17:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	875	861	1	1.65	U	15
Fluoride	91.6	101	1	10.2	U	15
Sulfate	9030	9220	1	2.13		15

Laboratory Control Sample (LCS)

(LCS) R3780665-2 04/12/22 10:32

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	37700	94.1	80.0-120	
Fluoride	8000	7840	98.0	80.0-120	
Sulfate	40000	37800	94.5	80.0-120	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1480389-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1480389-04 04/12/22 12:52 • (MS) R3780665-4 04/12/22 13:06 • (MSD) R3780665-5 04/12/22 13:20

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	13800	63800	62100	100	96.7	1	80.0-120			2.70	15
Fluoride	5000	75.7	4790	4650	94.3	91.5	1	80.0-120			3.01	15
Sulfate	50000	40900	89700	85100	97.7	88.5	1	80.0-120			5.25	15

L1480403-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1480403-08 04/12/22 17:11 • (MS) R3780665-7 04/12/22 17:38

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	875	48700	95.7	1	80.0-120	
Fluoride	5000	91.6	4770	93.5	1	80.0-120	
Sulfate	50000	9030	56500	95.0	1	80.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



Method Blank (MB)

(MB) R3782457-1 04/18/22 16:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		20.0	200
Calcium	U		79.3	1000

Laboratory Control Sample (LCS)

(LCS) R3782457-2 04/18/22 16:38

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	969	96.9	80.0-120	
Calcium	10000	9940	99.4	80.0-120	

L1480403-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1480403-04 04/18/22 16:41 • (MS) R3782457-4 04/18/22 16:46 • (MSD) R3782457-5 04/18/22 16:48

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	132	1110	1130	97.6	99.5	1	75.0-125			1.74	20
Calcium	10000	151000	157000	158000	66.7	72.0	1	75.0-125	V	V	0.342	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

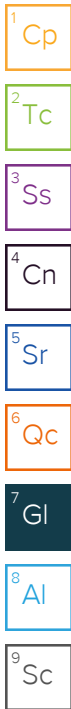
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Company Name/Address:  
**Plum Point Services Co., LLC**  
 2739 SCR 623  
 Osceola, AR 72370

Billing Information:  
 Accounts Payable  
 P.O. Box 567  
 Osceola, AR 72370

Pres  
 Chk

Report to:  
**Dana Derrington**

Email To: dld@ftn-assoc.com; hlf@ftn-assoc.com; ajp@ftn-assoc.com

Project Description:  
**Plum Point Energy Station**

City/State  
 Collected:

Please Circle:  
 PT MT CT ET

Phone: **501-920-9642**

Client Project #  
**R14590-2794-001**

Lab Project #  
**NAESOAR-PLUMPOINT**

Collected by (print):  
*Michael Clayton*

Site/Facility ID #

P.O. #  
**2021-00048**

Collected by (signature):  
*Michael Clayton*

**Rush?** (Lab MUST Be Notified)  
 \_\_\_ Same Day \_\_\_ Five Day  
 \_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
 \_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
 \_\_\_ Three Day

Quote #  
 Date Results Needed

Immediately  
 Packed on Ice N \_\_\_ Y

No. of  
 Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-101	Grab	GW		4/7/22	1340	3
MW-102		GW		4/6/22	1500	3
MW-103		GW		4/7/22	1150	3
MW-108		GW		4/5/22	1340	3
MW-113		GW		4/5/22	1230	3
MW-115		GW		4/5/22	1115	3
MW-116		GW		4/6/22	1620	3
MW-117		GW		4/6/22	1315	3
MW-118		GW		4/7/22	1055	3
MW-119	✓	GW		4/7/22	1250	3

Analysis / Container / Preservative		
CI, F, SO4 125mIHDPE-NoPres	TDS 250mIHDPE-NoPres	Total B, Ca 250mIHDPE-HNO3



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **1480403**

**I182**

Acctnum: **NAESUAK**  
 Template: **T175308**  
 Prelogin: **P914886**  
 PM: **134 - Mark W. Beasley**  
 PB: **Bf 3/28/22**  
 Shipped Via: **FedEX Ground**

Remarks	Sample # (lab only)
	01
	02
	03
	04
	05
	06
	07
	08
	09
	10

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks: pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via: \_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier \_\_\_\_\_  
 Tracking # **567153822224**

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y	N
COC Signed/Accurate:		Y	N
Bottles arrive intact:		Y	N
Correct bottles used:		Y	N
Sufficient volume sent:		Y	N
If Applicable			
VOA Zero Headspace:		Y	N
Preservation Correct/Checked:		Y	N
RAD Screen <0.5 mR/hr:		Y	N

Relinquished by: (Signature)  
*Michael Clayton*  
 Date: **4/7/22**  
 Time: **1730**

Received by: (Signature)  
 Date: \_\_\_\_\_  
 Time: \_\_\_\_\_

Trip Blank Received: Yes/No  
 HCL / MeOH  
 TBR  
 Temp: **25.10** °C  
 Bottles Received: **25 36**  
 Date: **4/8/22**  
 Time: **0930**

If preservation required by Login: Date/Time  
 Hold:  
 Condition: **NCF 10K**

Company Name/Address:  
**Plum Point Services Co., LLC**  
 2739 SCR 623  
 Osceola, AR 72370

Billing Information:  
 Accounts Payable  
 P.O. Box 567  
 Osceola, AR 72370

Pres  
 Chk

Report to:  
**Dana Derrington**

Email To: dld@ftn-assoc.com; hlf@ftn-assoc.com; ajp@ftn-assoc.com

Project Description:  
**Plum Point Energy Station**

City/State Collected:

Please Circle:  
 PT MT CT ET

Phone: **501-920-9642**

Client Project #  
**R14590-2794-001**

Lab Project #  
**NAESOAR-PLUMPOINT**

Collected by (print):  
*Michael Clayton*

Site/Facility ID #

P.O. #  
**2021-00048**

Collected by (signature):  
*Michael Clayton*

**Rush?** (Lab MUST Be Notified)  
 \_\_\_ Same Day \_\_\_ Five Day  
 \_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
 \_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
 \_\_\_ Three Day

Quote #

Date Results Needed

Immediately Packed on Ice N \_\_\_ Y

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CI, F, SO4 125mIHDP-E-NoPres	TDS 250mIHDP-E-NoPres	Total B, Ca 250mIHDP-E-HNO3									
MW-117 DUP	Grab	GW		4/6/22	1320	3	X	X	X									
EPA EB	↓	GW		4/7/22	1415	3	X	X	X									
		GW				3	X	X	X									
		GW				3	X	X	X									

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via: \_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier  
 Tracking # **567153822224**

Sample Receipt Checklist	
COC Seal Present/Intact: NP	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
COC Signed/Accurate:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Bottles arrive intact:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Correct bottles used:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Sufficient volume sent:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
If Applicable	
VOA Zero Headspace:	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
RAD Screen <0.5 mR/hr:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Relinquished by: (Signature)  
*Michael Clayton*

Date: **4/7/22** Time: **1730**

Received by: (Signature)  
*Patricia Smith*

Date: **4/8/22** Time: **0930**

Trip Blank Received: Yes/No  
**5** HCL/MeOH TBR

Bottles Received: **291025 36**

Temp: **25.0** °C

If preservation required by Login: Date/Time

Hold: Condition: NCF /  OK

Analysis / Container / Preservative									



**MT JULIET, TN**

12065 Lebanon Rd Mount Juliet, TN 37122  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **1480403**

Table #

Acctnum: **NAESOAR**  
 Template: **T175308**  
 Prelogin: **P914886**  
 PM: **134 - Mark W. Beasley**  
 PB: **BF 3/28/22**  
 Shipped Via: **FedEX Ground**

Remarks Sample # (lab only)

**11**  
**12**

---

**First Half 2022 Verification Sampling Event**

**FTN Associates - Little Rock, AR**

Sample Delivery Group: L1507713  
Samples Received: 06/22/2022  
Project Number: R14590-2764-001  
Description: PPES DEQ Program

Report To: Dana Derrington  
3 Innwood Circle, Suite 220  
Little Rock, AR 72211

Entire Report Reviewed By:



Mark W. Beasley  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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MW-117 DUP L1507713-02	6	<sup>4</sup> Cn
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# SAMPLE SUMMARY

## MW-117 L1507713-01 GW

Collected by Michael Clayton      Collected date/time 06/20/22 13:50      Received date/time 06/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1885678	1	06/26/22 15:41	06/26/22 16:17	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1892248	1	07/09/22 21:36	07/09/22 21:36	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1889898	1	07/05/22 16:52	07/07/22 11:34	CCE	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## MW-117 DUP L1507713-02 GW

Collected by Michael Clayton      Collected date/time 06/20/22 13:55      Received date/time 06/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1885678	1	06/26/22 15:41	06/26/22 16:17	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1892248	1	07/09/22 21:48	07/09/22 21:48	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1889898	1	07/05/22 16:52	07/07/22 11:42	CCE	Mt. Juliet, TN

## EPA EB-1 L1507713-03 GW

Collected by Michael Clayton      Collected date/time 06/20/22 14:10      Received date/time 06/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1885678	1	06/26/22 15:41	06/26/22 16:17	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1892248	1	07/09/22 22:27	07/09/22 22:27	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1889898	1	07/05/22 16:52	07/07/22 11:15	CCE	Mt. Juliet, TN

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Mark W. Beasley  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	318000		10000	1	06/26/2022 16:17	<a href="#">WG1885678</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	9630		594	5000	1	07/09/2022 21:36	<a href="#">WG1892248</a>

3 Ss

4 Cn

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	92200		79.3	1000	1	07/07/2022 11:34	<a href="#">WG1889898</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	314000		10000	1	06/26/2022 16:17	<a href="#">WG1885678</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	9650		594	5000	1	07/09/2022 21:48	<a href="#">WG1892248</a>

3 Ss

4 Cn

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	92200		79.3	1000	1	07/07/2022 11:42	<a href="#">WG1889898</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	ND		10000	1	06/26/2022 16:17	<a href="#">WG1885678</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	U		594	5000	1	07/09/2022 22:27	<a href="#">WG1892248</a>

3 Ss

4 Cn

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	U		79.3	1000	1	07/07/2022 11:15	<a href="#">WG1889898</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3810200-1 06/26/22 16:17

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1506994-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1506994-01 06/26/22 16:17 • (DUP) R3810200-3 06/26/22 16:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	730000	766000	1	4.81		5

4 Cn

5 Sr

L1506994-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1506994-06 06/26/22 16:17 • (DUP) R3810200-4 06/26/22 16:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	677000	703000	1	3.67		5

6 Qc

7 Gl

8 Al

Laboratory Control Sample (LCS)

(LCS) R3810200-2 06/26/22 16:17

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	2440000	2440000	100	81.5-118	

9 Sc

Method Blank (MB)

(MB) R3813831-1 07/09/22 10:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		594	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1507324-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1507324-14 07/09/22 18:37 • (DUP) R3813831-3 07/09/22 18:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	43000	42500	5	1.10		15

L1507713-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1507713-02 07/09/22 21:48 • (DUP) R3813831-6 07/09/22 22:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	9650	9690	1	0.376		15

Laboratory Control Sample (LCS)

(LCS) R3813831-2 07/09/22 10:18

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfate	40000	38800	97.1	80.0-120	

L1507324-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1507324-14 07/09/22 18:37 • (MS) R3813831-4 07/09/22 19:03 • (MSD) R3813831-5 07/09/22 19:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	43000	89800	90000	93.7	94.1	5	80.0-120			0.190	15

L1507713-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1507713-02 07/09/22 21:48 • (MS) R3813831-7 07/09/22 22:14

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	9650	59600	99.9	1	80.0-120	

Method Blank (MB)

(MB) R3812040-1 07/07/22 11:10

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Calcium	U		79.3	1000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3812040-2 07/07/22 11:12

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Calcium	10000	10200	102	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1507713-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1507713-03 07/07/22 11:15 • (MS) R3812040-4 07/07/22 11:21 • (MSD) R3812040-5 07/07/22 11:23

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Calcium	10000	U	10100	10000	101	100	1	75.0-125			0.0844	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc



# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

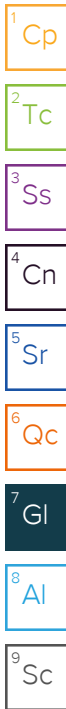
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

### Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Company Name/Address:  
**FTN Associates - Little Rock, AR**  
 3 Innwood Circle, Suite 220  
 Little Rock, AR 72211

Billing Information:  
 3 Innwood Circle, Suite 220  
 Little Rock, AR 72211

Pres Chk



**MT JULIET, TN**

12065 Lebanon Rd Mount Juliet, TN 37122  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>

Report to:  
**Dana Derrington**

Email To: **dld@ftn-assoc.com**

Project Description:  
**PPES DEQ Program**

City/State Collected: **osceola AR**

Please Circle:  
 PT MT  ET

Phone: **479-571-3334**

Client Project #  
**R14590-2764-001**

Lab Project #  
**FTNLRAR-R145902764**

Collected by (print):  
*Michael Clayton*

Site/Facility ID #

P.O. #

Collected by (signature):  
*[Signature]*

**Rush?** (Lab MUST Be Notified)  
 Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day  
 Date Results Needed

Quote #

Immediately Packed on Ice N  Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Sulfate 125mIHDPPE-NoPres	TDS 1L-HDPE NoPres	Total Ca 250mIHDPPE-HNO3
MW-117	Grab	GW		6/20/22	1350	3	X	X	X
MW-117 DUP	↓	GW		↓	1355	3	X	X	X
EPA EB-1	↓	GW		↓	1410	3	X	X	X
		GW				3	X	X	X

SDG # **L1507713**  
**B091**  
 Acctnum: **FTNLRAR**  
 Template: **T211316**  
 Prelogin: **P932397**  
 PM: **134 - Mark W. Beasley**  
 PB:  
 Shipped Via:  
 Remarks Sample # (lab only)  
 -01  
 -02  
 -03

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:  
 pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_  
 Samples returned via:  
 UPS  FedEx  Courier  
 Tracking # **5719 6194 6753**

**Sample Receipt Checklist**  
 COC Seal Present/Intact:  NP  Y  N  
 COC Signed/Accurate:  Y  N  
 Bottles arrive intact:  Y  N  
 Correct bottles used:  Y  N  
 Sufficient volume sent:  Y  N  
 IF Applicable  
 VOA Zero Headspace:  Y  N  
 Preservation Correct/Checked:  Y  N  
 RAD Screen <0.5 mR/hr:  Y  N

Relinquished by: (Signature)  
*[Signature]*

Date: **6/21/22**  
 Time: **1630**

Received by: (Signature)  
*[Signature]*

Trip Blank Received: Yes  No   
 HCL / MeOH  
 TBR

Relinquished by: (Signature)  
*[Signature]*

Date: **6/22/22**  
 Time: **0900**

Received for lab by: (Signature)  
*Weronia Sistrunk*

Temp: **22.2** °C  
 Bottles Received: **22**

If preservation required by Login: Date/Time  
 Hold:  
 Condition: **OK**

---

**Second Half 2022 Sampling Event**

October 25, 2022

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

**Plum Point Services Co., LLC**

Sample Delivery Group: L1544281  
Samples Received: 10/07/2022  
Project Number: R14590-2764-001  
Description: Plum Point Energy Station

Report To: Dana Derrington  
2739 SCR 623  
Osceola, AR 72370

Entire Report Reviewed By:












Mark W. Beasley  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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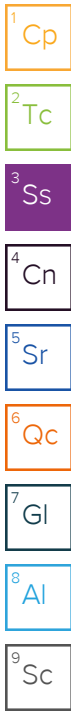
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# SAMPLE SUMMARY

## MW-101 L1544281-01 GW

Collected by Michael Clayton      Collected date/time 10/05/22 11:43      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940842	1	10/11/22 13:32	10/12/22 10:25	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 19:49	10/08/22 19:49	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:33	ZSA	Mt. Juliet, TN



## MW-102 L1544281-02 GW

Collected by Michael Clayton      Collected date/time 10/05/22 14:28      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940842	1	10/11/22 13:32	10/12/22 10:25	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 20:43	10/08/22 20:43	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:36	ZSA	Mt. Juliet, TN

## MW-103 L1544281-03 GW

Collected by Michael Clayton      Collected date/time 10/05/22 09:43      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940842	1	10/11/22 13:32	10/12/22 10:25	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 20:57	10/08/22 20:57	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:39	ZSA	Mt. Juliet, TN

## MW-108 L1544281-04 GW

Collected by Michael Clayton      Collected date/time 10/04/22 12:53      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940315	1	10/11/22 09:17	10/11/22 14:33	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 21:10	10/08/22 21:10	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:42	ZSA	Mt. Juliet, TN

## MW-113 L1544281-05 GW

Collected by Michael Clayton      Collected date/time 10/04/22 10:23      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940315	1	10/11/22 09:17	10/11/22 14:33	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 21:23	10/08/22 21:23	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:45	ZSA	Mt. Juliet, TN

## MW-115 L1544281-06 GW

Collected by Michael Clayton      Collected date/time 10/03/22 14:48      Received date/time 10/07/22 09:30

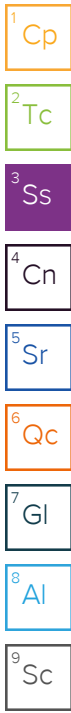
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940110	1	10/10/22 10:49	10/10/22 12:50	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 22:04	10/08/22 22:04	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:48	ZSA	Mt. Juliet, TN

# SAMPLE SUMMARY

## MW-116 L1544281-07 GW

Collected by Michael Clayton      Collected date/time 10/05/22 12:53      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 22:17	10/08/22 22:17	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:50	ZSA	Mt. Juliet, TN



## MW-117 L1544281-08 GW

Collected by Michael Clayton      Collected date/time 10/05/22 16:13      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 22:31	10/08/22 22:31	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:53	ZSA	Mt. Juliet, TN

## MW-118 L1544281-09 GW

Collected by Michael Clayton      Collected date/time 10/05/22 08:33      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 22:44	10/08/22 22:44	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:56	ZSA	Mt. Juliet, TN

## MW-119 L1544281-10 GW

Collected by Michael Clayton      Collected date/time 10/05/22 10:48      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 22:57	10/08/22 22:57	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:59	ZSA	Mt. Juliet, TN

## MW-117 DUP L1544281-11 GW

Collected by Michael Clayton      Collected date/time 10/05/22 16:16      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 23:11	10/08/22 23:11	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 16:55	ZSA	Mt. Juliet, TN

## EPA EB L1544281-12 GW

Collected by Michael Clayton      Collected date/time 10/05/22 16:45      Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 23:51	10/08/22 23:51	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 16:58	ZSA	Mt. Juliet, TN



# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Mark W. Beasley  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	388000		10000	1	10/12/2022 10:25	<a href="#">WG1940842</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	860	J	379	1000	1	10/08/2022 19:49	<a href="#">WG1939483</a>
Fluoride	258		64.0	150	1	10/08/2022 19:49	<a href="#">WG1939483</a>
Sulfate	7930		594	5000	1	10/08/2022 19:49	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	52.6	J	20.0	200	1	10/24/2022 19:33	<a href="#">WG1943730</a>
Calcium	110000		79.3	1000	1	10/24/2022 19:33	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	439000		10000	1	10/12/2022 10:25	<a href="#">WG1940842</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2450		379	1000	1	10/08/2022 20:43	<a href="#">WG1939483</a>
Fluoride	174		64.0	150	1	10/08/2022 20:43	<a href="#">WG1939483</a>
Sulfate	93400		594	5000	1	10/08/2022 20:43	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	76.9	J	20.0	200	1	10/24/2022 19:36	<a href="#">WG1943730</a>
Calcium	116000		79.3	1000	1	10/24/2022 19:36	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	285000		10000	1	10/12/2022 10:25	<a href="#">WG1940842</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	949	J	379	1000	1	10/08/2022 20:57	<a href="#">WG1939483</a>
Fluoride	188		64.0	150	1	10/08/2022 20:57	<a href="#">WG1939483</a>
Sulfate	11800		594	5000	1	10/08/2022 20:57	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	72.7	J	20.0	200	1	10/24/2022 19:39	<a href="#">WG1943730</a>
Calcium	79800		79.3	1000	1	10/24/2022 19:39	<a href="#">WG1943730</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	471000		10000	1	10/11/2022 14:33	<a href="#">WG1940315</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1240		379	1000	1	10/08/2022 21:10	<a href="#">WG1939483</a>
Fluoride	164		64.0	150	1	10/08/2022 21:10	<a href="#">WG1939483</a>
Sulfate	17000		594	5000	1	10/08/2022 21:10	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	94.1	J	20.0	200	1	10/24/2022 19:42	<a href="#">WG1943730</a>
Calcium	138000		79.3	1000	1	10/24/2022 19:42	<a href="#">WG1943730</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	291000		10000	1	10/11/2022 14:33	<a href="#">WG1940315</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	709	J	379	1000	1	10/08/2022 21:23	<a href="#">WG1939483</a>
Fluoride	82.8	J	64.0	150	1	10/08/2022 21:23	<a href="#">WG1939483</a>
Sulfate	4020	J	594	5000	1	10/08/2022 21:23	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	74.7	J	20.0	200	1	10/24/2022 19:45	<a href="#">WG1943730</a>
Calcium	73100		79.3	1000	1	10/24/2022 19:45	<a href="#">WG1943730</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	377000		10000	1	10/10/2022 12:50	<a href="#">WG1940110</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	742	J	379	1000	1	10/08/2022 22:04	<a href="#">WG1939483</a>
Fluoride	208		64.0	150	1	10/08/2022 22:04	<a href="#">WG1939483</a>
Sulfate	3680	J	594	5000	1	10/08/2022 22:04	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	37.0	J	20.0	200	1	10/24/2022 19:48	<a href="#">WG1943730</a>
Calcium	109000		79.3	1000	1	10/24/2022 19:48	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	360000		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	4140		379	1000	1	10/08/2022 22:17	<a href="#">WG1939483</a>
Fluoride	194		64.0	150	1	10/08/2022 22:17	<a href="#">WG1939483</a>
Sulfate	57100		594	5000	1	10/08/2022 22:17	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	86.7	J	20.0	200	1	10/24/2022 19:50	<a href="#">WG1943730</a>
Calcium	94100		79.3	1000	1	10/24/2022 19:50	<a href="#">WG1943730</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	311000		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	953	J	379	1000	1	10/08/2022 22:31	<a href="#">WG1939483</a>
Fluoride	122	J	64.0	150	1	10/08/2022 22:31	<a href="#">WG1939483</a>
Sulfate	10300		594	5000	1	10/08/2022 22:31	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	72.5	J	20.0	200	1	10/24/2022 19:53	<a href="#">WG1943730</a>
Calcium	88000		79.3	1000	1	10/24/2022 19:53	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	329000		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1310		379	1000	1	10/08/2022 22:44	<a href="#">WG1939483</a>
Fluoride	124	J	64.0	150	1	10/08/2022 22:44	<a href="#">WG1939483</a>
Sulfate	19700		594	5000	1	10/08/2022 22:44	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	62.8	J	20.0	200	1	10/24/2022 19:56	<a href="#">WG1943730</a>
Calcium	87500		79.3	1000	1	10/24/2022 19:56	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	444000		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1980		379	1000	1	10/08/2022 22:57	<a href="#">WG1939483</a>
Fluoride	230		64.0	150	1	10/08/2022 22:57	<a href="#">WG1939483</a>
Sulfate	46200		594	5000	1	10/08/2022 22:57	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	67.1	J	20.0	200	1	10/24/2022 19:59	<a href="#">WG1943730</a>
Calcium	119000		79.3	1000	1	10/24/2022 19:59	<a href="#">WG1943730</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	316000		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	928	J	379	1000	1	10/08/2022 23:11	<a href="#">WG1939483</a>
Fluoride	98.1	J	64.0	150	1	10/08/2022 23:11	<a href="#">WG1939483</a>
Sulfate	10200		594	5000	1	10/08/2022 23:11	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	82.1	J	20.0	200	1	10/24/2022 16:55	<a href="#">WG1943730</a>
Calcium	87200		79.3	1000	1	10/24/2022 16:55	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	ND		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	U		379	1000	1	10/08/2022 23:51	<a href="#">WG1939483</a>
Fluoride	U		64.0	150	1	10/08/2022 23:51	<a href="#">WG1939483</a>
Sulfate	U		594	5000	1	10/08/2022 23:51	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	U		20.0	200	1	10/24/2022 16:58	<a href="#">WG1943730</a>
Calcium	U		79.3	1000	1	10/24/2022 16:58	<a href="#">WG1943730</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3848661-1 10/10/22 12:50

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	11000		10000	10000

1 Cp

2 Tc

3 Ss

L1542785-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1542785-01 10/10/22 12:50 • (DUP) R3848661-3 10/10/22 12:50

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1360000	1970000	1	36.7	J3	5

4 Cn

5 Sr

L1542920-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1542920-18 10/10/22 12:50 • (DUP) R3848661-4 10/10/22 12:50

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2570000	2590000	1	0.775		5

6 Qc

7 Gl

8 Al

Laboratory Control Sample (LCS)

(LCS) R3848661-2 10/10/22 12:50

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8310000	94.4	77.3-123	

9 Sc

Method Blank (MB)

(MB) R3849086-1 10/11/22 14:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1544143-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1544143-04 10/11/22 14:33 • (DUP) R3849086-3 10/11/22 14:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	350000	359000	1	2.54		5

L1544143-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1544143-05 10/11/22 14:33 • (DUP) R3849086-4 10/11/22 14:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	115000	114000	1	0.873		5

Laboratory Control Sample (LCS)

(LCS) R3849086-2 10/11/22 14:33

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8760000	99.5	77.3-123	

Method Blank (MB)

(MB) R3849079-1 10/12/22 10:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1544143-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1544143-03 10/12/22 10:25 • (DUP) R3849079-3 10/12/22 10:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	286000	287000	1	0.349		5

4 Cn

5 Sr

L1544281-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544281-01 10/12/22 10:25 • (DUP) R3849079-4 10/12/22 10:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	388000	404000	1	4.04		5

6 Qc

7 Gl

8 Al

Laboratory Control Sample (LCS)

(LCS) R3849079-2 10/12/22 10:25

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8820000	100	77.3-123	

9 Sc



Method Blank (MB)

(MB) R3849076-1 10/12/22 12:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1544392-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544392-01 10/12/22 12:30 • (DUP) R3849076-3 10/12/22 12:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	693000	657000	1	5.33	J3	5

L1544523-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1544523-02 10/12/22 12:30 • (DUP) R3849076-4 10/12/22 12:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1560000	1670000	1	7.12	J3	5

Laboratory Control Sample (LCS)

(LCS) R3849076-2 10/12/22 12:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8880000	101	77.3-123	

Method Blank (MB)

(MB) R3847297-1 10/08/22 19:23

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	U		594	5000

L1544281-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544281-01 10/08/22 19:49 • (DUP) R3847297-3 10/08/22 20:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	860	799	1	7.33	U	15
Fluoride	258	250	1	3.35		15
Sulfate	7930	7790	1	1.74		15

L1544281-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1544281-11 10/08/22 23:11 • (DUP) R3847297-6 10/08/22 23:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	928	897	1	3.46	U	15
Fluoride	98.1	103	1	4.68	U	15
Sulfate	10200	9810	1	3.74		15

Laboratory Control Sample (LCS)

(LCS) R3847297-2 10/08/22 19:36

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	38900	97.3	80.0-120	
Fluoride	8000	7810	97.6	80.0-120	
Sulfate	40000	39100	97.7	80.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1544281-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544281-01 10/08/22 19:49 • (MS) R3847297-4 10/08/22 20:16 • (MSD) R3847297-5 10/08/22 20:30

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	860	49300	49100	97.0	96.4	1	80.0-120			0.580	15
Fluoride	5000	258	4990	4960	94.6	94.0	1	80.0-120			0.639	15
Sulfate	50000	7930	56400	55900	96.9	96.0	1	80.0-120			0.823	15

L1544281-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L1544281-11 10/08/22 23:11 • (MS) R3847297-7 10/08/22 23:38

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	928	49400	97.0	1	80.0-120	
Fluoride	5000	98.1	4820	94.4	1	80.0-120	
Sulfate	50000	10200	58600	96.8	1	80.0-120	

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3852425-1 10/24/22 18:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		20.0	200
Calcium	U		79.3	1000

Laboratory Control Sample (LCS)

(LCS) R3852425-2 10/24/22 19:02

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	993	99.3	80.0-120	
Calcium	10000	9850	98.5	80.0-120	

L1544212-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544212-03 10/24/22 19:05 • (MS) R3852425-4 10/24/22 19:10 • (MSD) R3852425-5 10/24/22 19:13

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	92.2	1110	1100	101	101	1	75.0-125			0.519	20
Calcium	10000	133000	142000	142000	96.8	92.1	1	75.0-125			0.332	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# GLOSSARY OF TERMS

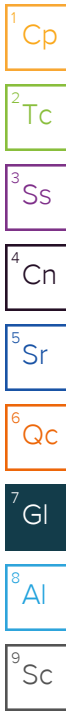
## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

**Plum Point Services Co., LLC**

2739 SCR 623  
Osceola, AR 72370

Accounts Payable  
P.O. Box 567  
Osceola, AR 72370

Pres  
Chk

Report to:  
**Dana Derrington**

Email To: [dld@ftn-assoc.com](mailto:dld@ftn-assoc.com); [hlf@ftn-assoc.com](mailto:hlf@ftn-assoc.com); [mcc@ftn-assoc.com](mailto:mcc@ftn-assoc.com)

Project Description:  
**Plum Point Energy Station**

City/State  
Collected: **OSCEOLA AR**

Please Circle:  
PT MT **ET**

Phone: **501-920-9642**

Client Project #  
**R14590-2764-001**

Lab Project #  
**NAESOAR-PLUMPOINT**

Collected by (print):  
*Michael Clayton*

Site/Facility ID #

P.O. #

Collected by (signature):  
*[Signature]*

**Rush?** (Lab MUST Be Notified)

\_\_\_ Same Day \_\_\_ Five Day  
\_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
\_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
\_\_\_ Three Day

Quote #

Date Results Needed

No.  
of  
Cnts

Immediately Packed on Ice N \_\_\_ Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	Cl, F, S04 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3
VW-101	Grab	GW		10/5/22	1143	3	X	X	X
VW-102		GW		10/5/22	1428	3	X	X	X
VW-103		GW		10/5/22	943	3	X	X	X
VW-108		GW		10/4/22	1253	3	X	X	X
VW-113		GW		10/4/22	1023	3	X	X	X
VW-115		GW		10/3/22	1448	3	X	X	X
VW-116		GW		10/5/22	1253	3	X	X	X
VW-117		GW		10/5/22	1613	3	X	X	X
VW-118		GW		10/5/22	833	3	X	X	X
VW-119		GW		10/5/22	1048	3	X	X	X



**MT JULIET, TN**

12065 Lebanon Rd Mount Juliet, TN 37122  
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **1544281**  
**J087**

Acctnum: **NAESOAR**

Template: **T175308**

Prelogin: **P952970**

PM: **134 - Mark W. Beasley**

PB:

Shipped Via: **FedEX Ground**

Remarks | Sample # (lab only)

-01  
-02  
-03  
-04  
-05  
-06  
-07  
-08  
-09  
-10

\* Matrix:  
S - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:

\_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier

Tracking # **0221 5892 7562 1029**

Sample Receipt Checklist

COC Seal Present/Intact:  NP  Y  N  
COC Signed/Accurate:  Y  N  
Bottles arrive intact:  Y  N  
Correct bottles used:  Y  N  
Sufficient volume sent:  Y  N  
If Applicable  
VOA Zero HeadSpace:  Y  N  
Preservation Correct/Checked:  Y  N  
RAD Screen <0.5 mR/hr:  Y  N

Relinquished by: (Signature)

*[Signature]*

Date:

10/6/22

Time:

1200

Received by: (Signature)

*[Signature]*

Trip Blank Received: Yes  No

HCL/MeOH  
TBR

Relinquished by: (Signature)

*[Signature]*

Date:

10/6/22

Time:

0930

Received by: (Signature)

*[Signature]*

Temp: **1.9+0=1.9** °C Bottles Received: **36**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

*[Signature]*

Date:

10/6/22

Time:

0930

Received for lab by: (Signature)

*[Signature]*

Date:

10/6/22

Time:

0930

Hold:

Condition:

NCF / OK

**Plum Point Services Co., LLC**

2739 SCR 623  
Osceola, AR 72370

Accounts Payable  
P.O. Box 567  
Osceola, AR 72370

Pres  
Chk



**MT JULIET, TN**

12065 Lebanon Rd Mount Juliet, TN 37122  
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>

SDG # 1947281

Table #

Acctnum: **NAESOAR**

Template: **T175308**

Prelogin: **P952970**

PM: **134 - Mark W. Beasley**

PB:

Shipped Via: **FedEx Ground**

Remarks | Sample # (lab only)

Report to:

**Dana Derrington**

Email To: [dld@ftn-assoc.com](mailto:dld@ftn-assoc.com); [hlf@ftn-assoc.com](mailto:hlf@ftn-assoc.com); [mcc@ftn-assoc.com](mailto:mcc@ftn-assoc.com)

Project Description:

**Plum Point Energy Station**

City/State

Collected: **OSCEOLA, AR**

Please Circle:

PT MT  ET

Phone: **501-920-9642**

Client Project #

**R14590-2764-001**

Lab Project #

**NAESOAR-PLUMPOINT**

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

**Rush?** (Lab MUST Be Notified)

Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day

Quote #

Date Results Needed

No. of  
Cntrs

Immediately

Packed on Ice N  Y

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

No. of  
Cntrs

Cl, F, SO4 125mlHDPE-NoPres

TDS 250mlHDPE-NoPres

Total B, Ca 250mlHDPE-HNO3

VW-117 DUP

GRAB

GW

10/5/22

1616

3

X

X

X

PA EB

↓

GW

10/5/22

1645

3

X

X

X

\* Matrix:

S - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
NW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:

UPS  FedEx  Courier

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:  Y  N  
COC Signed/Accurate:  Y  N  
Bottles arrive intact:  Y  N  
Correct bottles used:  Y  N  
Sufficient volume sent:  Y  N  
If Applicable  
VOA Zero Headspace:  Y  N  
Preservation Correct/Checked:  Y  N  
RAD Screen <0.5 mR/hr:  Y  N

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes / No

HCL / MeoH  
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: 7.9 °C Bottles Received: 36

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 10/7/22 Time: 0930

Hold:

Condition:  
NCF / OK



# **APPENDIX C**

---

## **Water Elevation Data and Hydrographs**

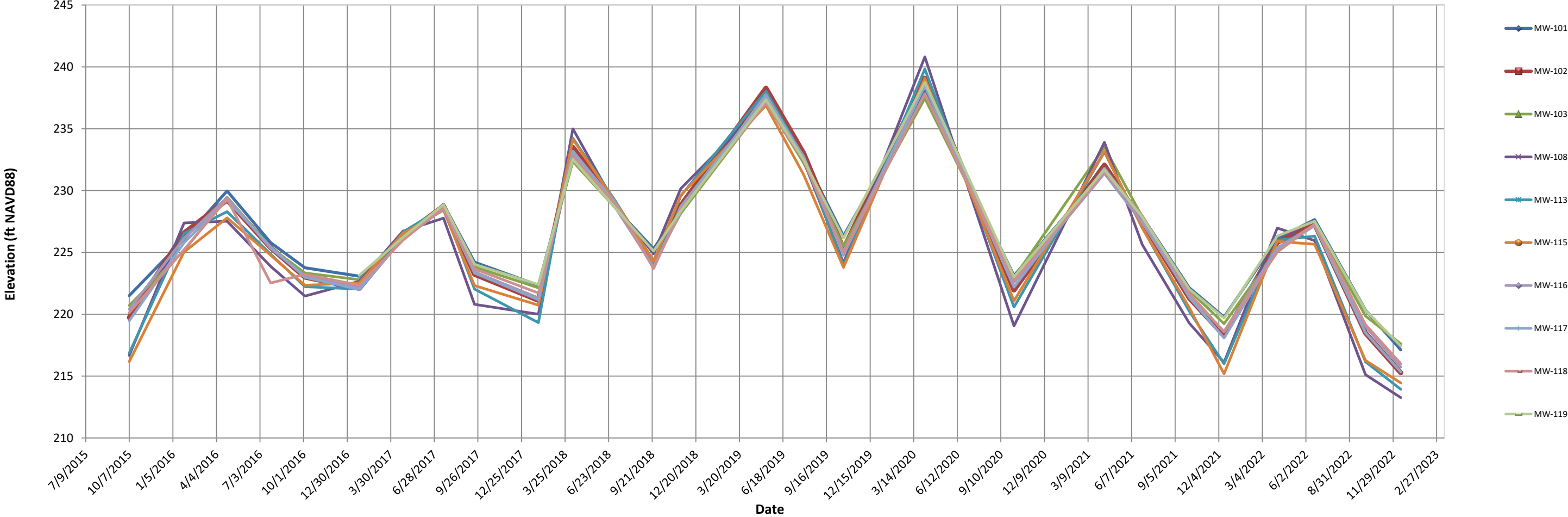
Historical water levels.

Date	Water Surface Elevation (ft, North American Vertical Datum of 1988)									
	MW-101	MW-102	MW-103	MW-108	MW-113	MW-115	MW-116	MW-117	MW-118	MW-119
10/7/2015	221.51	219.73	220.71	216.68	216.87	216.17	220.40	219.48	220.12	N/A*
1/28/2016	226.07	226.58	225.16	227.39	226.53	225.03	226.14	225.78	225.22	N/A*
4/26/2016	229.97	229.24	229.48	227.53	228.30	227.80	229.43	229.23	229.33	N/A*
7/25/2016	225.79	225.38	225.41	223.87	224.87	224.78	225.33	225.45	222.53	N/A*
10/4/2016	223.76	223.00	223.33	221.47	222.23	222.34	223.10	222.99	223.23	N/A*
1/24/2017	223.08	222.09	222.79	222.66	222.03	222.54	222.12	222.00	222.34	223.14
4/24/2017	226.04	226.33	226.33	226.71	226.65	226.53	226.07	226.11	225.98	226.22
7/17/2017	228.89	228.74	228.48	227.77	228.65	228.41	228.53	228.77	228.65	228.86
9/19/2017	224.21	223.23	223.82	220.80	222.03	222.32	223.42	223.33	223.67	224.04
1/29/2018	222.35	221.12	222.14	220.01	219.32	220.74	221.33	221.18	221.71	222.39
4/10/2018	232.63	233.50	232.34	234.99	234.23	234.15	232.89	233.19	232.76	232.52
7/9/2018	228.52	228.81	228.50	228.72	229.03	228.95	228.49	228.87	228.73	228.49
9/24/2018	225.29	224.15	224.16	224.89	224.08	224.29	223.83	223.71	223.72	225.11
11/19/2018	228.54	228.80	228.16	230.16	229.57	229.62	228.31	228.71	228.46	228.33
2/18/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM	236.90
5/14/2019	237.60	238.28	237.17	237.13	238.03	236.89	237.76	237.55	237.08	237.35
7/31/2019	232.75	233.02	232.22	232.39	232.66	231.26	232.55	232.75	232.40	232.48
10/21/2019	226.32	225.29	225.52	224.14	223.95	223.78	225.08	224.77	224.98	226.16
4/6/2020	238.06	239.09	237.46	240.81	239.83	239.08	238.49	238.51	237.83	238.76
10/7/2020	223.12	221.96	222.96	219.05	220.58	221.09	222.58	222.19	222.70	223.03
4/12/2021	231.65	232.06	233.51	233.90	233.12	233.15	231.38	231.81	231.53	231.69
6/29/2021	227.90	227.49	227.88	225.64	227.00	226.99	227.42	227.80	227.97	227.85
10/4/2021	222.14	221.32	221.94	219.28	220.25	220.53	221.49	221.37	221.7	222.04
12/14/2021	219.78	218.27	219.23	216.11	215.99	215.18	218.62	218.08	218.56	219.70
4/4/2022	226.11	225.81	225.29	226.97	226.00	225.89	225.36	225.22	225.03	226.33

Date	Water Surface Elevation (ft, North American Vertical Datum of 1988)									
	MW-101	MW-102	MW-103	MW-108	MW-113	MW-115	MW-116	MW-117	MW-118	MW-119
6/20/2022	227.66	227.28	227.27	225.96	226.32	225.66	227.24	227.16	227.28	227.52
10/3/2022	220.34	218.49	219.86	215.12	216.16	216.27	219.01	218.52	219.17	220.32
12/15/2022	217.12	215.27	217.61	213.26	213.93	214.45	215.73	215.34	216.00	217.43

\*Monitoring well not installed yet.

### Hydrographs of Groundwater Elevations



# **APPENDIX D**

---

## **Appendix III Groundwater Quality Historical Database**

Plum Point Energy Station EPA CCR Landfill Historical Database

Well ID	Sampling Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
<b>MW-101</b>	<b>compliance</b>							
	10/7/2015	0.0858(J)	116	3.02	0.281	12.4	401	6.4
	1/28/2016	0.114(J)	117	2.74	0.274	11.4	421(B)	6.6
	4/27/2016	0.105(J)	120	6.61	0.283	19.9	437	6.3
	7/26/2016	0.0877(J)	115	3.41	0.241	12.8	448(B)	6.6
	10/6/2016	0.0890(J)	110	1.93	0.267	8.44	387	6.2
	1/25/2017	0.0681(J)	109	1.67	0.300	11.5	381	6.7
	4/26/2017	<1.80(O)	80.5	2.14	0.273	9.57	407	6.9
	7/20/2017	0.0903(BJ)	110	1.98	0.331	13.5	414	6.7
	9/20/2017	0.0718(J)	153	1.57	0.328	9.68	385	7.0
	12/11/2017	n/a	120	n/a	n/a	n/a	n/a	6.4
	4/12/2018	0.0840(BJ)	121	2.75	0.307	17.4	420	6.4
	9/26/2018	0.0981(BJ)	115	1.94(B)	0.290(B)	14.6	421	6.8
	5/16/2019	0.118(J)	103	1.01	0.263(B)	9.17	392	6.6
	10/23/2019	0.0491(J)	109	1.37	0.264	11.9	404	7.0
	4/8/2020	0.0780(J)	105	0.823(J)	0.279	10.3	362	6.8
	10/9/2020	0.0556(J)	107	1.75	0.309	9.91	389	6.7
	4/15/2021	0.0608(J)	96.9	0.855(J)	0.385	5.73	335	7.1
	6/29/2021	n/a	n/a	n/a	0.307	n/a	n/a	6.7
	10/7/2021	0.0555(J)	113	0.975(J)	0.312	10.2	380	6.7
	4/7/2022	0.0597(J)	105	0.848(J)	0.228	7.63	388	6.8
	10/5/2022	0.0526(J)	110	0.860(J)	0.258	7.93	388	6.2
<b>MW-102</b>	<b>compliance</b>							
	11/10/2015	0.0818(J)	121	5.53	0.160	82.3	434	6.8
	1/28/2016	0.125(J)	123	5.33	0.157	85.9	470	6.8
	4/27/2016	0.135(J)	131	6.32	0.154	103	478	6.7
	7/26/2016	0.122(J)	122	5.42	0.150	88.1	474(B)	7.7(R)
	10/6/2016	0.0999(J)	120	5.18	0.158	83.2	458	6.0
	1/25/2017	0.0938(J)	118	4.50	0.182	88.8	435	5.8
	4/27/2017	0.120(J)	121	4.85	0.175	91.0	504	6.7
	7/19/2017	0.108(BJ)	126	4.28	0.207	85.4	461	6.6
	9/20/2017	0.0536(J)	25.9(O)	4.29	0.194	88.7	454	6.7
	4/11/2018	0.144(BJ)	136	1.77	0.206	46.7(O)	472	6.3
	7/9/2018	n/a	124	n/a	n/a	n/a	n/a	6.7
	9/27/2018	0.121(BJ)	121	3.84	0.183(B)	88.6	453	6.5
	5/16/2019	0.150(J)	121	2.87	0.196(B)	75.4	466	6.6
	10/23/2019	0.0602(J)	117	3.62	0.201	85.6	461	6.7
	4/7/2020	0.0890(J)	116	2.79	0.199	84.7	461	6.6
	10/9/2020	0.0699(J)	115	3.30	0.178	96.1	438	6.5
	4/15/2021	0.0966(J)	118	2.31	0.210	79.4	446	6.9

B: analyte was detected in associated blank sample.

J: analyte was detected below the RDL; value is an estimate.

O: value is a statistical outlier.

R: value was rejected due to suspected error; not used in statistics.

Plum Point Energy Station EPA CCR Landfill Historical Database

Well ID	Sampling Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
<b>MW-102</b>	10/6/2021	0.0784(J)	116	2.48	0.215	95.3	415	6.8
<b>(cont.)</b>	4/6/2022	0.0838(J)	110	1.91	0.142(J)	79.0	442	6.6
	10/5/2022	0.0769(J)	116	2.45	0.174	93.4	439	6.3
<b>MW-103</b>	<b>compliance</b>							
	10/7/2015	0.119(J)	168	3.92	0.198	95.0	591	6.5
	1/28/2016	0.149(J)	153	2.66	0.188	60.1	539(B)	6.3
	4/27/2016	0.166(J)	147	4.06	0.170	62.0	517	6.5
	7/26/2016	0.142(J)	148	3.63	0.163	60.9	539(B)	6.3
	10/6/2016	0.137(J)	152	2.69	0.201	54.5	518	6.3
	1/26/2017	0.138(J)	135	2.82	0.223	52.0	477	6.8
	4/27/2017	0.137(J)	136	2.89	0.200	49.8	513	6.5
	7/20/2017	0.124(BJ)	136	2.28	0.240	52.2	506	6.6
	9/20/2017	0.134(J)	141	1.79	0.240	48.2	496	6.6
	4/11/2018	0.122(BJ)	128	3.24	0.163	80.6	468	6.2
	9/26/2018	0.145(BJ)	129	1.36(B)	0.217(B)	32.8	440	6.6
	5/15/2019	0.154(J)	106	1.10	0.213(B)	23.4	396	6.6
	10/22/2019	0.0816(J)	107	1.29	0.253	24.4	384	6.7
	4/8/2020	0.0541(J)	88.2	0.726(J)	0.219	9.93	318	6.7
	10/8/2020	0.0763(J)	91.9	3.55	0.234	15.0	319	6.4
	4/15/2021	0.0726(J)	85.9	0.976(J)	0.258	11.4	294	6.9
	10/7/2021	0.0681(J)	89.7	1.16	0.256	12.6	324	6.5
	4/7/2022	0.0552(J)	71.6	0.926(J)	0.128(J)	7.84	278	6.8
	10/5/2022	0.0727(J)	79.8	0.949(J)	0.188	11.8	285	6.3
<b>MW-108</b>	<b>background</b>							
	1/28/2016	0.164(J)	166	5.34	0.158	44.4	555	6.7
	4/28/2016	0.194(J)	178	2.81	0.134	45.2	638(B)	6.6
	7/26/2016	0.158(J)	144	2.43	0.144	39.3	475(B)	9.8(R)
	10/6/2016	0.174(J)	158	2.48	0.169	41.4	539	6.2
	1/26/2017	0.164(J)	154	2.64	0.202	51.6	513	7.0
	4/25/2017	0.147(J)	151	3.10	0.167	45.7	488	6.8
	7/18/2017	0.162(J)	167	3.03	0.191	39.4	576	6.7
	9/19/2017	0.158(J)	170	2.06	0.199	43.8	578	6.7
	4/10/2018	0.171(BJ)	183	3.03	0.177	44.5	582	6.5
	9/25/2018	0.183(BJ)	163	3.11	0.188(B)	52.2	537	6.7
	5/14/2019	0.224(BR)	169	2.44	0.184(B)	34.5	529	6.8
	8/1/2019	0.127(BJ)	n/a	n/a	n/a	n/a	n/a	7.1
	10/22/2019	0.110(J)	153	1.95	0.205	32.9	528	6.7
	4/6/2020	0.143(J)	160	1.87	0.185	33.8	557	6.9
	10/7/2020	0.111(J)	151	2.23	0.185	42.4	515	6.8
	4/13/2021	0.125(J)	149	2.67	0.216	36.8	541	7.0

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R: value was rejected due to suspected error; not used in statistics.

Plum Point Energy Station EPA CCR Landfill Historical Database

Well ID	Sampling Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
<b>MW-108</b>	10/5/2021	0.111(J)	149	1.37	0.203	23.4	505	6.7
<b>(cont.)</b>	4/5/2022	0.132(J)	151	1.38	0.138(J)	24.0	478	6.8
	10/4/2022	0.0941(J)	138	1.24	0.164	17.0	471	6.2(R)
	1/11/2023	n/a	n/a	n/a	n/a	n/a	n/a	6.8
<b>MW-113</b>	<b>background</b>							
	1/28/2016	0.102(J)	84.7	3.61	0.0808(J)	11.0	320(B)	6.6
	4/28/2016	0.127(J)	72.5	2.05	0.0604(J)	8.99	321(B)	6.9
	7/26/2016	0.144(J)	69.8	0.856(J)	0.0570(J)	4.97(J)	281(B)	8.1(R)
	10/5/2016	0.0963(J)	84.7	2.63	0.0827(J)	9.51	323	6.0
	1/26/2017	0.0891(J)	88.9	5.81	0.0901(J)	13.3	332	7.1
	4/25/2017	0.0890(J)	87.9	5.49	0.0944(J)	11.8	339	6.9
	7/18/2017	0.0982(BJ)	82.5	3.96	0.119	10.9	321	6.8
	9/19/2017	0.0998(J)	84.1	2.19	0.117	9.45	326	6.9
	4/10/2018	0.0899(BJ)	92.0	2.94	0.0562(J)	10.1	340	6.4
	9/25/2018	0.111(BJ)	90.0	2.84(B)	0.114(B)	9.81	337	6.7
	5/14/2019	0.168(J)	87.2	1.58	0.120(B)	3.15(J)	342	6.7
	10/22/2019	0.0881(J)	75.9	1.73	0.110	4.88(J)	307	6.7
	4/6/2020	0.131(J)	77.1	1.08	0.0943(J)	3.61(J)	332	6.7
	10/7/2020	0.0879(J)	70.6	1.62	0.106(J)	4.61(J)	274	6.5
	4/13/2021	0.0673(J)	95.4	2.50	0.102(J)	9.83	372	7.1
	6/29/2021	n/a	n/a	n/a	n/a	n/a	303	6.2
	10/5/2021	0.0817(J)	67.5	0.877(J)	0.139(J)	3.75(J)	275	6.6
	4/5/2022	0.0747(J)	81.8	1.32	0.0846(J)	5.70	326	6.6
	10/4/2022	0.0747(J)	73.1	0.709(J)	0.0828(J)	4.02(J)	291	6.5
<b>MW-115</b>	<b>background</b>							
	11/10/2015	0.0473(J)	109	2.14	0.230	8.23	363	7.0
	1/28/2016	0.0617(J)	103	7.55(O)	0.201	14.8(O)	376	7.1
	4/28/2016	0.0863(J)	115	1.83	0.179	5.63	443(B)	6.8
	7/26/2016	0.0604(J)	114	1.22	0.200	4.79(J)	399(B)	9.0(R)
	10/5/2016	0.0737(J)	114	1.31	0.218	4.59(J)	446	6.1
	1/27/2017	0.0602(J)	110	1.77	0.244	6.52	406	7.0
	4/25/2017	0.0641(J)	106	2.71	0.203	6.75	385	6.8
	7/18/2017	0.0608(BJ)	105	2.32	0.238	7.10	369	6.6
	9/19/2017	0.0609(J)	116	0.835(J)	0.243	5.37	403	6.8
	4/10/2018	0.0666(BJ)	111	1.34	0.209	5.81	368	6.3
	9/25/2018	0.0764(BJ)	121	1.18(B)	0.216(B)	5.00(J)	417	6.7
	5/14/2019	0.0751(J)	128	0.598(J)	0.184(B)	5.63	440	6.6
	8/1/2019	n/a	125	n/a	n/a	n/a	n/a	7.1
	10/23/2019	0.0224(J)	114	1.23	0.220	5.83	411	6.9
	4/6/2020	0.0525(J)	108	0.922(J)	0.192	5.37	398	6.7

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Plum Point Energy Station EPA CCR Landfill Historical Database

Well ID	Sampling Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
<b>MW-115</b>	10/7/2020	0.0704(J)	99.4	0.864(J)	0.180	2.97(J)	334	6.6
<b>(cont.)</b>	4/13/2021	0.0379(J)	117	0.789(J)	0.239	5.67	441	7.0
	10/5/2021	0.0655(J)	109	0.964(J)	0.225	3.70(J)	379	6.7
	4/5/2022	0.0424(J)	102	0.976(J)	0.165	4.95(J)	374	6.7
	10/3/2022	0.0370(J)	109	0.742(J)	0.208	3.68(J)	377	6.7
<b>MW-116</b>	<b>compliance</b>							
	10/8/2015	0.108(J)	103	5.84	0.173	45.1	367	6.7
	1/28/2016	0.139(J)	111	5.67	0.165	78.0	426	6.8
	4/28/2016	0.142(J)	106	4.80	0.148	83.5	461(B)	6.6
	7/26/2016	0.115(J)	109	5.20	0.148	81.8	395(B)	6.2
	10/6/2016	0.126(J)	110	4.70	0.172	86.5	443	5.9
	1/25/2017	0.141(J)	118	4.85	0.201	89.2	467	5.9
	4/27/2017	0.137(J)	107	4.25	0.172	95.2	443	6.7
	7/19/2017	0.135(BJ)	111	4.45	0.208	98.4	435	6.5
	9/20/2017	0.132(J)	115	4.16	0.207	94.2	451	6.7
	1/30/2018	n/a	n/a	n/a	n/a	35.5	n/a	6.5
	4/11/2018	0.111(BJ)	137	4.90	0.166	113	511	6.4
	7/9/2018	n/a	125	n/a	n/a	n/a	n/a	6.6
	9/26/2018	0.153(BJ)	130	4.13	0.183(B)	97.5	500	6.6
	5/16/2019	0.144(J)	93.2	1.66	0.189(B)	27.0	349	6.6
	10/23/2019	0.0829(J)	109	2.75	0.216	63.1	417	6.7
	4/8/2020	0.0768(J)	98.3	2.50	0.184	38.7	365	6.6
	10/9/2020	0.0772(J)	134	7.05	0.187	103	537	6.3
	4/15/2021	0.0854(J)	144	9.09	0.226	126	541	6.9
	6/29/2021	n/a	169	n/a	n/a	n/a	n/a	6.5
	10/6/2021	0.0973(J)	185	11.2	0.214	166	670	6.5
	12/14/2021	n/a	190	n/a	n/a	200	730	6.7
	4/6/2022	0.0842(J)	81.4	2.64	0.132(J)	55.6	338	6.9
	10/5/2022	0.0867(J)	94.1	4.14	0.194	57.1	360	6.2
<b>MW-117</b>	<b>compliance</b>							
	10/8/2015	0.0733(J)	80.4	1.17	0.0770(J)	5.21	281	6.6
	1/28/2016	0.0960(J)	75.2	1.61	0.126	6.32	271(B)	6.5
	4/27/2016	0.130(J)	76.9	1.30	0.101	6.19	272	6.6
	7/26/2016	0.105(J)	78.2	1.25	0.0971(J)	5.48	271(B)	7.9(R)
	10/5/2016	0.115(J)	85.5	1.53	0.110	5.68	287	5.1
	1/26/2017	0.0970(J)	75.7	1.34	0.120	7.46	268	6.1
	4/25/2017	0.0835(J)	76.7	1.48	0.131	6.55	277	6.6
	7/18/2017	0.102(BJ)	77.6	1.36	0.151	6.56	292	6.4
	9/20/2017	0.106(J)	84.2	0.747(J)	0.144	6.43	280	6.5
	4/11/2018	0.0952(BJ)	82.5	1.57	0.124	7.28	290	6.4

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Plum Point Energy Station EPA CCR Landfill Historical Database

Well ID	Sampling Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
<b>MW-117</b>	9/27/2018	0.127(BJ)	89.7	1.25(B)	0.144(B)	7.19	318	6.4
<b>(cont.)</b>	11/19/2018	n/a	85.7	n/a	n/a	n/a	288	6.6
	5/15/2019	0.133(J)	98.3	1.25	0.147(B)	6.66	341	6.5
	8/2/2019	n/a	102	n/a	n/a	n/a	302	6.3
	10/22/2019	0.0610(J)	80.9	0.864(J)	0.136	5.45	322	6.5
	4/7/2020	0.0759(J)	98.1	1.33	0.144(J)	7.47	323	6.6
	6/22/2020	n/a	90.1	n/a	n/a	n/a	n/a	6.1
	10/8/2020	0.0721(J)	84.1	0.793(J)	0.137(J)	7.75	298	6.3
	4/13/2021	0.0705(J)	98.8	0.976(J)	0.152	7.46	351	6.9
	6/29/2021	n/a	83.7	n/a	n/a	n/a	314	6.4
	10/6/2021	0.0677(J)	88.8	0.921(J)	0.162	9.09	314	6.5
	12/14/2021	n/a	82.0	n/a	n/a	9.31	308	6.5
	4/6/2022	0.0738(J)	93.1	0.875(J)	0.0916(J)	9.03	341	6.5
	6/20/2022	n/a	92.2	n/a	n/a	9.63	318	5.8
	10/5/2022	0.0725(J)	88.0	0.953(J)	0.122(J)	10.3	311	5.7
<b>MW-118</b>	<b>compliance</b>							
	10/9/2015	0.0916(J)	75.1	1.08	0.175	12.0	271	6.4
	1/28/2016	0.121(J)	73.4	1.59	0.175	11.5	269(B)	6.2
	4/28/2016	0.123(J)	94.1	1.80	0.119	26.7	378(B)	6.2
	7/26/2016	0.101(J)	85.4	2.13	0.133	26.6	322(B)	8.0(R)
	10/5/2016	0.103(J)	78.1	1.48	0.157	15.1	294	6.3
	1/26/2017	0.106(J)	74.7	1.13(B)	0.188	13.4	275	6.1
	4/26/2017	0.0994(J)	71.1	1.47	0.163	12.2	276	6.3
	7/20/2017	0.104(BJ)	74.9	1.62	0.172	20.4	313	6.5
	9/20/2017	0.104(J)	85.1	1.17	0.187	18.5	305	6.5
	4/11/2018	0.0949(BJ)	71.8	1.36	0.157	15.2	257	5.8
	7/10/2018	n/a	n/a	n/a	n/a	n/a	n/a	6.5
	9/27/2018	0.113(BJ)	80.6	1.33(B)	0.165(B)	17	375	6.3
	5/15/2019	0.125(J)	76.4	1.44	0.185	16.5	286	6.0
	8/2/2019	n/a	n/a	n/a	n/a	n/a	n/a	6.1
	10/22/2019	0.0459(J)	91.6	1.45	0.162	17.5	335	6.4
	4/8/2020	0.0739(J)	82.9	1.62	0.152	16.6	304	6.1
	10/8/2020	0.0596(J)	84.8	1.13	0.150(J)	18.3	301	6.1
	4/15/2021	0.0663(J)	94.1	0.911(J)	0.185	20.0	329	6.6
	10/6/2021	0.0656(J)	82.9	1.15	0.189	11.5	280	6.4
	4/7/2022	0.0573(J)	85.2	0.926(J)	0.129(J)	17.6	320	6.6
	10/5/2022	0.0628(J)	87.5	1.31	0.124(J)	19.7	329	6.1
<b>MW-119</b>	<b>compliance</b>							
	1/25/2017	0.0922(J)	104	2.62	0.255	47.6	409	6.6
	4/27/2017	0.108(J)	106	2.80	0.198	39.1	403	6.8

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Plum Point Energy Station EPA CCR Landfill Historical Database

Well ID	Sampling Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
<b>MW-119</b>	7/20/2017	0.0936(BJ)	103	6.84(O)	0.256	48.7	432	6.6
<b>(cont.)</b>	9/20/2017	0.0798(J)	92.7	2.30	0.289	38.7	338	6.8
	1/30/2018	0.0805(BJ)	99.3	2.07	0.259	35.5	380	6.4
	4/11/2018	0.0950(BJ)	85.9	2.15	0.230	31.1	315	6.4
	9/27/2018	0.103(BJ)	99.0	2.30(B)	0.253(B)	41.6	290	6.7
	11/20/2018	0.0826(BJ)	94.0	1.96	0.271	33.0	343	6.8
	12/18/2018	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	2/18/2019	0.110(J)	103	2.27	0.253	43.0	374	6.6
	5/16/2019	0.109(J)	135	2.86	0.252	47.4	487	6.4
	8/2/2019	n/a	97.4	n/a	n/a	n/a	n/a	6.4
	10/22/2019	0.0480(J)	110	2.86	0.266	47.7	400	6.7
	4/8/2020	0.0639(J)	109	2.45	0.229	39.4	426	6.6
	10/8/2020	0.0588(J)	109	2.22	0.251	52.9	415	6.5
	4/15/2021	0.0687(J)	115	2.43	0.267	33.6	413	6.9
	10/7/2021	0.0594(J)	104	2.40	0.269	39.1	388	6.7
	4/7/2022	0.0670(J)	107	1.82	0.195	37.1	397	6.6
	10/5/2022	0.0671(J)	119	1.98	0.230	46.2	444	6.2(R)
	12/16/2022	n/a	n/a	n/a	n/a	n/a	n/a	6.9

B: analyte was detected in associated blank sample.

J: analyte was detected below the RDL; value is an estimate.

O: value is a statistical outlier.

R: value was rejected due to suspected error; not used in statistics.

# **APPENDIX E**

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## **Background Data Sets Used for Statistics**

## **BACKGROUND DATA SETS**

Background data sets are generally evaluated every 2 to 3 years in accordance with the landfill’s statistical analysis plan (SAP) and Unified Guidance recommendations. This document describes recommended methods and procedures used to evaluate compliance data for inclusion in the background data sets in accordance with §257.94(b), the landfill’s SAP, and the Unified Guidance. The Unified Guidance recommends updating background data sets to include more recent observations, because some long-term fluctuation in background levels may be possible even though a given well has not been impacted by the landfill. As identified in the Unified Guidance, the term “background” refers to the natural or baseline groundwater quality at a site. Background conditions can range from an uncontaminated aquifer to a historically contaminated site with baseline conditions that are unaffected by recent releases that are actionable under the Resource Conservation and Recovery Act. The terms “background” and “baseline” are used interchangeably herein. Procedures used for establishing the initial background data sets were described in the 2018 and 2019 annual reports.

Background data sets were evaluated for an update prior to the first half of 2022 monitoring period for all well-parameter pairs except for select parameters at MW-116, which were excluded from the evaluation due to an ongoing investigation. Well-parameter pairs that were not updated in 2022 will be re-evaluated prior to the first half 2023 monitoring period. Updated background data sets used for the first and second half of 2022 statistical evaluations are attached to this appendix.

### **Exploratory Analyses**

Background data sets were screened using exploratory data analyses to identify potential trends, outliers, and spatial variability. Time-series plots and box-and-whiskers plots were applied to all background data sets to identify potential excursions from normal.

## **Updating Background Data Sets**

Existing background and compliance populations for each well-parameter pair were evaluated with the intrawell Mann-Whitney (Wilcoxon Rank-Sum) test. This test evaluates whether the existing background data set is statistically different from the compliance data set. When comparing a minimum of four compliance values to the background data set, the background data set is generally updated if the test finds no significant difference at the 95% confidence level ( $\alpha = 0.05$ ). When comparing compliance populations of five or more values, background data sets are generally updated if the test finds no significant difference at the 99% confidence level ( $\alpha = 0.01$ ).

## **Outliers and Rejected Data in Background Data Sets**

The Unified Guidance recommends that background data be screened for potential outliers. However, it also advises that outliers not be removed unless a source of error or reason for the discrepancy can be identified. As advised in the Unified Guidance, select removal of extreme outliers without knowledge of error may be warranted to improve environmental protection, but removal of all outliers can mask real and legitimate changes in background data. Outlier screening included the application of Dixon's or Tukey's outlier tests to the updated background data sets to identify potential outliers for exclusion.

Extreme outliers and data that are excluded from the historical database based on independent evidence of error or that are suspected of being unrepresentative of groundwater quality (e.g., due to excessively high sample turbidity) are listed in Table E.1. Outlier data that are excluded from statistical evaluations are flagged with an "O" and data that are excluded due to independent evidence of error are flagged with an "R" in the historical database.

Table E.1. Data excluded from statistical analyses.

Parameter	Well	Date	Value (mg/L)	Flag	Note
Boron	MW-101	4/26/2017	<1.8	O	Laboratory reporting detection limit was nine times higher than normal due to a sample dilution.
Boron	MW-108	5/14/2019	0.224	R	Suspected laboratory/sampling error; disconfirmed by verification sampling in August 2019.
Calcium	MW-102	9/20/2017	25.9	O	Statistically low outlier; suspected laboratory error.
Chloride	MW-115	1/28/2016	7.55	O	Statistically high outlier.
Chloride	MW-119	7/20/2017	6.84	O	Statistically high outlier.
pH	MW-102	7/26/2016	7.7 (su)	R	Known equipment malfunction.
pH	MW-108	7/26/2016	9.8 (su)	R	Known equipment malfunction.
pH	MW-108	10/4/2022	6.2 (su)	R	Known equipment malfunction.
pH	MW-113	7/26/2016	8.1 (su)	R	Known equipment malfunction.
pH	MW-115	7/26/2016	9.0 (su)	R	Known equipment malfunction.
pH	MW-117	7/26/2016	7.9 (su)	R	Known equipment malfunction.
pH	MW-118	7/26/2016	8.0 (su)	R	Known equipment malfunction.
pH	MW-119	10/5/2022	6.2 (su)	R	Known equipment malfunction.
Sulfate	MW-102	4/11/2018	46.7	O	Statistically low outlier.
Sulfate	MW-115	1/28/2016	14.8	O	Statistically high outlier.

### Screening for Trends in Background Data Sets

EPA guidance recommends screening background populations for statistically significant trends, because some tests (such as a prediction limit test) require a stationary statistical distribution for valid results. The presence of statistically significant trends in background data may violate key assumptions of some statistical tests and require an alternate approach to testing the data. If trends are indicated in background populations, testing strategies that either correct for, or are not sensitive to, temporal variation may be required.

Well-parameter pairs containing statistically significant trends in their background data sets are summarized in Table E.2. The well-parameter pairs below are tested for compliance using the Mann-Kendall test and Theil-Sen trend line as opposed to a prediction limit test. All remaining well-parameter pairs are tested for compliance using prediction limits.

Table E.2. Well-parameter pairs tested with Mann-Kendall test and Theil-Sen trend line.

<b>Parameter</b>	<b>Well(s)</b>
Boron	MW-103, MW-108
Calcium	MW-102, MW-103
Chloride	MW-101, MW-102, MW-103, MW-115, MW-116
Sulfate	MW-103
TDS	MW-103



# Date Ranges

Date: 9/14/2022 12:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

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## Boron (mg/L)

MW-101 background:10/7/2015-12/14/2021  
MW-102 background:10/7/2015-12/14/2021  
MW-103 background:10/7/2015-12/14/2021  
MW-108 background:10/7/2015-12/14/2021  
MW-113 background:10/7/2015-12/14/2021  
MW-115 background:10/7/2015-12/14/2021  
MW-116 background:10/7/2015-12/14/2021  
MW-117 background:10/7/2015-12/14/2021  
MW-118 background:10/7/2015-12/14/2021  
MW-119 background:10/7/2015-12/14/2021

## Calcium (mg/L)

MW-101 background:10/7/2015-12/14/2021  
MW-102 background:10/7/2015-12/14/2021  
MW-103 background:10/7/2015-12/14/2021  
MW-108 background:10/7/2015-12/14/2021  
MW-113 background:10/7/2015-12/14/2021  
MW-115 background:10/7/2015-12/14/2021  
MW-116 background:10/7/2015-10/23/2019  
MW-117 background:6/7/2011-2/18/2019  
MW-118 background:10/7/2015-12/14/2021  
MW-119 background:10/7/2015-12/14/2021

## Chloride (mg/L)

MW-101 background:10/7/2015-12/14/2021  
MW-102 background:10/7/2015-12/14/2021  
MW-103 background:10/7/2015-12/14/2021  
MW-108 background:10/7/2015-12/14/2021  
MW-113 background:10/7/2015-12/14/2021  
MW-115 background:10/7/2015-12/14/2021  
MW-116 background:10/7/2015-10/23/2019  
MW-117 background:10/7/2015-12/14/2021  
MW-118 background:10/7/2015-12/14/2021  
MW-119 background:10/7/2015-12/14/2021

## Dissolved Solids (mg/L)

MW-101 background:10/7/2015-12/14/2021  
MW-102 background:10/7/2015-12/14/2021  
MW-103 background:10/7/2015-12/14/2021  
MW-108 background:10/7/2015-12/14/2021  
MW-113 background:10/7/2015-12/14/2021  
MW-115 background:10/7/2015-12/14/2021  
MW-116 background:10/7/2015-10/23/2019  
MW-117 background:6/7/2011-2/18/2019  
MW-118 background:10/7/2015-12/14/2021  
MW-119 background:10/7/2015-12/14/2021

## Fluoride (mg/L)

MW-101 background:10/7/2015-12/14/2021  
MW-102 background:10/7/2015-7/20/2017  
MW-103 background:10/7/2015-10/23/2019  
MW-108 background:10/7/2015-10/23/2019  
MW-113 background:10/7/2015-12/14/2021  
MW-115 background:10/7/2015-12/14/2021  
MW-116 background:10/7/2015-10/23/2019  
MW-117 background:10/7/2015-7/20/2017  
MW-118 background:10/7/2015-12/14/2021  
MW-119 background:10/7/2015-12/14/2021

## pH (su)

MW-101 background:10/7/2015-12/14/2021  
MW-102 background:10/7/2015-12/14/2021  
MW-103 background:10/7/2015-12/14/2021  
MW-108 background:10/7/2015-12/14/2021  
MW-113 background:10/7/2015-12/14/2021  
MW-115 background:10/7/2015-12/14/2021  
MW-116 background:10/7/2015-12/14/2021  
MW-117 background:10/7/2015-12/14/2021  
MW-118 background:10/7/2015-12/14/2021  
MW-119 background:10/7/2015-12/14/2021

## Sulfate (mg/L)

MW-101 background:10/7/2015-12/14/2021  
MW-102 background:10/7/2015-12/14/2021  
MW-103 background:10/7/2015-12/14/2021

## Date Ranges

Date: 9/14/2022 12:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

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MW-108 background:10/7/2015-12/14/2021  
MW-113 background:10/7/2015-12/14/2021  
MW-115 background:10/7/2015-12/14/2021  
MW-116 background:10/7/2015-10/23/2019  
MW-117 background:10/7/2015-10/23/2019  
MW-118 background:10/7/2015-12/14/2021  
MW-119 background:10/7/2015-12/14/2021

# **APPENDIX F**

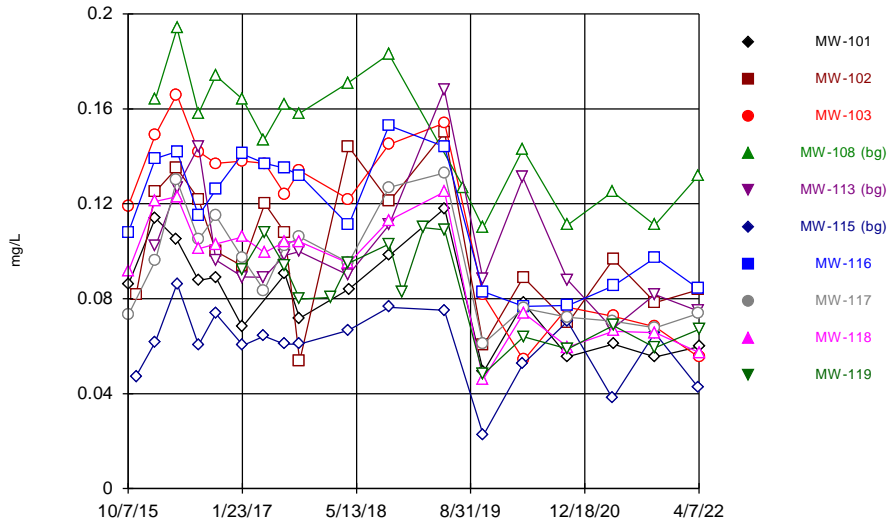
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## **Exploratory Data Analysis Plots**

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**Time-Series Plots, First Half of 2022 Data Set**

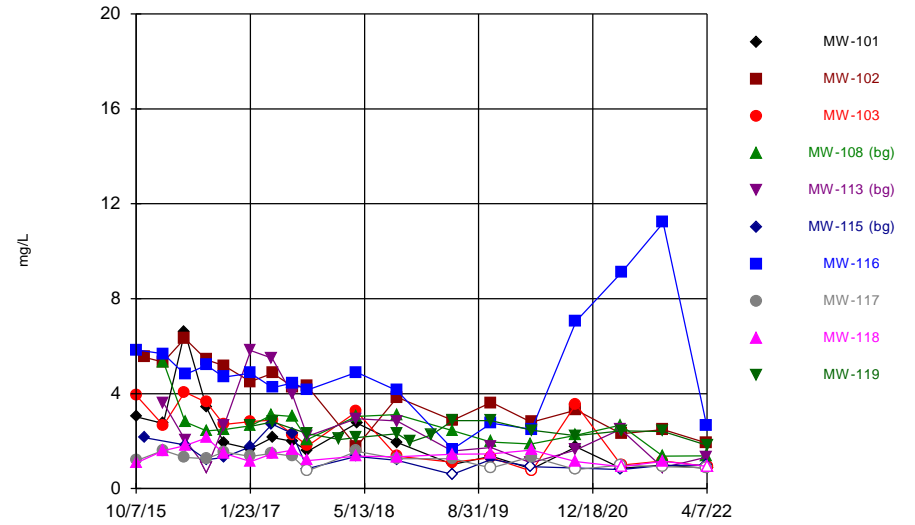
### Time Series



Constituent: Boron Analysis Run 5/31/2022 4:03 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

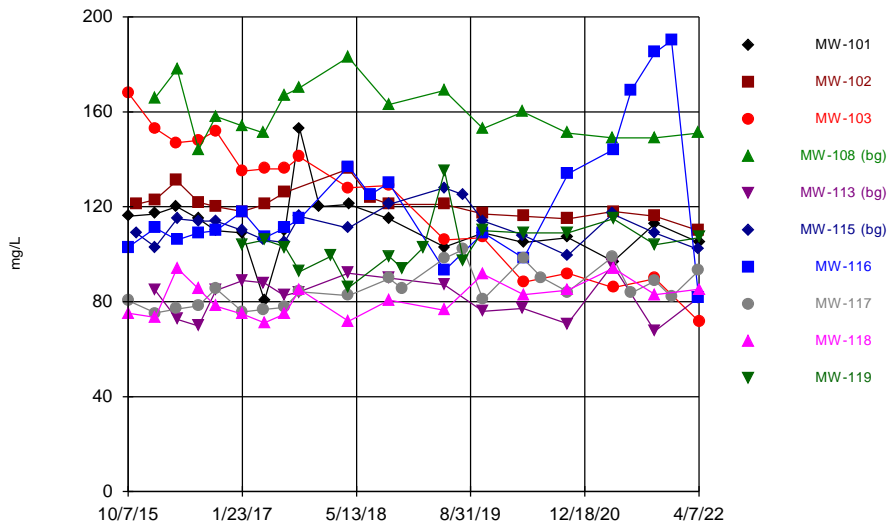
### Time Series



Constituent: Chloride Analysis Run 5/31/2022 4:03 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

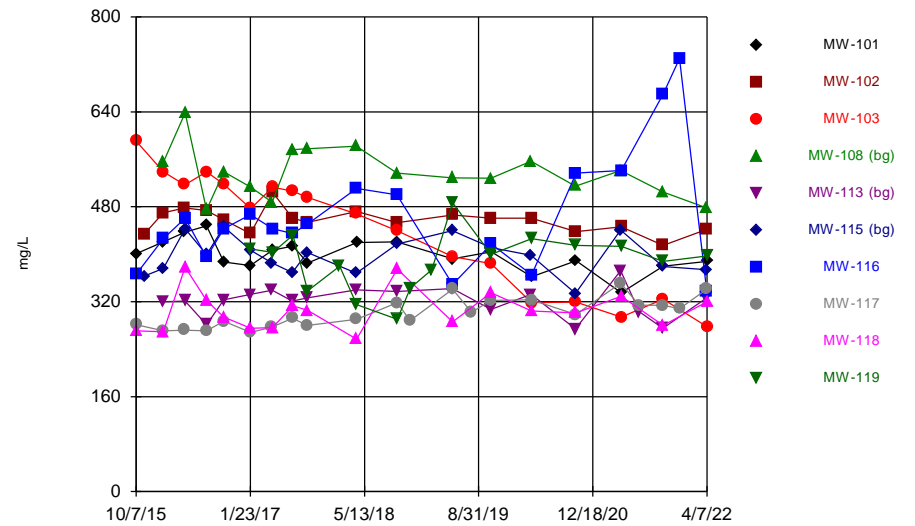
### Time Series



Constituent: Calcium Analysis Run 5/31/2022 4:03 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

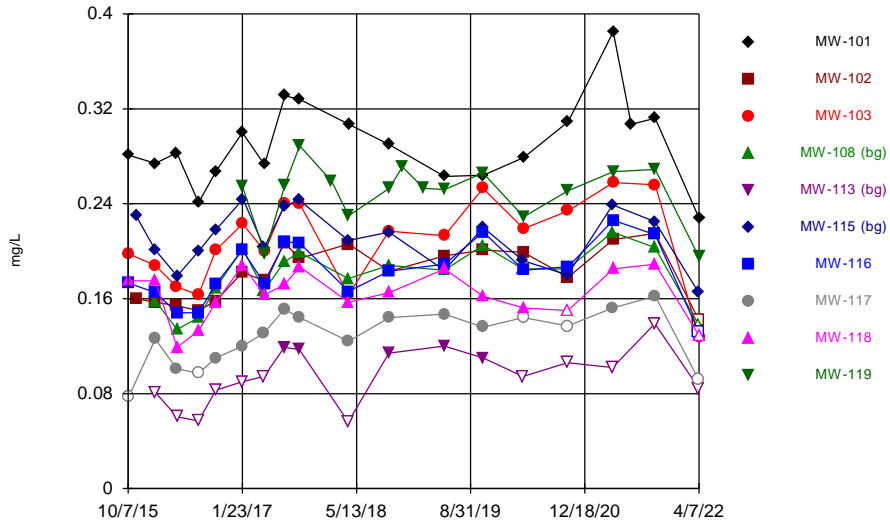
### Time Series



Constituent: Dissolved Solids Analysis Run 5/31/2022 4:03 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

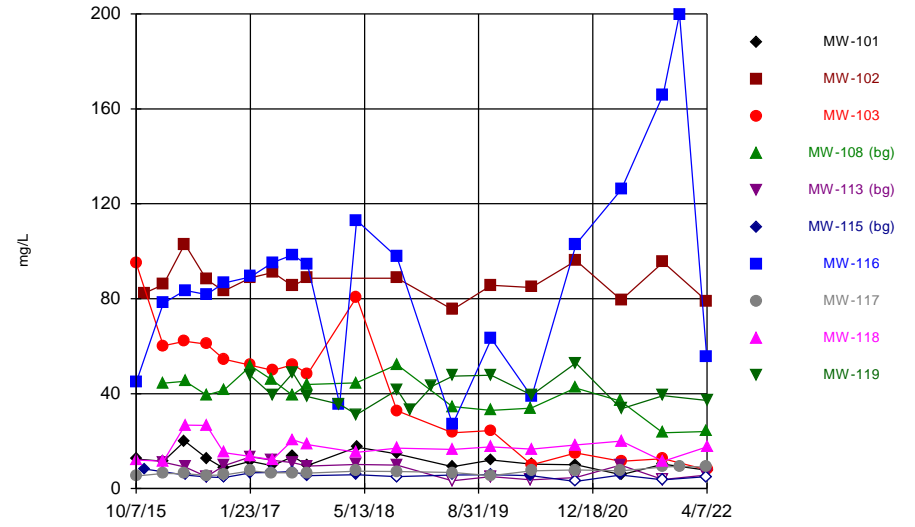
### Time Series



Constituent: Fluoride Analysis Run 5/31/2022 4:03 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

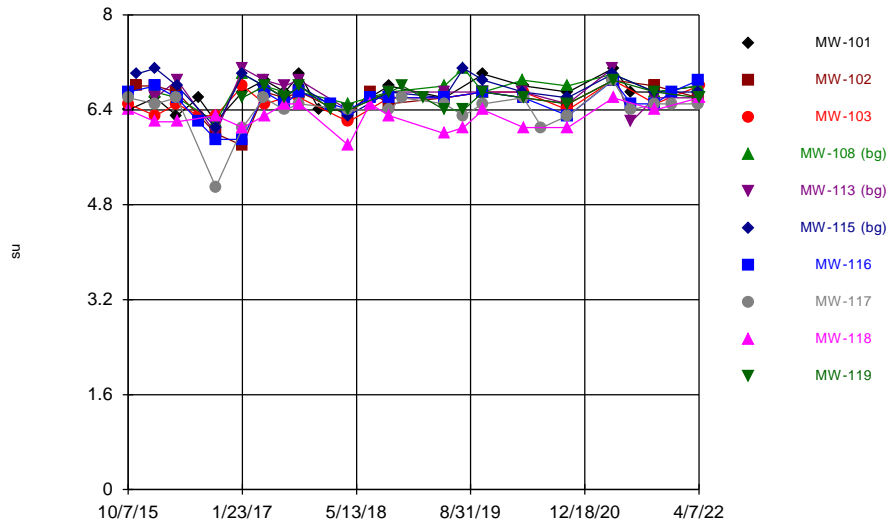
### Time Series



Constituent: Sulfate Analysis Run 5/31/2022 4:03 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Time Series



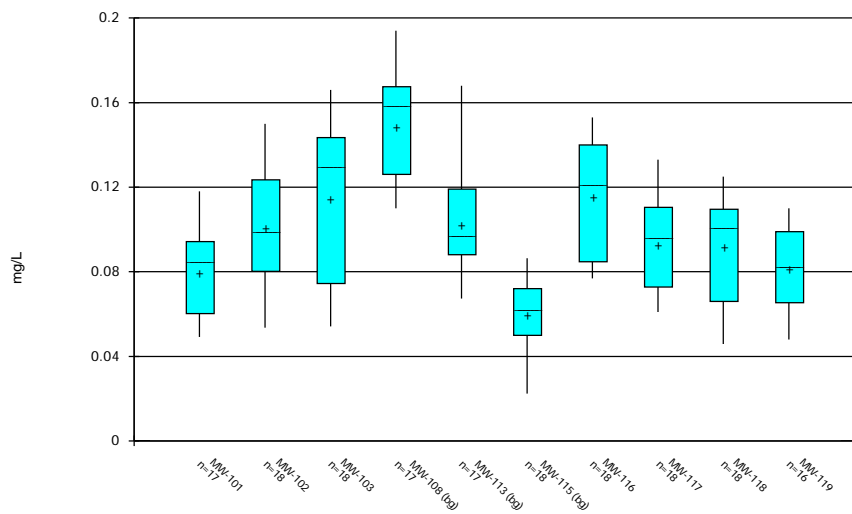
Constituent: pH Analysis Run 5/31/2022 4:03 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

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**Box-and-Whisker Plots, First Half of 2022 Data Set**

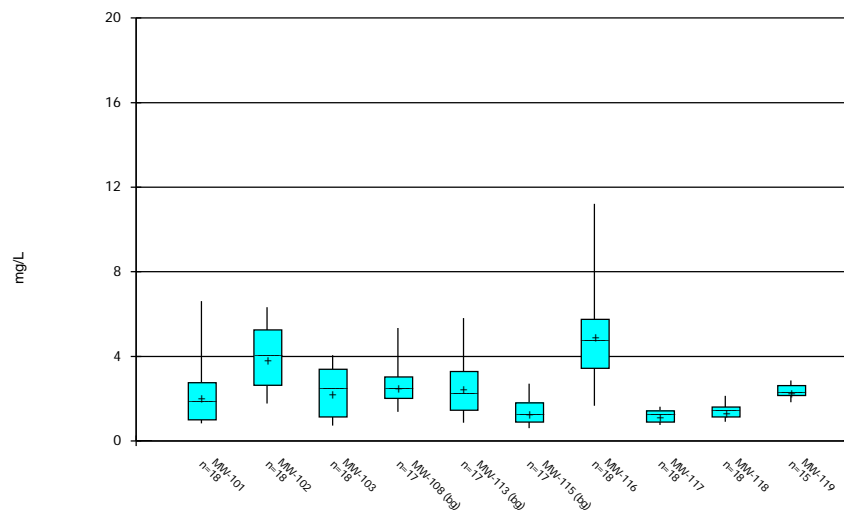
### Box & Whiskers Plot



Constituent: Boron Analysis Run 4/27/2022 12:17 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

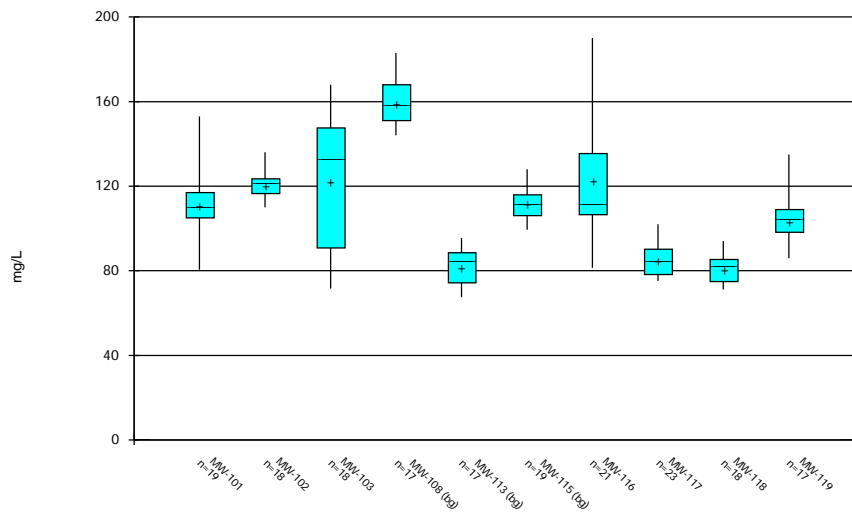
### Box & Whiskers Plot



Constituent: Chloride Analysis Run 4/27/2022 12:18 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

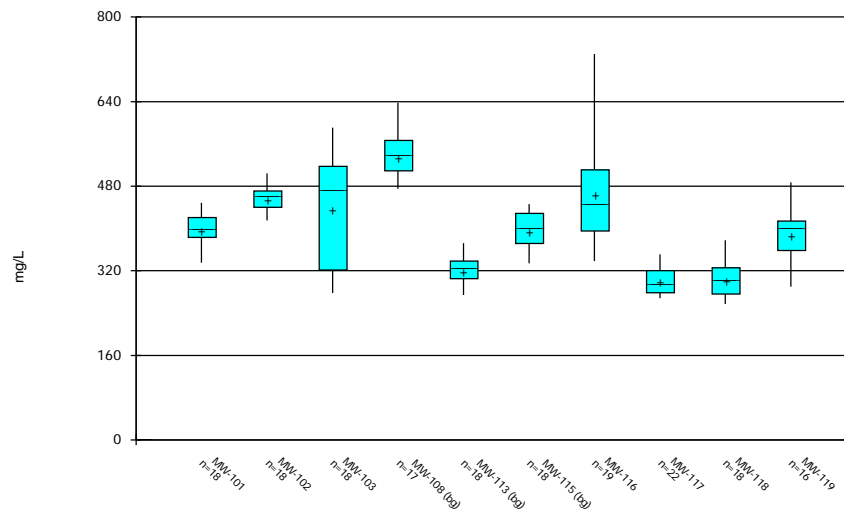
### Box & Whiskers Plot



Constituent: Calcium Analysis Run 4/27/2022 12:17 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Box & Whiskers Plot

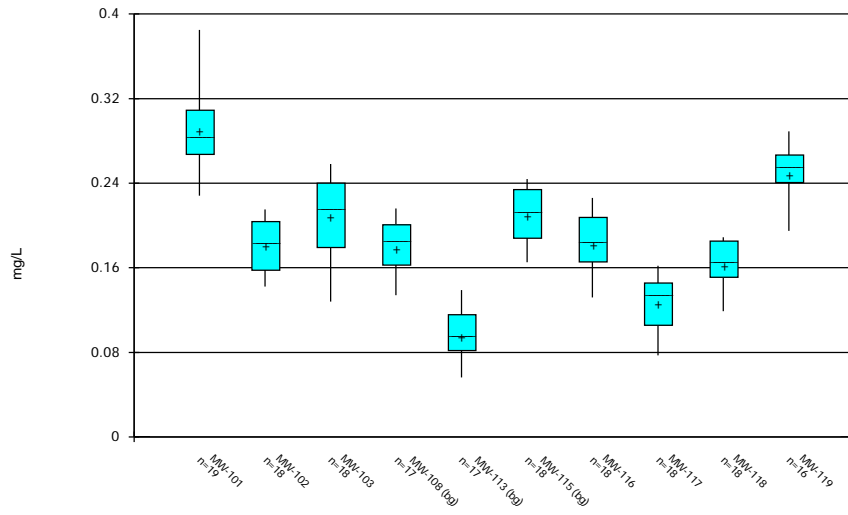


Constituent: Dissolved Solids Analysis Run 4/27/2022 12:18 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



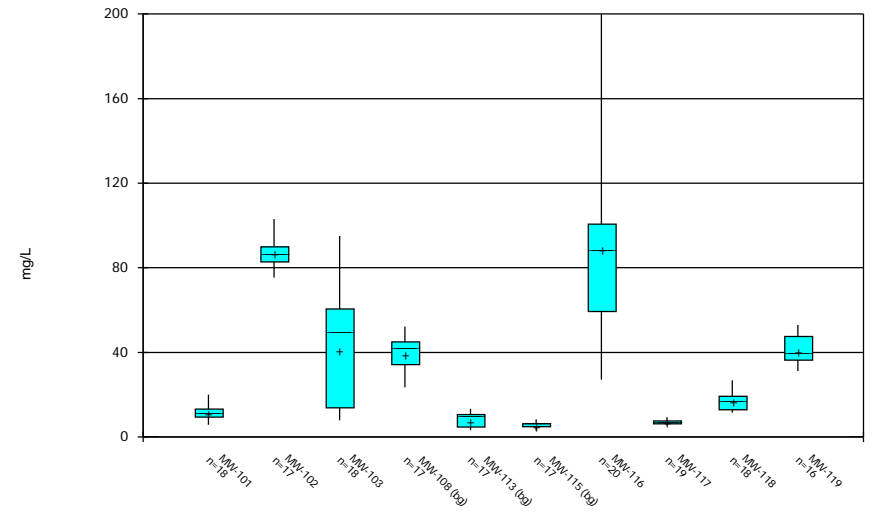
### Box & Whiskers Plot



Constituent: Fluoride Analysis Run 4/27/2022 12:18 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

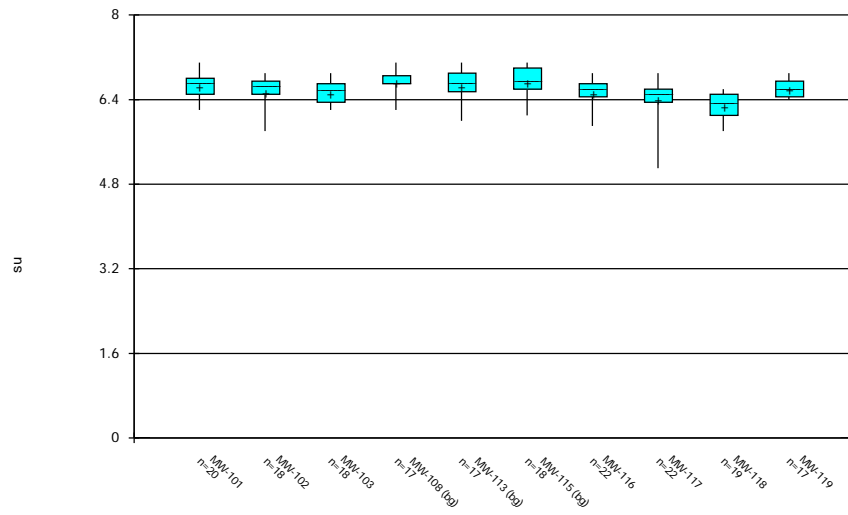
### Box & Whiskers Plot



Constituent: Sulfate Analysis Run 4/27/2022 12:18 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Box & Whiskers Plot



Constituent: pH Analysis Run 4/27/2022 12:18 PM

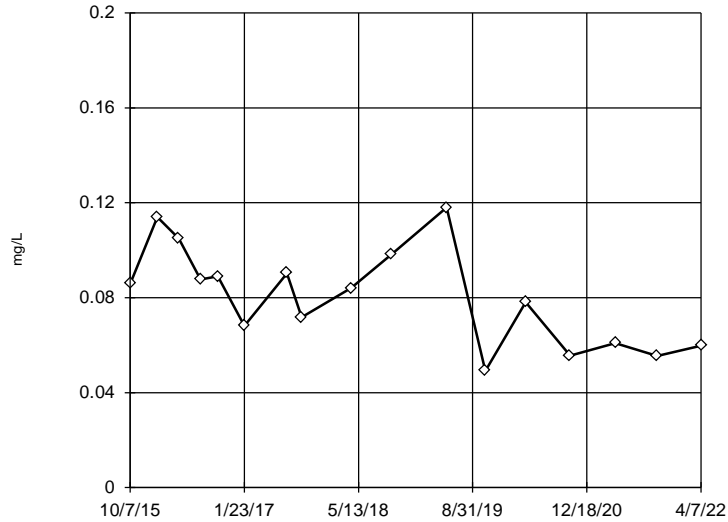
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

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**Outlier Plots, Period-of-Record Data through First Half of 2022**

### EPA Screening (suspected outliers for Dixon's Test)

MW-101



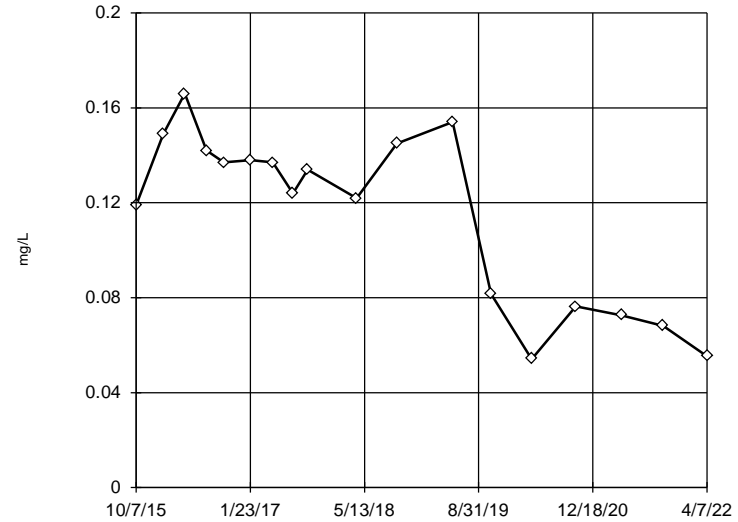
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.08062, std. dev. 0.0209, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9579  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-103



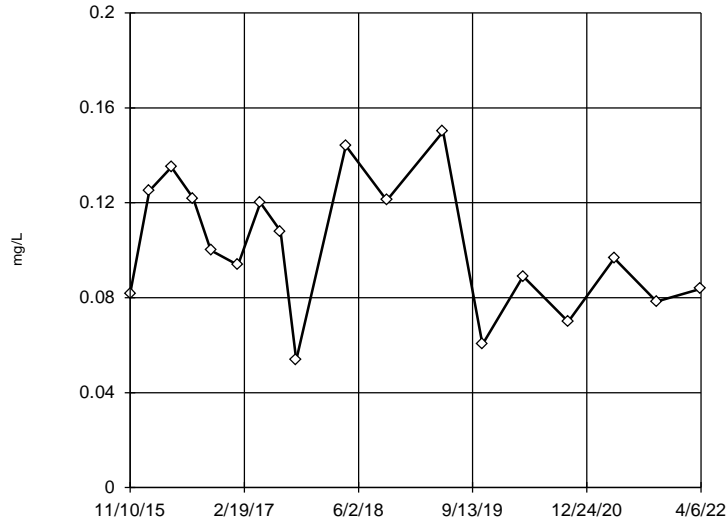
n = 18  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were cube transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.2196,  
 low cutoff = -0.1932,  
 based on IQR multiplier of 3.

