



PLUM POINT ENERGY STATION

GROUNDWATER MONITORING AND CORRECTIVE ACTION
2018 ANNUAL REPORT

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

JANUARY 28, 2019

PLUM POINT ENERGY STATION
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2018 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 new 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 2018 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 2017a). Groundwater sample collection is performed in accordance with the landfill's groundwater sampling and analysis plan (FTN 2017b). Data collected from this program are evaluated in accordance with the landfill's certified statistical analysis plan (FTN 2017c).

FTN Associates, Ltd. (FTN), was contracted to sample groundwater and statistically evaluate the data from the 2018 semiannual monitoring events. Major conclusions from the evaluations include the following:

1. Detection monitoring was performed during April and September 2018 for the first and second half of 2018 monitoring periods, respectively.
2. The direction of groundwater flow varied between the first and second half monitoring events. Water levels gauged during April 2018 indicate ground water flow was generally toward the southwest. Water levels gauged during September 2018 indicate ground water flow was generally toward the southeast across the active landfill area.
3. The secondary drinking water standards (SDWSs) for total dissolved solids (TDS) and pH were exceeded at both background and compliance wells during the first half of 2018 monitoring event. The SDWS for pH was exceeded at two compliance wells during the second half of 2018 monitoring period. SDWSs are non-enforceable guidelines established by EPA for aesthetic considerations.

Published groundwater quality data for the region indicate that exceedances for TDS and pH are generally typical for the underlying aquifer.

4. Of the parameters evaluated, only fluoride has an EPA maximum contaminant level (MCL). None of the measured values in groundwater exceeded the MCL for fluoride.
5. 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 all wells for the period of record.
6. Statistical evaluation of the first half of 2018 monitoring data identified a confirmed statistically significant increase (SSI) for calcium at MW-116. PPSC completed a successful alternate source demonstration (ASD) in response to the SSI in accordance with §257.94(e)(2). The ASD was certified by an Arkansas-registered professional engineer and was posted to the facility's operating record on October 9, 2018. Based on the successful ASD, PPSC continued with detection monitoring in accordance with §257.94.
7. Statistical evaluation of the second half of 2018 monitoring data identified an SSI for calcium at MW-116. This SSI was previously confirmed during the first half of 2018 monitoring period and, as noted above, a successful ASD was made. PPSC will undertake an ASD during the first half of 2019 to address the reoccurrence of the SSI in accordance with §257.94(e)(2). Pending the results of the ASD, PPSC will continue with detection monitoring in 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 2018. This report presents the results from both sampling events 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 the Plum Point Energy Station and landfill is provided as Figure 1.2.

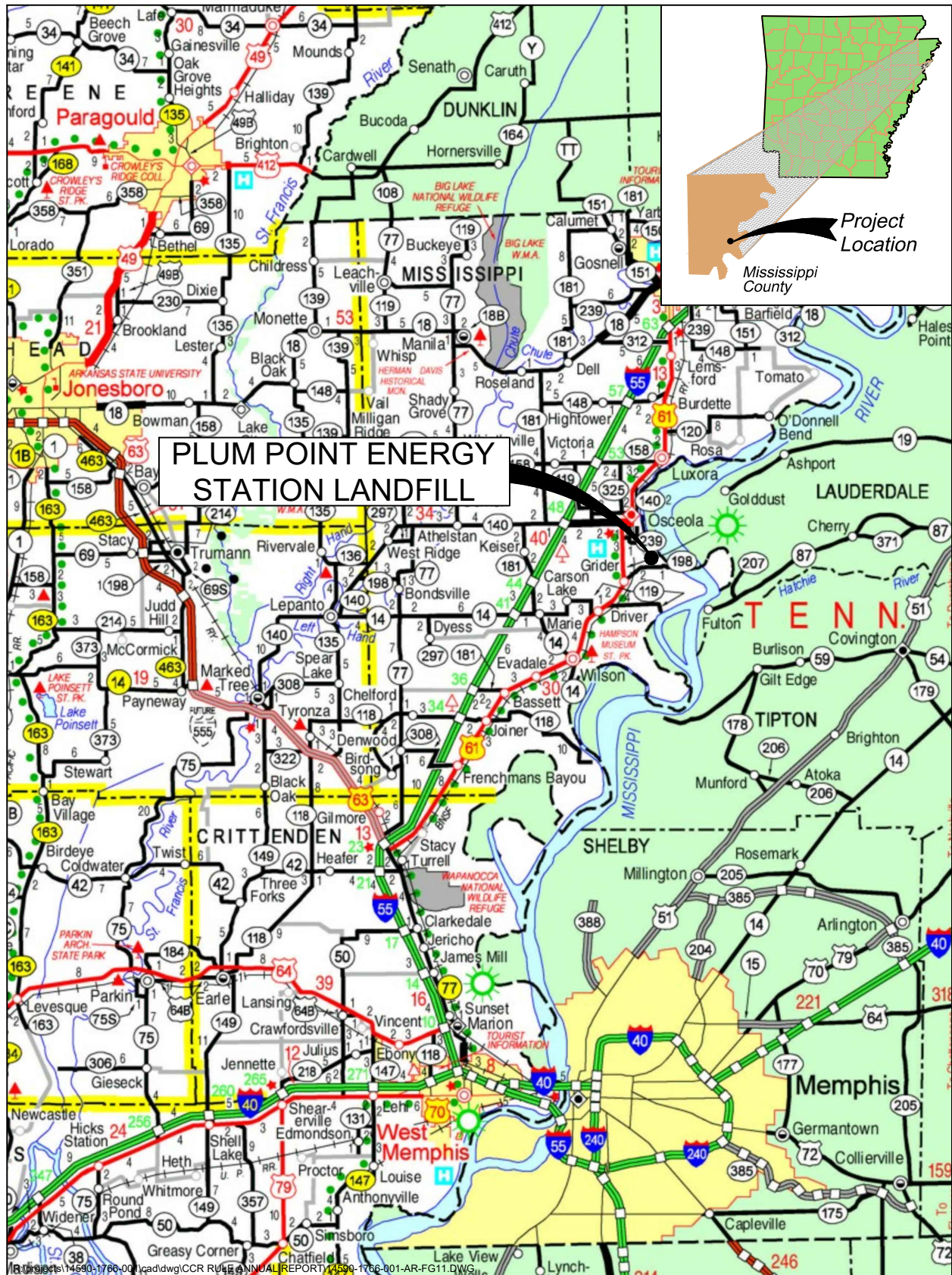


Figure 1.1. Location map.

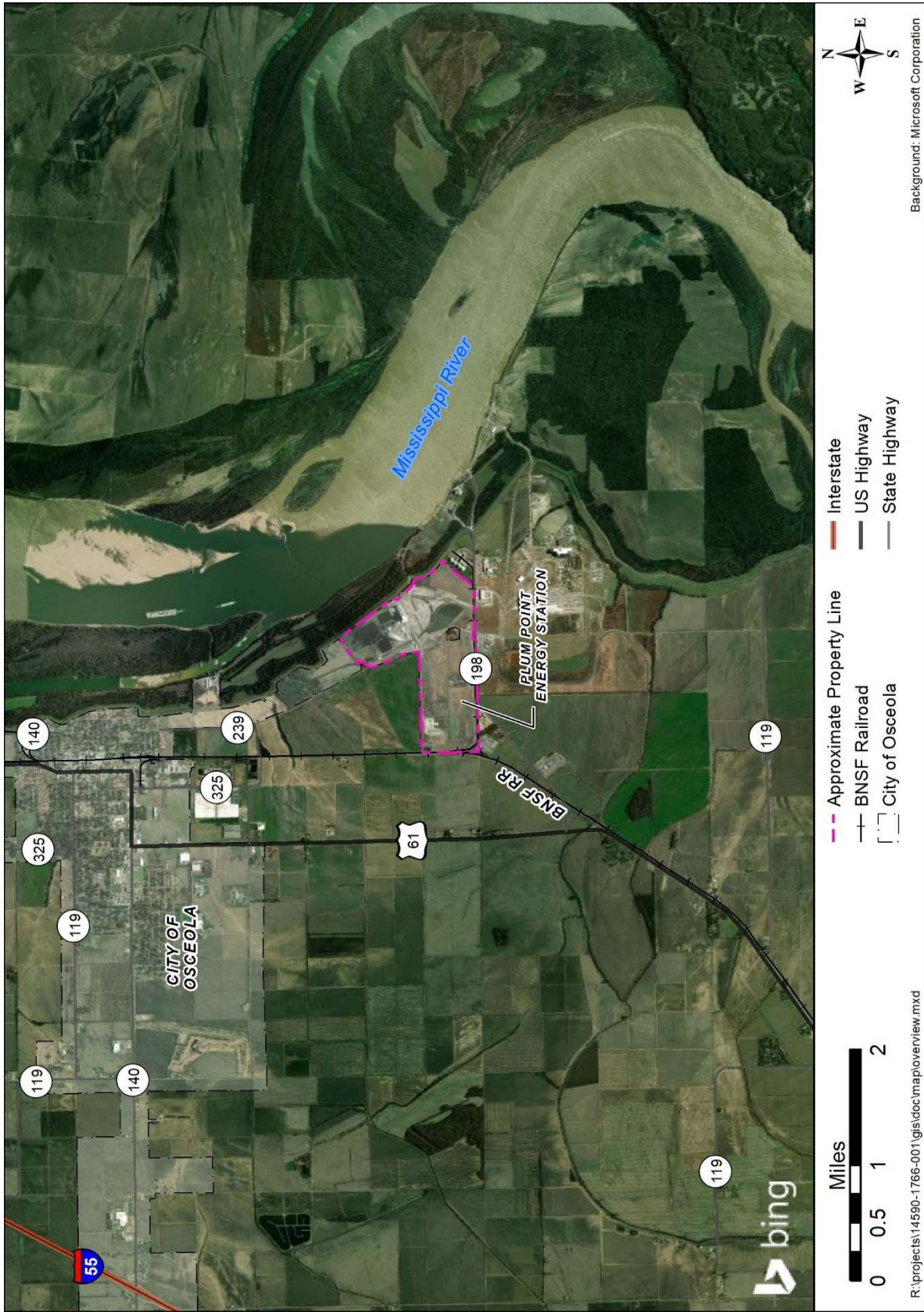


Figure 1.2. Vicinity map, Plum Point Energy Station.

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 Environmental Quality (ADEQ) 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) Regulation 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 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, and 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, and Hosman 1964). Beneath the alluvial aquifer is the Tertiary-aged Jackson-Claiborne clay, which acts as a lower confining unit. The Jackson group contains dense marine clays and shale with occasional lenses of fine-grained sand (Peterson, Broom, and Bush 1985). The regional direction of groundwater flow is toward the southwest (Schrader 2015).

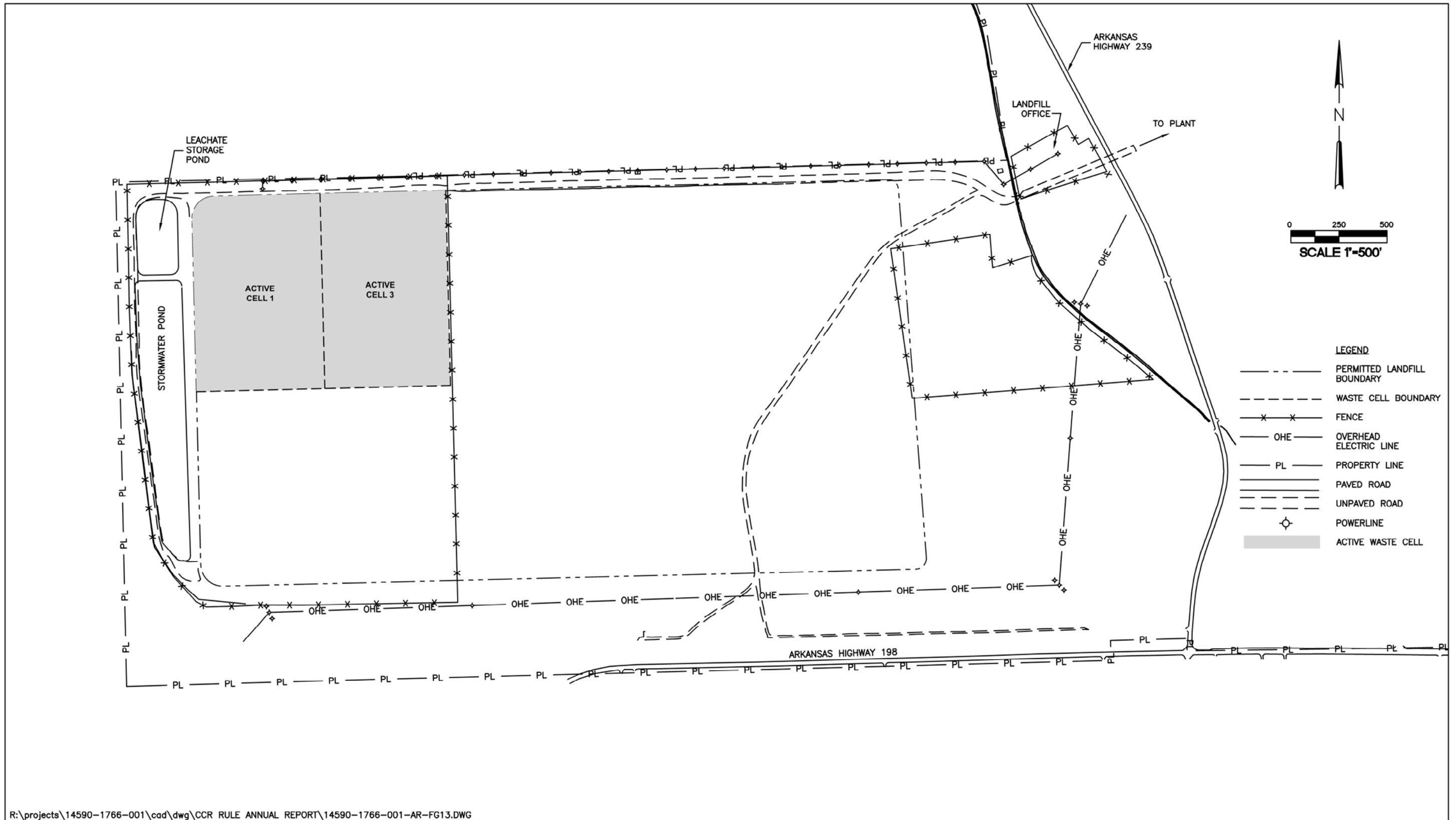


Figure 1.3. Landfill layout map, Plum Point Energy Station landfill.