Constituent: Boron Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-102



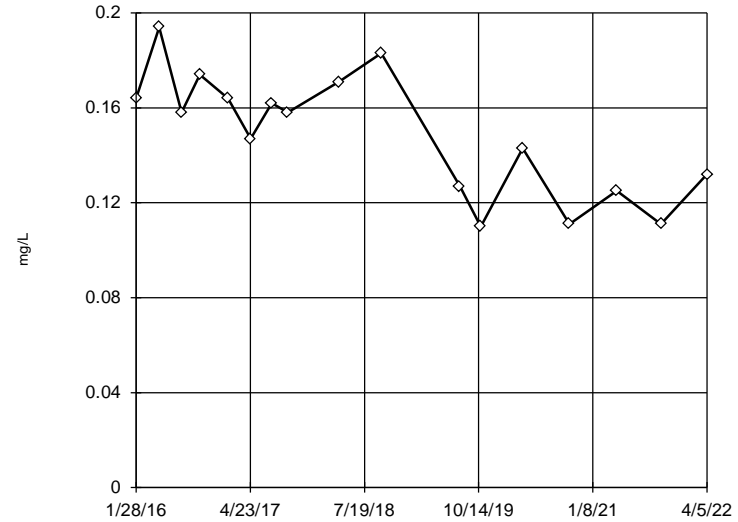
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1018, std. dev. 0.02817, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9736  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



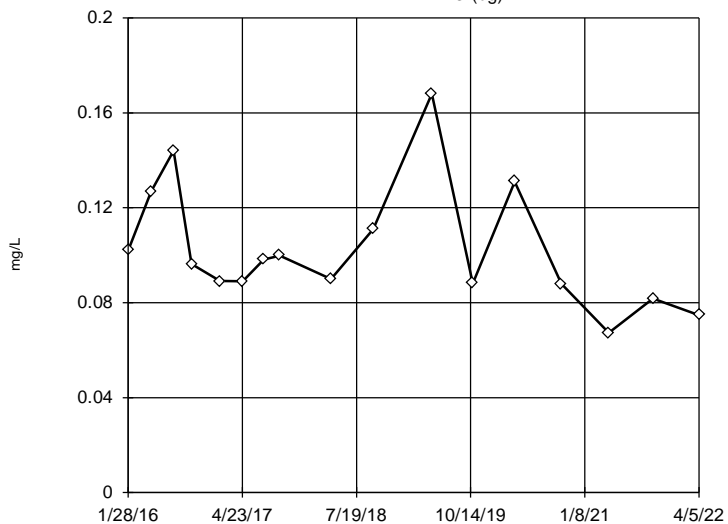
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1491, std. dev. 0.02606, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9461  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



n = 17

Dixon's will not be run.  
No suspect values identified or unable to establish suspect values.  
Mean 0.1026, std. dev. 0.02616, critical Tn 2.475

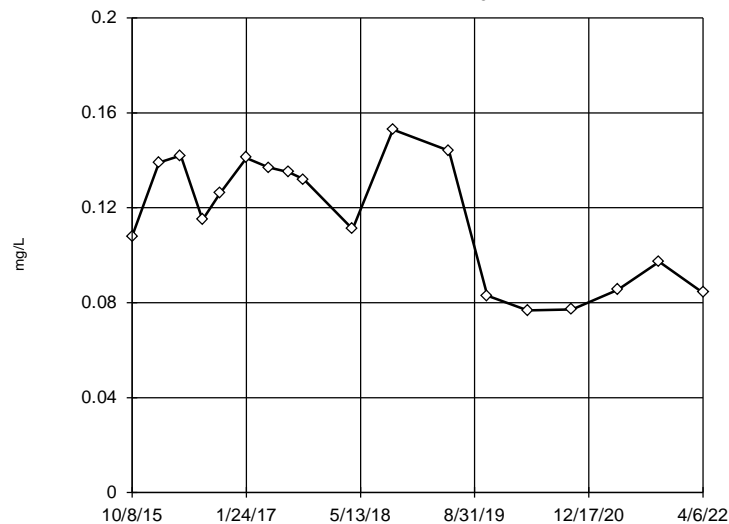
Normality test used:  
Shapiro Wilk@alpha = 0.1  
Calculated = 0.9501  
Critical = 0.91 (after natural log transformation)  
The distribution was found to be log-normal.

Constituent: Boron Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-116



n = 18

No outliers found.  
Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

Data were cube transformed to achieve best W statistic (graph shown in original units).

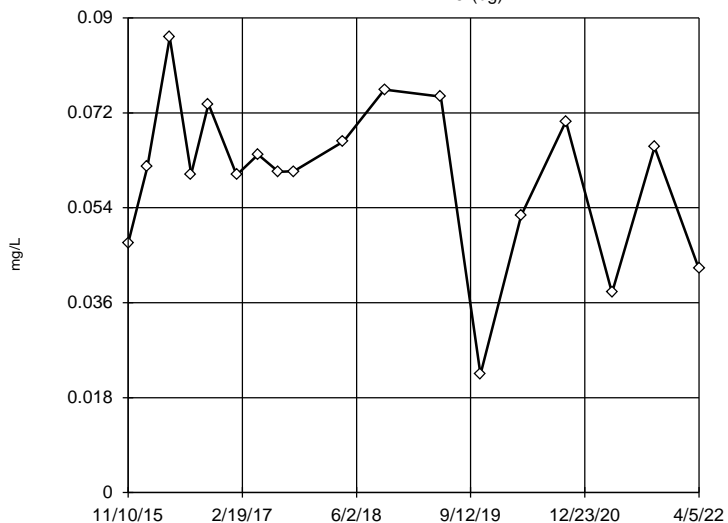
High cutoff = 0.2091, low cutoff = -0.1796, based on IQR multiplier of 3.

Constituent: Boron Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Dixon's Outlier Test

MW-115 (bg)



n = 18

No statistical outliers.  
Testing for 1 low outlier.  
Mean = 0.06026.  
Std. Dev. = 0.01535.  
0.0224 (J); c = 0.3795  
tabl = 0.475.  
Alpha = 0.05.

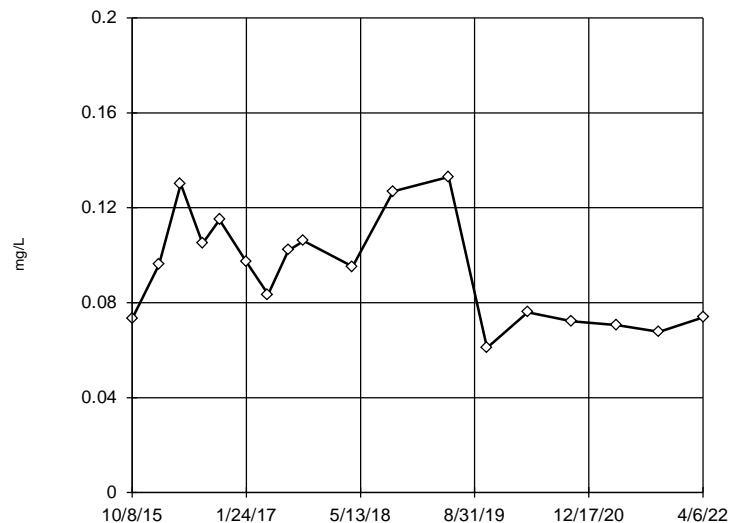
Normality test used:  
Shapiro Wilk@alpha = 0.1  
Calculated = 0.9698  
Critical = 0.91  
The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-117



n = 18

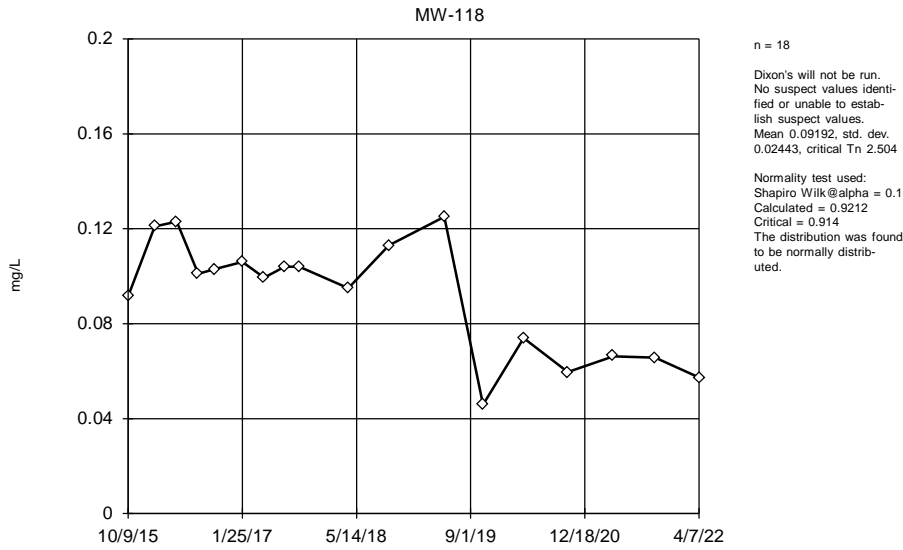
Dixon's will not be run.  
No suspect values identified or unable to establish suspect values.  
Mean 0.09356, std. dev. 0.02272, critical Tn 2.504

Normality test used:  
Shapiro Wilk@alpha = 0.1  
Calculated = 0.9305  
Critical = 0.914  
The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

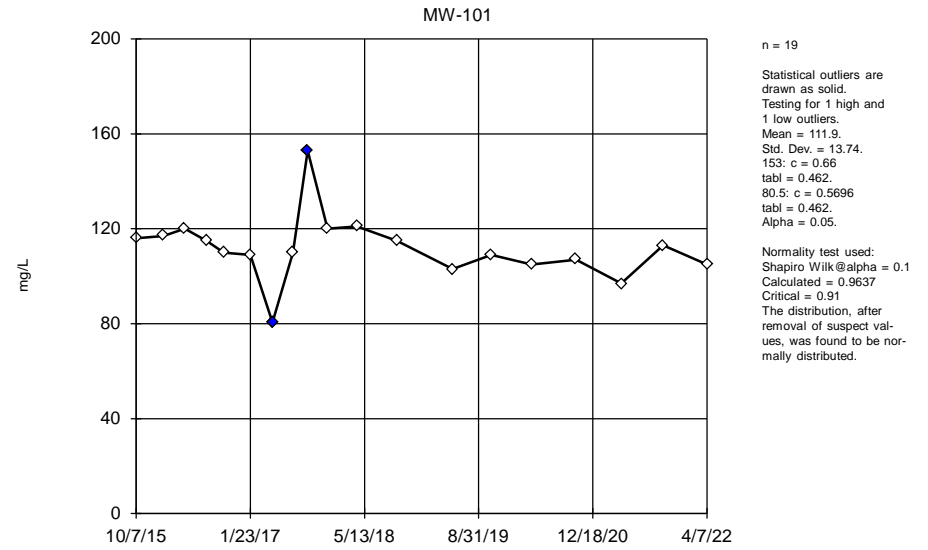
EPA Screening (suspected outliers for Dixon's Test)



Constituent: Boron Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

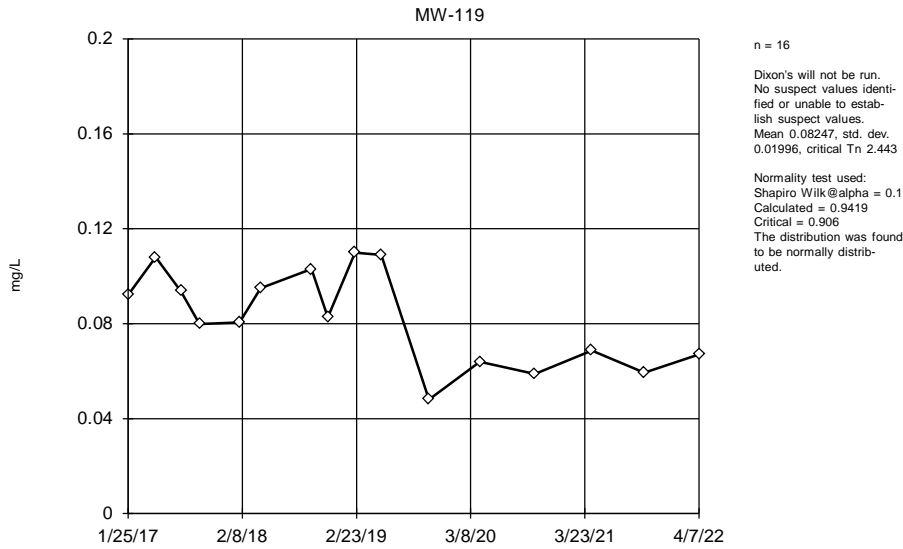
Dixon's Outlier Test



Constituent: Calcium Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

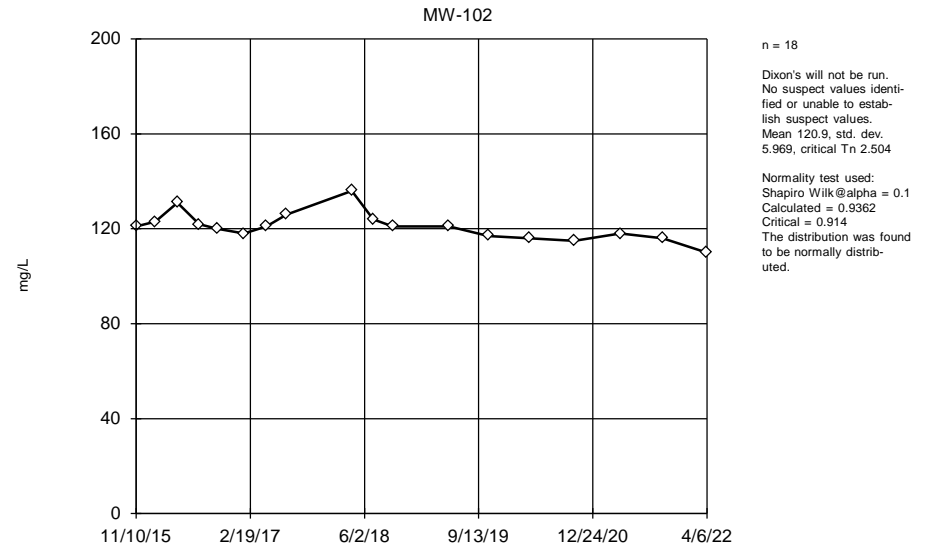
EPA Screening (suspected outliers for Dixon's Test)



Constituent: Boron Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

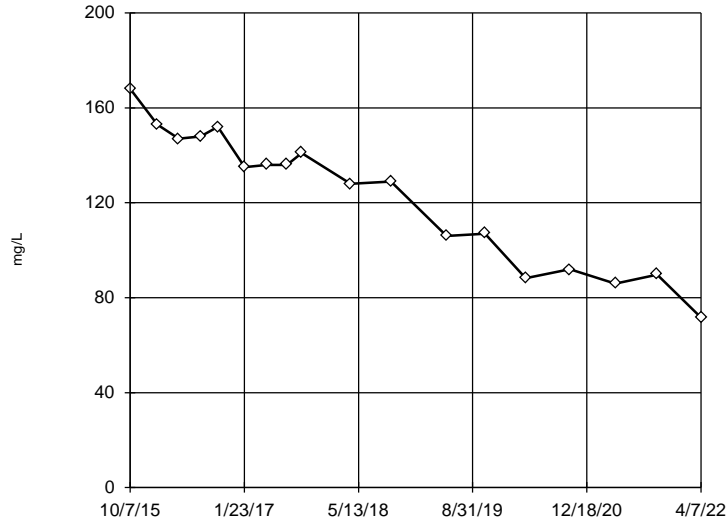


Constituent: Calcium Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-103



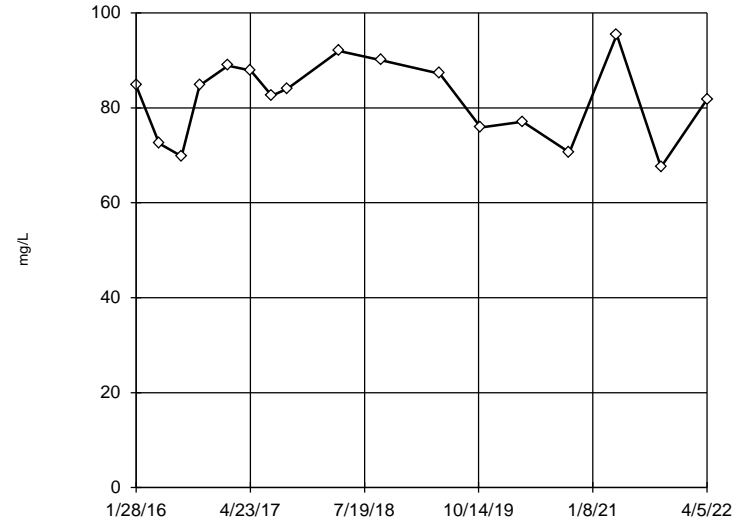
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 123, std. dev. 28.37, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9313  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



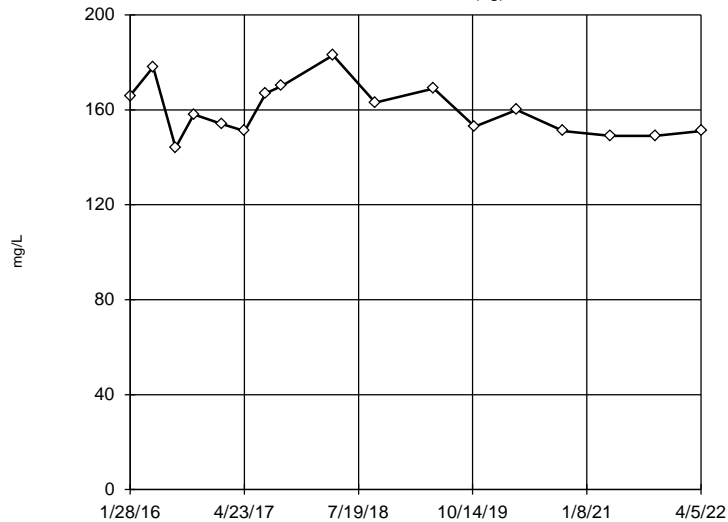
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 81.92, std. dev. 8.339, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9524  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



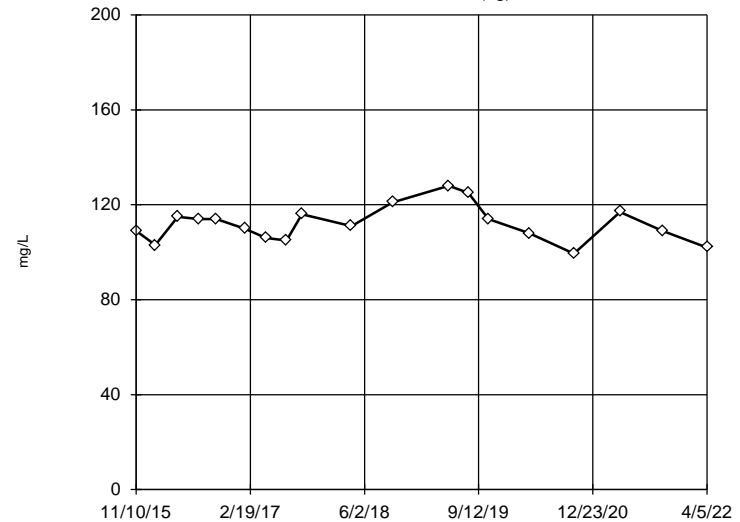
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 159.8, std. dev. 11.06, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.937  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-115 (bg)



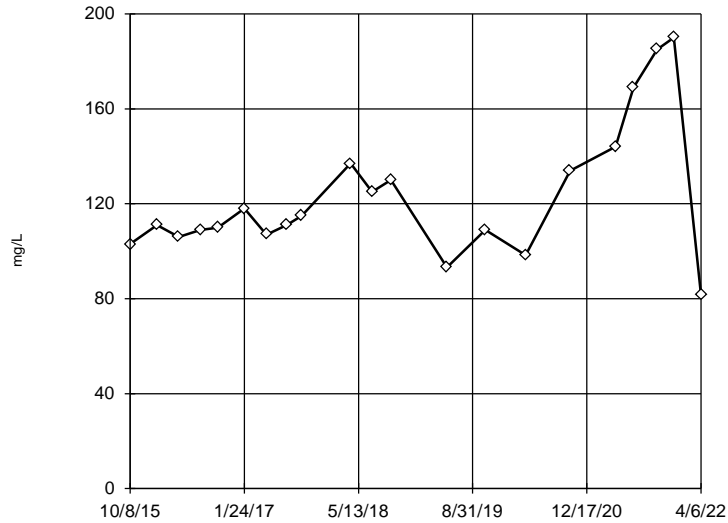
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 111.9, std. dev. 7.571, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9734  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-116



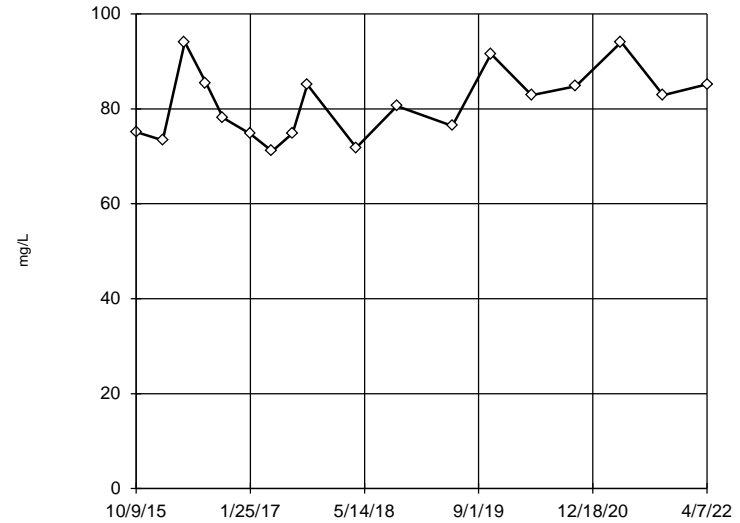
n = 21  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 123.1, std. dev. 28.61, critical Tn 2.58  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9339  
 Critical = 0.923 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Calcium Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-118



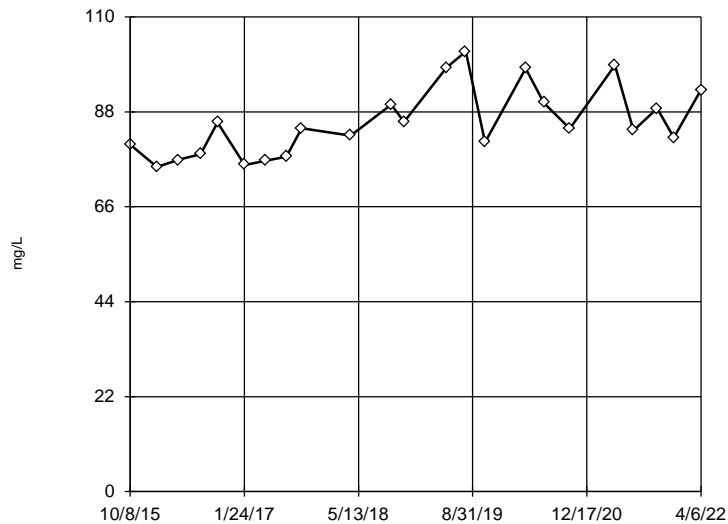
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 81.23, std. dev. 7.324, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9297  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Rosner's Test)

MW-117



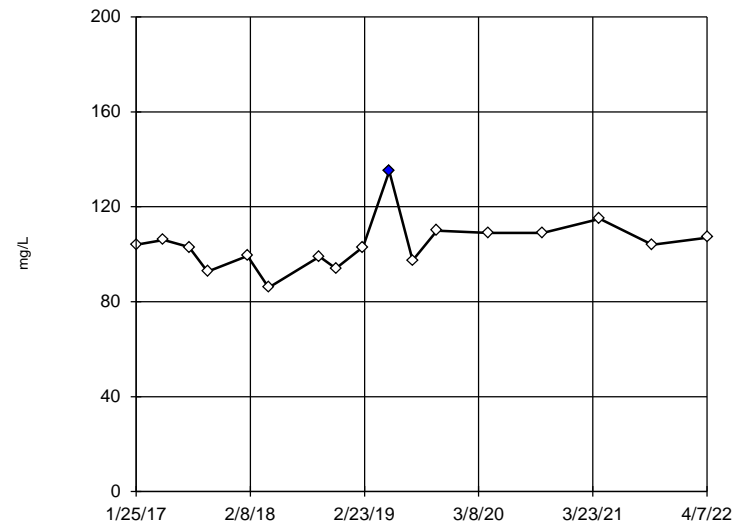
n = 23  
 Rosner's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 85.57, std. dev. 8.044, critical Tn 2.624  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9357  
 Critical = 0.928 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Calcium Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Dixon's Outlier Test

MW-119



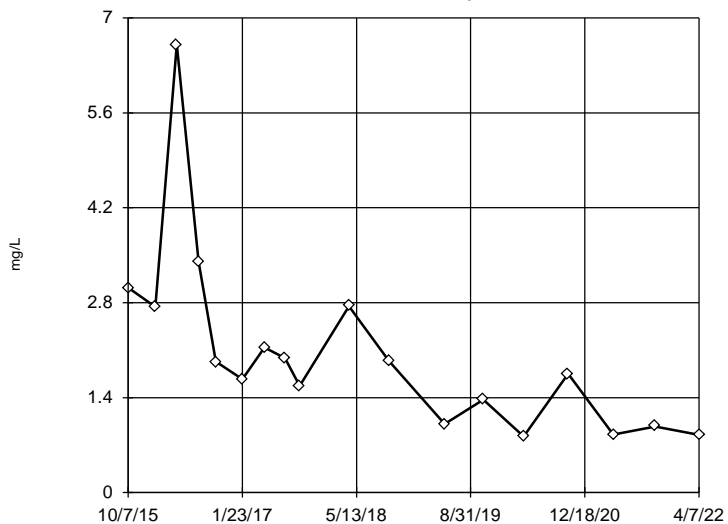
n = 17  
 Statistical outlier is drawn as solid.  
 Testing for 1 high outlier.  
 Mean = 104.3  
 Std. Dev. = 10.69  
 135: c = 0.6098  
 tab1 = 0.49  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9719  
 Critical = 0.906  
 The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Calcium Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-101



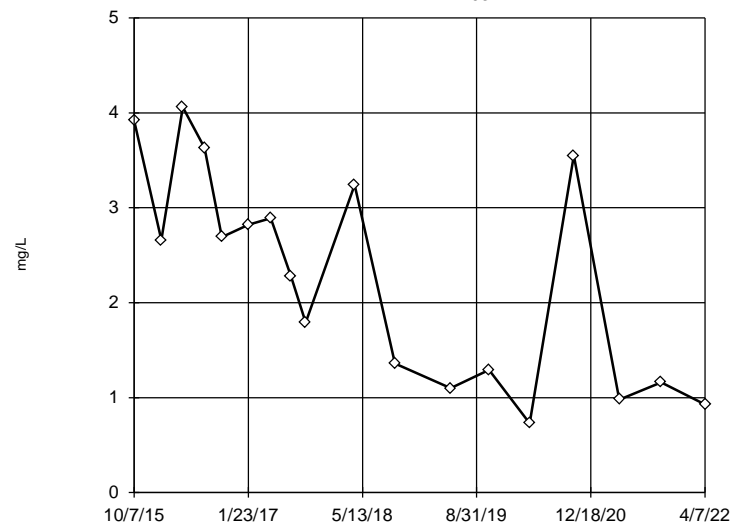
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 2.077, std. dev. 1.375, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9472  
 Critical = 0.914 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Chloride Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-103



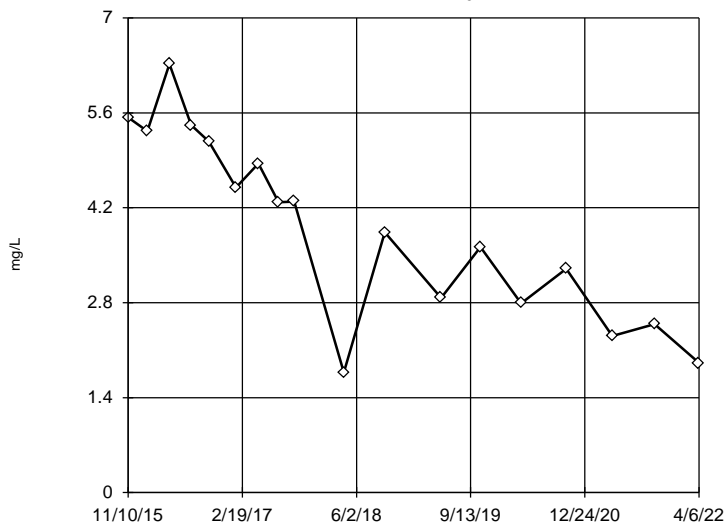
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 2.282, std. dev. 1.134, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.915  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Chloride Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-102



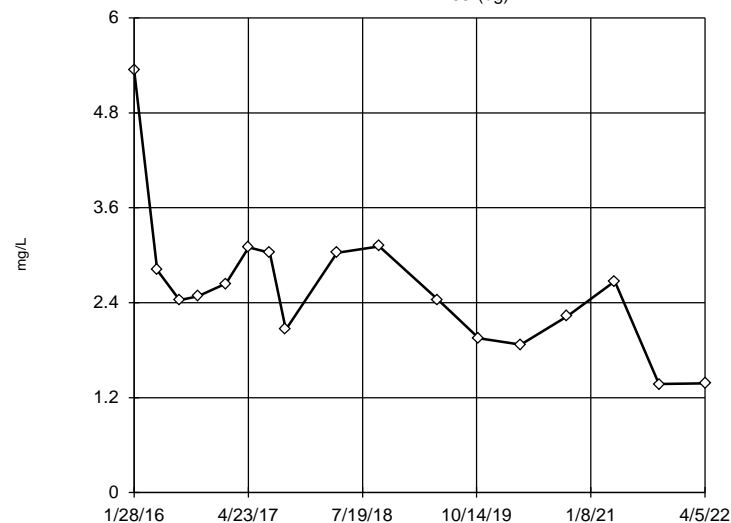
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 3.922, std. dev. 1.368, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9605  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Chloride Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 2.585, std. dev. 0.8975, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9369  
 Critical = 0.91 (after natural log transformation)  
 The distribution was found to be log-normal.

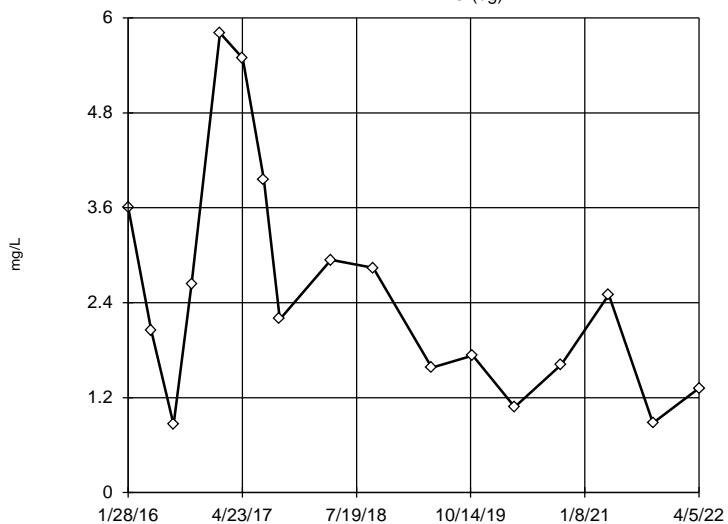
Constituent: Chloride Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



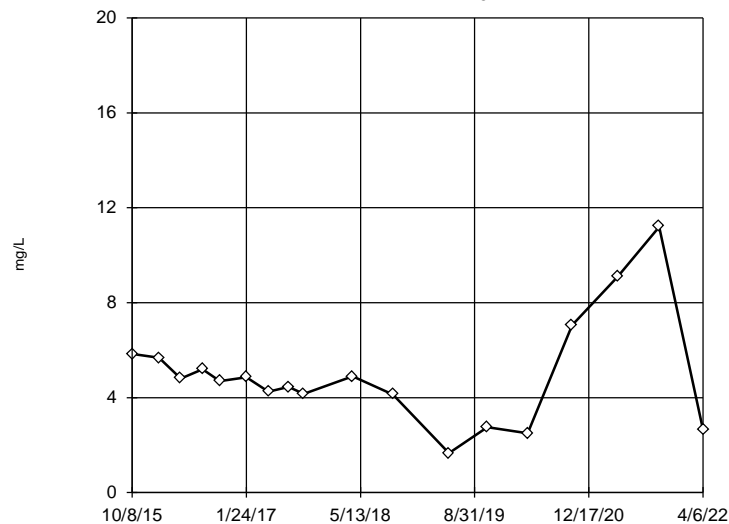
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 2.534, std. dev. 1.475, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9711  
 Critical = 0.91 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Chloride Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-116



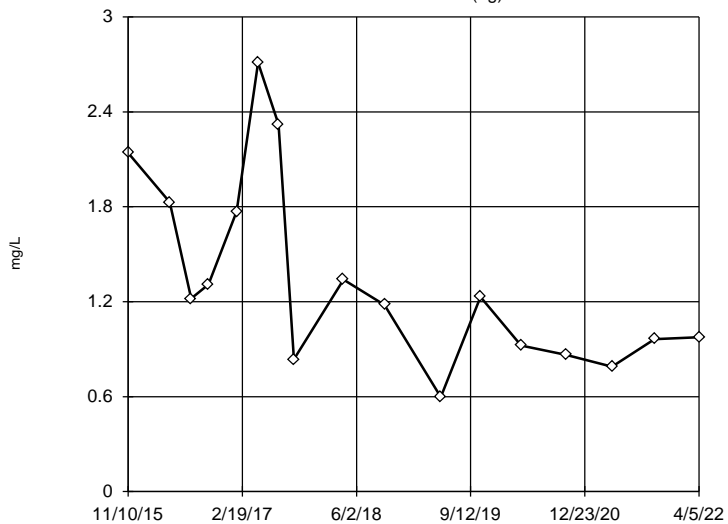
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 4.991, std. dev. 2.315, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9579  
 Critical = 0.914 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Chloride Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-115 (bg)



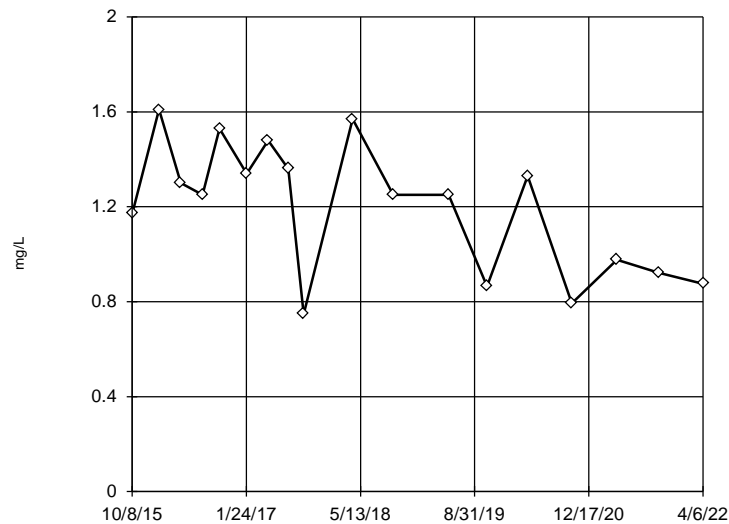
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 1.353, std. dev. 0.5988, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9652  
 Critical = 0.91 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Chloride Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-117



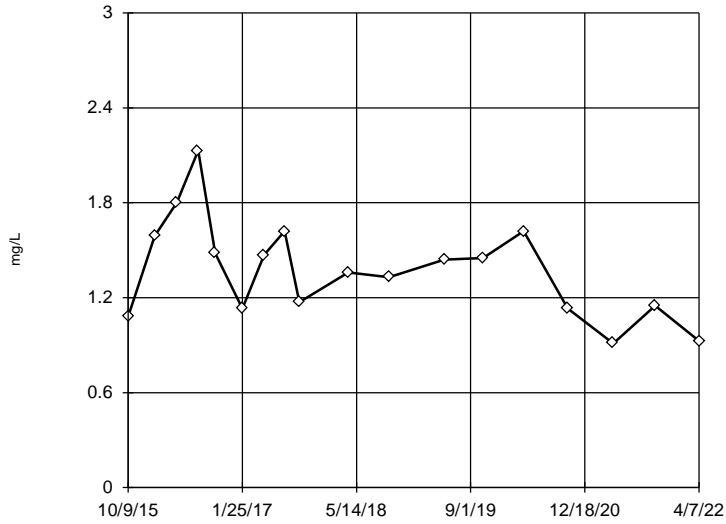
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 1.201, std. dev. 0.2755, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9314  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Chloride Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-118



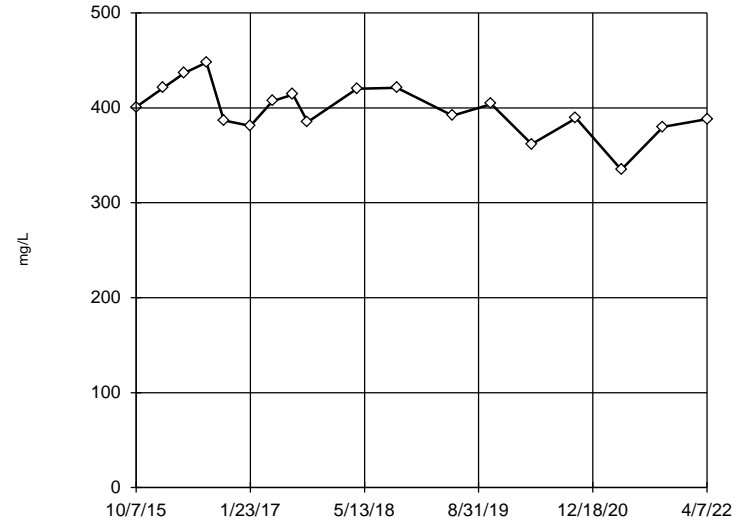
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 1.377, std. dev. 0.313, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9561  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Chloride Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-101



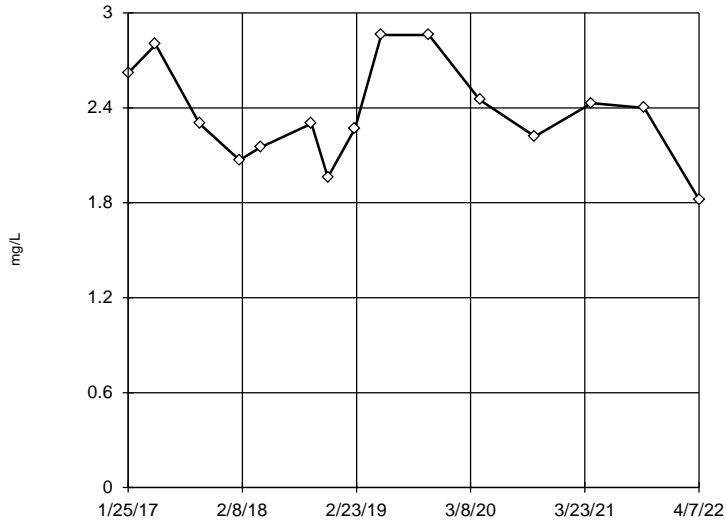
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 398.4, std. dev. 26.93, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9719  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-119



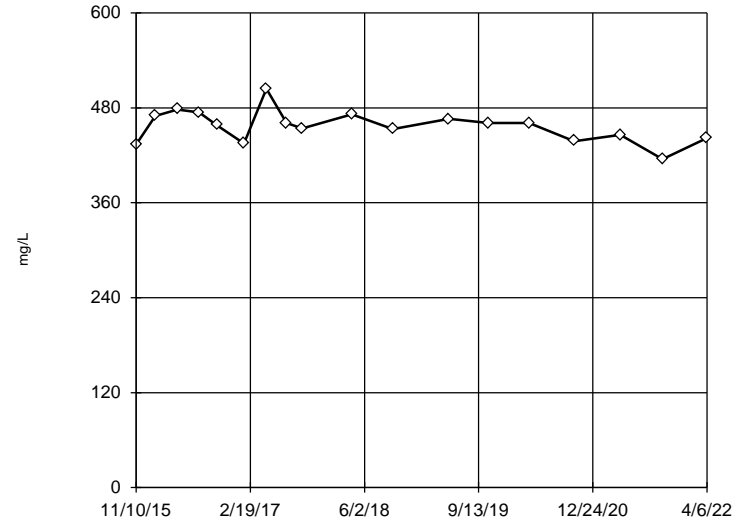
n = 15  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 2.367, std. dev. 0.3151, critical Tn 2.409  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9567  
 Critical = 0.901  
 The distribution was found to be normally distributed.

Constituent: Chloride Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-102



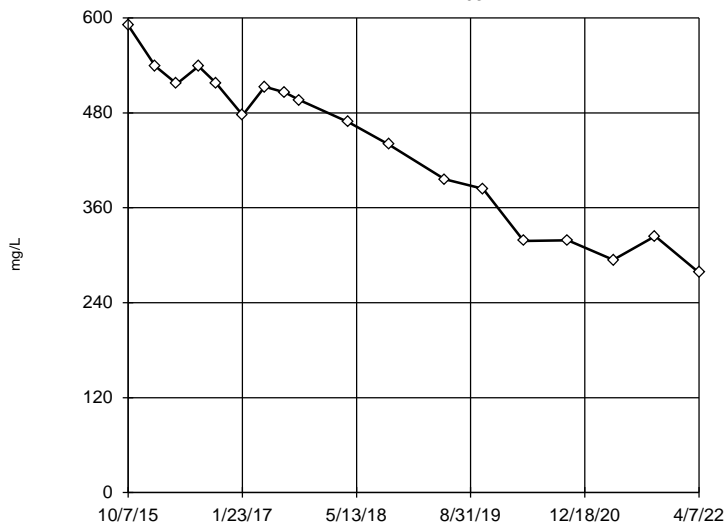
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 456.8, std. dev. 20.25, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9775  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-103



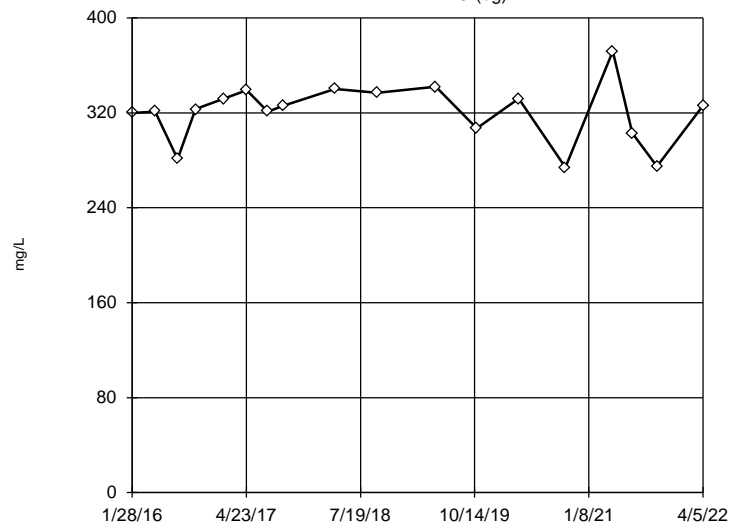
n = 18  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were cube transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 768.9, low cutoff = -656.4, based on IQR multiplier of 3.

Constituent: Dissolved Solids Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



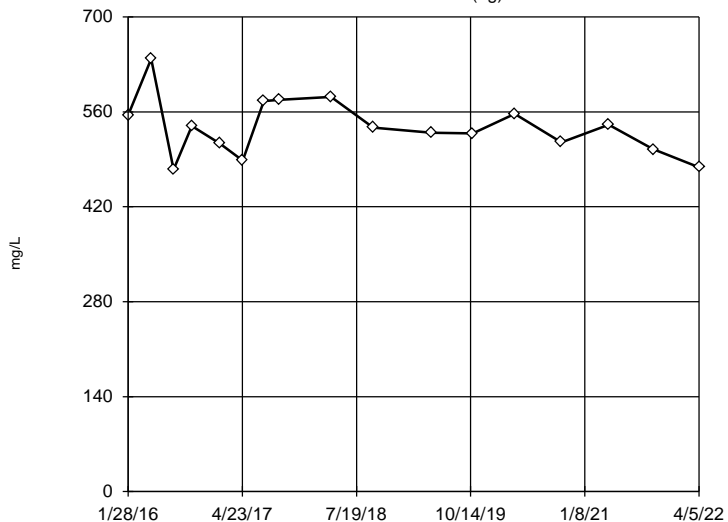
n = 18  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 320.6, std. dev. 25.11, critical Tn 2.504  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9225 Critical = 0.914 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



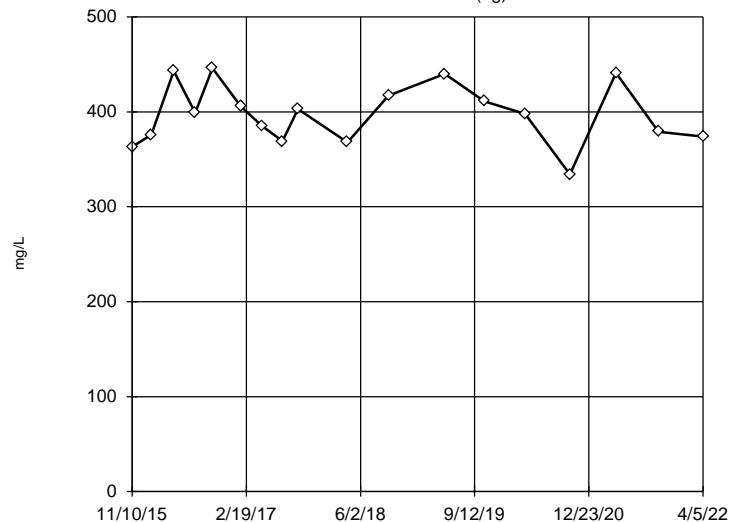
n = 17  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 537.3, std. dev. 41.93, critical Tn 2.475  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9614 Critical = 0.91 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-115 (bg)



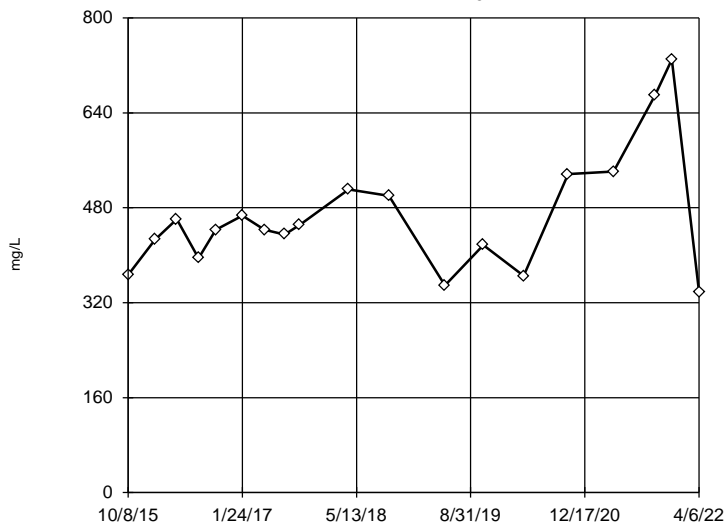
n = 18  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 397.3, std. dev. 31.81, critical Tn 2.504  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9516 Critical = 0.914 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 5/31/2022 3:56 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-116



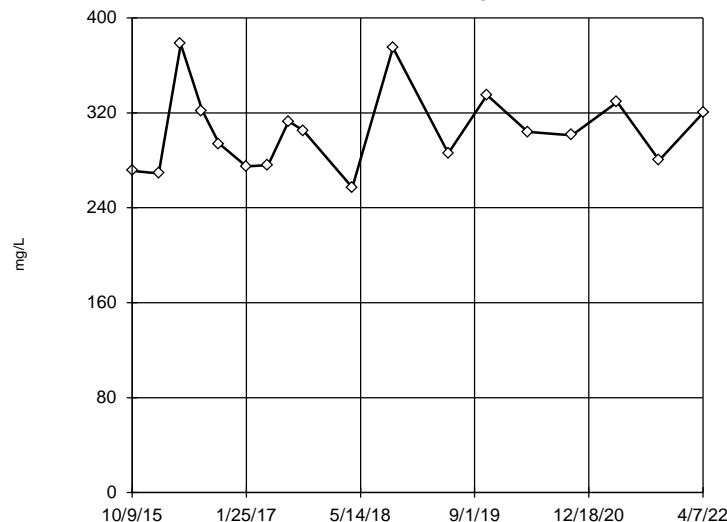
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 465.6, std. dev. 101.8, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9458  
 Critical = 0.917 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Dissolved Solids Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-118



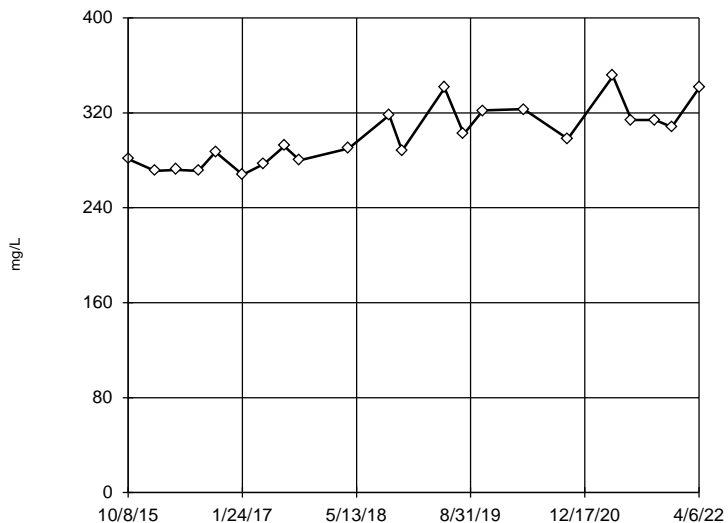
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 305, std. dev. 34.22, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9269  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-117



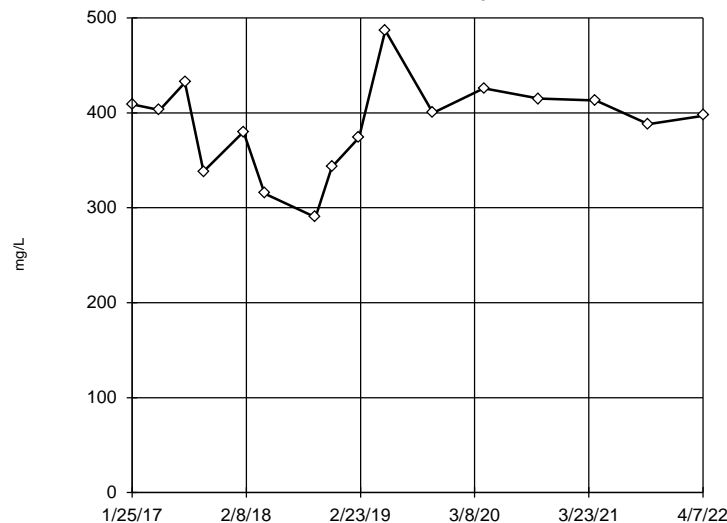
n = 22  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 300.4, std. dev. 24.9, critical Tn 2.603  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9362  
 Critical = 0.926  
 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-119



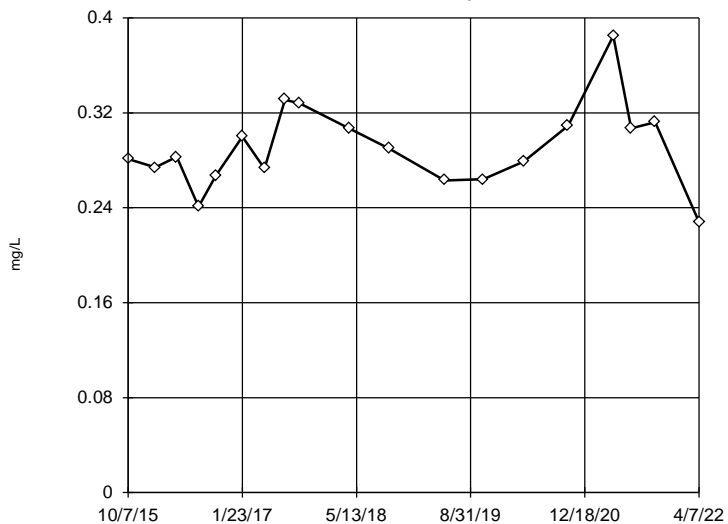
n = 16  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 388.1, std. dev. 48.4, critical Tn 2.443  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9607  
 Critical = 0.906  
 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-101



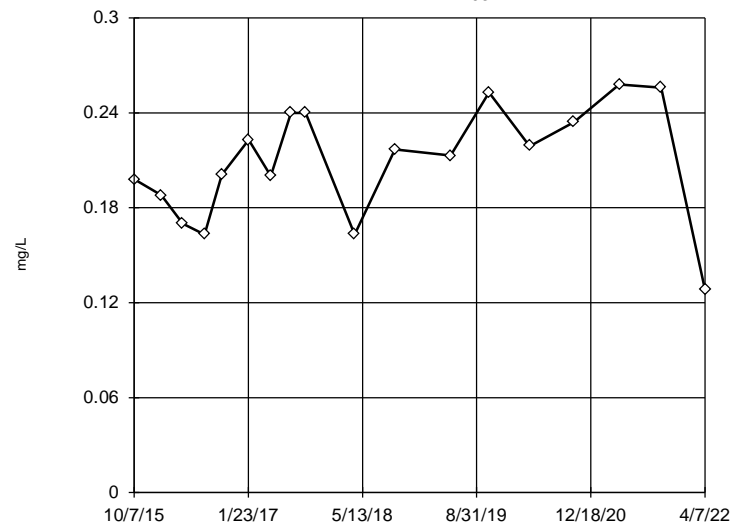
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.2906, std. dev. 0.03547, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9538  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Dixon's Outlier Test

MW-103



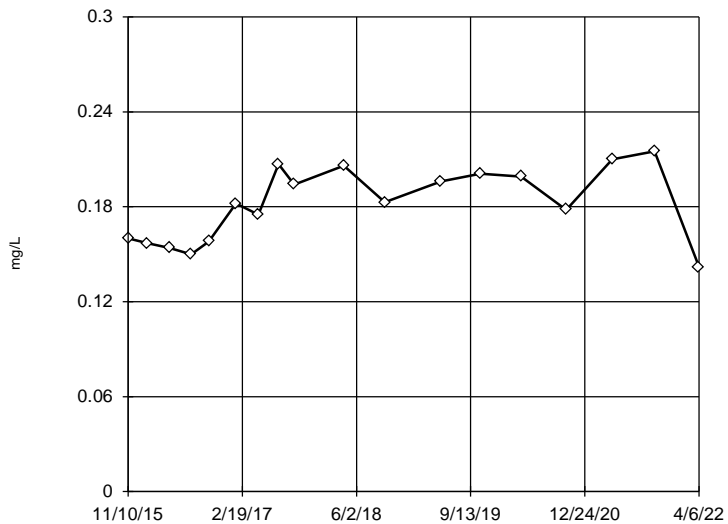
n = 18  
 No statistical outliers.  
 Testing for 1 low outlier.  
 Mean = 0.2091.  
 Std. Dev. = 0.03637.  
 0.128 (J); c = 0.28  
 tab1 = 0.475.  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9437  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-102



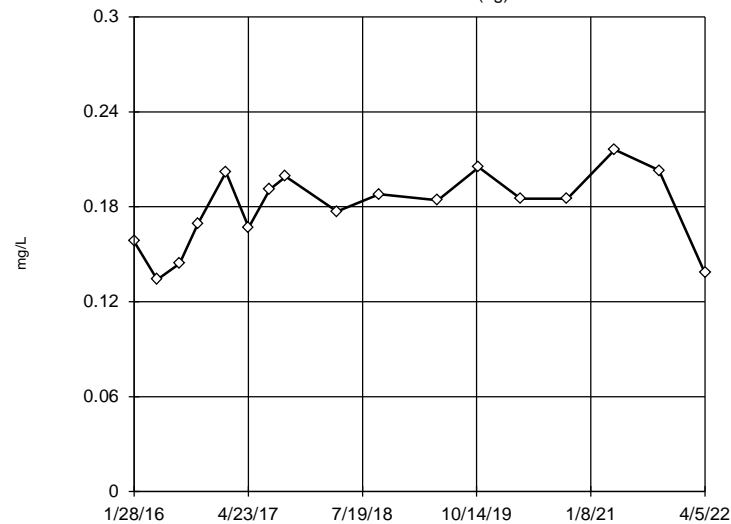
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1815, std. dev. 0.02329, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9324  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



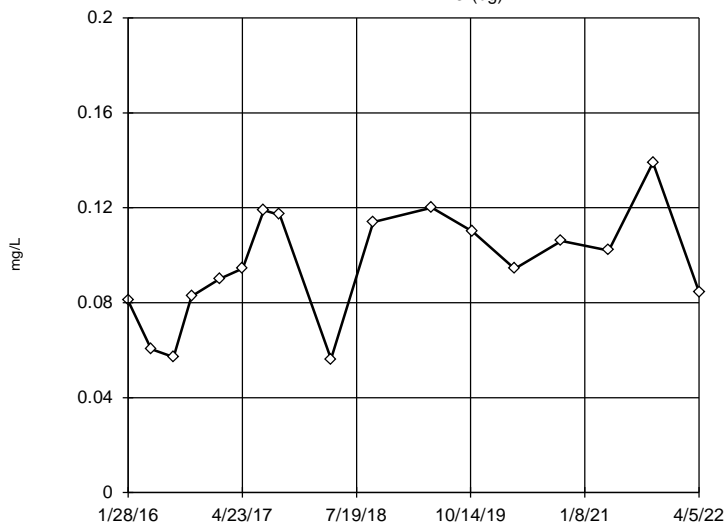
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1791, std. dev. 0.02436, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9418  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



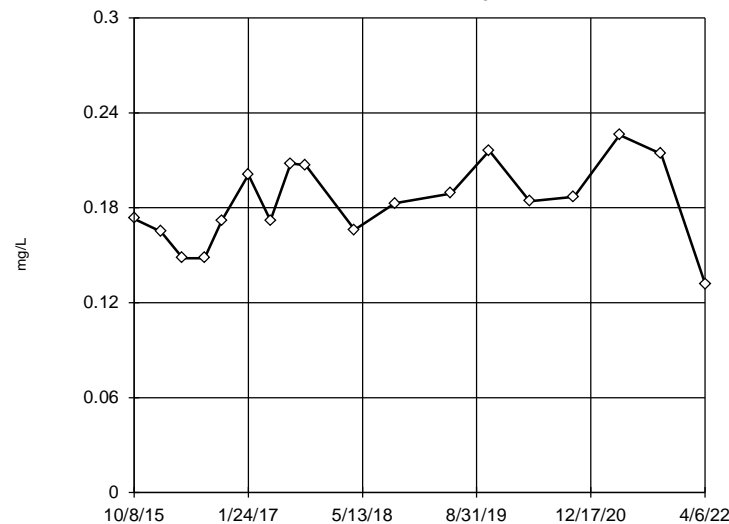
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.09574, std. dev. 0.02372, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9579  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-116



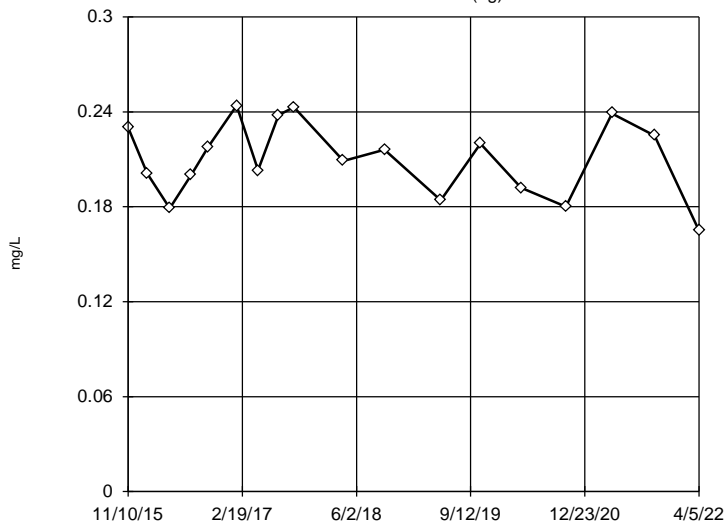
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1828, std. dev. 0.02599, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9735  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-115 (bg)



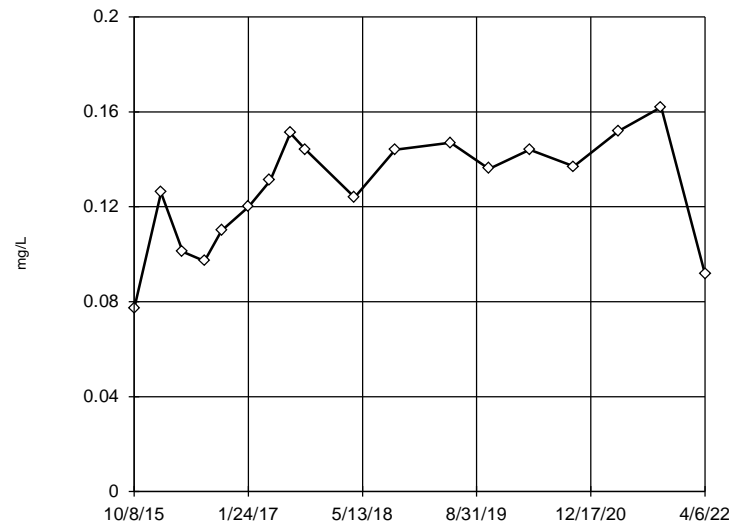
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.2103, std. dev. 0.02402, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9571  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-117



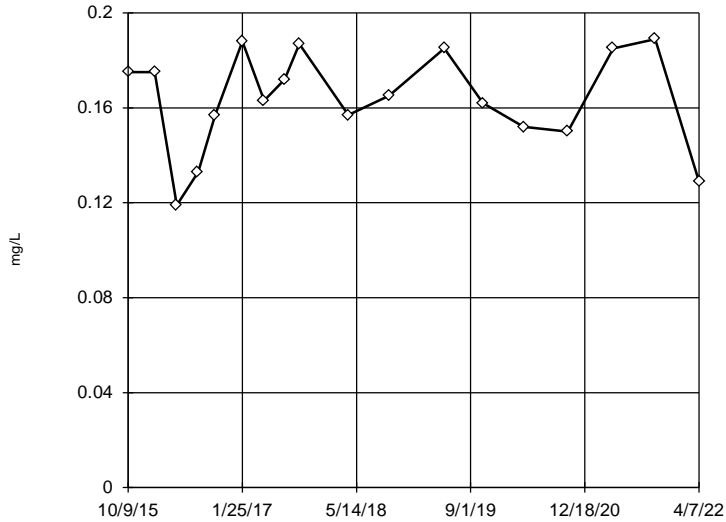
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1275, std. dev. 0.02371, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.941  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-118



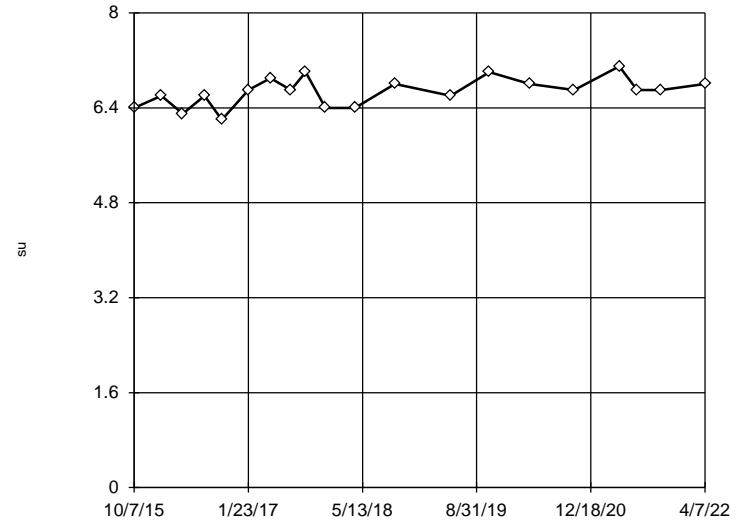
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1635, std. dev. 0.0211, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9257  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-101



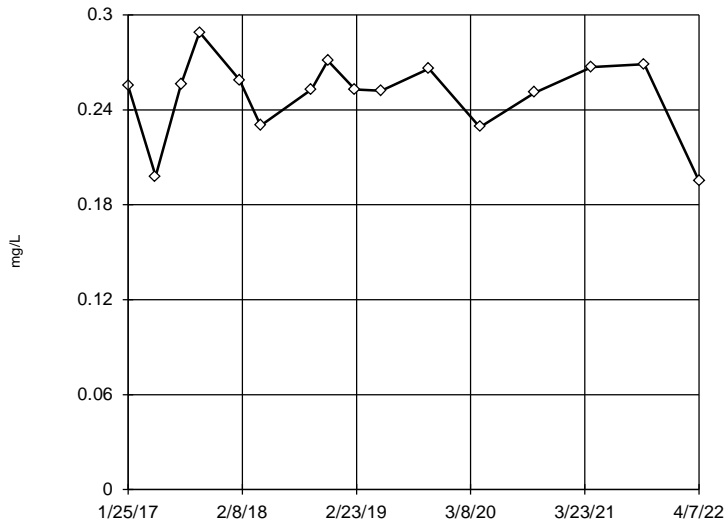
n = 20  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 6.67, std. dev. 0.2408, critical Tn 2.557  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9636  
 Critical = 0.92  
 The distribution was found to be normally distributed.

Constituent: pH Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Tukey's Outlier Screening

MW-119



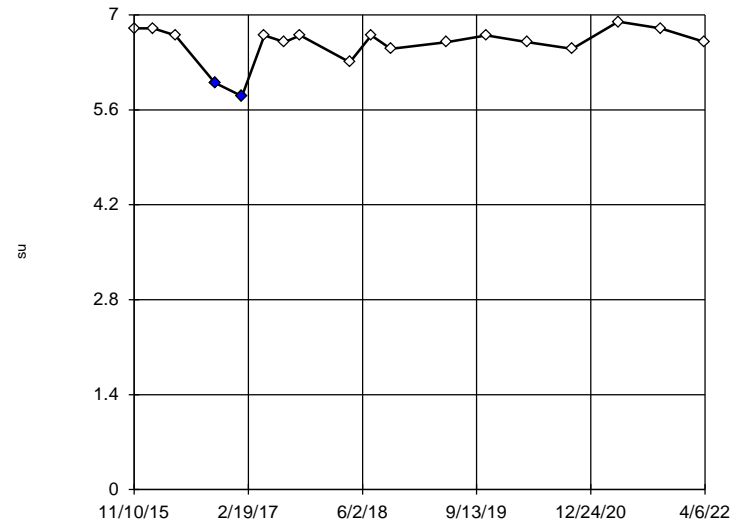
n = 16  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were x^5 transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.3112, low cutoff = -0.2373, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Dixon's Outlier Test

MW-102



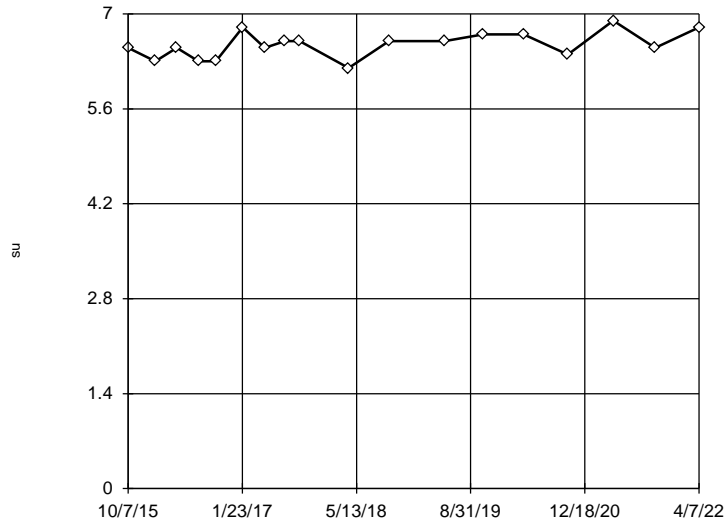
n = 18  
 Statistical outliers are drawn as solid.  
 Testing for 3 low outliers.  
 Mean = 6.572.  
 Std. Dev. = 0.2824.  
 6.3: c = 0.4  
 tab1 = 0.475.  
 Alpha = 0.05.  
 6: c = 0.625  
 tab1 = 0.475.  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9366  
 Critical = 0.906  
 The distribution, after removal of suspect values, was found to be normally distributed.

Constituent: pH Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-103



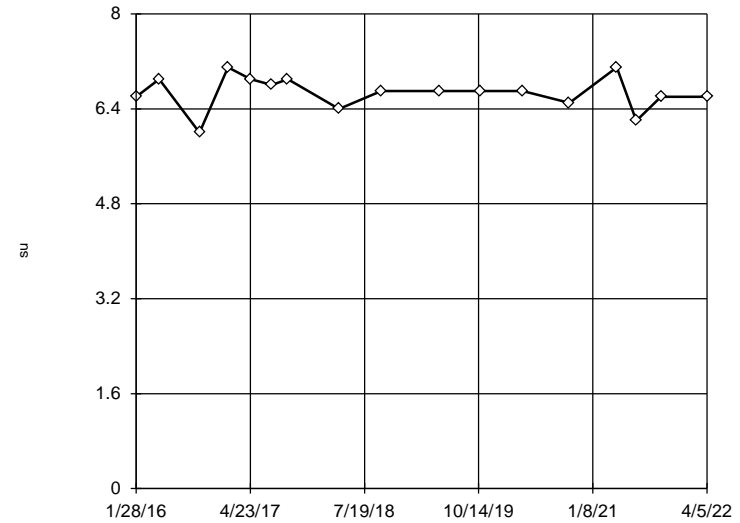
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 6.544, std. dev. 0.1947, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9634  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: pH Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



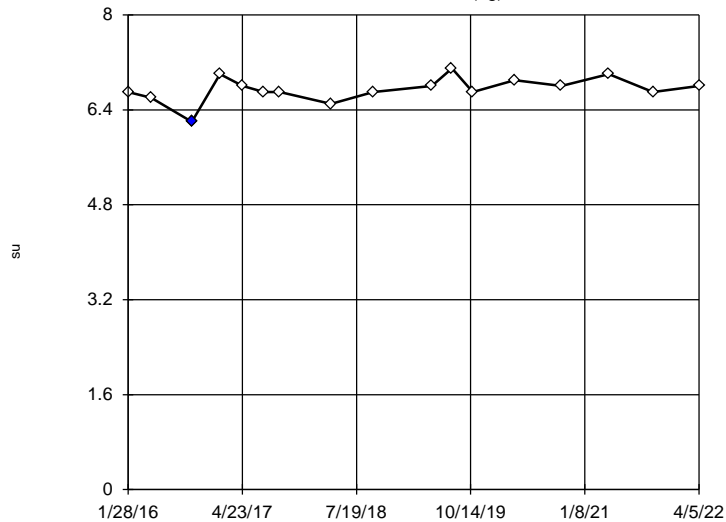
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 6.671, std. dev. 0.2889, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.944  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: pH Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Dixon's Outlier Test

MW-108 (bg)



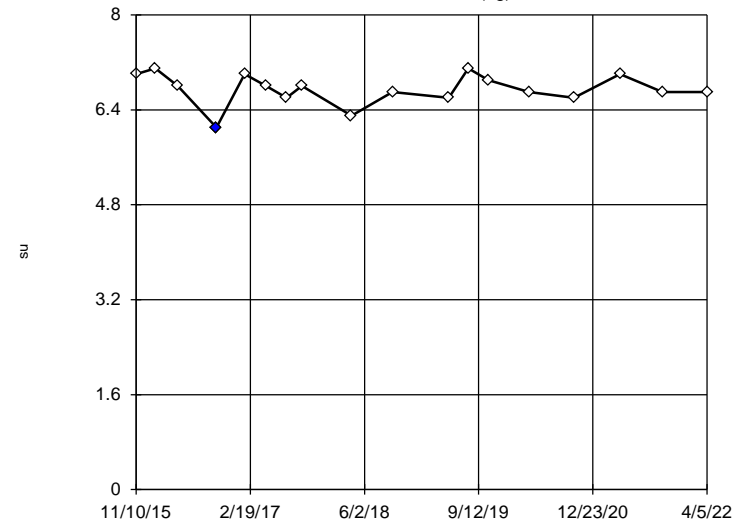
n = 17  
 Statistical outlier is drawn as solid.  
 Testing for 1 low outlier.  
 Mean = 6.747.  
 Std. Dev. = 0.2065.  
 6.2: c = 0.5  
 tab1 = 0.49.  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9289  
 Critical = 0.906  
 The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: pH Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Dixon's Outlier Test

MW-115 (bg)



n = 18  
 Statistical outlier is drawn as solid.  
 Testing for 1 low outlier.  
 Mean = 6.75.  
 Std. Dev. = 0.2618.  
 6.1: c = 0.5556  
 tab1 = 0.475.  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9391  
 Critical = 0.91  
 The distribution, after removal of suspect value, was found to be normally distributed.

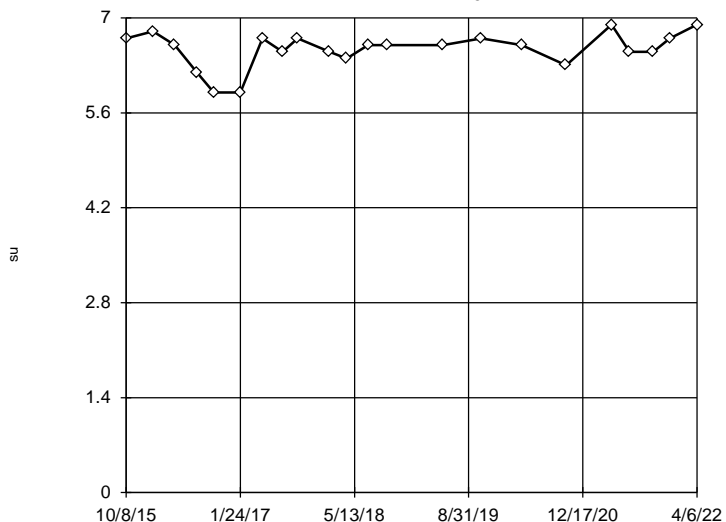
Constituent: pH Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



### Tukey's Outlier Screening

MW-116



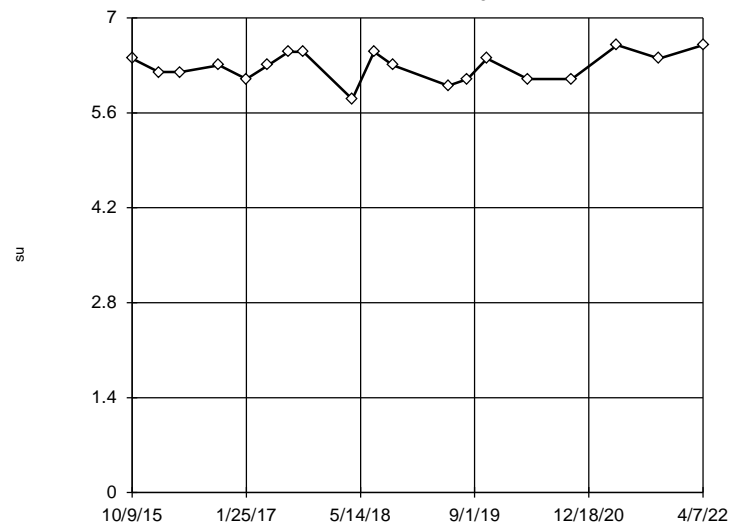
n = 22  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were x\*6 transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 7.253, low cutoff = 5.066, based on IQR multiplier of 3.

Constituent: pH Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-118



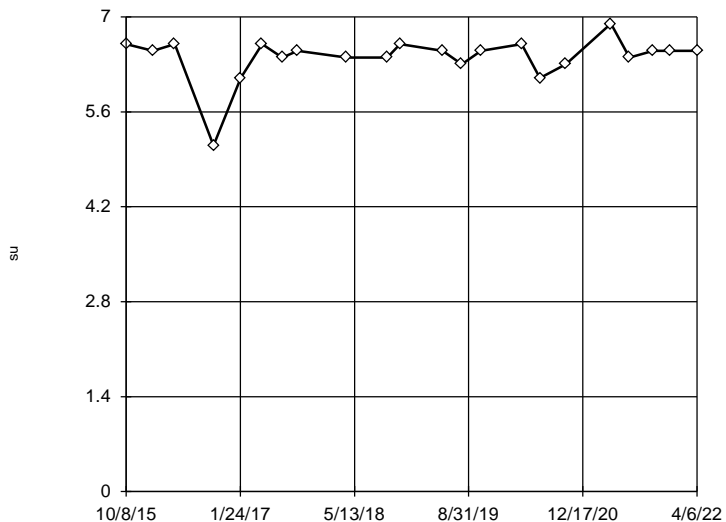
n = 19  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 6.284, std. dev. 0.2167, critical Tn 2.532  
 Normality test used: Shapiro Wilk@alpha = 0.1  
 Calculated = 0.954  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: pH Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-117



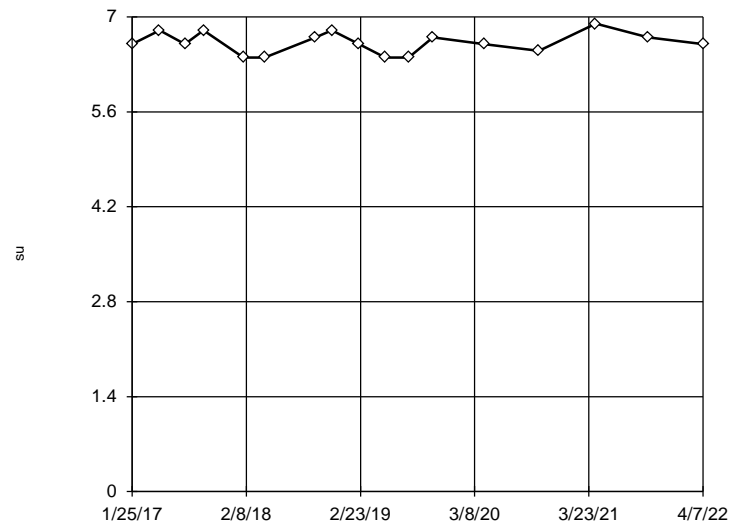
n = 22  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were x\*6 transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 7.151, low cutoff = 4.939, based on IQR multiplier of 3.

Constituent: pH Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-119



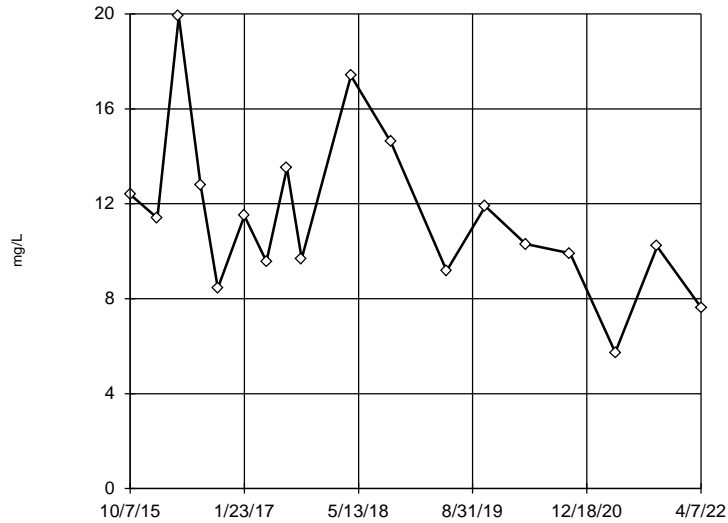
n = 17  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 6.618, std. dev. 0.159, critical Tn 2.475  
 Normality test used: Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9172  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: pH Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-101



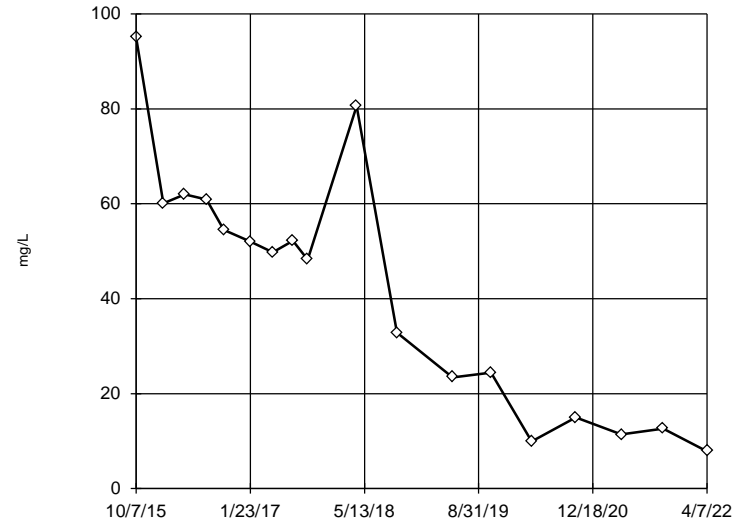
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 11.45, std. dev. 3.407, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9426  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-103



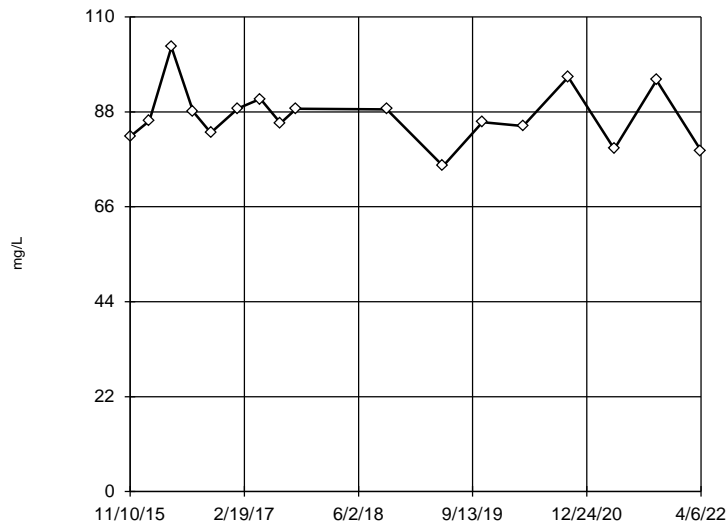
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 41.82, std. dev. 25.79, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9285  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-102



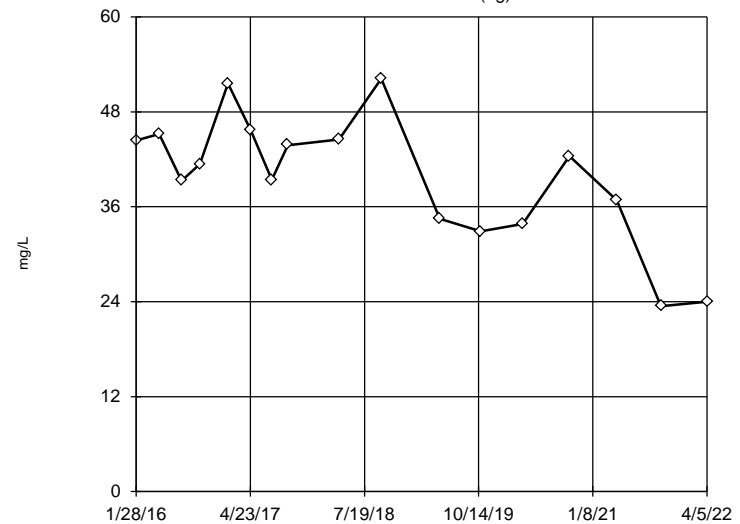
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 87.09, std. dev. 6.788, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9665  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



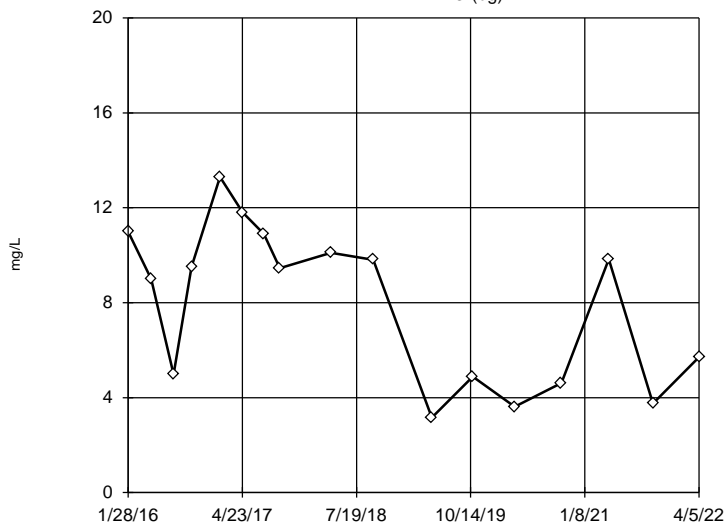
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 39.72, std. dev. 8.159, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.941  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-113 (bg)



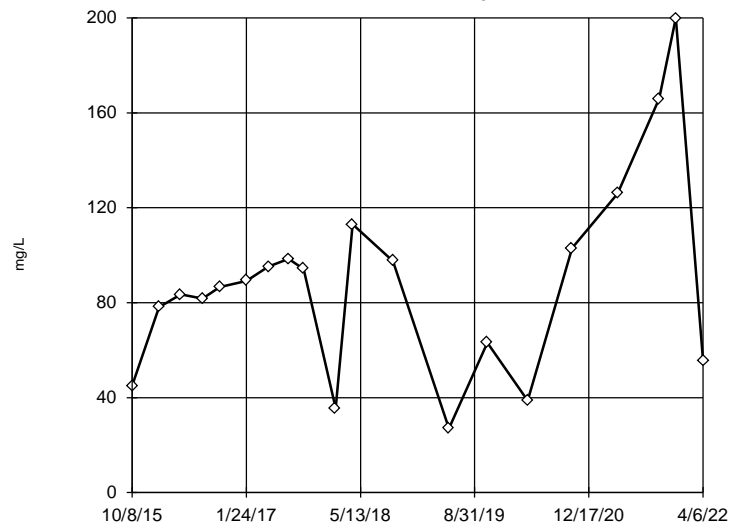
n = 17  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were square transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 19.34, low cutoff = -15.53, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-116



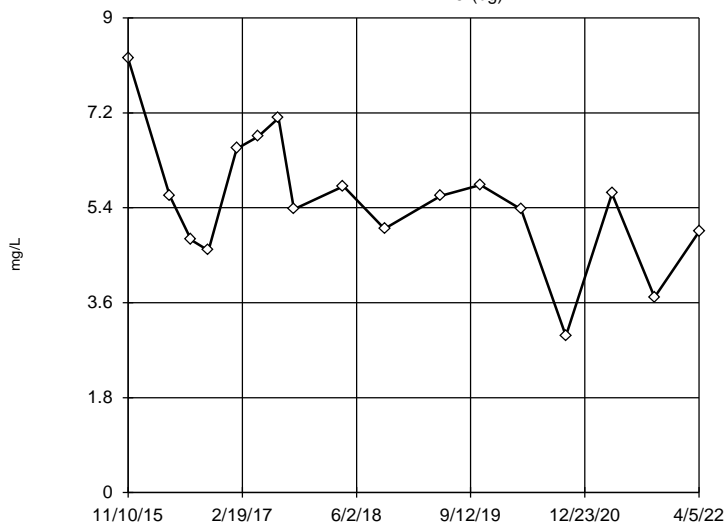
n = 20  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 88.87, std. dev. 42.16, critical Tn 2.557  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.922 Critical = 0.92 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Dixon's Outlier Test

MW-115 (bg)



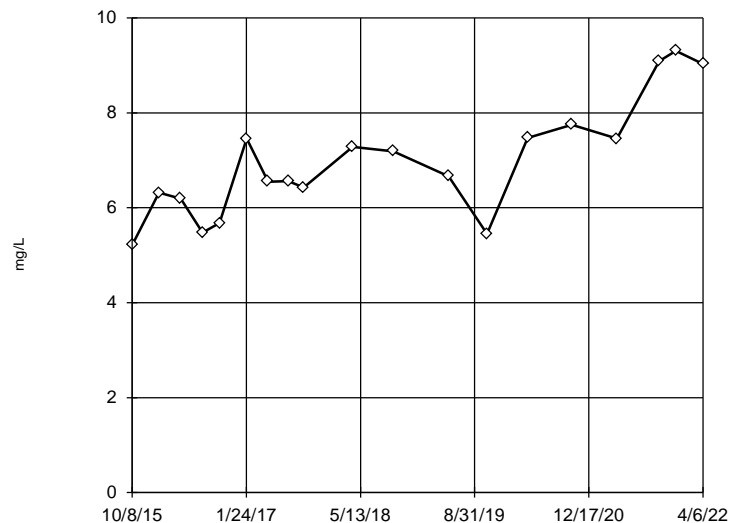
n = 17  
 No statistical outliers. Testing for 1 low outlier. Mean = 5.524. Std. Dev. = 1.236. 2.97 (J); c = 0.4286 tab1 = 0.49. Alpha = 0.05.  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.959 Critical = 0.906 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-117



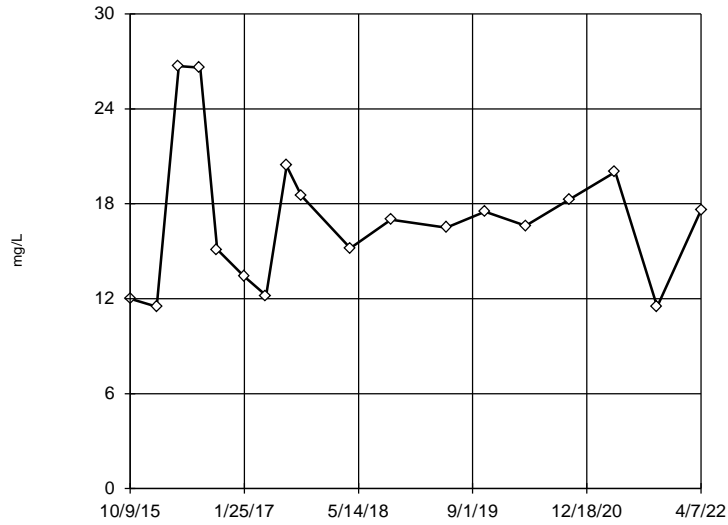
n = 19  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 6.977, std. dev. 1.219, critical Tn 2.532  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9337 Critical = 0.917 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-118



n = 18

Dixon's will not be run.  
No suspect values identified or unable to establish suspect values.  
Mean 17.03, std. dev. 4.473, critical Tn 2.504

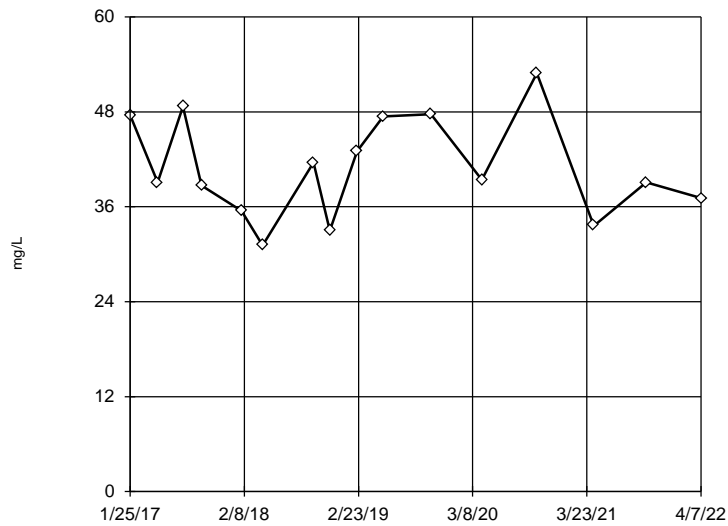
Normality test used:  
Shapiro Wilk@alpha = 0.1  
Calculated = 0.9396  
Critical = 0.914 (after natural log transformation)  
The distribution was found to be log-normal.

Constituent: Sulfate Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-119



n = 16

Dixon's will not be run.  
No suspect values identified or unable to establish suspect values.  
Mean 40.97, std. dev. 6.387, critical Tn 2.443

Normality test used:  
Shapiro Wilk@alpha = 0.1  
Calculated = 0.9542  
Critical = 0.906  
The distribution was found to be normally distributed.

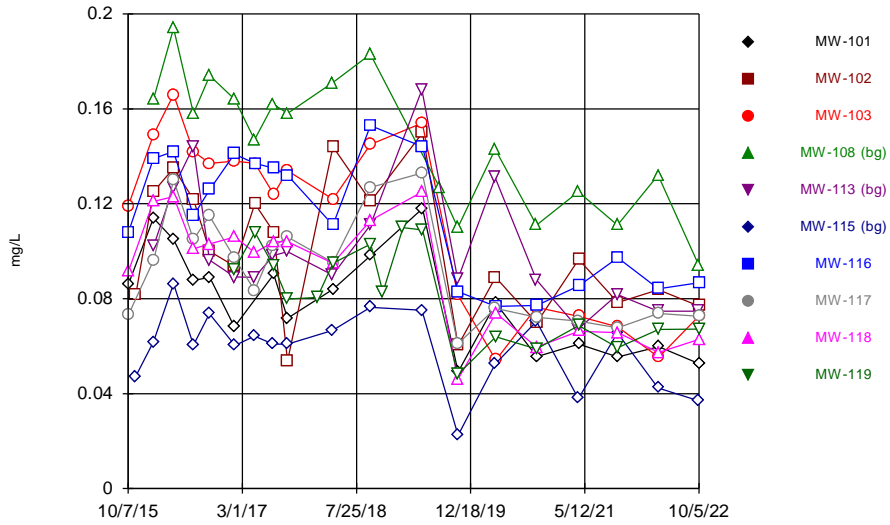
Constituent: Sulfate Analysis Run 5/31/2022 3:57 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

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**Time-Series Plots, Second Half of 2022 Data Set**

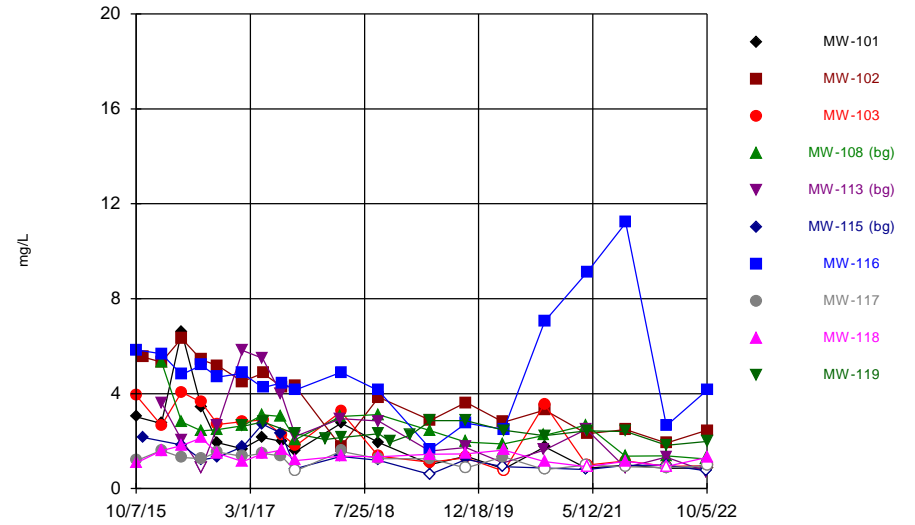
### Time Series



Constituent: Boron Analysis Run 11/7/2022 2:31 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

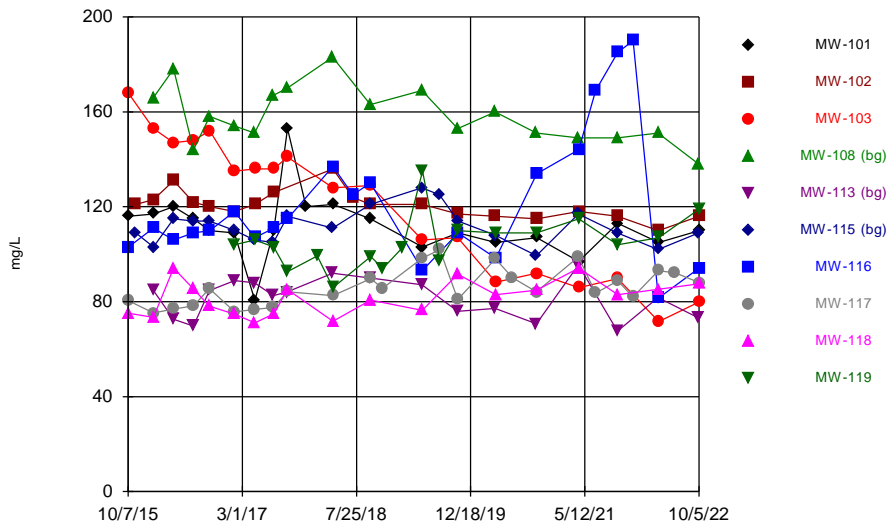
### Time Series



Constituent: Chloride Analysis Run 11/7/2022 2:31 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

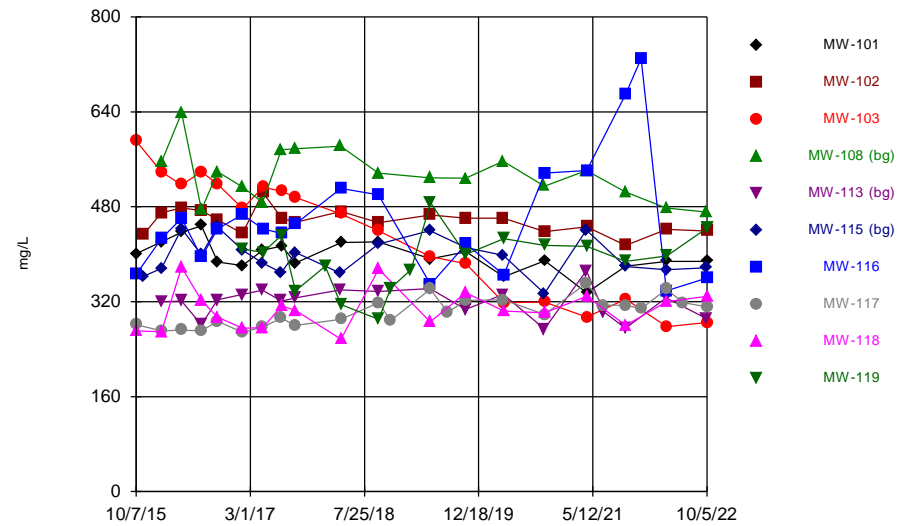
### Time Series



Constituent: Calcium Analysis Run 11/7/2022 2:31 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

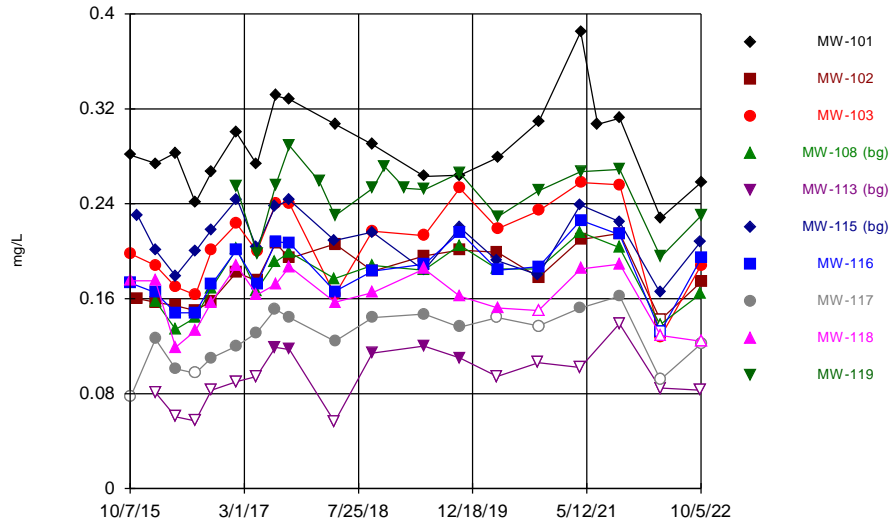
### Time Series



Constituent: Dissolved Solids Analysis Run 11/7/2022 2:31 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

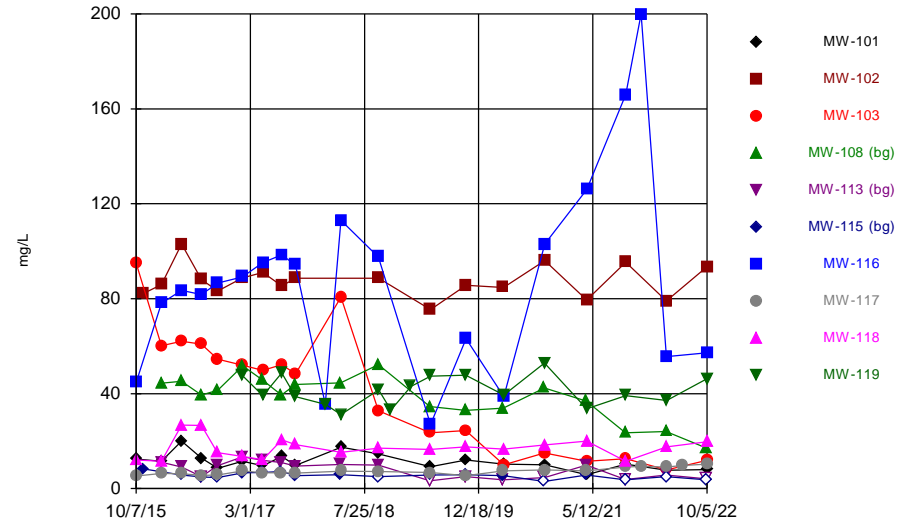
### Time Series



Constituent: Fluoride Analysis Run 11/7/2022 2:31 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

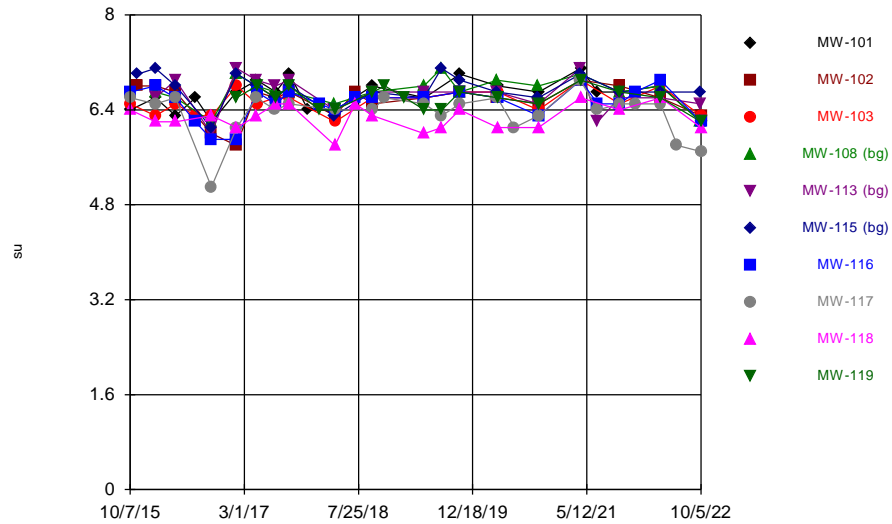
### Time Series



Constituent: Sulfate Analysis Run 11/7/2022 2:31 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Time Series



Constituent: pH Analysis Run 11/7/2022 2:31 PM

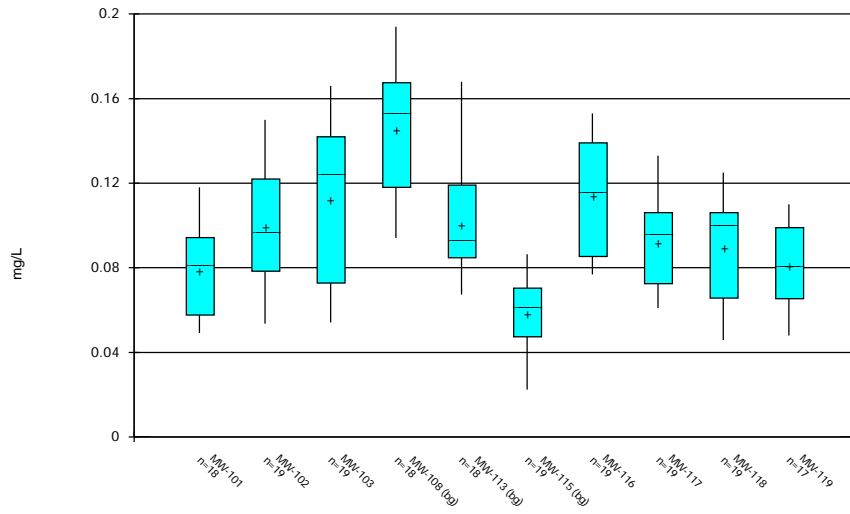
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

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**Box-and-Whisker Plots, Second Half of 2022 Data Set**



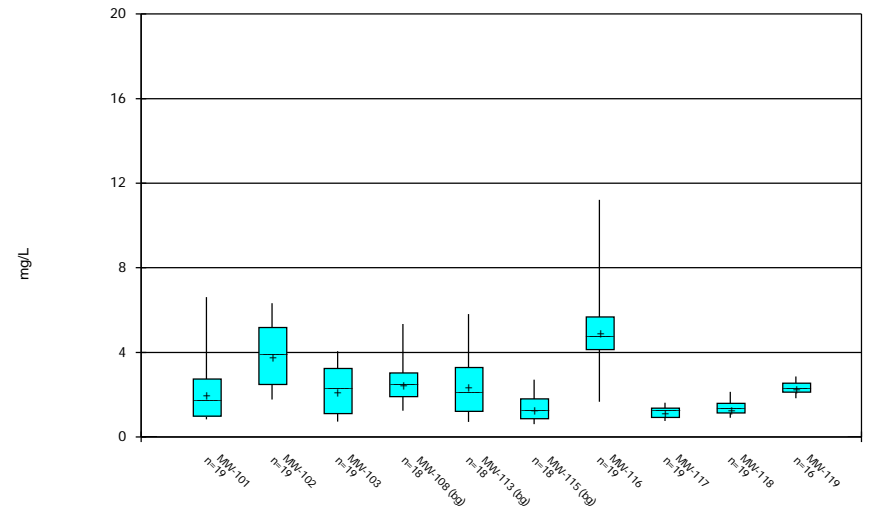
### Box & Whiskers Plot



Constituent: Boron Analysis Run 11/7/2022 2:33 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

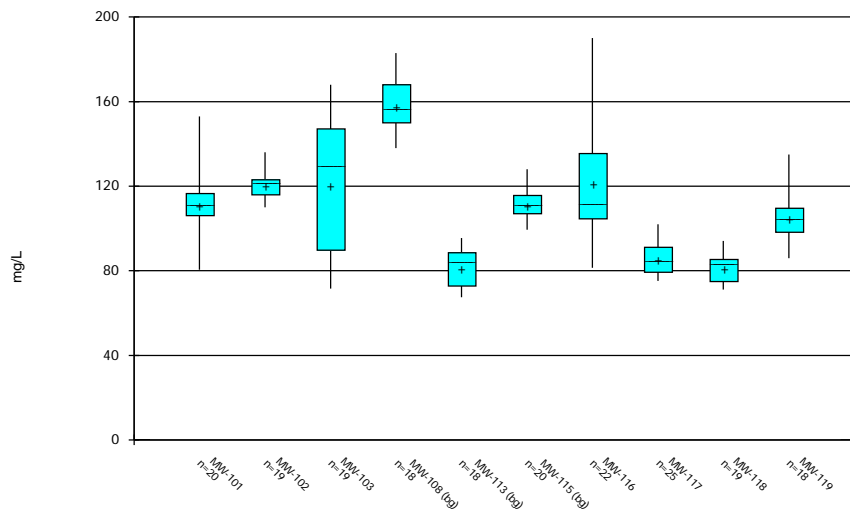
### Box & Whiskers Plot



Constituent: Chloride Analysis Run 11/7/2022 2:33 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

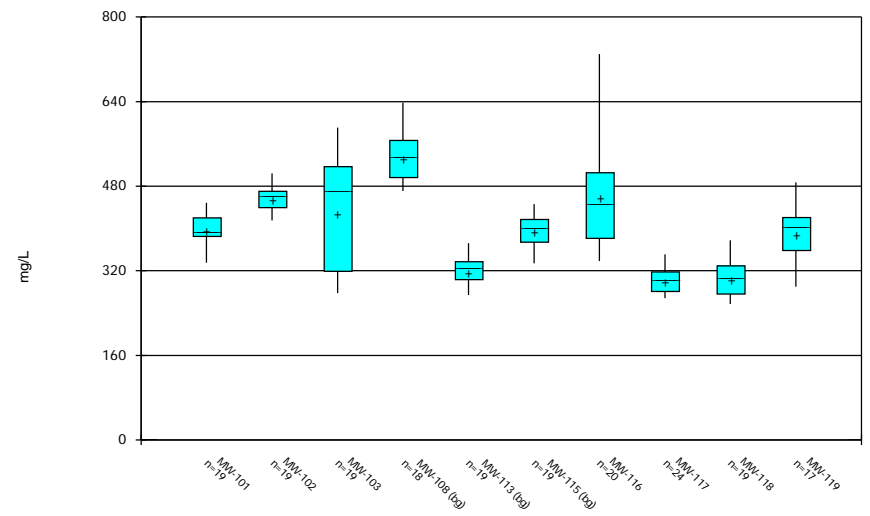
### Box & Whiskers Plot



Constituent: Calcium Analysis Run 11/7/2022 2:33 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

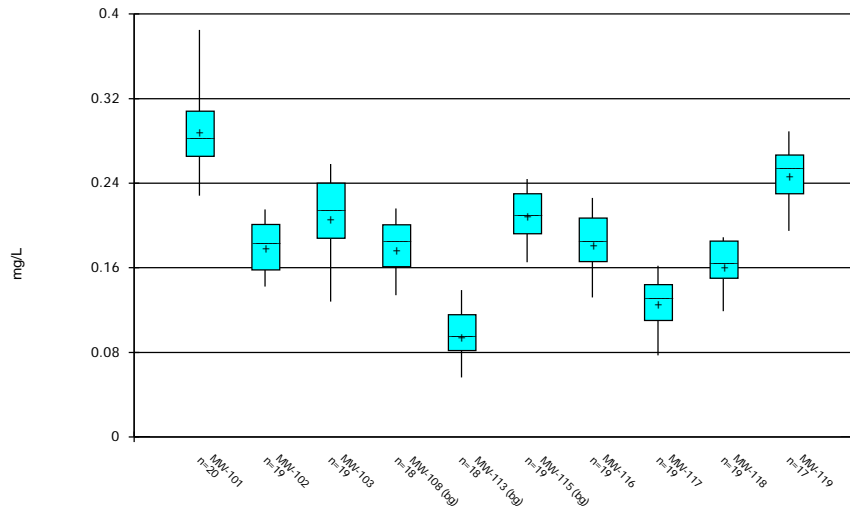
### Box & Whiskers Plot



Constituent: Dissolved Solids Analysis Run 11/7/2022 2:33 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

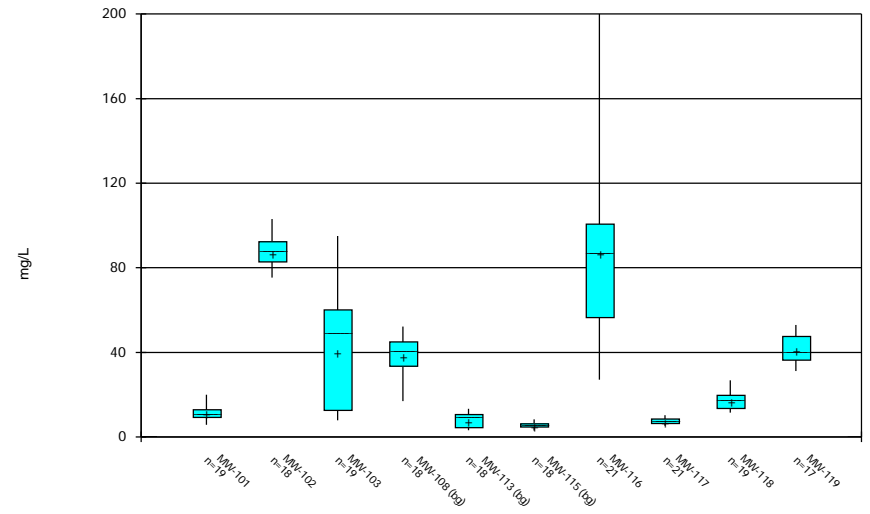
### Box & Whiskers Plot



Constituent: Fluoride Analysis Run 11/7/2022 2:33 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

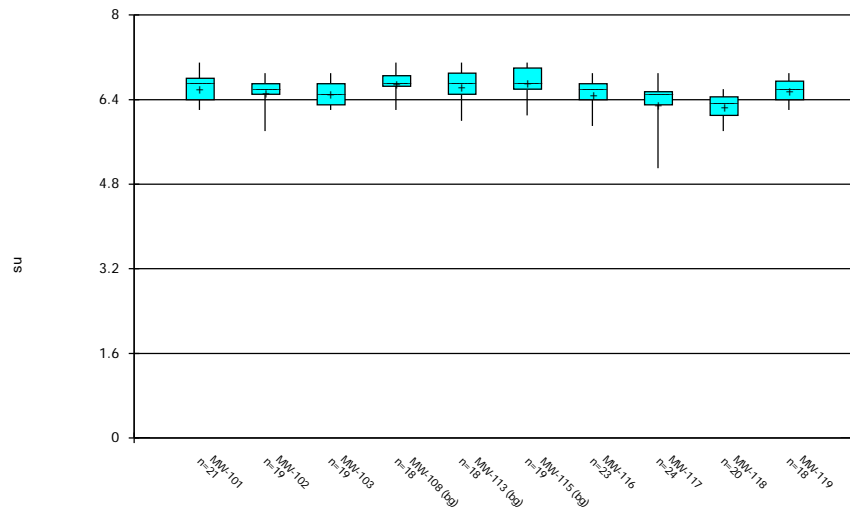
### Box & Whiskers Plot



Constituent: Sulfate Analysis Run 11/7/2022 2:33 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Box & Whiskers Plot



Constituent: pH Analysis Run 11/7/2022 2:33 PM

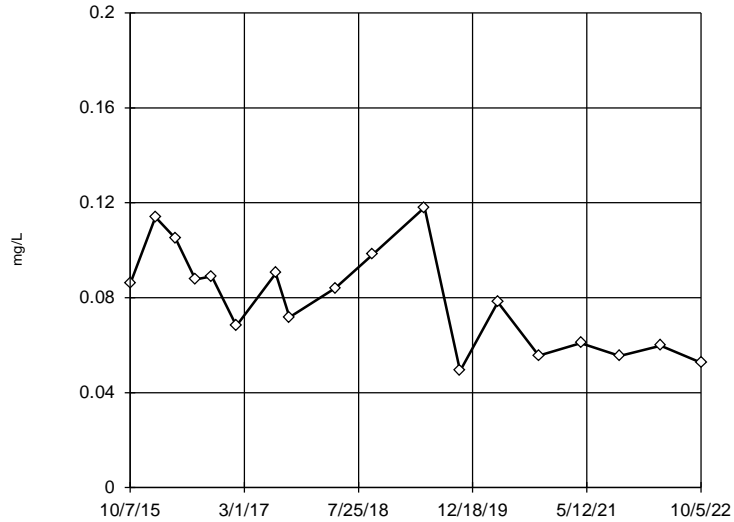
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

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**Outlier Plots, Period-of-Record Data through Second Half of 2022**

### EPA Screening (suspected outliers for Dixon's Test)

MW-101



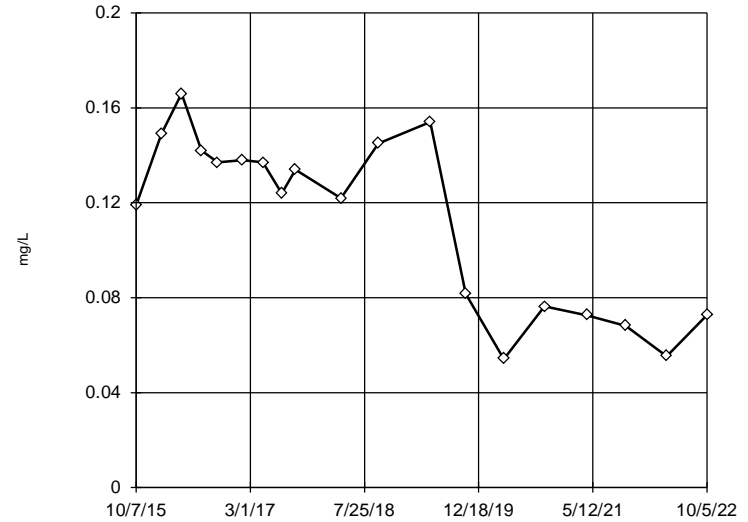
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.07906, std. dev. 0.02132, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9472  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-103



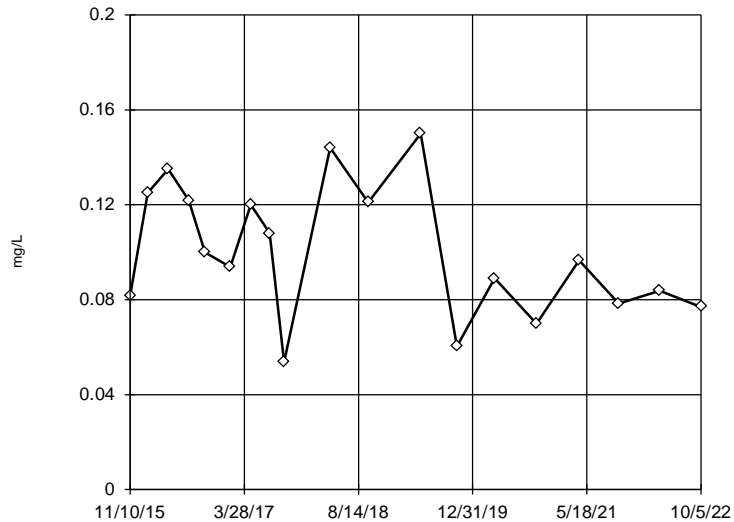
n = 19  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were cube transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.2176,  
 low cutoff = -0.1918,  
 based on IQR multiplier of 3.

Constituent: Boron Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-102



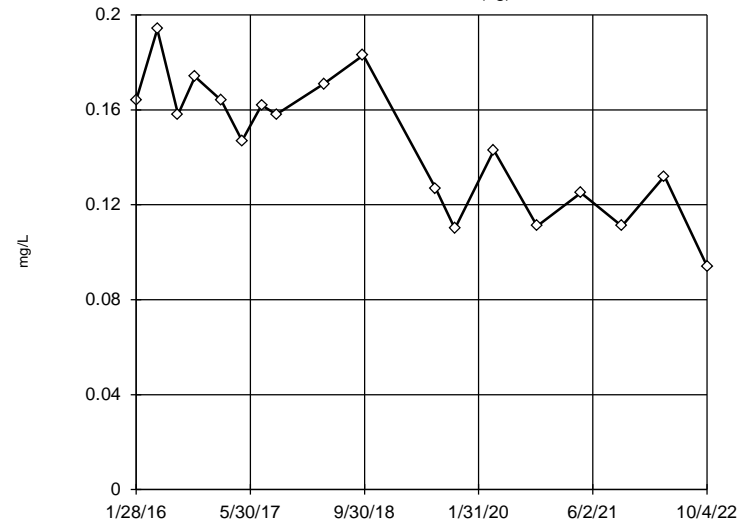
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1005, std. dev. 0.02797, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9701  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



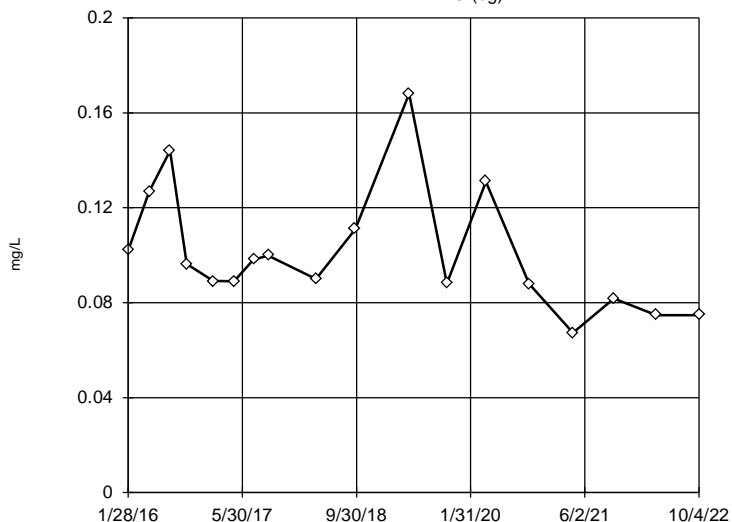
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.146, std. dev. 0.02841, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9614  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



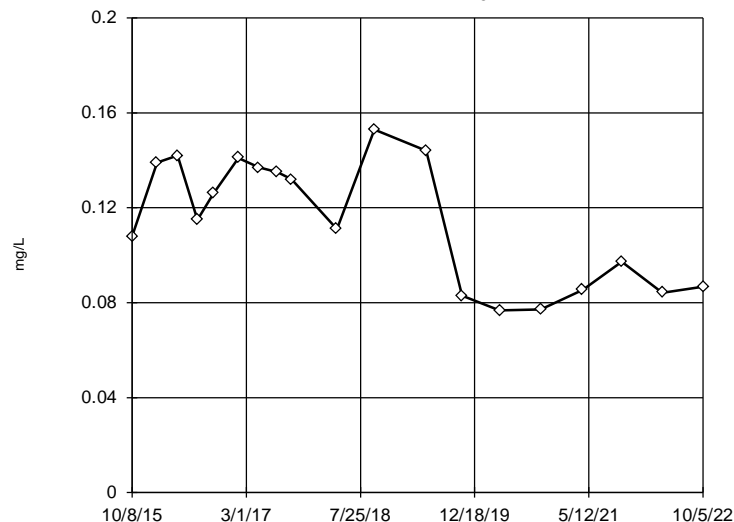
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1011, std. dev. 0.02622, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9486  
 Critical = 0.914 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Boron Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-116



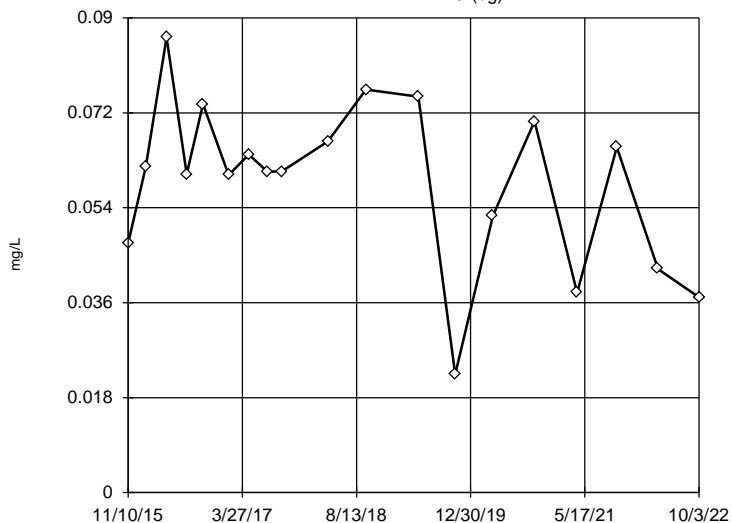
n = 19  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were cube transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.207, low cutoff = -0.1772, based on IQR multiplier of 3.

Constituent: Boron Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Dixon's Outlier Test

MW-115 (bg)



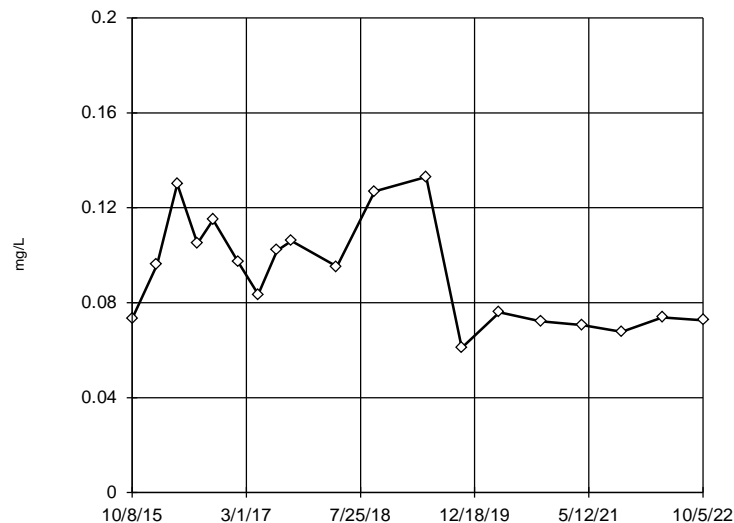
n = 19  
 No statistical outliers.  
 Testing for 1 low outlier.  
 Mean = 0.05903.  
 Std. Dev. = 0.01585.  
 0.0224 (J); c = 0.2941  
 tabl = 0.462.  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9577  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-117



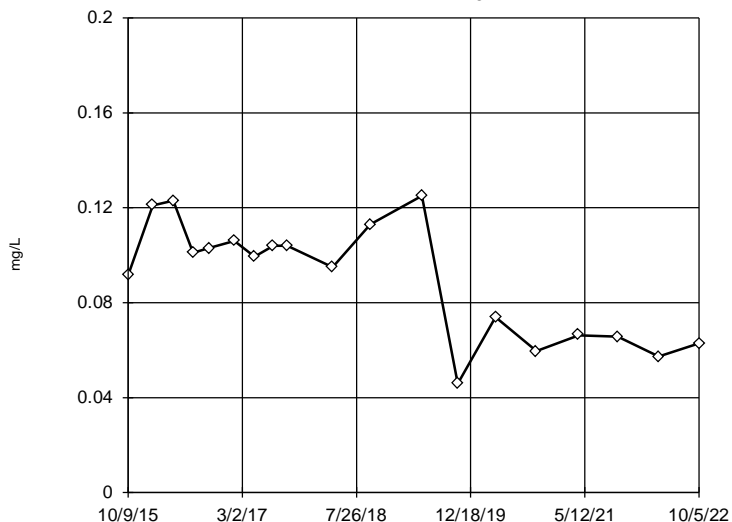
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.09245, std. dev. 0.0226, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9182  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-118



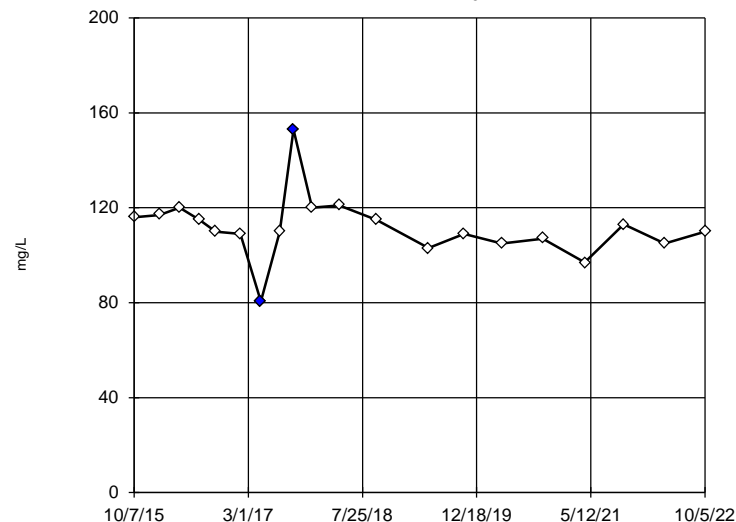
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.09038, std. dev. 0.02466, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9213  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Dixon's Outlier Test

MW-101



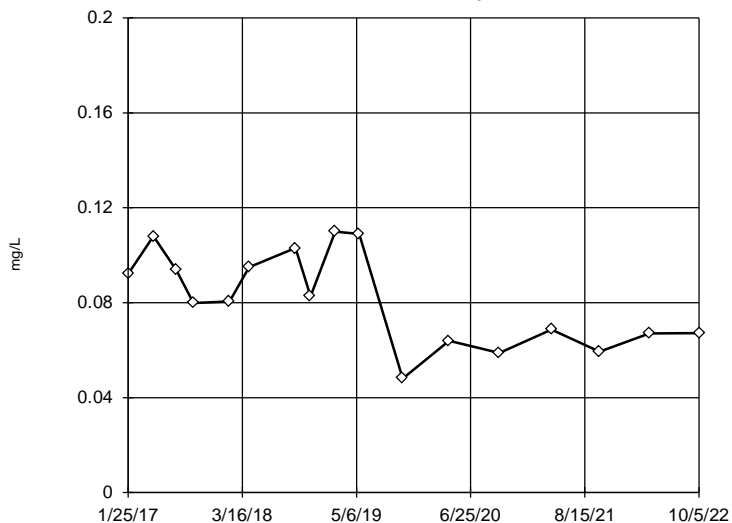
n = 20  
 Statistical outliers are drawn as solid.  
 Testing for 1 high and 1 low outliers.  
 Mean = 111.8,  
 Std. Dev. = 13.38,  
 153: c = 0.66  
 tab1 = 0.45,  
 80.5: c = 0.5696  
 tab1 = 0.45,  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9655  
 Critical = 0.914  
 The distribution, after removal of suspect values, was found to be normally distributed.

Constituent: Calcium Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-119



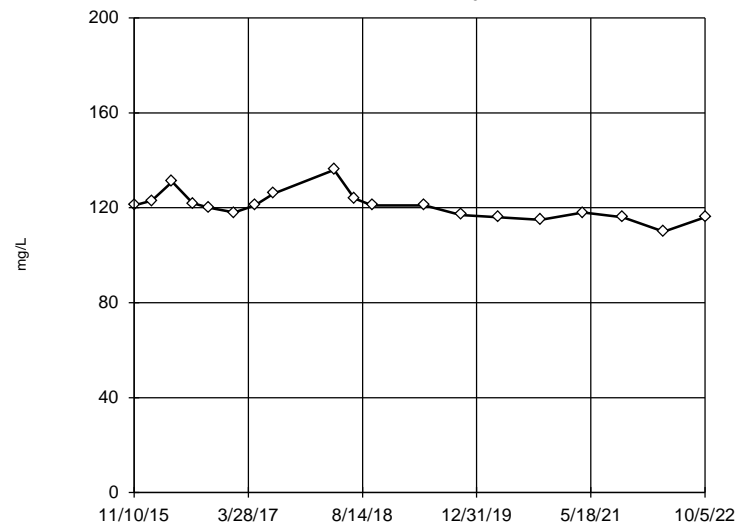
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.08156, std. dev. 0.01968, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9407  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Boron Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-102



n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 120.6, std. dev. 5.909, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9287  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-103



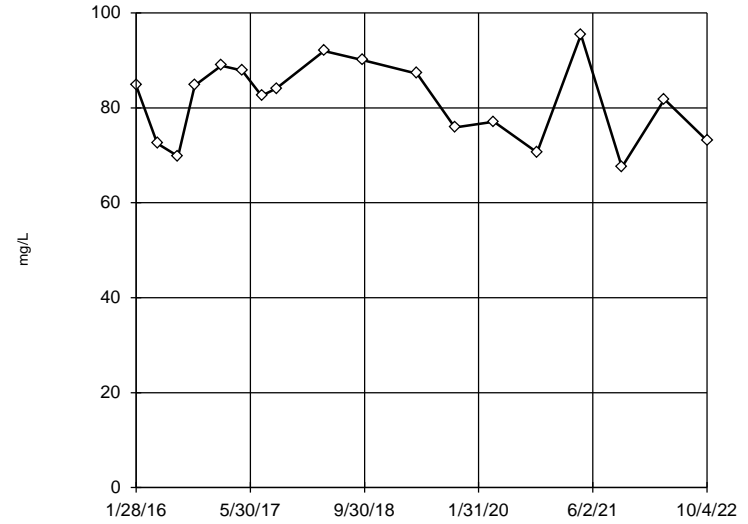
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 120.7, std. dev. 29.3, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.927  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



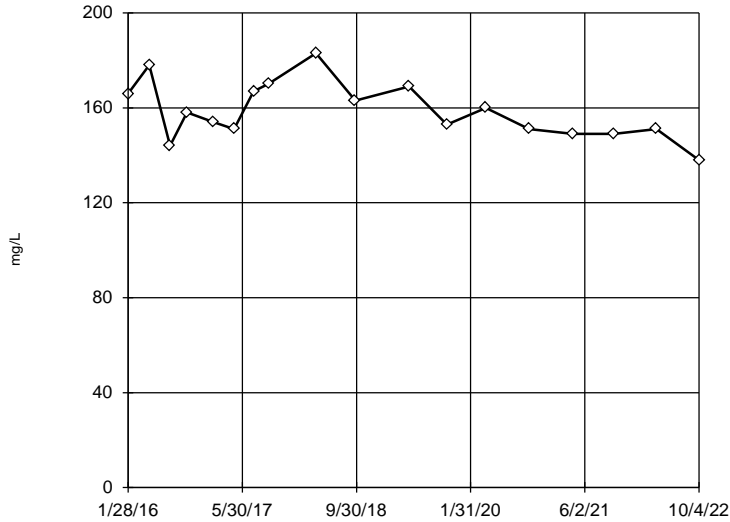
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 81.43, std. dev. 8.353, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.954  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



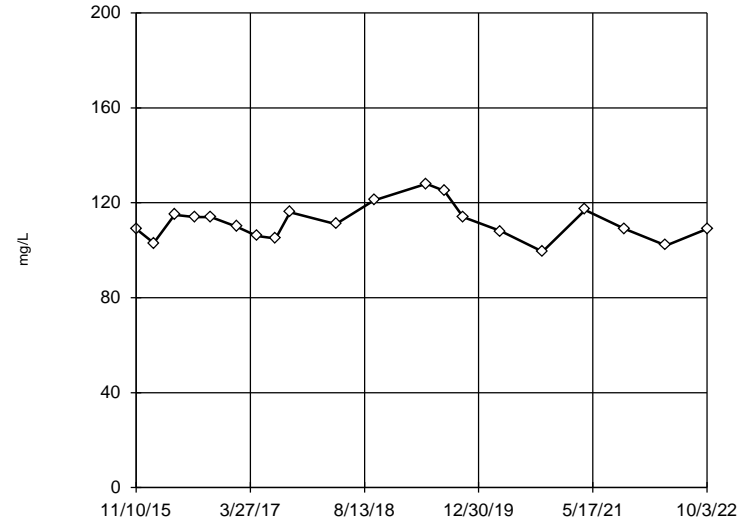
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 158.6, std. dev. 11.89, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9668  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-115 (bg)



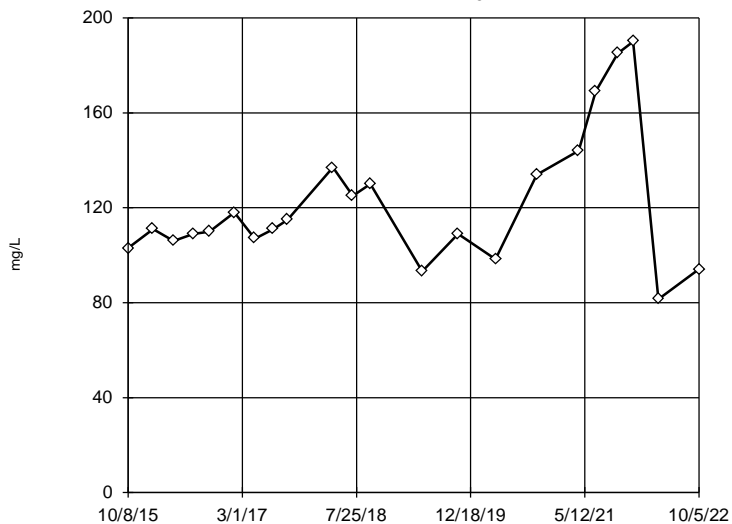
n = 20  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 111.8, std. dev. 7.397, critical Tn 2.557  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9696  
 Critical = 0.92  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-116



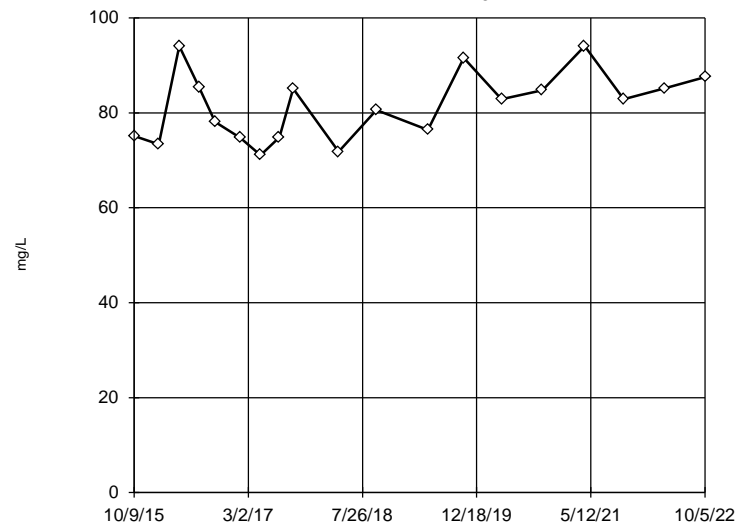
n = 22  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 121.8, std. dev. 28.6, critical Tn 2.603  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9349  
 Critical = 0.926 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Calcium Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-118



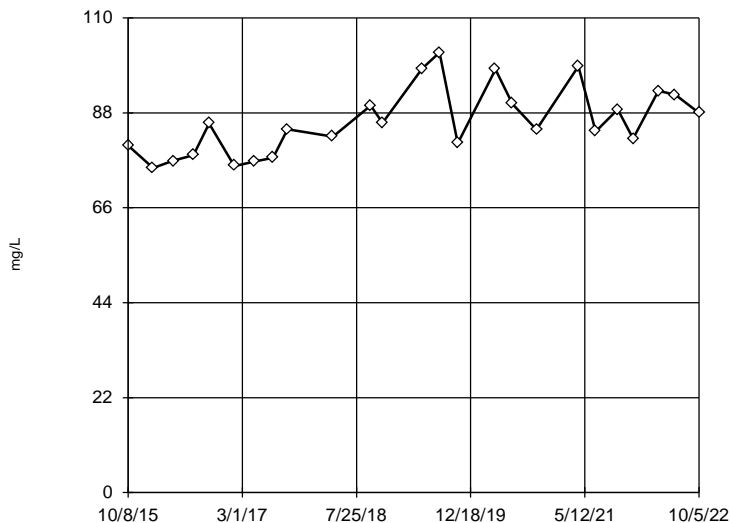
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 81.56, std. dev. 7.261, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9394  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Rosner's Test)

MW-117



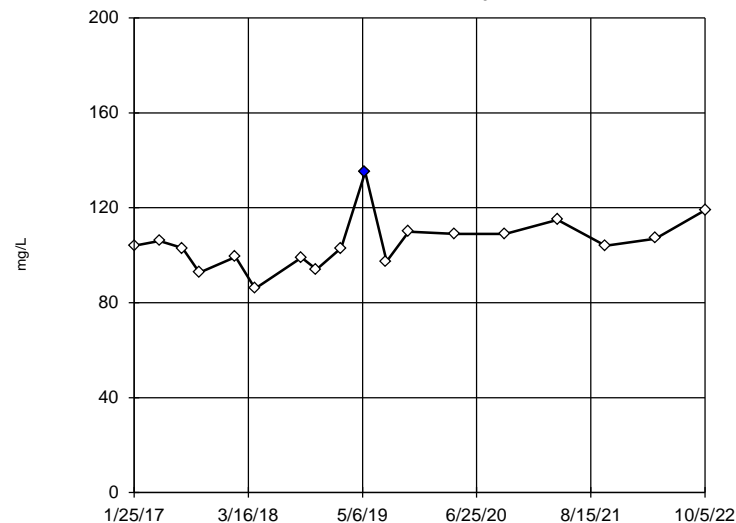
n = 25  
 Rosner's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 85.94, std. dev. 7.827, critical Tn 2.663  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9418  
 Critical = 0.931  
 The distribution was found to be normally distributed.

Constituent: Calcium Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Dixon's Outlier Test

MW-119



n = 18  
 Statistical outlier is drawn as solid.  
 Testing for 1 high outlier.  
 Mean = 105.1.  
 Std. Dev. = 10.93.  
 135: c = 0.4878  
 tab1 = 0.475.  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9871  
 Critical = 0.91  
 The distribution, after removal of suspect value, was found to be normally distributed.

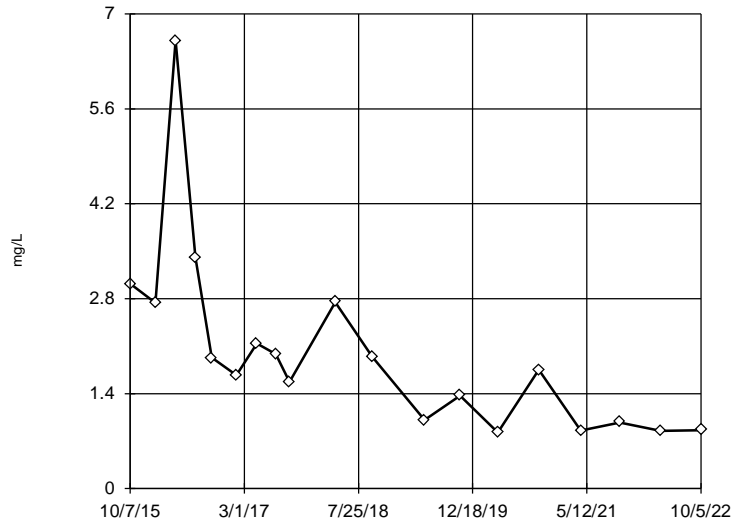
Constituent: Calcium Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



### EPA Screening (suspected outliers for Dixon's Test)

MW-101



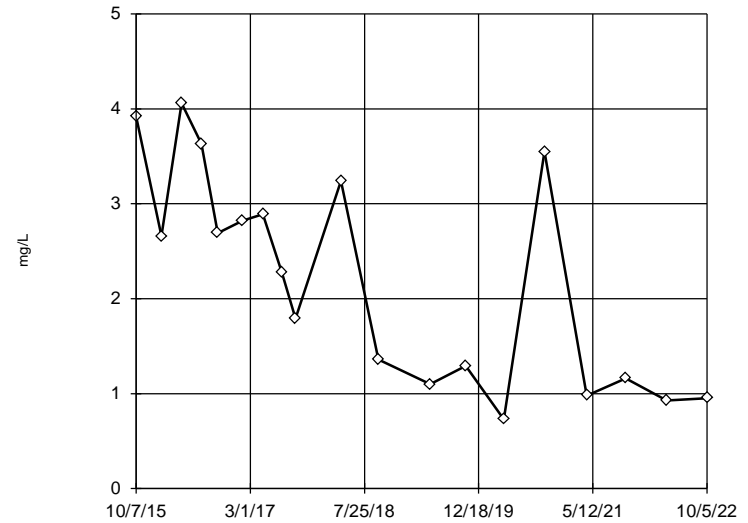
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 2.013, std. dev. 1.365, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9352  
 Critical = 0.917 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Chloride Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-103



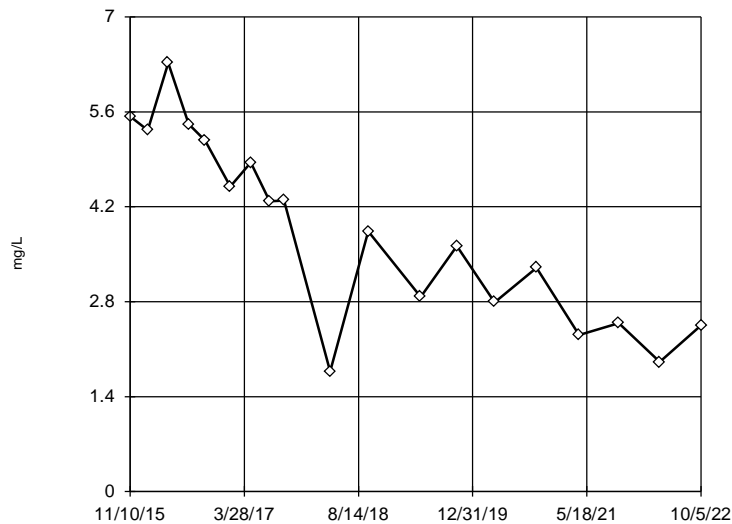
n = 19  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 16.43, low cutoff = -1.451, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-102



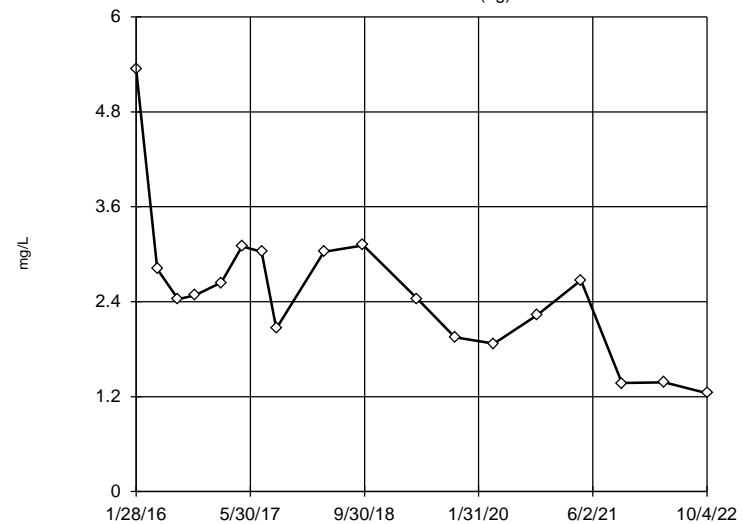
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 3.844, std. dev. 1.372, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9536  
 Critical = 0.917 (after natural log transformation)  
 The distribution was found to be normally distributed.

Constituent: Chloride Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



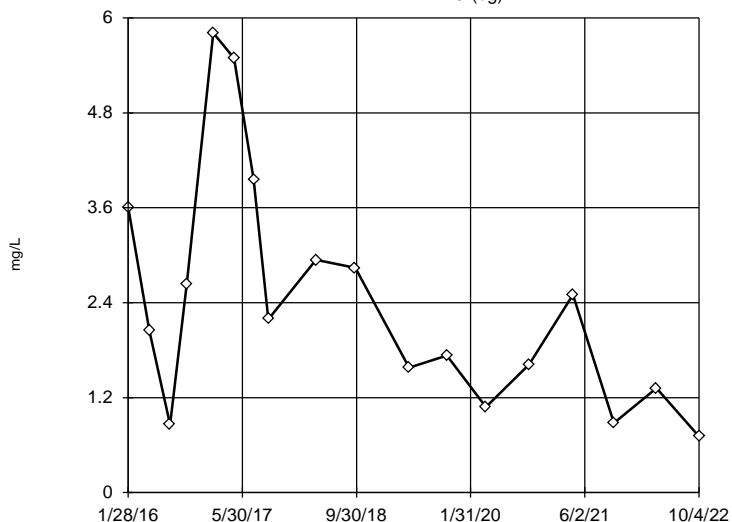
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 2.51, std. dev. 0.9266, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9415  
 Critical = 0.914 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Chloride Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



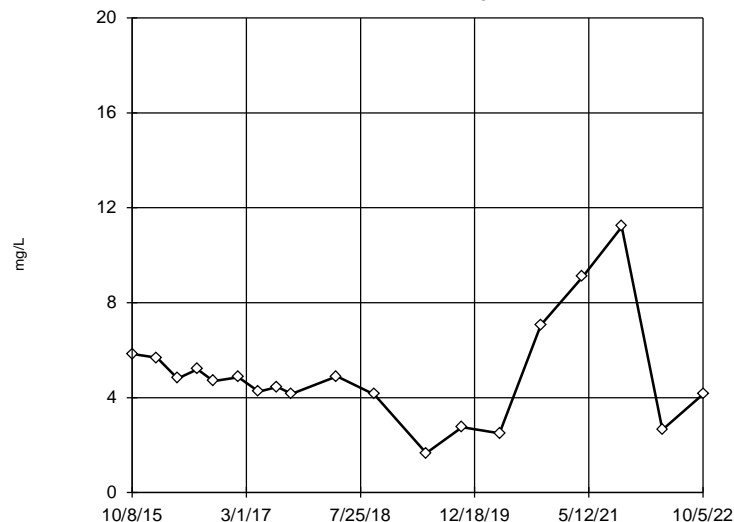
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 2.433, std. dev. 1.495, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9734  
 Critical = 0.914 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Chloride Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-116



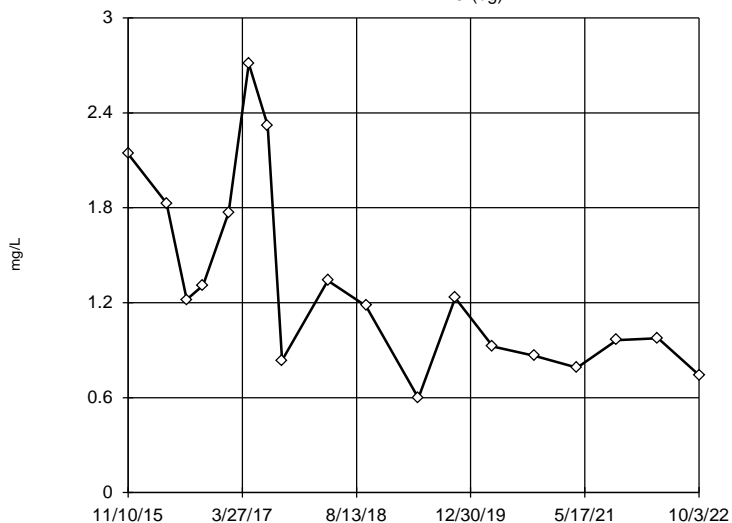
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 4.946, std. dev. 2.258, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9545  
 Critical = 0.917 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Chloride Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-115 (bg)



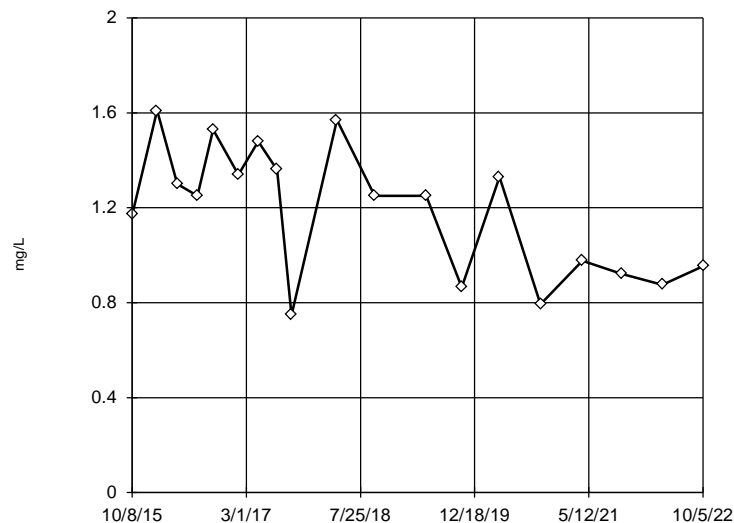
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 1.319, std. dev. 0.5985, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9615  
 Critical = 0.914 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Chloride Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-117



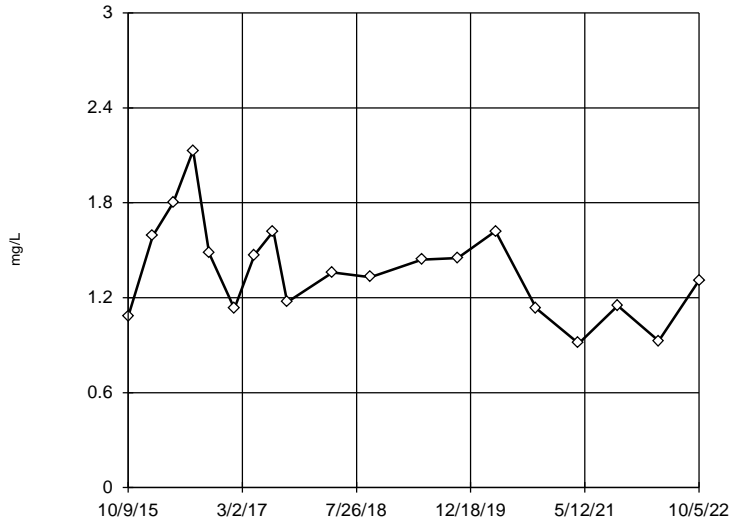
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 1.188, std. dev. 0.2737, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9359  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Chloride Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-118



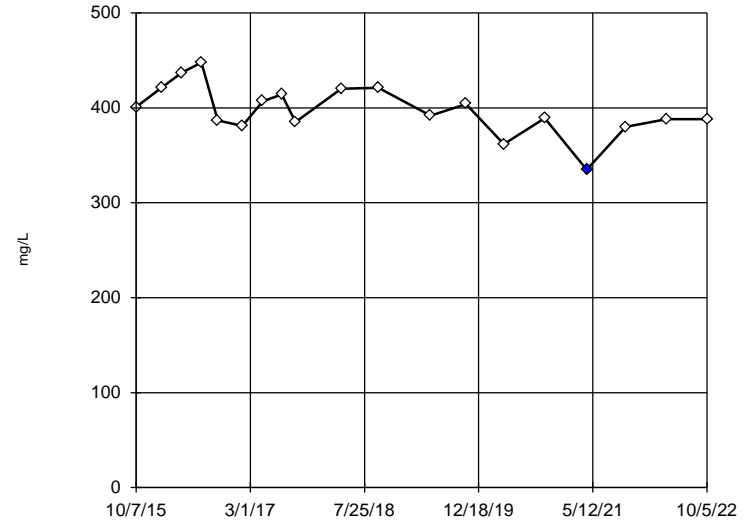
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 1.374, std. dev. 0.3046, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9584  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Chloride Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Dixon's Outlier Test

MW-101



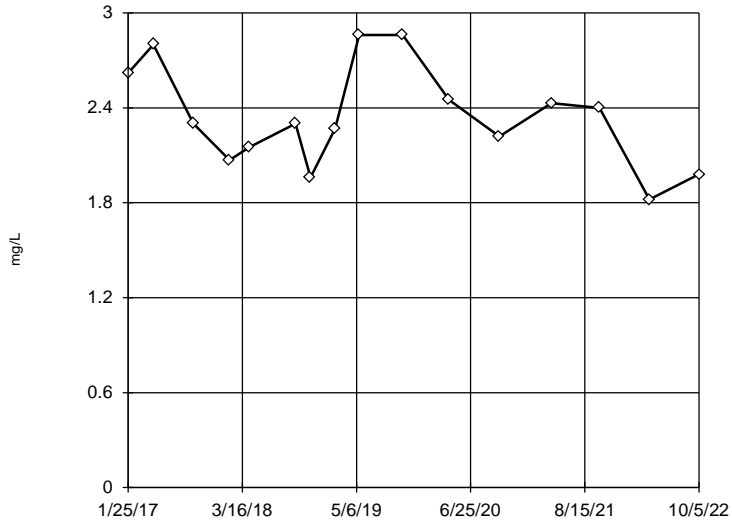
n = 19  
 Statistical outlier is drawn as solid.  
 Testing for 1 low outlier.  
 Mean = 397.9  
 Std. Dev. = 26.28  
 335: c = 0.5233  
 tab1 = 0.462  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9575  
 Critical = 0.914  
 The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-119



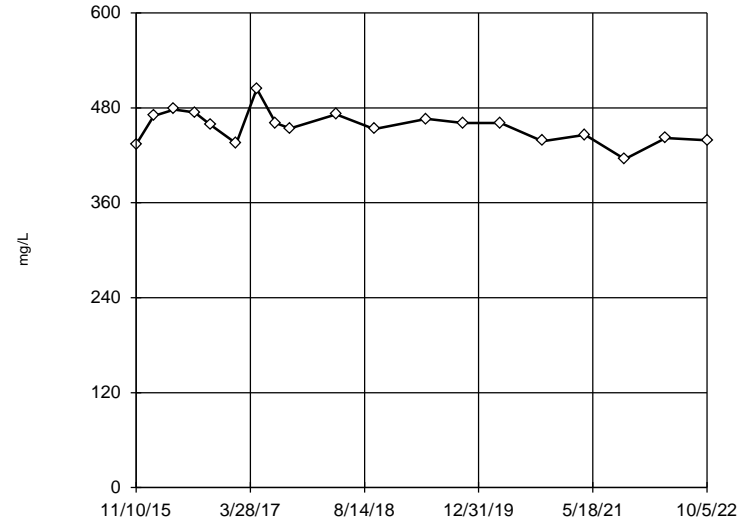
n = 16  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 2.343, std. dev. 0.3194, critical Tn 2.443  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9528  
 Critical = 0.906  
 The distribution was found to be normally distributed.

Constituent: Chloride Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-102



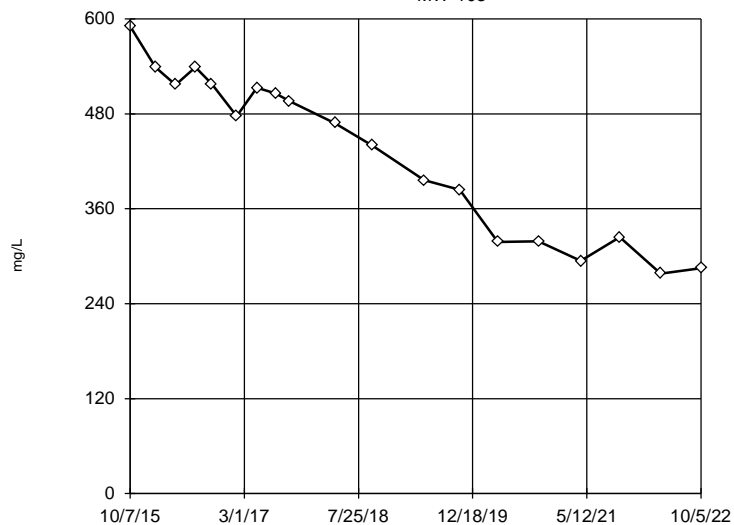
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 455.8, std. dev. 20.1, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.976  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 11/7/2022 2:34 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-103



n = 19

No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.

Data were cube transformed to achieve best W statistic (graph shown in original units).

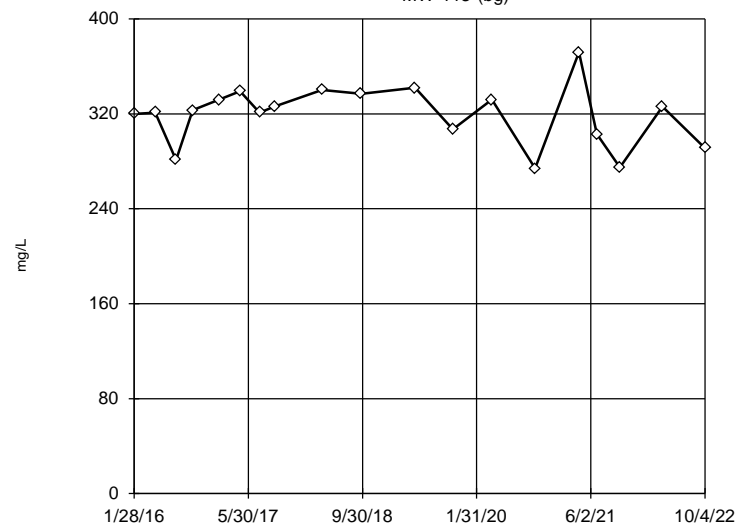
High cutoff = 769.3, low cutoff = -657.9, based on IQR multiplier of 3.

Constituent: Dissolved Solids Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



n = 19

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 319.1, std. dev. 25.33, critical Tn 2.532

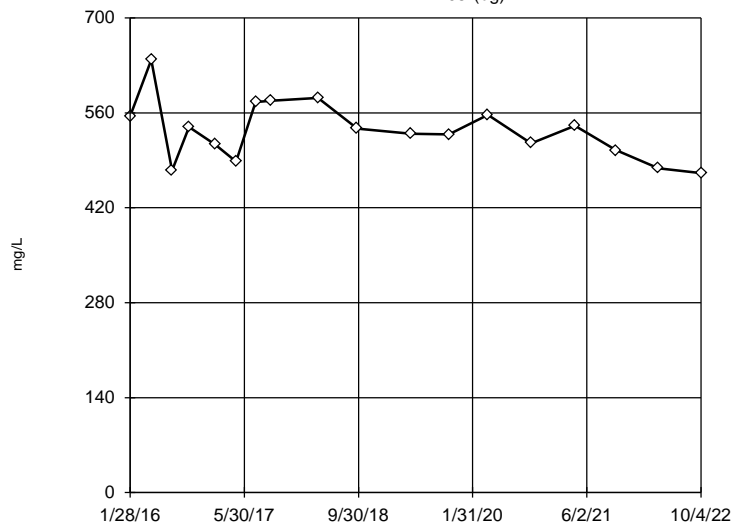
Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.938 Critical = 0.917 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



n = 18

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 533.6, std. dev. 43.57, critical Tn 2.504

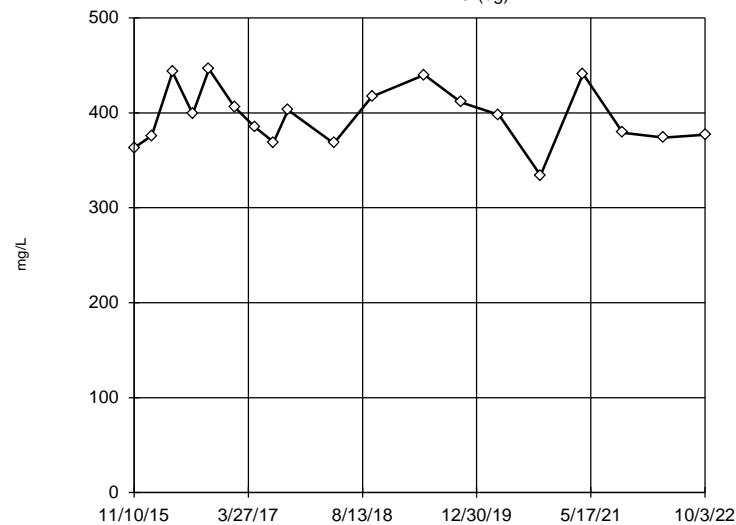
Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9587 Critical = 0.914 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-115 (bg)



n = 19

Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 396.3, std. dev. 31.27, critical Tn 2.532

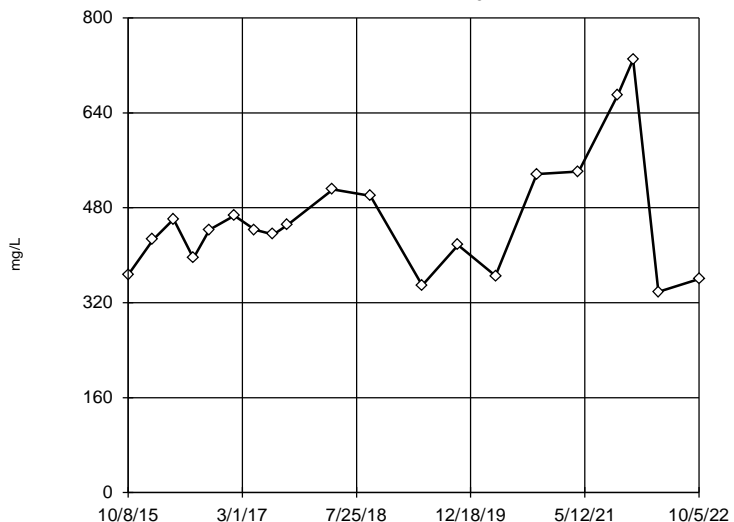
Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9474 Critical = 0.917 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-116



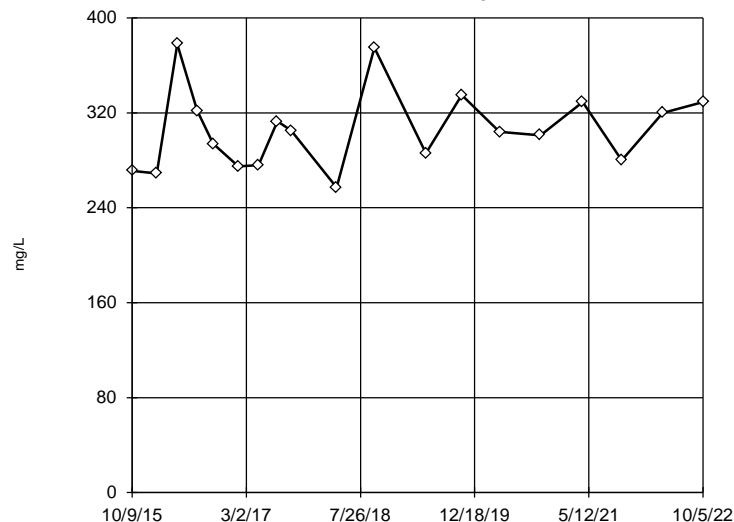
n = 20  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 460.3, std. dev. 101.9, critical Tn 2.557  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9396  
 Critical = 0.92 (after natural log transformation)  
 The distribution was found to be log-normal.