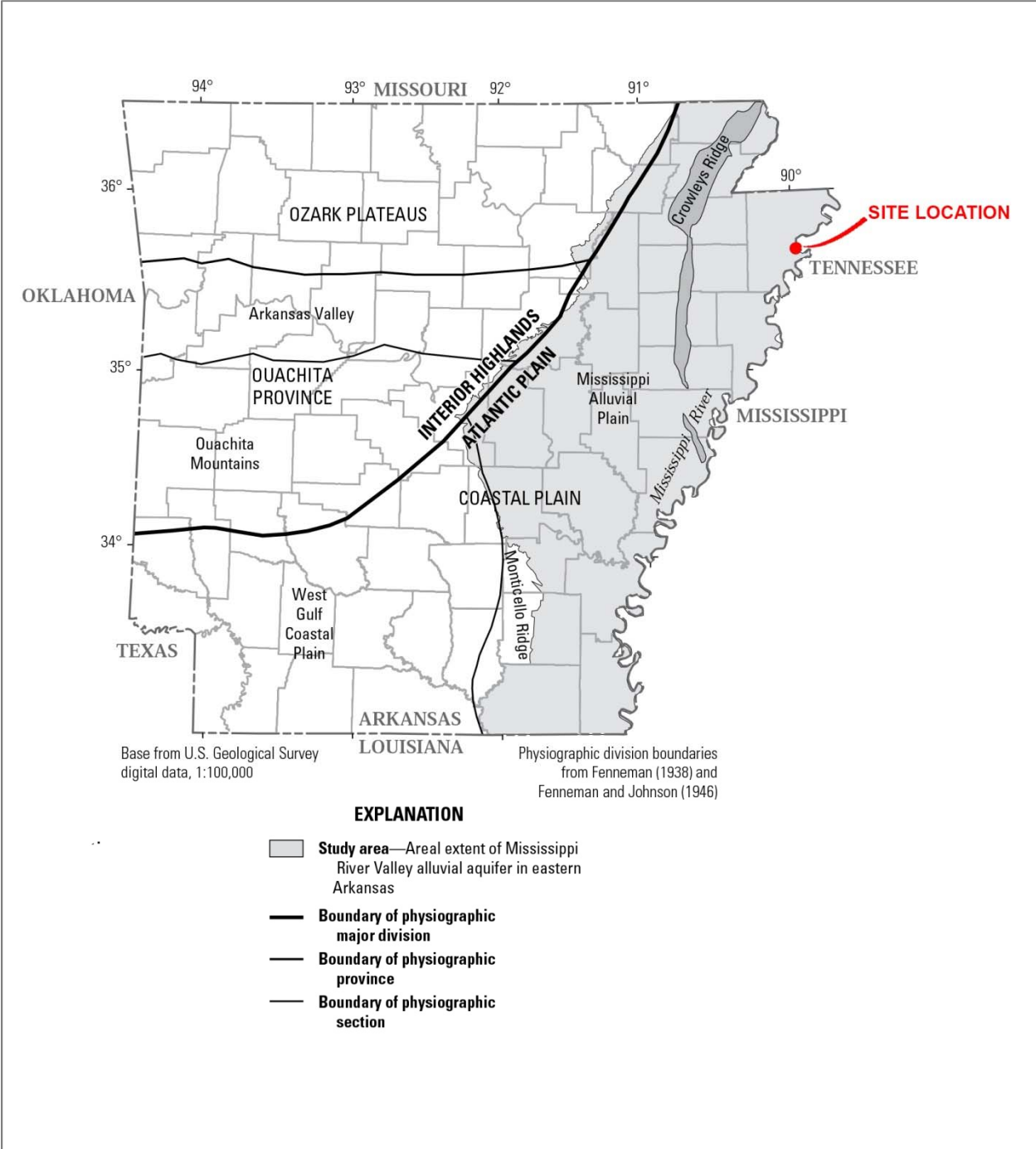


Figure 1.4. Physiographic location, Plum Point Energy Station (adapted from Schrader 2015).

1.4 Site Hydrogeology

A detailed site investigation was performed in 2001 as part of the ADEQ permit application for the landfill. The findings from the investigation were submitted to ADEQ by Genesis Environmental Consulting, Inc. (GEC), in a geotechnical and hydrogeological investigation (GHI) report (GEC 2001). Findings from the GHI indicate 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 ranging from 6.7×10^{-4} centimeters per second (cm/s) to 3.7×10^{-8} cm/s. Field results from one aquifer pumping test and multiple aquifer slug tests indicate that the uppermost alluvial aquifer has an average hydraulic conductivity of 1.09×10^{-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).

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 and Fazio 2003, Gonthier 2003, Kresse and 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 2018, sampling schedule, network maintenance, sampling methodology, and required laboratory analyses.

2.1 Monitoring Well Network

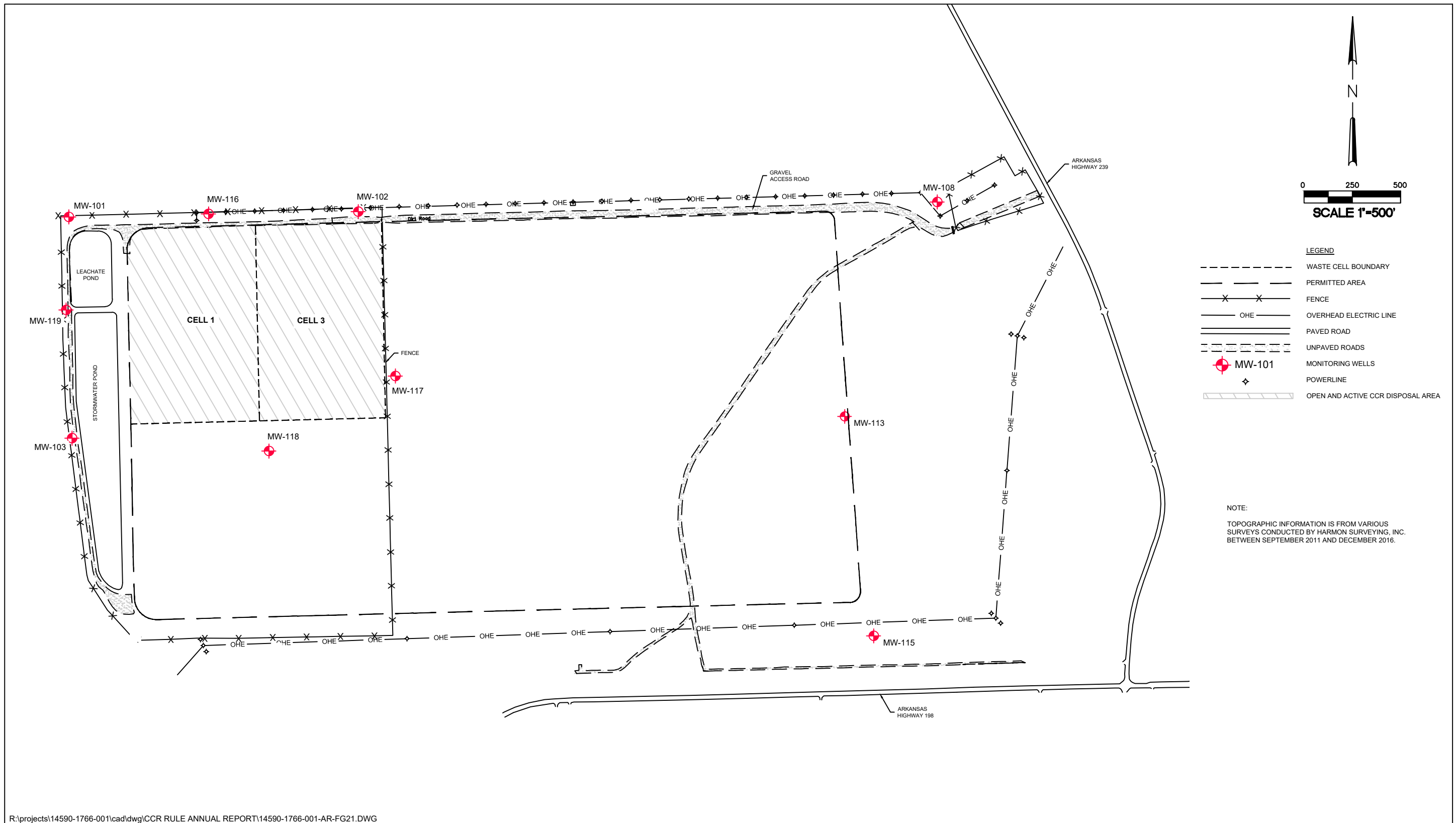
The certified groundwater monitoring network for the CCR rule includes the 10 monitoring wells shown on Figure 2.1. The wells are constructed of 2-inch, schedule 40 polyvinyl chloride (PVC) pipe, with 10-ft slotted well screens. A summary of well construction details is included in Table 2.1.

Table 2.1. Summary of well construction details.

Well Number	Well Installation Date	Ground Surface Elevation (ft NAVD) ^(a)	Measuring Point Elevation ^(b) (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 Cell 1 and Cell 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 Cell 1 and Cell 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 2018

All of the 10 monitoring wells in the certified network were installed prior to 2018. No new wells were installed and none of the existing wells were altered or abandoned during 2018.

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. Detection monitoring was conducted at all wells except MW-119 during 2018. Monitoring well MW-119 was installed during October 2016 and is still being assessed for background. The first half of 2018 detection monitoring event was conducted during April and the second half of 2018 detection monitoring event was conducted during September. Based on statistical evaluation of the data sets, verification sampling was performed during July and November, as discussed in Section 4.0. The anticipated sampling schedule for 2019 is provided in Table 2.2.

Table 2.2. Anticipated monitoring well sampling frequency during 2019.

Monitoring Well	Sampling Program		Sampling Frequency		Scheduled Sampling Events During 2019		
	Detection	Background	Semiannual	Quarterly	March	June	September
MW-101	X		X		X		X
MW-102	X		X		X		X
MW-103	X		X		X		X
MW-108	X		X		X		X
MW-113	X		X		X		X
MW-115	X		X		X		X
MW-116	X		X		X		X
MW-117	X		X		X		X
MW-118	X		X		X		X
MW-119		X		X	X	X	X

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 indications of damage and dedicated sampling equipment was assessed for visible damage. Noted damages and recommended repairs, if any, are 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 2017a). Groundwater sample collection during the current monitoring period was performed in accordance with the landfill's GWSAP and EPA guidelines (Puls and 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 556 (MPS) multiparameter instrument fitted with a flow-through cell. Field sampling forms for the current monitoring event 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 2.3. Pace Environmental (Pace), formerly known as Environmental Science Corporation (ESC) Lab Sciences, 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. Pace/ESC laboratory reports are included in Appendix B.

Table 2.3. Appendix III parameters for groundwater detection monitoring.

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

3.0 DATA PRESENTATION

This section presents the data collected during the current monitoring event. 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 Hydrographs

Static water levels were measured in all 10 monitoring wells using a Solinst 101 water level meter on April 10, 2018, and September 24, 2018, prior to conducting any sampling activities. 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 sheet included in Appendix A. Field water level measurements are tabulated in Table 3.1.

Table 3.1. Water level data.

Well ID	MP Elevation (ft NAVD88)	April 10, 2018		September 24, 2018	
		Depth to Water (ft below MP)	Water Elevation (ft NAVD88)	Depth to Water (ft below MP)	Water Elevation (ft NAVD88)
MW-101	242.75	10.12	232.63	17.46*	225.29*
MW-102	243.99	10.49	233.50	19.84	224.15
MW-103	243.25	10.91	232.34	19.09	224.16
MW-108	245.11	10.12	234.99	20.22	224.89
MW-113	244.63	10.40	234.23	20.55	224.08
MW-115	243.55	9.40	234.15	19.26	224.29
MW-116	243.97	11.08	232.89	20.14	223.83
MW-117	242.53	9.34	233.19	18.82	223.71
MW-118	241.23	8.47	232.76	17.51	223.72
MW-119	246.53	14.01	232.52	21.42	225.11

*Due to a discrepancy in water level readings, the pre-purge confirmation water level was used.

Hydrographs depicting water level elevations over time are included in Appendix C. As shown on the hydrographs, within-well water levels fluctuated seasonally as much as ± 18 ft over the period of record for the CCR rule program.

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 beneath the Cell 1 and Cell 3 area was generally to the southwest during the April 2018 monitoring event. As shown on Figure 3.2, groundwater flow beneath Cell 1 and Cell 3 was generally to the southeast during the September 2018 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 1.09×10^{-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 Cell 1 and Cell 3. The hydraulic gradient was estimated to be 5.9×10^{-4} ft/ft during April 2018 and 8.4×10^{-4} ft/ft during September 2018 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 25 ft/year during April 2018 and 30 ft/year during September 2018. These values are consistent with historically observed flow rates at the site (FTN 2017a).

3.2 Field-Measured Water Quality Data

Groundwater sampling records for the current monitoring event are included in Appendix A. Field-measured water quality parameters from the 2018 monitoring events are summarized in Table 3.2. A review of the field quality control samples is provided in Section 3.4.

3.3 Laboratory Analytical Data

Laboratory reports for sampling performed during 2018 monitoring periods are included in Appendix B. A review of the laboratory quality control information is provided in Section 3.4. Reported measured values along with field-measured pH are summarized in Tables 3.3 and 3.4 for the first and second half of 2018 monitoring periods, respectively. EPA-promulgated maximum contaminant levels (MCLs) and secondary drinking water standards (SWDSs) are shown for comparison purposes. Data from these monitoring events are compiled in the landfill's historical groundwater database for appendix III parameters, included as Appendix D.

Table 3.2. Field-measured water quality data.

Well	Date	Conductivity (μ mhos/cm)	pH (su)	Temperature (C)	Turbidity (NTU)
First Quarter 2018 Background Sampling Event					
MW-116	1/30/2018	626	6.5	17.3	0.8
MW-119	1/30/2018	581	6.4	18.2	1.2
First Half of 2018 Sampling Event					
MW-101	4/12/2018	692	6.4	16.7	2.7
MW-102	4/11/2018	728	6.3	17.1	2.2
MW-103	4/11/2018	766	6.2	17.6	1.1
MW-108	4/10/2018	960	6.5	16.3	1.9
MW-113	4/10/2018	587	6.4	16.2	1.8
MW-115	4/10/2018	647	6.3	15.9	0.7
MW-116	4/11/2018	768	6.4	17.6	0.9
MW-117	4/11/2018	486	6.4	17.2	1.8
MW-118	4/11/2018	429	5.8	16.5	1.3
MW-119	4/11/2018	524	6.4	18.0	0.9
First Half of 2018 Verification Sampling Event					
MW-102	7/9/2018	804	6.7	23.5	3.0
MW-116	7/9/2018	828	6.6	23.8	3.2
MW-118	7/10/2018	477	6.5	22.1	1.2
Second Half of 2018 Sampling Event					
MW-101	9/26/2018	657	6.8	18.8	2.3
MW-102	9/27/2018	642	6.5	18.4	2.1
MW-103	9/26/2018	705	6.6	19.4	1.3
MW-108	9/25/2018	867	6.7	22.9	1.9
MW-113	9/25/2018	567	6.7	20.8	0.8
MW-115	9/25/2018	701	6.7	21.8	1.1
MW-116	9/26/2018	732	6.6	19.5	1.5
MW-117	9/27/2018	484	6.4	18.5	2.2
MW-118	9/27/2018	443	6.3	17.9	1.0
MW-119	9/27/2018	562	6.7	19.2	1.3
Second Half of 2018 Verification Sampling and Fourth Quarter 2018 Background Sampling Event					
MW-117	11/19/2018	383	6.6	17.1	1.7
MW-119	11/20/2018	426	6.8	18.5	0.6

Table 3.3. Summary of appendix III results, first half of 2018.

Well ID	Date Collected	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
First Quarter 2018 Background Sampling Event								
MW-116	1/30/2018	---	---	---	---	35.5	---	6.5
MW-119	1/30/2018	0.0805 BJ	99.3	2.07	0.259	35.5	380	6.4
First Half of 2018 Sampling Event								
MW-101	4/12/2018	0.0840 BJ	121	2.75	0.307	17.4	420	6.4
MW-102	4/11/2018	0.144 BJ	136	1.77	0.206	46.7	472	6.3
MW-103	4/11/2018	0.122 BJ	128	3.24	0.163	80.6	468	6.2
MW-108	4/10/2018	0.171 BJ	183	3.03	0.177	44.5	582	6.5
MW-113	4/10/2018	0.0899 BJ	92.0	2.94	0.0562 J	10.1	340	6.4
MW-115	4/10/2018	0.0666 BJ	111	1.34	0.209	5.81	368	6.3
MW-116	4/11/2018	0.111 BJ	137	4.90	0.166	113	511	6.4
MW-117	4/11/2018	0.0952 BJ	82.5	1.57	0.124	7.28	290	6.4
MW-118	4/11/2018	0.0949 BJ	71.8	1.36	0.157	15.2	257	5.8
MW-119	4/11/2018	0.0950 BJ	85.9	2.15	0.230	31.1	315	6.4
First Half of 2018 Verification Sampling Event								
MW-102	7/9/2018	---	124	---	---	---	---	6.7
MW-116	7/9/2018	---	125	---	---	---	---	6.6
MW-118	7/10/2018	---	---	---	---	---	---	6.5
Quality Control Samples								
MW-200 ^(a)	1/30/2018	0.102 BJ	108	4.89	0.208	87.3	424	---
MW-202 ^(a)	1/30/2018	0.0293 J	<1	<1	<0.1	0.288 J	<10	---
MW-201 ^(b)	4/12/2018	0.0454 J	<1	<1	<0.1	<5	<10	---
MW-202 ^(b)	4/11/2018	0.110 BJ	128	3.25	0.163	80.7	464	---
MW-201 ^(c)	7/9/2018	---	127	---	---	---	---	---
MW-202 ^(c)	7/9/2018	---	124	---	---	---	---	---
Water Quality Standard		---	---	250^(d)	4^(e) / 2^(d)	250^(d)	500^(d)	6.5-8.5^(d)

Notes:

“B” flag indicates that the analyte was detected in an associated quality control blank. “J” flag indicates that the analyte was detected at a level below the laboratory reporting detection limit (RDL) and thus the value is an estimate.

a. MW-200 was a duplicate of MW-119 and MW-202 was a field equipment blank.

b. MW-201 was a field equipment blank and MW-202 was a duplicate of MW-102.

c. MW-201 was a duplicate of MW-116 and MW-202 was a duplicate of MW-102.

d. Water quality standard is an EPA secondary drinking water standard.

e. Water quality standard is an EPA maximum contaminant level.

Table 3.4. Summary of appendix III results, second half of 2018.

Well ID	Date Collected	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
Second Half of 2018 Sampling Event								
MW-101	9/26/2018	0.0981 BJ	115	1.94 B	0.290 B	14.6	421	6.8
MW-102	9/27/2018	0.121 BJ	121	3.84	0.183 B	88.6	453	6.5
MW-103	9/26/2018	0.145 BJ	129	1.36 B	0.217 B	32.8	440	6.6
MW-108	9/25/2018	0.183 BJ	163	3.11	0.188 B	52.2	537	6.7
MW-113	9/25/2018	0.111 BJ	90.0	2.84 B	0.114 B	9.81	337	6.7
MW-115	9/25/2018	0.0764 BJ	123	1.18 B	0.216 B	5.00 J	417	6.7
MW-116	9/26/2018	0.153 BJ	132	4.13	0.183 B	97.5	500	6.6
MW-117	9/27/2018	0.127 BJ	89.8	1.25 B	0.144 B	7.19	318	6.4
MW-118	9/27/2018	0.113 BJ	80.6	1.33 B	0.165 B	17.0	375	6.3
MW-119	9/27/2018	0.103 BJ	99.0	2.30 B	0.253 B	41.6	290	6.7
Second Half of 2018 Verification Sampling and Fourth Quarter Background Sampling Event								
MW-117	11/19/2018	---	85.7	---	---	---	288	6.6
MW-119	11/20/2018	0.0826 BJ	94.0	1.96	0.271	33.0	343	6.8
Quality Control Samples								
MW-116 DUP ^(a)	9/26/2018	0.121 BJ	130	4.14	0.189 B	98.4	512	---
EB-2 ^(a)	9/27/2018	0.0533 J	0.500 J	0.311 J	<0.100	<5.00	<10.0	---
MW-119 DUP ^(b)	11/20/2018	0.0866 J	95.7	1.91	0.273	32.7	340	---
EPA EB-1 ^(b)	11/20/2018	0.0416 J	<1.00	<1.00	<0.100	<5.00	<10.0	---
Water Quality Standard		---	---	250^(c)	4^(d) / 2^(c)	250^(c)	500^(c)	6.5-8.5^(c)

Notes:

“B” flag indicates that the analyte was detected in an associated quality control blank. “J” flag indicates that the analyte was detected at a level below the laboratory RDL

and thus the value is an estimate.

a. MW-116 was a duplicate of MW-116 and EB-2 was a field equipment blank.

b. MW-119 DUP was a duplicate of MW-119 and EPA EB-1 was a field equipment blank.

c. Water quality standard is an EPA secondary drinking water standard.

d. Water quality standard is an EPA maximum contaminant level.

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 exceed the fluoride MCL of 4 mg/L. Parameters with established SDWSs listed in Tables 3.3 and 3.4 include chloride, fluoride, sulfate, TDS, and pH. Of these, the reported values for TDS at MW-108 exceeded the SDWS during the first and second half of 2018 monitoring periods (Tables 3.3 and 3.4) and the reported value for TDS at MW-116 exceeded the SDWS during the first half of 2018 monitoring period (Table 3.3). Values for pH were below the lower SDWS of 6.5 su at all wells except MW-108 during the first half of 2018 monitoring period as well as at wells MW-117 and MW-118 during the second half of 2018 monitoring period. However, all of the measured values for TDS and pH are generally consistent with historically reported values at the landfill prior to development of Cells 1 and 3, and with published values for regional groundwater quality for the aquifer (Kresse et al. 2014). SDWSs were established for aesthetic properties such as taste, color, and odor and do not have enforceable limits established by the federal National Primary Drinking Water Regulations.

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 ESC/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.

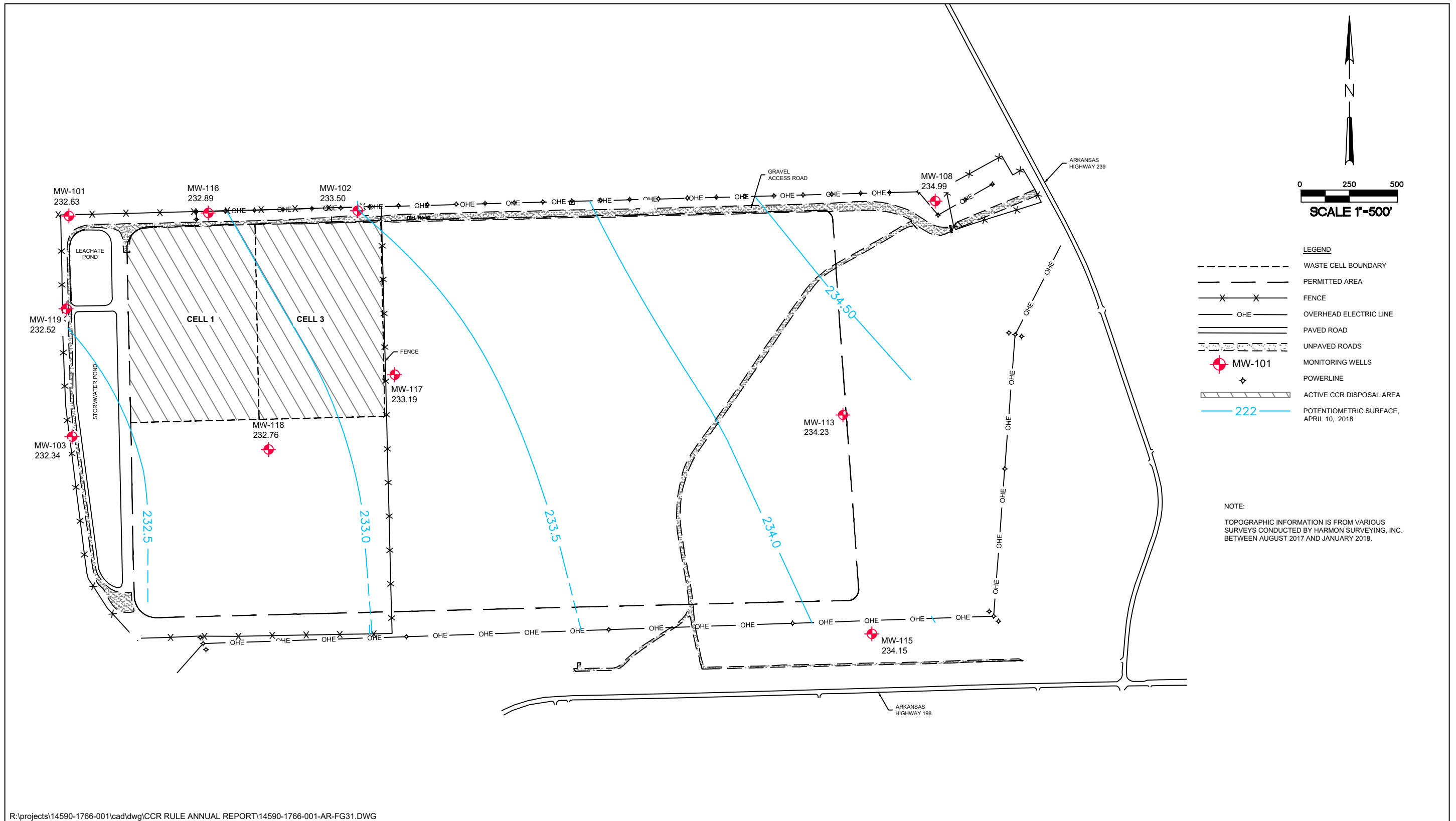
3.4.2 Review of Field Quality Control Samples

Field QA/QC samples include field duplicates and field equipment blanks. Field duplicates are two samples taken from the same well and collected as close to each other in time as practical. Data from the duplicate pair are compared to evaluate the level of precision

associated with the sampling and analytical methods. Field equipment rinsate blanks are prepared by pouring deionized water over decontaminated sampling equipment. Equipment blank results are used to verify that proper protocols for equipment decontamination were followed in the field. In accordance with the landfill's GWSAP, a minimum of one duplicate sample and one equipment rinsate blank is to be collected per sampling event, or one per 20 groundwater samples collected.

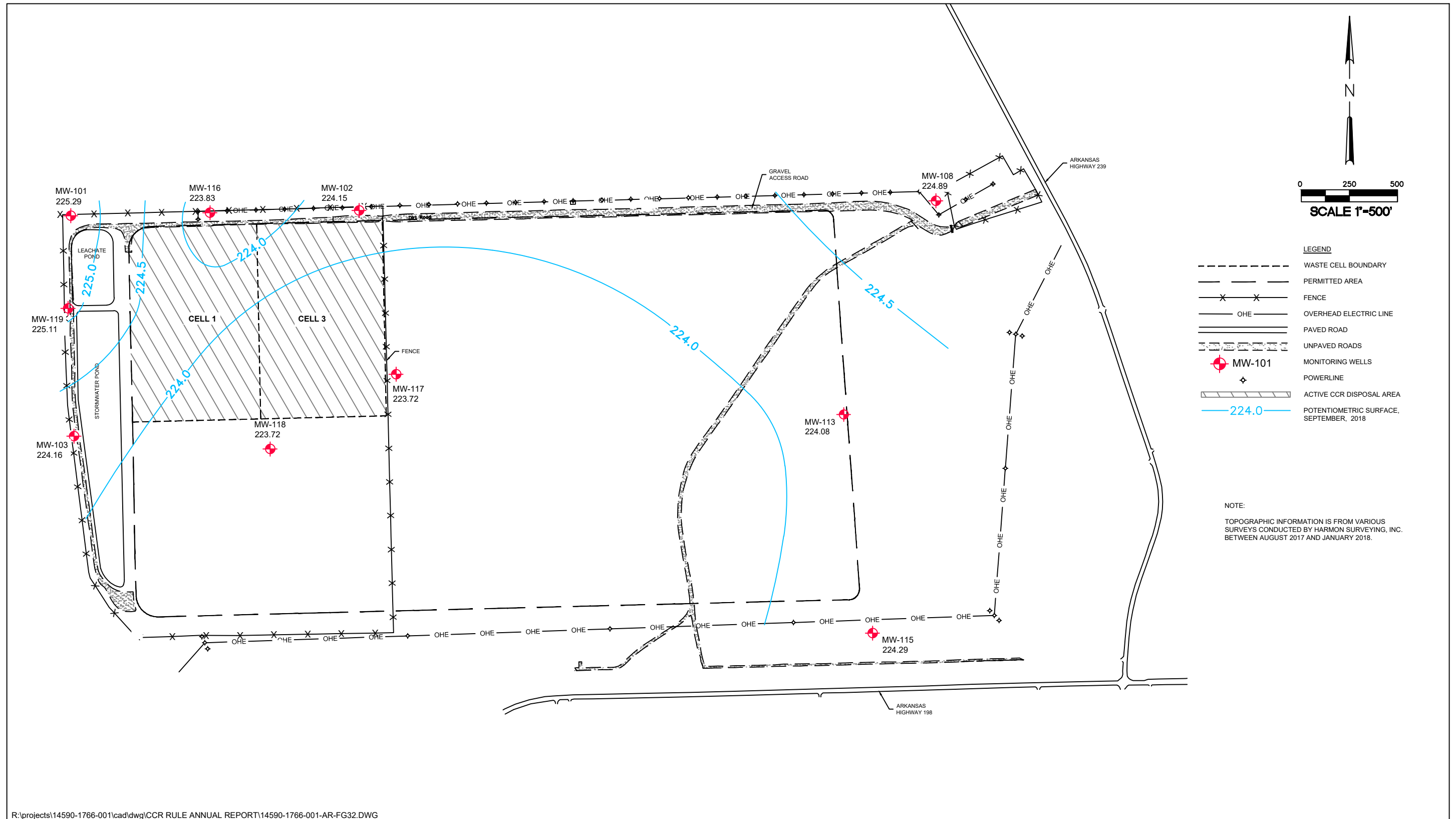
In accordance with the GWSAP, field QA/QC samples were collected in conjunction with groundwater sampling activities for this monitoring period. All QA/QC samples were handled in the same manner as groundwater samples with respect to sample collection, packaging, shipping, preservation, and COC procedures. A review of the field QA/QC samples is performed upon receipt of the data from the laboratory. Field duplicate pairs are evaluated to verify that the duplicate pair showed reasonable precision for analyzed parameters by calculating the relative percent difference (RPD) for parameters where the detected level was at least five times the laboratory reported detection limit (RDL) and where neither result was qualified or suspected of contamination. Calculated RPDs were below the quality control limit of 20% for all duplicate-pairs evaluated, except as noted below, 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. Noted deviations from the QA/QC program are noted below.

- The April 2018 field-duplicate pair was taken at MW-102. Calculated RPDs were below the quality control limit of 20% for all parameters evaluated except for sulfate, which had an RPD of 53%. A review of the field sampling forms show that the field technician noted strong winds and blowing dust while sampling at this well. Airborne particulates may have affected the groundwater samples pulled from the well.
- The field technician inadvertently took two field duplicates during the July 2018 event as opposed to one field duplicate and one equipment blank. The omission of the field blank does not affect the validity of the sampling results for this event.



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Figure 3.1. Potentiometric surface, April 10, 2018.



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Figure 3.2. Potentiometric surface, September 24, 2018.

4.0 STATISTICAL EVALUATION

This section describes the statistical approach and evaluation of the detection monitoring data collected during 2018. Groundwater quality data were evaluated using the statistical software *Sanitas version 9.5*. 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 exceedance. 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 were evaluated in accordance with the landfill’s SAP to determine the appropriate testing strategy for each well-parameter pair. Results of the evaluation are summarized in Appendix E. At this time, all statistically evaluated well-parameter pairs can be tested using an intrawell prediction limit.

4.1.2 Site-Wide False Positive Rate and Statistical Power

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.

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

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 exceedance above background. Any single statistical test should have the ability to detect an exceedance 55% to 60% of the time at three standard deviations (3σ) above background and 80% to 85% of the time at 4σ 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 exceedances approximately 57% of the time at levels 3σ above background and 92% of the time at levels 4σ above background. Given this comparison, the statistical power of the landfill's detection monitoring program exceeds EPA recommendations.