Constituent: Dissolved Solids Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-118



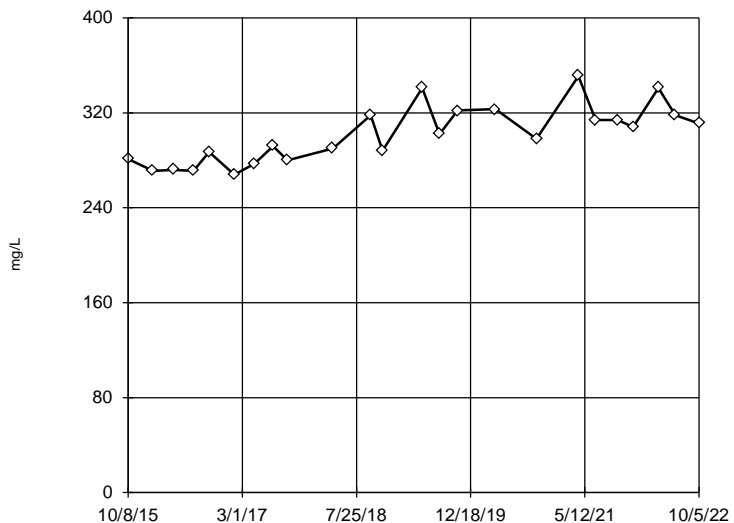
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 306.3, std. dev. 33.71, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9371  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Rosner's Test)

MW-117



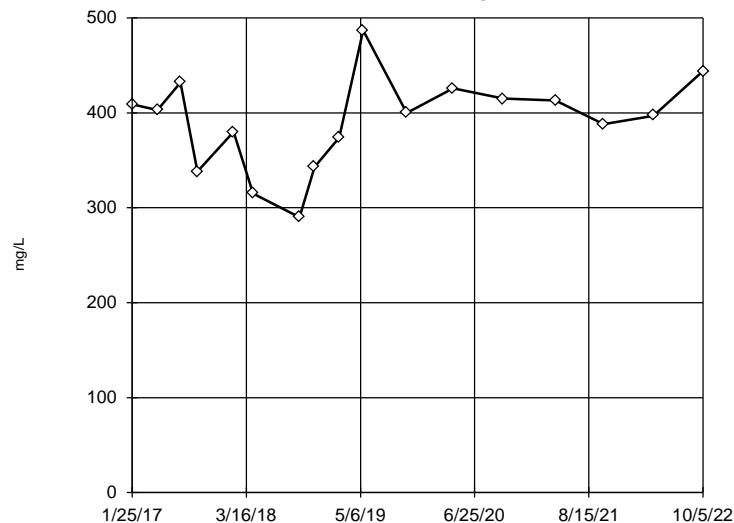
n = 24  
 Rosner's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 301.6, std. dev. 24.14, critical Tn 2.644  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9465  
 Critical = 0.93  
 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-119



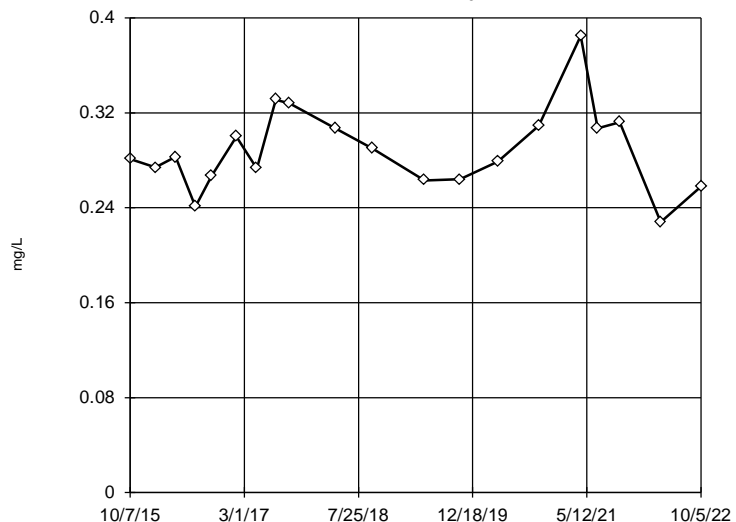
n = 17  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 391.4, std. dev. 48.79, critical Tn 2.475  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9692  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-101



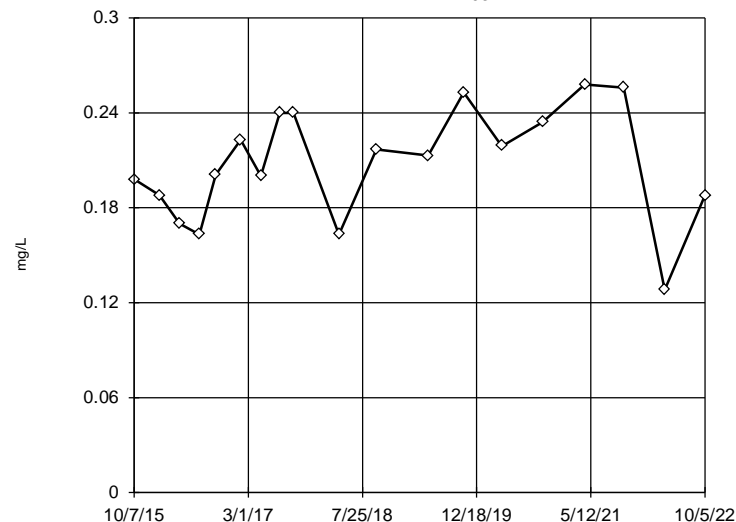
n = 20  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.289, std. dev. 0.03528, critical Tn 2.557  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9526  
 Critical = 0.92  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Dixon's Outlier Test

MW-103



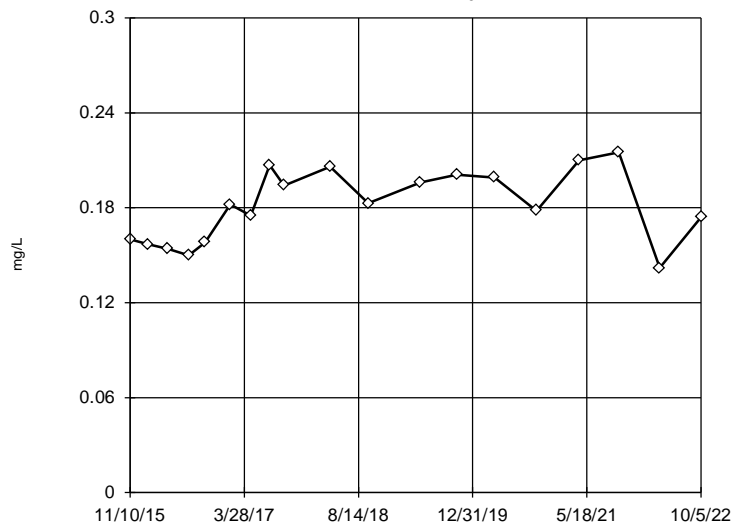
n = 19  
 No statistical outliers.  
 Testing for 1 low outlier.  
 Mean = 0.208,  
 Std. Dev. = 0.03568,  
 0.128 (J); c = 0.28  
 tab1 = 0.462,  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9493  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-102



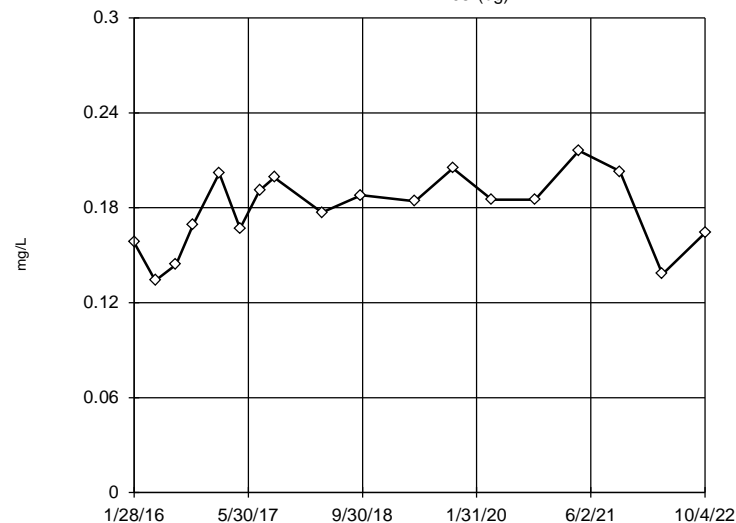
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1811, std. dev. 0.0227, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9435  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-108 (bg)



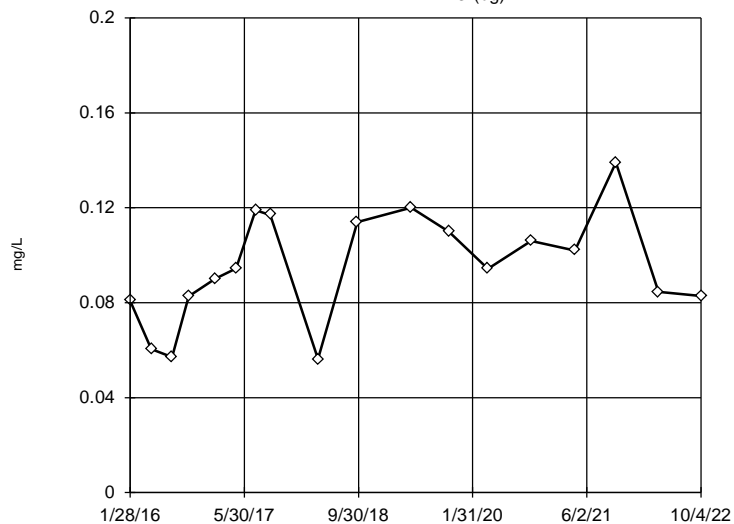
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1783, std. dev. 0.0239, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9548  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



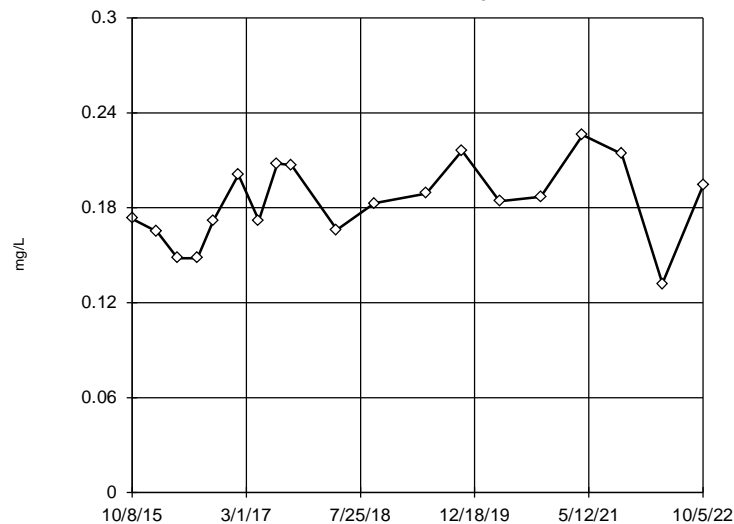
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.09502, std. dev. 0.02321, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9618  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-116



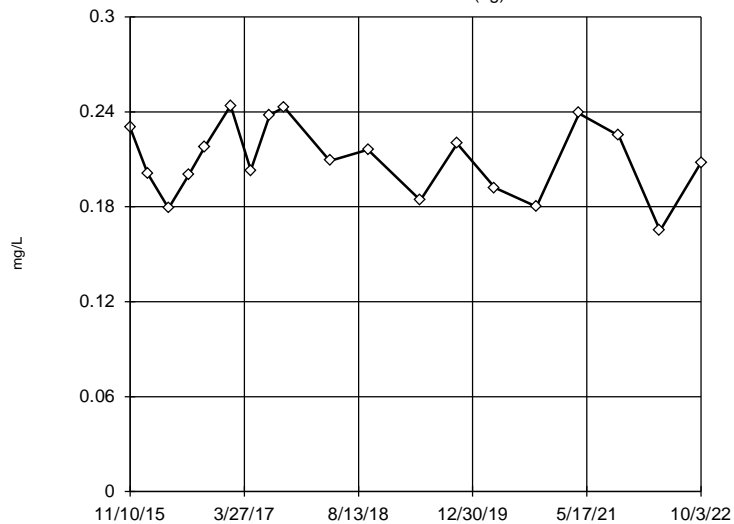
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1834, std. dev. 0.02539, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9776  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-115 (bg)



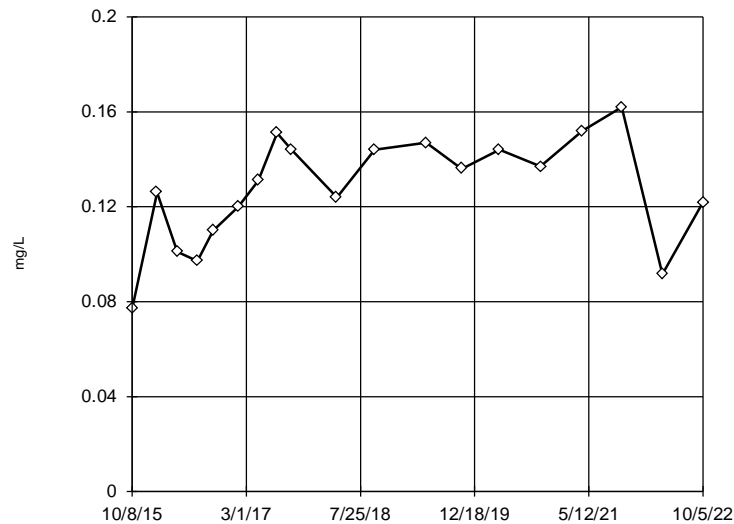
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.2102, std. dev. 0.02335, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9634  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-117



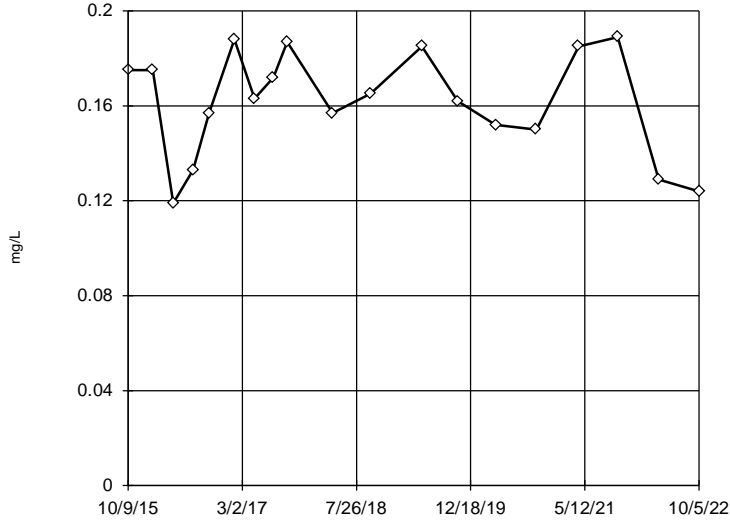
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1272, std. dev. 0.02308, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9503  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-118



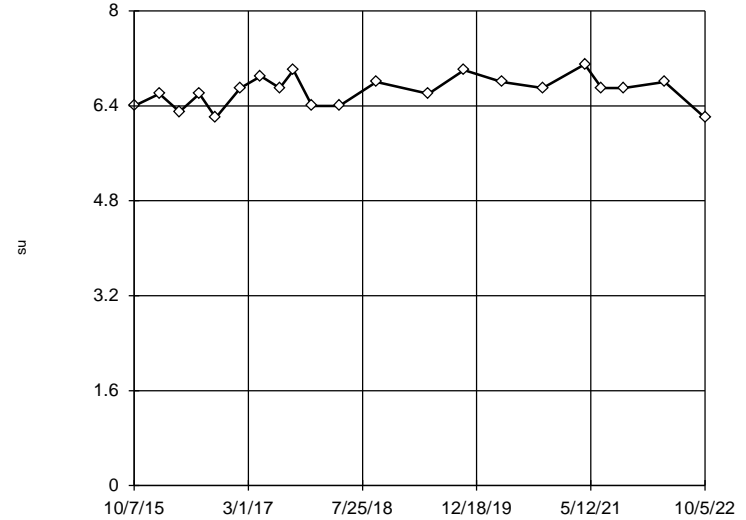
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 0.1614, std. dev. 0.02242, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9205  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Fluoride Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

EPA Screening (suspected outliers for Dixon's Test)

MW-101



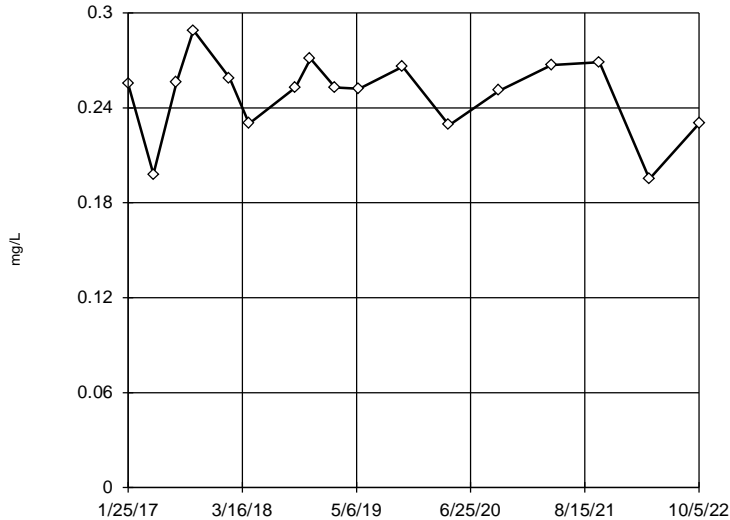
n = 21  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 6.648, std. dev. 0.2562, critical Tn 2.58  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9552  
 Critical = 0.923  
 The distribution was found to be normally distributed.

Constituent: pH Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Tukey's Outlier Screening

MW-119



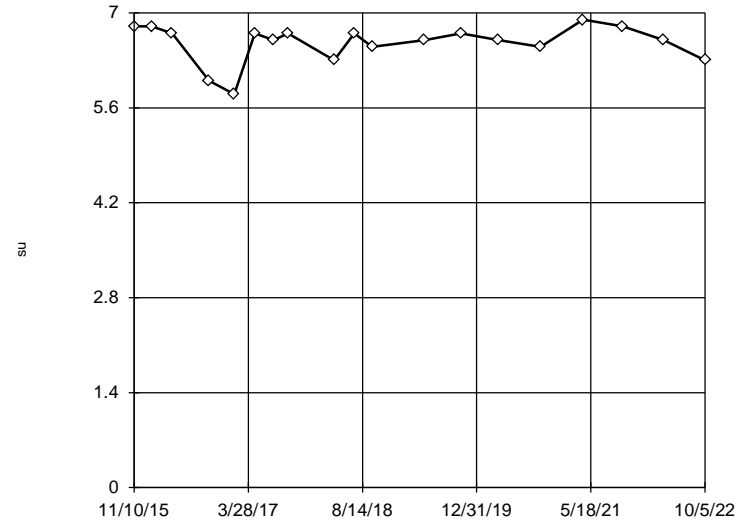
n = 17  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were x^5 transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.3217, low cutoff = -0.2709, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Tukey's Outlier Screening

MW-102



n = 19  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were x^6 transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 7.167, low cutoff = 5.584, based on IQR multiplier of 3.

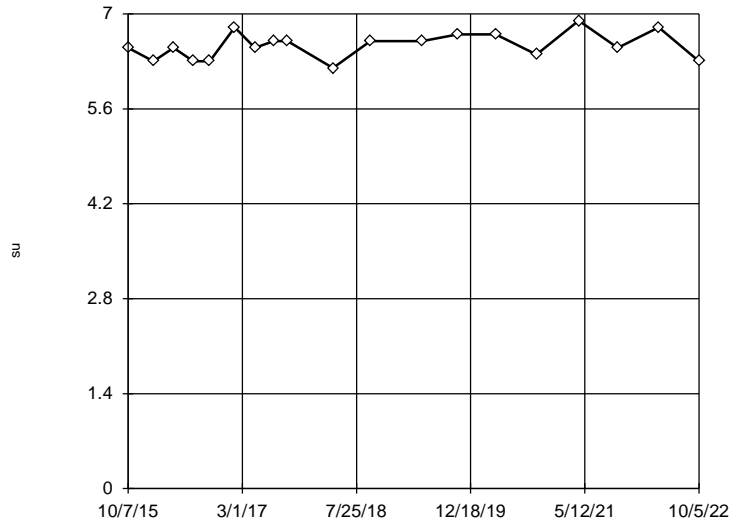
Constituent: pH Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



### EPA Screening (suspected outliers for Dixon's Test)

MW-103



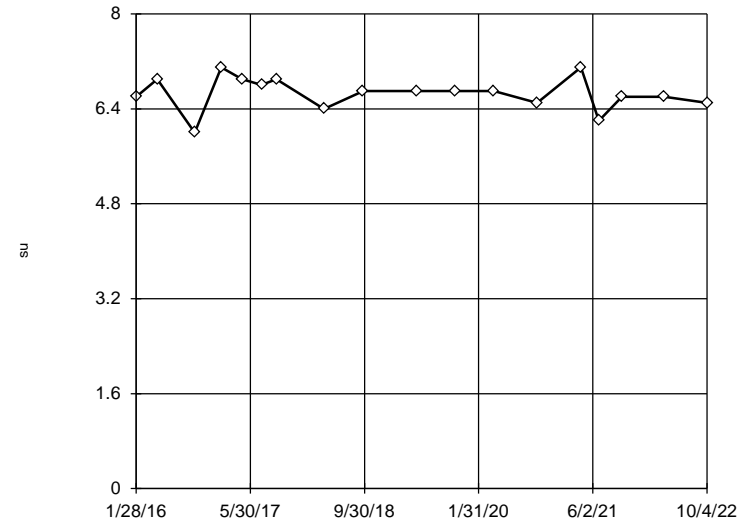
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 6.532, std. dev. 0.1974, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9547  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: pH Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-113 (bg)



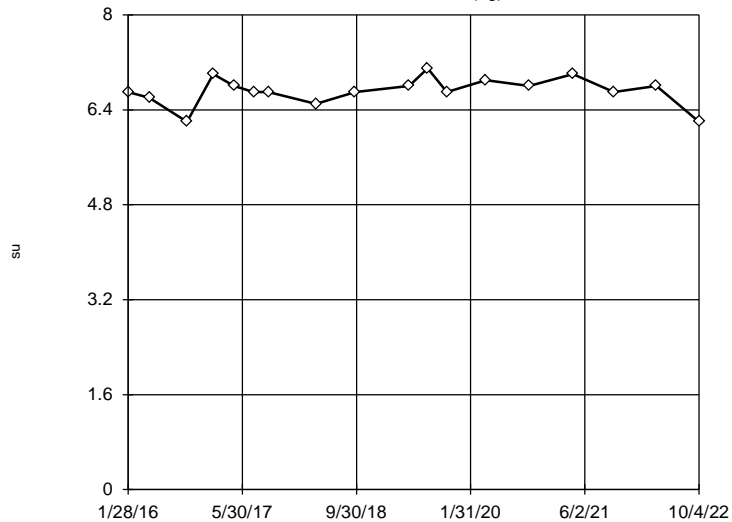
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 6.661, std. dev. 0.2831, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9532  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: pH Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-108 (bg)



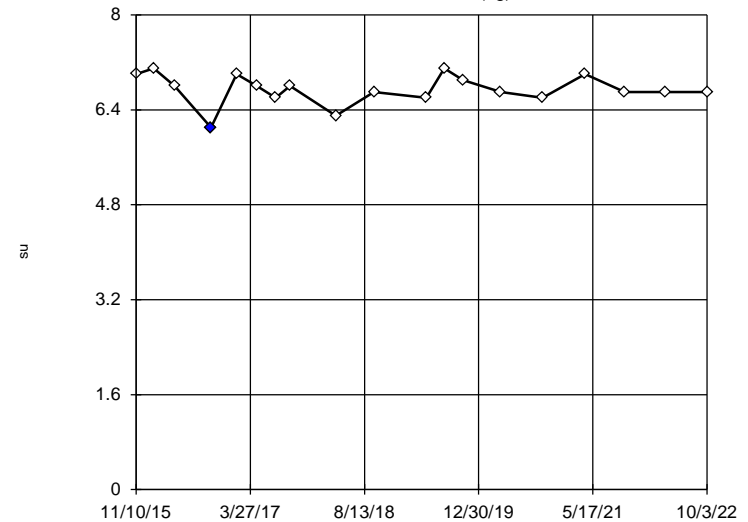
n = 18  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were x^6 transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 7.321, low cutoff = 5.747, based on IQR multiplier of 3.

Constituent: pH Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Dixon's Outlier Test

MW-115 (bg)



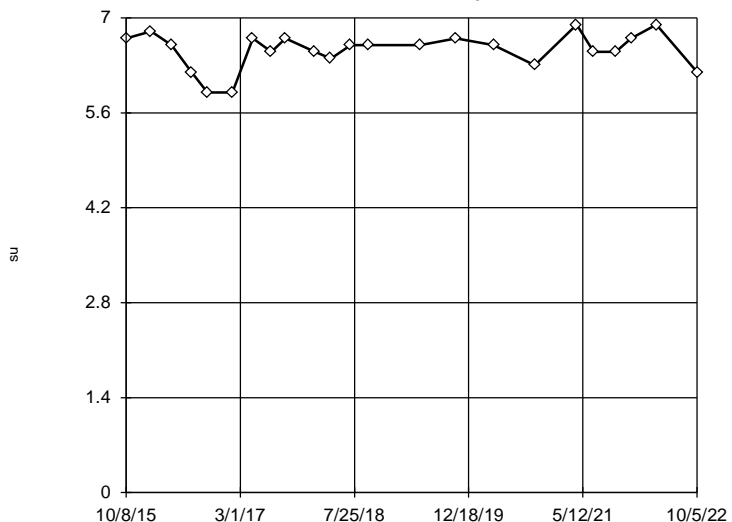
n = 19  
 Statistical outlier is drawn as solid.  
 Testing for 1 low outlier.  
 Mean = 6.747.  
 Std. Dev. = 0.2547.  
 6.1: c = 0.5556  
 tab1 = 0.462.  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9348  
 Critical = 0.914  
 The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: pH Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-116



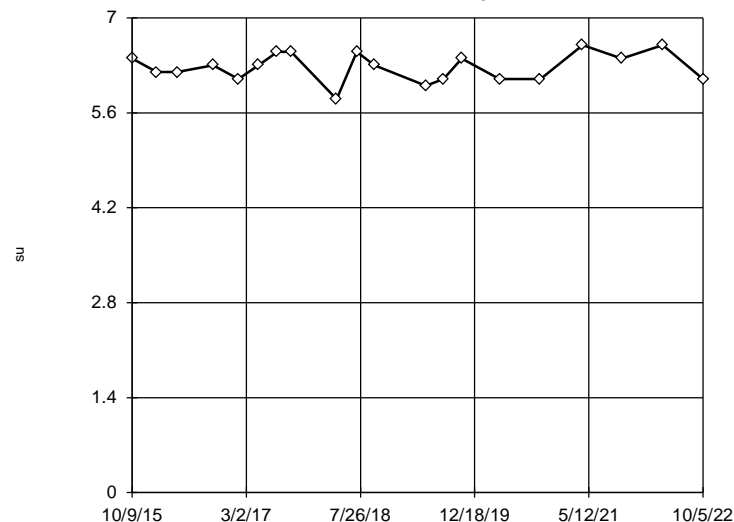
n = 23  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were x\*6 transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 7.334, low cutoff = 3.897, based on IQR multiplier of 3.

Constituent: pH Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-118



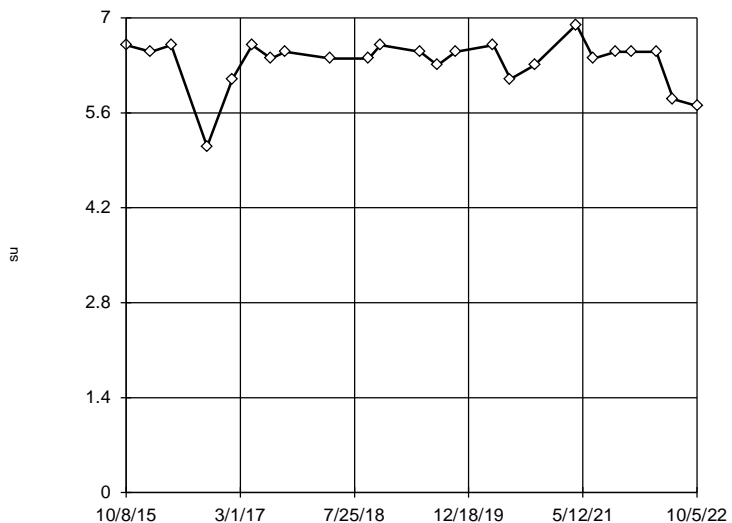
n = 20  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 6.275, std. dev. 0.2149, critical Tn 2.557  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9513 Critical = 0.92 The distribution was found to be normally distributed.

Constituent: pH Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-117



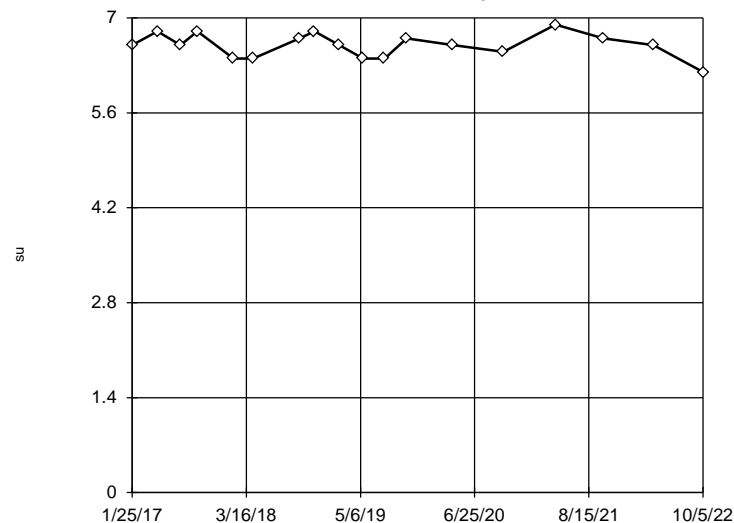
n = 24  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were x\*6 transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 7.104, low cutoff = 4.848, based on IQR multiplier of 3.

Constituent: pH Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-119



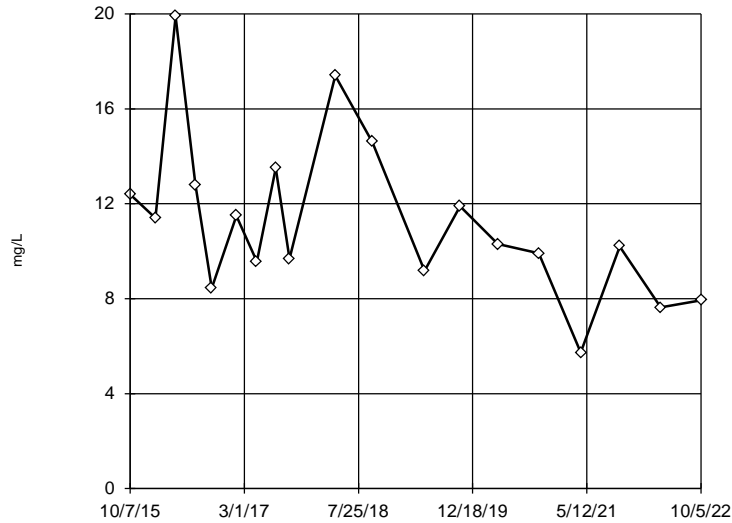
n = 18  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 6.594, std. dev. 0.183, critical Tn 2.504  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9494 Critical = 0.914 The distribution was found to be normally distributed.

Constituent: pH Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-101



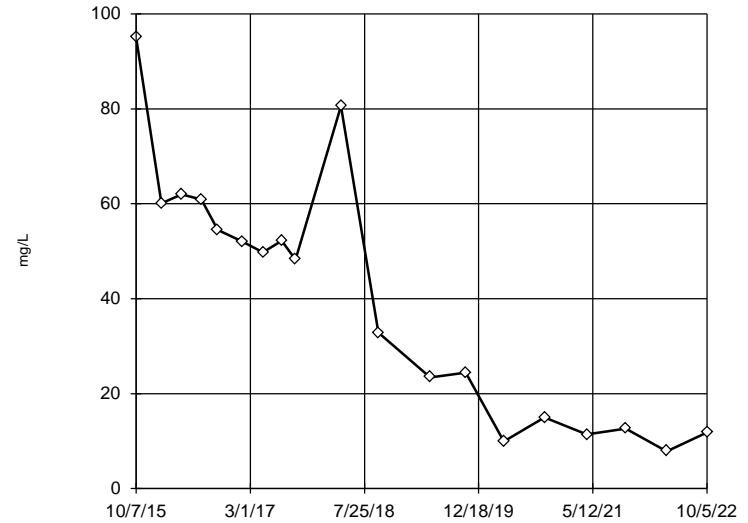
n = 19  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 11.26, std. dev. 3.408, critical Tn 2.532  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9397  
 Critical = 0.917  
 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-103



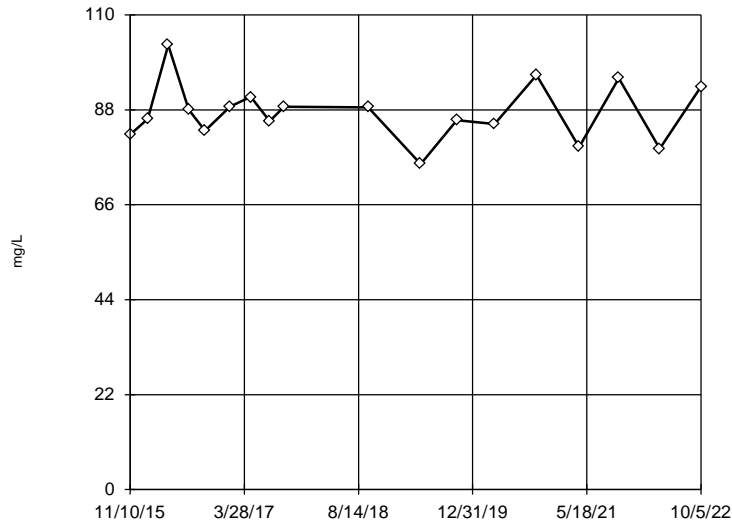
n = 19  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 414.6, low cutoff = -82.06, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-102



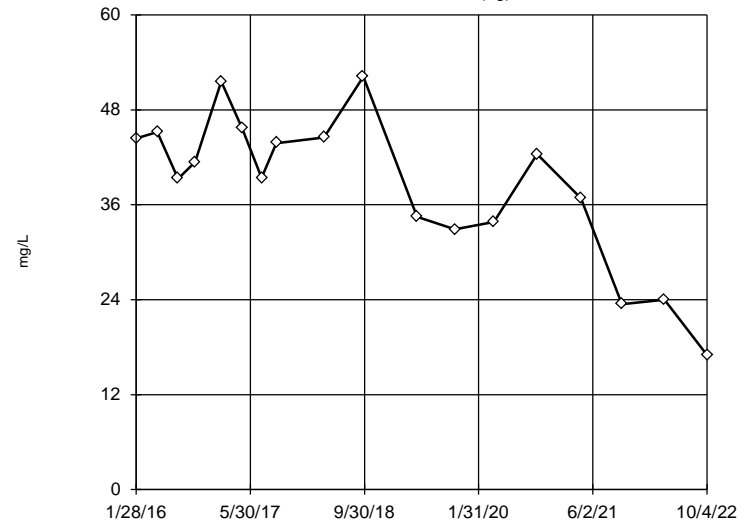
n = 18  
 Dixon's will not be run.  
 No suspect values identified or unable to establish suspect values.  
 Mean 87.44, std. dev. 6.752, critical Tn 2.504  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.9792  
 Critical = 0.914  
 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Dixon's Outlier Test

MW-108 (bg)



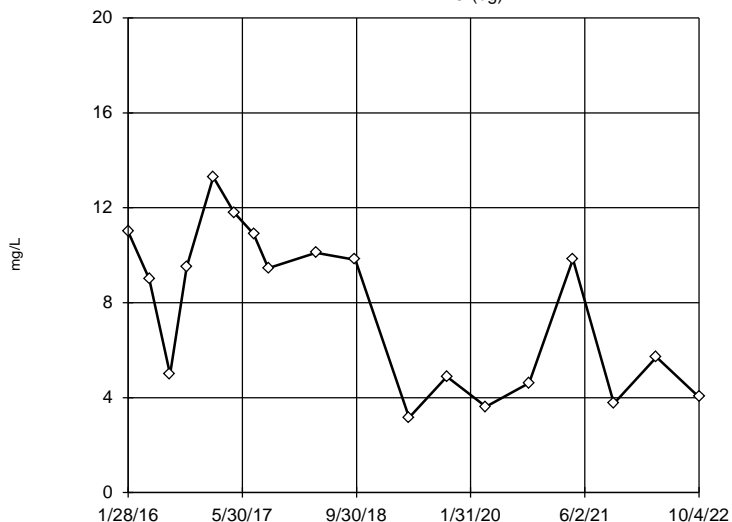
n = 18  
 No statistical outliers.  
 Testing for 1 low outlier.  
 Mean = 38.46,  
 Std. Dev. = 9.557,  
 17: c = 0.2439  
 tab1 = 0.475,  
 Alpha = 0.05.  
 Normality test used:  
 Shapiro Wilk@alpha = 0.1  
 Calculated = 0.941  
 Critical = 0.91  
 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Tukey's Outlier Screening

MW-113 (bg)



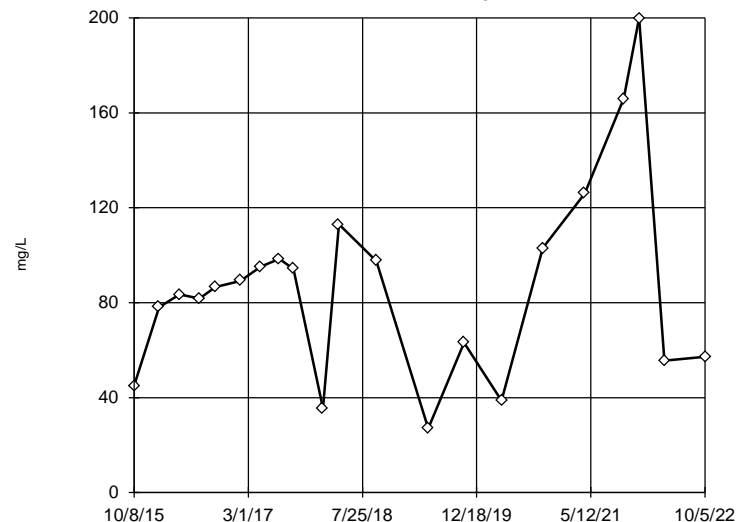
n = 18  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.1 alpha level.  
 Data were square transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 19.63, low cutoff = -16.01, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-116



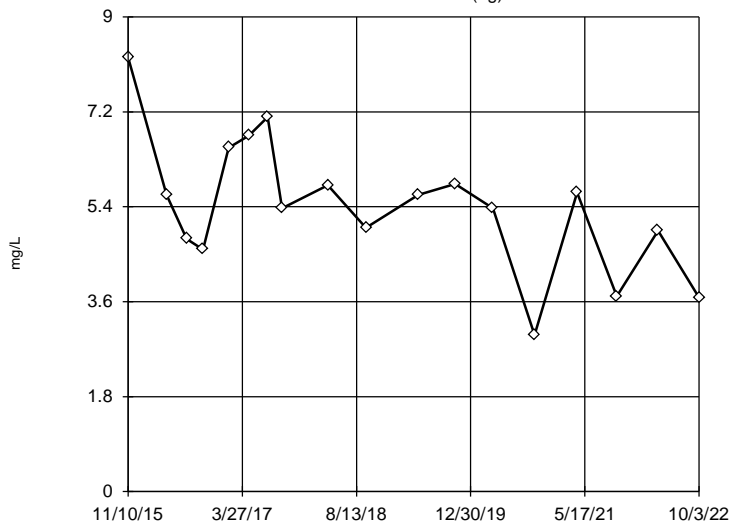
n = 21  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 87.35, std. dev. 41.68, critical Tn 2.58  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9644 Critical = 0.923 (after natural log transformation) The distribution was found to be log-normal.

Constituent: Sulfate Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-115 (bg)



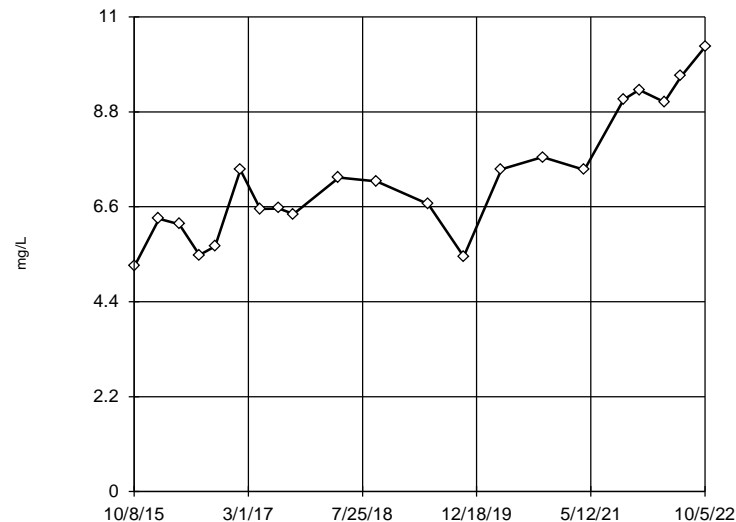
n = 18  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 5.422, std. dev. 1.275, critical Tn 2.504  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9757 Critical = 0.914 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-117



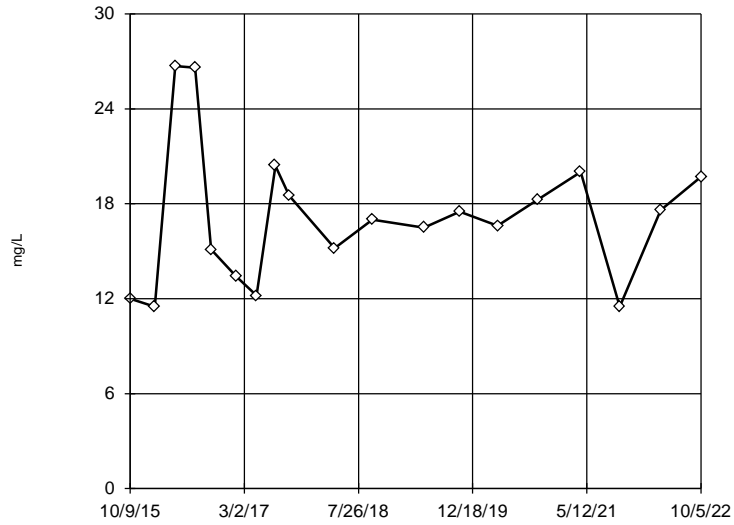
n = 21  
 Dixon's will not be run. No suspect values identified or unable to establish suspect values. Mean 7.262, std. dev. 1.468, critical Tn 2.58  
 Normality test used: Shapiro Wilk@alpha = 0.1 Calculated = 0.9345 Critical = 0.923 The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-118



n = 19

Dixon's will not be run.  
No suspect values identified or unable to establish suspect values.  
Mean 17.17, std. dev. 4.39, critical Tn 2.532

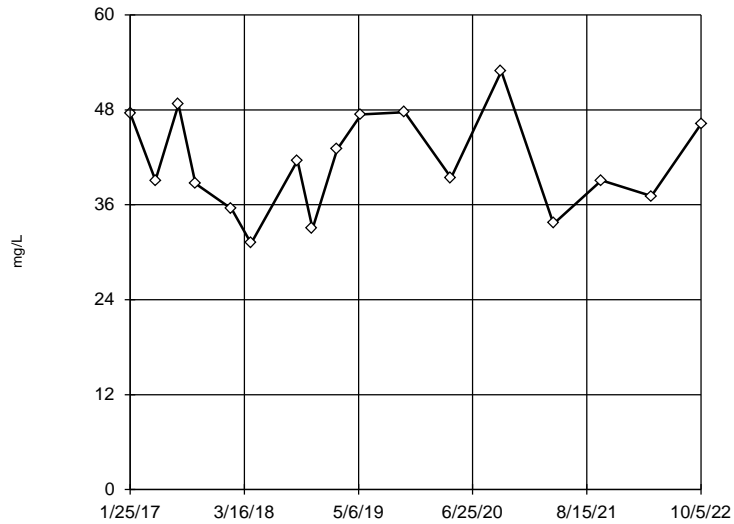
Normality test used:  
Shapiro Wilk@alpha = 0.1  
Calculated = 0.9436  
Critical = 0.917 (after natural log transformation)  
The distribution was found to be log-normal.

Constituent: Sulfate Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### EPA Screening (suspected outliers for Dixon's Test)

MW-119



n = 17

Dixon's will not be run.  
No suspect values identified or unable to establish suspect values.  
Mean 41.28, std. dev. 6.313, critical Tn 2.475

Normality test used:  
Shapiro Wilk@alpha = 0.1  
Calculated = 0.959  
Critical = 0.91  
The distribution was found to be normally distributed.

Constituent: Sulfate Analysis Run 11/7/2022 2:35 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

# **APPENDIX G**

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## **Statistical Evaluation Results**

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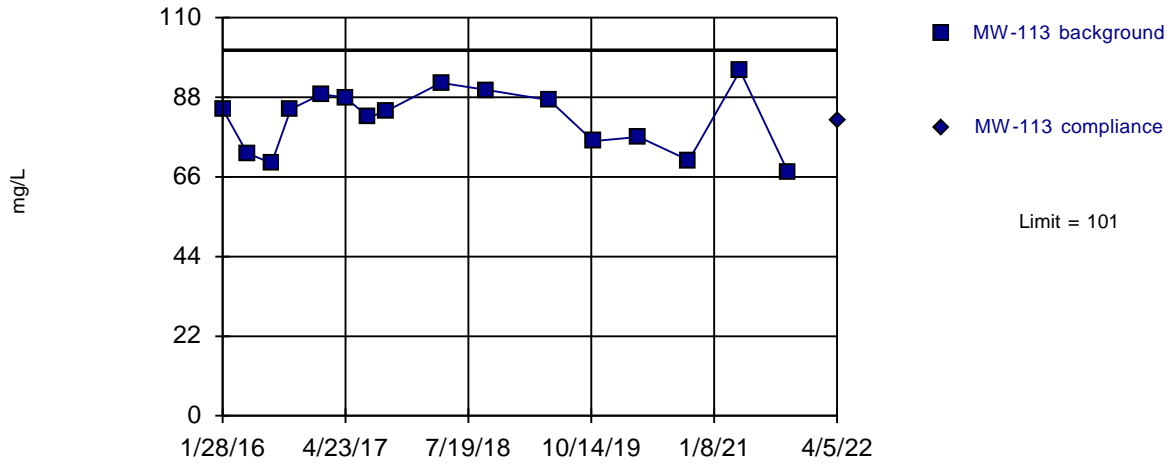
**Prediction Limits, First Half 2022 Monitoring Event**





Within Limit

### Prediction Limit Intrawell Parametric



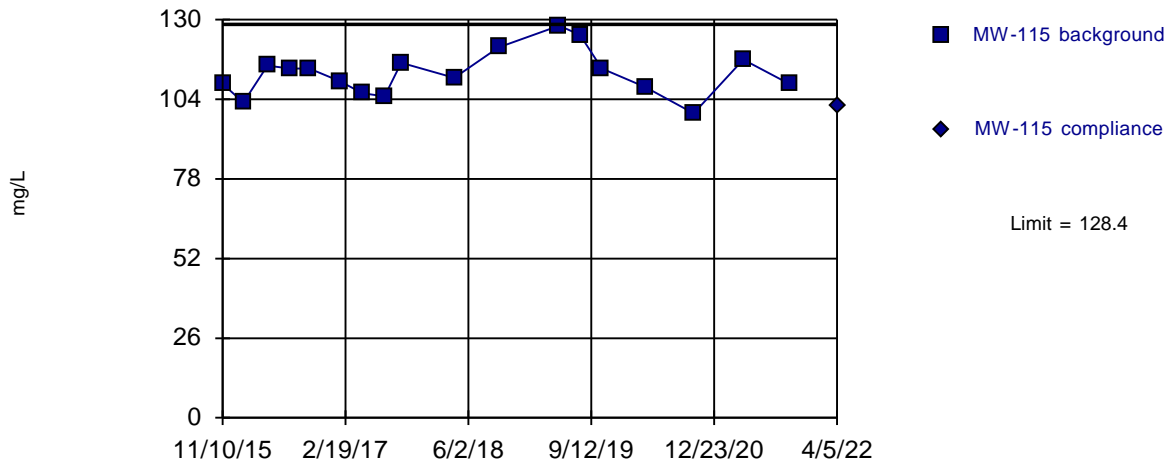
Background Data Summary: Mean=81.93, Std. Dev.=8.613, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.942, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 4/27/2022 12:45 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



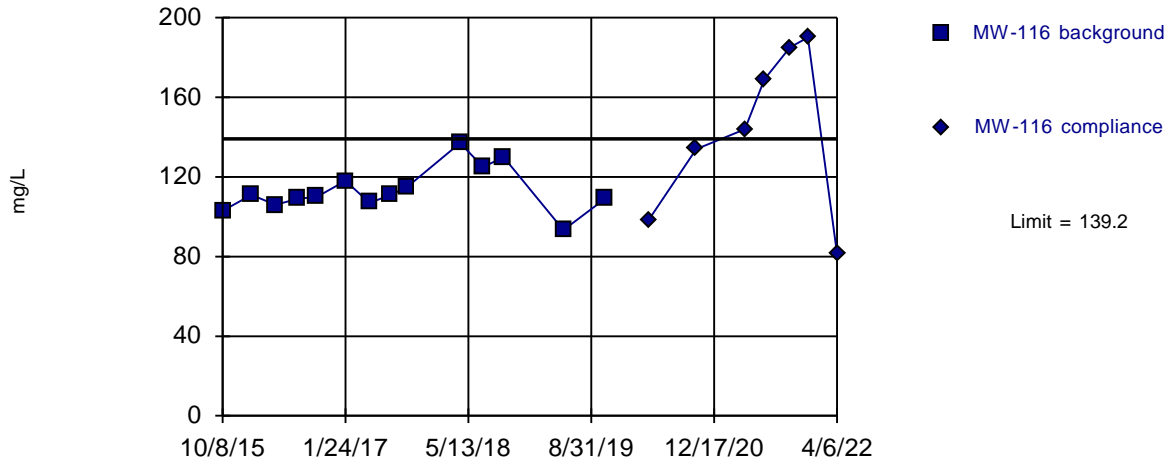
Background Data Summary: Mean=112.5, Std. Dev.=7.388, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9764, critical = 0.858. Kappa = 2.163 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 4/27/2022 12:45 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



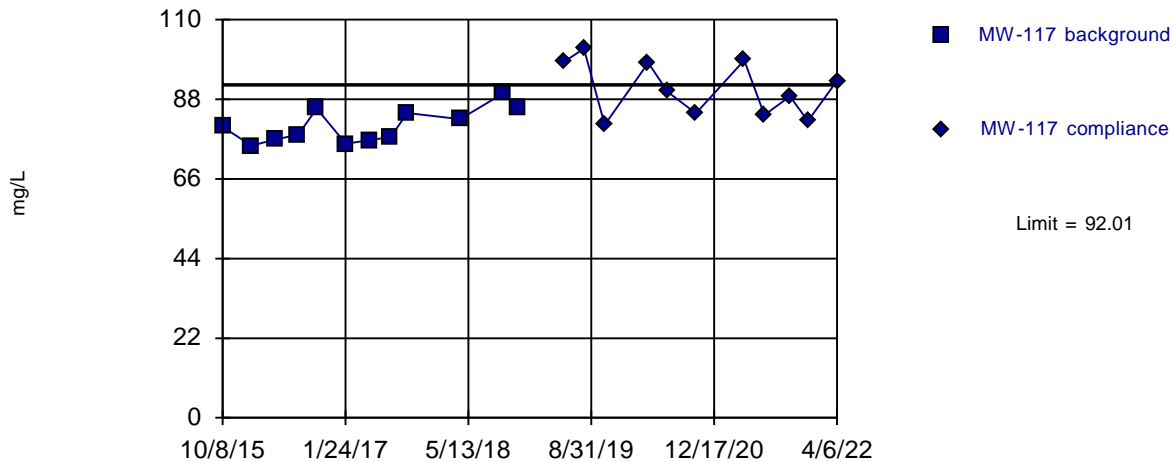
Background Data Summary: Mean=113.2, Std. Dev.=11.31, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9391, critical = 0.825. Kappa = 2.302 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 4/27/2022 12:45 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Exceeds Limit

### Prediction Limit Intrawell Parametric



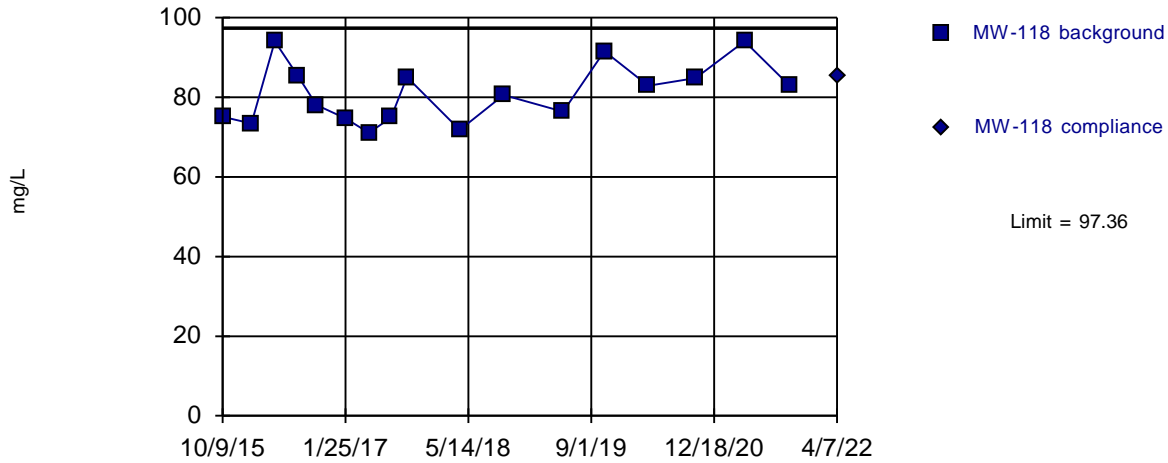
Background Data Summary: Mean=80.69, Std. Dev.=4.731, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9147, critical = 0.805. Kappa = 2.393 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 5/10/2022 10:05 AM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



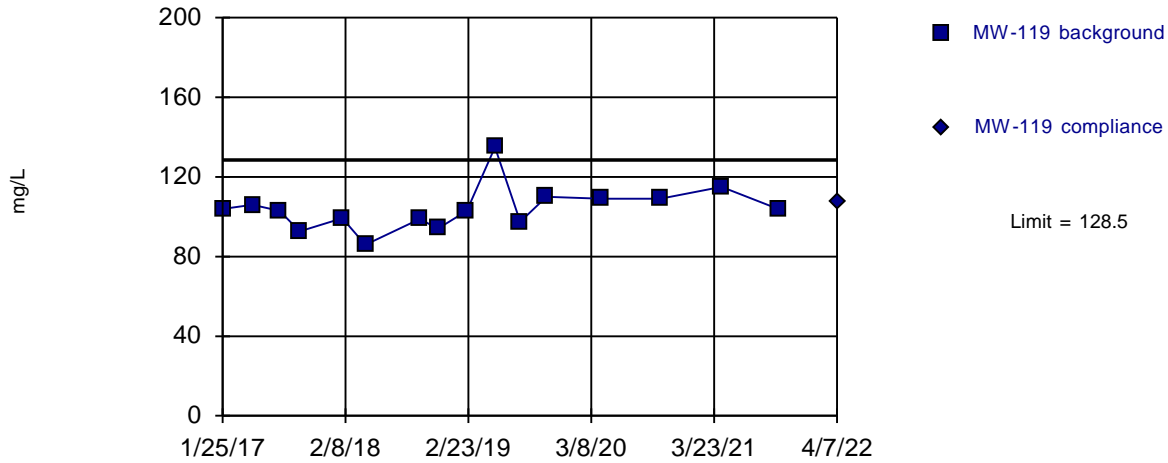
Background Data Summary: Mean=81, Std. Dev.=7.48, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9232, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 4/27/2022 12:45 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

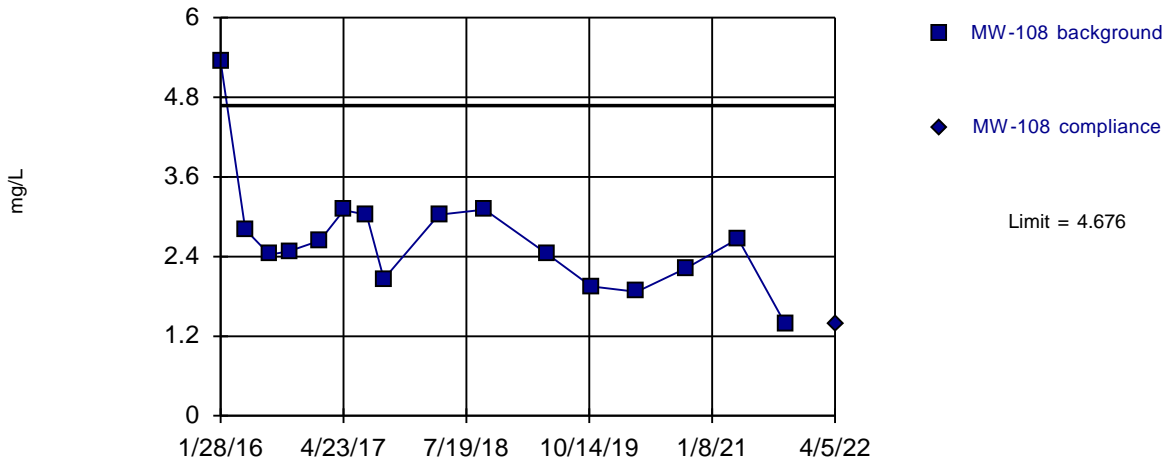
Within Limit

### Prediction Limit Intrawell Parametric



Within Limit

### Prediction Limit Intrawell Parametric



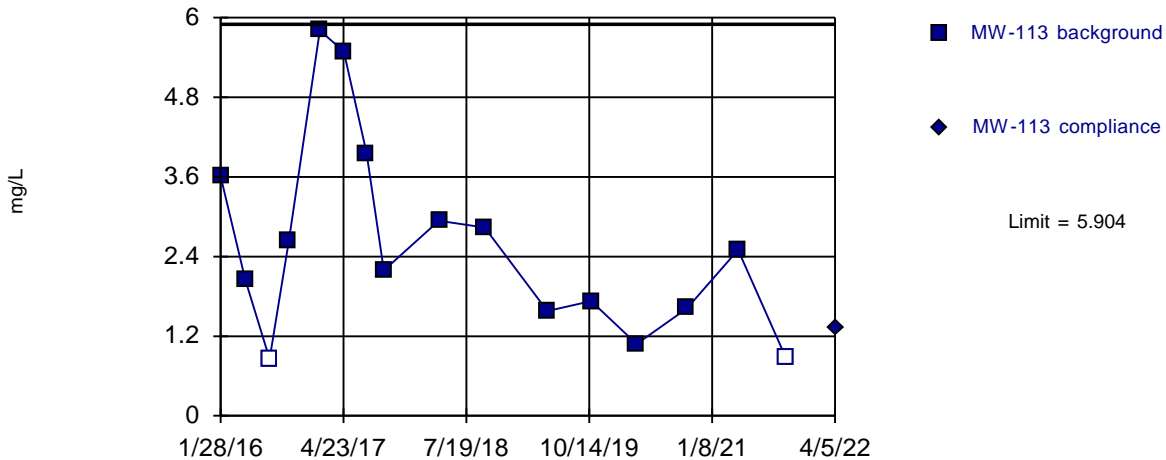
Background Data Summary (based on square root transformation): Mean=1.613, Std. Dev.=0.2483, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8972, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Chloride Analysis Run 4/27/2022 12:45 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=2.61, Std. Dev.=1.489, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9047, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

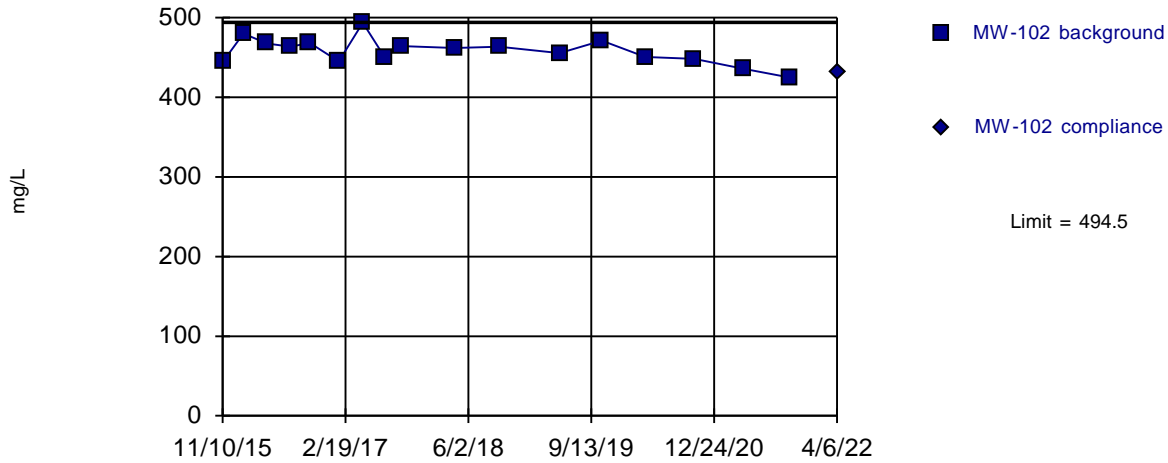
Constituent: Chloride Analysis Run 4/27/2022 12:45 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



Within Limit

### Prediction Limit Intrawell Parametric



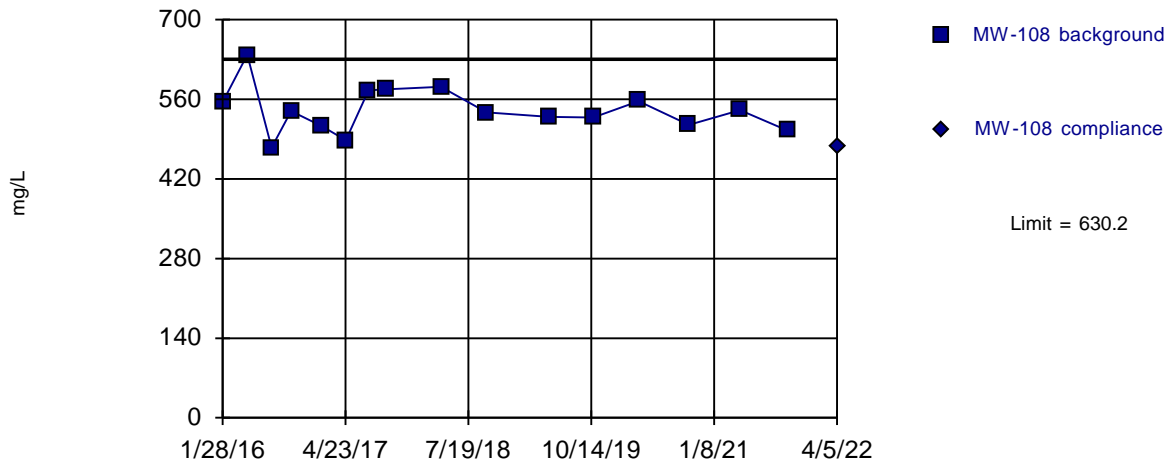
Background Data Summary: Mean=458.3, Std. Dev.=16.55, n=17. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9845, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 4/27/2022 12:45 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



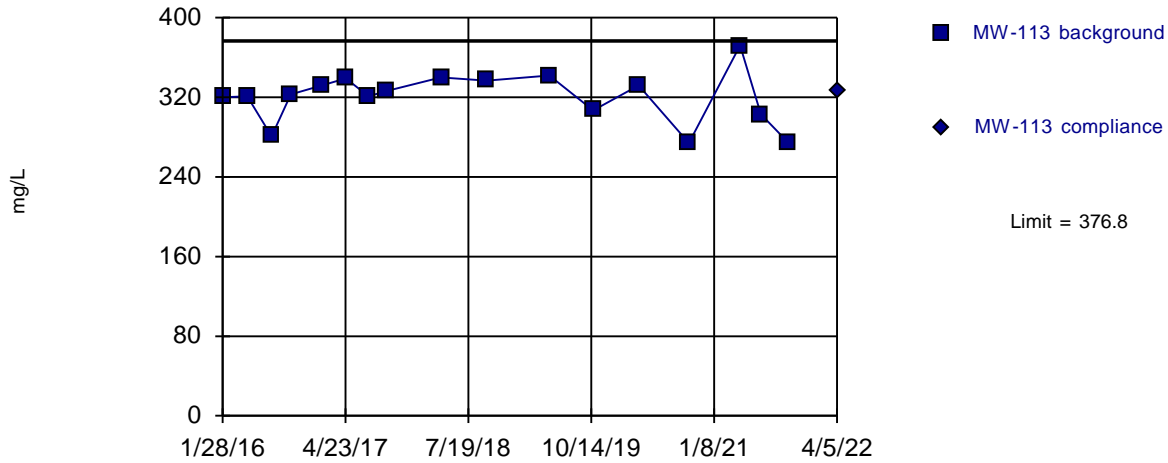
Background Data Summary: Mean=541, Std. Dev.=40.32, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9661, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 4/27/2022 12:45 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



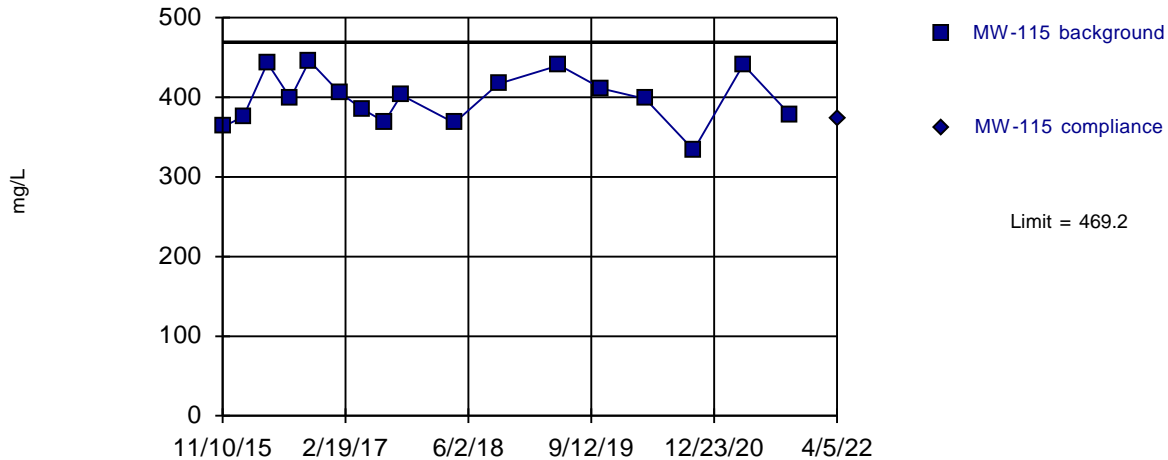
Background Data Summary: Mean=320.3, Std. Dev.=25.85, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9286, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



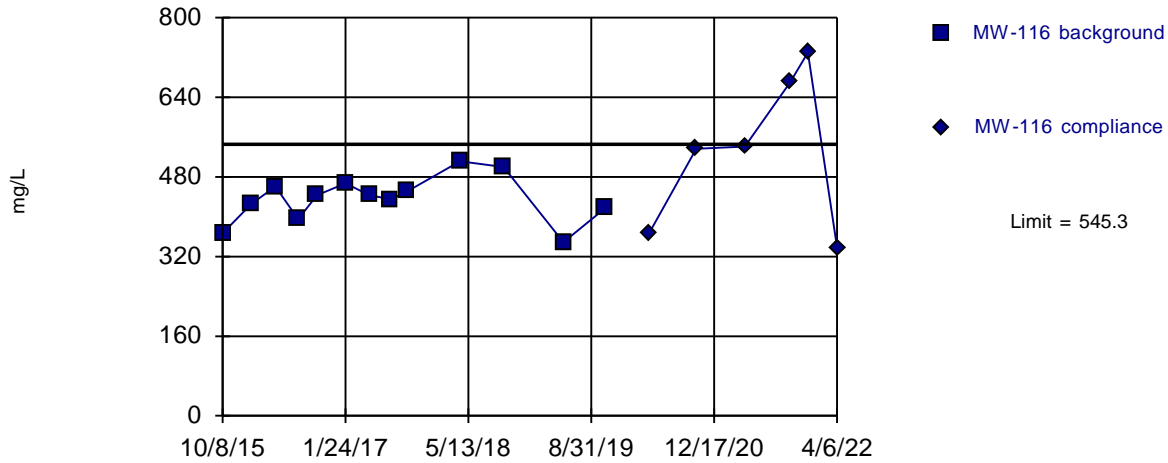
Background Data Summary: Mean=398.7, Std. Dev.=32.24, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9544, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

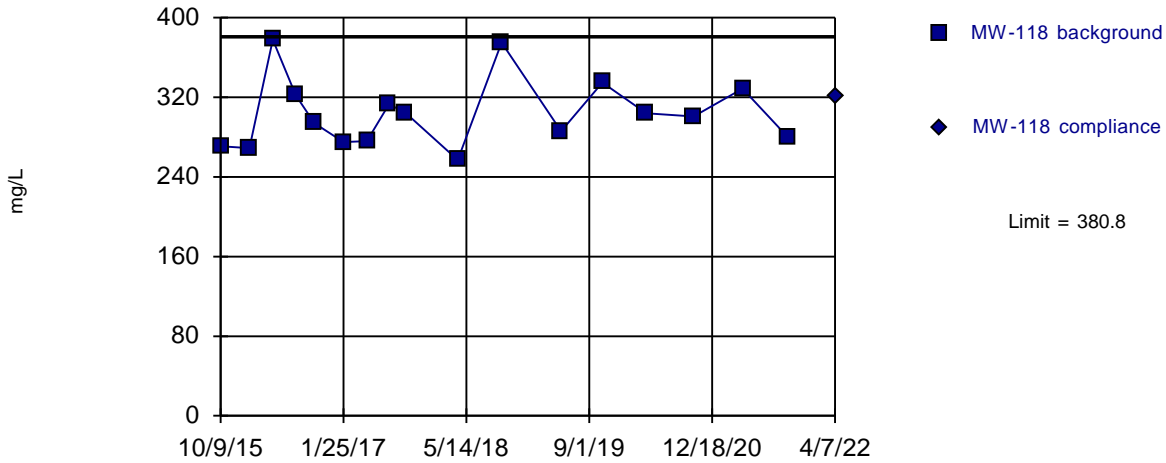
### Prediction Limit Intrawell Parametric





Within Limit

Prediction Limit  
Intrawell Parametric



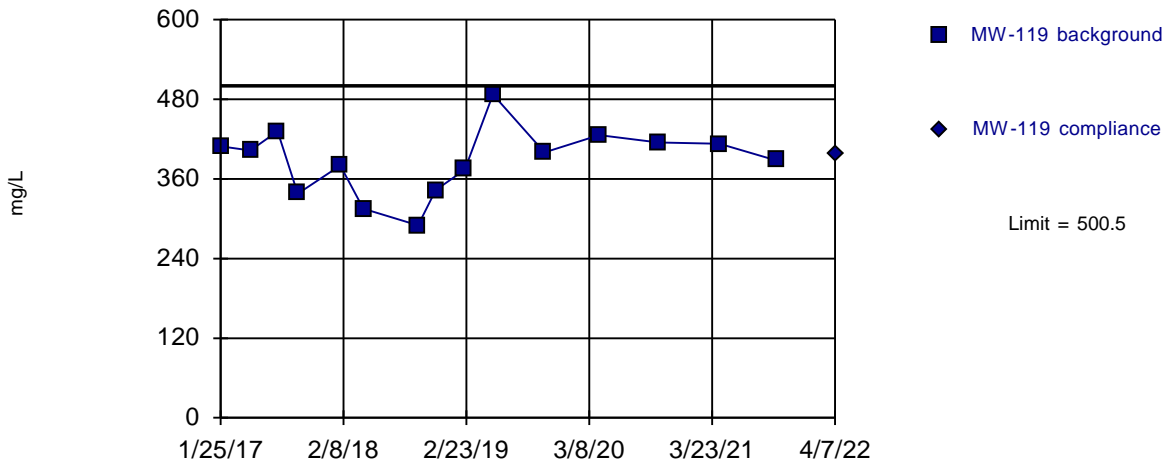
Background Data Summary: Mean=304.1, Std. Dev.=35.06, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9158, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

Prediction Limit  
Intrawell Parametric



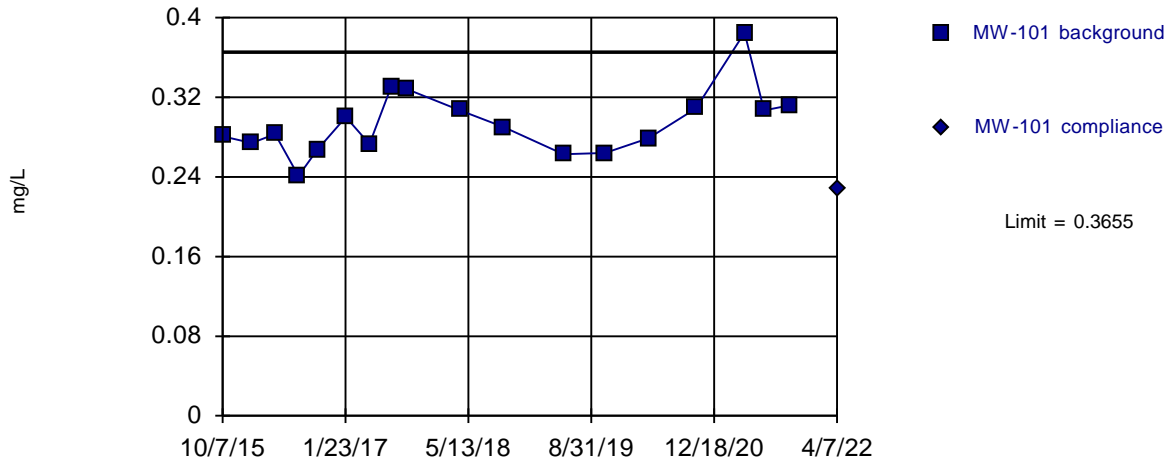
Background Data Summary: Mean=387.5, Std. Dev.=50.04, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9666, critical = 0.835. Kappa = 2.257 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



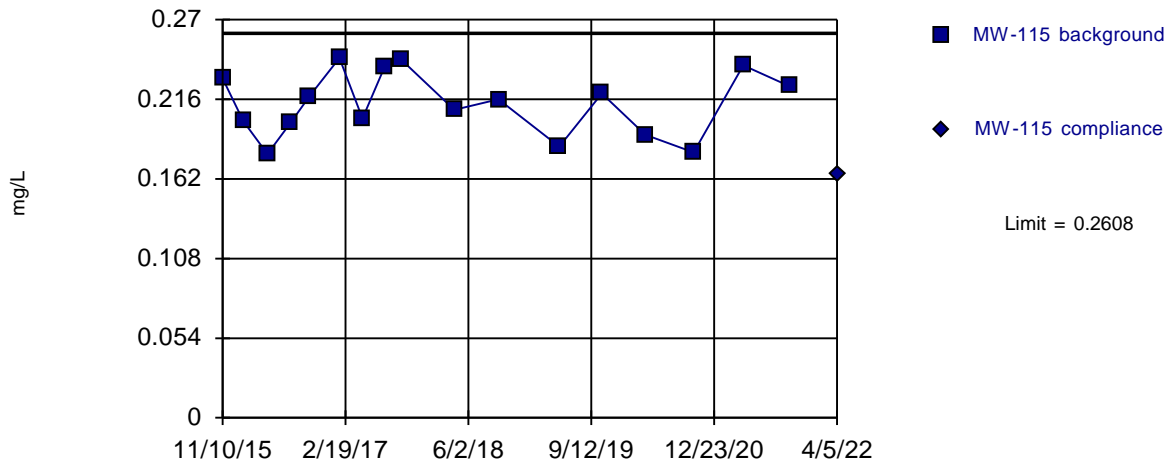
Background Data Summary: Mean=0.2941, Std. Dev.=0.03299, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9277, critical = 0.858. Kappa = 2.163 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Fluoride Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



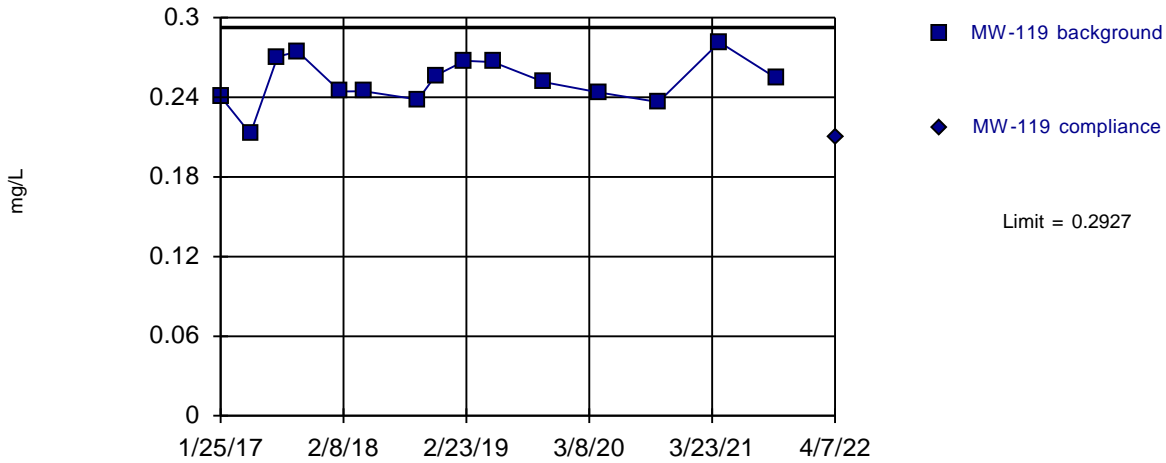
Background Data Summary: Mean=0.213, Std. Dev.=0.02184, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9423, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Fluoride Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



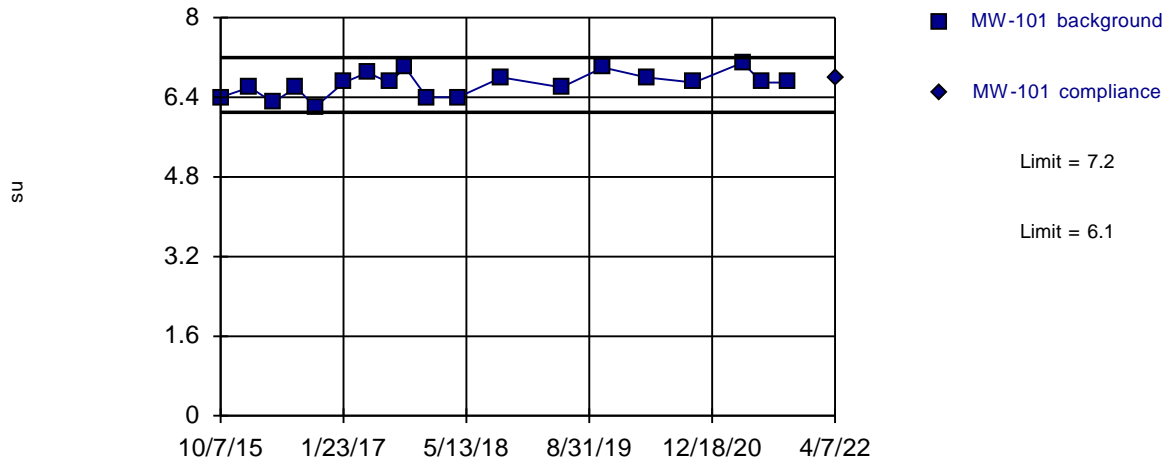
Background Data Summary: Mean=0.2522, Std. Dev.=0.01793, n=15. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9622, critical = 0.835. Kappa = 2.257 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Fluoride Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

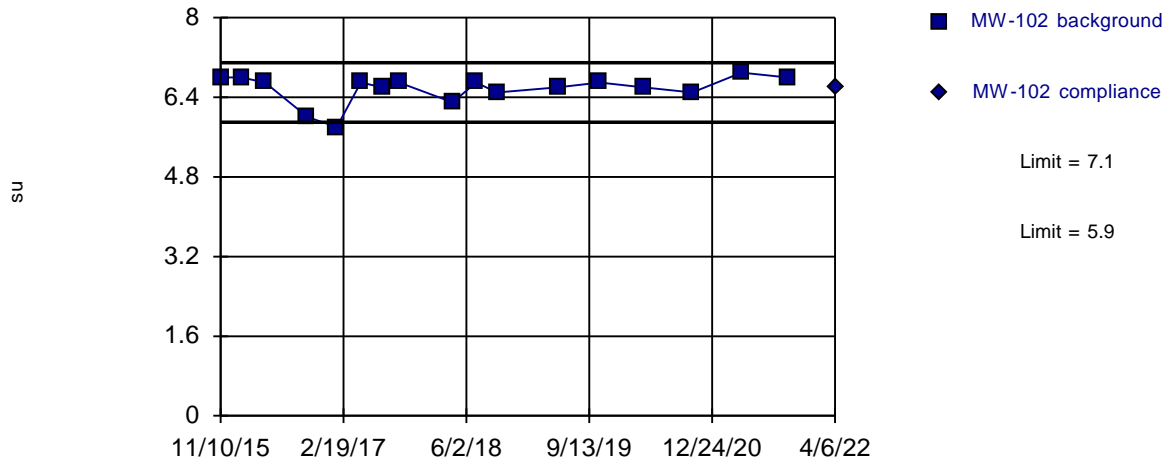
Within Limits

### Prediction Limit Intrawell Parametric



Within Limits

### Prediction Limit Intrawell Parametric



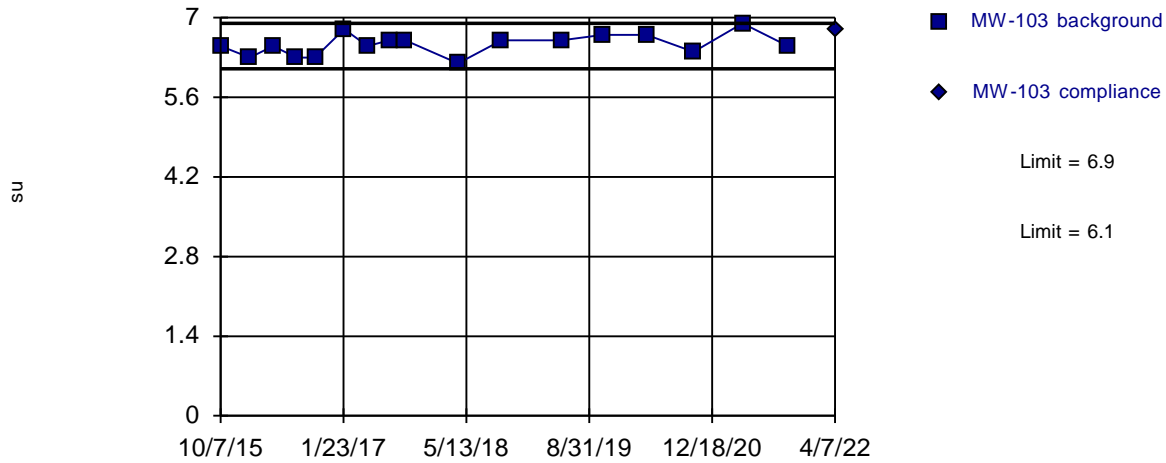
Background Data Summary (based on  $x^4$  transformation): Mean=1884, Std. Dev.=301.4, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8532, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



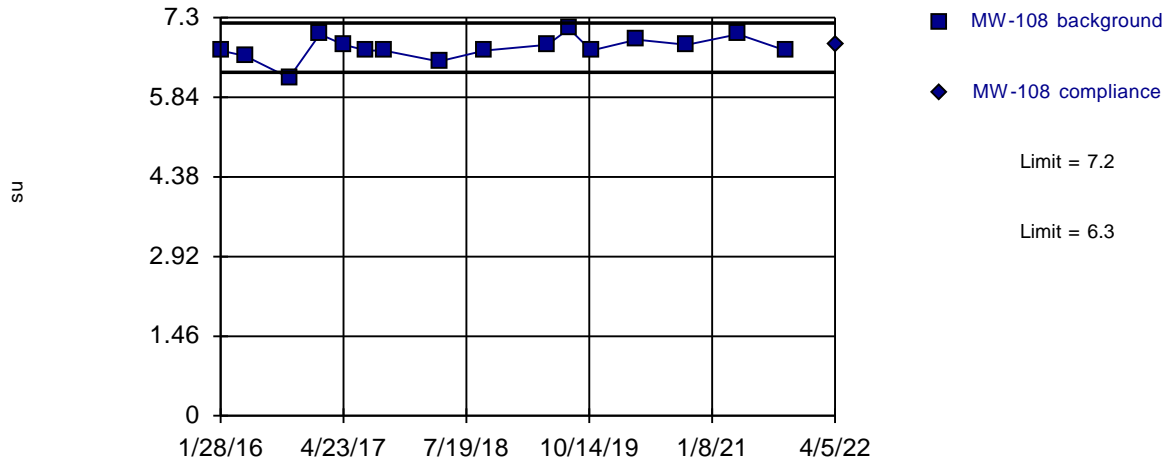
Background Data Summary: Mean=6.529, Std. Dev.=0.1896, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9646, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



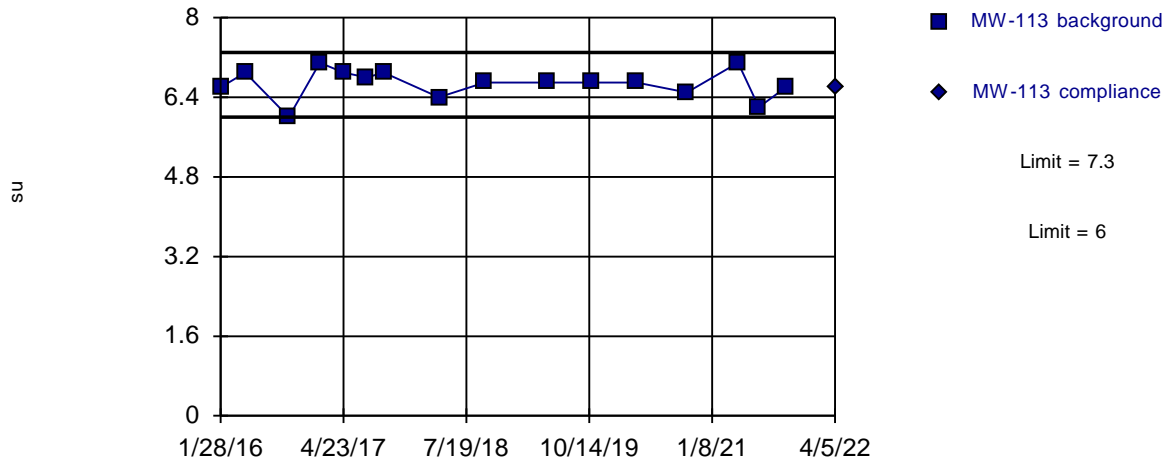
Background Data Summary: Mean=6.744, Std. Dev.=0.2128, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9177, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



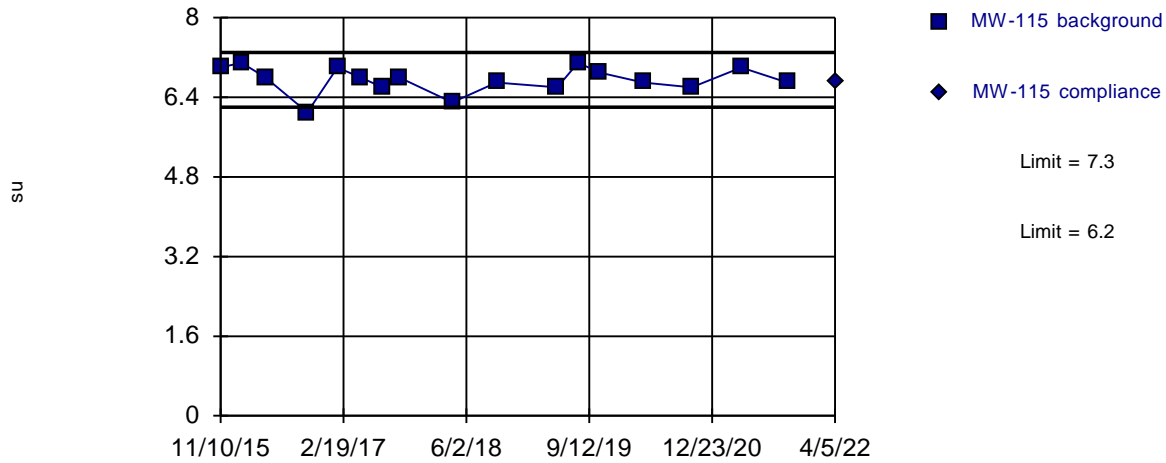
Background Data Summary: Mean=6.675, Std. Dev.=0.2978, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9421, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



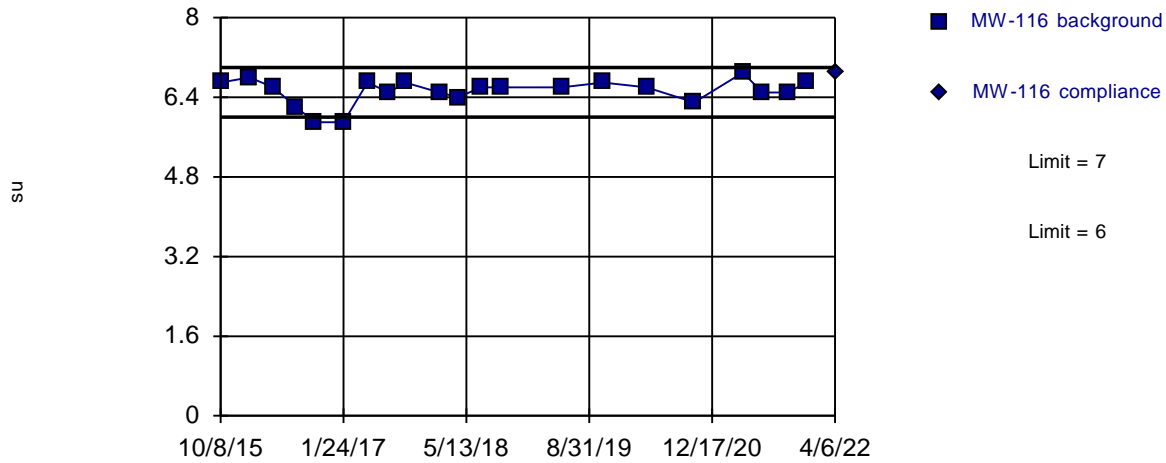
Background Data Summary: Mean=6.753, Std. Dev.=0.2695, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9194, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

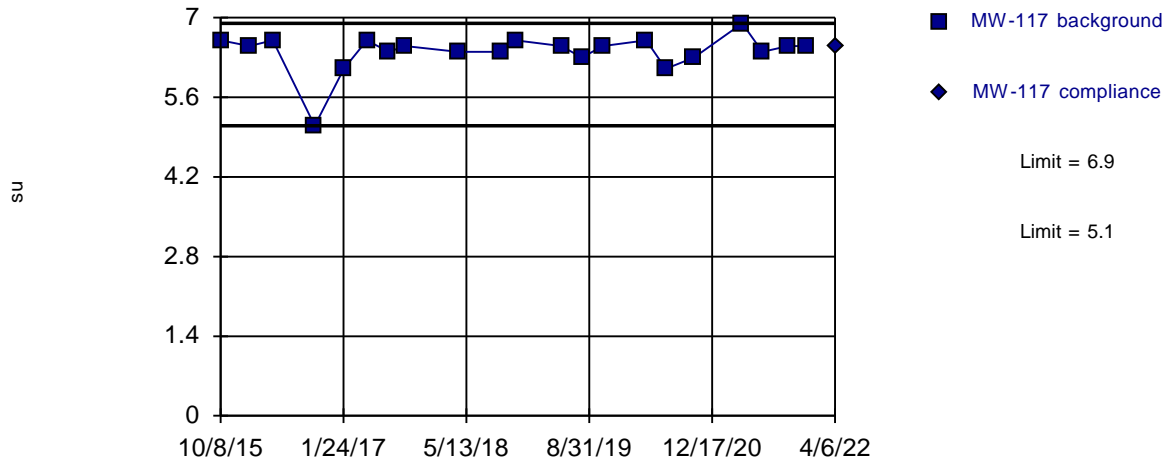
Within Limits

### Prediction Limit Intrawell Parametric



Within Limits

### Prediction Limit Intrawell Non-parametric



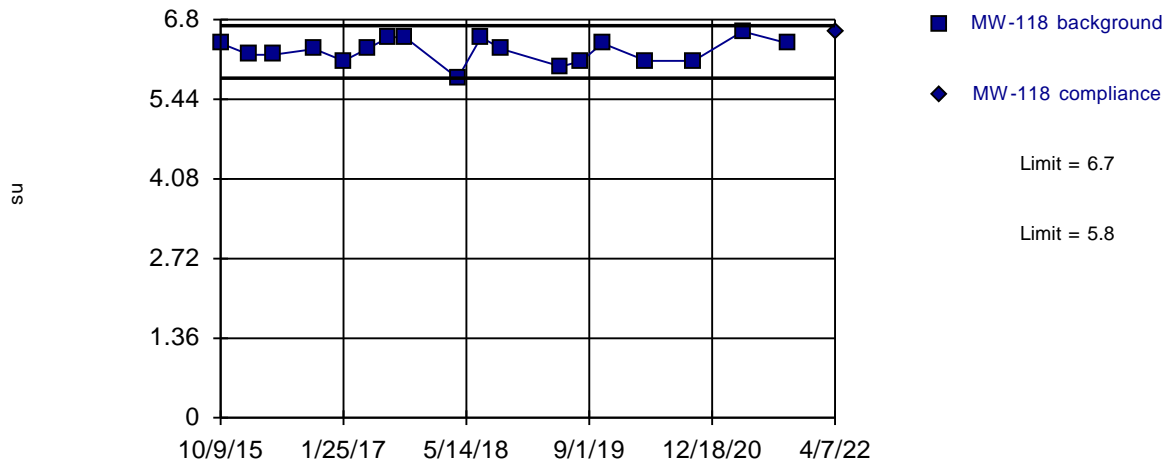
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 21 background values. Well-constituent pair annual alpha = 0.01596. Individual comparison alpha = 0.007998 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: pH Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



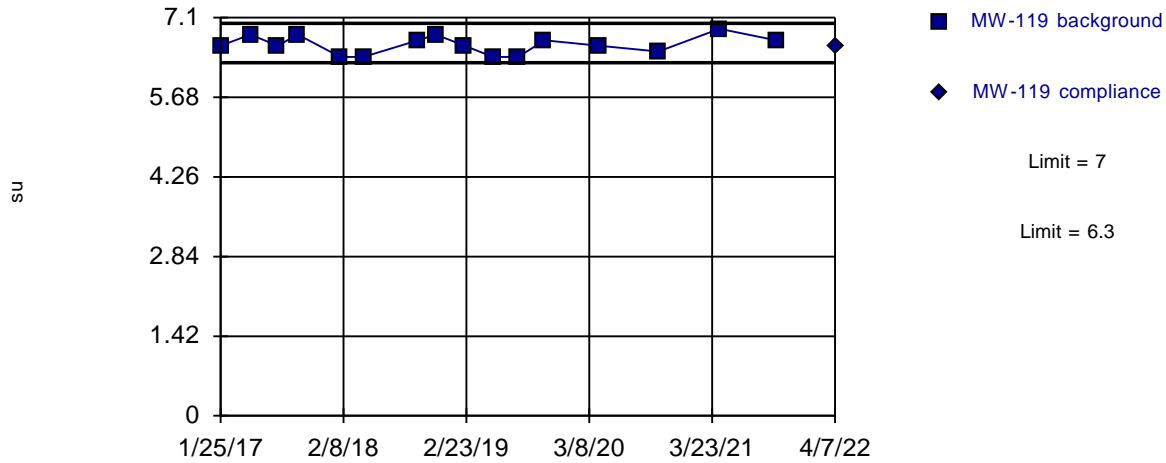
Background Data Summary: Mean=6.267, Std. Dev.=0.2086, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9579, critical = 0.858. Kappa = 2.163 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



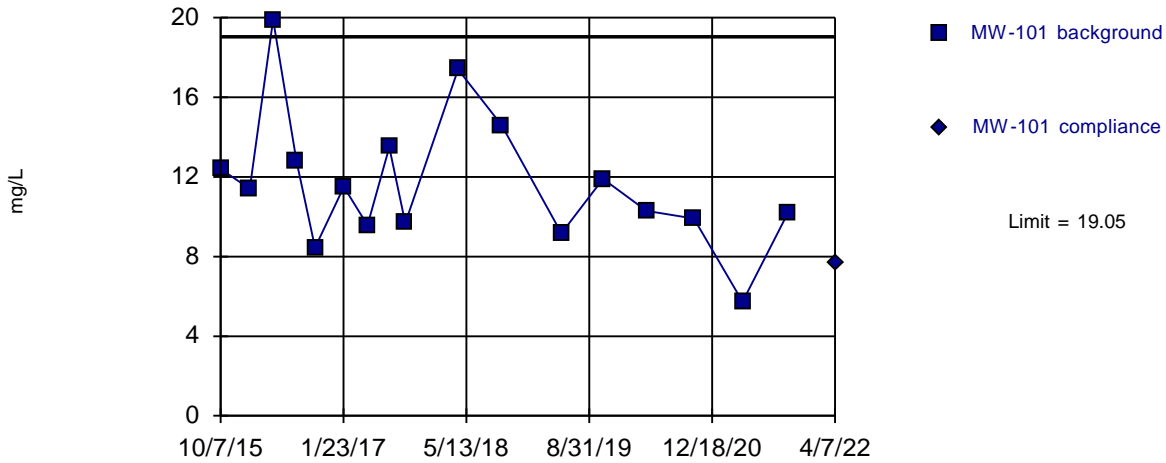
Background Data Summary: Mean=6.619, Std. Dev.=0.1642, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9133, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric

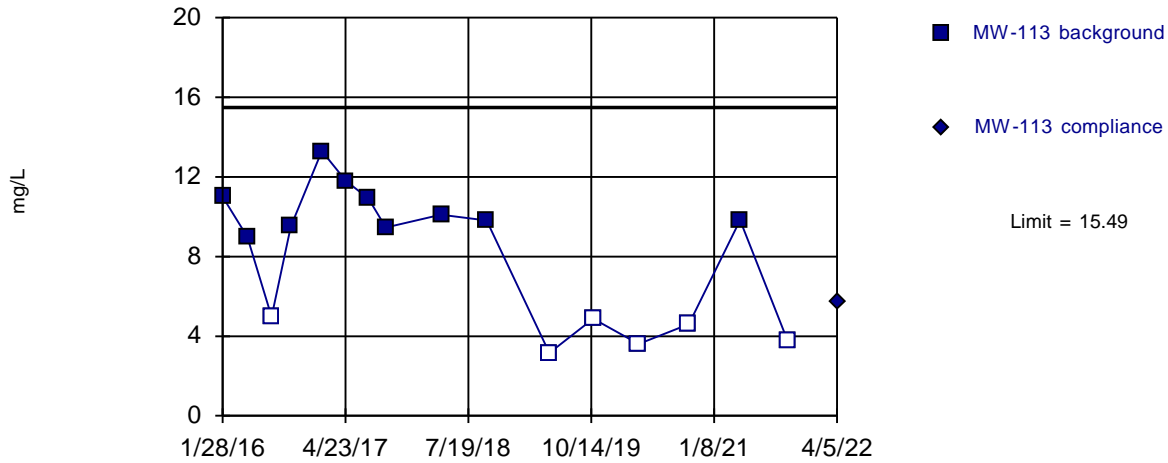






Within Limit

### Prediction Limit Intrawell Parametric



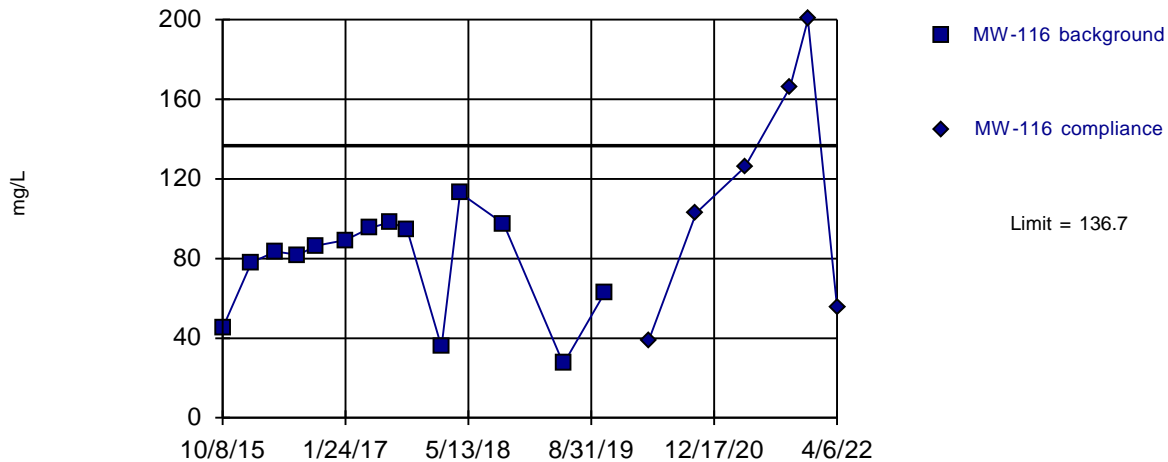
Background Data Summary: Mean=8.104, Std. Dev.=3.341, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8842, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



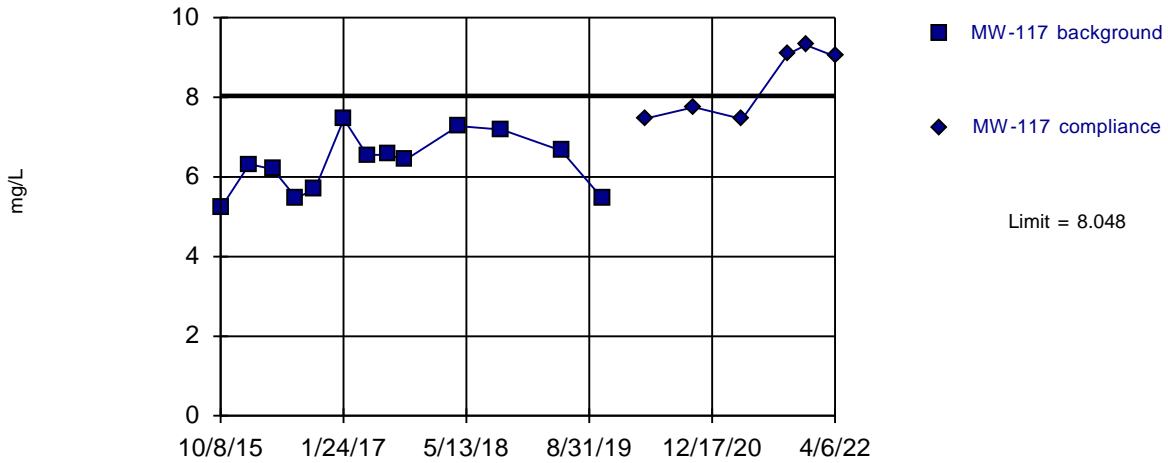
Background Data Summary: Mean=77.71, Std. Dev.=25.62, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8937, critical = 0.825. Kappa = 2.302 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Exceeds Limit

### Prediction Limit Intrawell Parametric



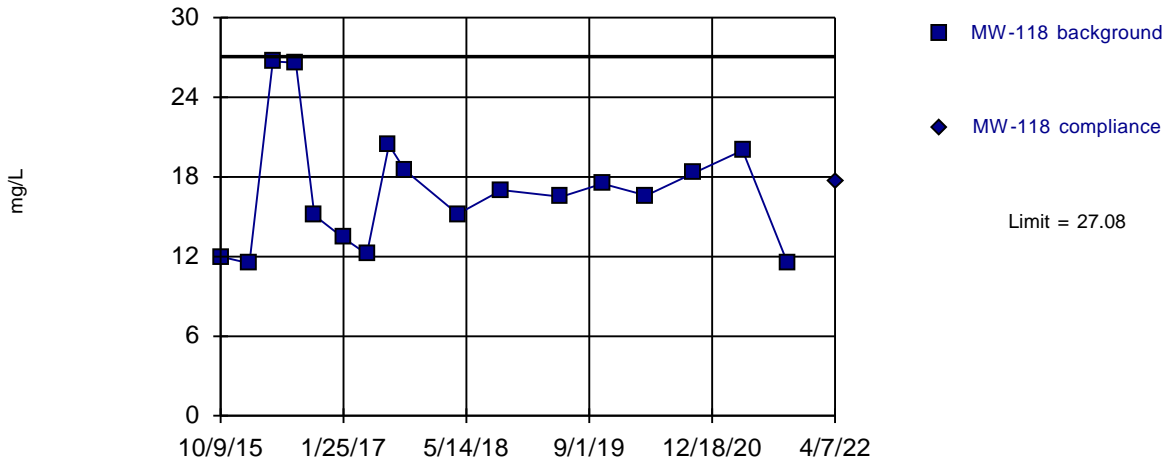
Background Data Summary: Mean=6.343, Std. Dev.=0.7263, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9459, critical = 0.814. Kappa = 2.348 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=17, Std. Dev.=4.608, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9008, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 4/27/2022 12:46 PM View: 2022-1H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

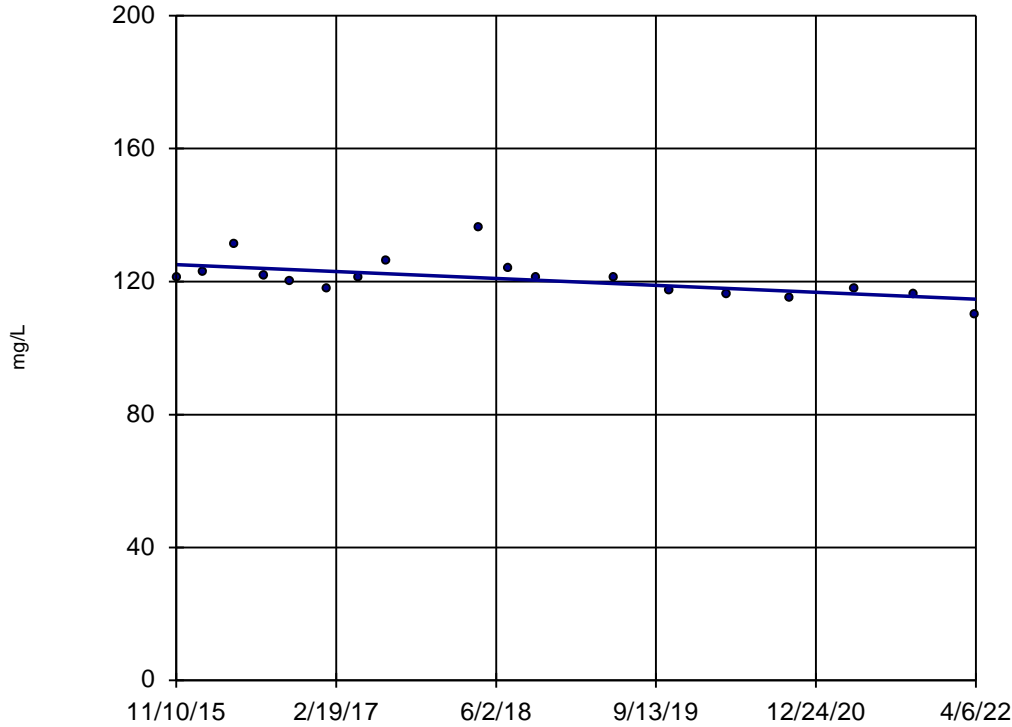


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**Trend Tests, First Half 2022 Monitoring Event**

### Sen's Slope Estimator

MW-102



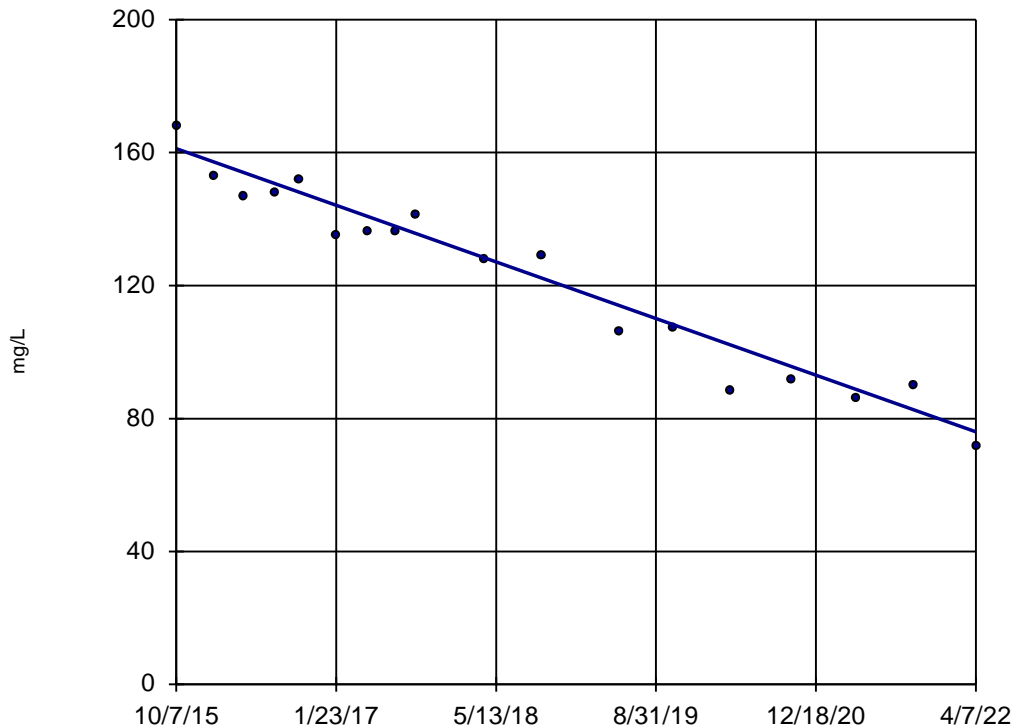
n = 18  
Slope = -1.621 units per year.  
Mann-Kendall statistic = -77  
critical = -63  
Decreasing trend significant at 98% confidence level ( $\alpha = 0.01$  per tail).

Constituent: Calcium Analysis Run 4/27/2022 12:34 PM View: 2022-1H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Sen's Slope Estimator

MW-103



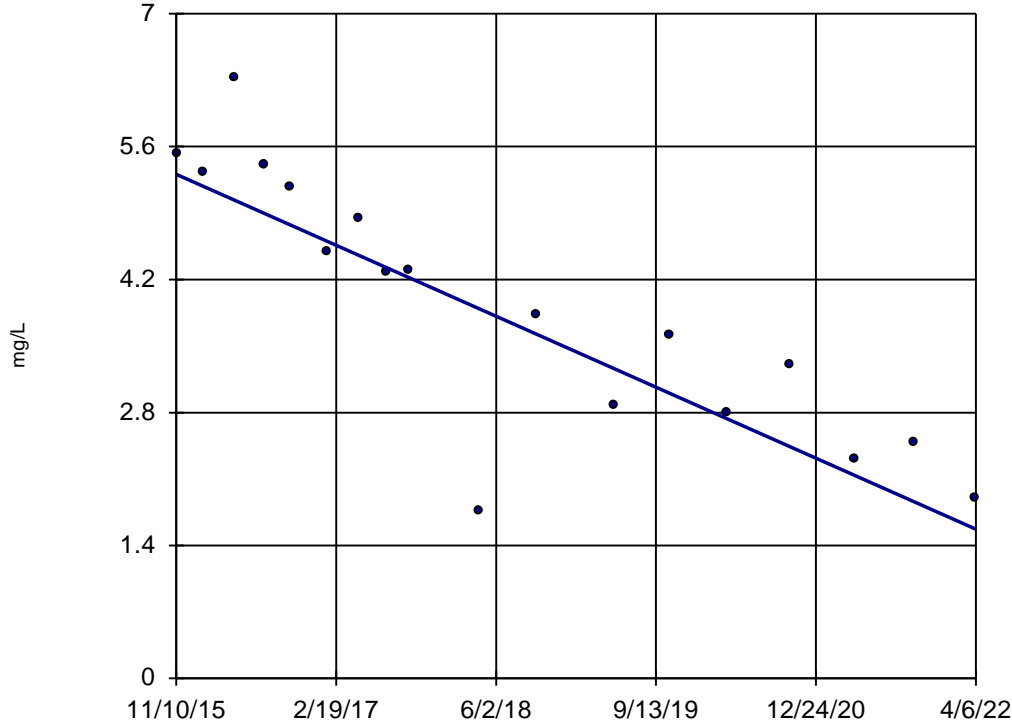
n = 18  
Slope = -13.12 units per year.  
Mann-Kendall statistic = -126  
critical = -63  
Decreasing trend significant at 98% confidence level ( $\alpha = 0.01$  per tail).

Constituent: Calcium Analysis Run 4/27/2022 12:34 PM View: 2022-1H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Sen's Slope Estimator

MW-102



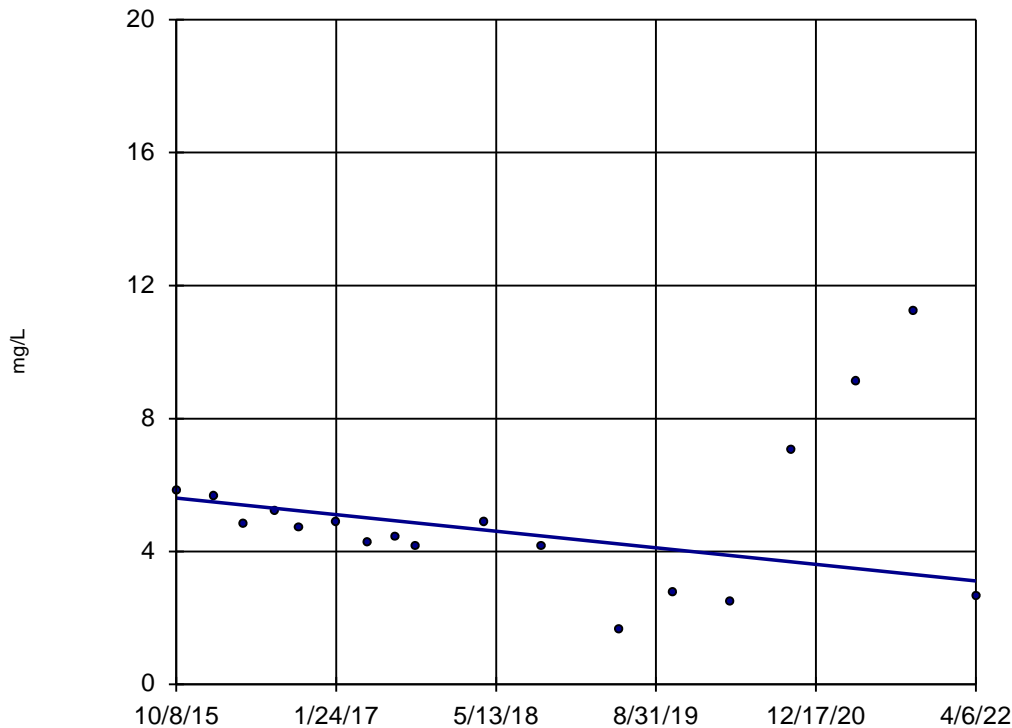
n = 18  
Slope = -0.5828 units per year.  
Mann-Kendall statistic = -119 critical = -63  
Decreasing trend significant at 98% confidence level ( $\alpha = 0.01$  per tail).

Constituent: Chloride Analysis Run 4/27/2022 12:34 PM View: 2022-1H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Sen's Slope Estimator

MW-116



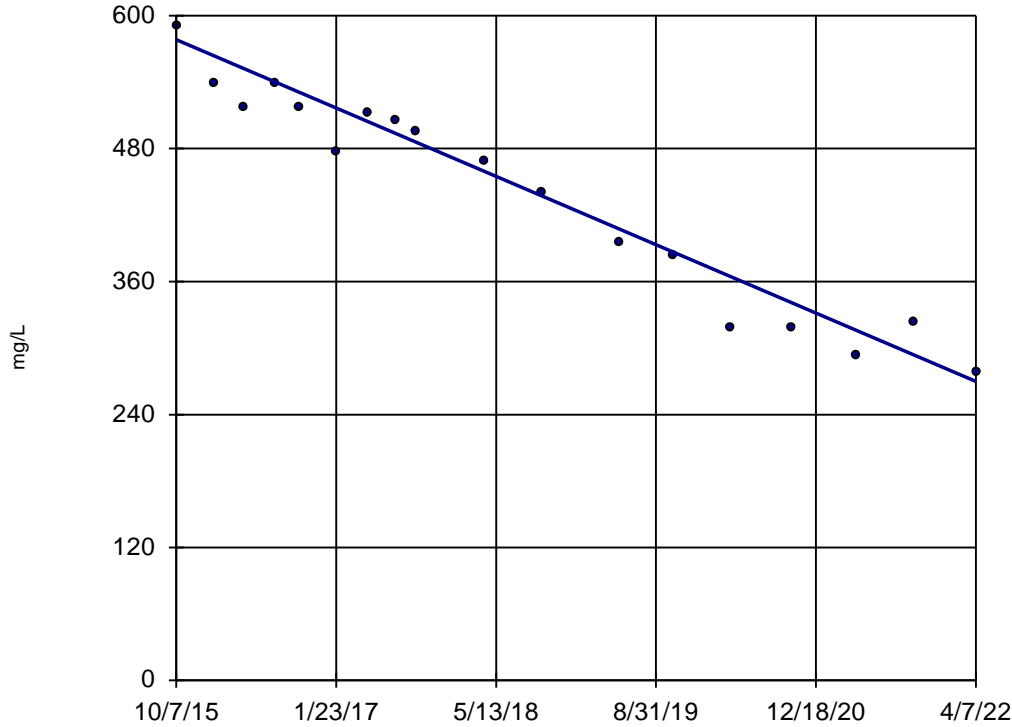
n = 18  
Slope = -0.3837 units per year.  
Mann-Kendall statistic = -35 critical = -63  
Trend not significant at 98% confidence level ( $\alpha = 0.01$  per tail).

Constituent: Chloride Analysis Run 4/27/2022 12:34 PM View: 2022-1H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Sen's Slope Estimator

MW-103



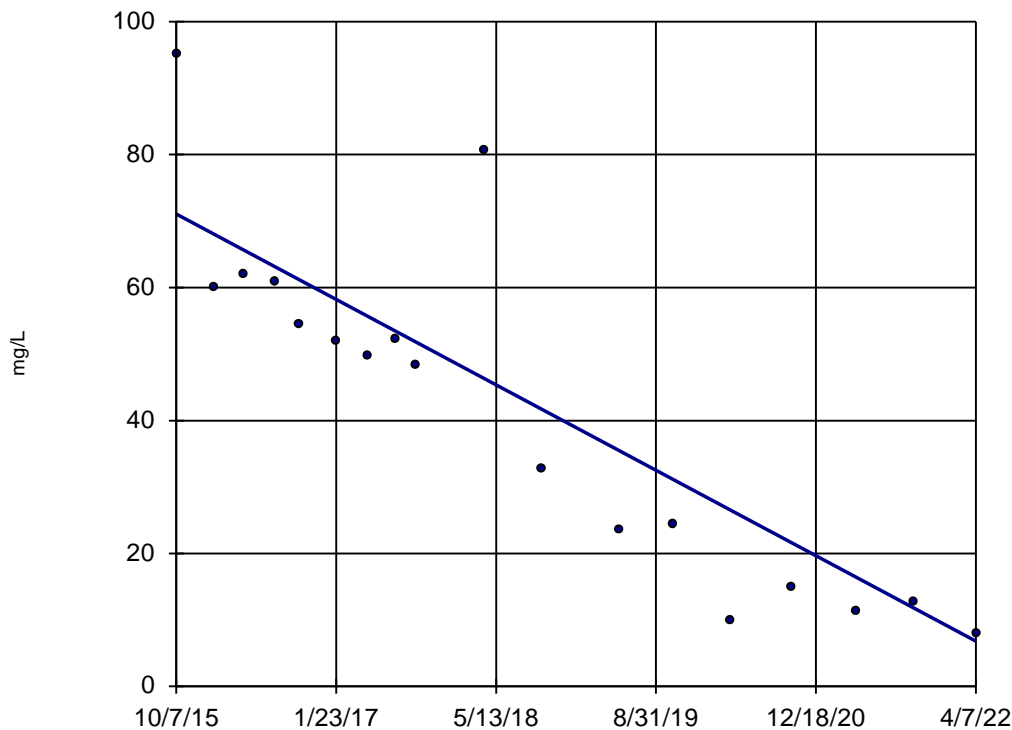
n = 18  
Slope = -47.49 units per year.  
Mann-Kendall statistic = -134 critical = -63  
Decreasing trend significant at 98% confidence level (alpha = 0.01 per tail).

Constituent: Dissolved Solids Analysis Run 4/27/2022 12:34 PM View: 2022-1H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Sen's Slope Estimator

MW-103



n = 18  
Slope = -9.889 units per year.  
Mann-Kendall statistic = -119 critical = -63  
Decreasing trend significant at 98% confidence level (alpha = 0.01 per tail).

Constituent: Sulfate Analysis Run 4/27/2022 12:34 PM View: 2022-1H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

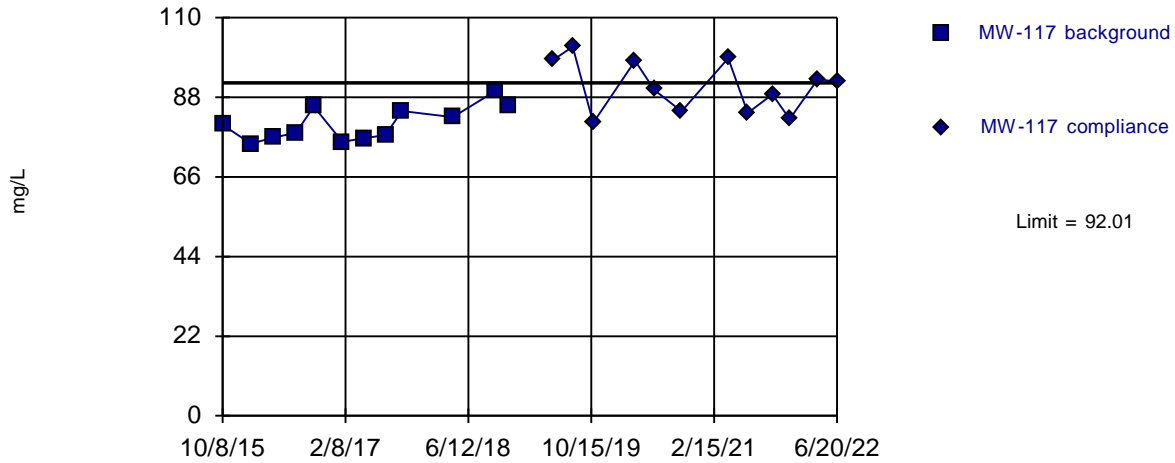


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**Prediction Limits, First Half 2022 Verification Sampling Event**

Exceeds Limit

### Prediction Limit Intrawell Parametric



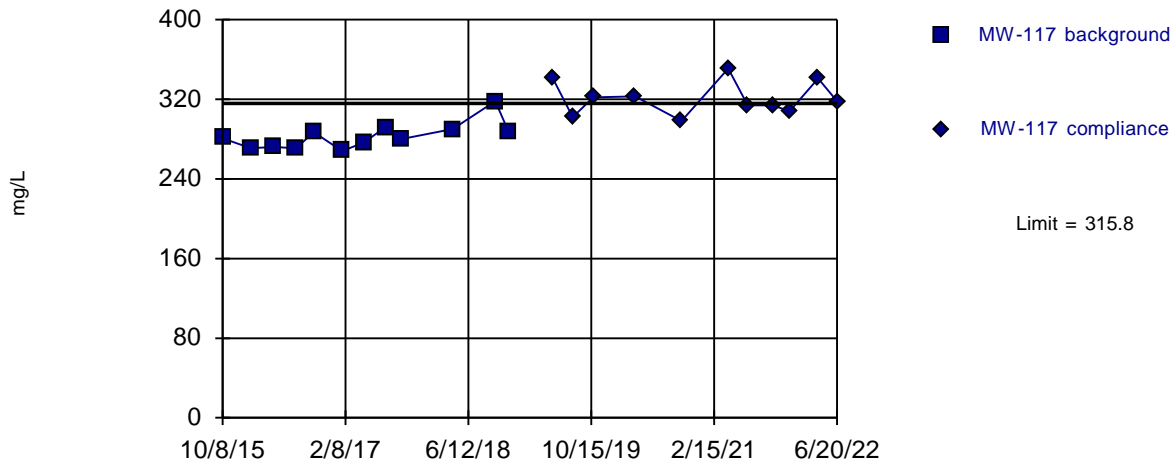
Background Data Summary: Mean=80.69, Std. Dev.=4.731, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9147, critical = 0.805. Kappa = 2.393 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 7/14/2022 12:46 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Exceeds Limit

### Prediction Limit Intrawell Parametric



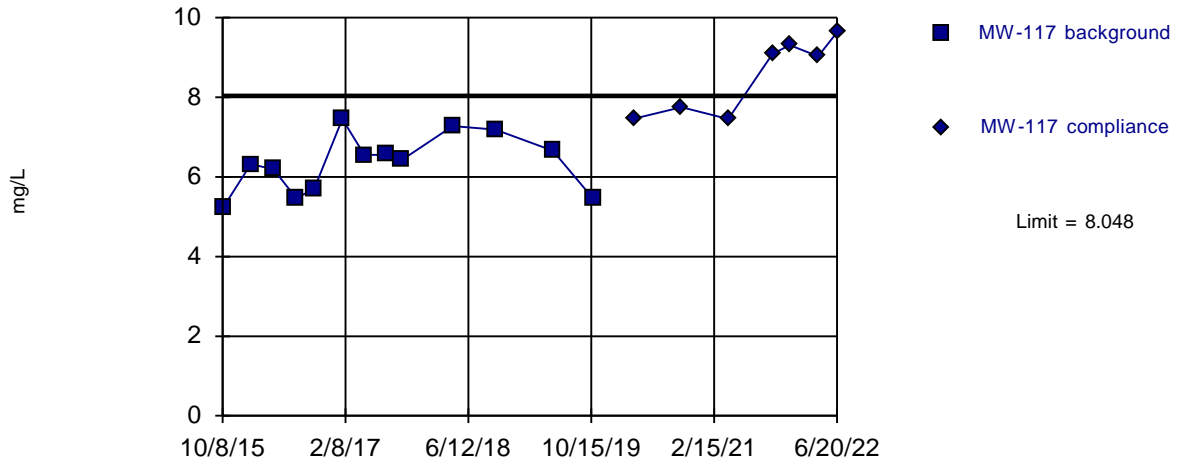
Background Data Summary: Mean=282.9, Std. Dev.=13.75, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.861, critical = 0.805. Kappa = 2.393 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 7/14/2022 12:46 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Exceeds Limit

### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=6.343, Std. Dev.=0.7263, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9459, critical = 0.814. Kappa = 2.348 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 7/14/2022 12:46 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

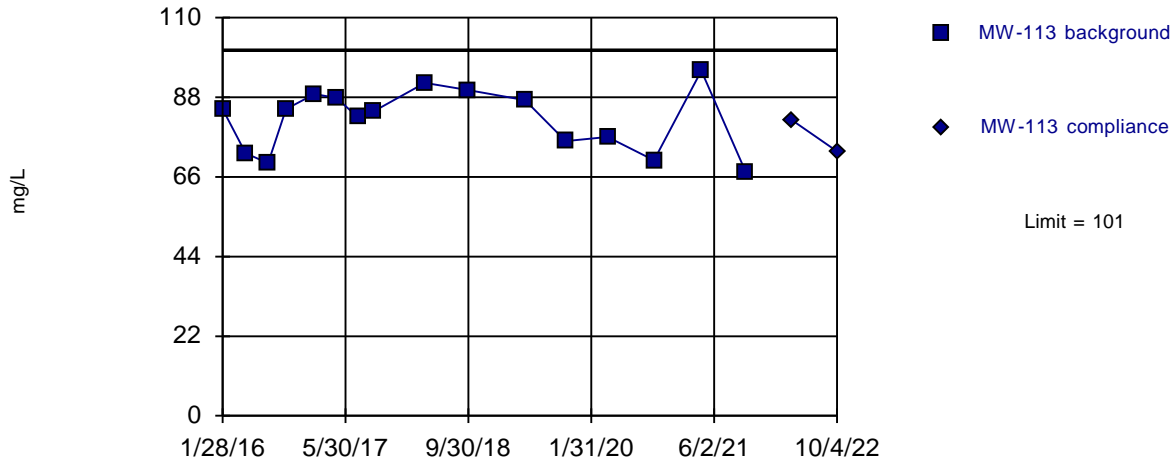
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**Prediction Limits, Second Half 2022 Monitoring Event**



Within Limit

### Prediction Limit Intrawell Parametric



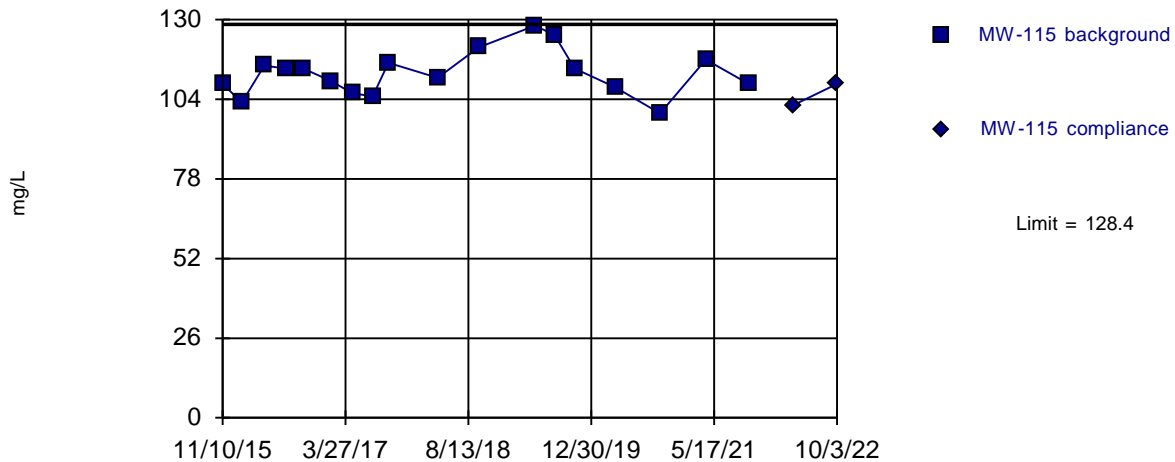
Background Data Summary: Mean=81.93, Std. Dev.=8.613, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.942, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



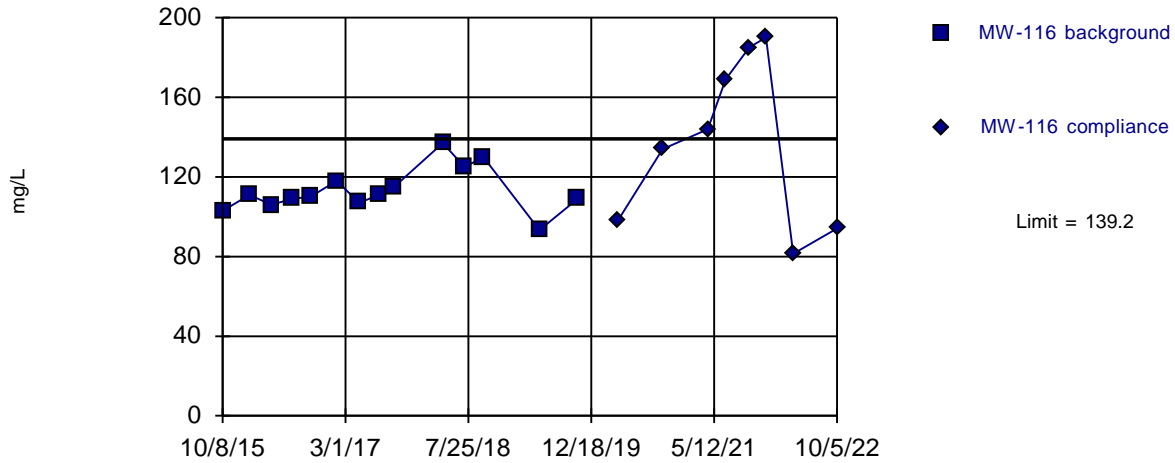
Background Data Summary: Mean=112.5, Std. Dev.=7.388, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9764, critical = 0.858. Kappa = 2.163 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



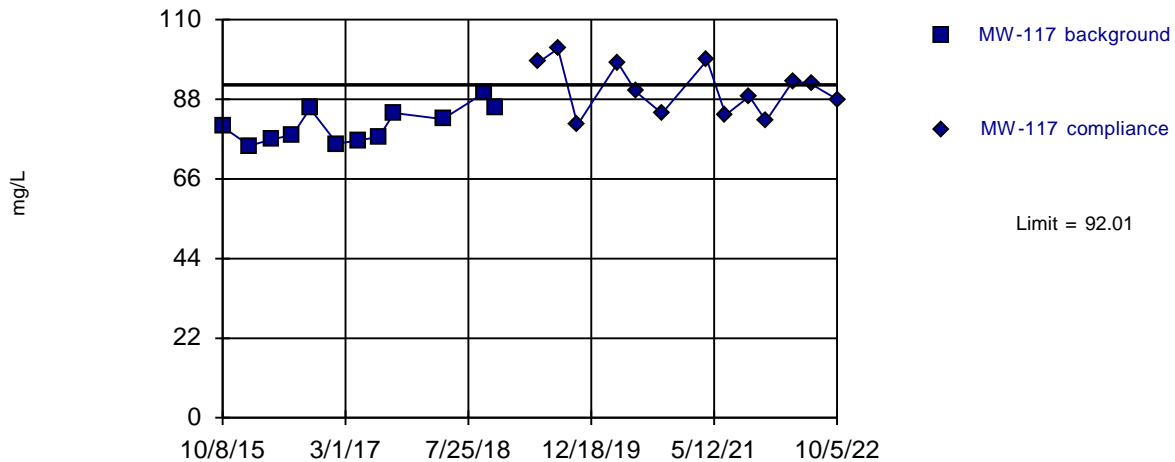
Background Data Summary: Mean=113.2, Std. Dev.=11.31, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9391, critical = 0.825. Kappa = 2.302 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



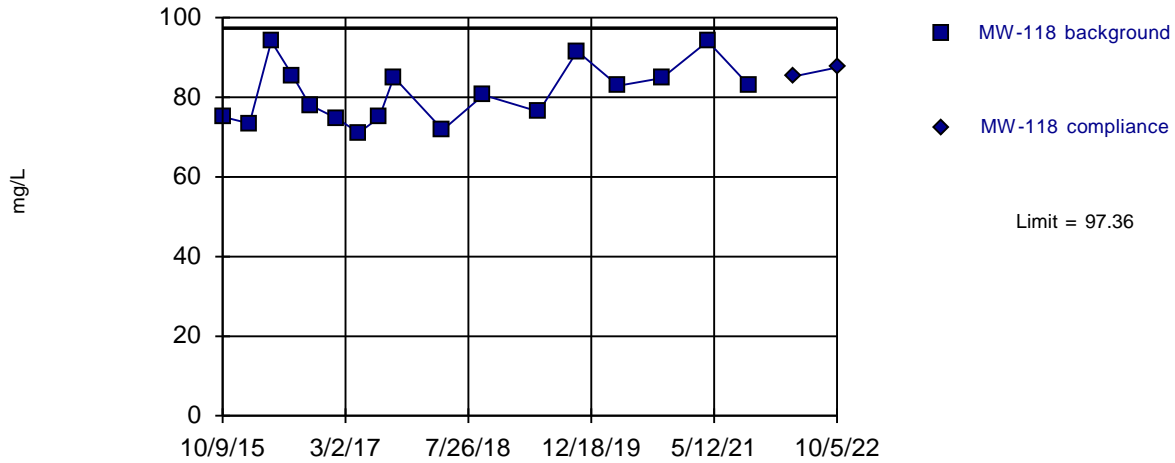
Background Data Summary: Mean=80.69, Std. Dev.=4.731, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9147, critical = 0.805. Kappa = 2.393 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



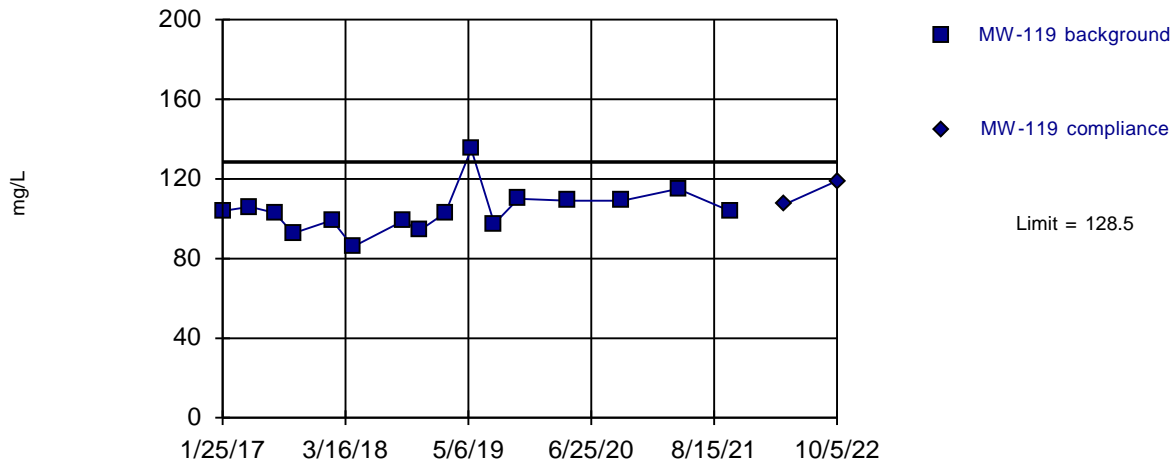
Background Data Summary: Mean=81, Std. Dev.=7.48, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9232, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=104.1, Std. Dev.=11.01, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9078, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

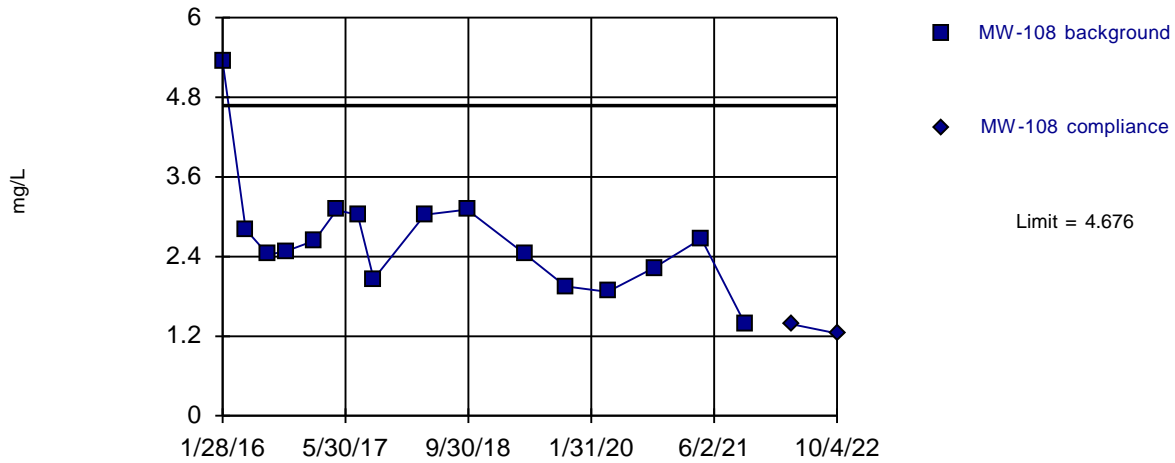
Constituent: Calcium Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



Within Limit

Prediction Limit  
Intrawell Parametric



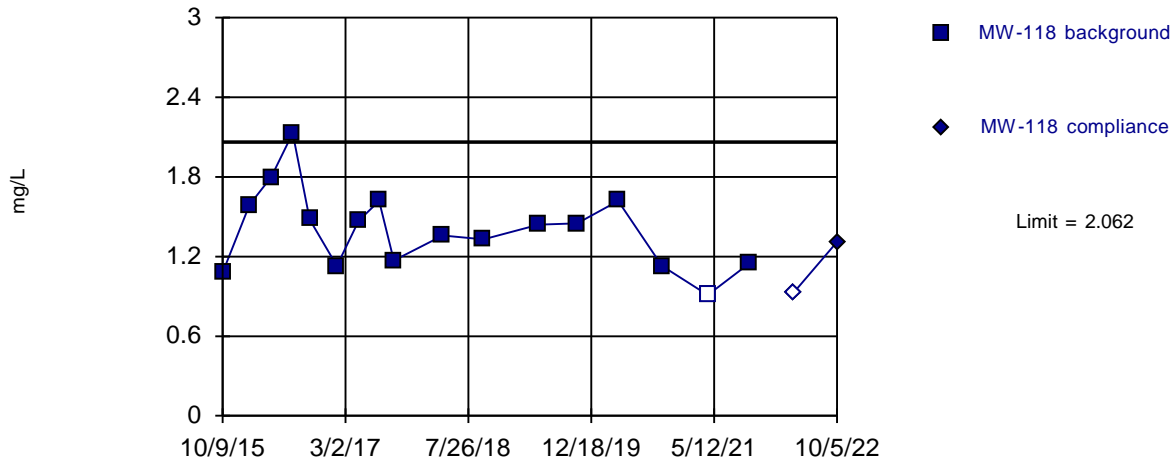
Background Data Summary (based on square root transformation): Mean=1.613, Std. Dev.=0.2483, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8972, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Chloride Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

Prediction Limit  
Intrawell Parametric



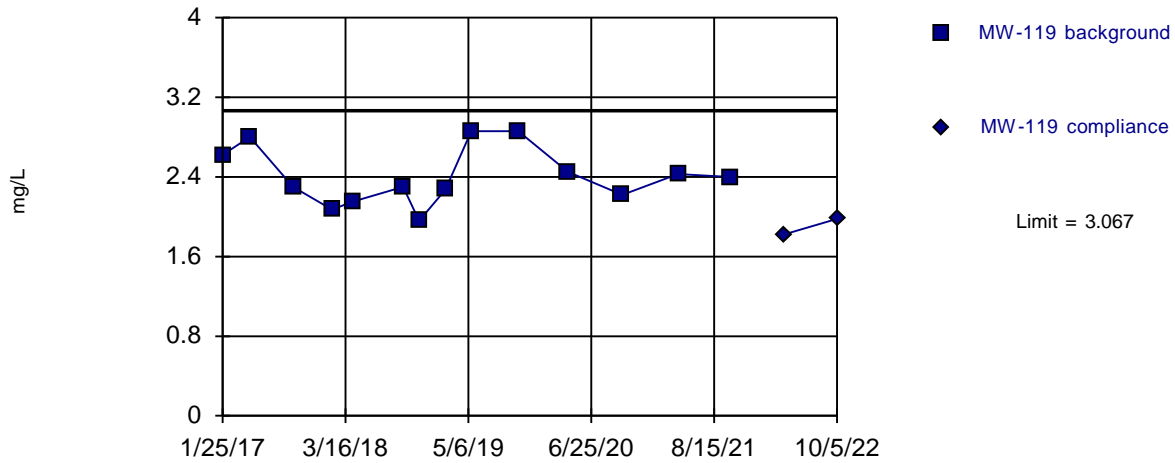
Background Data Summary: Mean=1.404, Std. Dev.=0.3011, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9568, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Chloride Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



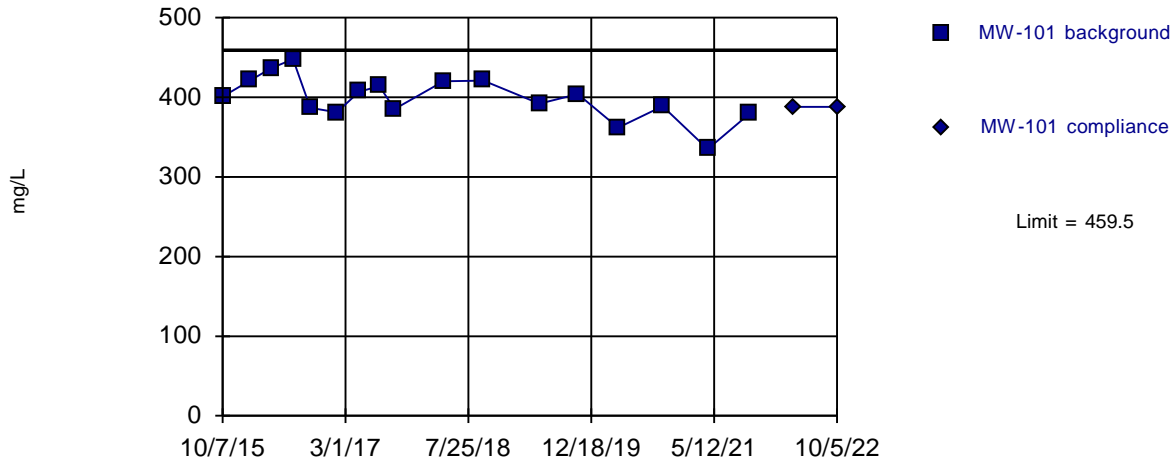
Background Data Summary: Mean=2.406, Std. Dev.=0.2867, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9373, critical = 0.825. Kappa = 2.302 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Chloride Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



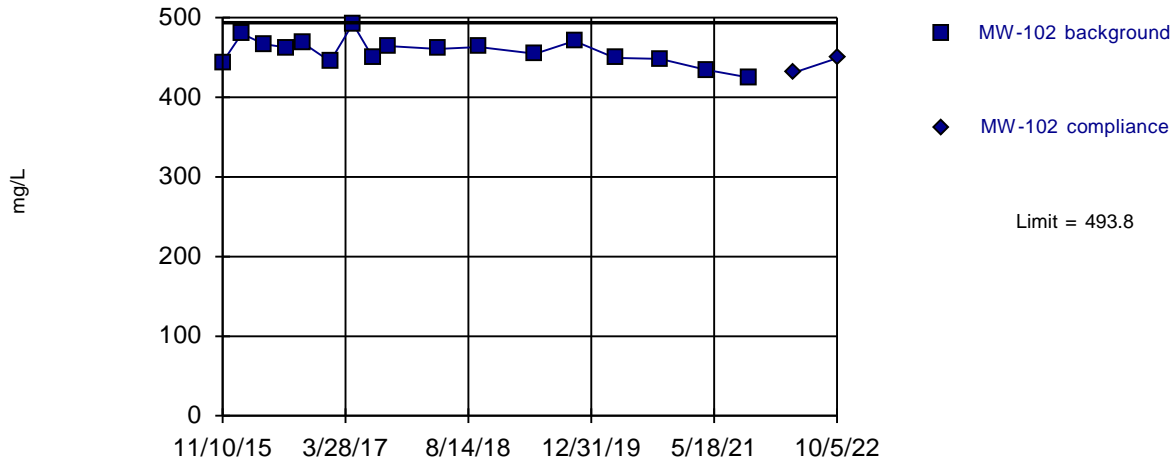
Background Data Summary: Mean=399.1, Std. Dev.=27.63, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9751, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



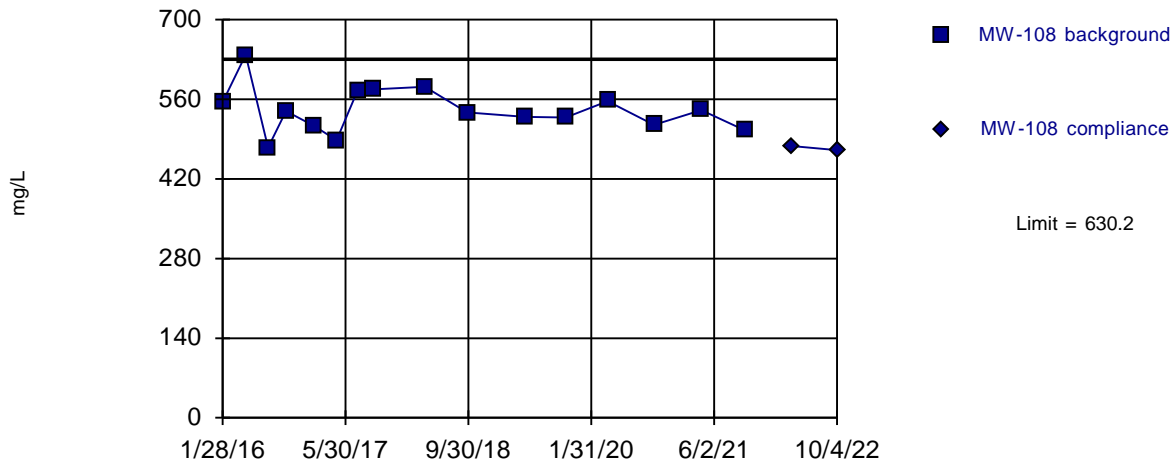
Background Data Summary: Mean=457.7, Std. Dev.=16.52, n=17. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.985, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



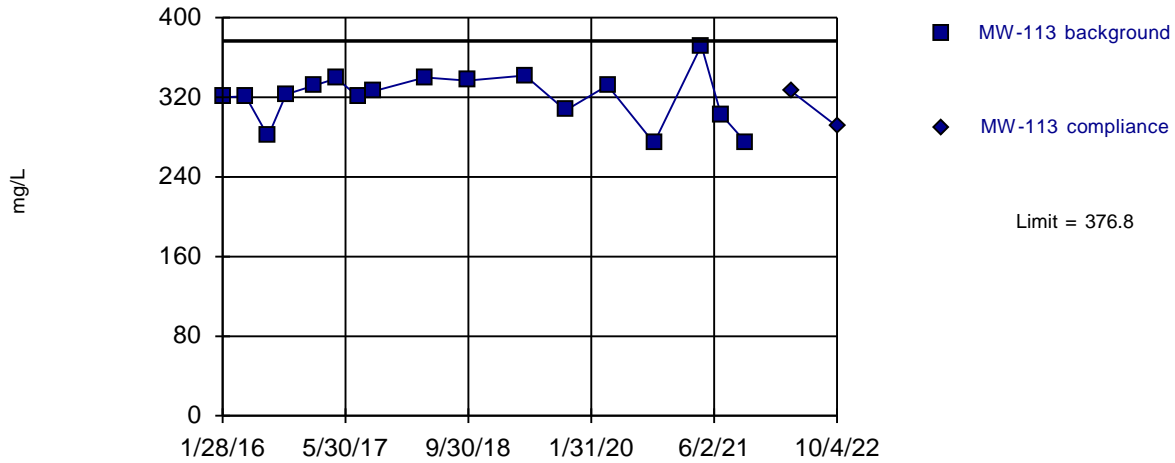
Background Data Summary: Mean=541, Std. Dev.=40.32, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9661, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



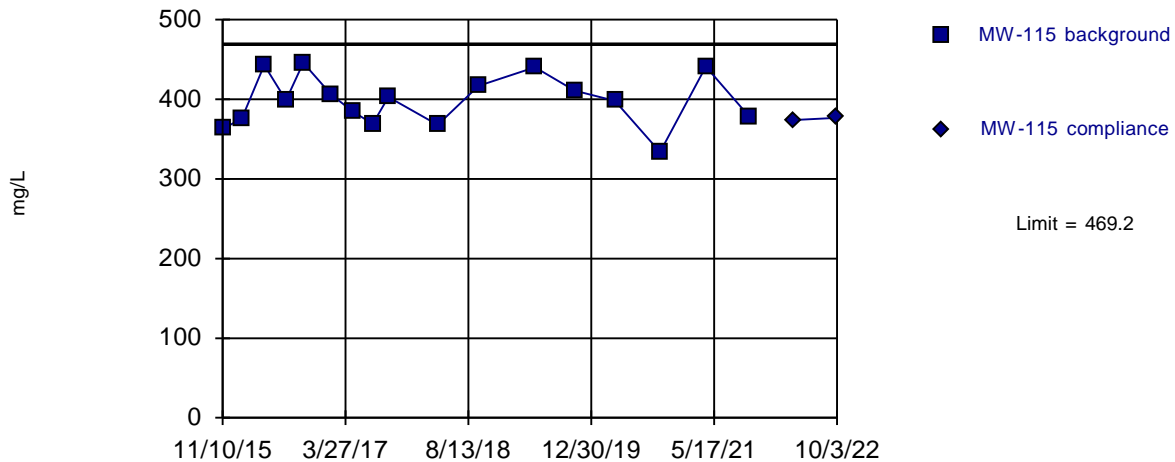
Background Data Summary: Mean=320.3, Std. Dev.=25.85, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9286, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



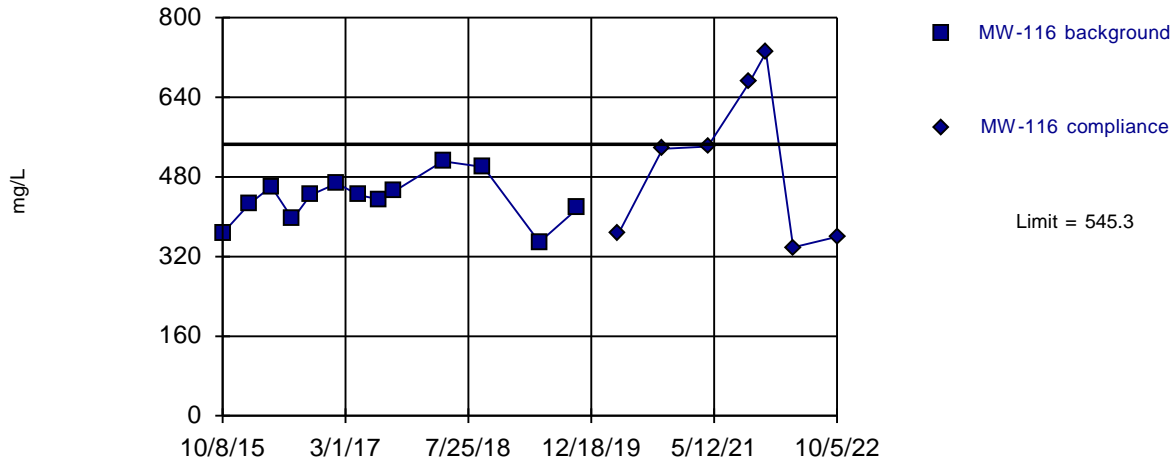
Background Data Summary: Mean=398.7, Std. Dev.=32.24, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9544, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



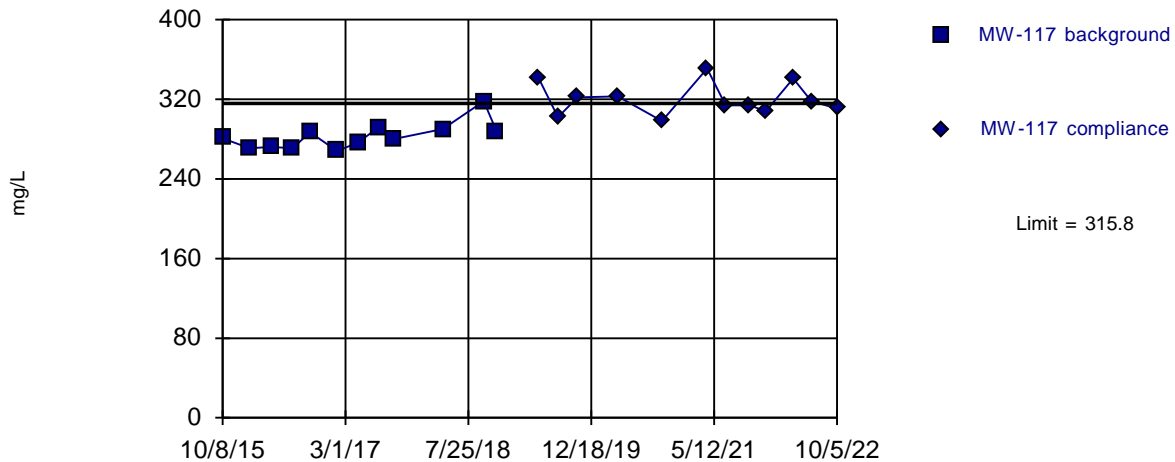
Background Data Summary: Mean=435.8, Std. Dev.=46.64, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9697, critical = 0.814. Kappa = 2.348 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



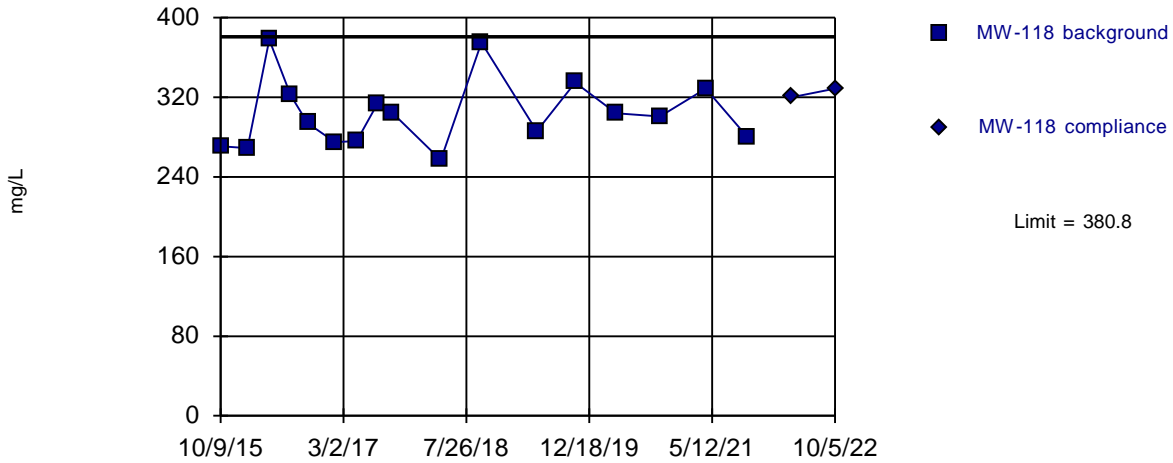
Background Data Summary: Mean=282.9, Std. Dev.=13.75, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.861, critical = 0.805. Kappa = 2.393 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



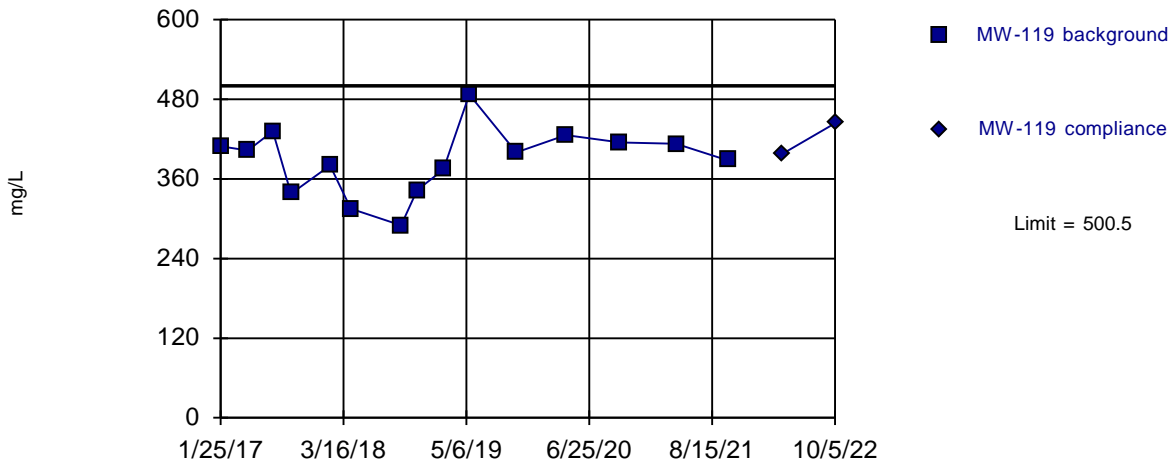
Background Data Summary: Mean=304.1, Std. Dev.=35.06, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9158, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



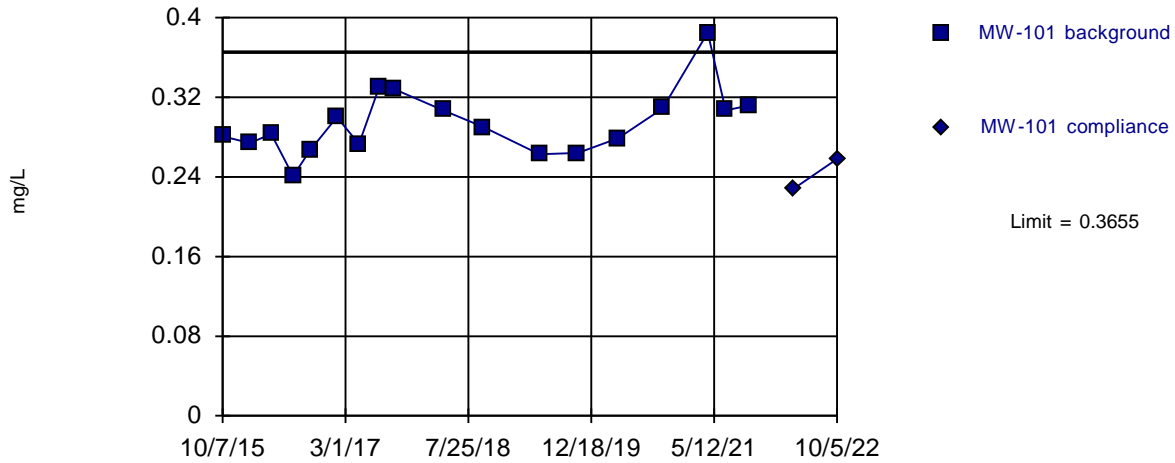
Background Data Summary: Mean=387.5, Std. Dev.=50.04, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9666, critical = 0.835. Kappa = 2.257 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

Prediction Limit  
Intrawell Parametric



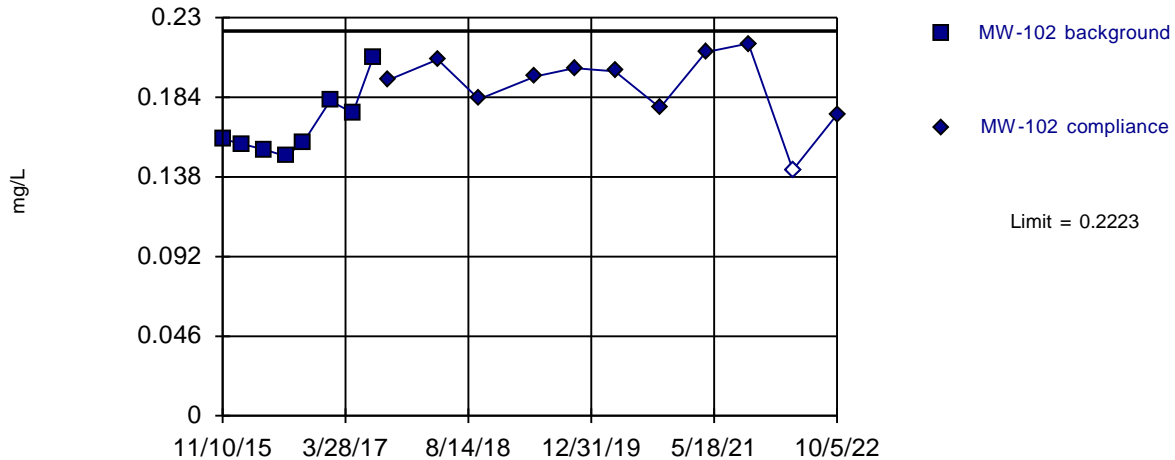
Background Data Summary: Mean=0.2941, Std. Dev.=0.03299, n=18. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9277, critical = 0.858. Kappa = 2.163 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Fluoride Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

Prediction Limit  
Intrawell Parametric



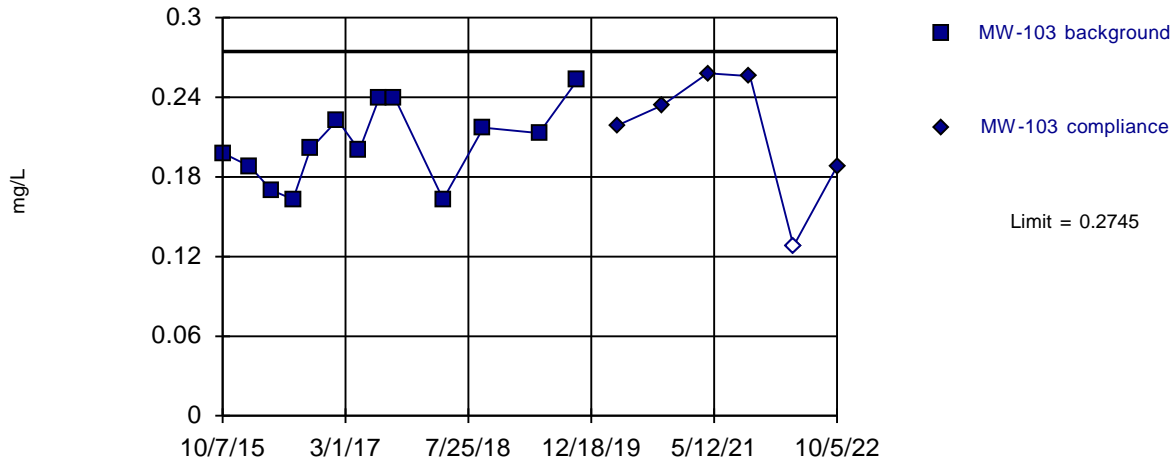
Background Data Summary: Mean=0.1679, Std. Dev.=0.01916, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8449, critical = 0.749. Kappa = 2.841 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Fluoride Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



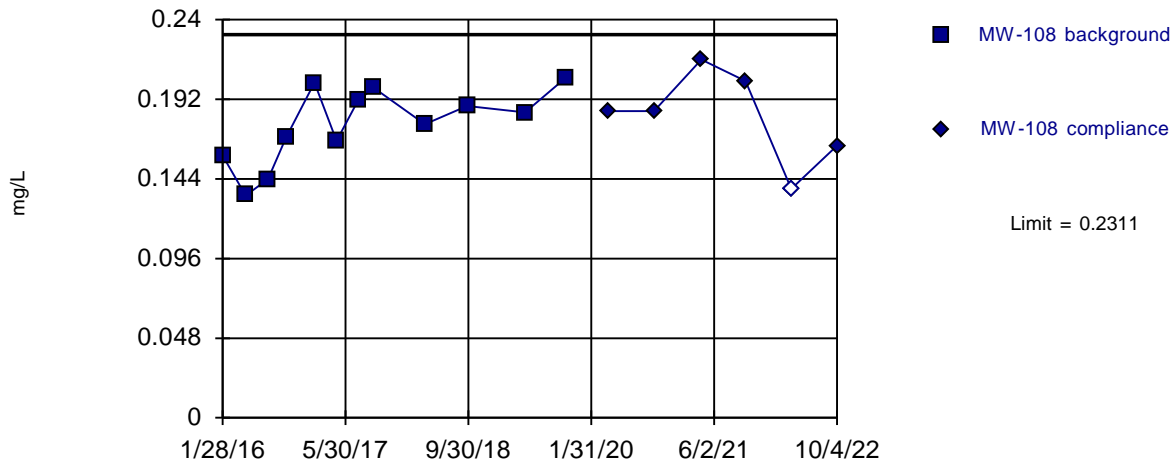
Background Data Summary: Mean=0.2053, Std. Dev.=0.02946, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.95, critical = 0.814. Kappa = 2.348 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Fluoride Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=0.1765, Std. Dev.=0.0228, n=12. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9459, critical = 0.805. Kappa = 2.393 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

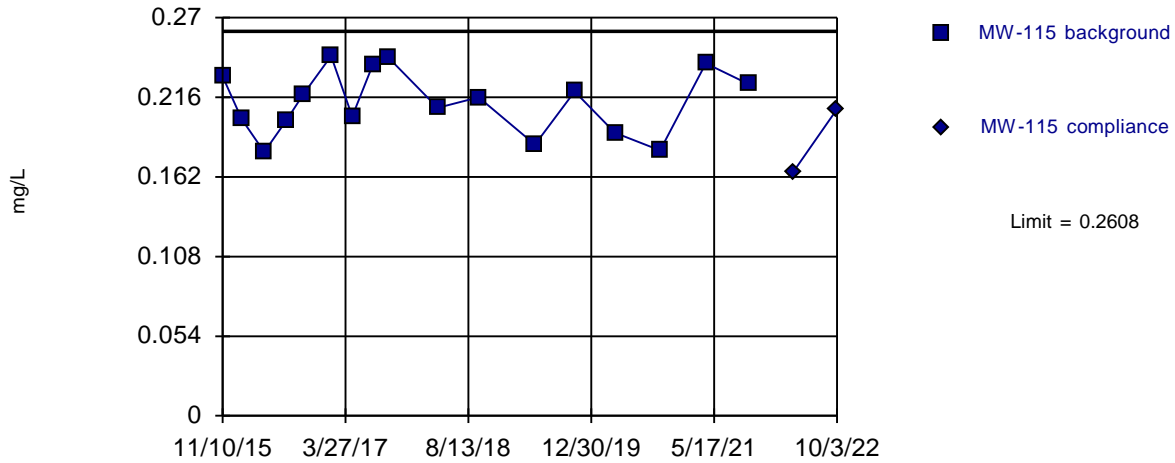
Constituent: Fluoride Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



Within Limit

Prediction Limit  
Intrawell Parametric



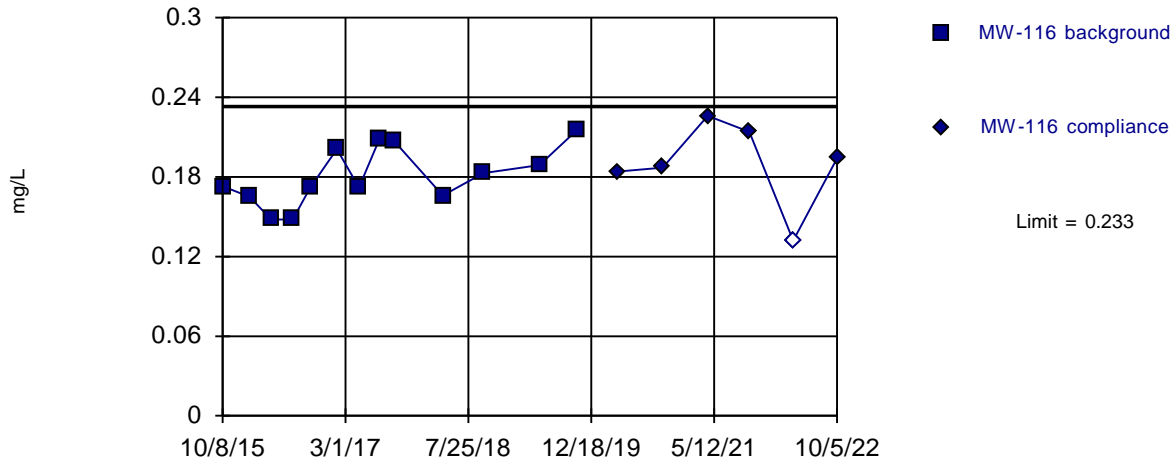
Background Data Summary: Mean=0.213, Std. Dev.=0.02184, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9423, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Fluoride Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

Prediction Limit  
Intrawell Parametric



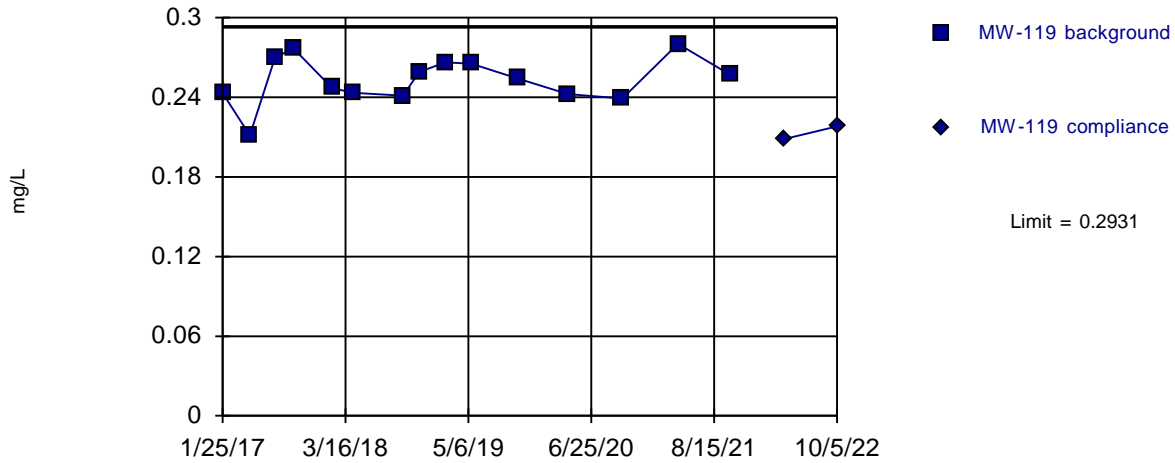
Background Data Summary: Mean=0.1806, Std. Dev.=0.02233, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9394, critical = 0.814. Kappa = 2.348 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Fluoride Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



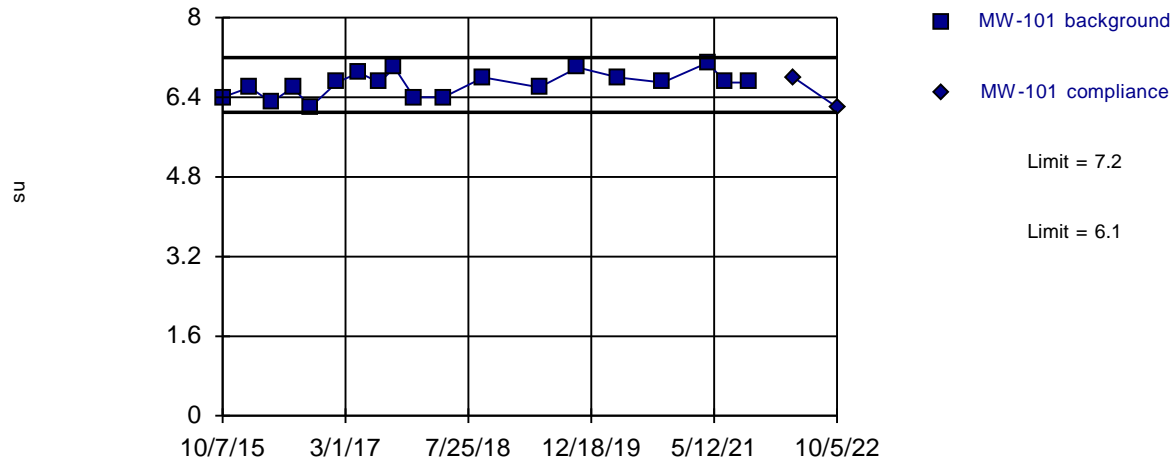
Background Data Summary: Mean=0.2531, Std. Dev.=0.01771, n=15. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9474, critical = 0.835. Kappa = 2.257 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Fluoride Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



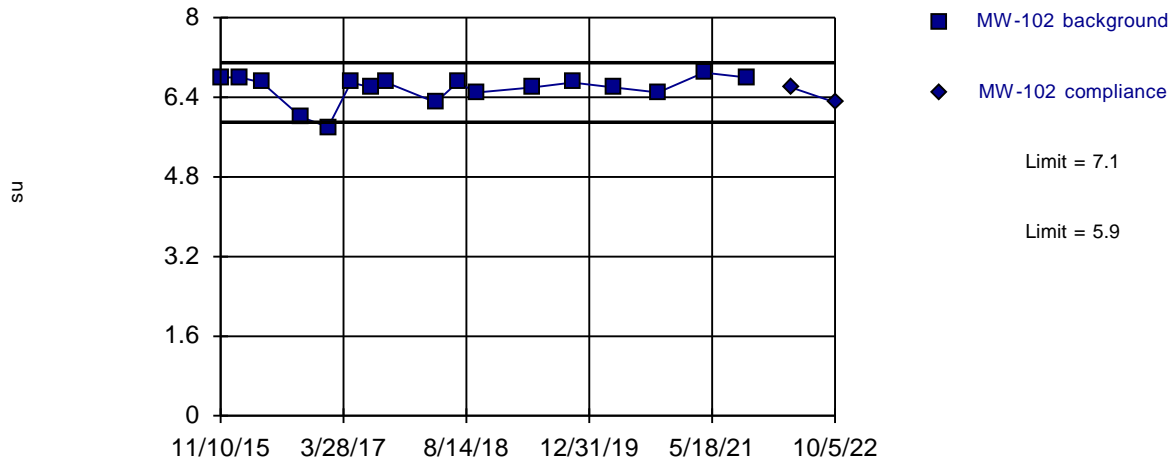
Background Data Summary: Mean=6.663, Std. Dev.=0.2454, n=19. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9635, critical = 0.863. Kappa = 2.139 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



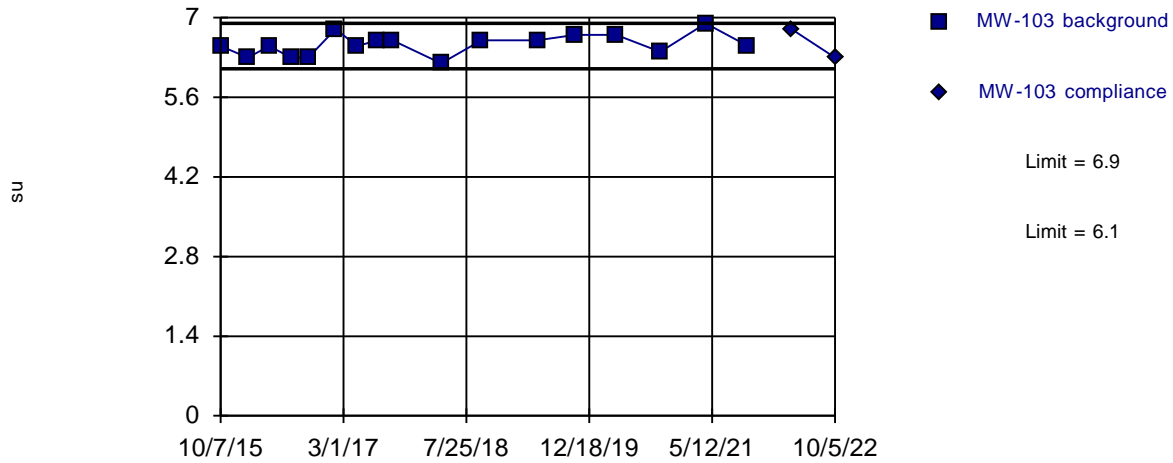
Background Data Summary (based on x<sup>4</sup> transformation): Mean=1884, Std. Dev.=301.4, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8532, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



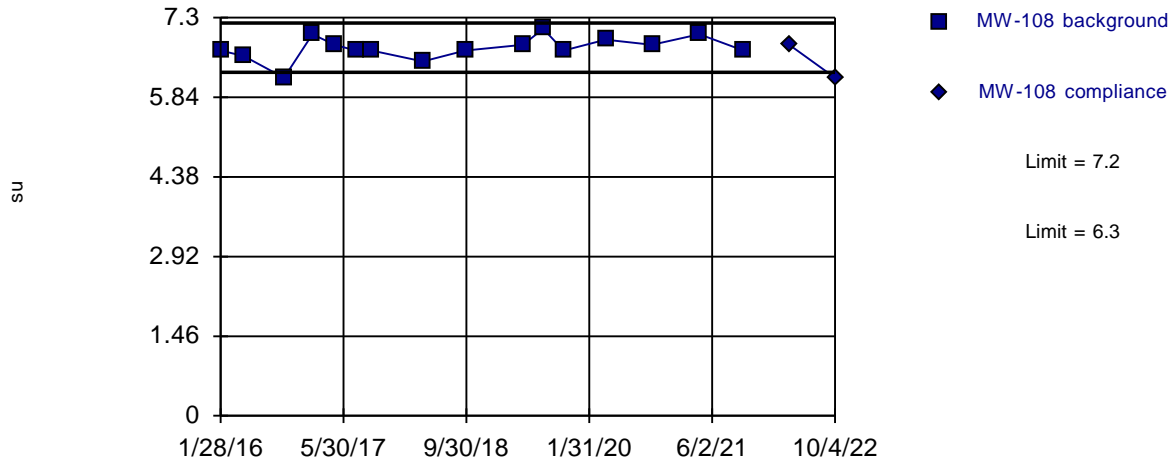
Background Data Summary: Mean=6.529, Std. Dev.=0.1896, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9646, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Exceeds Limits

### Prediction Limit Intrawell Parametric



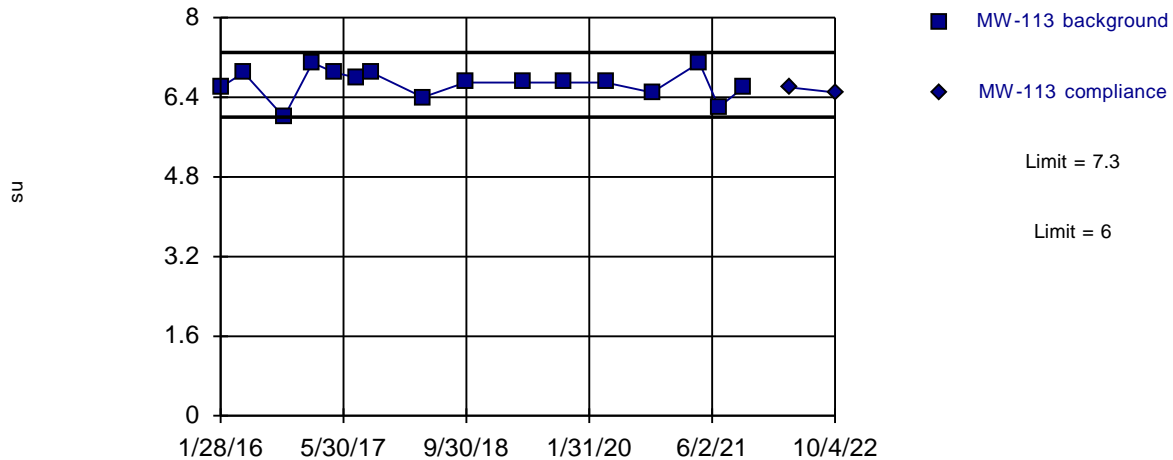
Background Data Summary: Mean=6.744, Std. Dev.=0.2128, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9177, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



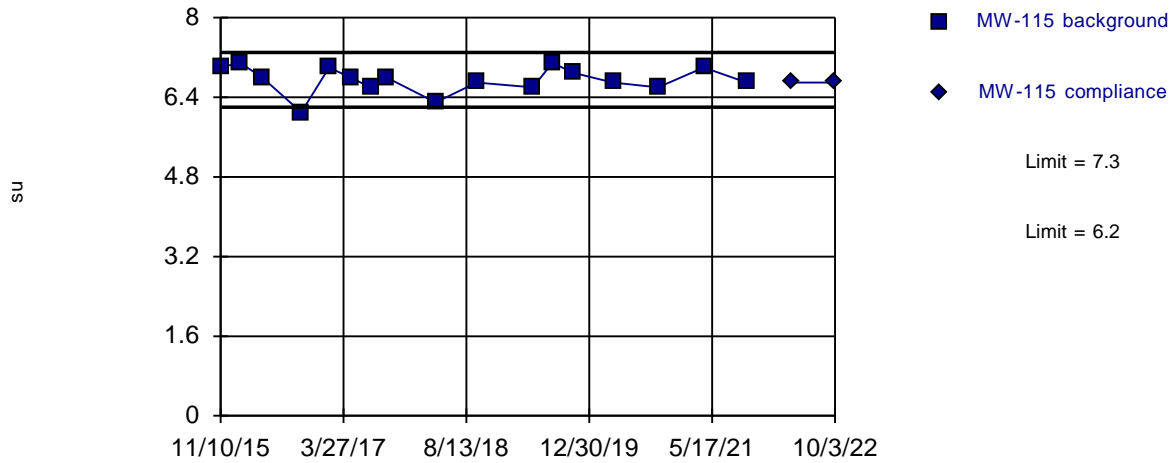
Background Data Summary: Mean=6.675, Std. Dev.=0.2978, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9421, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



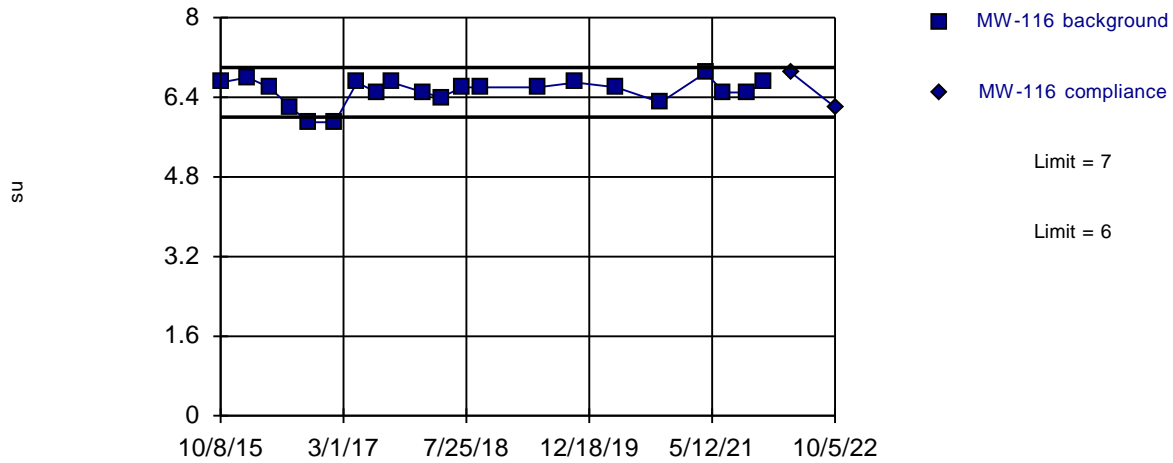
Background Data Summary: Mean=6.753, Std. Dev.=0.2695, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9194, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit Intrawell Parametric



Background Data Summary (based on square transformation): Mean=42.56, Std. Dev.=3.313, n=21. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8756, critical = 0.873. Kappa = 2.1 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

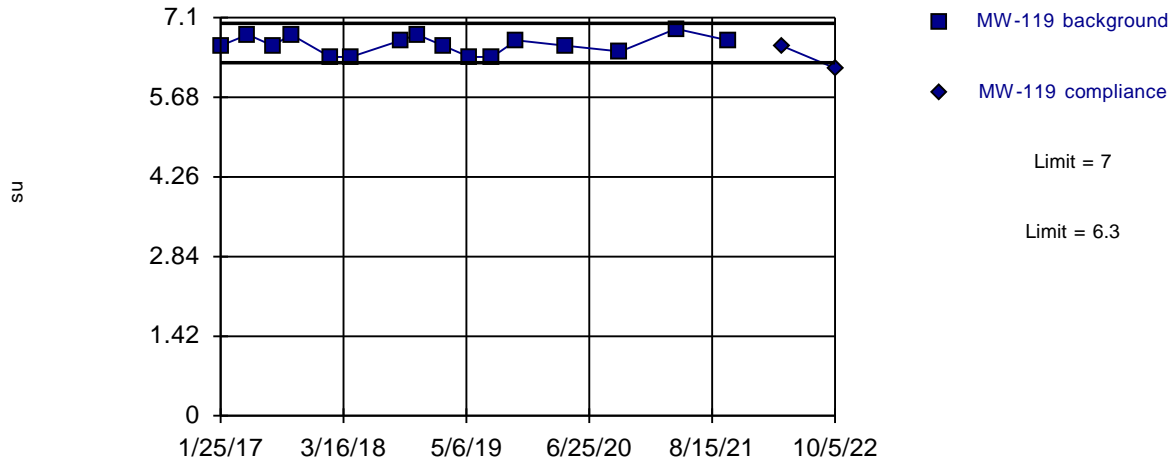
Constituent: pH Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