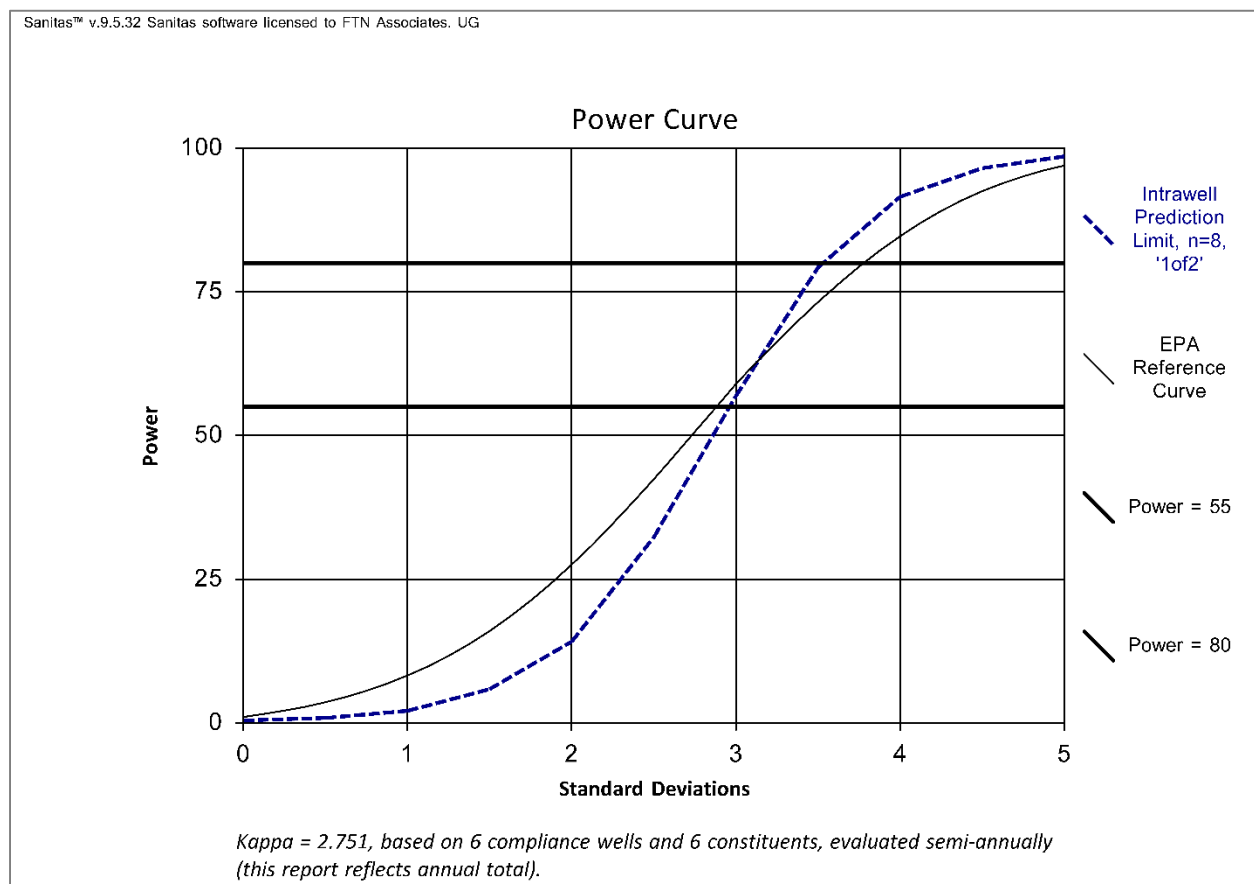


Figure 4.1. ERPC versus landfill power curve for detection monitoring.

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):

- Boron values are below the laboratory RDL (represented as hollow values on the time-series plots) for all wells for the period of record.
- Calcium, chloride, fluoride, sulfate, and TDS values are variable across the network.
- Measured pH is generally similar across the well network. As discussed in the 2017 annual report (FTN 2018), there is a noted deviation in the pH data collected during the July 2016 background sampling event which is thought to be the result of equipment malfunction. Due to the limited number of data in background available for statistical analysis, these data have not been excluded from the background data set. However, rejection of these values may be warranted as future measurements are collected and appended to background, where applicable.

4.2.2 Identification of Outliers

Period-of-record data for statistically evaluated wells were evaluated to identify possible outliers in the April and September 2018 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. Statistically significant outlier results are included in Appendix F.

Three outliers were identified in the April 2018 data set; the reported value for calcium at MW-116 was statistically elevated compared to the period-of-record data for that well, and chloride and sulfate at MW-102 were statistically low. One outlier was identified in the September 2018 data set; the reported value for TDS at MW-117 was statistically elevated compared to the period-of-record data for that well. None of the outliers are suspected to be the result of field or laboratory error. It is suspected that the limited range of data available for evaluation may cause the test to be overly sensitive to identification of outliers. As such, no action was taken to flag these data as unrepresentative of groundwater quality.

4.3 Statistical Evaluation Results

Groundwater quality data from the 2018 monitoring periods were statistically evaluated if 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 non-detect 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 2018

Intrawell prediction limit analyses were performed on all detected appendix III parameters, in accordance with 257.93(h), using the background data sets identified in Appendix E. Results from the first half of 2018 monitoring period are summarized in Table 4.2 and graphical plots of the evaluation are included in Appendix G. Three potential exceedances were identified in the April 2018 data set; calcium at MW-102 and MW-116 and field-measured pH at MW-118. Measurements for all other well-parameter combinations were below calculated intrawell prediction limits. In accordance with the facility's SAP and "1 of 2" retesting strategy,

verification sampling was performed during July 2018 for these well-parameter pairs. As shown in Table 4.2, the measured value in the verification sample for calcium at MW-116 exceeded the prediction limit, resulting in a confirmed statistically significant increase (SSI). Measured values for calcium at MW-102 and pH at MW-118 disconfirmed the potential exceedances at these wells.

Table 4.2. Summary of statistically significant results, intrawell prediction limit analysis, first half of 2018.

Well	Parameter	Prediction Limit (mg/L)	April 2018 Observation (mg/L)	July 2018 Verification (mg/L)	SSI Confirmed?
MW-102	Calcium	133.9	136	124	No
MW-116	Calcium	121.6	137 ^(a)	125	Yes
MW-118	pH	6.1 su ^(b)	5.8 su	6.5 su	No

Notes:

- a. Statistically high outlier (see Section 4.2.2).
- b. Lower prediction limit.

In response to the confirmed SSI for calcium at MW-116 identified during the first half of 2018 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 and posted to the facility's operating record on October 9, 2018. As required by §257.94(e)(2), a copy of the ASD is included in Appendix H. Based on the successful ASD, the facility continued with detection monitoring in accordance with §257.94.

4.3.2 Intrawell Prediction Limit Analysis, Second Half of 2018

Intrawell prediction limit analyses were performed on all detected appendix III parameters, in accordance with 257.93(h), using the background data sets identified in Appendix E. Results from the second half of 2018 monitoring period are summarized in Table 4.3 and graphical plots of the evaluation are included in Appendix G. Two potential exceedances were identified in the September 2018 data set; calcium and TDS at MW-117 exceeded their respective prediction limits. Additionally, the measured value for calcium at

MW-116 exceeded the prediction limit; however, this well-parameter pair was identified as a confirmed SSI during the first half of 2018 monitoring period and, as noted in Section 4.3.1, as successful ASD was made and is included in Appendix H. Measurements for all other well-parameter combinations during the second half of 2018 were below calculated intrawell prediction limits.

In accordance with the facility's SAP and "1 of 2" retesting strategy, verification sampling was performed during November 2018 for calcium and TDS at MW-117. As shown in Table 4.3, the measured values in the verification samples for calcium and TDS at MW-117 were below the respective prediction limits, disconfirming the potential exceedances indicated based on the initial results.

Table 4.3. Summary of statistically significant results, intrawell prediction limit analysis, second half of 2018.

Well	Parameter	Prediction Limit (mg/L)	September 2018 Observation (mg/L)	November 2018 Verification (mg/L)	SSI Confirmed?
MW-116	Calcium	121.6	130	---	Yes ^(a)
MW-117	Calcium	87.44	89.7 ^(b)	85.7	No
MW-117	TDS	301	318	288	No

Notes:

- a. Previously confirmed SSI.
- b. Statistically high outlier (see Section 4.2.2).

Measured calcium at MW-116 during the second half of 2018 is similar to the level measured during the first half of 2018 when the SSI was first confirmed. As discussed in the ASD (Appendix H), measured calcium at this well is below that measured in onsite background and is within published levels for the aquifer. In accordance with §257.94(e)(2), PPSC will undertake an ASD during the first half of 2019 to address the reoccurrence of the SSI for calcium at MW-116. Pending the results of the ASD, PPSC will continue with detection monitoring in accordance with §257.94.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following recommendations and conclusions are based on a review of data for the landfill from the 2018 monitoring periods:

1. The direction of groundwater flow at the landfill is seasonally variable. During the monitoring events performed during the first and second half of 2018, flow was to the southwest and southeast, respectively, beneath the Cell 1 and Cell 3 area.
2. The SWDSs for TDS and pH were exceeded at both background and compliance wells during the first half of 2018 monitoring event. The SWDS for pH was exceeded at two compliance wells during the second half of 2018 monitoring period. SDWSs are non-enforceable guidelines established by EPA for aesthetic considerations. Published groundwater quality data for the region indicate that exceedances for TDS and pH are generally typical for the underlying aquifer.
3. Of the parameters evaluated, only fluoride has an EPA 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 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 all wells during the period of record.
5. A comparison of the statistical power curve for the detection monitoring program to the EPA Reference Power Curve indicates that the detection rates for statistical exceedances meet EPA recommendations.
6. Intra-well prediction limit analysis of the first half of 2018 data set identified one confirmed SSI: calcium at MW-116. A successful ASD was completed for the SSI and posted to the facility's operating record on October 9, 2018. The facility continued with detection monitoring in accordance with §257.94.
7. Statistical evaluation of the second half of 2018 monitoring data identified an SSI for calcium at MW-116. This SSI was previously confirmed during the first half of 2018 monitoring period and, as noted above, a successful ASD was made. PPSC will undertake an ASD during the first half of 2019 to address the reoccurrence of the SSI in accordance with §257.94(e)(2). Pending the results of the ASD, PPSC will continue with detection monitoring in accordance with §257.94.

6.0 REFERENCES

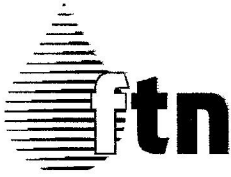
- EPA [Environmental Protection Agency]. 1986. *RCRA Ground-Water Monitoring Technical Enforcement Guidance Document*. Dublin, OH: National Water Well Association.
- . 1996. *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*. Office of Solid Waste and Emergency Response, April 1996.
- . 1998. *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water* [EPA/600/R-98/128]. Washington, DC: US Environmental Protection Agency, Office of Research and Development. 248 pp.
- . 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.
- . 2018. *Plum Point Energy Station Landfill, Groundwater Monitoring and Corrective Action 2017 Annual Report*. Little Rock, AR: FTN Associates, Ltd.
- GEC, Inc. 2001. *Geotechnical and Hydrogeological Investigation, Plum Point Energy Station, July 2001* [ADEQ DIN 14702]. Little Rock, AR: Genesis Environmental Consulting, Inc.
- Gibbons, Robert D. 1994. *Statistical Methods for Groundwater Monitoring*. New York: John Wiley & Sons, Inc.
- Gonthier, G.J. 2003. *Quality of Groundwater in Pleistocene and Holocene Subunits of the Mississippi River Alluvial Aquifer, 1998* [Water-Resources Investigations Report 2003 4202]. Jackson, MS: National Water-Quality Assessment Program, US Geological Survey.
- Intelligent Decision Technologies, Inc, an NIC Company. 2002. *Sanitas for Groundwater Version 9.2 User's Guide*. Longmont, CO: Intelligent Decision Technologies, Inc., an NIC Company.

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- Kresse, T.M., P.D. Hays, K.R. Merriman, J.A. Gillip, D.T. Fugitt, J.L. Spellman, A.M. Nottmeier, D.A. Westerman, J.M. Blackstock, and J.L. Battreal. 2014. *Aquifers of Arkansas—Protection, Management, and Hydrologic and Geochemical Characteristics of Groundwater Resources in Arkansas* [Scientific Investigations Report 2014–5149]. Prepared in cooperation with the Arkansas Natural Resources Commission. Reston, VA: US Geological Survey. 334 pp. doi: <http://dx.doi.org/10.3133/sir20145149>.
- Kuo, J. 2009. *Practical Design Calculations for Groundwater and Soil Remediation*. Boca Raton, FL: Lewis Publishers.
- Peterson, J.C., M.E. Broom, and W.V. Bush. 1985. *Geohydrologic Units of the Gulf Coastal Plain in Arkansas* [USGS Water Resources Investigations Report 85-4116]. Little Rock, AR: US Geological Survey in cooperation with the Arkansas Department of Pollution Control and Ecology and the Arkansas Geological Commission. 20 p.
- Pugh, A.L., P.W. Westerfield, and D.T. Poynter. 1997. *Thickness of the Quaternary Alluvial and Terrace Deposits Comprising the Mississippi River Valley Alluvial Aquifer in Eastern Arkansas* [USGS Water Resources Investigations Report 97-4049]. Little Rock, AR: US Geological Survey in cooperation with the Arkansas Geological Commission. 1 plate.
- Ryling, R.W. 1960. *Ground-water Potential of Mississippi County, Arkansas* [Water Resources Circular No. 7]. Little Rock, AR: Arkansas Geological and Conservation Commission in cooperation with the US Geological Survey. 87 p.
- Schrader, T.P. 2015. *Water Levels and Water Quality in the Mississippi River Valley Alluvial Aquifer in Eastern Arkansas, 2012* [Scientific Investigations Report 2015-5059]. Prepared in cooperation with the Arkansas Natural Resources Commission and the Arkansas Geological Survey. Reston, VA: US Geological Survey.
- Welch, H.L., J.A. Kingsbury, W.T. Roland, and R.C. Seanor. 2009. *Quality of Shallow Groundwater and Drinking Water in the Mississippi Embayment-Texas Coastal Uplands Aquifer System and the Mississippi River Valley Alluvial Aquifer, South-Central United States, 1994-2004* [Scientific Investigations Report 2009-5091]. Reston, VA: National Water-Quality Assessment Program, US Geological Survey.
- Yu, C., S. Kamboj, C. Wang, and J. Cheng. 2015. *Data Collection Handbook to Support Modeling Impacts of Radioactive Material in Soil and Building Structures* [ANL/EVS/TM-14/4]. Argonne, IL: US Department of Energy, Argonne National Laboratory, Environmental Science Division.
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APPENDIX A

Field Sampling Forms

First Half 2018 Field Sampling Forms



**Groundwater Level Data Sheet
Plum Point Energy Station**

Project Name: ADEQ GW Program	Project Number: 14590-1469-001	Investigator: <i>MCC</i>	Page <u>1</u> of <u>2</u>
Weather Conditions: <i>P/C 30°</i>	Measuring Device: <i>Solinst 101</i>		

Well ID	Date	Time	Depth to Water (feet below TOC)	Damages/Repairs		
MW-1	<i>1/29/16</i>	<i>1422</i> <i>1350</i>	<i>20.40</i>	<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 checked="" type="checkbox"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input checked="" type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-2		<i>1354</i>	<i>22.87</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-3R		<i>1412</i>	<i>21.11</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-4R2		<i>1341</i>	<i>18.40</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-5		<i>1334</i>	<i>20.93</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-6		<i>1327</i>	<i>21.00</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-7		<i>1310</i>	<i>25.35</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-8		<i>1304</i>	<i>25.10</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-10R		<i>1323</i>	<i>18.15</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-11R		<i>1319</i>	<i>20.33</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-13R		<i>1257</i>	<i>25.31</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-15		<i>1250</i>	<i>22.81</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-16		<i>1400</i>	<i>22.64</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input checked="" type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-17		<i>1349</i>	<i>21.35</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-18		<i>1407</i>	<i>19.52</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-19		<i>1417</i>	<i>24.14</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record

Groundwater Sampling Record

PPES – EPA Sampling Program

Facility: Plum Point Energy Station	Site ID: MW116	Sampler: MCL
Project Number: 14590-1469-001	Date: 1/30/17	Sampler Organization:

Site Description

Weather: <i>Cloudy</i>	Air Temp (°F): <i>39</i>	Wind: <i>NE @ 8</i>
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"/> Irrigation 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 <i>2</i> Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: <i>None</i>		