Exceeds Limits

### Prediction Limit Intrawell Parametric



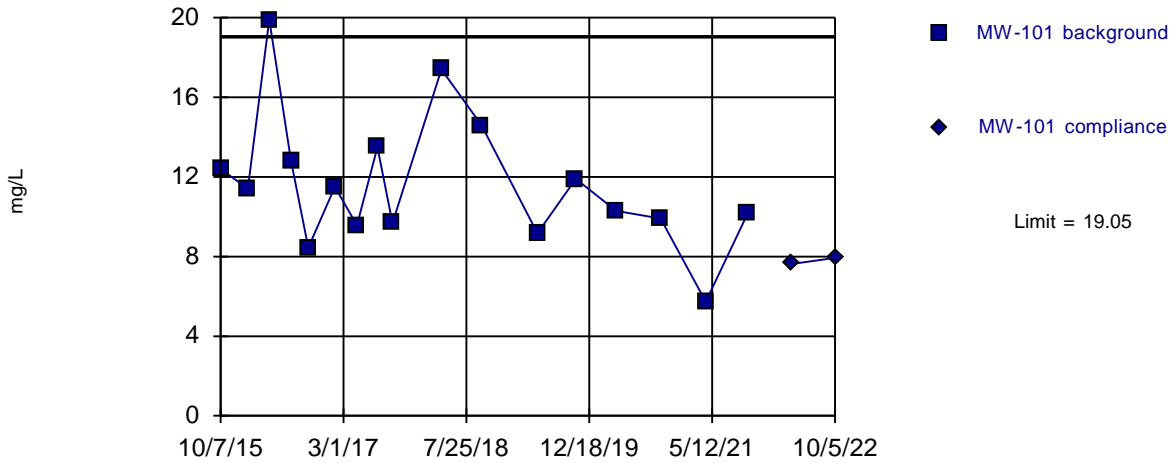
Background Data Summary: Mean=6.619, Std. Dev.=0.1642, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9133, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=11.67, Std. Dev.=3.372, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9362, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

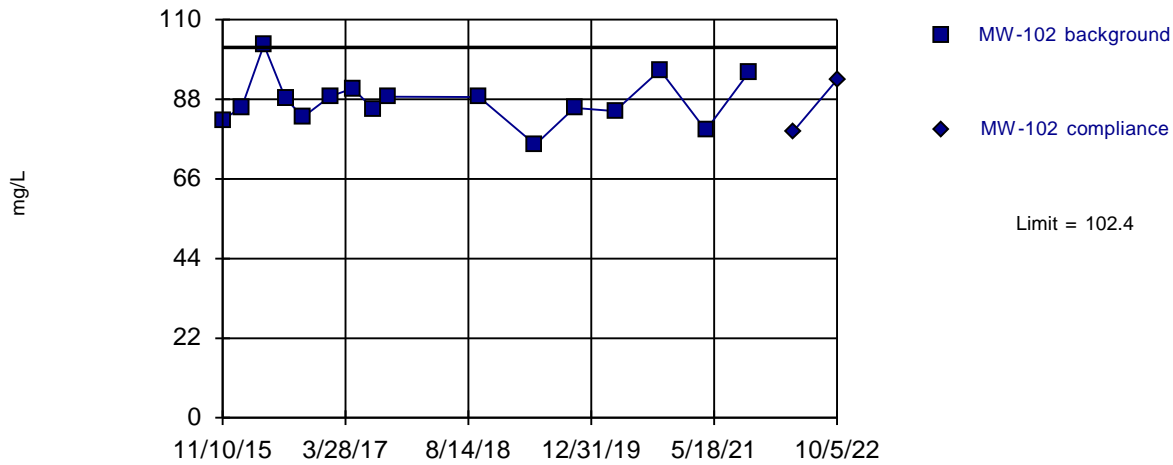
Constituent: Sulfate Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=87.59, Std. Dev.=6.672, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9649, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

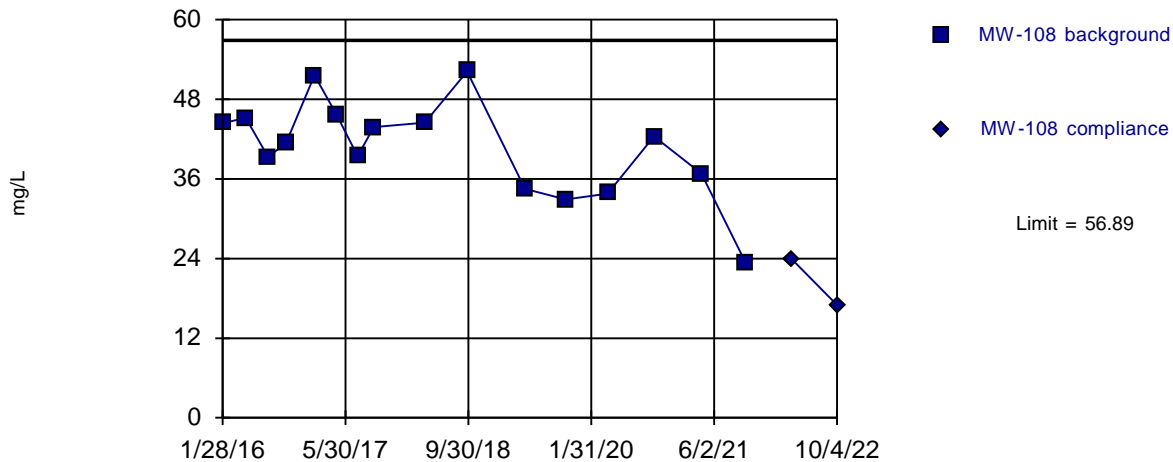
Constituent: Sulfate Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=40.71, Std. Dev.=7.314, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9559, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

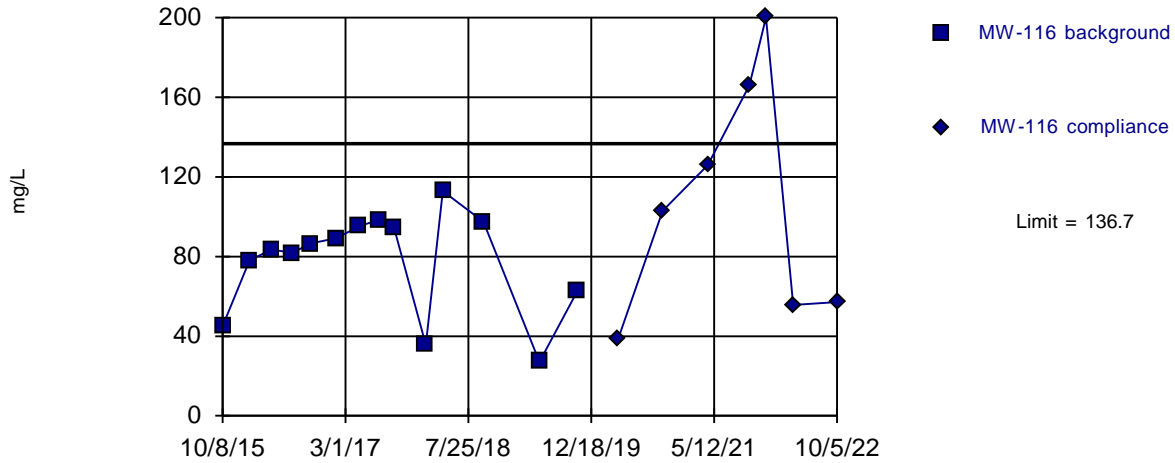
Constituent: Sulfate Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



Within Limit

### Prediction Limit Intrawell Parametric



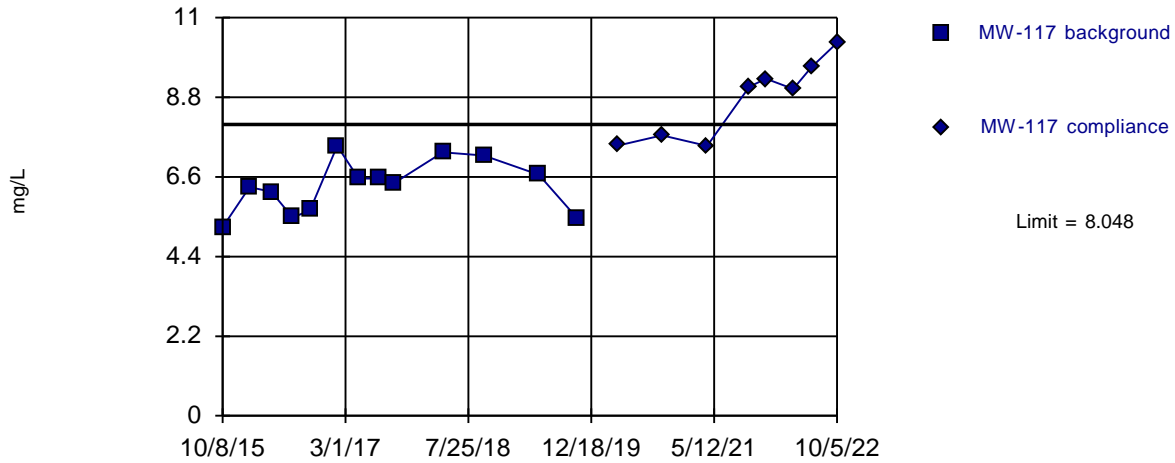
Background Data Summary: Mean=77.71, Std. Dev.=25.62, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8937, critical = 0.825. Kappa = 2.302 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Exceeds Limit

### Prediction Limit Intrawell Parametric



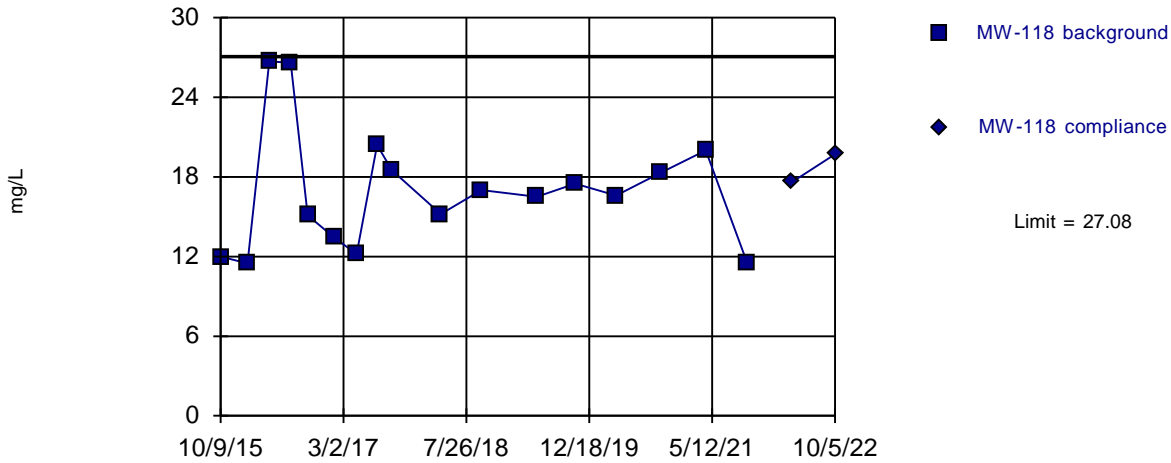
Background Data Summary: Mean=6.343, Std. Dev.=0.7263, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9459, critical = 0.814. Kappa = 2.348 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



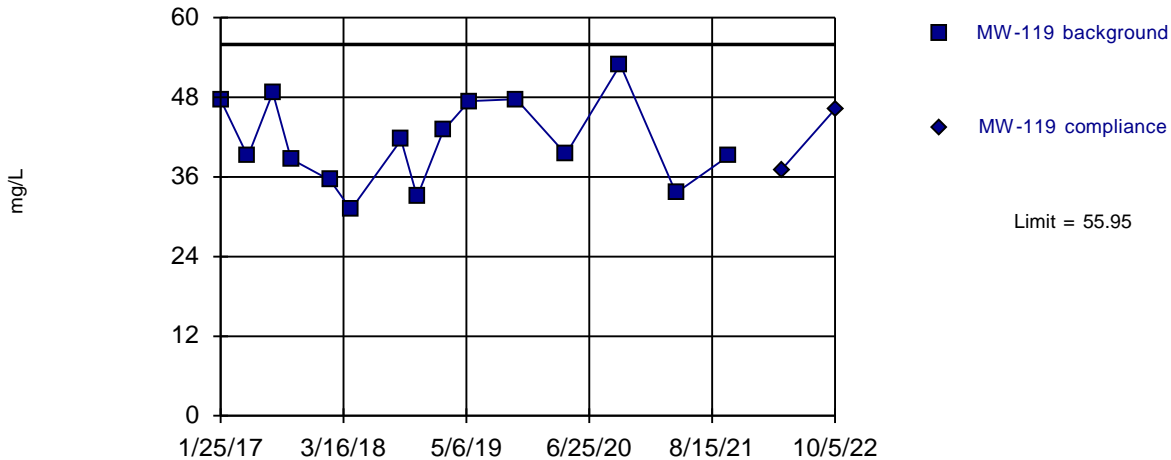
Background Data Summary: Mean=17, Std. Dev.=4.608, n=17. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9008, critical = 0.851. Kappa = 2.188 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



Background Data Summary: Mean=41.23, Std. Dev.=6.525, n=15. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9533, critical = 0.835. Kappa = 2.257 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 11/7/2022 11:28 AM View: 2022-2H PL

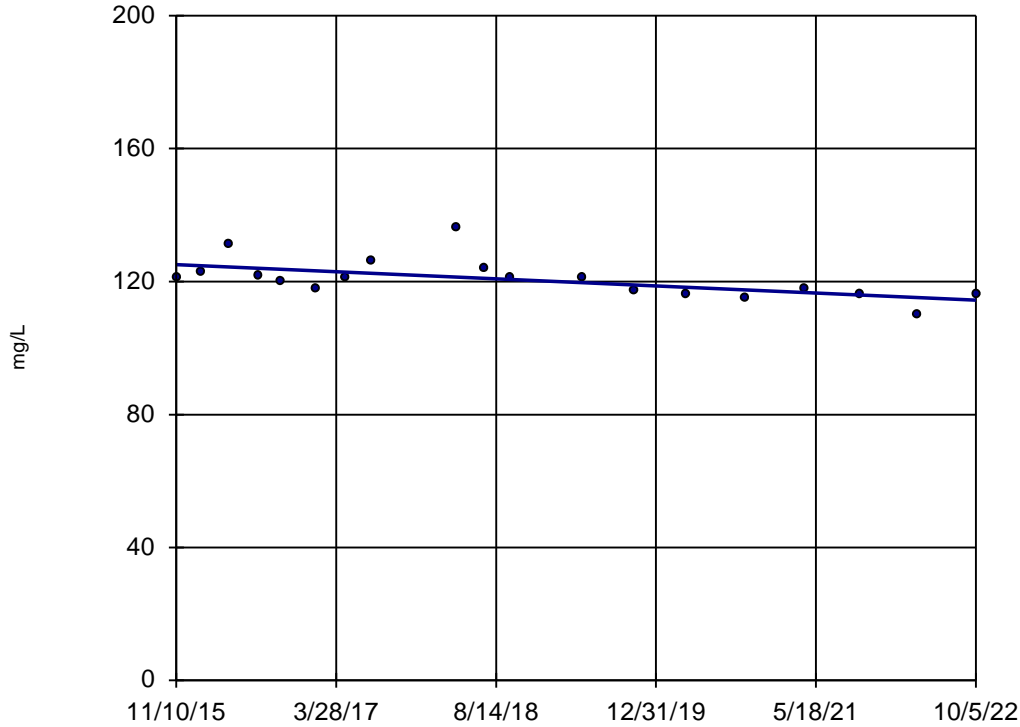
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

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**Trend Tests, Second Half 2022 Monitoring Event**

### Sen's Slope Estimator

MW-102



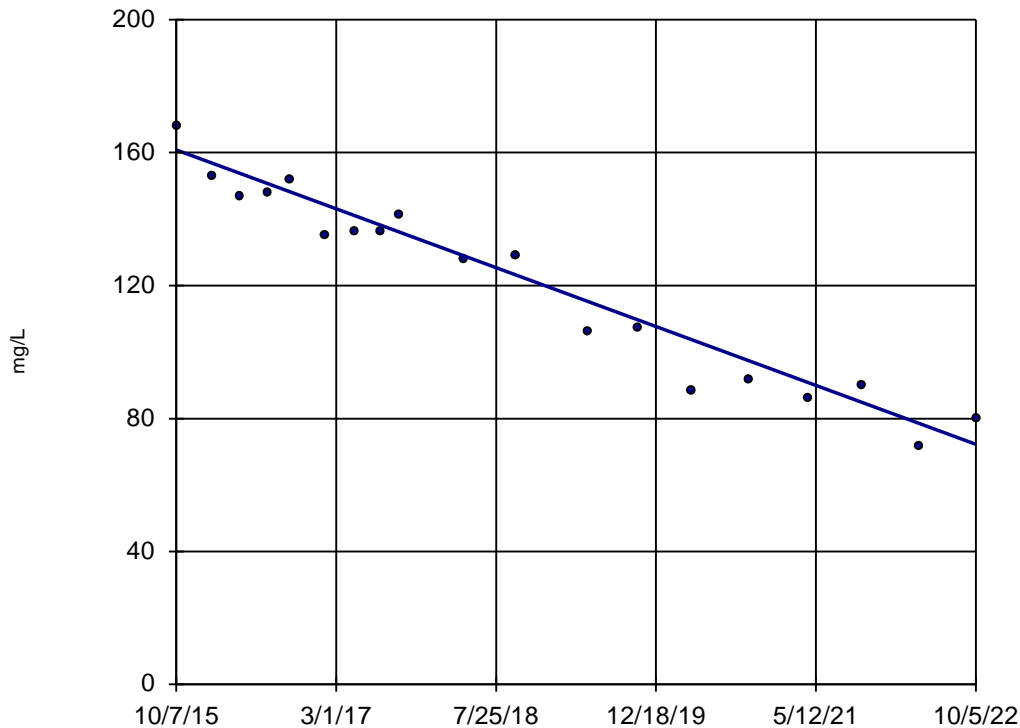
n = 19  
Slope = -1.541 units per year.  
Mann-Kendall statistic = -89 critical = -68  
Decreasing trend significant at 98% confidence level ( $\alpha = 0.01$  per tail).

Constituent: Calcium Analysis Run 11/7/2022 11:33 AM View: 2022-2H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Sen's Slope Estimator

MW-103



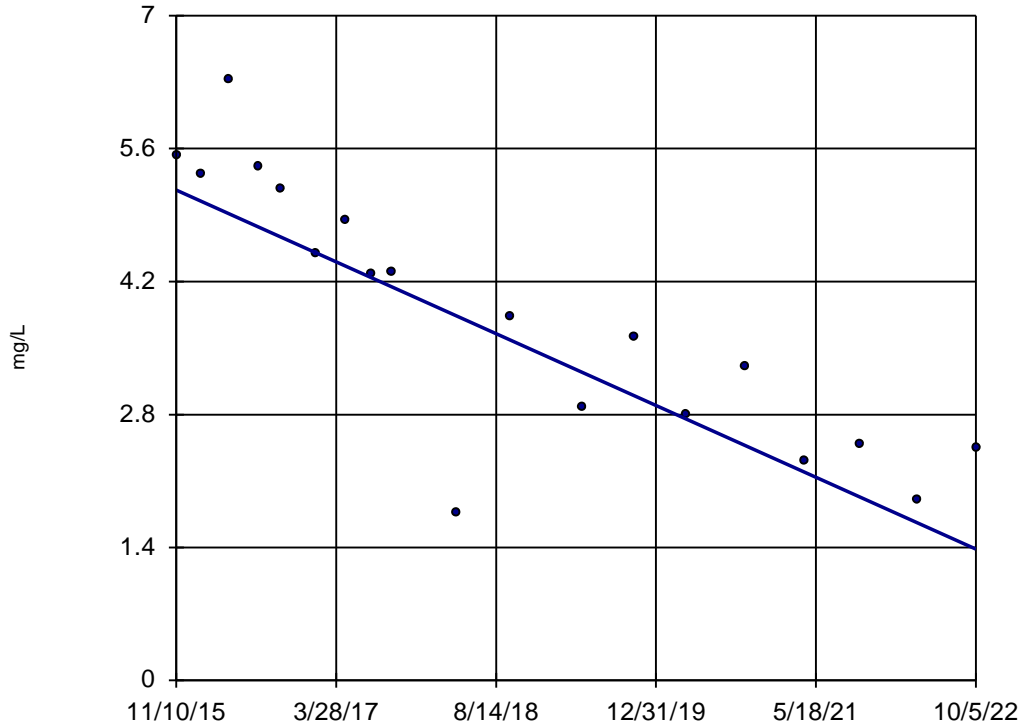
n = 19  
Slope = -12.67 units per year.  
Mann-Kendall statistic = -142 critical = -68  
Decreasing trend significant at 98% confidence level ( $\alpha = 0.01$  per tail).

Constituent: Calcium Analysis Run 11/7/2022 11:33 AM View: 2022-2H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Sen's Slope Estimator

MW-102



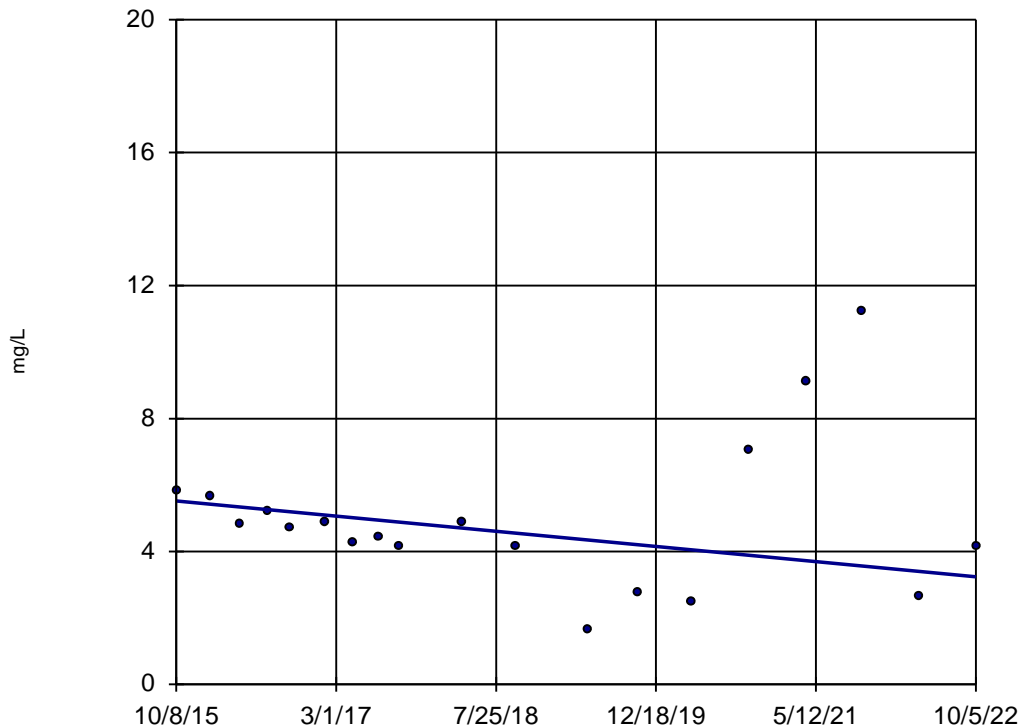
n = 19  
Slope = -0.5477  
units per year.  
Mann-Kendall  
statistic = -131  
critical = -68  
Decreasing trend  
significant at 98%  
confidence level  
( $\alpha = 0.01$  per  
tail).

Constituent: Chloride Analysis Run 11/7/2022 11:33 AM View: 2022-2H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Sen's Slope Estimator

MW-116



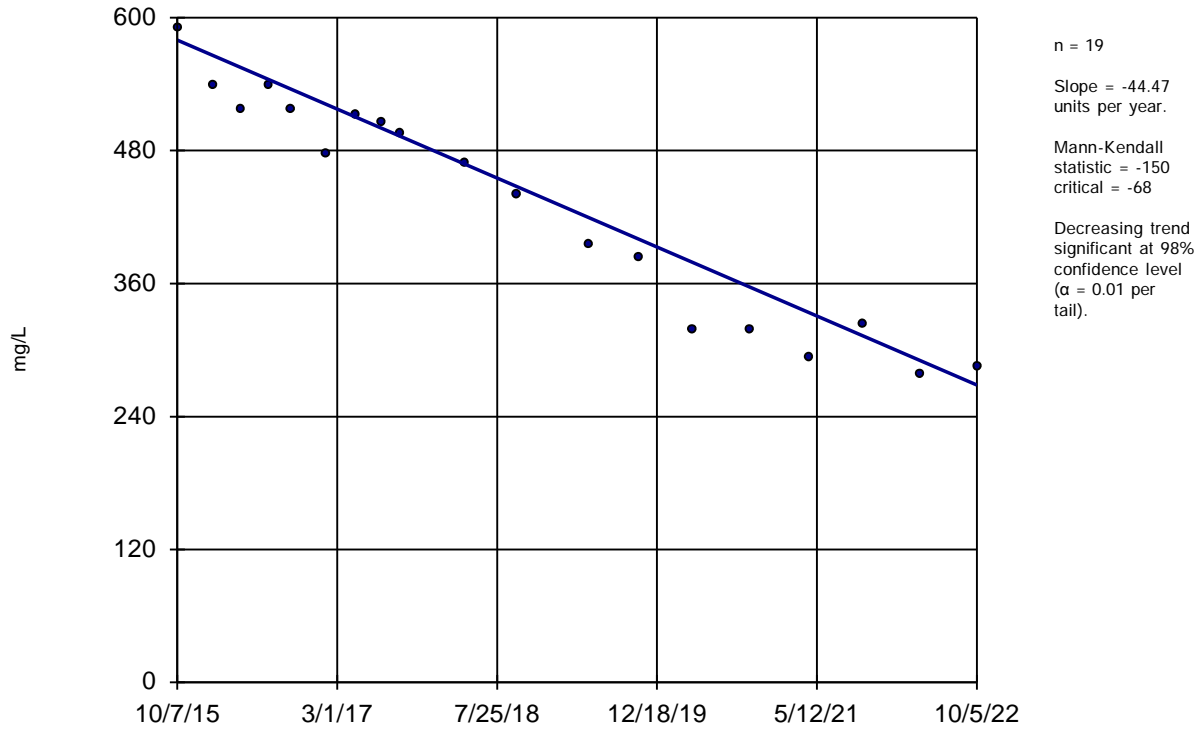
n = 19  
Slope = -0.3256  
units per year.  
Mann-Kendall  
statistic = -43  
critical = -68  
Trend not sig-  
nificant at 98%  
confidence level  
( $\alpha = 0.01$  per  
tail).

Constituent: Chloride Analysis Run 11/7/2022 2:16 PM View: 2022-2H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Sen's Slope Estimator

MW-103

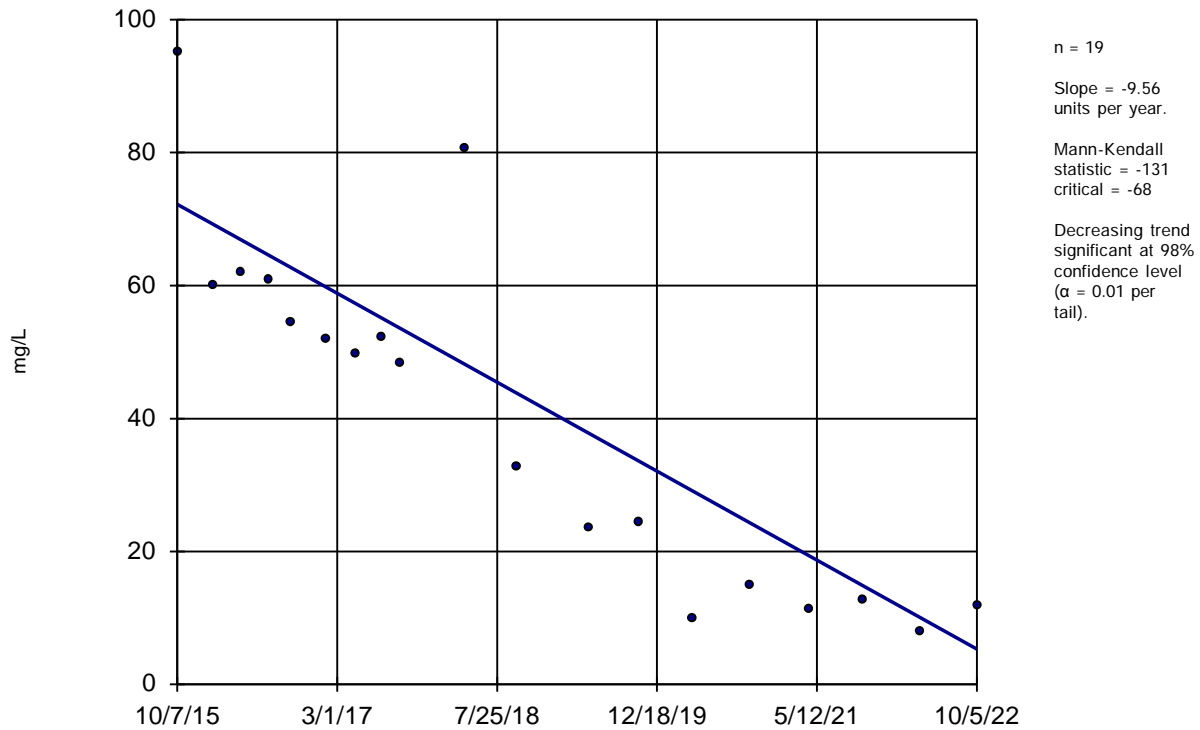


Constituent: Dissolved Solids Analysis Run 11/7/2022 11:33 AM View: 2022-2H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Sen's Slope Estimator

MW-103



Constituent: Sulfate Analysis Run 11/7/2022 11:33 AM View: 2022-2H Trend

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

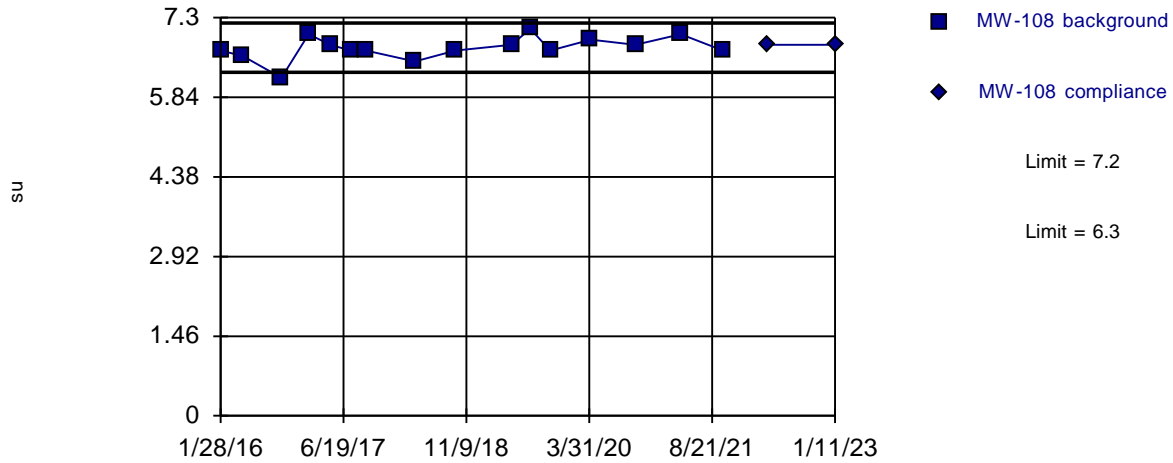
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**Prediction Limits, Second Half 2022 Verification Sampling Event**

Within Limits

### Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.744, Std. Dev.=0.2128, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9177, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

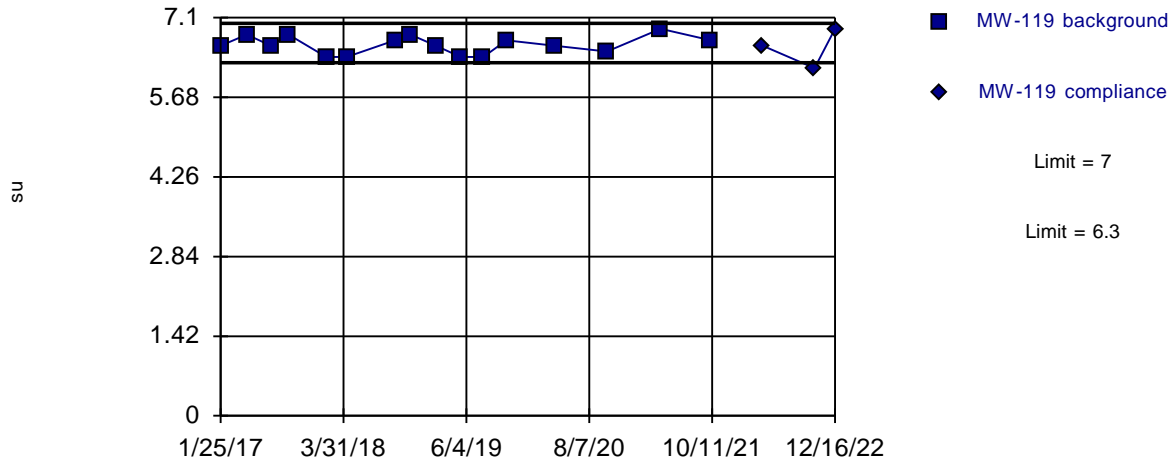
Constituent: pH Analysis Run 1/11/2023 4:02 PM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

### Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.619, Std. Dev.=0.1642, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9133, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: pH Analysis Run 1/4/2023 3:38 PM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



# **APPENDIX H**

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## **Alternate Source Demonstrations**

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**Alternate Source Demonstration for  
Second Half 2021 Statistically Significant Results**




water resources / environmental consultants

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## TECHNICAL MEMORANDUM

**DATE:** April 5, 2022

**TO:** **Matt Gray**  
Plum Point Services Company, LLC

**FROM:** **Dana Derrington, PE, PG**   
FTN Associates, Ltd.

**SUBJECT:** Alternate Source Demonstration for Statistically Significant Increases  
Second Half of 2021 Monitoring Period, Plum Point Energy Station Landfill  
FTN No. R14590-2496-001

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FTN Associates, Ltd. (FTN), has prepared this technical memorandum for the Plum Point Services Company, LLC (PPSC), coal combustion residuals (CCR) landfill, which is regulated by the Environmental Protection Agency (EPA) Coal Combustion Residuals Rule, promulgated in Title 40 of the Code of Federal Regulations (40 CFR), Part 257. The landfill is also regulated by Arkansas Pollution Control and Ecology Commission (APCEC) Regulation No. 22 and permitted by the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ), under permit no. 0303-S3N-R1.

FTN was contracted to sample groundwater and to statistically evaluate the data from the second half of 2021 monitoring event. Based on statistical evaluation of the data, five confirmed statistically significant increases (SSIs) over background concentrations were identified. Pursuant to §257.94(e)(2), the landfill may demonstrate that a source other than the CCR unit caused an SSI over background levels for a constituent or that an SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. This memorandum, hereafter referred to as an alternate source demonstration (ASD), presents evidence that the confirmed SSIs are due to a source other than the CCR unit or are the result of offsite influence and/or natural fluctuations in groundwater quality.

### 1.0 BACKGROUND

FTN performed groundwater sampling for the second half 2021 semiannual groundwater monitoring period during October 2021. Sample collection, preservation, shipment, analytical procedures, chain-of-custody control, and data quality control for this sampling event followed protocol outlined in the landfill's groundwater sampling and analysis plan (GWSAP) (FTN 2017b). Statistical evaluation of the data set followed the most recent EPA guidance (EPA 2009) and the landfill's statistical analysis plan (SAP) (FTN 2017c). Based on the results of the intrawell statistical analysis of the October 2021 data, verification sampling was performed during December 2021 in accordance with the landfill's

SAP and EPA guidance (EPA 2009). Laboratory reports for the October and December sampling events are included in Attachment 4.

As shown in Table 1 (Attachment 3), results from verification sampling confirmed SSIs for calcium, sulfate, and TDS at MW-116 and for sulfate and TDS at MW-117, and disconfirmed one SSI for calcium at MW-117. Of the confirmed SSIs in Table 1, calcium at MW-116 and TDS at MW-117 had been confirmed during prior monitoring periods. In accordance with §257.94(e)(2), prior ASDs have been prepared for the confirmed SSIs for calcium at MW-116 (FTN 2018, 2019a, 2021) and for TDS at MW-117 (FTN 2019b, 2019c, 2020, 2021), and each ASD successfully demonstrated that the SSIs were not the result of influence from the CCR unit.

## 2.0 DISCUSSION

This section provides a review of the monitoring system with respect to onsite background wells, background groundwater quality, published literature, and landfill leachate within the context of the confirmed SSIs for calcium, sulfate, and TDS at compliance well MW-116 and for sulfate and TDS at compliance well MW-117.

### 2.1 Monitoring System Background Wells

As required by §257.91(c)(1), the groundwater monitoring network is required to contain a minimum of one monitoring well that is hydraulically upgradient of the CCR management area for the purpose of monitoring background water quality. However, there is not a hydraulically upgradient location at this facility because the direction of groundwater flow is seasonably variable. As allowed by §257.91(a)(1), a facility may utilize wells for background water quality that are not hydraulically upgradient of the CCR unit. For this reason, the facility incorporated monitoring wells MW-108, MW-113, and MW-115 (Figure 1) to monitor background water quality because those wells are positioned outside the potential zone of impact from the CCR unit. The rationale for this is based on the age of the landfill; the estimated maximum rate of groundwater flow; and the distance of MW-108, MW-113, and MW-115 from the CCR unit. Specifically:

- MW-108, MW-113, and MW-115 are located more than 2,300 ft from the eastern edge of cell 3;
- Groundwater at the landfill has historically exhibited a maximum flow rate of 40 ft/year; and
- The landfill became active during March 2010.

Using the information available above, a potential leachate plume would not be expected to have migrated more than 470 ft from the CCR unit as of the second half 2021 monitoring event. This estimate is conservative for the following reasons:

1. It assumes impact to groundwater occurred at the same time cell 1 was activated (March 2010) and does not account for travel time through the confining unit soils;



2. It assumes that groundwater flows in one direction; however, it is well-documented that groundwater flow at the landfill is multidirectional and reverses flow on a seasonal basis (FTN 2017a); and
3. It does not account for any physical or chemical properties of the constituents of concern that would cause them to travel at rates slower than groundwater (e.g., adsorption).

In view of this, groundwater quality at the site can be expected to show concentrations of up to 183 mg/L for calcium, 82.2 mg/L for sulfate, and 628 mg/L for TDS due to offsite influence and/or natural fluctuations in groundwater quality. These data are summarized in Table 1 (Attachment 3).

## 2.2 Published Groundwater Quality for the Aquifer

Each monitoring well is screened in the Mississippi River Valley alluvial aquifer, the uppermost aquifer in the vicinity of the landfill (FTN 2017b). The United States Geological Survey published a study of groundwater quality of the aquifer, specifically with respect to that of Holocene alluvium and Pleistocene valley train deposits, which are two of the major hydrogeologic units within the aquifer (Gonthier 2003). The landfill is located in Holocene alluvium, as shown on Figure 2. According to this study, wells screened in Holocene alluvium show concentrations of up to 130 mg/L for calcium, 120 mg/L for sulfate, and 728 mg/L for TDS. These data are summarized in Table 1 (Attachment 3). In consideration of these data, groundwater quality at the site can be expected to show concentrations similar to published levels due to offsite influence and/or natural fluctuations in groundwater quality.

## 2.3 CCR Leachate Quality

Leachate quality is monitored on a semiannual basis for the landfill's APCEC Regulation No. 22 monitoring program, as required by permit no. 0303 S3N-R1, and are publicly available on the DEQ website. Calcium, sulfate, and TDS data for leachate are compared to groundwater quality data for compliance wells MW-116 and MW-117 and background wells MW-108, MW-113, and MW-115 on the time-series graphs in Attachment 2. As shown by these graphs, the calcium concentrations in CCR leachate are lower than those measured at any of the wells. This shows that calcium is not a good primary indicator of CCR leachate. In contrast, the levels of sulfate and TDS in leachate are much higher than those found in groundwater. As such, sulfate and TDS are considered primary indicators of CCR leachate.

## 3.0 ASD FOR MW-116

As shown on the time-series graphs (Attachment 2) and in Table 1 (Attachment 3), concentrations of calcium, sulfate, and TDS at MW-116 were at or above onsite background groundwater quality and/or published values for the aquifer. This is an excursion from historical groundwater quality in samples collected from this well as shown by the time-series graphs. None of these parameters have an EPA-promulgated maximum contaminant level (MCL). As discussed in Section 2.3, CCR leachate is lower in calcium than the natural concentrations measured in groundwater and calcium is therefore not

a suitable primary indicator. Measured sulfate in MW-116 during the second half of 2021 was well below the non-enforceable secondary drinking water standard (SDWS) established by EPA.

Discussions with PPSC personnel revealed that surface evidence of leaks in the leachate transmission pipeline (LTP) was identified in June 2020 at the locations shown on Figure 3. PPSC immediately took the LTP out of use and subcontracted the required repair work to Hill Services, Inc. Repairs to the LTP were initiated in June 2020 and completed by the end of July 2020.

Based on the location of the LTP leak near MW-116, the date the leak was identified, and the subsequent rise in concentrations of calcium, sulfate, and TDS at MW-116, it has been determined that the damaged LTP, and not the CCR unit, caused the SSIs at MW-116. Although the LTP was immediately shut down after the first leak was identified, and the LTP was repaired, residual evidence of the leak near MW-116 remains evident in the groundwater data from the well. It is expected that groundwater quality at the well will return to background levels given the repairs made to the LTP in 2020.

#### **4.0 ASD FOR MW-117**

As shown on the time-series graphs (Attachment 2) and in Table 1 (Attachment 3), measured values for sulfate and TDS at MW-117 are well within the range of values measured at the onsite background wells and are well below published levels for the aquifer. These comparisons provide two lines of supporting evidence that the currently measured values of sulfate and TDS at MW-117 reflect offsite influence and/or natural fluctuations in groundwater quality.

In addition, the major ion composition of leachate and groundwater samples collected during October 2021 was evaluated using the Stiff and Piper diagrams included in Attachment 2. The Stiff diagrams show that the ionic distributions in groundwater at MW-117 are similar to those at background wells MW-108, MW-113, and MW-115. In contrast, the leachate diagram is distinctly different. Specifically, the leachate sample exhibits concentrations of sodium, potassium, and sulfate ions that are comparatively absent in groundwater. The Piper diagram also illustrates the dissimilarity of groundwater quality to leachate, with data for MW-117, MW-108, MW-113, and MW-115 clustered in the quadrant classified as calcium-bicarbonate-type water and positioned apart from the leachate data, which is located in the sodium-bicarbonate quadrant. If leachate was mixing with groundwater, the data for MW-117 would plot at an intermediate distance between the leachate data and the data for background wells MW-108, MW-113, and MW-115 on the diamond-shaped field of the Piper diagram. The Stiff and Piper diagrams provide a key line of evidence that the SSIs for sulfate and TDS at MW-117 are not due to a release from the CCR unit.

#### **5.0 CONCLUSIONS**

In consideration of the information presented in this memorandum, FTN concludes the following:

- The SSIs for calcium, sulfate, and TDS at MW-116 are due to a source other than the CCR unit. This conclusion is based the location of the LTP leak located in close proximity to

MW-116, the date the leak was identified, and the subsequent rise in concentrations of primary CCR leachate indicators.

- The SSIs for sulfate and TDS MW-117 are the result of offsite influence and/or natural fluctuations in groundwater quality. This is based on concentrations for these two parameters that are well within onsite background water quality and published levels for the aquifer. In addition, major ion data show that groundwater quality at MW-117 is similar to onsite background water quality and distinctly different from CCR leachate.

This memorandum serves as the ASD prepared in accordance with §257.94(e)(2) and supports the position that the confirmed SSIs identified for calcium at MW-116 and sulfate and TDS at MW-116 and MW-117 are not due to a release from the CCR unit. Therefore, no further action is required and the landfill will remain in detection monitoring.

If you have questions or comments regarding this memorandum, please do not hesitate to call Dana Derrington, PE, PG, at (314) 786-5855 or Heather Ferguson at (501) 225-7779.

DLD/hlf

#### Attachments

U:\WP\_FILES\14590-2496-001\2022-04-05 FTN TO PPES - EPA ASD FOR 2H2021 SSIS\2022-04-05 FTN TO PPES - EPA ASD FOR 2H2021 SSIS.DOCX *Hlf*



## REFERENCES

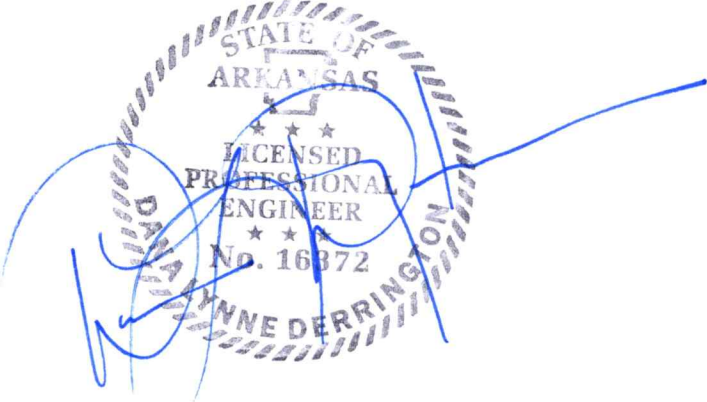
- EPA [US Environmental Protection Agency]. 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* [EPA 530-R-09-007]. Washington, DC: Office of Resource Conservation and Recovery, Program Implementation and Information Division, US Environmental Protection Agency. March 2009.
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- . 2019b. *Alternate Source Demonstration for Statistically Significant Increases, First Half of 2019 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. October 24, 2019.
- . 2019c. *Alternate Source Demonstration for Statistically Significant Increases, Second Half of 2019 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. December 17, 2019.
- . 2020. *Alternate Source Demonstration for Statistically Significant Increases, First Half of 2020 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. August 3, 2020.
- . 2021. *Alternate Source Demonstration for Statistically Significant Increases, First Half of 2021 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. October 6, 2021.
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Matt Gray  
April 5, 2022  
Page 7

**PROFESSIONAL ENGINEER'S CERTIFICATION**

With this certification, I certify that I, as a professional engineer in the state of Arkansas, am a qualified professional engineer as defined in §257.53 of Title 40 of the Code of Federal Regulations (CFR), Part 257, that this technical memorandum has been prepared under my direction in accordance with generally accepted good engineering practices, that the findings are accurate to the best of my knowledge, and that the alternate source demonstration described herein meets the requirements of §257.94(e)(2) of 40 CFR Part 257.



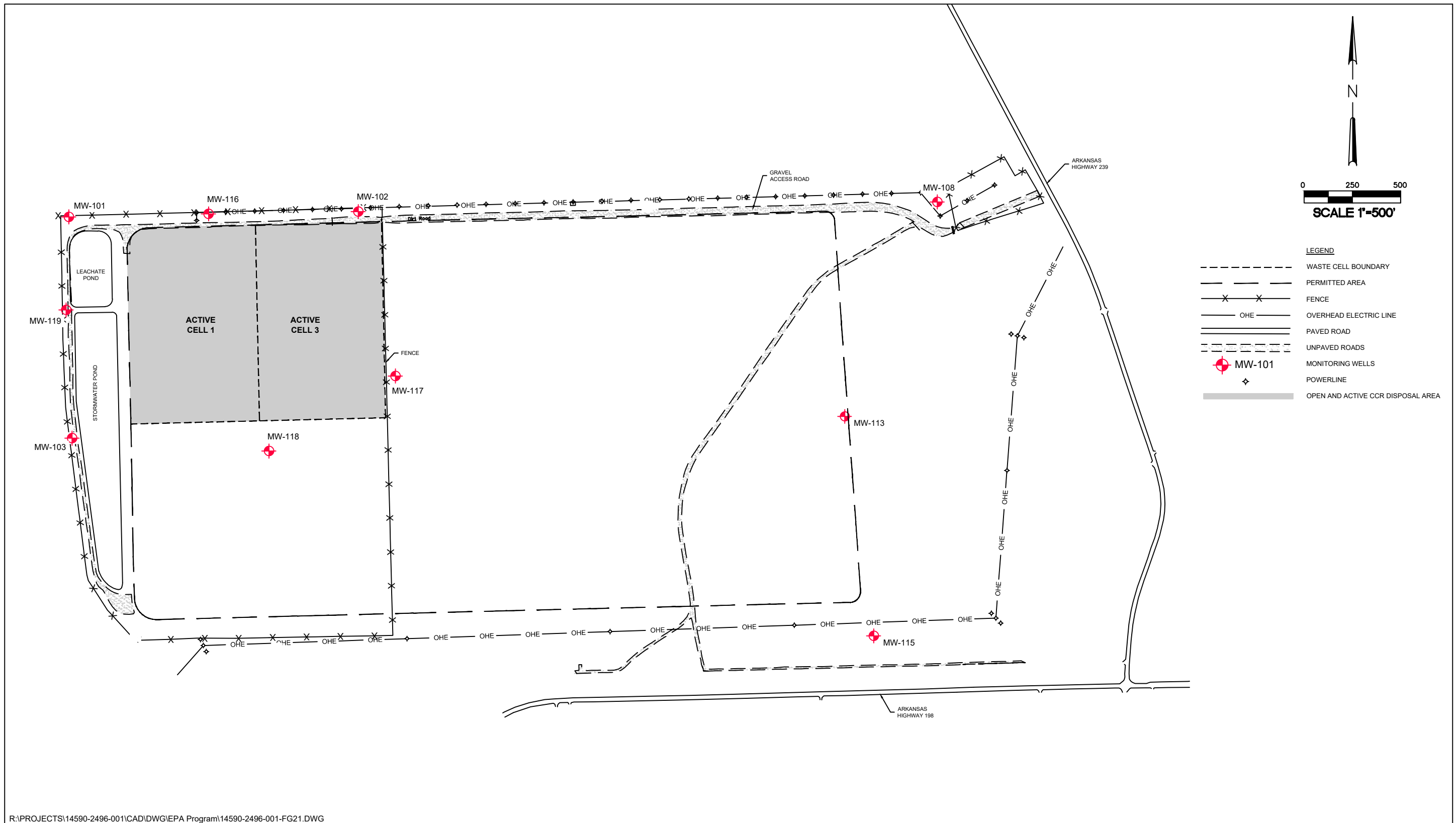
\_\_\_\_\_  
Dana L. Derrington, Arkansas PE #16372

04/05/2022  
\_\_\_\_\_  
Date

# **ATTACHMENT 1**

---

**Figures**



R:\PROJECTS\14590-2496-001\CAD\DWG\IEPA Program\14590-2496-001-FG21.DWG

Figure 1. Monitoring well location map.

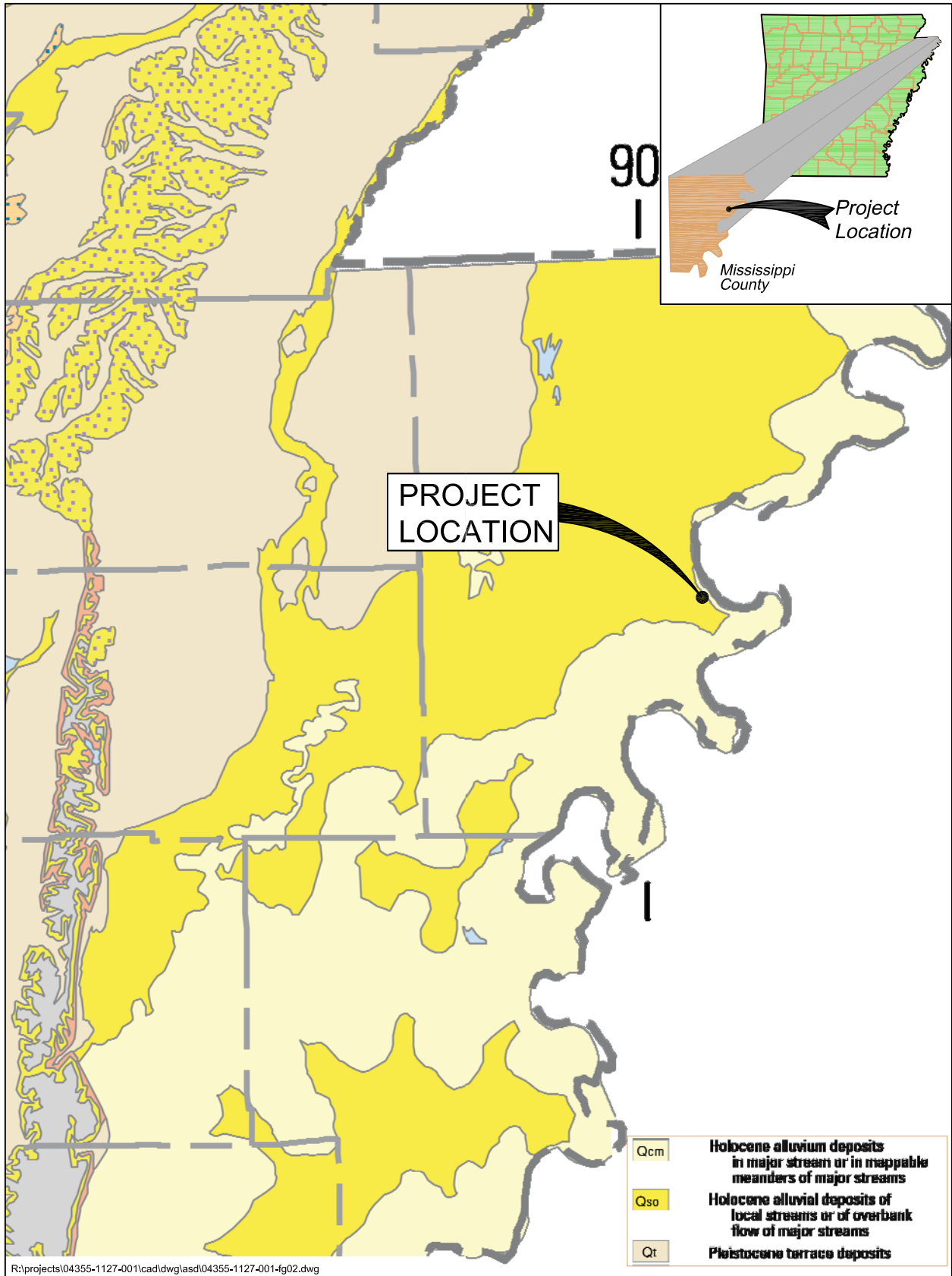
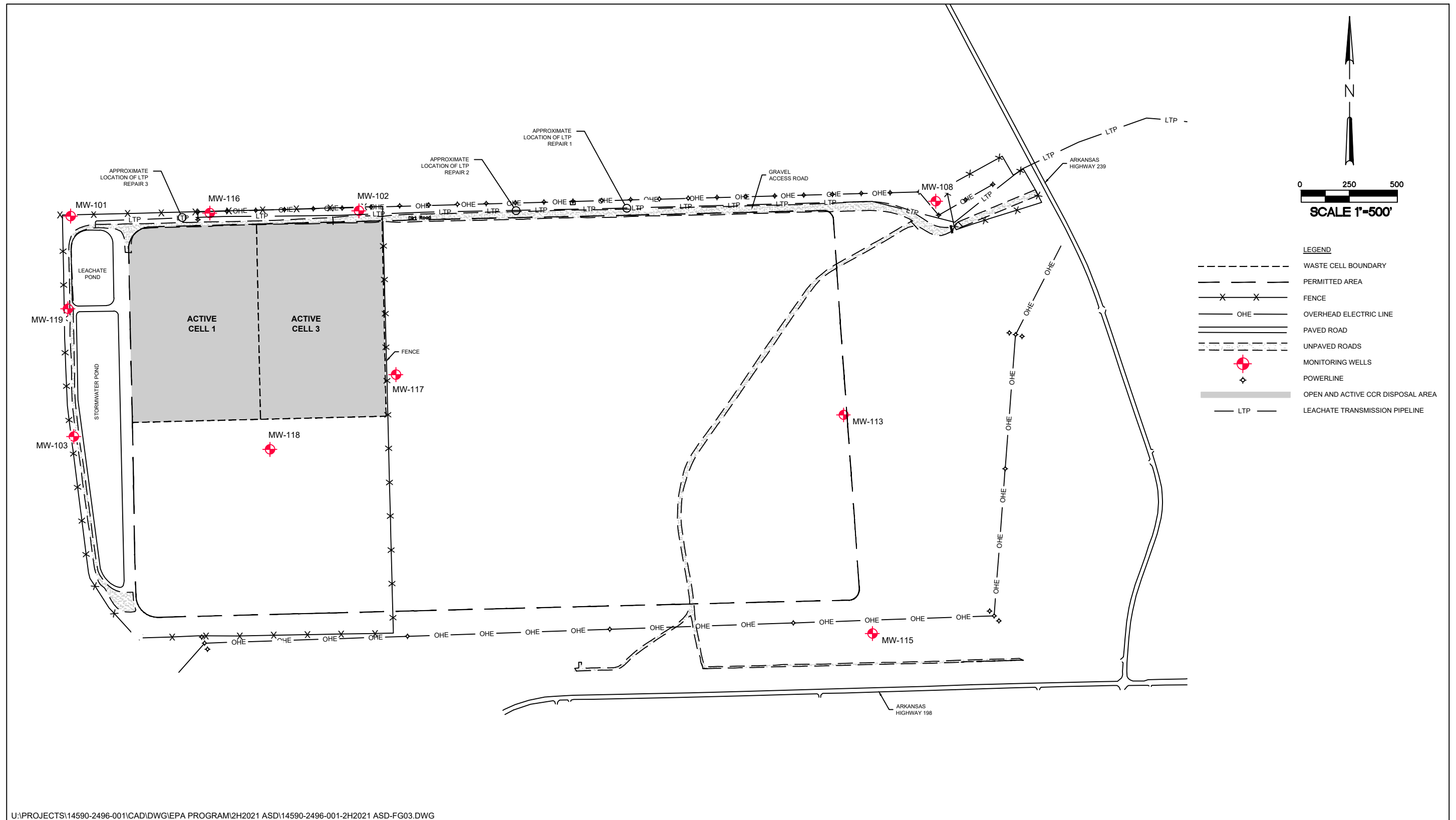


Figure 2. Surface geology of Mississippi County, Arkansas (adapted from Kresse et al. 2014).



U:\PROJECTS\14590-2496-001\CAD\DWG\IEPA PROGRAM\2H2021 ASD\14590-2496-001-2H2021 ASD-FG03.DWG

Figure 3. Site map showing locations of leachate transmission pipeline repairs.

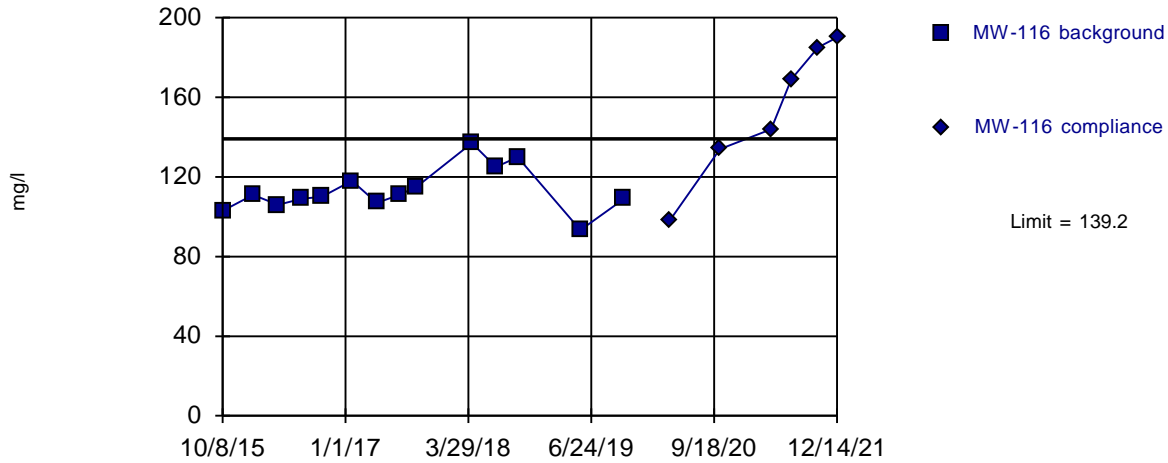
# **ATTACHMENT 2**

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**Statistical Plots**

Exceeds Limit

### Prediction Limit Intrawell Parametric



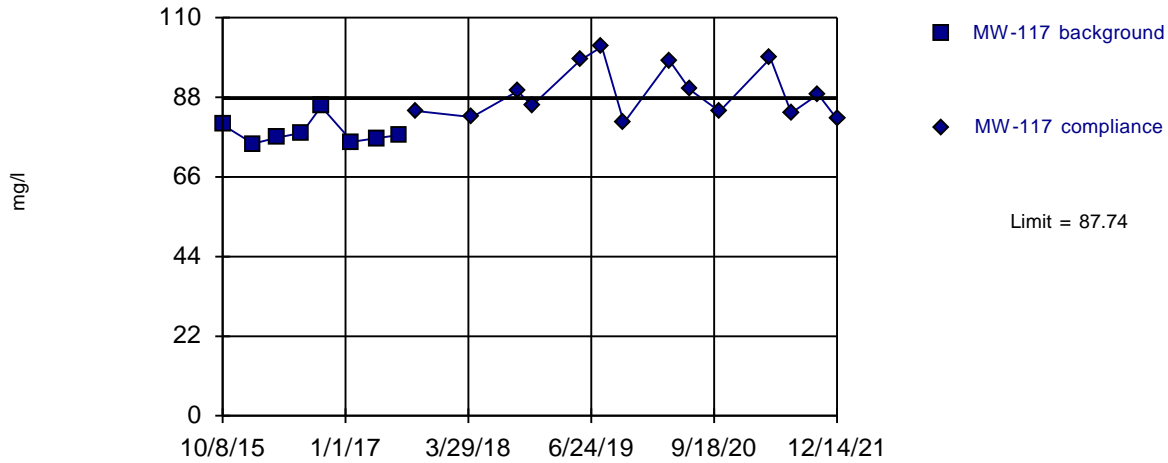
Background Data Summary: Mean=113.2, Std. Dev.=11.31, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9391, critical = 0.825. Kappa = 2.302 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 1/20/2022 11:48 AM View: 2021-2H PL verification

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limit

### Prediction Limit Intrawell Parametric



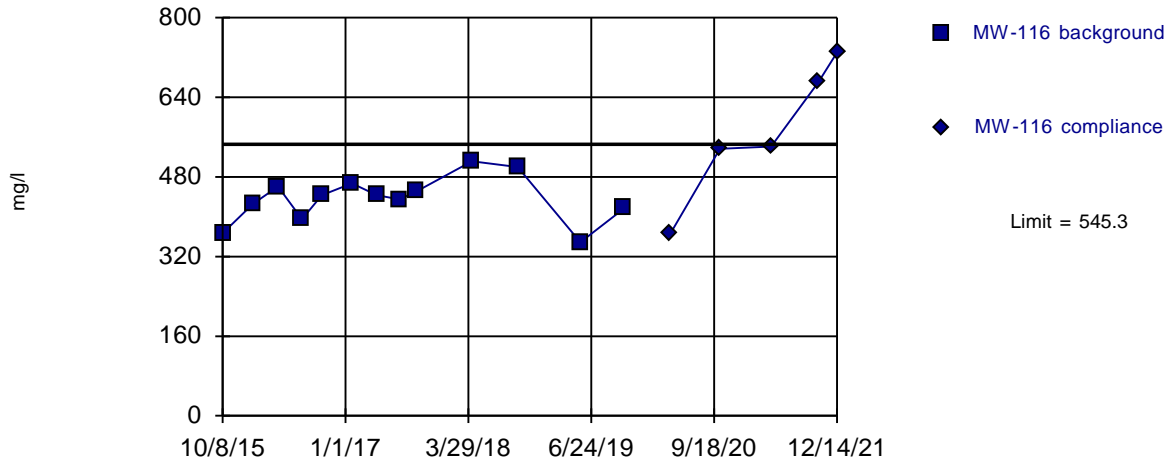
Background Data Summary: Mean=78.28, Std. Dev.=3.33, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8288, critical = 0.749. Kappa = 2.841 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Calcium Analysis Run 1/20/2022 11:48 AM View: 2021-2H PL verification

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Exceeds Limit

### Prediction Limit Intrawell Parametric

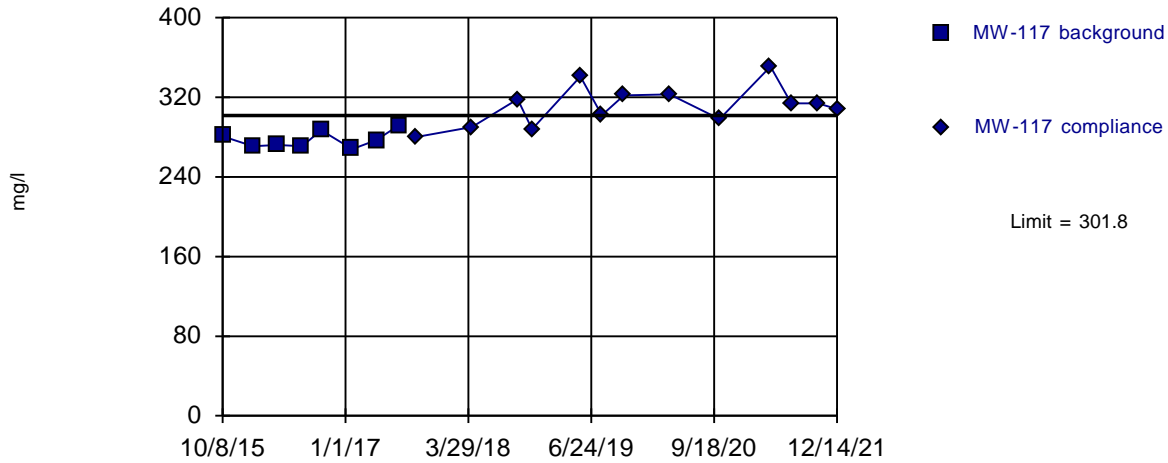


Background Data Summary: Mean=435.8, Std. Dev.=46.64, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9697, critical = 0.814. Kappa = 2.348 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 1/20/2022 11:48 AM View: 2021-2H PL verification  
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Exceeds Limit

### Prediction Limit Intrawell Parametric



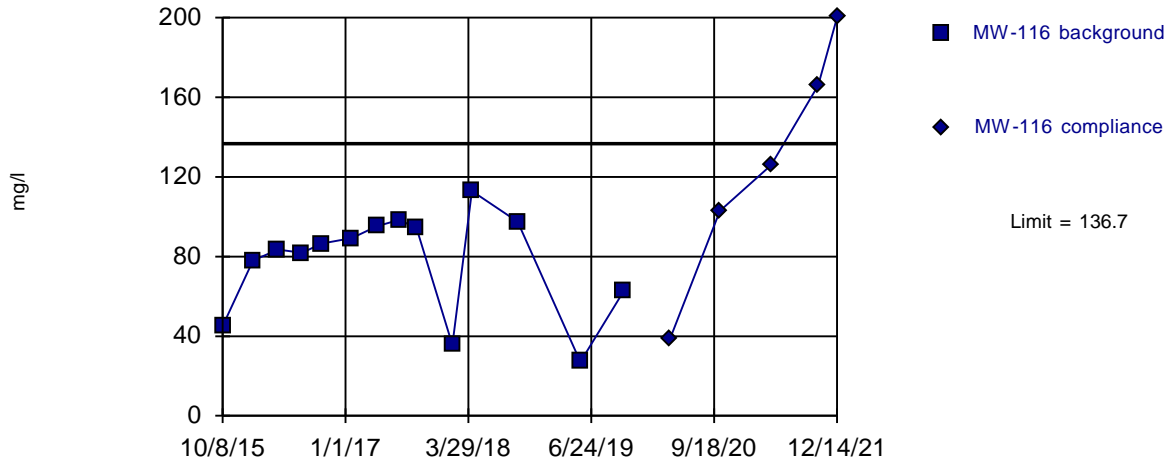
Background Data Summary: Mean=277.4, Std. Dev.=8.601, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9018, critical = 0.749. Kappa = 2.841 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Dissolved Solids Analysis Run 1/20/2022 11:48 AM View: 2021-2H PL verification  
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



Exceeds Limit

### Prediction Limit Intrawell Parametric



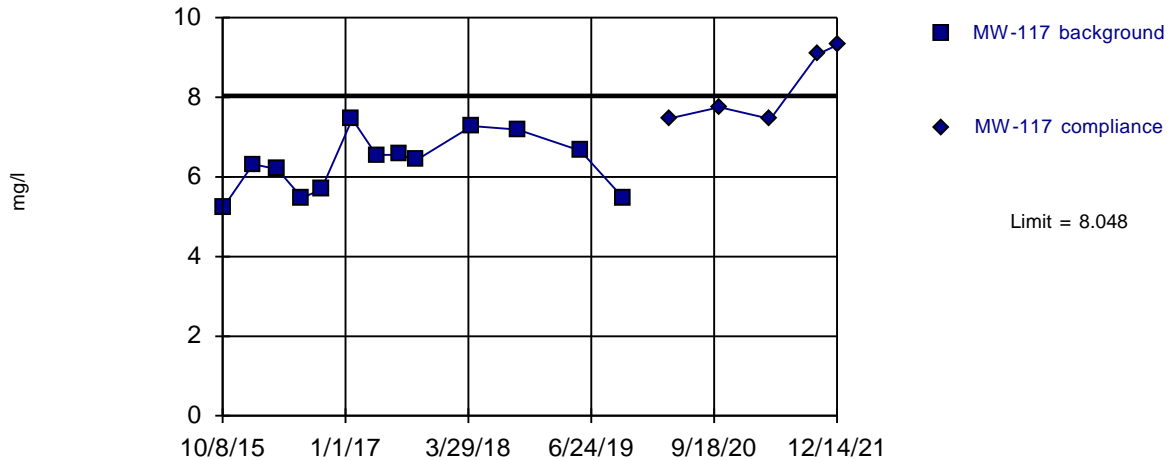
Background Data Summary: Mean=77.71, Std. Dev.=25.62, n=14. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8937, critical = 0.825. Kappa = 2.302 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 1/20/2022 11:48 AM View: 2021-2H PL verification

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Exceeds Limit

### Prediction Limit Intrawell Parametric

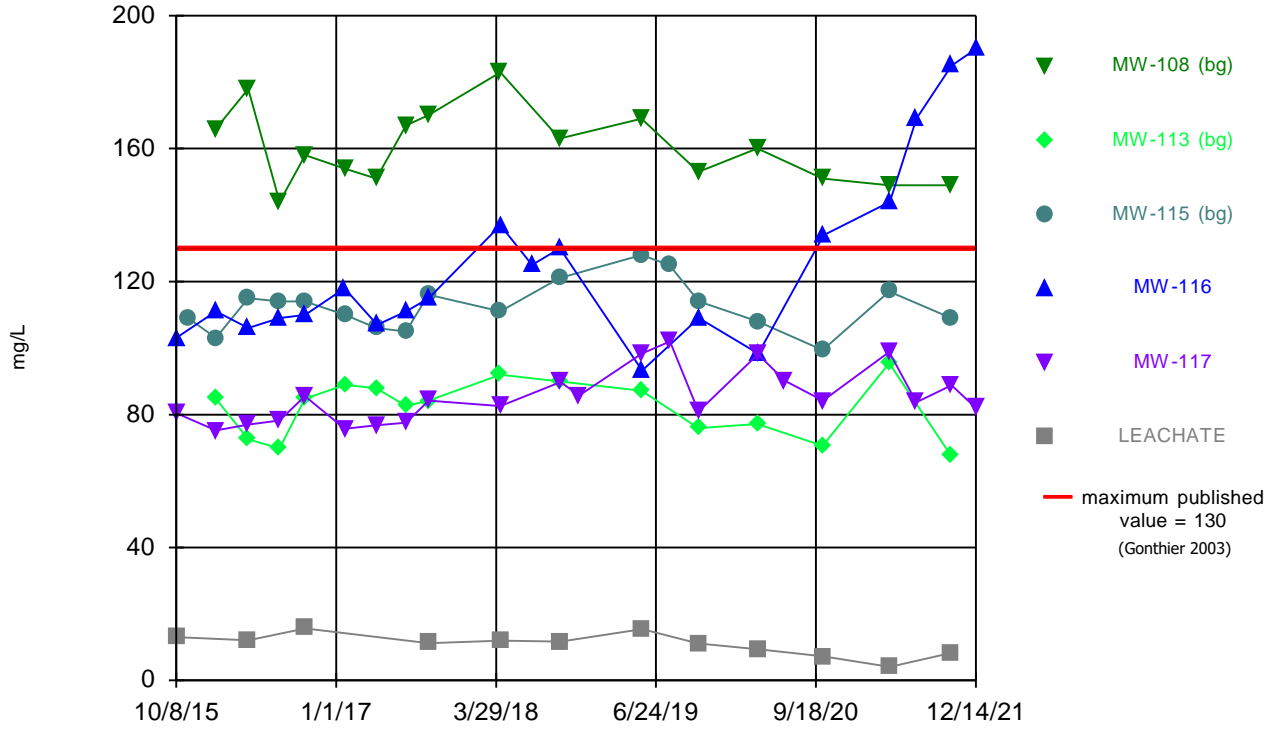


Background Data Summary: Mean=6.343, Std. Dev.=0.7263, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9459, critical = 0.814. Kappa = 2.348 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

Constituent: Sulfate Analysis Run 1/20/2022 11:48 AM View: 2021-2H PL verification

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

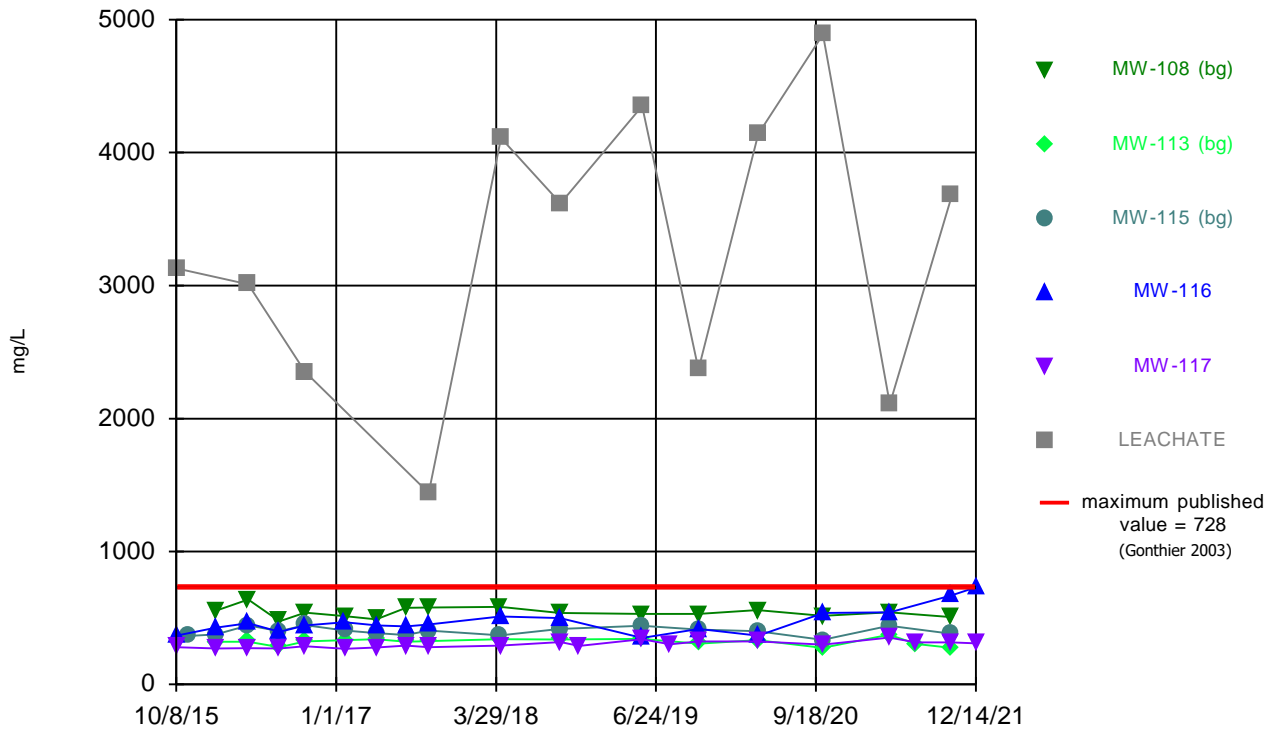
### Time Series



Constituent: Calcium Analysis Run 3/31/2022 2:00 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

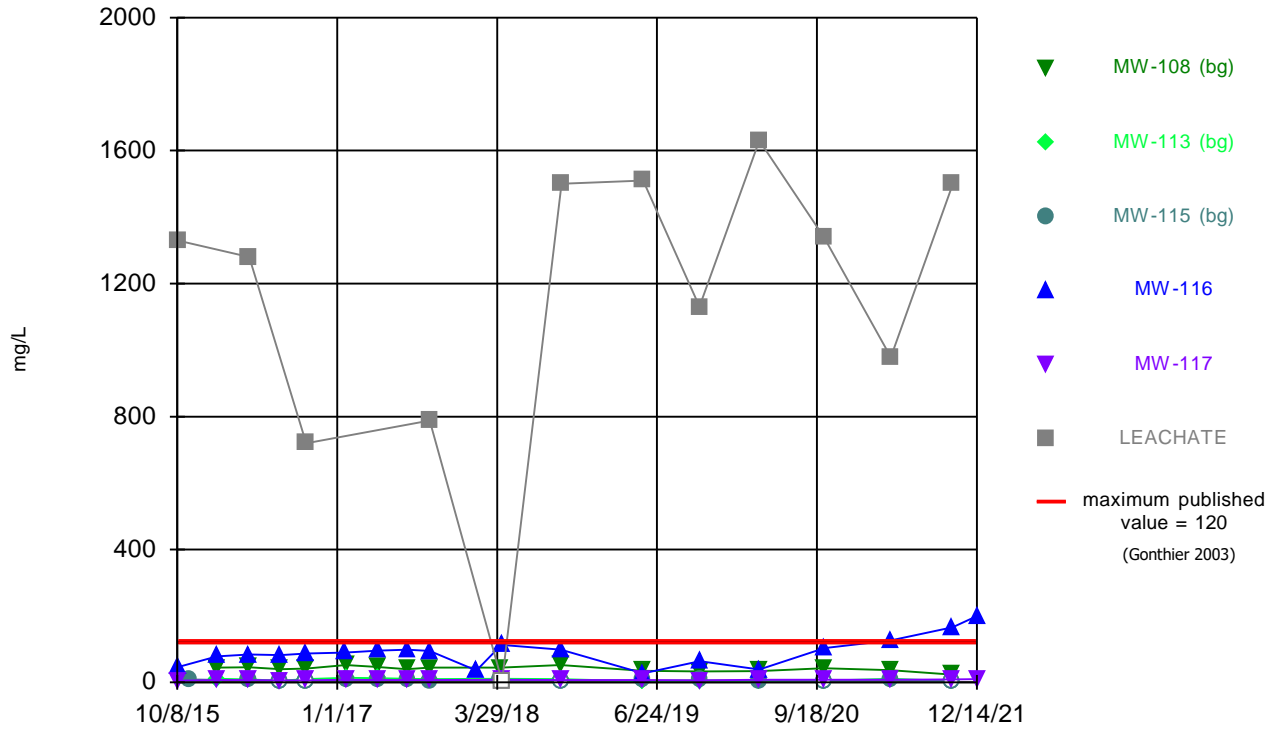
### Time Series



Constituent: Dissolved Solids Analysis Run 3/31/2022 2:01 PM

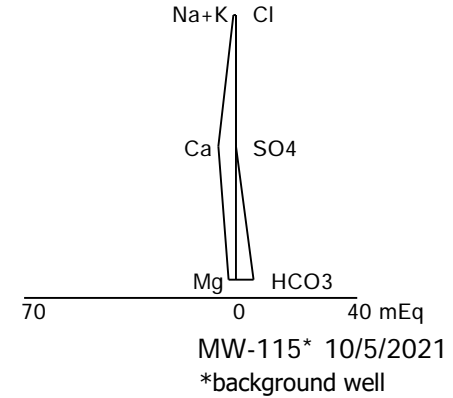
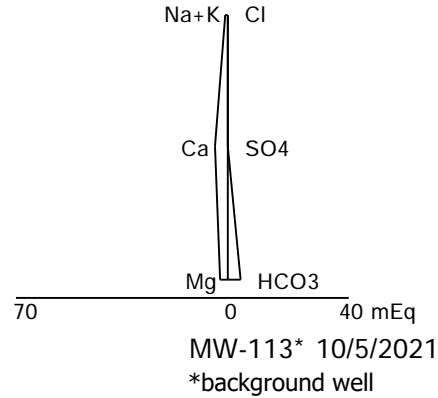
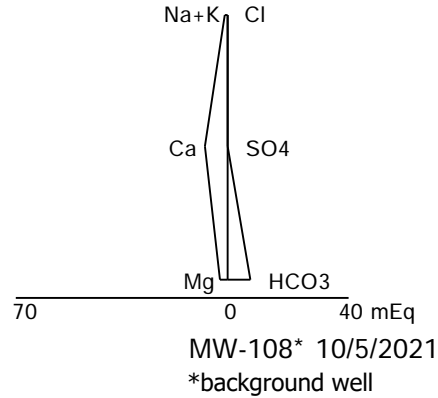
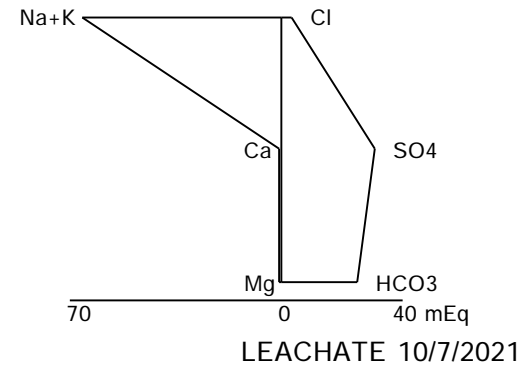
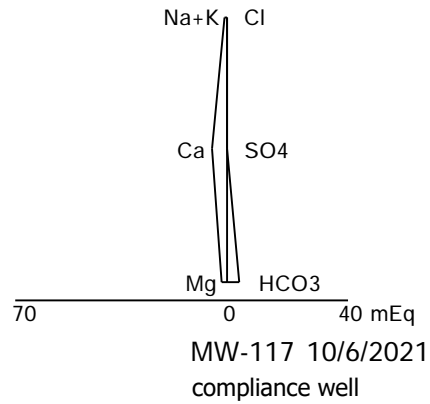
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Time Series



Constituent: Sulfate Analysis Run 3/31/2022 2:01 PM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



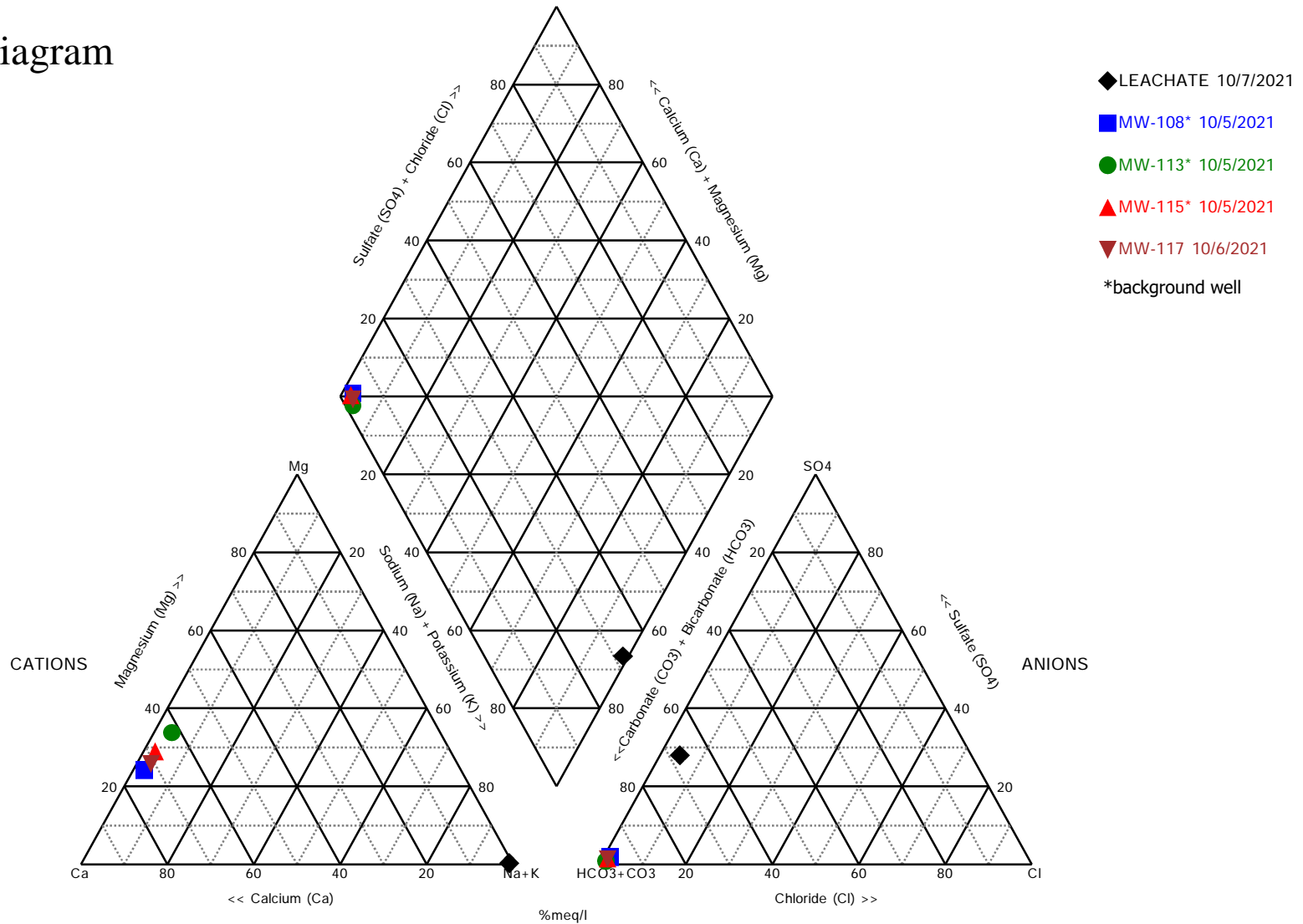
Stiff Diagram Analysis Run 1/24/2022 3:40 PM

Plum Point Energy Station

Client: Plum Point Services Company, LLC

Data: PPES EPA CCR Database (GWQ parameters)

# Piper Diagram



Analysis Run 1/24/2022 3:41 PM

Plum Point Energy Station

Client: Plum Point Services Company, LLC

Data: PPES EPA CCR Database (GWQ parameters)

# **ATTACHMENT 3**

---

## **Summary Table**

Table 1. Summary of statistically significant results and maximum background and published levels.

Well ID	Parameter	Prediction Limit (mg/L)	October 2021 Initial Result (mg/L)	December 2021 Verification Result (mg/L)	SSI Confirmed?	Maximum Background Level <sup>(a)</sup> (mg/L)	Maximum Published Levels <sup>(b)</sup> (mg/L)
MW-116	Calcium	139.2	185	190	Yes <sup>(c)</sup>	183 (MW-108, 4/2018)	130
MW-117	Calcium	87.74	88.8	82.0	No		
MW-116	Sulfate	136.7	166	200	Yes	82.2 (MW-108, 9/2018)	120
MW-117	Sulfate	8.048	9.09	9.31	Yes		
MW-116	TDS	545.3	670	730	Yes	638 (MW-108, 4/2016)	728
MW-117	TDS	301.8	314	308	Yes <sup>(c)</sup>		

Notes:

- a. Based on historical values at MW-108, MW-113, and MW-115.
- b. From Gonthier 2003.
- c. Previously confirmed SSI.

## REFERENCES

Gonthier, G.J. 2003. *Quality of Groundwater in Pleistocene and Holocene Subunits of the Mississippi River Alluvial Aquifer, 1998* [Water-Resources Investigations Report 03-4202]. Jackson, MS: US Geological Survey, National Water-Quality Assessment Program.