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: Heron Dipper-T Slope Water Level Indicator Other: <i>Solinst</i>					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	<i>1400</i>	<i>1350</i>	<i>1411</i>	<i>1441</i>	<i>1453</i>	
Depth to Water	feet	<i>22.64</i>	<i>22.52</i>	<i>22.52</i>	<i>22.52</i>	<i>22.52</i>	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> Hydrolab MiniSonde <input type="checkbox"/> LaMotte 200 Turbidimeter <input type="checkbox"/> Hydrolab DataSonde <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> Other: <i>YSI 556</i> <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder (dedicated / 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: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>													
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] • [well ID (inches) ²] • 0.0408													
Time	24-hour	<i>1400</i>	<i>1403</i>	<i>1406</i>	<i>1409</i>	<i>1412</i>	<i>1415</i>	<i>1418</i>	<i>1421</i>	<i>1424</i>	<i>1427</i>	<i>1430</i>	Remarks		
Purge vol.	gallons												<i>1433</i>	<i>1436</i>	<i>1439</i>
Purge rate	mL/min	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>	<i>130</i>
pH	su	<i>5.81</i>	<i>5.71</i>	<i>5.62</i>	<i>5.65</i>	<i>5.74</i>	<i>5.78</i>	<i>5.80</i>	<i>5.95</i>	<i>6.09</i>	<i>6.22</i>	<i>6.32</i>	<i>6.35</i>	<i>6.41</i>	<i>6.45</i>
Temp.	°C	<i>17.11</i>	<i>17.09</i>	<i>16.83</i>	<i>16.86</i>	<i>16.56</i>	<i>16.66</i>	<i>17.20</i>	<i>17.12</i>	<i>17.22</i>	<i>17.33</i>	<i>17.36</i>	<i>17.42</i>	<i>17.27</i>	
Spec. cond.	µS/cm	<i>609</i>	<i>611</i>	<i>615</i>	<i>616</i>	<i>619</i>	<i>620</i>	<i>621</i>	<i>622</i>	<i>624</i>	<i>622</i>	<i>623</i>	<i>624</i>	<i>624</i>	<i>626</i>
D.O.	mg/L	<i>3.13</i>	<i>2.90</i>	<i>2.51</i>	<i>2.42</i>	<i>2.10</i>	<i>2.19</i>	<i>2.23</i>	<i>2.14</i>	<i>2.06</i>	<i>2.16</i>	<i>2.13</i>	<i>2.04</i>	<i>1.99</i>	<i>2.05</i>
ORP	mV	<i>831</i>	<i>795</i>	<i>66.0</i>	<i>62.7</i>	<i>54.4</i>	<i>49.4</i>	<i>47.4</i>	<i>39.8</i>	<i>35.5</i>	<i>29.5</i>	<i>24.8</i>	<i>21.5</i>	<i>17.5</i>	<i>15.0</i>
Turbidity	NTU	<i>1.25</i>	<i>0.85</i>	<i>1.21</i>	<i>1.35</i>	<i>0.92</i>	<i>0.86</i>	<i>0.74</i>	<i>0.56</i>	<i>0.70</i>	<i>1.06</i>	<i>0.79</i>	<i>0.83</i>	<i>0.56</i>	<i>0.79</i>
Color/tint		<i>Clear</i>													
Odor		<i>None</i>													

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
<i>MW116</i>	<i>1/30/17</i>	<i>1445</i>	<i>2</i>	<i>0</i>	
<i>MCL 202</i>	<i>1/30/17</i>	<i>1525</i>	<i>2</i>	<i>0</i>	<i>Eq Blank</i>

Sampler's Name (print): <i>Michael Clayton</i>	Sampler Signature: <i>Michael Clayton</i>
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Groundwater Sampling Record PPES – EPA Sampling Program

Facility: Plum Point Energy Station	Site ID: <i>MW 119</i>	Sampler: <i>MCL</i>
Project Number: 14590-1469-001	Date: <i>1/30/18</i>	Sampler Organization: <i>FIN</i>

Site Description

Weather: <i>P/C</i>		Air Temp (°F): <i>37</i>		Wind: <i>NE@4</i>		
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"/> Irrigation 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 <i>2</i> Total depth from TOC: feet TOC below/above ground: feet		Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: <i>None</i>						

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: Heron Dipper-T Slope Water Level Indicator Other: <i>Solenist</i>					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	<i>1417</i>	<i>1225</i>	<i>1228</i>	<i>1315</i>	<i>1338</i>	
Depth to Water	feet	<i>24.14</i>	<i>24.11</i>	<i>24.11</i>	<i>24.11</i>	<i>24.11</i>	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> Hydrolab MiniSonde <input type="checkbox"/> LaMotte 200 Turbidimeter <input type="checkbox"/> Hydrolab DataSonde <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> Other: <i>YSI 536</i> <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder (dedicated / 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: Yes <input checked="" type="checkbox"/> No														
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] • [well ID (inches) ²] • 0.0408														
Time	24-hour	<i>1230</i>	<i>1233</i>	<i>1236</i>	<i>1239</i>	<i>1242</i>	<i>1245</i>	<i>1248</i>	<i>1251</i>	<i>1254</i>	<i>1257</i>	<i>1300</i>	Remarks	<i>1309</i>	<i>1312</i>	
Purge vol.	gallons												<i>1303</i>	<i>1306</i>		
Purge rate	mL/min	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>	<i>120</i>
pH	su	<i>5.84</i>	<i>5.74</i>	<i>5.69</i>	<i>5.64</i>	<i>5.69</i>	<i>5.76</i>	<i>5.82</i>	<i>5.91</i>	<i>6.11</i>	<i>6.14</i>	<i>6.20</i>	<i>6.30</i>	<i>6.38</i>	<i>6.45</i>	<i>6.43</i>
Temp.	°C	<i>17.31</i>	<i>17.37</i>	<i>17.13</i>	<i>17.27</i>	<i>17.23</i>	<i>17.37</i>	<i>17.40</i>	<i>17.37</i>	<i>17.46</i>	<i>17.49</i>	<i>17.66</i>	<i>17.87</i>	<i>17.87</i>	<i>18.04</i>	<i>18.16</i>
Spec. cond.	µS/cm	<i>573</i>	<i>572</i>	<i>575</i>	<i>573</i>	<i>575</i>	<i>574</i>	<i>576</i>	<i>576</i>	<i>578</i>	<i>579</i>	<i>578</i>	<i>580</i>	<i>582</i>	<i>581</i>	<i>581</i>
D.O.	mg/L	<i>0.64</i>	<i>0.57</i>	<i>0.59</i>	<i>0.56</i>	<i>0.60</i>	<i>0.56</i>	<i>0.57</i>	<i>0.53</i>	<i>0.50</i>	<i>0.49</i>	<i>0.48</i>	<i>0.44</i>	<i>0.47</i>	<i>0.44</i>	<i>0.41</i>
ORP	mV	<i>69.4</i>	<i>66.3</i>	<i>65.1</i>	<i>60.8</i>	<i>48.4</i>	<i>41.5</i>	<i>36.4</i>	<i>29.1</i>	<i>19.5</i>	<i>17.3</i>	<i>11.7</i>	<i>0.6</i>	<i>-2.5</i>	<i>-3.7</i>	<i>-5.4</i>
Turbidity	NTU	<i>2.13</i>	<i>1.28</i>	<i>1.44</i>	<i>1.04</i>	<i>1.60</i>	<i>1.27</i>	<i>0.89</i>	<i>1.13</i>	<i>1.00</i>	<i>1.27</i>	<i>0.98</i>	<i>1.38</i>	<i>0.96</i>	<i>1.30</i>	<i>1.16</i>
Color/tint		<i>clear</i>														
Odor		<i>none</i>														

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
<i>MW 119</i>	<i>1/30/18</i>	<i>1320</i>	<i>2</i>	<i>0</i>	
<i>MW 200</i>	<i>1/30/18</i>	<i>1325</i>	<i>2</i>	<i>0</i>	<i>Duplicate</i>

Sampler's Name (print): <i>Michael Clayton</i>	Sampler Signature: <i>Michael Clayton</i>
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Groundwater Level Data Sheet

Project Name: Plum Point Energy Station	Project Number: 14590-1766-001	Investigator: <i>MCC</i>	Page <u>1</u> of <u>7</u>
Weather Conditions: <i>P/C 48</i>	Measuring Device: <i>Solonist 101</i>		

Well ID	Date	Time	Depth to Water (feet below TOC)	Damages/Repairs		
MW-1	<i>4/11/18</i>	<i>10:51</i>	<i>10.12</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-2		<i>1011</i>	<i>10.49</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-3R		<i>1041</i>	<i>10.91</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-4R2		<i>1026</i>	<i>8.40</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-5		<i>917</i>	<i>8.87</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-6		<i>32</i> <i>9:00</i>	<i>9.04</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-7		<i>910</i>	<i>11.48</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-8		<i>903</i>	<i>10.12</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-10R		<i>941</i>	<i>7.60</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-11R		<i>925</i>	<i>8.37</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-13R		<i>856</i>	<i>10.90</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-15		<i>850</i>	<i>9.40</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-16		<i>1059</i>	<i>11.08</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input checked="" type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-17		<i>1003</i>	<i>9.34</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-18		<i>1018</i>	<i>8.47</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-19		<i>1048</i>	<i>14.01</i>	<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"/> Un-kept 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: R14590-1766-001	Date: 4/12/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1051	0805	0813	0842	0853	
Depth to Water	feet	10.12	9.84	9.84	9.84	9.84	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	0810	0815	0820	0825	0830	0835	0840				Remarks
Purge vol.	gallons											
Purge rate	mL/min	210	210	210	210	210	210	210				
pH	su	6.5	6.4	6.4	6.4	6.5	6.5	6.4				
Temp.	°C	16.3	16.3	16.5	16.5	16.6	16.6	16.7				
Spec. cond.	µS/cm	684	687	690	691	691	691	692				
D.O.	mg/L	2.7	2.2	1.9	1.9	1.7	1.6	1.6				
ORP	mV	49.0	34.5	20.9	12.6	4.1	-1.6	-3.6				
Turbidity	NTU	5.5	5.1	4.1	5.3	3.4	3.2	2.7				
Color/tint		clean	clean	clean	clean	clean	clean	clean				
Odor		none	none	none	none	none	none	none				

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-101	4/12/2018	0850	2	0	
MW-201	4/12/2018	0915	2	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: R14590-1766-001	Date: 4/11/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 62	Wind: south at 16 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1011	1200	1212	1236	1250	
Depth to Water	feet	10.49	10.19	10.19	10.19	10.19	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1205	1210	1215	1220	1225	1230					Remarks
Purge vol.	gallons											
Purge rate	mL/min	200	200	200	200	200	200					
pH	su	6.4	6.4	6.3	6.3	6.3	6.3					
Temp.	°C	17.1	17.0	17.0	17.0	17.0	17.1					
Spec. cond.	µS/cm	726	726	728	728	729	728					
D.O.	mg/L	1.6	1.4	1.4	1.3	1.2	1.2					
ORP	mV	47.2	32.1	10.5	2.6	-6.5	-12.3					
Turbidity	NTU	3.0	4.2	4.0	2.3	1.7	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-102	4/11/2018	1240	2	0	High winds blowing landfill dust.
MW-202	4/11/2018	1245	2	0	Duplicate

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: R14590-1766-001	Date: 4/11/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 70	Wind: south 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist #2					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1041	1450	1507	1538	1549	
Depth to Water	feet	10.81	10.83	10.83	10.83	10.83	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1500	1505	1510	1515	1520	1525	1530	1535			Remarks
Purge vol.	gallons											
Purge rate	mL/min	280	280	280	280	280	280	280	280			
pH	su	6.6	6.4	6.3	6.2	6.2	6.2	6.3	6.2			
Temp.	°C	17.9	17.7	17.7	17.5	17.7	17.8	17.5	17.6			
Spec. cond.	µS/cm	765	765	765	766	765	766	766	766			
D.O.	mg/L	1.4	0.9	0.8	0.7	0.7	0.6	0.7	0.7			
ORP	mV	50.7	30.1	21.9	8.3	-10.7	-15.2	-22.3	-24.9			
Turbidity	NTU	1.0	0.9	1.0	1.2	1.5	0.9	1.3	1.1			
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-103	4/11/2018	1545	2	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: R14590-1766-001	Date: 4/10/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: cloudy	Air Temp (°F): 55	Wind: northwest 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0903	1415	1427	1448	1459	
Depth to Water	feet	10.12	10.13	10.13	10.13	10.13	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408						
Time	24-hour	1420	1425	1430	1435	1440	1445	Remarks
Purge vol.	gallons							
Purge rate	mL/min	190	190	190	190	190	190	
pH	su	6.9	6.7	6.5	6.5	6.5	6.5	
Temp.	°C	16.3	16.3	16.6	16.6	16.3	16.3	
Spec. cond.	µS/cm	940	948	954	960	958	960	
D.O.	mg/L	4.8	3.2	2.4	2.2	2.0	1.9	
ORP	mV	110.7	88.0	60.8	41.4	35.0	29.0	
Turbidity	NTU	2.5	2.8	2.4	3.3	4.2	1.9	
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-108	4/10/2018	1455	2	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: R14590-1766-001	Date: 4/10/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: cloudy	Air Temp (°F): 55	Wind: south at 13 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0856	1325	1333	1402	1408	
Depth to Water	feet	10.40	10.40	10.40	10.42	10.42	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1330	1335	1340	1345	1350	1355	1400				Remarks
Purge vol.	gallons											
Purge rate	mL/min	220	220	220	220	220	220	220				
pH	su	6.8	6.6	6.5	6.4	6.4	6.4	6.4				
Temp.	°C	16.2	16.2	16.2	16.1	16.1	16.1	16.2				
Spec. cond.	µS/cm	591	590	590	589	589	587	587				
D.O.	mg/L	3.7	2.8	2.8	2.7	2.8	2.8	2.8				
ORP	mV	87.0	76.4	60.4	45.4	37.8	33.6	30.2				
Turbidity	NTU	6.5	3.6	4.2	5.5	4.1	0.9	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-113	4/10/2018	1410	2	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: R14590-1766-001	Date: 4/10/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 53	Wind: north at 11 mph		
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Production Well <input type="checkbox"/> Irrigation Well <input type="checkbox"/> Other:	<input type="checkbox"/> Extraction Well <input type="checkbox"/> Borehole <input type="checkbox"/> Spring	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2 Total depth from TOC: feet TOC below/above ground: feet	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none				

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0850	1150	1213	1309	1318	
Depth to Water	feet	9.40	9.41	9.41	9.41	9.41	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input checked="" type="checkbox"/> YSI 556 <input type="checkbox"/> Other:		<input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1205	1210	1215	1220	1225	1230	1235	1240	1245	1250	Remarks
Purge vol.	gallons											
Purge rate	mL/min	200	200	200	200	200	200	200	200	200	200	
pH	su	6.4	6.2	6.0	6.0	6.1	6.1	6.1	6.2	6.2	6.2	
Temp.	°C	15.8	15.9	15.6	16.0	15.7	15.8	15.7	15.7	15.7	15.8	
Spec. cond.	µS/cm	643	642	646	646	649	646	647	647	647	647	
D.O.	mg/L	2.5	2.3	1.7	1.5	1.5	1.4	1.4	1.3	1.3	1.3	
ORP	mV	127.5	109.1	66.6	41.8	40.7	24.8	19.8	17.0	11.4	8.0	
Turbidity	NTU	1.9	5.9	3.4	1.2	1.1	2.3	2.7	3.3	2.3	1.9	
Color/tint		clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
Odor		none	none	none	none	none	none	none	none	none	none	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-115					(continued on page 2 of 2)

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: R14590-1766-001	Date: 4/10/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 53	Wind: north at 11 mph		
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Production Well <input type="checkbox"/> Irrigation Well <input type="checkbox"/> Other:	<input type="checkbox"/> Extraction Well <input type="checkbox"/> Borehole <input type="checkbox"/> Spring	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2 Total depth from TOC: feet TOC below/above ground: feet	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none				

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	0850	1150	1213	1309	1318	
Depth to Water	feet	9.40	9.41	9.41	9.41	9.41	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input checked="" type="checkbox"/> YSI 556 <input type="checkbox"/> Other:		<input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1255	1300	1305								Remarks
Purge vol.	gallons											
Purge rate	mL/min	200	200	200								
pH	su	6.2	6.3	6.3								
Temp.	°C	15.7	15.8	15.9								
Spec. cond.	µS/cm	647	647	647								
D.O.	mg/L	1.3	1.4	1.3								
ORP	mV	6.0	0.7	-0.9								
Turbidity	NTU	0.9	2.1	0.7								
Color/tint		clear	clear	clear								
Odor		none	none	none								