# **ATTACHMENT 4**

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**Laboratory Reports**



## Plum Point Services Co., LLC

Sample Delivery Group: L1415555  
Samples Received: 10/08/2021  
Project Number: R14590-2496-001  
Description: Plum Point Energy Station

Report To: Dana Derrington  
2739 SCR 623  
Osceola, AR 72370

Entire Report Reviewed By:












Mark W. Beasley  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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# SAMPLE SUMMARY

## MW-101 L1415555-01 GW

Collected by Michael Clayton  
 Collected date/time 10/07/21 10:55  
 Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1757080	1	10/14/21 12:01	10/14/21 12:54	VRP	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 02:29	10/15/21 02:29	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:04	CCE	Mt. Juliet, TN



## MW-102 L1415555-02 GW

Collected by Michael Clayton  
 Collected date/time 10/06/21 13:50  
 Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1756452	1	10/13/21 13:58	10/13/21 14:33	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 03:01	10/15/21 03:01	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:07	CCE	Mt. Juliet, TN



## MW-103 L1415555-03 GW

Collected by Michael Clayton  
 Collected date/time 10/07/21 09:00  
 Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1757189	1	10/14/21 13:49	10/14/21 15:51	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 03:18	10/15/21 03:18	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:15	CCE	Mt. Juliet, TN



## MW-108 L1415555-04 GW

Collected by Michael Clayton  
 Collected date/time 10/05/21 12:45  
 Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1755519	1	10/12/21 12:31	10/12/21 14:09	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 03:34	10/15/21 03:34	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:18	CCE	Mt. Juliet, TN

## MW-113 L1415555-05 GW

Collected by Michael Clayton  
 Collected date/time 10/05/21 11:25  
 Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1755519	1	10/12/21 12:31	10/12/21 14:09	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 03:51	10/15/21 03:51	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:21	CCE	Mt. Juliet, TN

## MW-115 L1415555-06 GW

Collected by Michael Clayton  
 Collected date/time 10/05/21 10:10  
 Received date/time 10/08/21 09:00

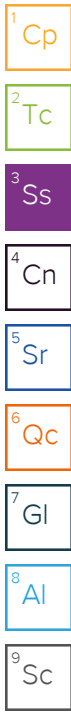
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1755519	1	10/12/21 12:31	10/12/21 14:09	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 04:07	10/15/21 04:07	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:24	CCE	Mt. Juliet, TN

# SAMPLE SUMMARY

## MW-116 L1415555-07 GW

Collected by Michael Clayton      Collected date/time 10/06/21 15:10      Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1756452	1	10/13/21 13:58	10/13/21 14:33	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 04:23	10/15/21 04:23	ELN	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1758277	5	10/16/21 15:48	10/16/21 15:48	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:27	CCE	Mt. Juliet, TN



## MW-117 L1415555-08 GW

Collected by Michael Clayton      Collected date/time 10/06/21 12:00      Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1756375	1	10/13/21 12:32	10/13/21 14:11	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 05:13	10/15/21 05:13	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:30	CCE	Mt. Juliet, TN

## MW-118 L1415555-09 GW

Collected by Michael Clayton      Collected date/time 10/06/21 10:50      Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1756452	1	10/13/21 13:58	10/13/21 14:33	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 05:29	10/15/21 05:29	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:33	CCE	Mt. Juliet, TN

## MW-119 L1415555-10 GW

Collected by Michael Clayton      Collected date/time 10/07/21 10:00      Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1757189	1	10/14/21 13:49	10/14/21 15:51	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 05:46	10/15/21 05:46	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:36	CCE	Mt. Juliet, TN

## MW-117 DUP L1415555-11 GW

Collected by Michael Clayton      Collected date/time 10/06/21 12:05      Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1756375	1	10/13/21 12:32	10/13/21 14:11	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 06:02	10/15/21 06:02	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:39	CCE	Mt. Juliet, TN

## EPA EB L1415555-12 GW

Collected by Michael Clayton      Collected date/time 10/06/21 11:25      Received date/time 10/08/21 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1756503	1	10/13/21 16:14	10/13/21 17:20	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1757240	1	10/15/21 06:18	10/15/21 06:18	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1761047	1	10/22/21 13:29	10/23/21 00:42	CCE	Mt. Juliet, TN

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Mark W. Beasley  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	380000		10000	1	10/14/2021 12:54	<a href="#">WG1757080</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	975	J	379	1000	1	10/15/2021 02:29	<a href="#">WG1757240</a>
Fluoride	312		64.0	150	1	10/15/2021 02:29	<a href="#">WG1757240</a>
Sulfate	10200		594	5000	1	10/15/2021 02:29	<a href="#">WG1757240</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	55.5	J	20.0	200	1	10/23/2021 00:04	<a href="#">WG1761047</a>
Calcium	113000		79.3	1000	1	10/23/2021 00:04	<a href="#">WG1761047</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	415000		10000	1	10/13/2021 14:33	<a href="#">WG1756452</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	2480		379	1000	1	10/15/2021 03:01	<a href="#">WG1757240</a>
Fluoride	215		64.0	150	1	10/15/2021 03:01	<a href="#">WG1757240</a>
Sulfate	95300		594	5000	1	10/15/2021 03:01	<a href="#">WG1757240</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	78.4	J	20.0	200	1	10/23/2021 00:07	<a href="#">WG1761047</a>
Calcium	116000		79.3	1000	1	10/23/2021 00:07	<a href="#">WG1761047</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	324000		10000	1	10/14/2021 15:51	<a href="#">WG1757189</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1160		379	1000	1	10/15/2021 03:18	<a href="#">WG1757240</a>
Fluoride	256		64.0	150	1	10/15/2021 03:18	<a href="#">WG1757240</a>
Sulfate	12600		594	5000	1	10/15/2021 03:18	<a href="#">WG1757240</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	68.1	J	20.0	200	1	10/23/2021 00:15	<a href="#">WG1761047</a>
Calcium	89700		79.3	1000	1	10/23/2021 00:15	<a href="#">WG1761047</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	505000		10000	1	10/12/2021 14:09	<a href="#">WG1755519</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1370		379	1000	1	10/15/2021 03:34	<a href="#">WG1757240</a>
Fluoride	203		64.0	150	1	10/15/2021 03:34	<a href="#">WG1757240</a>
Sulfate	23400		594	5000	1	10/15/2021 03:34	<a href="#">WG1757240</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	111	J	20.0	200	1	10/23/2021 00:18	<a href="#">WG1761047</a>
Calcium	149000		79.3	1000	1	10/23/2021 00:18	<a href="#">WG1761047</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	275000		10000	1	10/12/2021 14:09	<a href="#">WG1755519</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	877	J	379	1000	1	10/15/2021 03:51	<a href="#">WG1757240</a>
Fluoride	139	J	64.0	150	1	10/15/2021 03:51	<a href="#">WG1757240</a>
Sulfate	3750	J	594	5000	1	10/15/2021 03:51	<a href="#">WG1757240</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	81.7	J	20.0	200	1	10/23/2021 00:21	<a href="#">WG1761047</a>
Calcium	67500		79.3	1000	1	10/23/2021 00:21	<a href="#">WG1761047</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	379000		10000	1	10/12/2021 14:09	<a href="#">WG1755519</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	964	J	379	1000	1	10/15/2021 04:07	<a href="#">WG1757240</a>
Fluoride	225		64.0	150	1	10/15/2021 04:07	<a href="#">WG1757240</a>
Sulfate	3700	J	594	5000	1	10/15/2021 04:07	<a href="#">WG1757240</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	65.5	J	20.0	200	1	10/23/2021 00:24	<a href="#">WG1761047</a>
Calcium	109000		79.3	1000	1	10/23/2021 00:24	<a href="#">WG1761047</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	670000		10000	1	10/13/2021 14:33	<a href="#">WG1756452</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	11200		379	1000	1	10/15/2021 04:23	<a href="#">WG1757240</a>
Fluoride	214		64.0	150	1	10/15/2021 04:23	<a href="#">WG1757240</a>
Sulfate	166000		2970	25000	5	10/16/2021 15:48	<a href="#">WG1758277</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	97.3	J	20.0	200	1	10/23/2021 00:27	<a href="#">WG1761047</a>
Calcium	185000		79.3	1000	1	10/23/2021 00:27	<a href="#">WG1761047</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	314000		10000	1	10/13/2021 14:11	<a href="#">WG1756375</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	921	J	379	1000	1	10/15/2021 05:13	<a href="#">WG1757240</a>
Fluoride	162		64.0	150	1	10/15/2021 05:13	<a href="#">WG1757240</a>
Sulfate	9090		594	5000	1	10/15/2021 05:13	<a href="#">WG1757240</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	67.7	J	20.0	200	1	10/23/2021 00:30	<a href="#">WG1761047</a>
Calcium	88800		79.3	1000	1	10/23/2021 00:30	<a href="#">WG1761047</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	280000		10000	1	10/13/2021 14:33	<a href="#">WG1756452</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1150		379	1000	1	10/15/2021 05:29	<a href="#">WG1757240</a>
Fluoride	189		64.0	150	1	10/15/2021 05:29	<a href="#">WG1757240</a>
Sulfate	11500		594	5000	1	10/15/2021 05:29	<a href="#">WG1757240</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	65.6	J	20.0	200	1	10/23/2021 00:33	<a href="#">WG1761047</a>
Calcium	82900		79.3	1000	1	10/23/2021 00:33	<a href="#">WG1761047</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	388000		10000	1	10/14/2021 15:51	<a href="#">WG1757189</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	2400		379	1000	1	10/15/2021 05:46	<a href="#">WG1757240</a>
Fluoride	269		64.0	150	1	10/15/2021 05:46	<a href="#">WG1757240</a>
Sulfate	39100		594	5000	1	10/15/2021 05:46	<a href="#">WG1757240</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	59.4	J	20.0	200	1	10/23/2021 00:36	<a href="#">WG1761047</a>
Calcium	104000		79.3	1000	1	10/23/2021 00:36	<a href="#">WG1761047</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	305000		10000	1	10/13/2021 14:11	<a href="#">WG1756375</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	920	J	379	1000	1	10/15/2021 06:02	<a href="#">WG1757240</a>
Fluoride	156		64.0	150	1	10/15/2021 06:02	<a href="#">WG1757240</a>
Sulfate	9180		594	5000	1	10/15/2021 06:02	<a href="#">WG1757240</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	70.2	J	20.0	200	1	10/23/2021 00:39	<a href="#">WG1761047</a>
Calcium	88800		79.3	1000	1	10/23/2021 00:39	<a href="#">WG1761047</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	ND		10000	1	10/13/2021 17:20	<a href="#">WG1756503</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	U		379	1000	1	10/15/2021 06:18	<a href="#">WG1757240</a>
Fluoride	U		64.0	150	1	10/15/2021 06:18	<a href="#">WG1757240</a>
Sulfate	U		594	5000	1	10/15/2021 06:18	<a href="#">WG1757240</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	U		20.0	200	1	10/23/2021 00:42	<a href="#">WG1761047</a>
Calcium	U		79.3	1000	1	10/23/2021 00:42	<a href="#">WG1761047</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3716571-1 10/12/21 14:09

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		10000	10000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

L1411702-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1411702-02 10/12/21 14:09 • (DUP) R3716571-3 10/12/21 14:09

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	676000	683000	1	0.982		5

<sup>4</sup>Cn

<sup>5</sup>Sr

L1413623-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1413623-05 10/12/21 14:09 • (DUP) R3716571-4 10/12/21 14:09

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	427000	429000	1	0.467		5

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

Laboratory Control Sample (LCS)

(LCS) R3716571-2 10/12/21 14:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8670000	98.5	77.4-123	

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3717162-1 10/13/21 14:11

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

L1416228-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1416228-08 10/13/21 14:11 • (DUP) R3717162-3 10/13/21 14:11

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1350000	1340000	1	0.149		5

<sup>4</sup>Cn

<sup>5</sup>Sr

L1416228-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1416228-09 10/13/21 14:11 • (DUP) R3717162-4 10/13/21 14:11

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1850000	1860000	1	0.270		5

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

Laboratory Control Sample (LCS)

(LCS) R3717162-2 10/13/21 14:11

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8680000	98.6	77.4-123	

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3717327-1 10/13/21 14:33

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1415554-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1415554-09 10/13/21 14:33 • (DUP) R3717327-3 10/13/21 14:33

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	663000	697000	1	5.00		5

L1415555-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1415555-07 10/13/21 14:33 • (DUP) R3717327-4 10/13/21 14:33

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	670000	690000	1	2.94		5

Laboratory Control Sample (LCS)

(LCS) R3717327-2 10/13/21 14:33

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8310000	94.4	77.4-123	

Method Blank (MB)

(MB) R3717175-1 10/13/21 17:20

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		10000	10000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

L1415583-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1415583-06 10/13/21 17:20 • (DUP) R3717175-3 10/13/21 17:20

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1180000	1180000	1	0.170		5

<sup>4</sup>Cn

<sup>5</sup>Sr

L1415583-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1415583-09 10/13/21 17:20 • (DUP) R3717175-4 10/13/21 17:20

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1100000	1100000	1	0.181		5

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

Laboratory Control Sample (LCS)

(LCS) R3717175-2 10/13/21 17:20

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8700000	98.9	77.4-123	

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3718311-1 10/14/21 12:54

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

L1414612-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1414612-20 10/14/21 12:54 • (DUP) R3718311-3 10/14/21 12:54

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1080000	1170000	1	8.20	J3	5

<sup>4</sup>Cn

<sup>5</sup>Sr

L1414612-23 Original Sample (OS) • Duplicate (DUP)

(OS) L1414612-23 10/14/21 12:54 • (DUP) R3718311-4 10/14/21 12:54

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	848000	904000	1	6.39	J3	5

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

Laboratory Control Sample (LCS)

(LCS) R3718311-2 10/14/21 12:54

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8140000	92.5	77.4-123	

<sup>9</sup>Sc

Method Blank (MB)

(MB) R3718287-1 10/14/21 15:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1415583-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1415583-01 10/14/21 15:51 • (DUP) R3718287-3 10/14/21 15:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1030000	1000000	1	2.17		5

L1415844-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1415844-01 10/14/21 15:51 • (DUP) R3718287-4 10/14/21 15:51

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1900000	1880000	1	1.19		5

Laboratory Control Sample (LCS)

(LCS) R3718287-2 10/14/21 15:51

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8660000	98.4	77.4-123	

Method Blank (MB)

(MB) R3717169-1 10/14/21 14:24

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	U		594	5000

L1415555-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1415555-01 10/15/21 02:29 • (DUP) R3717169-7 10/15/21 02:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	975	983	1	0.858	U	15
Fluoride	312	313	1	0.0960		15
Sulfate	10200	10100	1	0.774		15

L1415555-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1415555-12 10/15/21 06:18 • (DUP) R3717169-8 10/15/21 06:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	U	U	1	0.000		15
Fluoride	U	U	1	0.000		15
Sulfate	U	U	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3717169-2 10/14/21 14:40

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	39200	98.1	80.0-120	
Fluoride	8000	8120	101	80.0-120	
Sulfate	40000	39300	98.2	80.0-120	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



L1415451-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1415451-01 10/14/21 23:28 • (MS) R3717169-3 10/14/21 23:44 • (MSD) R3717169-4 10/15/21 00:01

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	75800	122000	122000	93.0	92.8	1	80.0-120	E	E	0.0957	15
Fluoride	5000	174	5100	5090	98.5	98.3	1	80.0-120			0.198	15
Sulfate	50000	U	49200	48900	98.4	97.9	1	80.0-120			0.504	15

L1415451-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1415451-02 10/15/21 00:17 • (MS) R3717169-5 10/15/21 00:34 • (MSD) R3717169-6 10/15/21 00:50

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	8550	56100	55900	95.2	94.7	1	80.0-120			0.449	15
Fluoride	5000	130	4790	4760	93.2	92.7	1	80.0-120			0.536	15
Sulfate	50000	789	47100	46900	92.6	92.2	1	80.0-120			0.401	15

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3717773-1 10/16/21 07:00

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		594	5000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1415555-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1415555-07 10/16/21 15:48 • (DUP) R3717773-3 10/16/21 16:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	166000	166000	5	0.249		15

L1418554-334 Original Sample (OS) • Duplicate (DUP)

(OS) L1418554-334 10/16/21 21:48 • (DUP) R3717773-6 10/16/21 22:07

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	1020000	1040000	20	1.40		15

Laboratory Control Sample (LCS)

(LCS) R3717773-2 10/16/21 07:16

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfate	40000	39300	98.2	80.0-120	

L1418554-328 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1418554-328 10/16/21 18:31 • (MS) R3717773-4 10/16/21 18:48 • (MSD) R3717773-5 10/16/21 19:04

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	503000	549000	554000	92.5	103	1	80.0-120	<u>E</u>	<u>E</u>	0.918	15

L1418554-336 Original Sample (OS) • Matrix Spike (MS)

(OS) L1418554-336 10/16/21 22:56 • (MS) R3717773-7 10/16/21 23:13

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	1430000	1440000	14.4	1	80.0-120	<u>E V</u>

Method Blank (MB)

(MB) R3720344-1 10/22/21 23:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		20.0	200
Calcium	U		79.3	1000

Laboratory Control Sample (LCS)

(LCS) R3720344-2 10/22/21 23:43

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	985	98.5	80.0-120	
Calcium	10000	9600	96.0	80.0-120	

L1415480-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1415480-01 10/22/21 23:46 • (MS) R3720344-4 10/22/21 23:52 • (MSD) R3720344-5 10/22/21 23:55

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	495	1490	1480	99.4	98.9	1	75.0-125			0.394	20
Calcium	10000	494000	490000	483000	0.000	0.000	1	75.0-125	V	V	1.33	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

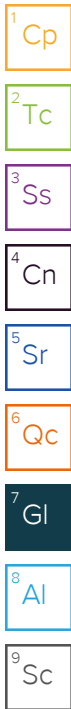
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl


<sup>8</sup> Al

<sup>9</sup> Sc

Company Name/Address:  
**Plum Point Services Co., LLC**  
 2739 SCR 623  
 Osceola, AR 72370

Billing Information:  
 Accounts Payable  
 P.O. Box 567  
 Osceola, AR 72370

Analysis / Container / Preservative  
 Pres Chk

Chain of Custody Page 2 of 2  


Report to:  
**Dana Derrington**

Email To: [dld@ftn-assoc.com](mailto:dld@ftn-assoc.com); [hlf@ftn-assoc.com](mailto:hlf@ftn-assoc.com); [ajp@ftn-assoc.com](mailto:ajp@ftn-assoc.com)

Project Description:  
**Plum Point Energy Station**

City/State Collected: Osceola AR

Please Circle:  
 PT MT CT ET

Phone: **501-920-9642**

Client Project #  
**R14590-2496-001**

Lab Project #  
**NAESOAR-PLUMPOINT**

Collected by (print):  
Michael Clayton

Site/Facility ID #

P.O. #  
**2020-00128**

Collected by (signature):  
Michael Clayton  
 Immediately  
 Packed on Ice N    Y   

**Rush?** (Lab MUST Be Notified)  
 \_\_\_ Same Day \_\_\_ Five Day  
 \_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
 \_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
 \_\_\_ Three Day

Quote #  
 Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
-----------	-----------	----------	-------	------	------	--------------

MW-101	Grab	GW		10/7/21	1055	3
MW-102		GW		10/6/21	1350	3
MW-103		GW		10/2/21	900	3
MW-108		GW		10/5/21	1245	3
MW-113		GW		10/5/21	1125	3
MW-115		GW		10/5/21	1010	3
MW-116		GW		10/6/21	1510	3
MW-117		GW		10/6/21	1200	3
MW-118		GW		10/6/21	1050	3
MW-119		GW		10/7/21	1000	3

CI, F, SO4	125mlHDPE - NoPres	TDS 250mlHDPE - NoPres	Total B, Ca 250mlHDPE - HNO3
X	X	X	
X	X	X	
X	X	X	
X	X	X	
X	X	X	
X	X	X	
X	X	X	
X	X	X	
X	X	X	
X	X	X	
X	X	X	

12065 Lebanon Rd Mount Juliet, TN 37122  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # L1415555  
**C200**

Acctnum: **NAESOAR**  
 Template: **T175308**  
 Prelogin: **P877336**  
 PM: **134 - Mark W. Beasley**  
 PB:  
 Shipped Via: **FedEX Ground**

Remarks	Sample # (lab only)
	-01
	-02
	-03
	-04
	-05
	-06
	-07
	-08
	-09
	-10

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other \_\_\_\_\_

Remarks:  
 pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_  
 Samples returned via:    UPS    FedEx    Courier \_\_\_\_\_  
 Tracking # 5300 4295 7176

**Sample Receipt Checklist**  
 COC Seal Present/Intact:    NP    Y    N  
 COC Signed/Accurate:    Y    N  
 Bottles arrive intact:    Y    N  
 Correct bottles used:    Y    N  
 Sufficient volume sent:    Y    N  
 If Applicable  
 VOA Zero Headspace:    Y    N  
 Preservation Correct/Checked:    Y    N  
 RAD Screen <0.5 mR/hr:    Y    N

Relinquished by: (Signature)  
Michael Clayton  
 Relinquished by: (Signature)  
 Relinquished by: (Signature)

Date: 10/7/21 Time: 1500  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received by: (Signature)  
 Received by: (Signature)  
 Received for lab by: (Signature)  
[Signature]

Trip Blank Received: Yes / No  
 HCL/ MeOH  
 TBR  
 Temp 22.40 °C Bottles Received: 2.0 - 1.9 36  
 Date: 10/8/21 Time: 900

If preservation required by Login: Date/Time  
 Hold:  
 Condition: OK  
 NCF

Company Name/Address:  
**Plum Point Services Co., LLC**  
 2739 SCR 623  
 Osceola, AR 72370

Billing Information:  
**Accounts Payable**  
 P.O. Box 567  
 Osceola, AR 72370

Pres Chk



12065 Lebanon Rd Mount Juliet, TN 37122  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>

Report to:  
**Dana Derrington**

Email To: [dld@ftn-assoc.com](mailto:dld@ftn-assoc.com); [hlf@ftn-assoc.com](mailto:hlf@ftn-assoc.com); [ajp@ftn-assoc.com](mailto:ajp@ftn-assoc.com)

Project Description:  
**Plum Point Energy Station**

City/State Collected: **OSCEOLA AR**

Please Circle:  
 PT MT CT ET

Phone: **501-920-9642**

Client Project #  
**R14590-2496-001**

Lab Project #  
**NAESOAR-PLUMPOINT**

Collected by (print):  
*Michelle Clayton*

Site/Facility ID #

P.O. #  
**2020-00128**

Collected by (signature):  
*Michelle Clayton*

**Rush?** (Lab MUST Be Notified)  
 \_\_\_ Same Day \_\_\_ Five Day  
 \_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
 \_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
 \_\_\_ Three Day

Quote #  
 Date Results Needed

Immediately  
 Packed on Ice N \_\_\_ Y \_\_\_

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, SO4 125mlHDPE-NoPres	TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3						
MW-117 DUP	Grab	GW		10/6/21	1205	3	X	X	X						
EPA EB	↓	GW		10/6/21	1125	3	X	X	X						
		GW				3	X	X	X						
		GW				3	X	X	X						

SDG # **L1415555**

Table #

Acctnum: **NAESOAR**

Template: **T175308**

Prelogin: **P877336**

PM: **134 - Mark W. Beasley**

PB:

Shipped Via: **FedEX Ground**

Remarks | Sample # (lab only)

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:  
 pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_

Sample Receipt Checklist  
 COC Seal Present/Intact:  Y  NP  N  
 COC Signed/Accurate:  Y  N  
 Bottles arrive intact:  Y  N  
 Correct bottles used:  Y  N  
 Sufficient volume sent:  Y  N  
 IF Applicable  
 VOA Zero Headspace:  Y  N  
 Preservation Correct/Checked:  Y  N  
 RAD Screen <0.5 mR/hr:  Y  N

Samples returned via:  
 \_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier

Tracking # " "

Relinquished by: (Signature)  
*Michelle Clayton*

Date: **10/7/21**

Time: **1500**

Received by: (Signature)

Trip Blank Received: Yes / No  
 HCL / MeOH  
 TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: **22.60°C** Bottles Received:  
**2.0--151.9**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)  
*[Signature]*

Date: **10/8/21** Time: **900**

Hold: Condition: **NCF / OK**

## Plum Point Services Co., LLC

Sample Delivery Group: L1443406  
Samples Received: 12/16/2021  
Project Number: R14590-2496-001  
Description: Plum Point Energy Station

Report To: Dana Derrington  
2739 SCR 623  
Osceola, AR 72370

Entire Report Reviewed By:



Mark W. Beasley  
Project Manager










Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com



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# SAMPLE SUMMARY

## MW-116 L1443406-01 GW

Collected by Michael Clayton      Collected date/time 12/14/21 12:58      Received date/time 12/16/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1792248	1	12/20/21 10:32	12/20/21 18:45	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1796352	5	01/03/22 12:57	01/03/22 12:57	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1801153	1	01/13/22 09:31	01/18/22 23:01	KMG	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

## MW-116 DUP L1443406-02 GW

Collected by Michael Clayton      Collected date/time 12/14/21 12:55      Received date/time 12/16/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1792248	1	12/20/21 10:32	12/20/21 18:45	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1796352	5	01/03/22 13:10	01/03/22 13:10	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1801153	1	01/13/22 09:31	01/18/22 23:04	KMG	Mt. Juliet, TN

4 Cn

5 Sr

6 Qc

## MW-117 L1443406-03 GW

Collected by Michael Clayton      Collected date/time 12/14/21 14:05      Received date/time 12/16/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1792248	1	12/20/21 10:32	12/20/21 18:45	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1796352	1	12/30/21 15:08	12/30/21 15:08	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1801419	1	01/13/22 11:40	01/19/22 02:11	CCE	Mt. Juliet, TN

7 Gl

8 Al

9 Sc

## EPA EB-1 L1443406-04 GW

Collected by Michael Clayton      Collected date/time 12/14/21 14:30      Received date/time 12/16/21 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1792248	1	12/20/21 10:32	12/20/21 18:45	BRG	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1796352	1	12/30/21 15:21	12/30/21 15:21	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1801419	1	01/13/22 11:40	01/19/22 02:13	CCE	Mt. Juliet, TN

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Mark W. Beasley  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	730000		10000	1	12/20/2021 18:45	<a href="#">WG1792248</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	200000		2970	25000	5	01/03/2022 12:57	<a href="#">WG1796352</a>

3 Ss

4 Cn

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	190000		79.3	1000	1	01/18/2022 23:01	<a href="#">WG1801153</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	724000		10000	1	12/20/2021 18:45	<a href="#">WG1792248</a>

<sup>1</sup> Cp

<sup>2</sup> Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	200000		2970	25000	5	01/03/2022 13:10	<a href="#">WG1796352</a>

<sup>3</sup> Ss

<sup>4</sup> Cn

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	189000		79.3	1000	1	01/18/2022 23:04	<a href="#">WG1801153</a>

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	308000		10000	1	12/20/2021 18:45	<a href="#">WG1792248</a>

<sup>1</sup> Cp

<sup>2</sup> Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	9310		594	5000	1	12/30/2021 15:08	<a href="#">WG1796352</a>

<sup>3</sup> Ss

<sup>4</sup> Cn

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	82000		79.3	1000	1	01/19/2022 02:11	<a href="#">WG1801419</a>

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	ND		10000	1	12/20/2021 18:45	<a href="#">WG1792248</a>

<sup>1</sup> Cp

<sup>2</sup> Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	U		594	5000	1	12/30/2021 15:21	<a href="#">WG1796352</a>

<sup>3</sup> Ss

<sup>4</sup> Cn

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	U		79.3	1000	1	01/19/2022 02:13	<a href="#">WG1801419</a>

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Method Blank (MB)

(MB) R3744484-1 12/20/21 18:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1443377-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1443377-04 12/20/21 18:45 • (DUP) R3744484-3 12/20/21 18:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1690000	1670000	1	1.67		5

4 Cn

5 Sr

L1444231-10 Original Sample (OS) • Duplicate (DUP)

(OS) L1444231-10 12/20/21 18:45 • (DUP) R3744484-4 12/20/21 18:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	3730000	3810000	1	2.12		5

6 Qc

7 Gl

8 Al

Laboratory Control Sample (LCS)

(LCS) R3744484-2 12/20/21 18:45

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8400000	95.5	77.4-123	

9 Sc



Method Blank (MB)

(MB) R3746963-1 12/30/21 09:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		594	5000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1442956-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1442956-03 12/30/21 12:22 • (DUP) R3746963-3 12/30/21 12:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	40800	40700	1	0.216		15

L1443406-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1443406-04 12/30/21 15:21 • (DUP) R3746963-6 12/30/21 15:59

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	U	U	1	0.000		15

Laboratory Control Sample (LCS)

(LCS) R3746963-2 12/30/21 09:46

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfate	40000	41200	103	80.0-120	

L1442956-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1442956-03 12/30/21 12:22 • (MS) R3746963-4 12/30/21 12:48 • (MSD) R3746963-5 12/30/21 13:26

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	40800	89300	91400	96.9	101	1	80.0-120			2.43	15

L1443406-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1443406-04 12/30/21 15:21 • (MS) R3746963-7 12/30/21 16:12

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	U	51500	103	1	80.0-120	

Method Blank (MB)

(MB) R3751550-1 01/19/22 12:15

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	88.3	⬇	79.3	1000

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3751550-2 01/19/22 12:17

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium	10000	9960	99.6	80.0-120	

4 Cn

5 Sr

L1443268-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443268-13 01/18/22 23:17 • (MS) R3751556-4 01/18/22 23:22 • (MSD) R3751556-5 01/18/22 23:24

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10000	257000	264000	263000	63.8	54.3	1	75.0-125	⬇	⬇	0.362	20

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3751163-1 01/19/22 01:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Calcium	U		79.3	1000

1 Cp

2 Tc

3 Ss

Laboratory Control Sample (LCS)

(LCS) R3751163-2 01/19/22 01:58

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Calcium	10000	10300	103	80.0-120	

4 Cn

5 Sr

L1443692-17 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1443692-17 01/19/22 02:00 • (MS) R3751163-4 01/19/22 02:06 • (MSD) R3751163-5 01/19/22 02:08

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Calcium	10000	613	10800	10700	102	101	1	75.0-125			1.45	20

6 Qc

7 Gl

8 Al

9 Sc

# GLOSSARY OF TERMS

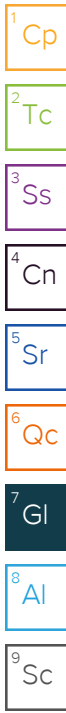
## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

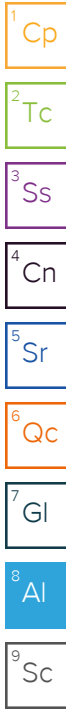
## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Company Name/Address:  
**Plum Point Services Co., LLC**  
 2739 SCR 623  
 Osceola, AR 72370

Billing Information:  
 Accounts Payable  
 P.O. Box 567  
 Osceola, AR 72370

Report to:  
**Dana Derrington**

Email To: [dld@ftn-assoc.com](mailto:dld@ftn-assoc.com); [hlf@ftn-assoc.com](mailto:hlf@ftn-assoc.com); [ajp@ftn-assoc.com](mailto:ajp@ftn-assoc.com)

Project Description:  
**Plum Point Energy Station**

City/State Collected: **Osceola AR**

Please Circle:  
 PT MT CT ET

Phone: **501-920-9642**

Client Project #  
**R14590-2496-001**

Lab Project #  
**NAESOAR-PLUMPOINT**

Collected by (print):  
*Michael Clayton*

Site/Facility ID #

P.O. #  
**2020-00128**

Collected by (signature):  
*Michael Clayton*

**Rush?** (Lab MUST Be Notified)  
 \_\_\_ Same Day \_\_\_ Five Day  
 \_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
 \_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
 \_\_\_ Three Day

Quote #  
 Date Results Needed

Immediately  
 Packed on ice N \_\_\_ Y \_\_\_

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CAICP 250mIHDPE-HNO3	SULFATE 125mIHDPE-NoPres	TDS 250mIHDPE-NoPres	Analysis / Container / Preservative
MW-116	Grab	GW		12/14/21	1258	3	X	X	X	
MW-116 DUP		GW			1255	3	X	X	X	
MW-117		GW			1405	3	X	X	X	
EPA EB-1		GW			1430	3	X	X	X	
		GW								
		GW								
		GW								

Chain of Custody Page **2** of **2**  
  
 12065 Lebanon Rd Mount Juliet, TN 37122  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **L1443406**  
**D165**  
 Ta  
 Acctnum: **NAESOAR**  
 Template: **T200676**  
 Prelogin: **P892986**  
 PM: **134 - Mark W. Beasley**  
 PB:

Shipped Via:  
 Remarks Sample # (lab only)

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:  
 pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_  
 Samples returned via:  
 \_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier  
 Tracking # **5318 9961 3544**

Sample Receipt Checklist  
 COC Seal Present/Intact:  Y  N  
 COC Signed/Accurate:  Y  N  
 Bottles arrive intact:  Y  N  
 Correct bottles used:  Y  N  
 Sufficient volume sent:  Y  N  
 IF Applicable  
 VOA Zero Headspace:  Y  N  
 Preservation Correct/Checked:  Y  N  
 RAD Screen <0.5 mR/hr:  Y  N

Relinquished by: (Signature)  
*Michael Clayton*

Date: **12/15/21** Time: **1430**

Received by: (Signature)

Trip Blank Received: Yes (No)  
 HCL/MeOH  
**DKA2**  
 TBR

Relinquished by: (Signature)

Date: Time:

Received by: (Signature)

Temp: **1.7°C to 1.7°C** Bottles Received: **12**

Relinquished by: (Signature)

Date: Time:

Received for lab by: (Signature)  
*Only*

Date: **12-16-21** Time: **0915**

Hold: Condition: NCF  OK

---

**Alternate Source Demonstration for  
First Half 2022 Statistically Significant Results**




water resources / environmental consultants

3 Innwood Circle, Suite 220 • Little Rock, AR 72211 • (501) 225-7779 • Fax (501) 225-6738

## TECHNICAL MEMORANDUM

**DATE:** September 27, 2022

**TO:** **Matt Gray**  
Plum Point Services Company, LLC

**FROM:** **Dana Derrington, PE, PG**   
FTN Associates, Ltd.

**SUBJECT:** Alternate Source Demonstration for Statistically Significant Increases  
First Half of 2022 Monitoring Period, Plum Point Energy Station Landfill  
FTN No. R14590-2764-001

---

FTN Associates, Ltd. (FTN), has prepared this technical memorandum for the Plum Point Services Company, LLC (PPSC), coal combustion residuals (CCR) landfill, which is regulated by the Environmental Protection Agency (EPA) Coal Combustion Residuals Rule, promulgated in Title 40 of the Code of Federal Regulations (40 CFR), Part 257. The landfill is also regulated by the Arkansas Pollution Control and Ecology Commission (APCEC) Regulation No. 22 and permitted by the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ), under permit no. 0303-S3N-R1.

FTN was contracted to sample groundwater and to statistically evaluate the data for the first half of 2022 monitoring period. Based on statistical evaluation of the data, three confirmed statistically significant increases (SSIs) over background concentrations were identified. Pursuant to §257.94(e)(2), the landfill may demonstrate that a source other than the CCR unit caused an SSI over background levels for a constituent or that an SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. This memorandum, hereafter referred to as an alternate source demonstration (ASD), presents evidence that the confirmed SSIs are the result of off-site influence and/or natural fluctuations in groundwater quality.

### 1.0 BACKGROUND

FTN performed groundwater sampling for the first half 2022 semiannual groundwater monitoring period during April 2022. Sample collection, preservation, shipment, analytical procedures, chain-of-custody control, and data quality control for this sampling event followed protocol outlined in the landfill's groundwater sampling and analysis plan (GWSAP) (FTN 2017b). Statistical evaluation of the data set followed the most recent EPA guidance (EPA 2009) and the landfill's statistical analysis plan (SAP) (FTN 2017c). An intrawell prediction limit evaluation identified one previously confirmed



SSI for sulfate at MW-117 and two unverified<sup>1</sup> SSIs for calcium and total dissolved solids (TDS) at MW-117. A site map showing the locations of these wells relative to the CCR unit (cells 1 and 3) is included as Figure 1 (all figures are included in Attachment 1).

In accordance with the landfill's SAP and EPA guidance (EPA 2009), verification sampling was performed during June 2022, and intrawell prediction limit plots showing the results of verification sampling are included in Attachment 2. As shown in Table 1 (Attachment 3), concentrations for calcium, sulfate, and TDS at MW-117 remain above their respective intrawell prediction limits. Prior ASDs have been prepared for the confirmed SSIs for calcium (FTN 2019a, 2020), sulfate (FTN 2022), and TDS at MW-117 (FTN 2019a, 2019b, 2020, 2021, 2022) in accordance with §257.94(e)(2) and based on the statistical limits at the time of each prior reporting period. Each ASD successfully demonstrated that the SSIs were not the result of influence from the CCR unit.

Laboratory reports for the April and June sampling events are included in Attachment 4.

## 2.0 DISCUSSION

A review of the monitoring system with respect to onsite background wells, background groundwater quality, published literature, and landfill leachate quality was performed to determine if the confirmed SSIs for calcium, sulfate, and TDS at compliance well MW-117 were indicative of a release from the CCR unit. Findings from this review are discussed below.

### 2.1 Monitoring System Background Wells

As required by §257.91(c)(1), the groundwater monitoring network is required to contain a minimum of one monitoring well that is hydraulically upgradient of the CCR management area for the purpose of monitoring background water quality. However, there is not a hydraulically upgradient location at this facility because the direction of groundwater flow is seasonably variable. As allowed by §257.91(a)(1), a facility may utilize wells for background water quality that are not hydraulically upgradient of the CCR unit. For this reason, the facility incorporated monitoring wells MW-108, MW-113, and MW-115 (Figure 1) to monitor background water quality because those wells are positioned outside the potential zone of impact from the CCR unit. The rationale for this is based on the age of the landfill; the estimated maximum rate of groundwater flow; and the distance of MW-108, MW-113, and MW-115 from the CCR unit. Specifically:

- MW-108, MW-113, and MW-115 are located more than 2,300 ft from the eastern edge of cell 3;
- Groundwater at the landfill has historically exhibited a maximum flow rate of 40 ft/year; and
- The landfill became active during March 2010.

---

<sup>1</sup> The SSIs for calcium and TDS at MW-117 have also been previously confirmed during at least one prior monitoring period, but the SSIs were based on older prediction limits that are no longer applicable. Therefore, these SSIs are considered “unverified” with respect to their current prediction limits.

Using the information available above, a potential leachate plume would not be expected to have migrated more than 485 ft from the CCR unit as of the first half 2022 monitoring event. This estimate is conservative for the following reasons:

1. It assumes impact to groundwater occurred at the same time cell 1 was activated (March 2010) and does not account for travel time through the confining unit soils;
2. It assumes that groundwater flows in one direction; however, it is well-documented that groundwater flow at the landfill is multidirectional and reverses flow on a seasonal basis (FTN 2017a); and
3. It does not account for any physical or chemical properties of the constituents of concern that would cause them to travel at rates slower than groundwater (e.g., adsorption).

## **2.2 Comparison to Onsite Background Groundwater Quality**

Period-of-record calcium, sulfate, and TDS data for compliance well MW-117 and background wells MW-108, MW-113, and MW-115 are plotted on the time-series graphs and box-and-whiskers diagrams included in Attachment 2. As is evident from these graphs and diagrams, concentrations for calcium, sulfate, and TDS at MW-117 are well within the range of values measured at the onsite background wells. This comparison provides supporting evidence that the currently measured values of calcium, sulfate, and TDS at MW-117 reflect natural fluctuations in groundwater quality.

## **2.3 Comparison to Published Groundwater Quality for the Aquifer**

Each monitoring well is screened in the Mississippi River Valley alluvial aquifer, the uppermost aquifer in the vicinity of the landfill (FTN 2017b). The United States Geological Survey published a study of groundwater quality of the aquifer, specifically with respect to that of Holocene alluvium and Pleistocene valley train deposits, which are two of the major hydrogeologic units within the aquifer (Gonthier 2003). The landfill is located in Holocene alluvium, as shown on Figure 2. According to this study, wells screened in Holocene alluvium had a maximum measured calcium concentration of 130 mg/L, a maximum measured sulfate concentration of 120 mg/L, and a maximum measured TDS concentration of 728 mg/L. As shown in Table 1 (Attachment 3), published levels for the aquifer are well above those measured at MW-117 and at background wells MW-108, MW-113, and MW-115. This comparison provides supporting evidence that the currently measured values of calcium, sulfate, and TDS at MW-117 reflect natural fluctuations in groundwater quality.

## **2.4 Comparison to Landfill Leachate**

The major ion composition of leachate and groundwater samples collected during April 2022 was evaluated using the Stiff and Piper diagrams included in Attachment 2. These data are collected on a semiannual basis for the landfill's APCEC Regulation No. 22 monitoring program, as required by permit no. 0303-S3N-R1, and are publicly available on the DEQ website<sup>2</sup>. If groundwater has been

<sup>2</sup> [https://www.adeg.state.ar.us/sw/permits/facility\\_data.aspx](https://www.adeg.state.ar.us/sw/permits/facility_data.aspx)



impacted by landfill leachate, the relative proportions of major ions in groundwater will resemble those in leachate.

A review of the Stiff diagrams shows that the ionic distribution in groundwater at MW-117 is similar to the ionic distribution at background wells MW-108, MW-113, and MW-115. In contrast, the leachate diagram is distinctly different. Specifically, the leachate sample exhibits concentrations of sodium, potassium, and sulfate ions that are comparatively absent in groundwater. The Piper diagram also illustrates the dissimilarity of groundwater quality to leachate, with data for background wells MW-108, MW-113, and MW-115 and compliance well MW-117 clustered in the quadrant classified as calcium-bicarbonate-type water and positioned apart from the leachate data, which is located in the sodium-chloride quadrant. If leachate was mixing with groundwater at MW-117, the data for MW-117 would plot at an intermediate distance between the leachate data and the data for background wells MW-108, MW-113, and MW-115 on the Piper diagram.

The Stiff and Piper diagrams show that the relative proportions of major ions in groundwater at MW-117 are different than landfill leachate, providing a key line of evidence that the SSIs for calcium, sulfate, and TDS at MW-117 are not due to a release from the CCR unit.

### 3.0 CONCLUSIONS

In consideration of the information presented in this memorandum, FTN concludes that the SSIs for calcium, sulfate, and TDS at MW-117 are the result of off-site influence and/or natural fluctuations in groundwater quality.

This memorandum serves as the ASD prepared in accordance with §257.94(e)(2) and supports the position that the confirmed SSIs identified for calcium, sulfate, and TDS at MW-117 are not due to a release from the CCR unit. Therefore, no further action is required and the landfill will remain in detection monitoring.

If you have questions or comments regarding this memorandum, please do not hesitate to call Dana Derrington, PE, PG, at (314) 786-5855 or Heather Ferguson at (501) 225-7779.

DLD/hlf

Attachments

U:\WP\_FILES\14590-2764-001\2022-09-27 FTN TO PPSC - ASD FOR 1H2022 EPA SSIS\2022-09-27 FTN TO PPES - EPA ASD FOR 1H2022 SSIS.DOCX

Hlf

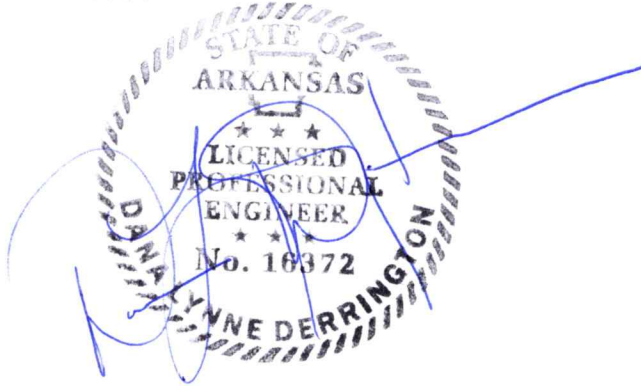


## REFERENCES

- EPA [US Environmental Protection Agency]. 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* [EPA 530-R-09-007]. Washington, DC: Office of Resource Conservation and Recovery, Program Implementation and Information Division, US Environmental Protection Agency. March 2009.
- FTN [FTN Associates, Ltd.]. 2017a. *Groundwater Monitoring Network Evaluation, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd.
- . 2017b. *Groundwater Sampling and Analysis Plan, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd.
- . 2017c. *Statistical Analysis Plan, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd.
- . 2019a. *Alternate Source Demonstration for Statistically Significant Increases, First Half of 2019 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. October 24, 2019.
- . 2019b. *Alternate Source Demonstration for Statistically Significant Increases, Second Half of 2019 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. December 17, 2019.
- . 2020. *Alternate Source Demonstration for Statistically Significant Increases, First Half of 2020 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. August 3, 2020.
- . 2021. *Alternate Source Demonstration for Statistically Significant Increases, First Half of 2021 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. October 6, 2021.
- . 2022. *Alternate Source Demonstration for Statistically Significant Increases, Second Half of 2021 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. April 4, 2022.
- Gonthier, G.J. 2003. *Quality of Groundwater in Pleistocene and Holocene Subunits of the Mississippi River Alluvial Aquifer, 1998* [Water-Resources Investigations Report 03-4202]. Jackson, MS: National Water-Quality Assessment Program, US Geological Survey.

### PROFESSIONAL ENGINEER'S CERTIFICATION

With this certification, I certify that I, as a professional engineer in the state of Arkansas, am a qualified professional engineer as defined in §257.53 of Title 40 of the Code of Federal Regulations (CFR), Part 257, that this technical memorandum has been prepared under my direction in accordance with generally accepted good engineering practices, that the findings are accurate to the best of my knowledge, and that the alternate source demonstration described herein meets the requirements of §257.94(e)(2) of 40 CFR Part 257.



---

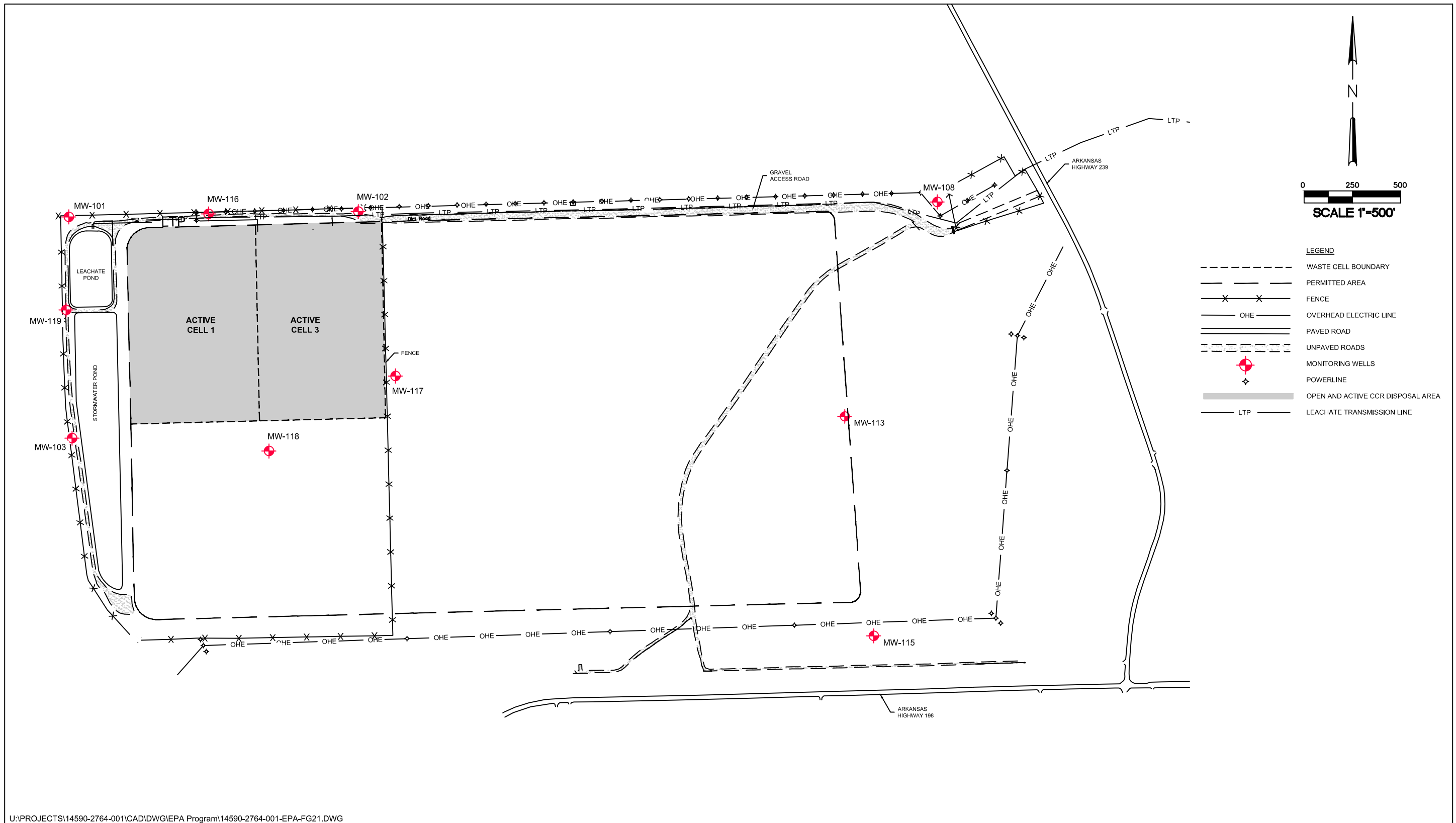
Dana L. Derrington, Arkansas PE #16372

09/27/2022  
Date

# **ATTACHMENT 1**

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**Figures**



U:\PROJECTS\14590-2764-001\CAD\DWG\EPA Program\14590-2764-001-EPA-FG21.DWG

Figure 1. Monitoring well location map.

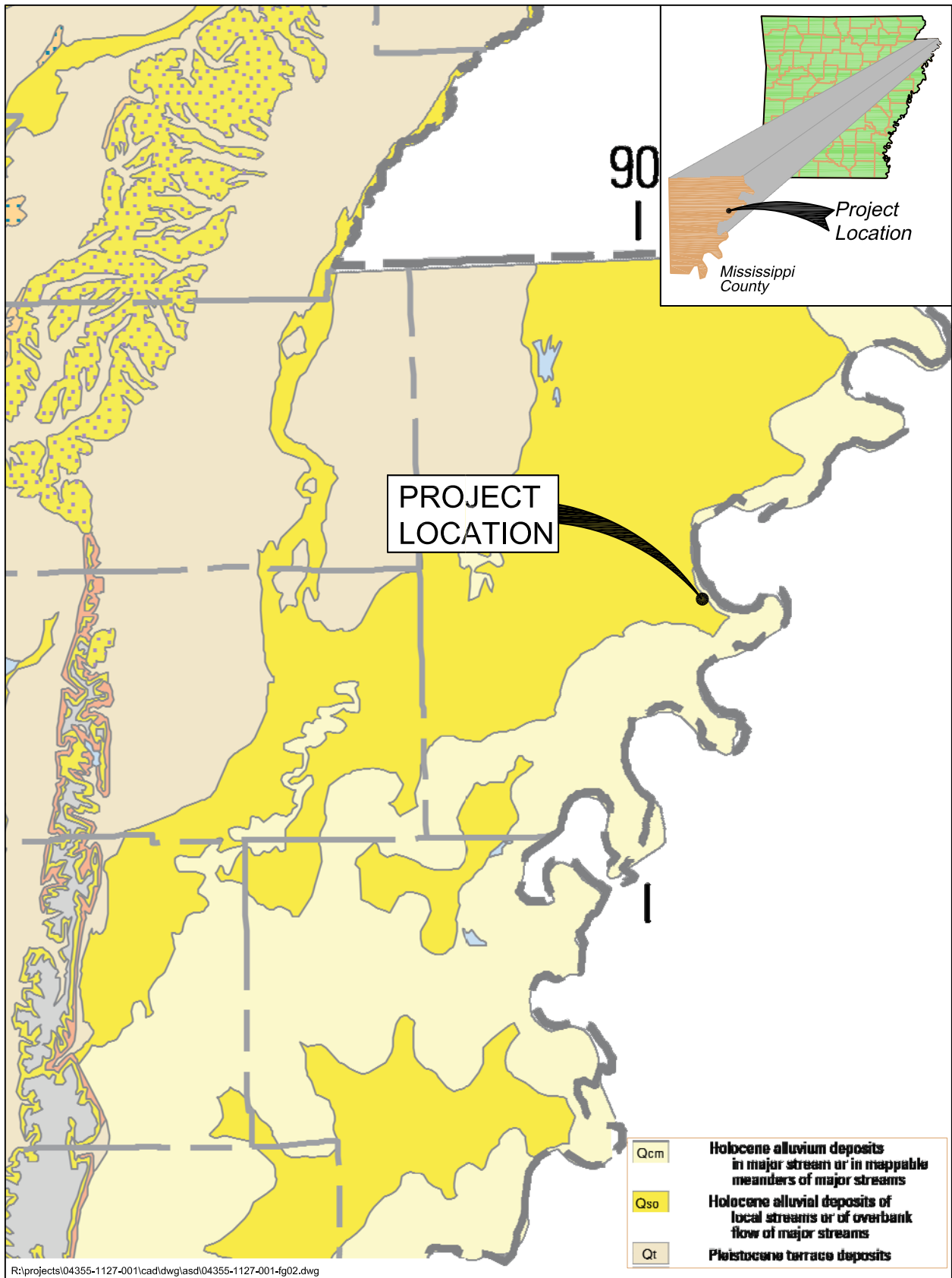


Figure 2. Surface geology of Mississippi County, Arkansas (adapted from Kresse et al. 2014).

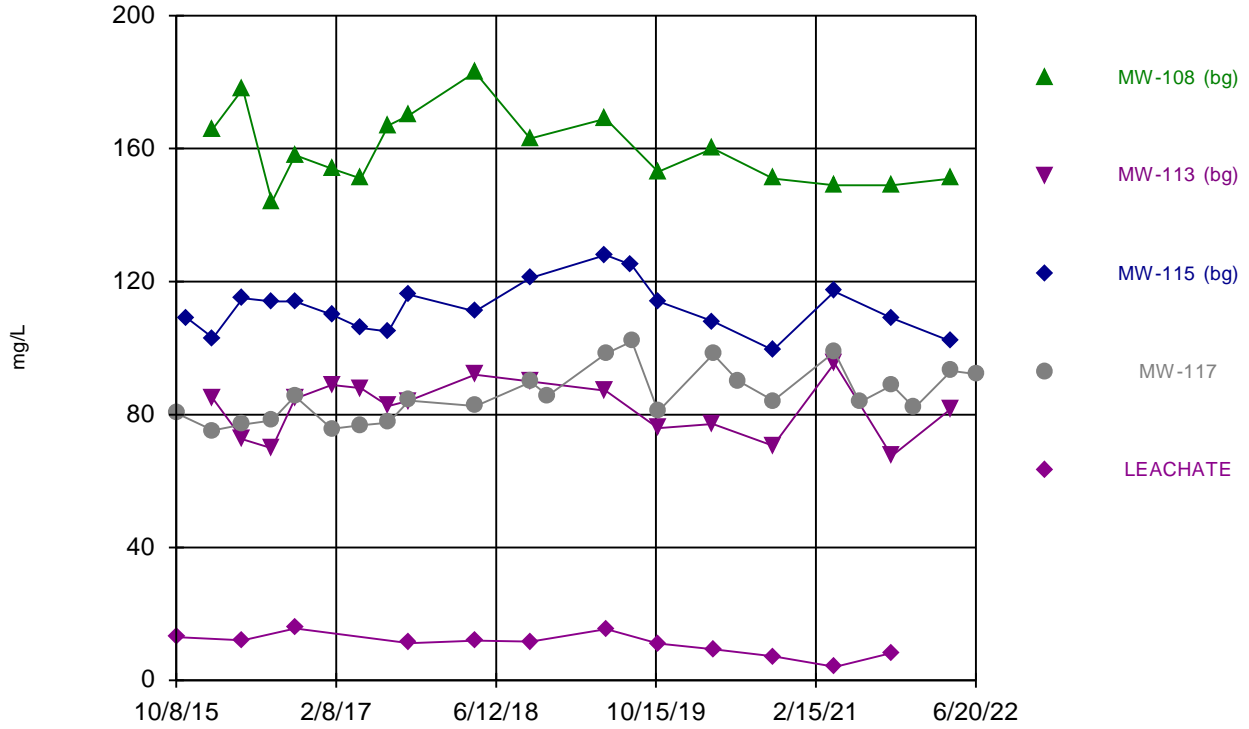


# **ATTACHMENT 2**

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**Statistical Plots**

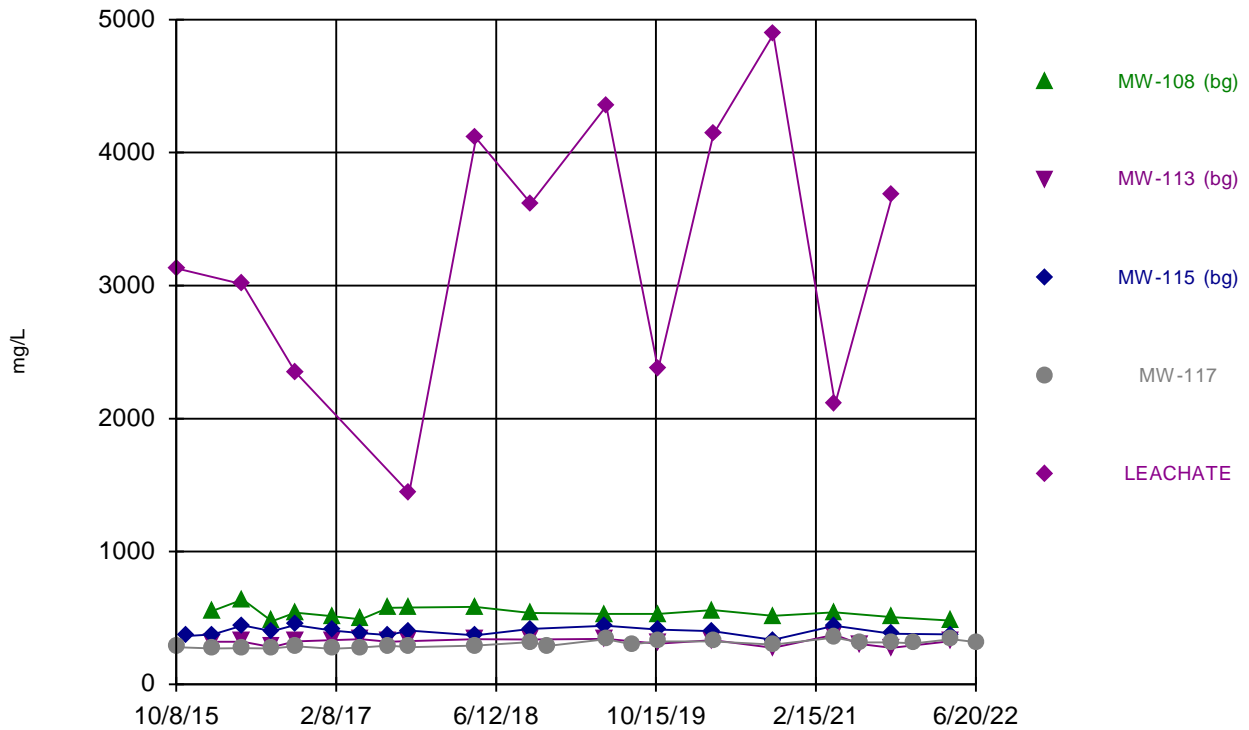
### Time Series



Constituent: Calcium Analysis Run 8/23/2022 11:23 AM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

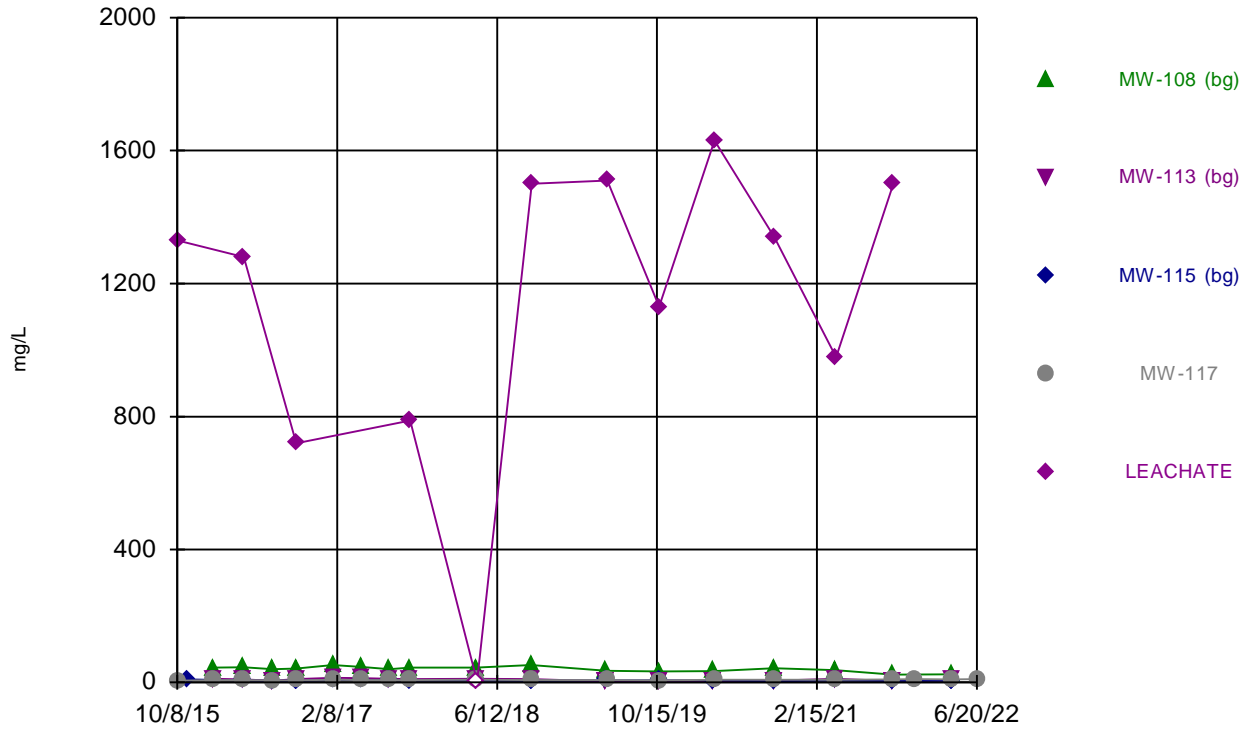
### Time Series



Constituent: Dissolved Solids Analysis Run 8/23/2022 11:23 AM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

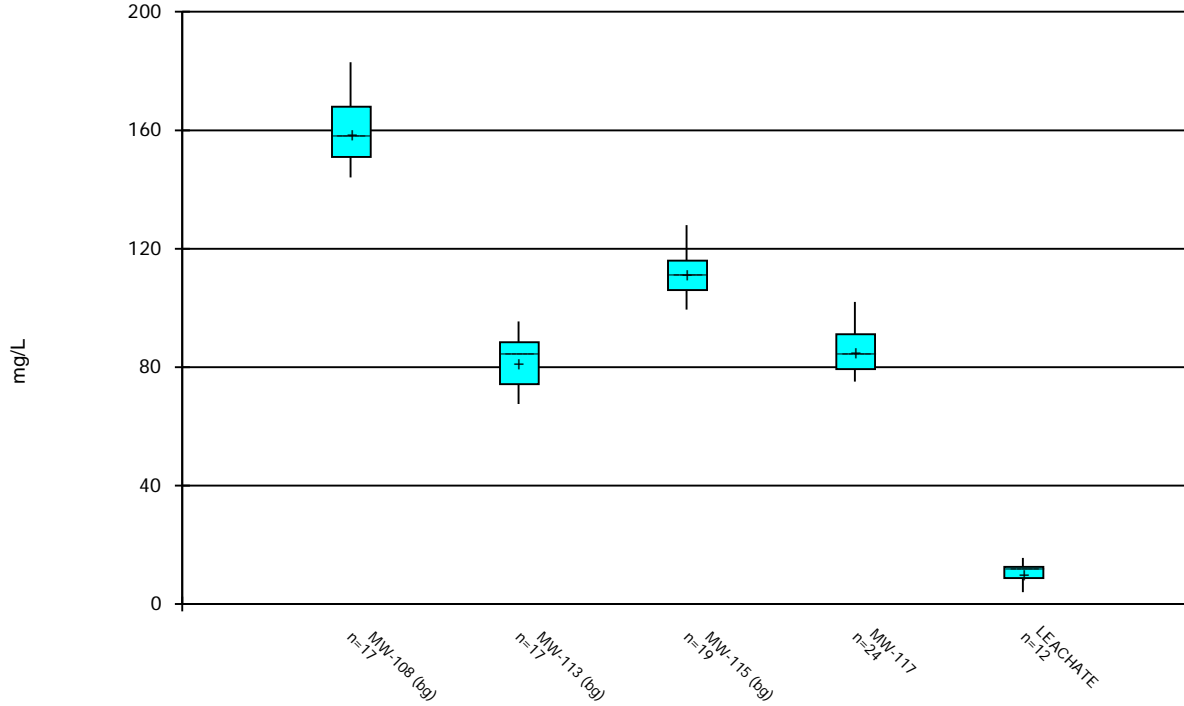
### Time Series



Constituent: Sulfate Analysis Run 8/23/2022 11:23 AM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

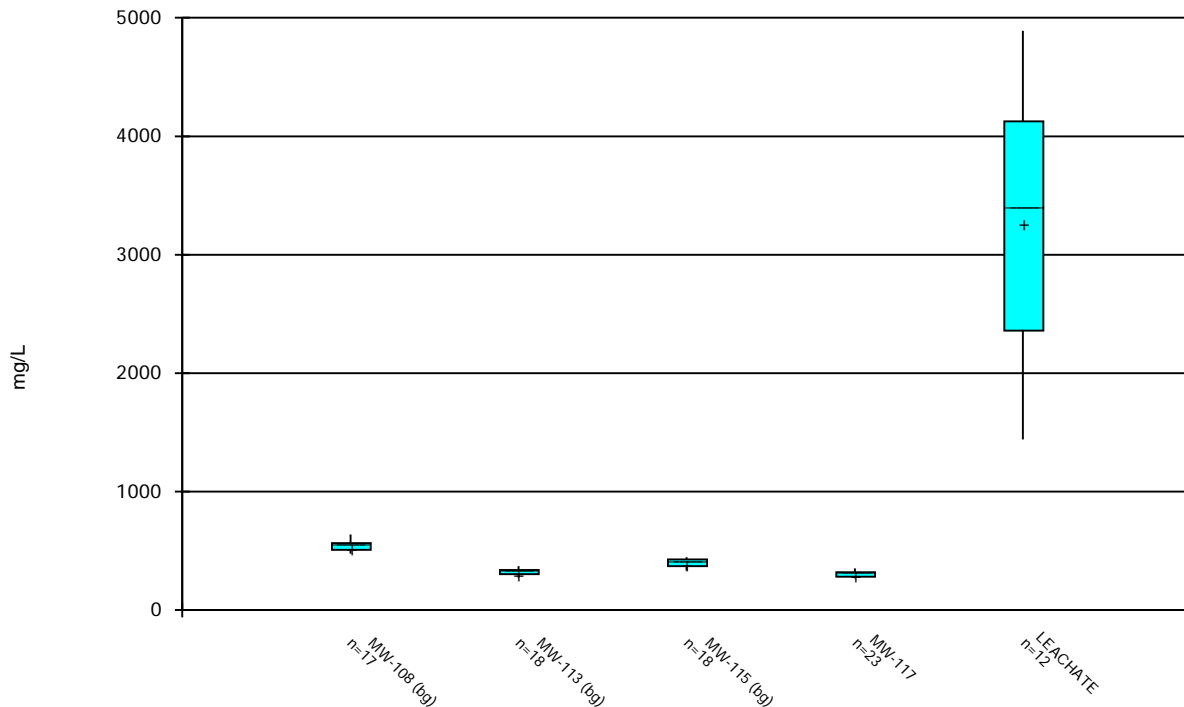
### Box & Whiskers Plot



Constituent: Calcium Analysis Run 8/23/2022 11:25 AM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

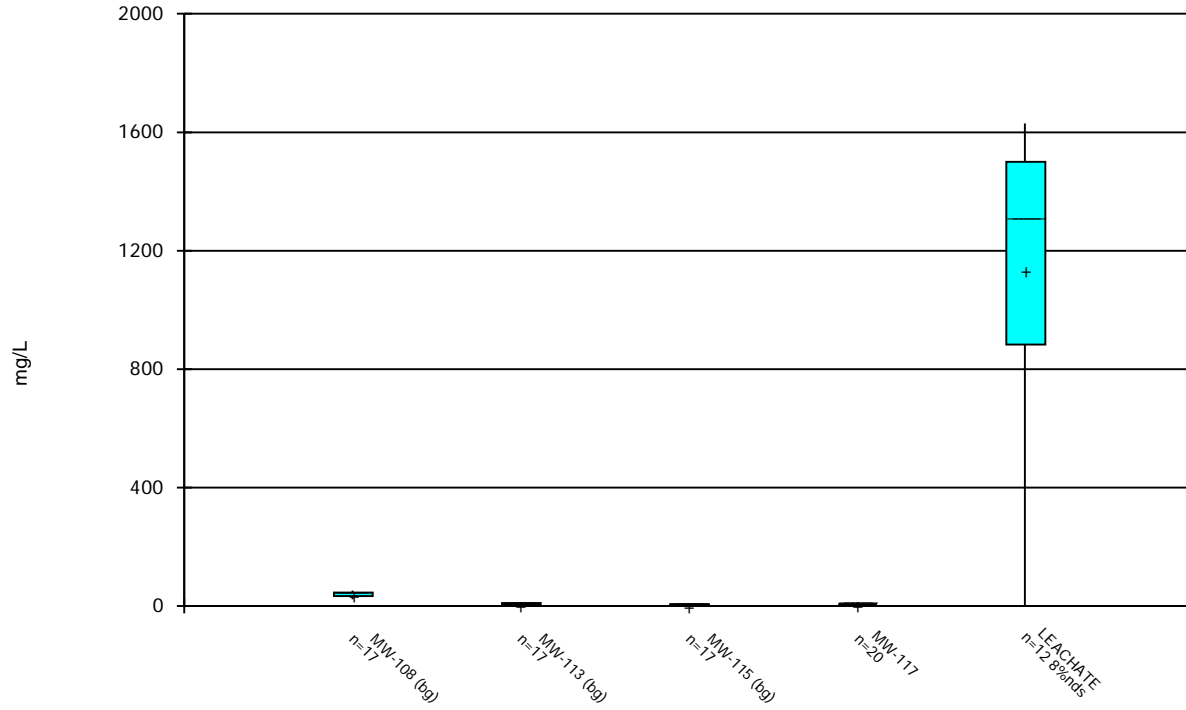
### Box & Whiskers Plot



Constituent: Dissolved Solids Analysis Run 8/23/2022 11:25 AM

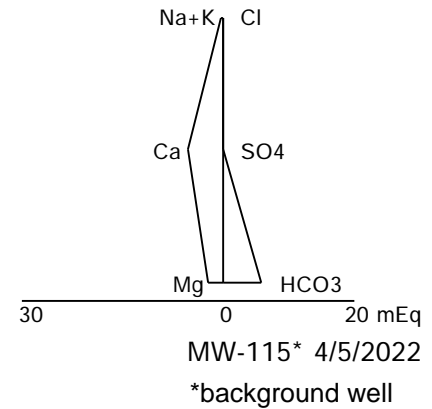
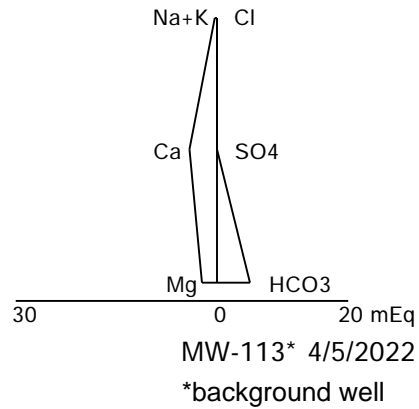
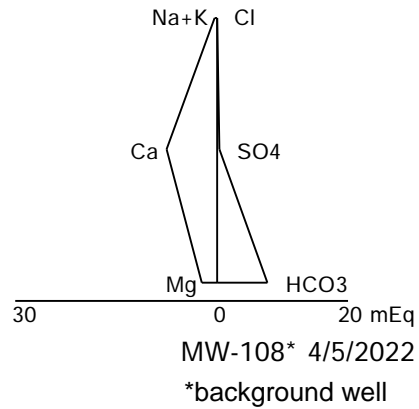
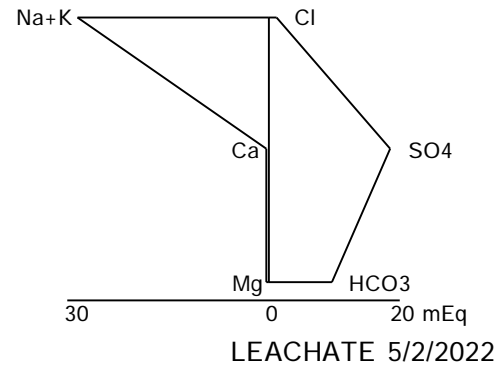
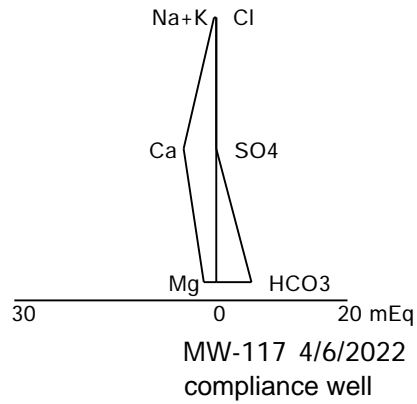
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

### Box & Whiskers Plot



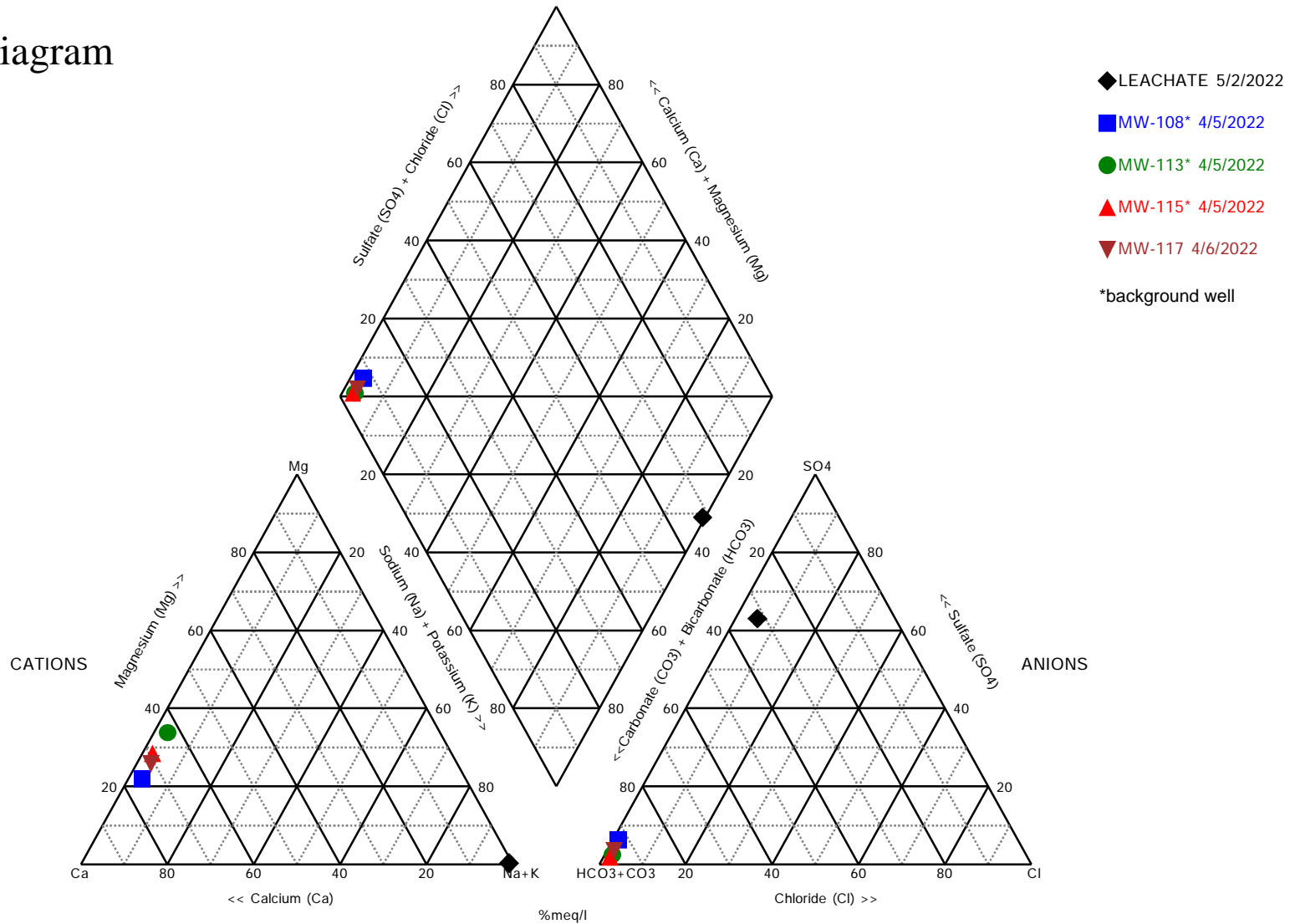
Constituent: Sulfate Analysis Run 8/23/2022 11:25 AM

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



Stiff Diagram Analysis Run 8/23/2022 11:26 AM

# Piper Diagram



Analysis Run 8/23/2022 11:26 AM

# **ATTACHMENT 3**

---

## **Summary Table**



Table 1. Summary of statistically significant results and maximum background and published levels.

Well ID	Parameter	Prediction Limit (mg/L)	April 2022 Initial Result (mg/L)	June 2022 Verification Result (mg/L)	SSI Confirmed?	Maximum Background Level <sup>(a)</sup> (mg/L)	Maximum Published Level <sup>(b)</sup> (mg/L)
MW-117	Calcium	92.01	93.1	92.2	Yes	190 (MW-108, May 2014)	130
MW-117	Sulfate	8.048	9.03	9.63	Yes <sup>(c)</sup>	82.2 (MW-108, 9/2018)	120
MW-117	TDS	315.8	341	318	Yes	700 (MW-108, October 2016)	728

Notes:

- a. Based on historical values at MW-108, MW-113, and MW-115.
- b. From Gonthier 2003; value is for the Holocene subunit.
- c. Previously confirmed SSI.

## REFERENCES

Gonthier, G.J. 2003. *Quality of Groundwater in Pleistocene and Holocene Subunits of the Mississippi River Alluvial Aquifer, 1998* [Water-Resources Investigations Report 03-4202]. Jackson, MS: US Geological Survey, National Water-Quality Assessment Program.

# **ATTACHMENT 4**

---

**Laboratory Reports**

**Plum Point Services Co., LLC**

Sample Delivery Group: L1480403  
Samples Received: 04/08/2022  
Project Number: R14590-2794-001  
Description: Plum Point Energy Station

Report To: Dana Derrington  
2739 SCR 623  
Osceola, AR 72370

Entire Report Reviewed By:












Mark W. Beasley  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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# SAMPLE SUMMARY

## MW-101 L1480403-01 GW

Collected by Michael Clayton    Collected date/time 04/07/22 13:40    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 14:41	04/12/22 14:41	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:16	ZSA	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

## MW-102 L1480403-02 GW

Collected by Michael Clayton    Collected date/time 04/06/22 15:00    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 14:55	04/12/22 14:55	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:18	ZSA	Mt. Juliet, TN

4 Cn

5 Sr

6 Qc

## MW-103 L1480403-03 GW

Collected by Michael Clayton    Collected date/time 04/07/22 11:50    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 15:09	04/12/22 15:09	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:21	ZSA	Mt. Juliet, TN

7 Gl

8 Al

9 Sc

## MW-108 L1480403-04 GW

Collected by Michael Clayton    Collected date/time 04/05/22 13:40    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1846171	1	04/10/22 15:44	04/10/22 16:48	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 15:22	04/12/22 15:22	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 16:41	ZSA	Mt. Juliet, TN

## MW-113 L1480403-05 GW

Collected by Michael Clayton    Collected date/time 04/05/22 12:30    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 15:36	04/12/22 15:36	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:24	ZSA	Mt. Juliet, TN

## MW-115 L1480403-06 GW

Collected by Michael Clayton    Collected date/time 04/05/22 11:15    Received date/time 04/08/22 09:30

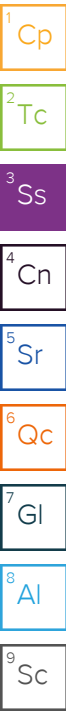
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 15:49	04/12/22 15:49	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:26	ZSA	Mt. Juliet, TN

# SAMPLE SUMMARY

## MW-116 L1480403-07 GW

Collected by Michael Clayton    Collected date/time 04/06/22 16:20    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1846171	1	04/10/22 15:44	04/10/22 16:48	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 16:03	04/12/22 16:03	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:29	ZSA	Mt. Juliet, TN



## MW-117 L1480403-08 GW

Collected by Michael Clayton    Collected date/time 04/06/22 13:15    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 17:11	04/12/22 17:11	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:32	ZSA	Mt. Juliet, TN

## MW-118 L1480403-09 GW

Collected by Michael Clayton    Collected date/time 04/07/22 10:55    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 17:52	04/12/22 17:52	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:40	ZSA	Mt. Juliet, TN

## MW-119 L1480403-10 GW

Collected by Michael Clayton    Collected date/time 04/07/22 12:50    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1846171	1	04/10/22 15:44	04/10/22 16:48	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 18:06	04/12/22 18:06	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:43	ZSA	Mt. Juliet, TN

## MW-117 DUP L1480403-11 GW

Collected by Michael Clayton    Collected date/time 04/06/22 13:20    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 18:19	04/12/22 18:19	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:45	ZSA	Mt. Juliet, TN

## EPA EB L1480403-12 GW

Collected by Michael Clayton    Collected date/time 04/07/22 14:15    Received date/time 04/08/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1845847	1	04/09/22 11:28	04/09/22 13:23	MMF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1847040	1	04/12/22 18:33	04/12/22 18:33	LBR	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1846822	1	04/15/22 01:33	04/18/22 17:48	ZSA	Mt. Juliet, TN

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Mark W. Beasley  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	388000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	848	J	379	1000	1	04/12/2022 14:41	<a href="#">WG1847040</a>
Fluoride	228		64.0	150	1	04/12/2022 14:41	<a href="#">WG1847040</a>
Sulfate	7630		594	5000	1	04/12/2022 14:41	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	59.7	J	20.0	200	1	04/18/2022 17:16	<a href="#">WG1846822</a>
Calcium	105000		79.3	1000	1	04/18/2022 17:16	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	442000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1910		379	1000	1	04/12/2022 14:55	<a href="#">WG1847040</a>
Fluoride	142	J	64.0	150	1	04/12/2022 14:55	<a href="#">WG1847040</a>
Sulfate	79000		594	5000	1	04/12/2022 14:55	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	83.8	J	20.0	200	1	04/18/2022 17:18	<a href="#">WG1846822</a>
Calcium	110000		79.3	1000	1	04/18/2022 17:18	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	278000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	926	J	379	1000	1	04/12/2022 15:09	<a href="#">WG1847040</a>
Fluoride	128	J	64.0	150	1	04/12/2022 15:09	<a href="#">WG1847040</a>
Sulfate	7840		594	5000	1	04/12/2022 15:09	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	55.2	J	20.0	200	1	04/18/2022 17:21	<a href="#">WG1846822</a>
Calcium	71600		79.3	1000	1	04/18/2022 17:21	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	478000		10000	1	04/10/2022 16:48	<a href="#">WG1846171</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1380		379	1000	1	04/12/2022 15:22	<a href="#">WG1847040</a>
Fluoride	138	J	64.0	150	1	04/12/2022 15:22	<a href="#">WG1847040</a>
Sulfate	24000		594	5000	1	04/12/2022 15:22	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	132	J	20.0	200	1	04/18/2022 16:41	<a href="#">WG1846822</a>
Calcium	151000	V	79.3	1000	1	04/18/2022 16:41	<a href="#">WG1846822</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	326000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1320		379	1000	1	04/12/2022 15:36	<a href="#">WG1847040</a>
Fluoride	84.6	J	64.0	150	1	04/12/2022 15:36	<a href="#">WG1847040</a>
Sulfate	5700		594	5000	1	04/12/2022 15:36	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	74.7	J	20.0	200	1	04/18/2022 17:24	<a href="#">WG1846822</a>
Calcium	81800		79.3	1000	1	04/18/2022 17:24	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	374000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	976	J	379	1000	1	04/12/2022 15:49	<a href="#">WG1847040</a>
Fluoride	165		64.0	150	1	04/12/2022 15:49	<a href="#">WG1847040</a>
Sulfate	4950	J	594	5000	1	04/12/2022 15:49	<a href="#">WG1847040</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	42.4	J	20.0	200	1	04/18/2022 17:26	<a href="#">WG1846822</a>
Calcium	102000		79.3	1000	1	04/18/2022 17:26	<a href="#">WG1846822</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	338000		10000	1	04/10/2022 16:48	<a href="#">WG1846171</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2640		379	1000	1	04/12/2022 16:03	<a href="#">WG1847040</a>
Fluoride	132	J	64.0	150	1	04/12/2022 16:03	<a href="#">WG1847040</a>
Sulfate	55600		594	5000	1	04/12/2022 16:03	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	84.2	J	20.0	200	1	04/18/2022 17:29	<a href="#">WG1846822</a>
Calcium	81400		79.3	1000	1	04/18/2022 17:29	<a href="#">WG1846822</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	341000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	875	J	379	1000	1	04/12/2022 17:11	<a href="#">WG1847040</a>
Fluoride	91.6	J	64.0	150	1	04/12/2022 17:11	<a href="#">WG1847040</a>
Sulfate	9030		594	5000	1	04/12/2022 17:11	<a href="#">WG1847040</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	73.8	J	20.0	200	1	04/18/2022 17:32	<a href="#">WG1846822</a>
Calcium	93100		79.3	1000	1	04/18/2022 17:32	<a href="#">WG1846822</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	320000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	926	J	379	1000	1	04/12/2022 17:52	<a href="#">WG1847040</a>
Fluoride	129	J	64.0	150	1	04/12/2022 17:52	<a href="#">WG1847040</a>
Sulfate	17600		594	5000	1	04/12/2022 17:52	<a href="#">WG1847040</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	57.3	J	20.0	200	1	04/18/2022 17:40	<a href="#">WG1846822</a>
Calcium	85200		79.3	1000	1	04/18/2022 17:40	<a href="#">WG1846822</a>

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	397000		10000	1	04/10/2022 16:48	<a href="#">WG1846171</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1820		379	1000	1	04/12/2022 18:06	<a href="#">WG1847040</a>
Fluoride	195		64.0	150	1	04/12/2022 18:06	<a href="#">WG1847040</a>
Sulfate	37100		594	5000	1	04/12/2022 18:06	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	67.0	J	20.0	200	1	04/18/2022 17:43	<a href="#">WG1846822</a>
Calcium	107000		79.3	1000	1	04/18/2022 17:43	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	344000		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1060		379	1000	1	04/12/2022 18:19	<a href="#">WG1847040</a>
Fluoride	92.5	J	64.0	150	1	04/12/2022 18:19	<a href="#">WG1847040</a>
Sulfate	9310		594	5000	1	04/12/2022 18:19	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	72.1	J	20.0	200	1	04/18/2022 17:45	<a href="#">WG1846822</a>
Calcium	92900		79.3	1000	1	04/18/2022 17:45	<a href="#">WG1846822</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	ND		10000	1	04/09/2022 13:23	<a href="#">WG1845847</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	U		379	1000	1	04/12/2022 18:33	<a href="#">WG1847040</a>
Fluoride	U		64.0	150	1	04/12/2022 18:33	<a href="#">WG1847040</a>
Sulfate	U		594	5000	1	04/12/2022 18:33	<a href="#">WG1847040</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	U		20.0	200	1	04/18/2022 17:48	<a href="#">WG1846822</a>
Calcium	U		79.3	1000	1	04/18/2022 17:48	<a href="#">WG1846822</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3780075-1 04/09/22 13:23

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1478933-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1478933-01 04/09/22 13:23 • (DUP) R3780075-3 04/09/22 13:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	573000	572000	1	0.175		5

L1480461-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1480461-03 04/09/22 13:23 • (DUP) R3780075-4 04/09/22 13:23

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	3790000	3730000	1	1.73		5

Laboratory Control Sample (LCS)

(LCS) R3780075-2 04/09/22 13:23

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8710000	99.0	77.4-123	

Method Blank (MB)

(MB) R3780062-1 04/10/22 16:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1479870-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1479870-04 04/10/22 16:48 • (DUP) R3780062-3 04/10/22 16:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1620000	1660000	1	2.74		5

4 Cn

5 Sr

L1480590-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1480590-05 04/10/22 16:48 • (DUP) R3780062-4 04/10/22 16:48

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	976000	940000	1	3.76		5

6 Qc

7 Gl

8 Al

Laboratory Control Sample (LCS)

(LCS) R3780062-2 04/10/22 16:48

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8330000	94.7	77.4-123	

9 Sc

Method Blank (MB)

(MB) R3780665-1 04/12/22 10:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	U		594	5000

L1480389-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1480389-01 04/12/22 11:58 • (DUP) R3780665-3 04/12/22 12:12

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	121000	123000	1	1.36	FF	15
Fluoride	224	307	1	31.1	P1	15
Sulfate	U	U	1	0.000		15

L1480403-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1480403-08 04/12/22 17:11 • (DUP) R3780665-6 04/12/22 17:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	875	861	1	1.65	FF	15
Fluoride	91.6	101	1	10.2	FF	15
Sulfate	9030	9220	1	2.13		15

Laboratory Control Sample (LCS)

(LCS) R3780665-2 04/12/22 10:32

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	37700	94.1	80.0-120	
Fluoride	8000	7840	98.0	80.0-120	
Sulfate	40000	37800	94.5	80.0-120	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1480389-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1480389-04 04/12/22 12:52 • (MS) R3780665-4 04/12/22 13:06 • (MSD) R3780665-5 04/12/22 13:20

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	13800	63800	62100	100	96.7	1	80.0-120			2.70	15
Fluoride	5000	75.7	4790	4650	94.3	91.5	1	80.0-120			3.01	15
Sulfate	50000	40900	89700	85100	97.7	88.5	1	80.0-120			5.25	15

L1480403-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1480403-08 04/12/22 17:11 • (MS) R3780665-7 04/12/22 17:38

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	875	48700	95.7	1	80.0-120	
Fluoride	5000	91.6	4770	93.5	1	80.0-120	
Sulfate	50000	9030	56500	95.0	1	80.0-120	

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Method Blank (MB)

(MB) R3782457-1 04/18/22 16:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		20.0	200
Calcium	U		79.3	1000

Laboratory Control Sample (LCS)

(LCS) R3782457-2 04/18/22 16:38

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	969	96.9	80.0-120	
Calcium	10000	9940	99.4	80.0-120	

L1480403-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1480403-04 04/18/22 16:41 • (MS) R3782457-4 04/18/22 16:46 • (MSD) R3782457-5 04/18/22 16:48

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	132	1110	1130	97.6	99.5	1	75.0-125			1.74	20
Calcium	10000	151000	157000	158000	66.7	72.0	1	75.0-125	V	V	0.342	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

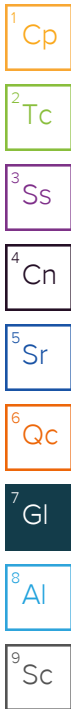
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Company Name/Address:  
**Plum Point Services Co., LLC**  
 2739 SCR 623  
 Osceola, AR 72370

Billing Information:  
 Accounts Payable  
 P.O. Box 567  
 Osceola, AR 72370

Pres Chk

Report to:  
**Dana Derrington**

Email To: dld@ftn-assoc.com; hlf@ftn-assoc.com; ajp@ftn-assoc.com

Project Description:  
**Plum Point Energy Station**

City/State Collected:

Please Circle:  
 PT MT CT ET

Phone: **501-920-9642**

Client Project #  
**R14590-2794-001**

Lab Project #  
**NAESOAR-PLUMPOINT**

Collected by (print):  
*Michael Clayton*

Site/Facility ID #

P.O. #  
**2021-00048**

Collected by (signature):  
*Michael Clayton*

**Rush?** (Lab MUST Be Notified)  
 \_\_\_ Same Day \_\_\_ Five Day  
 \_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
 \_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
 \_\_\_ Three Day

Quote #  
 Date Results Needed

Immediately Packed on Ice N \_\_\_ Y

Sample ID    Comp/Grab    Matrix \*    Depth    Date    Time    No. of Cntrs

MW-101	Grab	GW		4/7/22	1340	3
MW-102		GW		4/6/22	1500	3
MW-103		GW		4/7/22	1150	3
MW-108		GW		4/5/22	1340	3
MW-113		GW		4/5/22	1230	3
MW-115		GW		4/5/22	1115	3
MW-116		GW		4/6/22	1620	3
MW-117		GW		4/6/22	1315	3
MW-118		GW		4/7/22	1055	3
MW-119	✓	GW		4/7/22	1250	3

Analysis / Container / Preservative		
CI, F, SO4 125mIHDPE-NoPres	TDS 250mIHDPE-NoPres	Total B, Ca 250mIHDPE-HNO3



MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **1480403**

**I182**

Acctnum: **NAESUAK**

Template: **T175308**

Prelogin: **P914886**

PM: **134 - Mark W. Beasley**

PB: **Bf 3/28/22**

Shipped Via: **FedEX Ground**

Remarks    Sample # (lab only)

	- 01
	- 02
	- 03
	- 04
	- 05
	- 06
	- 07
	- 08
	- 09
	- 10

\* Matrix:  
 SS - Soil    AIR - Air    F - Filter  
 GW - Groundwater    B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:    pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:    Tracking # **567153822224**  
 \_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier

**Sample Receipt Checklist**

COC Seal Present/Intact:	NP	<input checked="" type="checkbox"/>	N
COC Signed/Accurate:		<input checked="" type="checkbox"/>	N
Bottles arrive intact:		<input checked="" type="checkbox"/>	N
Correct bottles used:		<input checked="" type="checkbox"/>	N
Sufficient volume sent:		<input checked="" type="checkbox"/>	N
If Applicable			
VOA Zero Headspace:		<input checked="" type="checkbox"/>	N
Preservation Correct/Checked:		<input checked="" type="checkbox"/>	N
RAD Screen <0.5 mR/hr:		<input checked="" type="checkbox"/>	N

Relinquished by: (Signature)  
*Michael Clayton*

Date: **4/7/22**  
 Time: **1730**

Received by: (Signature)

Trip Blank Received: Yes/No  
 HCL / MeOH  
 TBR

Relinquished by: (Signature)

Date:    Time:

Received by: (Signature)

Temp: **25.10** °C    Bottles Received: **25 36**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:    Time:

Received for lab by: (Signature)  
*Patricia Smith*

Date: **4/8/22**    Time: **0930**

Hold:    Condition: **NCF 10K**

Company Name/Address:  
**Plum Point Services Co., LLC**  
 2739 SCR 623  
 Osceola, AR 72370

Billing Information:  
 Accounts Payable  
 P.O. Box 567  
 Osceola, AR 72370

Report to:  
**Dana Derrington**

Email To: dld@ftn-assoc.com; hlf@ftn-assoc.com; ajp@ftn-assoc.com

Project Description:  
**Plum Point Energy Station**

City/State Collected:

Please Circle:  
 PT MT CT ET

Phone: **501-920-9642**

Client Project #  
**R14590-2794-001**

Lab Project #  
**NAESOAR-PLUMPOINT**

Collected by (print):  
*Michael Clayton*

Site/Facility ID #

P.O. #  
**2021-00048**

Collected by (signature):  
*Michael Clayton*

**Rush?** (Lab MUST Be Notified)  
 \_\_\_ Same Day \_\_\_ Five Day  
 \_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
 \_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
 \_\_\_ Three Day

Quote #

Date Results Needed

No. of Cntrs

Immediately Packed on Ice N \_\_\_ Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CI, F, SO4 125mIHDP-E-NoPres	TDS 250mIHDP-E-NoPres	Total B, Ca 250mIHDP-E-HNO3									
MW-117 DUP	Grab	GW		4/6/22	1320	3	X	X	X									
EPA EB	↓	GW		4/7/22	1415	3	X	X	X									
		GW				3	X	X	X									
		GW				3	X	X	X									

\* Matrix:  
 SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via: \_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier  
 Tracking # **567153822224**

**Sample Receipt Checklist**

COC Seal Present/Intact:	NP	<input checked="" type="checkbox"/>	N
COC Signed/Accurate:		<input checked="" type="checkbox"/>	N
Bottles arrive intact:		<input checked="" type="checkbox"/>	N
Correct bottles used:		<input checked="" type="checkbox"/>	N
Sufficient volume sent:		<input checked="" type="checkbox"/>	N
If Applicable			
VOA Zero Headspace:		<input checked="" type="checkbox"/>	N
Preservation Correct/Checked:		<input checked="" type="checkbox"/>	N
RAD Screen <0.5 mR/hr:		<input checked="" type="checkbox"/>	N

Relinquished by: (Signature)  
*Michael Clayton*

Date: **4/7/22** Time: **1730**

Received by: (Signature)  
*Patricia Smith*

Date: **4/8/22** Time: **0930**

Trip Blank Received: Yes/No  
 HCL / MeOH  
 TBR

Bottles Received: **291025 36**

If preservation required by Login: Date/Time


Hold:

Condition: NCF /

Analysis / Container / Preservative

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Chain of Custody Page **2** of **2**



**MT JULIET, TN**

12065 Lebanon Rd Mount Juliet, TN 37122  
 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **1480403**

Table #

Acctnum: **NAESOAR**  
 Template: **T175308**  
 Prelogin: **P914886**  
 PM: **134 - Mark W. Beasley**  
 PB: **BF 3/28/22**  
 Shipped Via: **FedEX Ground**

Remarks Sample # (lab only)

11  
 12

## FTN Associates - Little Rock, AR

Sample Delivery Group: L1507713  
Samples Received: 06/22/2022  
Project Number: R14590-2764-001  
Description: PPES DEQ Program

Report To: Dana Derrington  
3 Innwood Circle, Suite 220  
Little Rock, AR 72211

Entire Report Reviewed By:



Mark W. Beasley  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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# SAMPLE SUMMARY

## MW-117 L1507713-01 GW

Collected by Michael Clayton      Collected date/time 06/20/22 13:50      Received date/time 06/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1885678	1	06/26/22 15:41	06/26/22 16:17	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1892248	1	07/09/22 21:36	07/09/22 21:36	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1889898	1	07/05/22 16:52	07/07/22 11:34	CCE	Mt. Juliet, TN

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

## MW-117 DUP L1507713-02 GW

Collected by Michael Clayton      Collected date/time 06/20/22 13:55      Received date/time 06/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1885678	1	06/26/22 15:41	06/26/22 16:17	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1892248	1	07/09/22 21:48	07/09/22 21:48	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1889898	1	07/05/22 16:52	07/07/22 11:42	CCE	Mt. Juliet, TN

## EPA EB-1 L1507713-03 GW

Collected by Michael Clayton      Collected date/time 06/20/22 14:10      Received date/time 06/22/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1885678	1	06/26/22 15:41	06/26/22 16:17	SJF	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1892248	1	07/09/22 22:27	07/09/22 22:27	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1889898	1	07/05/22 16:52	07/07/22 11:15	CCE	Mt. Juliet, TN

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Mark W. Beasley  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	318000		10000	1	06/26/2022 16:17	<a href="#">WG1885678</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	9630		594	5000	1	07/09/2022 21:36	<a href="#">WG1892248</a>

3 Ss

4 Cn

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	92200		79.3	1000	1	07/07/2022 11:34	<a href="#">WG1889898</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	314000		10000	1	06/26/2022 16:17	<a href="#">WG1885678</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	9650		594	5000	1	07/09/2022 21:48	<a href="#">WG1892248</a>

3 Ss

4 Cn

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	92200		79.3	1000	1	07/07/2022 11:42	<a href="#">WG1889898</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	ND		10000	1	06/26/2022 16:17	<a href="#">WG1885678</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	U		594	5000	1	07/09/2022 22:27	<a href="#">WG1892248</a>

3 Ss

4 Cn

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	U		79.3	1000	1	07/07/2022 11:15	<a href="#">WG1889898</a>

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R3810200-1 06/26/22 16:17

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1506994-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1506994-01 06/26/22 16:17 • (DUP) R3810200-3 06/26/22 16:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	730000	766000	1	4.81		5

4 Cn

5 Sr

L1506994-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1506994-06 06/26/22 16:17 • (DUP) R3810200-4 06/26/22 16:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	677000	703000	1	3.67		5

6 Qc

7 Gl

8 Al

Laboratory Control Sample (LCS)

(LCS) R3810200-2 06/26/22 16:17

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	2440000	2440000	100	81.5-118	

9 Sc

Method Blank (MB)

(MB) R3813831-1 07/09/22 10:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		594	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1507324-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1507324-14 07/09/22 18:37 • (DUP) R3813831-3 07/09/22 18:50

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	43000	42500	5	1.10		15

L1507713-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1507713-02 07/09/22 21:48 • (DUP) R3813831-6 07/09/22 22:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	9650	9690	1	0.376		15

Laboratory Control Sample (LCS)

(LCS) R3813831-2 07/09/22 10:18

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Sulfate	40000	38800	97.1	80.0-120	

L1507324-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1507324-14 07/09/22 18:37 • (MS) R3813831-4 07/09/22 19:03 • (MSD) R3813831-5 07/09/22 19:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Sulfate	50000	43000	89800	90000	93.7	94.1	5	80.0-120			0.190	15

L1507713-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1507713-02 07/09/22 21:48 • (MS) R3813831-7 07/09/22 22:14

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	9650	59600	99.9	1	80.0-120	

Method Blank (MB)

(MB) R3812040-1 07/07/22 11:10

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Calcium	U		79.3	1000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

Laboratory Control Sample (LCS)

(LCS) R3812040-2 07/07/22 11:12

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Calcium	10000	10200	102	80.0-120	

<sup>4</sup>Cn

<sup>5</sup>Sr

L1507713-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1507713-03 07/07/22 11:15 • (MS) R3812040-4 07/07/22 11:21 • (MSD) R3812040-5 07/07/22 11:23

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Calcium	10000	U	10100	10000	101	100	1	75.0-125			0.0844	20

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

# GLOSSARY OF TERMS

## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

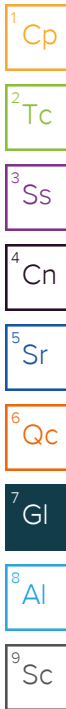
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

### Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.





Company Name/Address: **FTN Associates - Little Rock, AR**  
 3 Innwood Circle, Suite 220  
 Little Rock, AR 72211

Billing Information:  
 3 Innwood Circle, Suite 220  
 Little Rock, AR 72211

Report to: **Dana Derrington**  
 Email To: **dld@ftn-assoc.com**

Project Description: **PPES DEQ Program**  
 City/State Collected: **osceola AR**  
 Please Circle: PT MT  ET

Phone: **479-571-3334**  
 Client Project # **R14590-2764-001**  
 Lab Project # **FTNLRAR-R145902764**

Collected by (print): **Michael Clayton**  
 Site/Facility ID #  
 P.O. #

Collected by (signature): *[Signature]*  
**Rush?** (Lab MUST Be Notified)  
 Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day  
 Date Results Needed  
 No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Sulfate 125mIHDPPE-NoPres	TDS 1L-HDPE NoPres	Total Ca 250mIHDPPE-HNO3	Analysis / Container / Preservative	Chain of Custody
MW-117	Grab	GW		6/20/22	1350	3	X	X	X		Pace PEOPLE ADVANCING SCIENCE <b>MT JULIET, TN</b> 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <a href="https://info.pacelabs.com/hubfs/pas-standard-terms.pdf">https://info.pacelabs.com/hubfs/pas-standard-terms.pdf</a> SDG # <b>L1507713</b> <b>B091</b> Acctnum: <b>FTNLRAR</b> Template: <b>T211316</b> Prelogin: <b>P932397</b> PM: 134 - Mark W. Beasley PB: Shipped Via: Remarks Sample # (lab only) -01 -02 -03
MW-117 DUP	↓	GW		↓	1355	3	X	X	X		
EPA EB-1	↓	GW		↓	1410	3	X	X	X		
		GW				3	X	X	X		

\* Matrix: SS - Soil AIR - Air F - Filter  
 GW - Groundwater B - Bioassay  
 WW - WasteWater  
 DW - Drinking Water  
 OT - Other

Remarks: pH \_\_\_\_\_ Temp \_\_\_\_\_  
 Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:  UPS  FedEx  Courier \_\_\_\_\_  
 Tracking # **5719 6194 6753**

Relinquished by: (Signature) *[Signature]* Date: **6/21/22** Time: **1630**  
 Received by: (Signature) Trip Blank Received: Yes  No   
 HCL / MeOH TBR

Relinquished by: (Signature) Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received by: (Signature) Temp: \_\_\_\_\_ °C Bottles Received: **DEA 722+0=22 9**  
 If preservation required by Login: Date/Time

Relinquished by: (Signature) Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received for lab by: (Signature) *Delonin Sistrunk* Date: **6/22/22** Time: **0900**  
 Hold: Condition: **NCF / OK**

Sample Receipt Checklist  
 COC Seal Present/Intact:  NP  Y  N  
 COC Signed/Accurate:  Y  N  
 Bottles arrive intact:  Y  N  
 Correct bottles used:  Y  N  
 Sufficient volume sent:  Y  N  
 If Applicable  
 VOA Zero Headspace:  Y  N  
 Preservation Correct/Checked:  Y  N  
 RAD Screen <0.5 mR/hr:  Y  N

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**Alternate Source Demonstration for  
Second Half 2022 Statistically Significant Results**




water resources / environmental consultants

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## TECHNICAL MEMORANDUM

**DATE:** January 25, 2023

**TO:** **Matt Gray**  
Plum Point Services Company, LLC

**FROM:** **Dana Derrington, PE, PG**   
FTN Associates, Ltd.

**SUBJECT:** Alternate Source Demonstration for Statistically Significant Increases  
Second Half of 2022 Monitoring Period, Plum Point Energy Station Landfill  
FTN No. R14590-2764-001

---

FTN Associates, Ltd. (FTN), has prepared this technical memorandum for the Plum Point Services Company, LLC (PPSC), coal combustion residuals (CCR) landfill, which is regulated by the Environmental Protection Agency (EPA) Coal Combustion Residuals Rule, promulgated in Title 40 of the Code of Federal Regulations (40 CFR), Part 257. The landfill is also regulated by the Arkansas Pollution Control and Ecology Commission (APCEC) Regulation No. 22 and permitted by the Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ), under permit no. 0303-S3N-R1.

FTN was contracted to sample groundwater and to statistically evaluate the data for the second half of 2022 monitoring period. Based on statistical evaluation of the data, one confirmed statistically significant increase (SSI) over background concentrations was identified. Pursuant to §257.94(e)(2), the landfill may demonstrate that a source other than the CCR unit caused an SSI over background levels for a constituent or that an SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. This memorandum, hereafter referred to as an alternate source demonstration (ASD), presents evidence that the confirmed SSI is the result of off-site influence and/or natural fluctuations in groundwater quality.

### 1.0 BACKGROUND

FTN performed groundwater sampling for the second half 2022 semiannual groundwater monitoring period during October 2022. Sample collection, preservation, shipment, analytical procedures, chain-of-custody control, and data quality control for this sampling event followed protocol outlined in the landfill's groundwater sampling and analysis plan (GWSAP) (FTN 2017b). Statistical evaluation of the data set followed the most recent EPA guidance (EPA 2009) and the landfill's statistical analysis plan (SAP) (FTN 2017c). An intrawell prediction limit evaluation identified one previously confirmed SSI for sulfate at compliance well MW-117 and two unverified statistically significant decreases (SSDs) for pH at background well MW-108 and compliance well MW-119. A site map showing the

locations of these wells relative to the CCR unit (cells 1 and 3) is included as Figure 1 (all figures are included in Attachment 1). In accordance with the landfill's SAP and EPA guidance (EPA 2009), verification sampling was performed during December 2022; however, during the December 2022 event, one of the wells scheduled to be sampled (MW-108) had an insufficient quantity of water, and as such, the well was rescheduled for verification sampling during January 2023.

Intrawell prediction limit plots showing the results of verification sampling are included in Attachment 2. As shown in Table 1 (Attachment 3), measured sulfate at MW-117 remained above the intrawell prediction limit, and measured pH values at MW-108 and MW-119 were within their respective statistical limits. As discussed in the 2022 annual CCR report (FTN 2023), a number of pH values recorded during the October 2022 event were abnormally low compared to historical values. After review of the calibration forms and discussions with field personnel, it was found that the pH sensor on the multi-parameter probe had malfunctioned, causing lower than normal pH readings at MW-108 and MW-119. As such, these values were flagged with an "R" in the historical database to indicate that they will be excluded from statistical analyses due to equipment failure.

Prior ASDs have been prepared for the confirmed SSI for sulfate at MW-117 (FTN 2022b, 2022a) in accordance with §257.94(e)(2) and based on the statistical limits at the time of each prior reporting period. Each ASD successfully demonstrated that the SSI was not the result of influence from the CCR unit.

The laboratory report for the October sampling event is included in Attachment 4, along with field sheets for wells MW-108 and MW-119 from each sampling event.

## **2.0 DISCUSSION**

A review of the monitoring system with respect to onsite background wells, background groundwater quality, published literature, and landfill leachate quality was performed to determine if the confirmed SSI for sulfate at compliance well MW-117 was indicative of a release from the CCR unit. Findings from this review are discussed below.

### **2.1 Monitoring System Background Wells**

As required by §257.91(c)(1), the groundwater monitoring network is required to contain a minimum of one monitoring well that is hydraulically upgradient of the CCR management area for the purpose of monitoring background water quality. However, there is not a hydraulically upgradient location at this facility because the direction of groundwater flow is seasonably variable. As allowed by §257.91(a)(1), a facility may utilize wells for background water quality that are not hydraulically upgradient of the CCR unit. For this reason, the facility incorporated monitoring wells MW-108, MW-113, and MW-115 (Figure 1) to monitor background water quality because those wells are positioned outside the potential zone of impact from the CCR unit. The rationale for this is based on the age of the landfill; the estimated maximum rate of groundwater flow; and the distance of MW-108, MW-113, and MW-115 from the CCR unit. Specifically:

- MW-108, MW-113, and MW-115 are located more than 2,300 ft from the eastern edge of cell 3;
- Groundwater at the landfill has historically exhibited a maximum flow rate of 40 ft/year; and
- The landfill became active during March 2010.

Using the information available above, a potential leachate plume would not be expected to have migrated more than 505 ft from the CCR unit as of the second half 2022 monitoring event. This estimate is conservative for the following reasons:

1. It assumes impact to groundwater occurred at the same time cell 1 was activated (March 2010) and does not account for travel time through the confining unit soils;
2. It assumes that groundwater flows in one direction; however, it is well-documented that groundwater flow at the landfill is multidirectional and reverses flow on a seasonal basis (FTN 2017a); and
3. It does not account for any physical or chemical properties of the constituents of concern that would cause them to travel at rates slower than groundwater (e.g., adsorption).

## **2.2 Comparison to Onsite Background Groundwater Quality**

Period-of-record sulfate data for compliance well MW-117 and background wells MW-108, MW-113, and MW-115 are plotted on the time-series graphs and box-and-whiskers diagrams included in Attachment 2. As is evident from these graphs and diagrams, concentrations of sulfate at MW-117 are well within the range of values measured at the onsite background wells. This comparison provides supporting evidence that the currently measured value for sulfate at MW-117 reflects natural fluctuations in groundwater quality.

## **2.3 Comparison to Published Groundwater Quality for the Aquifer**

Each monitoring well is screened in the Mississippi River Valley alluvial aquifer, the uppermost aquifer in the vicinity of the landfill (FTN 2017b). The United States Geological Survey published a study of groundwater quality of the aquifer, specifically with respect to that of Holocene alluvium and Pleistocene valley train deposits, which are two of the major hydrogeologic units within the aquifer (Gonthier 2003). The landfill is located in Holocene alluvium, as shown on Figure 2. According to this study, wells screened in Holocene alluvium had a maximum measured sulfate concentration of 120 mg/L. As shown in Table 1 (Attachment 3), the published level of sulfate for the aquifer is well above the measured value for sulfate at MW-117 and at background wells MW-108, MW-113, and MW-115. This comparison provides supporting evidence that the currently measured value of sulfate at MW-117 reflects natural fluctuations in groundwater quality.

## 2.4 Comparison to Landfill Leachate

The major ion compositions of the leachate sample collected during December 2022 and groundwater samples collected during October 2022 were evaluated using the Stiff and Piper diagrams included in Attachment 2. These data are collected on a semiannual basis for the landfill's APCEC Regulation No. 22 monitoring program, as required by permit no. 0303-S3N-R1, and are publicly available on the DEQ website<sup>1</sup>. If groundwater has been impacted by landfill leachate, the relative proportions of major ions in groundwater will resemble those in leachate.

A review of the Stiff diagrams shows that the ionic distribution in groundwater at MW-117 is similar to the ionic distribution at background wells MW-108, MW-113, and MW-115. In contrast, the leachate diagram is distinctly different. Specifically, the leachate sample exhibits concentrations of sodium, potassium, and sulfate ions that are comparatively absent in groundwater. The Piper diagram also illustrates the dissimilarity of groundwater quality to leachate, with data points for background wells MW-108, MW-113, and MW-115 and compliance well MW-117 clustered in the quadrant classified as calcium-bicarbonate-type water and positioned apart from the leachate data point, which is located in the sodium-chloride quadrant. If leachate was mixing with groundwater at MW-117, the data point for MW-117 would plot at an intermediate distance between the leachate data point and the data points for background wells MW-108, MW-113, and MW-115 on the Piper diagram.

The Stiff and Piper diagrams show that the relative proportions of major ions in groundwater at MW-117 are different than landfill leachate, providing a key line of evidence that the SSI for sulfate at MW-117 is not due to a release from the CCR unit.

## 3.0 CONCLUSIONS

In consideration of the information presented in this memorandum, FTN concludes that the SSI for sulfate at MW-117 is the result of off-site influence and/or natural fluctuations in groundwater quality.

This memorandum serves as the ASD prepared in accordance with §257.94(e)(2) and supports the position that the confirmed SSI for sulfate at MW-117 is not due to a release from the CCR unit. Therefore, no further action is required and the landfill will remain in detection monitoring.

If you have questions or comments regarding this memorandum, please do not hesitate to call Dana Derrington, PE, PG, at (314) 786-5855 or Heather Ferguson at (501) 225-7779.

DLD/hlf

Attachments

U:\WP\_FILES\14590-2764-001\2023-01-25 FTN TO PPSC - ASD FOR 2H2022 EPA SSIS\2023-01-25 FTN TO PPES - EPA ASD FOR 2H2022 SSIS.DOCX *Hlf*

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<sup>1</sup> [https://www.adeg.state.ar.us/sw/permits/facility\\_data.aspx](https://www.adeg.state.ar.us/sw/permits/facility_data.aspx)



## REFERENCES

- EPA [US Environmental Protection Agency]. 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* [EPA 530-R-09-007]. Washington, DC: Office of Resource Conservation and Recovery, Program Implementation and Information Division, US Environmental Protection Agency. March 2009.
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- . 2017b. *Groundwater Sampling and Analysis Plan, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd.
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- . 2019a. *Alternate Source Demonstration for Statistically Significant Increases, First Half of 2019 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. October 24, 2019.
- . 2019b. *Alternate Source Demonstration for Statistically Significant Increases, Second Half of 2019 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. December 17, 2019.
- . 2020. *Alternate Source Demonstration for Statistically Significant Increases, First Half of 2020 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. August 3, 2020.
- . 2021. *Alternate Source Demonstration for Statistically Significant Increases, First Half of 2021 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. October 6, 2021.
- . 2022a. *Alternate Source Demonstration for Statistically Significant Increases, First Half of 2022 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. September 27, 2022.
- . 2022b. *Alternate Source Demonstration for Statistically Significant Increases, Second Half of 2021 Monitoring Period, Plum Point Energy Station Landfill*. Little Rock, AR: FTN Associates, Ltd. April 4, 2022.
- . 2023. *Groundwater Monitoring and Corrective Action, 2022 Annual Report, Plum Point Energy Station*. Little Rock, AR: FTN Associates, Ltd. January 25, 2022.
- Gonthier, G.J. 2003. *Quality of Groundwater in Pleistocene and Holocene Subunits of the Mississippi River Alluvial Aquifer, 1998* [Water-Resources Investigations Report 03-4202]. Jackson, MS: National Water-Quality Assessment Program, US Geological Survey.

Matt Gray  
January 25, 2023  
Page 6

**PROFESSIONAL ENGINEER'S CERTIFICATION**

With this certification, I certify that I, as a professional engineer in the state of Arkansas, am a qualified professional engineer as defined in §257.53 of Title 40 of the Code of Federal Regulations (CFR), Part 257, that this technical memorandum has been prepared under my direction in accordance with generally accepted good engineering practices, that the findings are accurate to the best of my knowledge, and that the alternate source demonstration described herein meets the requirements of §257.94(e)(2) of 40 CFR Part 257.



\_\_\_\_\_  
Dana L. Derrington, Arkansas PE #16372

01/25/2023  
\_\_\_\_\_  
Date



# **ATTACHMENT 1**

---

**Figures**

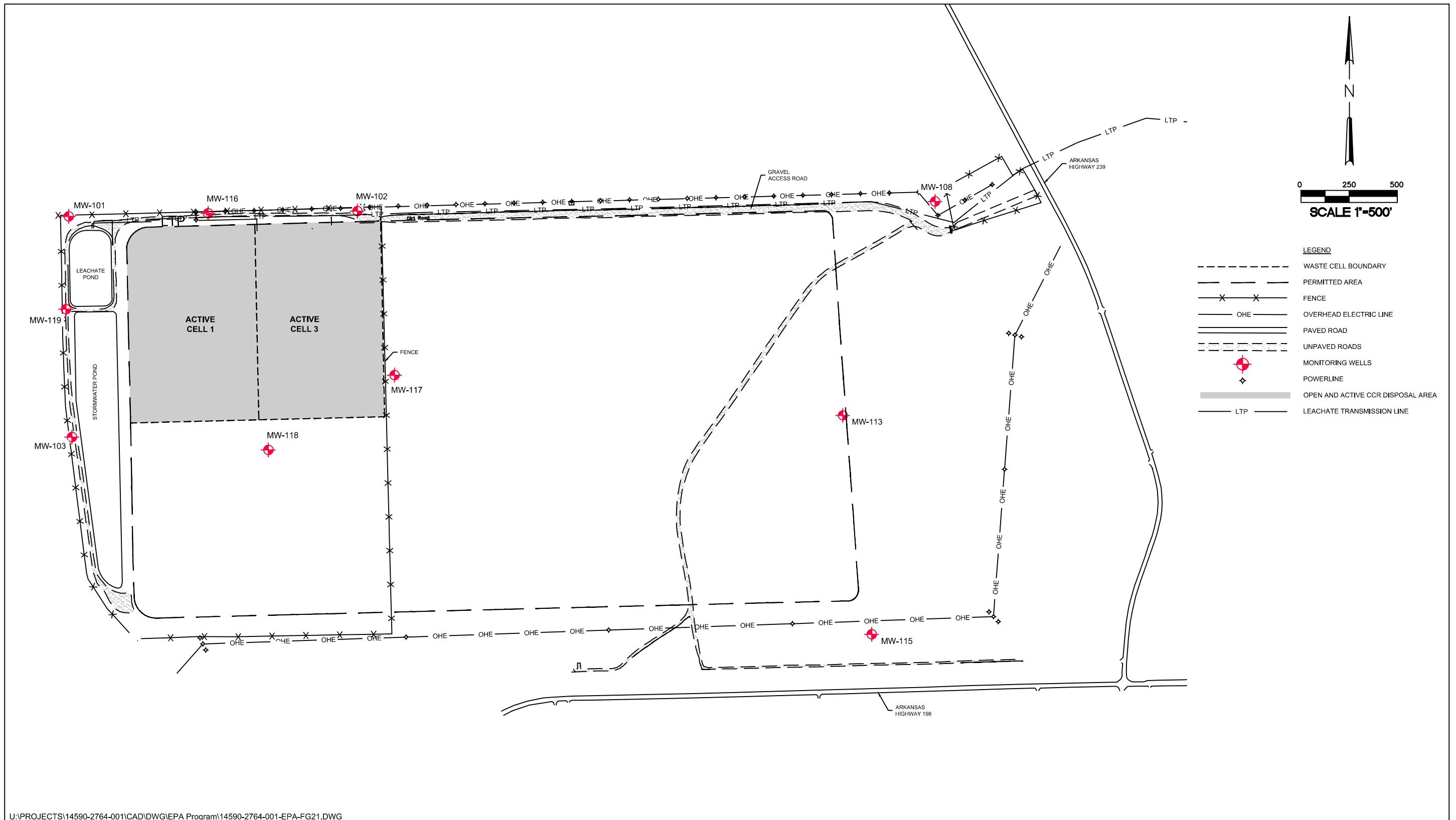


Figure 1. Monitoring well location map.

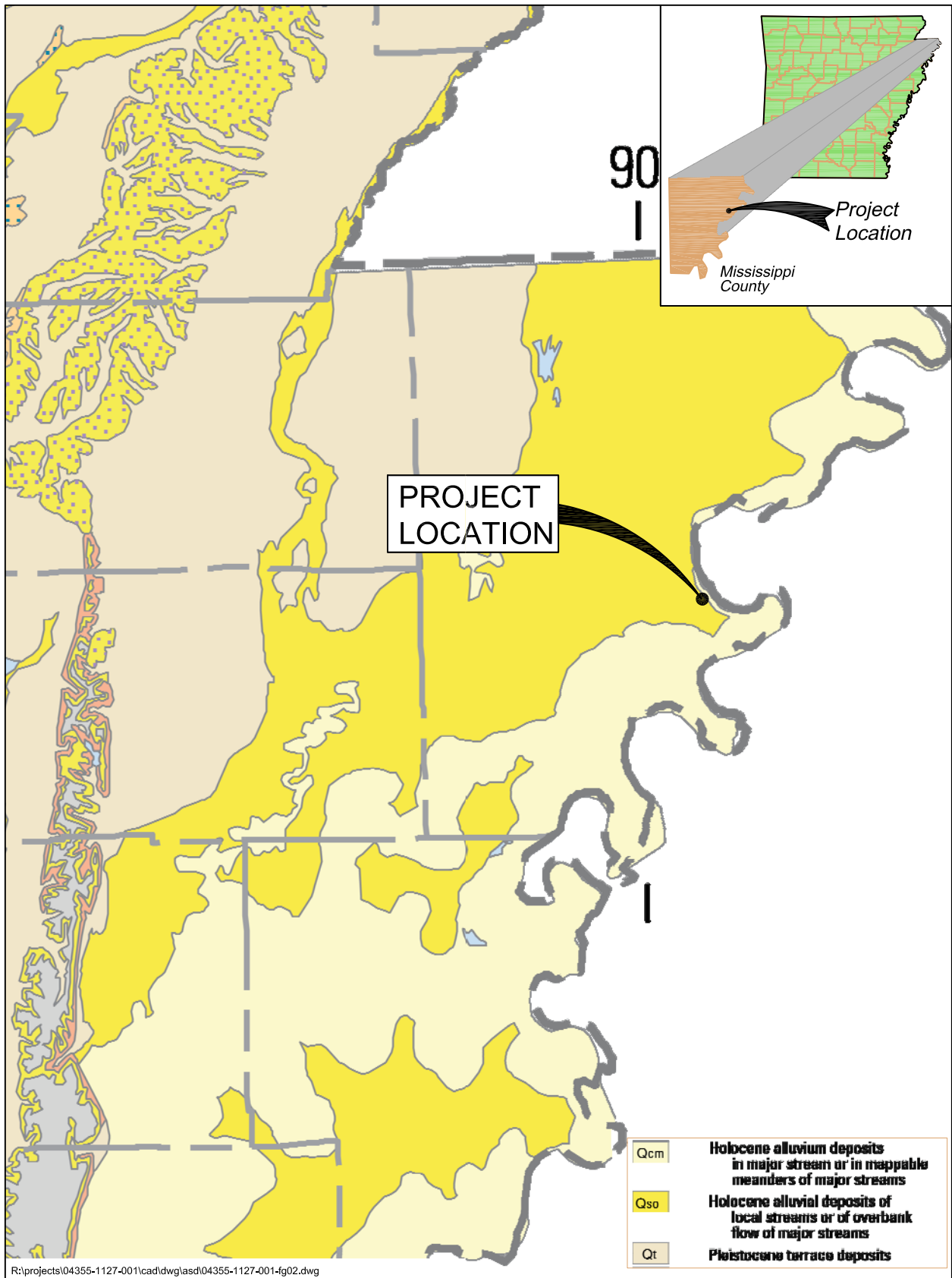


Figure 2. Surface geology of Mississippi County, Arkansas (adapted from Kresse et al. 2014).

# **ATTACHMENT 2**

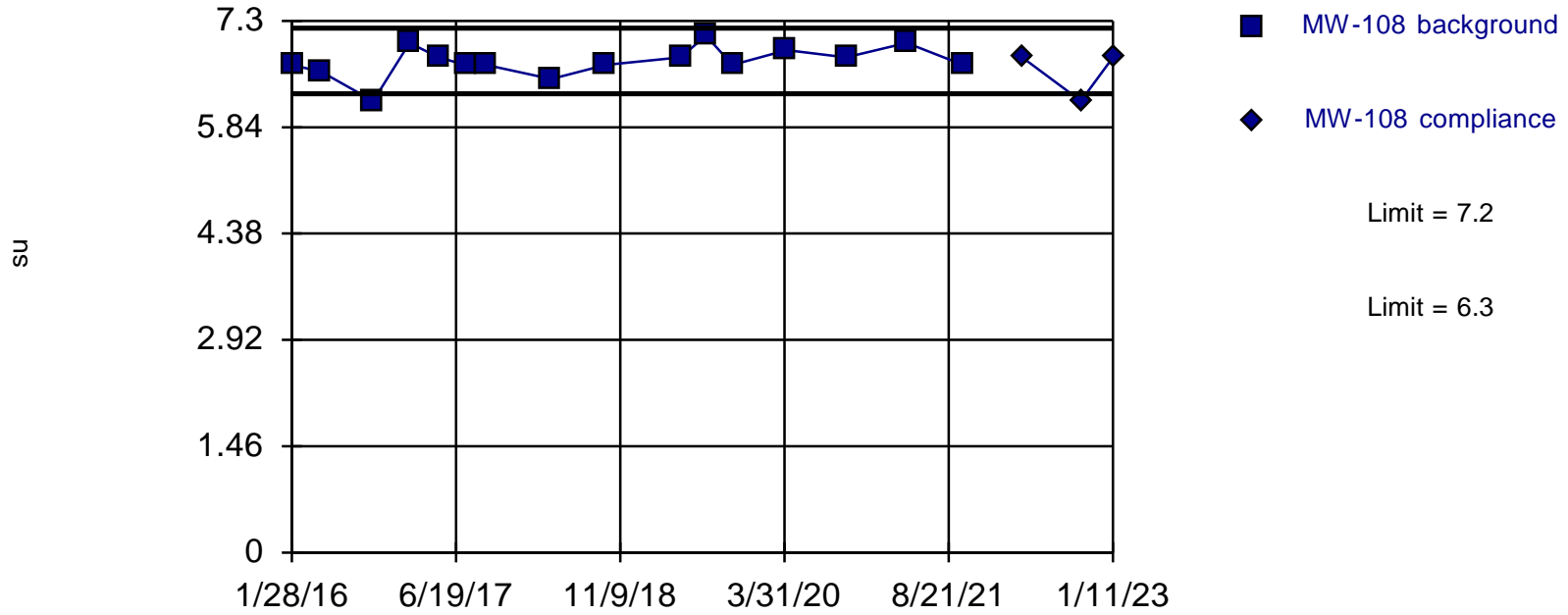
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**Statistical Plots**

Within Limits

## Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.744, Std. Dev.=0.2128, n=16. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9177, critical = 0.844. Kappa = 2.212 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

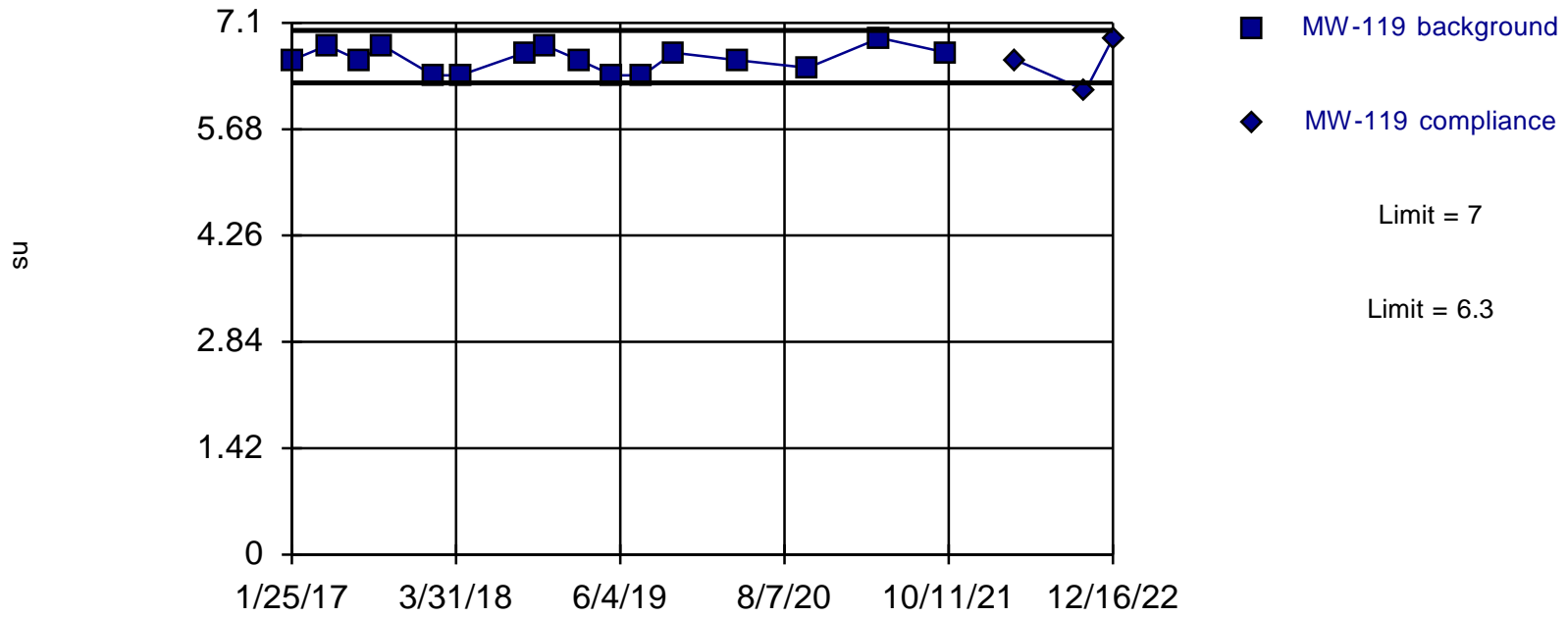
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Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Within Limits

## Prediction Limit

Intrawell Parametric



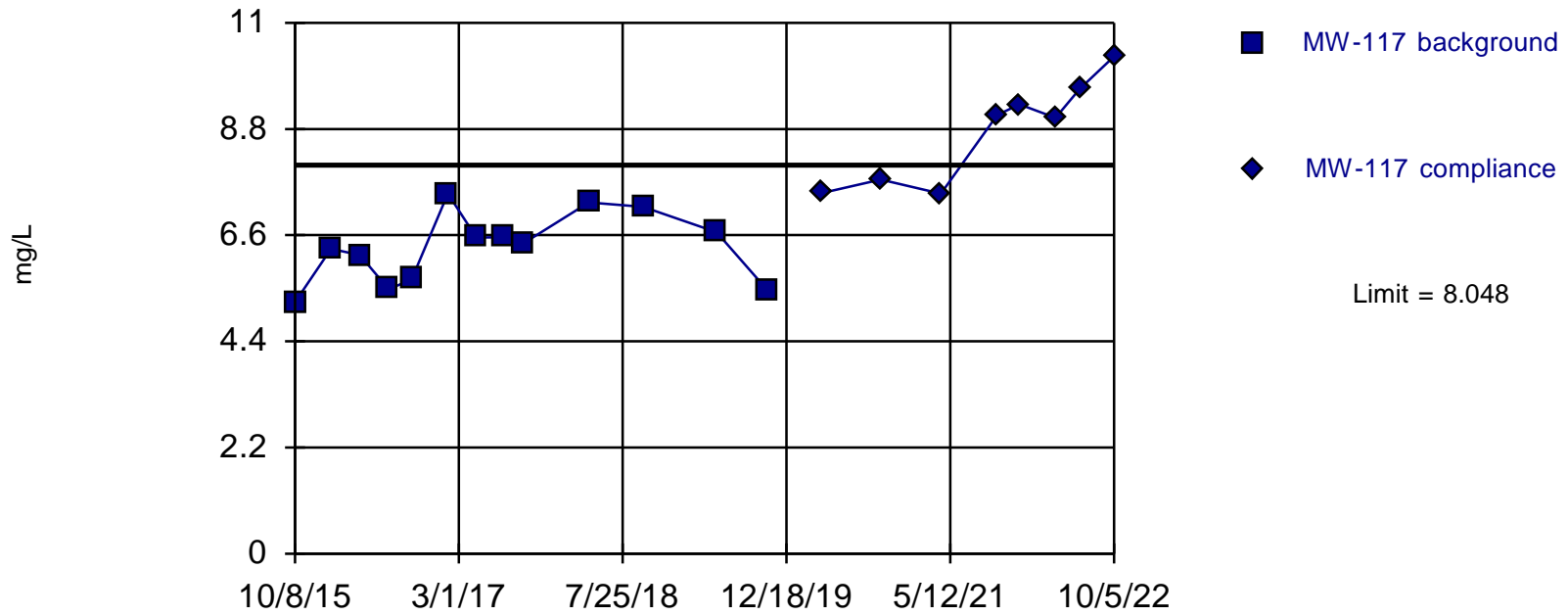
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Constituent: pH Analysis Run 1/12/2023 12:50 PM View: 2022-2H PL

Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Exceeds Limit

### Prediction Limit Intrawell Parametric

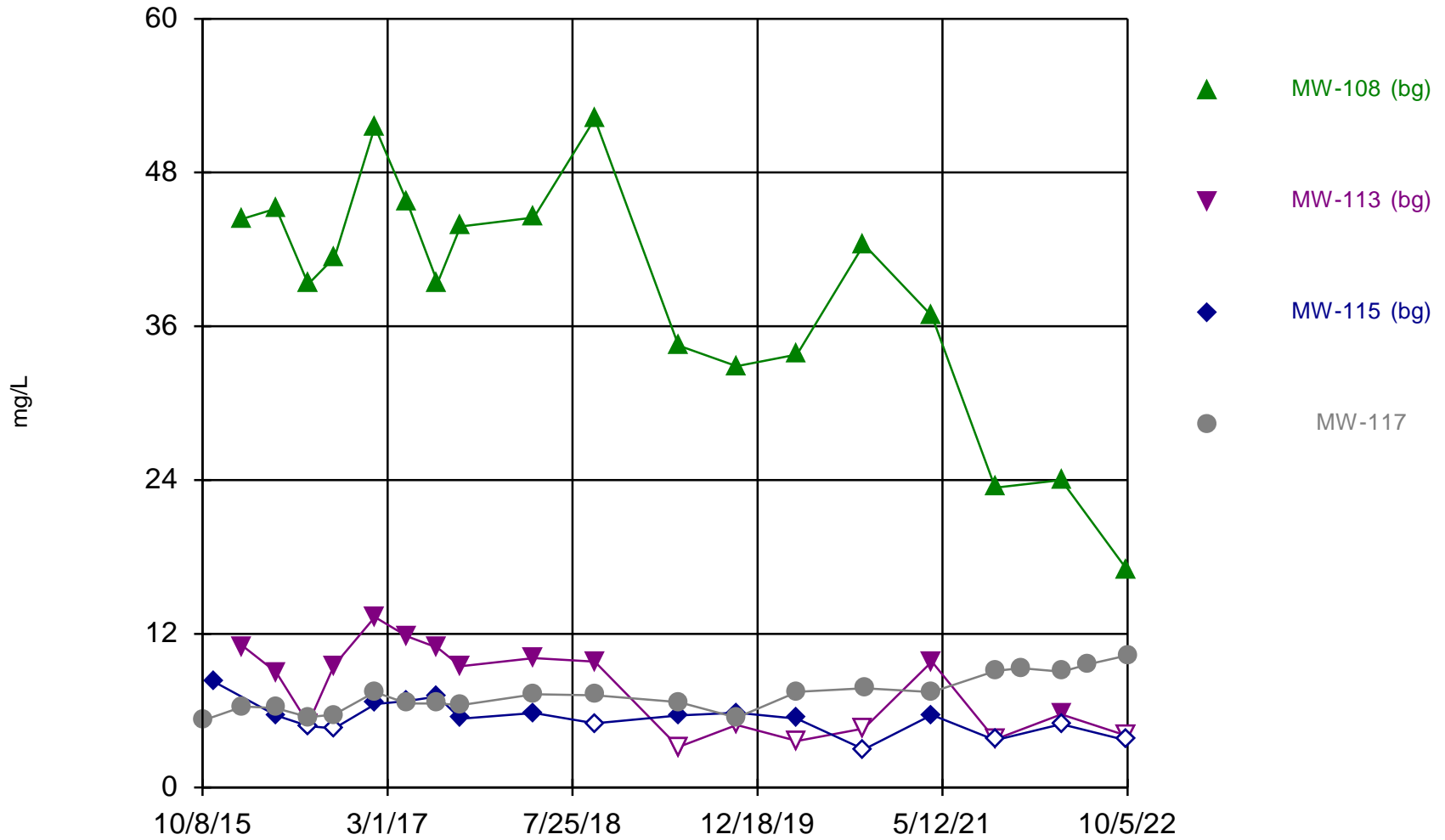


Background Data Summary: Mean=6.343, Std. Dev.=0.7263, n=13. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9459, critical = 0.814. Kappa = 2.348 (c=6, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.001254.

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Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

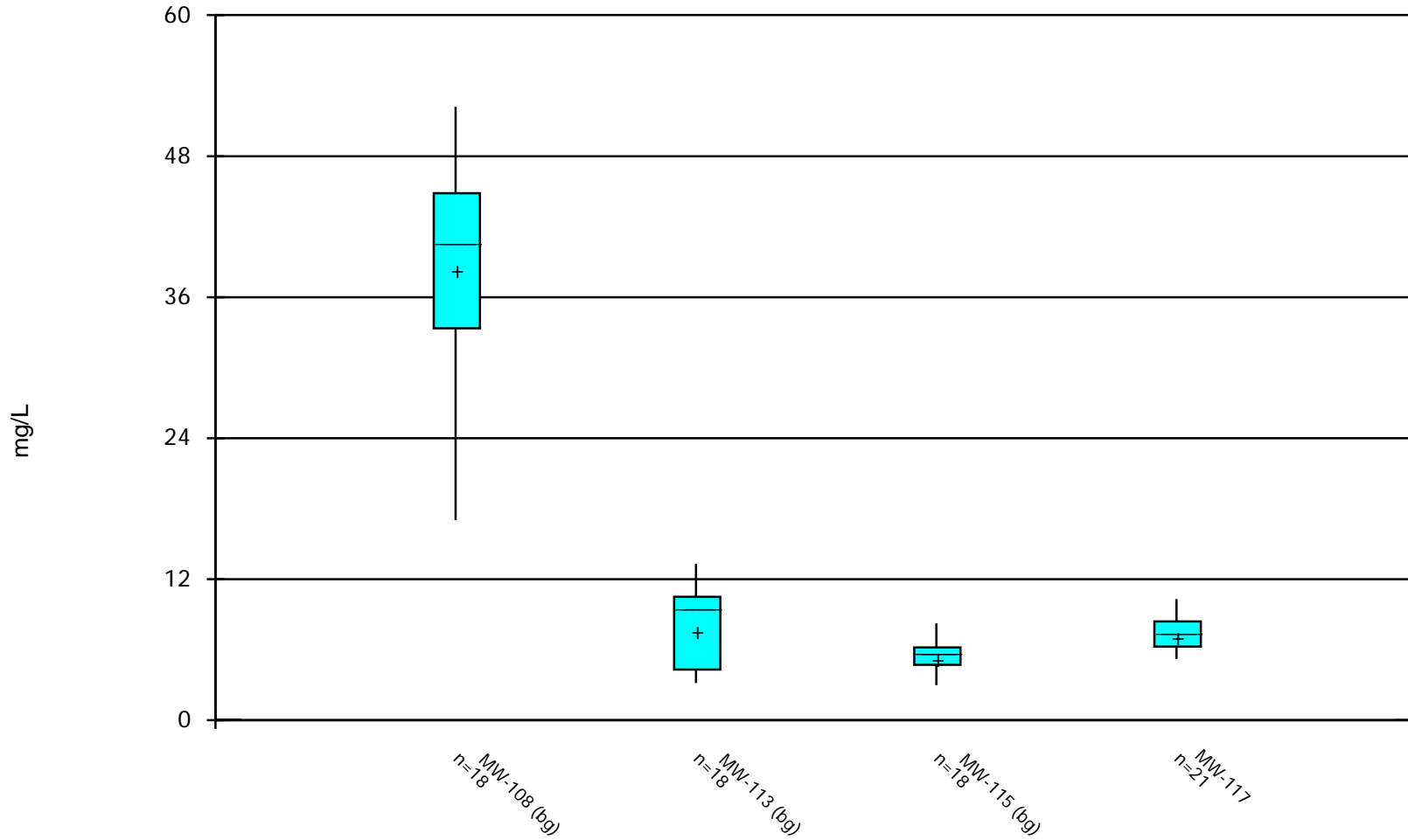
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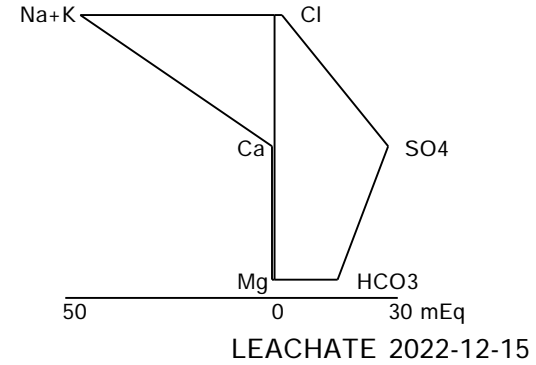
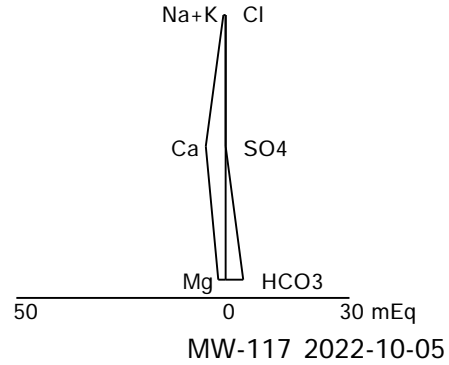
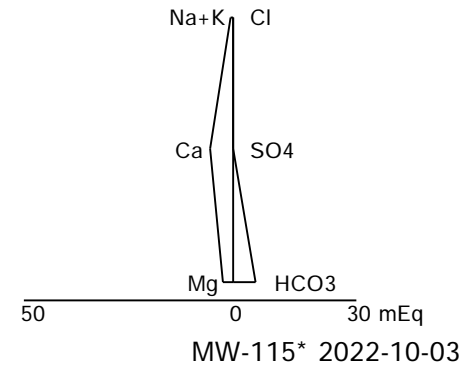
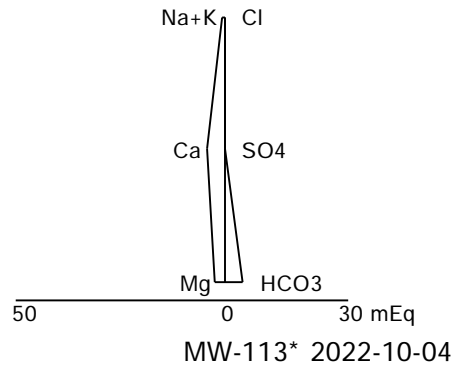
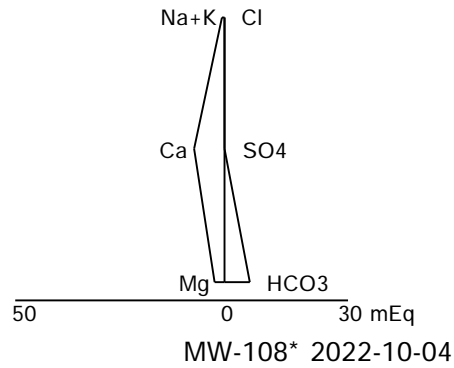


## Box & Whiskers Plot



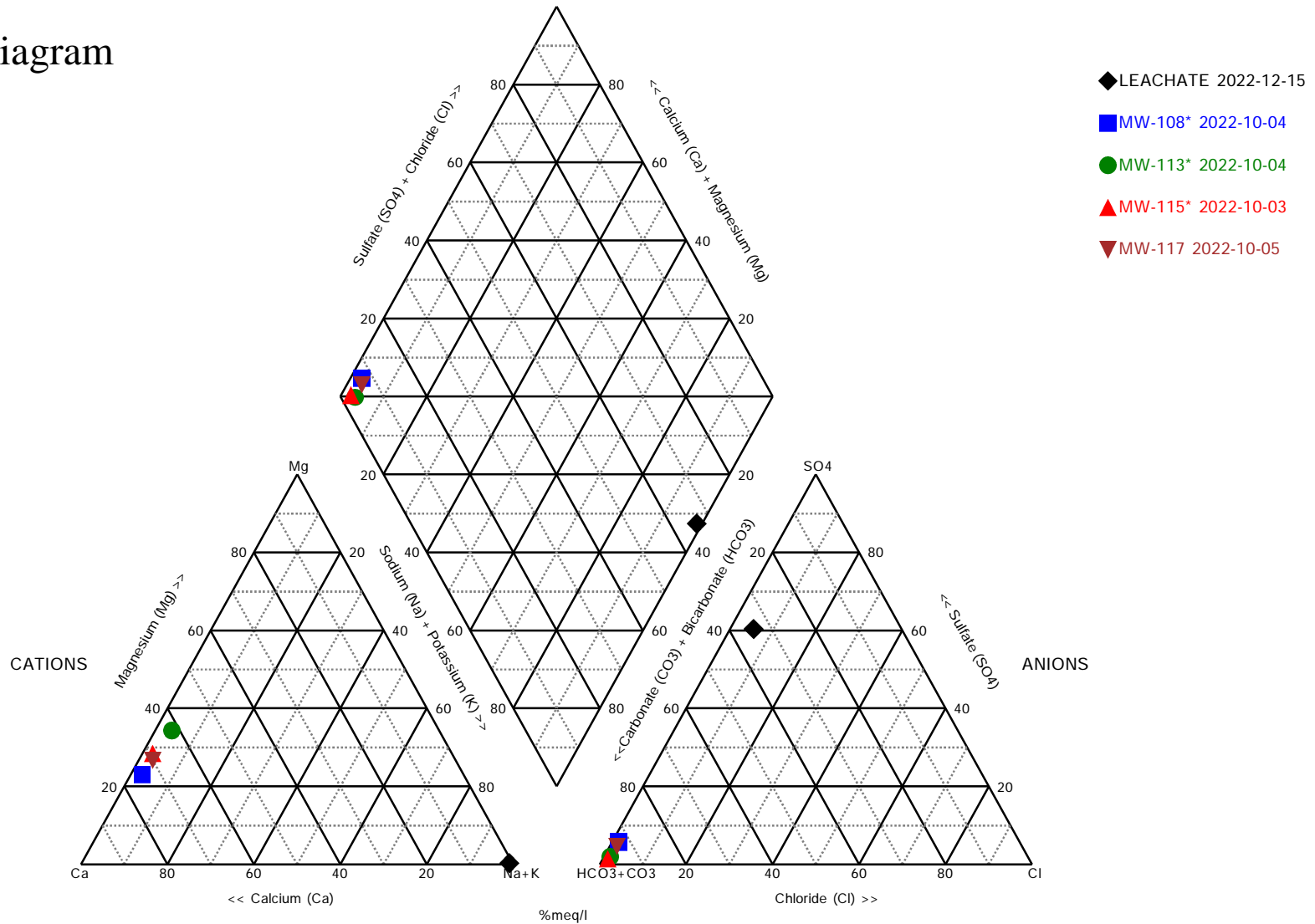
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Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database



Stiff Diagram Analysis Run 1/9/2023 1:06 PM

# Piper Diagram



Analysis Run 1/9/2023 1:06 PM

# **ATTACHMENT 3**

---

## **Summary Table**

Table 1. Summary of statistically significant results and background and published levels.

Well ID	Parameter	Prediction Limit	October 2022 Initial Result	December 2022/ January 2023 Verification Result	SSI Confirmed?	Minimum/Maximum Background Level <sup>(a)</sup>	Minimum/Maximum Published Level <sup>(b)</sup>
MW-108	pH	6.3 su <sup>(c)</sup>	6.2 su <sup>(d)</sup>	6.8	No	6.0 su (MW-113, 10/2016)	6.6 su
MW-119	pH	6.3 su <sup>(c)</sup>	6.2 su <sup>(d)</sup>	6.9	No	6.0 su (MW-113, 10/2016)	6.6 su
MW-117	Sulfate	8.048 mg/L	10.3 mg/L	N/A <sup>(e)</sup>	Yes <sup>(e)</sup>	82.2 mg/L (MW-108, 9/2018)	120 mg/L

Notes:

- a. Based on historical values at MW-108, MW-113, and MW-115; pH value listed is minimum background value and sulfate value listed is maximum background value.
- b. From Gonthier 2003; value is for the Holocene subunit. pH value listed is minimum published value and sulfate value listed is maximum published value.
- c. Lower prediction limit.
- d. Value is flagged with an “R” in the historical database to indicate that it is excluded from statistical analyses due to evidence of sampling, laboratory, or equipment error.
- e. Previously confirmed SSI; no verification sample collected.

## REFERENCES

Gonthier, G.J. 2003. *Quality of Groundwater in Pleistocene and Holocene Subunits of the Mississippi River Alluvial Aquifer, 1998* [Water-Resources Investigations Report 03-4202]. Jackson, MS: US Geological Survey, National Water-Quality Assessment Program.

# **ATTACHMENT 4**

---

**Laboratory Report and Applicable Field Data Sheets**

October 25, 2022

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

**Plum Point Services Co., LLC**

Sample Delivery Group: L1544281  
Samples Received: 10/07/2022  
Project Number: R14590-2764-001  
Description: Plum Point Energy Station

Report To: Dana Derrington  
2739 SCR 623  
Osceola, AR 72370

Entire Report Reviewed By:












Mark W. Beasley  
Project Manager

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**Pace Analytical National**12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 [www.pacenational.com](http://www.pacenational.com)

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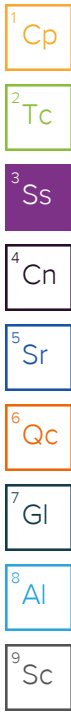


# SAMPLE SUMMARY

## MW-101 L1544281-01 GW

Collected by Michael Clayton    Collected date/time 10/05/22 11:43    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940842	1	10/11/22 13:32	10/12/22 10:25	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 19:49	10/08/22 19:49	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:33	ZSA	Mt. Juliet, TN



## MW-102 L1544281-02 GW

Collected by Michael Clayton    Collected date/time 10/05/22 14:28    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940842	1	10/11/22 13:32	10/12/22 10:25	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 20:43	10/08/22 20:43	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:36	ZSA	Mt. Juliet, TN

## MW-103 L1544281-03 GW

Collected by Michael Clayton    Collected date/time 10/05/22 09:43    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940842	1	10/11/22 13:32	10/12/22 10:25	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 20:57	10/08/22 20:57	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:39	ZSA	Mt. Juliet, TN

## MW-108 L1544281-04 GW

Collected by Michael Clayton    Collected date/time 10/04/22 12:53    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940315	1	10/11/22 09:17	10/11/22 14:33	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 21:10	10/08/22 21:10	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:42	ZSA	Mt. Juliet, TN

## MW-113 L1544281-05 GW

Collected by Michael Clayton    Collected date/time 10/04/22 10:23    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940315	1	10/11/22 09:17	10/11/22 14:33	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 21:23	10/08/22 21:23	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:45	ZSA	Mt. Juliet, TN

## MW-115 L1544281-06 GW

Collected by Michael Clayton    Collected date/time 10/03/22 14:48    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940110	1	10/10/22 10:49	10/10/22 12:50	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 22:04	10/08/22 22:04	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:48	ZSA	Mt. Juliet, TN

# SAMPLE SUMMARY

## MW-116 L1544281-07 GW

Collected by Michael Clayton    Collected date/time 10/05/22 12:53    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 22:17	10/08/22 22:17	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:50	ZSA	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

## MW-117 L1544281-08 GW

Collected by Michael Clayton    Collected date/time 10/05/22 16:13    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 22:31	10/08/22 22:31	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:53	ZSA	Mt. Juliet, TN

4 Cn

5 Sr

6 Qc

## MW-118 L1544281-09 GW

Collected by Michael Clayton    Collected date/time 10/05/22 08:33    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 22:44	10/08/22 22:44	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:56	ZSA	Mt. Juliet, TN

7 Gl

8 Al

9 Sc

## MW-119 L1544281-10 GW

Collected by Michael Clayton    Collected date/time 10/05/22 10:48    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 22:57	10/08/22 22:57	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 19:59	ZSA	Mt. Juliet, TN

## MW-117 DUP L1544281-11 GW

Collected by Michael Clayton    Collected date/time 10/05/22 16:16    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 23:11	10/08/22 23:11	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 16:55	ZSA	Mt. Juliet, TN

## EPA EB L1544281-12 GW

Collected by Michael Clayton    Collected date/time 10/05/22 16:45    Received date/time 10/07/22 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540 C-2011	WG1940849	1	10/11/22 13:37	10/12/22 12:30	DTM	Mt. Juliet, TN
Wet Chemistry by Method 9056A	WG1939483	1	10/08/22 23:51	10/08/22 23:51	GEB	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1943730	1	10/22/22 08:29	10/24/22 16:58	ZSA	Mt. Juliet, TN

# CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Mark W. Beasley  
Project Manager

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	388000		10000	1	10/12/2022 10:25	<a href="#">WG1940842</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	860	J	379	1000	1	10/08/2022 19:49	<a href="#">WG1939483</a>
Fluoride	258		64.0	150	1	10/08/2022 19:49	<a href="#">WG1939483</a>
Sulfate	7930		594	5000	1	10/08/2022 19:49	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	52.6	J	20.0	200	1	10/24/2022 19:33	<a href="#">WG1943730</a>
Calcium	110000		79.3	1000	1	10/24/2022 19:33	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	439000		10000	1	10/12/2022 10:25	<a href="#">WG1940842</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2450		379	1000	1	10/08/2022 20:43	<a href="#">WG1939483</a>
Fluoride	174		64.0	150	1	10/08/2022 20:43	<a href="#">WG1939483</a>
Sulfate	93400		594	5000	1	10/08/2022 20:43	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	76.9	J	20.0	200	1	10/24/2022 19:36	<a href="#">WG1943730</a>
Calcium	116000		79.3	1000	1	10/24/2022 19:36	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	285000		10000	1	10/12/2022 10:25	<a href="#">WG1940842</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	949	J	379	1000	1	10/08/2022 20:57	<a href="#">WG1939483</a>
Fluoride	188		64.0	150	1	10/08/2022 20:57	<a href="#">WG1939483</a>
Sulfate	11800		594	5000	1	10/08/2022 20:57	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	72.7	J	20.0	200	1	10/24/2022 19:39	<a href="#">WG1943730</a>
Calcium	79800		79.3	1000	1	10/24/2022 19:39	<a href="#">WG1943730</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	471000		10000	1	10/11/2022 14:33	<a href="#">WG1940315</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1240		379	1000	1	10/08/2022 21:10	<a href="#">WG1939483</a>
Fluoride	164		64.0	150	1	10/08/2022 21:10	<a href="#">WG1939483</a>
Sulfate	17000		594	5000	1	10/08/2022 21:10	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	94.1	J	20.0	200	1	10/24/2022 19:42	<a href="#">WG1943730</a>
Calcium	138000		79.3	1000	1	10/24/2022 19:42	<a href="#">WG1943730</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	291000		10000	1	10/11/2022 14:33	<a href="#">WG1940315</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	709	J	379	1000	1	10/08/2022 21:23	<a href="#">WG1939483</a>
Fluoride	82.8	J	64.0	150	1	10/08/2022 21:23	<a href="#">WG1939483</a>
Sulfate	4020	J	594	5000	1	10/08/2022 21:23	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	74.7	J	20.0	200	1	10/24/2022 19:45	<a href="#">WG1943730</a>
Calcium	73100		79.3	1000	1	10/24/2022 19:45	<a href="#">WG1943730</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	377000		10000	1	10/10/2022 12:50	<a href="#">WG1940110</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	742	J	379	1000	1	10/08/2022 22:04	<a href="#">WG1939483</a>
Fluoride	208		64.0	150	1	10/08/2022 22:04	<a href="#">WG1939483</a>
Sulfate	3680	J	594	5000	1	10/08/2022 22:04	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	37.0	J	20.0	200	1	10/24/2022 19:48	<a href="#">WG1943730</a>
Calcium	109000		79.3	1000	1	10/24/2022 19:48	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	360000		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	4140		379	1000	1	10/08/2022 22:17	<a href="#">WG1939483</a>
Fluoride	194		64.0	150	1	10/08/2022 22:17	<a href="#">WG1939483</a>
Sulfate	57100		594	5000	1	10/08/2022 22:17	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	86.7	J	20.0	200	1	10/24/2022 19:50	<a href="#">WG1943730</a>
Calcium	94100		79.3	1000	1	10/24/2022 19:50	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	311000		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	953	J	379	1000	1	10/08/2022 22:31	<a href="#">WG1939483</a>
Fluoride	122	J	64.0	150	1	10/08/2022 22:31	<a href="#">WG1939483</a>
Sulfate	10300		594	5000	1	10/08/2022 22:31	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	72.5	J	20.0	200	1	10/24/2022 19:53	<a href="#">WG1943730</a>
Calcium	88000		79.3	1000	1	10/24/2022 19:53	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Dissolved Solids	329000		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Chloride	1310		379	1000	1	10/08/2022 22:44	<a href="#">WG1939483</a>
Fluoride	124	J	64.0	150	1	10/08/2022 22:44	<a href="#">WG1939483</a>
Sulfate	19700		594	5000	1	10/08/2022 22:44	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Boron	62.8	J	20.0	200	1	10/24/2022 19:56	<a href="#">WG1943730</a>
Calcium	87500		79.3	1000	1	10/24/2022 19:56	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	444000		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1980		379	1000	1	10/08/2022 22:57	<a href="#">WG1939483</a>
Fluoride	230		64.0	150	1	10/08/2022 22:57	<a href="#">WG1939483</a>
Sulfate	46200		594	5000	1	10/08/2022 22:57	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	67.1	J	20.0	200	1	10/24/2022 19:59	<a href="#">WG1943730</a>
Calcium	119000		79.3	1000	1	10/24/2022 19:59	<a href="#">WG1943730</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	316000		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	928	J	379	1000	1	10/08/2022 23:11	<a href="#">WG1939483</a>
Fluoride	98.1	J	64.0	150	1	10/08/2022 23:11	<a href="#">WG1939483</a>
Sulfate	10200		594	5000	1	10/08/2022 23:11	<a href="#">WG1939483</a>

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	82.1	J	20.0	200	1	10/24/2022 16:55	<a href="#">WG1943730</a>
Calcium	87200		79.3	1000	1	10/24/2022 16:55	<a href="#">WG1943730</a>

6 Qc

7 Gl

8 Al

9 Sc

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	ND		10000	1	10/12/2022 12:30	<a href="#">WG1940849</a>

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	U		379	1000	1	10/08/2022 23:51	<a href="#">WG1939483</a>
Fluoride	U		64.0	150	1	10/08/2022 23:51	<a href="#">WG1939483</a>
Sulfate	U		594	5000	1	10/08/2022 23:51	<a href="#">WG1939483</a>

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	U		20.0	200	1	10/24/2022 16:58	<a href="#">WG1943730</a>
Calcium	U		79.3	1000	1	10/24/2022 16:58	<a href="#">WG1943730</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3848661-1 10/10/22 12:50

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	11000		10000	10000

1 Cp

2 Tc

3 Ss

L1542785-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1542785-01 10/10/22 12:50 • (DUP) R3848661-3 10/10/22 12:50

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1360000	1970000	1	36.7	J3	5

4 Cn

5 Sr

6 Qc

L1542920-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1542920-18 10/10/22 12:50 • (DUP) R3848661-4 10/10/22 12:50

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2570000	2590000	1	0.775		5

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3848661-2 10/10/22 12:50

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8310000	94.4	77.3-123	



Method Blank (MB)

(MB) R3849086-1 10/11/22 14:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1544143-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1544143-04 10/11/22 14:33 • (DUP) R3849086-3 10/11/22 14:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	350000	359000	1	2.54		5

L1544143-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1544143-05 10/11/22 14:33 • (DUP) R3849086-4 10/11/22 14:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	115000	114000	1	0.873		5

Laboratory Control Sample (LCS)

(LCS) R3849086-2 10/11/22 14:33

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8760000	99.5	77.3-123	

Method Blank (MB)

(MB) R3849079-1 10/12/22 10:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

1 Cp

2 Tc

3 Ss

L1544143-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1544143-03 10/12/22 10:25 • (DUP) R3849079-3 10/12/22 10:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	286000	287000	1	0.349		5

4 Cn

5 Sr

6 Qc

L1544281-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544281-01 10/12/22 10:25 • (DUP) R3849079-4 10/12/22 10:25

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	388000	404000	1	4.04		5

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS)

(LCS) R3849079-2 10/12/22 10:25

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8820000	100	77.3-123	

Method Blank (MB)

(MB) R3849076-1 10/12/22 12:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		10000	10000

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

L1544392-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544392-01 10/12/22 12:30 • (DUP) R3849076-3 10/12/22 12:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	693000	657000	1	5.33	J3	5

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

L1544523-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1544523-02 10/12/22 12:30 • (DUP) R3849076-4 10/12/22 12:30

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1560000	1670000	1	7.12	J3	5

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

Laboratory Control Sample (LCS)

(LCS) R3849076-2 10/12/22 12:30

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	8880000	101	77.3-123	

Method Blank (MB)

(MB) R3847297-1 10/08/22 19:23

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Chloride	U		379	1000
Fluoride	U		64.0	150
Sulfate	U		594	5000

L1544281-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1544281-01 10/08/22 19:49 • (DUP) R3847297-3 10/08/22 20:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	860	799	1	7.33	U	15
Fluoride	258	250	1	3.35		15
Sulfate	7930	7790	1	1.74		15

L1544281-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1544281-11 10/08/22 23:11 • (DUP) R3847297-6 10/08/22 23:24

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ug/l	ug/l		%		%
Chloride	928	897	1	3.46	U	15
Fluoride	98.1	103	1	4.68	U	15
Sulfate	10200	9810	1	3.74		15

Laboratory Control Sample (LCS)

(LCS) R3847297-2 10/08/22 19:36

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Chloride	40000	38900	97.3	80.0-120	
Fluoride	8000	7810	97.6	80.0-120	
Sulfate	40000	39100	97.7	80.0-120	

<sup>1</sup>Cp

<sup>2</sup>Tc

<sup>3</sup>Ss

<sup>4</sup>Cn

<sup>5</sup>Sr

<sup>6</sup>Qc

<sup>7</sup>Gl

<sup>8</sup>Al

<sup>9</sup>Sc

L1544281-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544281-01 10/08/22 19:49 • (MS) R3847297-4 10/08/22 20:16 • (MSD) R3847297-5 10/08/22 20:30

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50000	860	49300	49100	97.0	96.4	1	80.0-120			0.580	15
Fluoride	5000	258	4990	4960	94.6	94.0	1	80.0-120			0.639	15
Sulfate	50000	7930	56400	55900	96.9	96.0	1	80.0-120			0.823	15

L1544281-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L1544281-11 10/08/22 23:11 • (MS) R3847297-7 10/08/22 23:38

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	928	49400	97.0	1	80.0-120	
Fluoride	5000	98.1	4820	94.4	1	80.0-120	
Sulfate	50000	10200	58600	96.8	1	80.0-120	

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R3852425-1 10/24/22 18:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		20.0	200
Calcium	U		79.3	1000

Laboratory Control Sample (LCS)

(LCS) R3852425-2 10/24/22 19:02

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	ug/l	ug/l	%	%	
Boron	1000	993	99.3	80.0-120	
Calcium	10000	9850	98.5	80.0-120	

L1544212-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1544212-03 10/24/22 19:05 • (MS) R3852425-4 10/24/22 19:10 • (MSD) R3852425-5 10/24/22 19:13

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Boron	1000	92.2	1110	1100	101	101	1	75.0-125			0.519	20
Calcium	10000	133000	142000	142000	96.8	92.1	1	75.0-125			0.332	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

# GLOSSARY OF TERMS

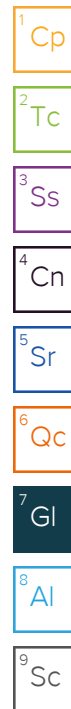
## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

### Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.
Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.



# ACCREDITATIONS & LOCATIONS

## Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Gl

<sup>8</sup> Al

<sup>9</sup> Sc



**Plum Point Services Co., LLC**

2739 SCR 623  
Osceola, AR 72370

Billing Information:

Accounts Payable  
P.O. Box 567  
Osceola, AR 72370

Pres  
Chk

Analysis / Container / Preservative

Report to:  
**Dana Derrington**

Email To: dld@ftn-assoc.com; hlf@ftn-assoc.com; mcc@ftn-assoc.com

Project Description:  
**Plum Point Energy Station**

City/State  
Collected: **OSCEOLA AR**

Please Circle:  
PT MT **ET**

Phone: **501-920-9642**

Client Project #  
**R14590-2764-001**

Lab Project #  
**NAESOAR-PLUMPOINT**

Collected by (print):  
*Michael Clayton*

Site/Facility ID #

P.O. #

Collected by (signature):  
*Michael Clayton*

**Rush?** (Lab MUST Be Notified)

Quote #

Immediately Packed on Ice N  Y

\_\_\_ Same Day \_\_\_ Five Day  
\_\_\_ Next Day \_\_\_ 5 Day (Rad Only)  
\_\_\_ Two Day \_\_\_ 10 Day (Rad Only)  
\_\_\_ Three Day

Date Results Needed

No.  
of  
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts
VW-101	GNAS	GW		10/5/22	1143	3
VW-102		GW		10/5/22	1428	3
VW-103		GW		10/5/22	943	3
VW-108		GW		10/4/22	1253	3
VW-113		GW		10/4/22	1023	3
VW-115		GW		10/3/22	1448	3
VW-116		GW		10/5/22	1253	3
VW-117		GW		10/5/22	1613	3
VW-118		GW		10/5/22	833	3
VW-119		GW		10/5/22	1048	3

Cl, F, SO4 125mlHDPE-NoPres

TDS 250mlHDPE-NoPres

Total B, Ca 250mlHDPE-HNO3



**MT JULIET, TN**

12065 Lebanon Rd Mount Juliet, TN 37122  
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubs/pas-standard-terms.pdf>

SDG # **1544281**  
**J087**

Acctnum: **NAESOAR**

Template: **T175308**

Prelogin: **P952970**

PM: **134 - Mark W. Beasley**

PB:

Shipped Via: **FedEX Ground**

Remarks | Sample # (lab only)

-01  
-02  
-03  
-04  
-05  
-06  
-07  
-08  
-09  
-10

\* Matrix:  
S - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
WW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:

Samples returned via:

\_\_\_ UPS \_\_\_ FedEx \_\_\_ Courier

Tracking # **0221 5892 7562 1029**

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Sample Receipt Checklist

COC Seal Present/Intact:  NP  Y  N  
COC Signed/Accurate:  Y  N  
Bottles arrive intact:  Y  N  
Correct bottles used:  Y  N  
Sufficient volume sent:  Y  N  
If Applicable  
VOA Zero HeadSpace:  Y  N  
Preservation Correct/Checked:  Y  N  
RAD Screen <0.5 mR/hr:  Y  N

Relinquished by: (Signature)

*Michael Clayton*

Date:

10/6/22

Time:

1200

Received by: (Signature)

*[Signature]*

Trip Blank Received: Yes  No

HCL/MeOH  
TBR

Relinquished by: (Signature)

*[Signature]*

Date:

10/6/22

Time:

0930

Received by: (Signature)

*[Signature]*

Temp: **1.9+0=1.9** °C Bottles Received: **36**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

*[Signature]*

Date:

10/6/22

Time:

0930

Received for lab by: (Signature)

*[Signature]*

Date:

10/6/22

Time:

0930

Hold:

Condition:

NCF / OK

**Plum Point Services Co., LLC**

2739 SCR 623  
Osceola, AR 72370

Accounts Payable  
P.O. Box 567  
Osceola, AR 72370

Pres  
Chk



**MT JULIET, TN**

12065 Lebanon Rd Mount Juliet, TN 37122  
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>

SDG # 1947281

Table #

Acctnum: **NAESOAR**

Template: **T175308**

Prelogin: **P952970**

PM: **134 - Mark W. Beasley**

PB:

Shipped Via: **FedEx Ground**

Remarks | Sample # (lab only)

Report to:

**Dana Derrington**

Email To: [dld@ftn-assoc.com](mailto:dld@ftn-assoc.com); [hlf@ftn-assoc.com](mailto:hlf@ftn-assoc.com); [mcc@ftn-assoc.com](mailto:mcc@ftn-assoc.com)

Project Description:

**Plum Point Energy Station**

City/State

Collected: **OSCEOLA, AR**

Please Circle:

PT MT  ET

Phone: **501-920-9642**

Client Project #

**R14590-2764-001**

Lab Project #

**NAESOAR-PLUMPOINT**

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

**Rush?** (Lab MUST Be Notified)

Same Day  Five Day  
 Next Day  5 Day (Rad Only)  
 Two Day  10 Day (Rad Only)  
 Three Day

Quote #

Date Results Needed

No. of Cntrs

Immediately

Packed on Ice N  Y

Sample ID

Comp/Grab

Matrix \*

Depth

Date

Time

No. of Cntrs

Cl, F, SO4 125mlHDPE-NoPres

TDS 250mlHDPE-NoPres

Total B, Ca 250mlHDPE-HNO3

VW-117 DUP

GRAB

GW

10/5/22

1616

3

X

X

X

PA EB

↓

GW

10/5/22

1645

3

X

X

X

GW

3

X

X

X

GW

3

X

X

X

\* Matrix:

S - Soil AIR - Air F - Filter  
GW - Groundwater B - Bioassay  
NW - WasteWater  
DW - Drinking Water  
OT - Other

Remarks:

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Samples returned via:

UPS  FedEx  Courier

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:  Y  N  
COC Signed/Accurate:  Y  N  
Bottles arrive intact:  Y  N  
Correct bottles used:  Y  N  
Sufficient volume sent:  Y  N  
If Applicable  
VOA Zero Headspace:  Y  N  
Preservation Correct/Checked:  Y  N  
RAD Screen <0.5 mR/hr:  Y  N

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes / No

HCL / MeoH  
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: 7.9 °C Bottles Received: 36

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 10/7/22 Time: 0930

Hold:

Condition: NCF / OK

# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-108	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/4/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: clear	Air Temp. (°F): 65	Wind: east-northeast at 5 mph
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2    Well locked? Total depth from TOC: feet <input checked="" type="checkbox"/> Yes TOC below/above ground: feet <input type="checkbox"/> No
Damages/repairs needed:		

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	10/3/2022	10/4/2022	10/4/2022	10/4/2022	10/4/2022	
Time	24-hour	1054	1050	1107	1147	1216	
Depth to Water	feet	29.99	30.11	30.40	30.16	30.21	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC							
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1055	1100	1105	1110	1115	1120	1125	1130	1135	1140	1145	Remarks
Purge vol.	gallons												
Purge rate	mL/min	90	90	90	50	50	50	50	50	50	50	50	
pH	su	6.5	5.5	5.4	5.7	5.9	6.0	6.0	6.0	6.1	6.2	6.2	
Temp.	°C	22.5	21.8	21.0	21.3	21.3	21.2	21.2	21.3	21.3	21.3	21.5	
Conductivity	µS/cm	631	647	667	674	676	685	688	689	690	692	690	
DO	mg/L	4.0	2.7	2.7	2.6	2.1	1.8	1.5	1.4	1.4	1.3	1.2	
ORP	mV	37.3	-1.9	-1.0	-7.7	-14.3	-19.4	-19.7	-22.5	-25.4	-28.8	-29.7	
Turbidity	NTU	6.4	7.5	4.0	3.5	2.8	5.9	6.1	6.2	5.5	4.4	3.0	
Color/tint	--	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
Odor	--	none	none	none	none	none	none	none	none	none	none	none	

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-108	10/4/2022	1253	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-119	Sampler: Michael Clayton
Project Number: R14590-2764-001 (EPA)	Date: 10/5/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: clear	Air Temp. (°F): 64	Wind: south-southeast at 2 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	10/3/2022	10/5/2022	10/5/2022	10/5/2022	10/5/2022	
Time	24-hour	1212	1005	1031	1043	1053	
Depth to Water	feet	26.21	26.33	26.33	26.33	26.33	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC								
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No												
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408												
Time	24-hour	1010	1015	1020	1025	1030	1035	1040						Remarks
Purge vol.	gallons													
Purge rate	mL/min	280	280	280	200	200	200	200						
pH	su	6.5	6.2	6.1	6.1	6.2	6.3	6.2						
Temp.	°C	20.0	19.3	19.5	19.6	19.6	19.6	19.5						
Conductivity	µS/cm	562	563	562	557	554	550	549						
DO	mg/L	1.6	1.2	1.2	1.1	1.0	0.9	0.9						
ORP	mV	5.7	-7.1	-12.7	-20.7	-25.1	-26.5	-27.9						
Turbidity	NTU	6.2	5.6	4.2	3.8	2.8	2.9	2.7						
Color/tint	--	clear	clear	clear	clear	clear	clear	clear						
Odor	--	none	none	none	none	none	none	none						

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-119	10/5/2022	1048	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-108	Sampler: Michael Clayton
Project Number: R14590-2496-001 (EPA)	Date: 12/15/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: partly cloudy	Air Temp. (°F): 46	Wind: west-southwest at 11 mph	
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter    inches    2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Total depth from TOC    feet	
		TOC below/above ground    feet	
Damages/repairs needed:			

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	12/15/2022	12/15/2022				
Time	24-hour	0937	1200				
Depth to Water	feet	31.85	31.88				
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible			Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC		
Purge depth	feet	Well goes dry during purging: <input type="checkbox"/> Yes <input type="checkbox"/> No					
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408					
Time	24-hour						Remarks
Purge vol.	gallons						
Purge rate	mL/min						
pH	su						
Temp.	°C						
Conductivity	µS/cm						
DO	mg/L						
ORP	mV						
Turbidity	NTU						
Color/tint	--						
Odor	--						

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-108	12/15/2022	1200	0	0	Insufficient water quantity to collect sample.

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-119	Sampler: Michael Clayton
Project Number: R14590-2496-001 (EPA)	Date: 12/16/2022	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: cloudy	Air Temp. (°F): 42	Wind: west at 14 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input checked="" type="checkbox"/> Mark/notch on TOC <input type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	12/15/2022	12/16/2022	12/16/2022	12/16/2022	12/16/2022	
Time	24-hour	1026	1110	1147			
Depth to Water	feet	29.10	29.00	29.00			
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input checked="" type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible						Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC				
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No										
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408											
Time	24-hour	1115	1120	1125	1130	1135	1140	1145					Remarks
Purge vol.	gallons												
Purge rate	mL/min	190	190	190	190	190	190	190					
pH	su	6.9	6.9	6.9	6.9	6.9	6.9	6.9					
Temp.	°C	16.3	16.4	16.5	16.8	16.6	16.8	16.8					
Conductivity	µS/cm	582	588	585	594	598	596	595					
DO	mg/L	1.1	0.9	0.8	0.7	0.9	0.8	0.9					
ORP	mV	162.3	155.2	98.7	71.5	65.9	55.3	53.4					
Turbidity	NTU	3.7	2.7	2.5	2.9	2.5	2.1	2.1					
Color/tint	--	clear	clear	clear	clear	clear	clear	clear					
Odor	--	none	none	none	none	none	none	none					

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-119	12/16/2022	1145	0	0	No sample bottles collected, just field data.

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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# Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-108	Sampler: Michael Clayton
Project Number: R14590-2496-001 (EPA)	Date: 1/11/2023	Sampler Organization: FTN Associates, Ltd.

## Site Description

Weather: cloudy	Air Temp. (°F): 67	Wind: south-southwest at 14 mph										
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Extraction Well <input type="checkbox"/> Production Well <input type="checkbox"/> Borehole <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Spring <input type="checkbox"/> Other:	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Well diameter</td> <td style="width: 16.5%;">inches</td> <td style="width: 16.5%;">2</td> <td rowspan="3" style="width: 34%;">Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</td> </tr> <tr> <td>Total depth from TOC</td> <td>feet</td> <td></td> </tr> <tr> <td>TOC below/above ground</td> <td>feet</td> <td></td> </tr> </table>	Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total depth from TOC	feet		TOC below/above ground	feet	
Well diameter	inches	2	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Total depth from TOC	feet											
TOC below/above ground	feet											
Damages/repairs needed:												

## Water Level Data

Measuring point description: <input type="checkbox"/> Mark/notch on TOC <input checked="" type="checkbox"/> North rim of TOC <input type="checkbox"/> Other:		Water level meter: <input type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper-T <input checked="" type="checkbox"/> Solinst 101 <input type="checkbox"/> Other:					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Date	mm/dd/yy	1/11/2023	1/11/2023	1/11/2023	1/11/2023	1/11/2023	
Time	24-hour	1255	1350	1423	1433	1449	
Depth to Water	feet	29.44	29.44	29.64	29.69	29.73	
Product/Thickness	LNAPL/DNAPL feet						

## Field Data

Field data meters: <input type="checkbox"/> YSI ProPlus <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> YSI MPS 556 <input type="checkbox"/> HF Scientific Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:			Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder [ <input type="checkbox"/> dedicated / <input type="checkbox"/> portable ] <input type="checkbox"/> Submersible				Bailer description: <input type="checkbox"/> Disposable polyethylene <input type="checkbox"/> Disposable Teflon <input type="checkbox"/> Disposable PVC						
Purge depth	feet		Well goes dry during purging: <input type="checkbox"/> Yes <input type="checkbox"/> No										
Casing vol.	gallons		= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] <sup>2</sup> × 0.0408										
Time	24-hour	1400	1405	1410	1415	1420	1425	1430					Remarks
Purge vol.	gallons												
Purge rate	mL/min	35	35	35	35	35	35	35					
pH	su	6.8	6.7	6.8	6.8	6.8	6.8	6.8					
Temp.	°C	19.4	19.3	19.2	19.1	19.0	19.2	19.5					
Conductivity	µS/cm	755	744	732	727	711	709	708					
DO	mg/L	3.1	2.0	1.5	1.2	1.1	0.9	1.0					
ORP	mV	95.5	67.6	52.8	52.9	48.9	44.7	41.4					
Turbidity	NTU	20.7	11.3	7.1	5.1	4.6	3.4	3.1					
Color/tint	--	clear	clear	clear	clear	clear	clear	clear					
Odor	--	none	none	none	none	none	none	none					

## Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-108	1/11/2023	1435	0	0	No sample bottles collected, just field data.

Sampler's Name (print): Michael Clayton	Sampler Signature: transcribed by HLF
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