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-115	4/10/2018	1310	2	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: R14590-1766-001	Date: 4/11/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 68	Wind: south 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1059	1355	1407	1426	1446	
Depth to Water	feet	11.08	10.83	10.83	10.83	10.83	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408											
Time	24-hour	1400	1405	1410	1415	1420	1425						Remarks
Purge vol.	gallons												
Purge rate	mL/min	240	240	240	240	240	240						
pH	su	6.4	6.4	6.3	6.4	6.4	6.4						
Temp.	°C	17.6	17.6	17.6	17.6	17.6	17.6						
Spec. cond.	µS/cm	760	764	766	767	768	768						
D.O.	mg/L	1.7	1.6	1.6	1.5	1.5	1.5						
ORP	mV	31.7	21.9	9.0	-4.5	-9.9	-12.7						
Turbidity	NTU	0.8	1.9	1.7	2.1	1.3	0.9						
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-116	4/11/2018	1440	2	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: R14590-1766-001	Date: 4/11/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 55	Wind: south at 11 mph		
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Production Well <input type="checkbox"/> Irrigation Well <input type="checkbox"/> Other:	<input type="checkbox"/> Extraction Well <input type="checkbox"/> Borehole <input type="checkbox"/> Spring	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2 Total depth from TOC: feet TOC below/above ground: feet	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none				

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1003	1045	1057	1141	1152	
Depth to Water	feet	9.34	9.19	9.19	9.19	9.19	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input checked="" type="checkbox"/> YSI 556 <input type="checkbox"/> Other:		<input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1050	1055	1100	1105	1110	1115	1120	1125	1130	1135	Remarks
Purge vol.	gallons											
Purge rate	mL/min	200	200	200	200	200	200	200	200	200	200	
pH	su	6.7	6.5	6.4	6.3	6.3	6.4	6.4	6.4	6.4	6.4	
Temp.	°C	17.2	16.8	16.8	17.0	17.1	17.0	17.1	17.2	17.2	17.2	
Spec. cond.	µS/cm	483	485	485	484	483	483	484	484	485	486	
D.O.	mg/L	7.5	1.6	1.4	1.2	1.0	1.1	1.0	1.0	1.0	1.0	
ORP	mV	7.5	-29.6	-30.5	-29.3	-34.8	-32.7	-36.0	-37.3	-39.0	-40.8	
Turbidity	NTU	7.7	2.2	2.9	2.4	5.1	6.3	6.4	1.6	3.1	2.4	
Color/tint		clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
Odor		none	none	none	none	none	none	none	none	none	none	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-117	4/11/2018				(continued on page 2 of 2)

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: R14590-1766-001	Date: 4/11/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 55	Wind: south at 11 mph		
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Production Well <input type="checkbox"/> Irrigation Well <input type="checkbox"/> Other:	<input type="checkbox"/> Extraction Well <input type="checkbox"/> Borehole <input type="checkbox"/> Spring	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2 Total depth from TOC: feet TOC below/above ground: feet	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none				

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1003	1045	1057	1141	1152	
Depth to Water	feet	9.34	9.19	9.19	9.19	9.19	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input checked="" type="checkbox"/> YSI 556 <input type="checkbox"/> Other:		<input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408							
Time	24-hour	1140							Remarks
Purge vol.	gallons								
Purge rate	mL/min	200							
pH	su	6.4							
Temp.	°C	17.2							
Spec. cond.	µS/cm	486							
D.O.	mg/L	1.0							
ORP	mV	-40.9							
Turbidity	NTU	1.8							
Color/tint		clear							
Odor		none							

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-117	4/11/2018	1150	2	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: R14590-1766-001	Date: 4/11/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 66	Wind: south 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1018	1300	1313	1336	1347	
Depth to Water	feet	8.47	8.29	8.29	8.29	8.29	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1305	1310	1315	1320	1325	1330	1335				Remarks
Purge vol.	gallons											
Purge rate	mL/min	200	200	200	200	200	200	200				
pH	su	6.0	5.8	5.7	5.7	5.8	5.8	5.8				
Temp.	°C	16.4	16.4	16.5	16.6	16.6	16.4	16.5				
Spec. cond.	µS/cm	432	432	430	429	429	429	429				
D.O.	mg/L	2.2	1.8	1.6	1.5	1.5	1.4	1.4				
ORP	mV	-5.6	-3.4	0.4	-4.5	-7.1	-9.7	-11.7				
Turbidity	NTU	3.0	1.0	5.1	3.7	2.1	0.7	1.3				
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-118	4/11/2018	1345	2	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: R14590-1766-001	Date: 4/11/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 60	Wind: south 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solonist 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1048	1555	1608	1626	1638	
Depth to Water	feet	14.01	13.78	13.78	13.78	13.78	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408						
Time	24-hour	1600	1605	1610	1615	1620	1625	Remarks
Purge vol.	gallons							
Purge rate	mL/min	260	260	260	260	260	260	
pH	su	6.9	6.5	6.4	6.4	6.4	6.4	
Temp.	°C	18.0	17.7	17.8	17.8	17.9	18.0	
Spec. cond.	µS/cm	544	536	533	532	525	524	
D.O.	mg/L	5.7	2.2	1.6	1.4	1.1	1.1	
ORP	mV	-11.4	-7.8	-7.8	-10.1	-19.9	-22.2	
Turbidity	NTU	3.3	2.7	2.6	1.9	1.4	0.9	
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-119	4/11/2018	1635	2	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: Transcribed by HLF
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Groundwater Level Data Sheet

Project Name: Plum Point Energy Station	Project Number: 14590-1766-001	Investigator: <i>Michael Clayton</i>	Page <u>2</u> of <u>3</u>
Weather Conditions: <i>Plc 84° 75% Humidity</i>	Measuring Device: <i>Solinst 101</i>		

Well ID	Date	Time	Depth to Water (feet below TOC)	Damages/Repairs		
MW-1	<i>7/9/2018</i>	<i>1113 950</i>	<i>14.23 16.39</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-2		<i>1118</i>	<i>15.18</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-3R		<i>1133</i>	<i>14.75</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-4R2		<i>1059</i>	<i>11.25</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-5		<i>1020</i>	<i>Ants in well</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-6		<i>1031</i>	<i>12.84</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-7		<i>1015</i>	<i>16.78</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-8		<i>950</i>	<i>16.39</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-10R		<i>1039</i>	<i>11.50</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-11R		<i>1026</i>	<i>12.63</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-13R		<i>958</i>	<i>15.60</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-15		<i>1008</i>	<i>14.60</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-16		<i>1125</i>	<i>15.48</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-17		<i>1046</i>	<i>13.66</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-18		<i>1142</i>	<i>12.50</i>	<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"/> Un-kept vegetation	<input type="checkbox"/> Lacks visibility <input type="checkbox"/> Lacks access <input type="checkbox"/> See gw sample record
MW-19		<i>1107</i>	<i>18.04</i>	<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"/> Un-kept 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 102	Sampler: MCL
Project Number: 14590-1766-001	Date: 7/9/2018	Sampler Organization: FTN

Site Description

Weather: <i>PK</i>		Air Temp (°F): <i>91</i>		Wind: <i>Calm</i>		
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"/> Irrigation 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 <i>2</i> Total depth from TOC: feet TOC below/above ground: feet		Well locked? <input checked="" type="checkbox"/> Yes <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: Heron Dipper-T Slope Water Level Indicator Other: <i>Solinet 101</i>					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	<i>1118</i>	<i>1320</i>	<i>1536</i>	<i>1701</i>	<i>1918</i>	
Depth to Water	feet	<i>15.18</i>	<i>15.18</i>	<i>15.23</i>	<i>15.31</i>	<i>15.31</i>	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> Hydrolab MiniSonde <input type="checkbox"/> LaMotte 2020 Turbidimeter <input type="checkbox"/> Hydrolab DataSonde <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> Other: <i>YSI 552</i> <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder (dedicated / 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: Yes <input checked="" type="checkbox"/> No												
Casing vol.	gallons	= [total depth (feet) - depth to water (feet)] * [well ID (inches) ²] * 0.0408												
Time	24-hour	<i>1325</i>	<i>1328</i>	<i>1331</i>	<i>1334</i>	<i>1337</i>	<i>1340</i>	<i>1343</i>	<i>1346</i>	<i>1349</i>	<i>1352</i>	<i>1355</i>	Remarks	
Purge vol.	gallons												<i>1356</i>	<i>1359</i>
Purge rate	mL/min	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>	<i>110</i>
pH	su	<i>6.36</i>	<i>5.95</i>	<i>6.09</i>	<i>6.33</i>	<i>6.46</i>	<i>6.44</i>	<i>6.49</i>	<i>6.61</i>	<i>6.67</i>	<i>6.68</i>	<i>6.64</i>	<i>6.68</i>	<i>6.67</i>
Temp.	°C	<i>21.48</i>	<i>21.31</i>	<i>21.41</i>	<i>21.47</i>	<i>21.26</i>	<i>21.17</i>	<i>21.19</i>	<i>22.64</i>	<i>23.29</i>	<i>23.52</i>	<i>23.71</i>	<i>23.68</i>	<i>23.45</i>
Spec. cond.	µS/cm	<i>805</i>	<i>802</i>	<i>801</i>	<i>802</i>	<i>803</i>	<i>801</i>	<i>798</i>	<i>799</i>	<i>799</i>	<i>800</i>	<i>801</i>	<i>803</i>	<i>804</i>
D.O.	mg/L	<i>7.38</i>	<i>5.70</i>	<i>4.40</i>	<i>3.58</i>	<i>3.30</i>	<i>3.01</i>	<i>2.57</i>	<i>2.35</i>	<i>2.11</i>	<i>2.04</i>	<i>1.93</i>	<i>1.90</i>	<i>1.97</i>
ORP	mV	<i>141.1</i>	<i>155.3</i>	<i>145.9</i>	<i>125.1</i>	<i>116.1</i>	<i>116.9</i>	<i>109.5</i>	<i>102.9</i>	<i>97.9</i>	<i>96.5</i>	<i>95.4</i>	<i>94.2</i>	<i>93.8</i>
Turbidity	NTU	<i>2.18</i>	<i>2.12</i>	<i>2.08</i>	<i>2.10</i>	<i>2.57</i>	<i>2.46</i>	<i>2.55</i>	<i>3.02</i>	<i>3.01</i>	<i>2.06</i>	<i>2.95</i>	<i>1.90</i>	<i>2.99</i>
Color/tint		<i>clear</i>												<i>7</i>
Odor		<i>none</i>												<i>7</i>

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
<i>MW 102</i>	<i>7/9/18</i>	<i>1405</i>	<i>1</i>	<i>0</i>	
<i>MW 202</i>	<i>7/9/18</i>	<i>1410</i>	<i>1</i>	<i>0</i>	<i>Duplicate</i>

Sampler's Name (print): <i>Michael Clayton</i>	Sampler Signature: <i>[Signature]</i>
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Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW 116	Sampler: MLL
Project Number: 14590-1766-001	Date: 7/9/18	Sampler Organization: FTN

Site Description

Weather: Cloudy	Air Temp (°F): 91	Wind: SSE @ 4
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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <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: Heron Dipper-T Slope Water Level Indicator Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1125	1440	1457	1542	1558	
Depth to Water	feet	15.48	15.48	15.48	15.48	15.48	
Product	LNAPL/DNAPL						
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> Hydrolab MiniSonde <input type="checkbox"/> LaMotte 2020 Turbidimeter <input type="checkbox"/> Hydrolab DataSonde <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input checked="" type="checkbox"/> Other: YSI 556 <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder (dedicated / 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: Yes <input checked="" type="checkbox"/>											
Casing vol.	gallons	= [total depth (feet) - depth to water (feet)] * [well ID (inches) ²] * 0.0408											
Time	24-hour	1450	1455	1500	1505	1510	1515	1520	1525	1530	1535	1540	Remarks
Purge vol.	gallons												
Purge rate	mL/min	120	120	120	120	120	120	120	120	120	120	120	
pH	su	5.77	5.69	6.02	6.45	6.52	6.49	6.15	6.35	6.52	6.57	6.57	
Temp.	°C	21.78	22.24	23.01	23.52	23.11	22.54	21.63	23.18	23.33	23.63	23.84	
Spec. cond.	µS/cm	827	824	824	826	829	833	828	827	829	828	828	
D.O.	mg/L	4.38	3.39	2.76	2.42	2.22	2.20	2.28	2.04	2.01	1.96	1.89	
ORP	mV	199.8	198.0	172.9	145.6	137.0	137.4	154.3	131.6	121.7	117.3	114.8	
Turbidity	NTU	1.60	2.06	6.14	5.02	2.08	3.99	2.39	3.51	1.42	4.54	3.17	
Color/tint		Clear											→
Odor		None											→

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW116	7/9/18	1545	2	0	
MW201	7/9/18	1550	2	0	Duplicate
MW202	7/9/18	1600	2	0	Equipment blank
MW203					

Sampler's Name (print): Michael Clayton	Sampler Signature:
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Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-118	Sampler: Michael Clayton
Project Number: R14590-1766-001	Date: 7/10/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: cloudy	Air Temp (°F): 87	Wind: calm
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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1142	1000	1022	1047	1058	
Depth to Water	feet	12.50	12.55	12.55	12.55	12.55	
Product	LNAPL/DNAPL	7/9/2018	7/10/2018	7/10/2018	7/10/2018	7/10/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408									
Time	24-hour	1005	1010	1015	1020	1025	1030	1035	1040	1045	Remarks
Purge vol.	gallons										
Purge rate	mL/min	130	130	130	130	130	130	130	130	130	
pH	su	5.6	6.0	6.3	6.4	6.3	6.4	6.4	6.5	6.5	
Temp.	°C	20.8	21.1	21.1	20.9	21.34	21.	21.8	22.0	22.1	
Spec. cond.	µS/cm	476	477	478	476	474	475	476	476	477	
D.O.	mg/L	5.1	4.5	4.2	4.1	4.1	4.0	3.9	3.9	3.8	
ORP	mV	185.9	156.3	138.7	137.1	137.4	131.1	128.8	126.8	125.3	
Turbidity	NTU	5.1	4.1	3.0	1.1	1.3	1.7	1.2	1.3	1.2	
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-118	7/10/2018	1050	0	0	pH only

Sampler's Name (print): Michael Clayton	Sampler Signature: Transcribed by HLF
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Second Half 2018 Field Sampling Forms



Groundwater Level Data Sheet

Project Name: Plum Point Energy Station		Project Number: 14590-1766-001		Investigator: <i>MCL</i>		Page ___ of ___	
Weather Conditions: <i>Cloudy / Rain</i>		Measuring Device: <i>Solis 101</i>					
Well ID	Date	Time	Depth to Water (feet below TOC)	Damages/Repairs			
MW-1	↓	9/24/18	1350	15.88	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged TOC	<input type="checkbox"/> Lacks visibility
MW-2		1311	19.84	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-3R		1306	19.09	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-4R2		1329	16.72	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-5				<i>Artic in well</i>	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access
MW-6		1243	18.54	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-7		1236	21.63	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-8		1231	20.22	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-10R		55 1249	16.13	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-11R		1248	17.62	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-13R		1223	20.55	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-15		1215	19.26	<input type="checkbox"/> Damaged well pad/casing	<input checked="" type="checkbox"/> Un-kept vegetation	<input type="checkbox"/> Lacks access	
MW-16		1316	20.14	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-17		1302	18.82	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-18		1322	17.51	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
MW-19		1342	21.42	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	

Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW-101	Sampler: Michael Clayton
Project Number: R14590-1766-001	Date: 9/26/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: overcast	Air Temp (°F): 70	Wind: north at 13 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1350	1315	1327	1356	1410	
Depth to Water	feet	15.88	17.46	17.45	17.45	17.45	
Product	LNAPL/DNAPL	9/24/2018	9/26/2018	9/26/2018	9/26/2018	9/26/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1320	1325	1330	1335	1340	1345	1350	1355			Remarks
Purge vol.	gallons											
Purge rate	mL/min	190	190	190	190	190	190	190	190			
pH	su	6.9	6.3	6.1	6.6	6.7	6.7	6.8	6.8			
Temp.	°C	18.6	18.4	18.4	18.8	18.9	19.0	18.7	18.8			
Spec. cond.	µS/cm	657	656	657	657	658	658	659	657			
D.O.	mg/L	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.3			
ORP	mV	97.1	132.6	135.0	103.9	96.7	93.1	87.4	87.8			
Turbidity	NTU	4.8	6.8	4.0	2.4	3.5	2.7	2.9	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-101	9/26/2018	1405	2	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: R14590-1766-001	Date: 9/27/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: cloudy	Air Temp (°F): 59	Wind: north at 12 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1311	1020	1033	1113	1128	
Depth to Water	feet	19.84	19.73	19.73	19.74	19.74	
Product	LNAPL/DNAPL	9/24/2018	9/27/2018	9/27/2018	9/27/2018	9/27/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408									
Time	24-hour	1030	1035	1040	1045	1050	1055	1100	1105	1110	Remarks
Purge vol.	gallons										
Purge rate	mL/min	150	150	150	150	150	150	150	150	150	
pH	su	6.6	6.1	6.3	6.3	6.4	6.5	6.5	6.5	6.5	
Temp.	°C	18.5	18.4	18.5	18.3	18.4	18.4	18.3	18.4	18.4	
Spec. cond.	µS/cm	644	645	645	645	644	644	644	643	642	
D.O.	mg/L	4.0	0.7	0.8	0.6	0.5	0.5	0.5	0.5	0.4	
ORP	mV	134.0	156.7	150.6	130.5	124.5	120.2	118.7	116.8	115.0	
Turbidity	NTU	2.4	2.4	1.9	2.3	1.8	1.8	1.9	1.9	2.1	
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-102	9/27/2018	1125	2	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: R14590-1766-001	Date: 9/26/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: overcast	Air Temp (°F): 67	Wind: north at 17 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1336	1200	1217	1246	1259	
Depth to Water	feet	19.09	18.95	18.95	18.95	18.95	
Product	LNAPL/DNAPL	9/24/2018	9/26/2018	9/26/2018	9/26/2018	9/26/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1210	1215	1220	1225	1230	1235	1240	1245			Remarks
Purge vol.	gallons											
Purge rate	mL/min	180	180	180	180	180	180	180	180			
pH	su	6.5	6.3	6.4	6.5	6.5	6.5	6.5	6.6			
Temp.	°C	18.4	18.6	18.7	18.8	18.9	19.1	19.3	19.4			
Spec. cond.	µS/cm	703	705	705	706	705	704	704	705			
D.O.	mg/L	0.8	0.8	0.7	0.5	0.4	0.3	0.3	0.3			
ORP	mV	67.1	76.6	72.3	66.5	65.8	65.8	65.0	64.8			
Turbidity	NTU	21.8	2.0	1.2	1.7	1.2	1.1	1.4	1.3			
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-103	9/26/2018	1255	2	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: R14590-1766-001	Date: 9/25/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: cloudy	Air Temp (°F): 84	Wind: southwest at 13 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1231	1300	1308	1342	1356	
Depth to Water	feet	20.22	20.15	20.15	20.15	20.15	
Product	LNAPL/DNAPL	9/24/2018	9/25/2018	9/25/2018	9/25/2018	9/25/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1305	1310	1315	1320	1325	1330	1335	1340			Remarks
Purge vol.	gallons											
Purge rate	mL/min	175	175	175	175	175	175	175	175			
pH	su	6.1	6.2	6.3	6.5	6.6	6.7	6.7	6.7			
Temp.	°C	23.2	22.4	22.4	22.8	22.7	23.5	23.8	22.9			
Spec. cond.	µS/cm	910	888	881	874	866	864	864	867			
D.O.	mg/L	0.9	0.6	0.4	0.4	0.4	0.3	0.3	0.4			
ORP	mV	167.2	162.9	143.8	127.3	122.5	114.1	110.1	107.9			
Turbidity	NTU	4.5	4.9	2.7	2.6	3.0	3.8	1.8	1.9			
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	9/25/2018	1350	2	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: R14590-1766-001	Date: 9/25/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 79	Wind: south at 10 mph		
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Production Well <input type="checkbox"/> Irrigation Well <input type="checkbox"/> Other:	<input type="checkbox"/> Extraction Well <input type="checkbox"/> Borehole <input type="checkbox"/> Spring	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2 Total depth from TOC: feet TOC below/above ground: feet	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none				

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1223	1125	1133	1242	1254	
Depth to Water	feet	20.55	20.45	20.45	20.45	20.45	
Product	LNAPL/DNAPL	9/24/2018	9/25/2018	9/25/2018	9/25/2018	9/25/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input checked="" type="checkbox"/> YSI 556 <input type="checkbox"/> Other:		<input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1130	1135	1140	1145	1150	1155	1200	1205	1210	1215	Remarks
Purge vol.	gallons											
Purge rate	mL/min	130	130	130	130	130	130	130	130	130	130	
pH	su	6.4	5.9	6.0	6.0	6.3	6.5	6.6	6.4	6.5	6.6	
Temp.	°C	20.9	21.3	20.6	20.8	20.8	20.8	20.4	20.5	20.5	20.7	
Spec. cond.	µS/cm	571	571	571	570	570	570	571	569	568	569	
D.O.	mg/L	2.4	1.7	1.3	0.9	0.9	0.8	0.8	0.8	0.8	0.8	
ORP	mV	158.4	175.6	161.5	149.4	132.7	117.5	111.0	114.9	107.2	103.7	
Turbidity	NTU	6.8	2.5	0.9	2.8	2.0	1.4	1.3	0.7	1.2	1.9	
Color/tint		clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
Odor		none	none	none	none	none	none	none	none	none	none	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-113					see page 2 of 2

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: R14590-1766-001	Date: 9/25/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 79	Wind: south at 10 mph		
Site type: <input checked="" type="checkbox"/> Monitoring Well <input type="checkbox"/> Production Well <input type="checkbox"/> Irrigation Well <input type="checkbox"/> Other:	<input type="checkbox"/> Extraction Well <input type="checkbox"/> Borehole <input type="checkbox"/> Spring	Well casing material: <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Steel <input type="checkbox"/> Iron <input type="checkbox"/> Other:	Well diameter: inches 2 Total depth from TOC: feet TOC below/above ground: feet	Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none				

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1223	1125	1133	1242	1254	
Depth to Water	feet	20.55	20.45	20.45	20.45	20.45	
Product	LNAPL/DNAPL	9/24/2018	9/25/2018	9/25/2018	9/25/2018	9/25/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input checked="" type="checkbox"/> YSI 556 <input type="checkbox"/> Other:		<input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1220	1225	1230	1235	1240						Remarks
Purge vol.	gallons											
Purge rate	mL/min	130	130	130	130	130						
pH	su	6.6	6.7	6.7	6.7	6.7						
Temp.	°C	20.6	20.5	20.6	20.8	20.8						
Spec. cond.	µS/cm	570	568	568	568	567						
D.O.	mg/L	0.8	0.8	0.8	0.8	0.9						
ORP	mV	99.3	98.5	97.0	94.4	90.1						
Turbidity	NTU	0.8	1.5	1.3	1.4	0.8						
Color/tint		clear	clear	clear	clear	clear						
Odor		none	none	none	none	none						

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-113	9/25/2018	1250	2	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: R14590-1766-001	Date: 9/25/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy	Air Temp (°F): 74	Wind: south 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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none; please weed-eat.		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1215	1030	1042	1114	1119	
Depth to Water	feet	19.26	19.15	19.15	19.15	19.15	
Product	LNAPL/DNAPL	9/24/2018	9/25/2018	9/25/2018	9/25/2018	9/25/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1040	1045	1050	1055	1100	1105	1110	1113			Remarks
Purge vol.	gallons											
Purge rate	mL/min	140	140	140	140	140	140	140	140			
pH	su	5.9	6.1	6.5	6.7	6.7	6.7	6.7	6.7			
Temp.	°C	21.2	21.7	22.4	22.5	22.3	22.1	21.9	21.8			
Spec. cond.	µS/cm	692	694	696	700	700	703	704	701			
D.O.	mg/L	3.1	3.1	2.4	2.4	2.3	2.4	2.4	2.4			
ORP	mV	191.1	178.8	147.2	134.9	129.6	126.3	125.2	124.3			
Turbidity	NTU	1.4	1.2	1.2	1.1	1.4	1.1	0.8	1.1			
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	9/25/2018	1115	2	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: R14590-1766-001	Date: 9/26/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: overcast	Air Temp (°F): 73	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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1316	1415	1422	1506	1523	
Depth to Water	feet	20.14	20.00	20.00	20.00	20.00	
Product	LNAPL/DNAPL	9/24/2018	9/26/2018	9/26/2018	9/26/2018	9/26/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1420	1425	1430	1435	1440	1445	1450	1455	1500	1505	Remarks
Purge vol.	gallons											
Purge rate	mL/min	180	180	180	180	180	180	180	180	180	180	
pH	su	6.7	6.0	6.2	6.5	6.5	6.5	6.5	6.6	6.6	6.6	
Temp.	°C	19.7	19.3	19.3	19.3	19.5	19.5	19.6	19.9	19.7	19.5	
Spec. cond.	µS/cm	689	704	713	725	726	728	728	726	732	732	
D.O.	mg/L	2.5	1.1	1.1	1.0	1.0	1.0	1.0	0.9	0.9	0.9	
ORP	mV	122.8	146.8	131.0	114.4	110.3	108.8	107.2	105.8	103.7	103.2	
Turbidity	NTU	4.2	1.9	1.5	1.2	1.2	1.4	0.9	1.1	1.3	1.5	
Color/tint		clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
Odor		none	none	none	none	none	none	none	none	none	none	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-116	9/26/2018	1515	2	0	
MW-116 DUP	9/26/2018	1520	2	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: R14590-1766-001	Date: 9/27/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: cloudy/light rain	Air Temp (°F): 62	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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1302	1205	1213	1256	1307	
Depth to Water	feet	18.82	18.50	18.50	18.50	18.50	
Product	LNAPL/DNAPL	9/24/2018	9/27/2018	9/27/2018	9/27/2018	9/27/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1210	1215	1220	1225	1230	1235	1240	1245	1250	1255	Remarks
Purge vol.	gallons											
Purge rate	mL/min	160	160	160	160	160	160	160	160	160	160	
pH	su	6.5	5.8	6.7	6.3	6.4	6.4	6.4	6.4	6.4	6.4	
Temp.	°C	18.2	18.3	18.7	18.9	18.9	18.8	18.8	18.9	18.9	18.5	
Spec. cond.	µS/cm	489	488	486	485	485	485	483	483	483	484	
D.O.	mg/L	5.0	2.4	2.3	2.1	2.1	2.0	1.9	1.9	1.9	2.0	
ORP	mV	150.9	179.8	152.2	140.1	134.2	128.5	124.9	122.6	121.7	120.1	
Turbidity	NTU	1.8	3.8	1.1	1.2	2.5	2.3	5.0	2.8	3.8	2.2	
Color/tint		clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
Odor		none	none	none	none	none	none	none	none	none	none	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-117	9/27/2018	1305	2	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: R14590-1766-001	Date: 9/27/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: partly cloudy, light rain	Air Temp (°F): 64	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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1322	1330	1339	1422	1433	
Depth to Water	feet	17.51	17.22	17.22	17.22	17.22	
Product	LNAPL/DNAPL	9/24/2018	9/27/2018	9/27/2018	9/27/2018	9/27/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable				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)] • [well ID (inches) ²] • 0.0408										
Time	24-hour	1335	1340	1345	1350	1355	1400	1405	1410	1415	1420	Remarks
Purge vol.	gallons											
Purge rate	mL/min	125	125	125	125	125	125	125	125	125	125	
pH	su	5.8	5.6	6.0	6.1	6.2	6.3	6.3	6.3	6.3	6.3	
Temp.	°C	17.6	17.7	17.8	17.9	17.9	18.0	18.1	18.0	18.0	17.9	
Spec. cond.	µS/cm	445	444	443	443	443	443	443	442	444	443	
D.O.	mg/L	3.3	2.4	2.5	2.2	2.2	2.0	1.9	1.9	1.9	1.9	
ORP	mV	171.6	176.4	150.6	146.5	141.7	137.9	135.4	134.8	134.0	133.7	
Turbidity	NTU	1.6	4.1	2.6	2.0	1.1	1.9	1.5	1.4	1.1	1.0	
Color/tint		clear	clear	clear	clear	clear	clear	clear	clear	clear	clear	
Odor		none	none	none	none	none	none	none	none	none	none	

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-118	9/27/2018	1430	2	0	
EB-2	9/27/2018	1505	2	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: R14590-1766-001	Date: 9/27/2018	Sampler Organization: FTN Associates, Ltd.
Program (ADEQ or EPA): EPA CCR		

Site Description

Weather: rain/overcast	Air Temp (°F): 56	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"/> Irrigation 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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Damages/repairs needed: none		

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"/> Heron Dipper-T <input type="checkbox"/> Slope Water Level Indicator <input checked="" type="checkbox"/> Other: Solinst 101					
		Pre-purge initial	Pre-purge confirmation	During purging	Purge end	After sampling	Remarks
Time	24-hour	1342	0900	0918	0947	0959	
Depth to Water	feet	21.42	21.43	21.43	21.43	21.43	
Product	LNAPL/DNAPL	9/24/2018	9/27/2018	9/27/2018	9/27/2018	9/27/2018	
Prod. thickness	feet						

Field Data

Field data meters: <input type="checkbox"/> YSI Pro Plus <input type="checkbox"/> LaMotte 2020 Turbidimeter <input checked="" type="checkbox"/> YSI 556 <input checked="" type="checkbox"/> Hach 2100P Turbidimeter <input type="checkbox"/> Other: <input type="checkbox"/> Other:		Pump description: <input checked="" type="checkbox"/> Peristaltic <input type="checkbox"/> Submersible <input type="checkbox"/> Bladder: dedicated <input type="checkbox"/> Bladder: portable			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)] • [well ID (inches) ²] • 0.0408								
Time	24-hour	0910	0915	0920	0925	0930	0935	0940	0945	Remarks
Purge vol.	gallons									
Purge rate	mL/min	190	190	190	190	190	190	190	190	
pH	su	6.7	6.7	6.7	6.7	6.6	6.7	6.7	6.7	
Temp.	°C	19.3	18.9	19.0	19.0	19.0	19.1	19.1	19.2	
Spec. cond.	µS/cm	591	588	586	575	569	567	564	562	
D.O.	mg/L	1.3	0.5	0.5	0.4	0.4	0.4	0.4	0.4	
ORP	mV	166.5	154.8	152.3	145.1	139.6	137.0	132.1	128.5	
Turbidity	NTU	2.4	1.8	1.9	1.5	1.4	1.2	1.7	1.3	
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-119	9/27/2018	0955	2	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: Transcribed by HLF
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Groundwater Level Data Sheet

Project Name: Plum Point Energy Station		Project Number: 14590-1766-001		Investigator: <i>MCC</i>		Page <u>2</u> of <u>2</u>		
Weather Conditions: <i>Cloudy / Light Rain 43</i>		Measuring Device: <i>Solinst 101</i>						
Well ID	Date	Time	Depth to Water (feet below TOC)	Damages/Repairs				
MW-1	<i>11-19-18</i>	<i>1309</i>	<i>14.21</i>	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged TOC	<input type="checkbox"/> Lacks visibility		
MW-2		<i>1232</i>	<i>15.19</i>	<input type="checkbox"/> Damaged bollards	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access		
MW-3R		<i>1301</i>	<i>15.09</i>	<input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Un-kept vegetation	<input type="checkbox"/> See gw sample record		
MW-4R2		<i>1255</i>	<i>12.37</i>	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged TOC	<input type="checkbox"/> Lacks visibility		
MW-5		<i>1159</i>	<i>13.30</i>	<input type="checkbox"/> Damaged bollards	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access		
MW-6		<i>1206</i>	<i>13.63</i>	<input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Un-kept vegetation	<input type="checkbox"/> See gw sample record		
MW-7		<i>1155</i>	<i>16.41</i>	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged TOC	<input type="checkbox"/> Lacks visibility		
MW-8		<i>1151</i>	<i>14.95</i>	<input type="checkbox"/> Damaged bollards	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access		
MW-10R		<i>1218</i>	<i>11.60</i>	<input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Un-kept vegetation	<input type="checkbox"/> See gw sample record		
MW-11R		<i>1212</i>	<i>12.64</i>	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged TOC	<input type="checkbox"/> Lacks visibility		
MW-13R		<i>1143</i>	<i>15.06</i>	<input type="checkbox"/> Damaged bollards	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access		
MW-15		<i>1135</i>	<i>13.53</i>	<input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Un-kept vegetation	<input type="checkbox"/> See gw sample record		
MW-16		<i>1240</i>	<i>15.66</i>	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged TOC	<input type="checkbox"/> Lacks visibility		
MW-17		<i>1226</i>	<i>13.82</i>	<input type="checkbox"/> Damaged bollards	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access		
MW-18		<i>1249</i>	<i>12.77</i>	<input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Un-kept vegetation	<input type="checkbox"/> See gw sample record		
MW-19		✓	<i>1305</i>	<i>18.20</i>	<input type="checkbox"/> Damaged well pad/casing	<input type="checkbox"/> Damaged TOC	<input type="checkbox"/> Lacks visibility	
					<input type="checkbox"/> Damaged bollards	<input type="checkbox"/> Damaged lock	<input type="checkbox"/> Lacks access	
					<input type="checkbox"/> Damaged equipment	<input type="checkbox"/> Un-kept vegetation	<input type="checkbox"/> See gw sample record	

Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW117	Sampler: MCL
Project Number: R14590-1766-001	Date: 11-19-18	Sampler Organization: FTN

Site Description

Weather: Cloudy		Air Temp (°F): 46		Wind: NW @ 12		
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 Total depth from TOC: feet TOC below/above ground: feet		Well locked? <input checked="" type="checkbox"/> Yes <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 checked="" type="checkbox"/> Geotech/Keck 100' <input type="checkbox"/> Geotech/Keck 200' <input type="checkbox"/> Heron Dipper -T <input 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	11-19-18 →					
Time	24-hour	12:26	15:20	15:36	15:58	16:12	
Depth to Water	feet	13.82	13.82	13.82	13.82	13.82	
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 (dedicated/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: Yes <input checked="" type="checkbox"/> No							
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] ² × 0.0408							
Time	24-hour	15:25	15:30	15:35	15:40	15:45	15:50	15:55	Remarks
Purge vol.	gallons								
Purge rate	mL/min	90	90	90	90	90	90		
pH	su	6.56	6.61	6.59	6.59	6.57	6.59	6.64	
Temp.	°C	17.67	17.71	17.36	17.24	17.32	17.30	17.07	
Sp. Cond.	µS/cm	384	385	383	383	383	384	382	
D.O.	mg/L	6.32	1.22	0.87	0.78	0.77	0.72	0.68	
ORP	mV	30.6	27.1	27.4	28.0	28.2	28.7	31.1	
Turbidity	NTU	4.87	2.00	1.91	1.06	2.06	2.80	1.73	
Color/tint		Clear →							
Odor		None →							

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW-117	11-19-18	1600	1	0	

Sampler's Name (print): Michael Clayton	Sampler Signature:
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Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW 119	Sampler: MCL
Project Number: R14590-1766-001	Date: 11-20-18	Sampler Organization: FTN

Site Description

Weather: <i>Cloudy</i>	Air Temp (°F): <i>45</i>	Wind: <i>NW @ 12</i>			
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	<i>2</i>	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	<i>11-19-18</i>	<i>11-20-18</i>	→			
Time	24-hour	<i>1305</i>	<i>1350</i>	<i>1402</i>	<i>1431</i>	<i>1453</i>	
Depth to Water	feet	<i>18.20</i>	<i>18.20</i>	<i>18.20</i>	<i>18.20</i>	<i>18.20</i>	
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 (dedicated/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: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>									
Casing vol.	gallons	= [total depth (feet) – depth to water (feet)] × [internal diameter of well (inches)] ² × 0.0408									
Time	24-hour	<i>1355</i>	<i>1400</i>	<i>1405</i>	<i>1410</i>	<i>1415</i>	<i>1420</i>	<i>1425</i>	<i>1430</i>		Remarks
Purge vol.	gallons										
Purge rate	mL/min	<i>160</i>	<i>160</i>	<i>160</i>	<i>160</i>	<i>160</i>	<i>160</i>	<i>160</i>	<i>160</i>		
pH	su	<i>6.76</i>	<i>6.80</i>	<i>6.80</i>	<i>6.80</i>	<i>6.79</i>	<i>6.80</i>	<i>6.79</i>	<i>6.80</i>		
Temp.	°C	<i>18.92</i>	<i>18.57</i>	<i>18.49</i>	<i>18.47</i>	<i>18.36</i>	<i>18.41</i>	<i>18.44</i>	<i>18.48</i>		
Sp. Cond.	µS/cm	<i>430</i>	<i>430</i>	<i>429</i>	<i>427</i>	<i>426</i>	<i>426</i>	<i>426</i>	<i>426</i>		
D.O.	mg/L	<i>2.21</i>	<i>0.57</i>	<i>0.46</i>	<i>0.41</i>	<i>0.37</i>	<i>0.42</i>	<i>0.42</i>	<i>0.43</i>		
ORP	mV	<i>80.1</i>	<i>77.6</i>	<i>77.1</i>	<i>77.4</i>	<i>78.1</i>	<i>79.0</i>	<i>79.1</i>	<i>78.9</i>		
Turbidity	NTU	<i>1.42</i>	<i>1.11</i>	<i>0.61</i>	<i>0.64</i>	<i>0.90</i>	<i>1.68</i>	<i>0.47</i>	<i>0.59</i>		
Color/tint		<i>clear</i>									→
Odor		<i>blank</i>									→

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
<i>MW 119</i>	<i>11-20-18</i>	<i>1435</i>	<i>2</i>	<i>0</i>	
<i>MW 119 Dup</i>	<i>11-20-18</i>	<i>1440</i>	<i>2</i>	<i>0</i>	
<i>EPA EB 2</i>	<i>11-20-18</i>	<i>1455</i>	<i>2</i>	<i>0</i>	

Sampler's Name (print): <i>Michael Clayton</i>	Sampler Signature: <i>Michael Clayton</i>
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Groundwater Sampling Record

Facility: Plum Point Energy Station	Site ID: MW119	Sampler: MCL
Project Number: R14590-1766-001	Date: 12-18-18	Sampler Organization: FTN

Site Description

Weather: Clear	Air Temp (°F): 51	Wind: ESE @ 6
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 Total depth from TOC: feet TOC below/above ground: feet Well locked? <input checked="" type="checkbox"/> Yes <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 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	12-18-18 →					
Time	24-hour	1140	1200	1222	1247		
Depth to Water	feet	14.73	14.72	14.72	14.72		
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 (dedicated/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: Yes <input checked="" type="checkbox"/> No								
Casing vol.	gallons	= [total depth (feet) - depth to water (feet)] × [internal diameter of well (inches)] ² × 0.0408								
Time	24-hour	1145	1150	1155	1200	1205	1210	1215	1220	Remarks
Purge vol.	gallons									
Purge rate	mL/min	200	200	200	200	200	200	200	200	
pH	su	7.02	7.03	6.91	6.78	6.75	6.74	6.76	6.75	
Temp.	°C	18.88	19.78	18.68	18.56	18.55	18.62	18.51	18.39	
Sp. Cond.	µS/cm	507	507	517	544	563	594	616	627	
D.O.	mg/L	1.22	0.72	0.53	0.43	0.40	0.38	0.38	0.38	
ORP	mV	66.4	50.3	43.8	42.3	42.2	42.9	43.1	43.0	
Turbidity	NTU	2.01	1.67	2.26	2.23	1.57	1.86	1.41	1.12	
Color/tint		Clear →								
Odor		None →								

Sample Data

Sample ID	Date	Time	# Containers	# Filtered	Remarks
MW119	12-18-18	1225	3	0	
MW119 DUP	12-18-18	1230	3	0	

Sampler's Name (print): Michael Clayton	Sampler Signature: <i>[Signature]</i>
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APPENDIX B

Laboratory Reports

First Half 2018 Laboratory Reports

February 26, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L966927
Samples Received: 02/01/2018
Project Number: 14590-1469-001
Description: Plum Point Energy Station

Report To: Chris Lussier
2739 SCR 623
Osceola, AR 72370

Entire Report Reviewed By:



Mark W. Beasley
Technical Service Representative

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 ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	²Tc
Ss: Sample Summary	3	³Ss
Cn: Case Narrative	4	⁴Cn
Sr: Sample Results	5	⁵Sr
MW-119 L966927-01	5	
MW-200 L966927-02	6	⁶Qc
MW-116 L966927-03	7	⁷Gl
MW-202 L966927-04	8	⁸Al
Qc: Quality Control Summary	9	⁹Sc
Gravimetric Analysis by Method 2540 C-2011	9	
Wet Chemistry by Method 9056A	10	
Metals (ICP) by Method 6010B	14	
Gl: Glossary of Terms	15	
Al: Accreditations & Locations	16	
Sc: Sample Chain of Custody	17	

SAMPLE SUMMARY



MW-119 L966927-01 GW

Collected by
Michael Clayton
Collected date/time
01/30/18 13:20
Received date/time
02/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1069019	1	02/04/18 09:21	02/04/18 09:41	BS
Wet Chemistry by Method 9056A	WG1068995	1	02/01/18 20:32	02/01/18 20:32	DR
Wet Chemistry by Method 9056A	WG1069383	1	02/02/18 17:12	02/02/18 17:12	MAJ
Metals (ICP) by Method 6010B	WG1068900	1	02/01/18 11:40	02/01/18 16:15	ST

1
Cp

2
Tc

3
Ss

4
Cn

MW-200 L966927-02 GW

Collected by
Michael Clayton
Collected date/time
01/30/18 13:25
Received date/time
02/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1069019	1	02/04/18 09:21	02/04/18 09:41	BS
Wet Chemistry by Method 9056A	WG1068995	1	02/01/18 20:47	02/01/18 20:47	DR
Wet Chemistry by Method 9056A	WG1069383	5	02/02/18 17:32	02/02/18 17:32	MAJ
Metals (ICP) by Method 6010B	WG1068900	1	02/01/18 11:40	02/01/18 17:12	ST

5
Sr

6
Qc

7
Gl

8
Al

MW-116 L966927-03 GW

Collected by
Michael Clayton
Collected date/time
01/30/18 14:45
Received date/time
02/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 9056A	WG1068995	1	02/01/18 21:59	02/01/18 21:59	DR

9
Sc

MW-202 L966927-04 GW

Collected by
Michael Clayton
Collected date/time
01/30/18 15:25
Received date/time
02/01/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1069019	1	02/04/18 09:21	02/04/18 09:41	BS
Wet Chemistry by Method 9056A	WG1068995	1	02/01/18 22:13	02/01/18 22:13	DR
Metals (ICP) by Method 6010B	WG1068900	1	02/01/18 11:40	02/01/18 17:27	ST



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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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
Technical Service Representative

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	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	380000		2820	10000	1	02/04/2018 09:41	WG1069019

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2070		51.9	1000	1	02/02/2018 17:12	WG1069383
Fluoride	259		9.90	100	1	02/01/2018 20:32	WG1068995
Sulfate	35500		77.4	5000	1	02/01/2018 20:32	WG1068995

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	80.5	J	12.6	200	1	02/01/2018 16:15	WG1068900
Calcium	99300		46.3	1000	1	02/01/2018 16:15	WG1068900

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	424000		2820	10000	1	02/04/2018 09:41	WG1069019

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	4890		51.9	1000	1	02/01/2018 20:47	WG1068995
Fluoride	208		9.90	100	1	02/01/2018 20:47	WG1068995
Sulfate	87300		387	25000	5	02/02/2018 17:32	WG1069383

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	102	J	12.6	200	1	02/01/2018 17:12	WG1068900
Calcium	108000		46.3	1000	1	02/01/2018 17:12	WG1068900

6 Qc

7 Gl

8 Al

9 Sc



Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Sulfate	35500		77.4	5000	1	02/01/2018 21:59	WG1068995

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	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	U		2820	10000	1	02/04/2018 09:41	WG1069019

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	U		51.9	1000	1	02/01/2018 22:13	WG1068995
Fluoride	U		9.90	100	1	02/01/2018 22:13	WG1068995
Sulfate	288	J	77.4	5000	1	02/01/2018 22:13	WG1068995

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	29.3	J	12.6	200	1	02/01/2018 17:27	WG1068900
Calcium	U		46.3	1000	1	02/01/2018 17:27	WG1068900

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3284022-1 02/04/18 09:41

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

¹ Cp

² Tc

³ Ss

⁴ Cn

L966864-01 Original Sample (OS) • Duplicate (DUP)

(OS) L966864-01 02/04/18 09:41 • (DUP) R3284022-4 02/04/18 09:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	19600000	19400000	1	1.02		5

⁵ Sr

⁶ Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3284022-2 02/04/18 09:41 • (LCSD) R3284022-3 02/04/18 09:41

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8550000	8580000	97.2	97.5	85.0-115			0.350	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3283517-1 02/01/18 11:31

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		51.9	1000
Fluoride	U		9.90	100
Sulfate	U		77.4	5000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L966648-02 Original Sample (OS) • Duplicate (DUP)

(OS) L966648-02 02/01/18 16:56 • (DUP) R3283517-4 02/01/18 17:10

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	3760	3540	1	6.09		15
Fluoride	700	687	1	1.83		15
Sulfate	ND	2070	1	0		15

L966927-02 Original Sample (OS) • Duplicate (DUP)

(OS) L966927-02 02/01/18 20:47 • (DUP) R3283517-7 02/01/18 21:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	4890	4790	1	2.18		15
Fluoride	208	239	1	13.7		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3283517-2 02/01/18 11:46 • (LCSD) R3283517-3 02/01/18 12:00

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40000	40000	39900	100	99.6	80-120			0.379	15
Fluoride	8000	8030	8020	100	100	80-120			0.0985	15
Sulfate	40000	40600	40500	102	101	80-120			0.427	15

L966648-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L966648-02 02/01/18 16:56 • (MS) R3283517-5 02/01/18 17:25 • (MSD) R3283517-6 02/01/18 17:39

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50000	3760	55900	55500	104	104	1	80-120			0.661	15
Fluoride	5000	700	5800	5800	102	102	1	80-120			0.141	15



L966648-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L966648-02 02/01/18 16:56 • (MS) R3283517-5 02/01/18 17:25 • (MSD) R3283517-6 02/01/18 17:39

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
Sulfate	50000	ND	53800	53600	103	103	1	80-120			0.414	15

L966927-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L966927-02 02/01/18 20:47 • (MS) R3283517-8 02/01/18 21:15

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	4890	56100	102	1	80-120	
Fluoride	5000	208	5320	102	1	80-120	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3283782-1 02/02/18 11:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		51.9	1000
Sulfate	U		77.4	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L966664-01 Original Sample (OS) • Duplicate (DUP)

(OS) L966664-01 02/02/18 15:33 • (DUP) R3283782-4 02/02/18 15:43

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	3460	3460	1	0		15
Sulfate	ND	4530	1	0		15

L967097-04 Original Sample (OS) • Duplicate (DUP)

(OS) L967097-04 02/02/18 18:32 • (DUP) R3283782-7 02/02/18 19:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	ND	0.000	1	0		15
Sulfate	ND	0.000	1	0		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3283782-2 02/02/18 12:02 • (LCSD) R3283782-3 02/02/18 12:12

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40000	38800	39000	97	98	80-120			1	15
Sulfate	40000	39200	39300	98	98	80-120			0	15

L966664-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L966664-01 02/02/18 15:33 • (MS) R3283782-5 02/02/18 15:53 • (MSD) R3283782-6 02/02/18 16:03

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50000	3460	53900	56000	101	105	1	80-120			4	15
Sulfate	50000	ND	55200	55100	102	101	1	80-120			0	15



L967097-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L967097-04 02/02/18 18:32 • (MS) R3283782-8 02/02/18 19:11

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Chloride	50000	ND	47900	96	1	80-120	
Sulfate	50000	ND	49200	98	1	80-120	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3283504-1 02/01/18 16:05

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Boron	U		12.6	200
Calcium	U		46.3	1000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3283504-2 02/01/18 16:08 • (LCSD) R3283504-3 02/01/18 16:11

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Boron	1000	942	947	94.2	94.7	80-120			0.601	20
Calcium	10000	9650	9710	96.5	97.1	80-120			0.644	20

L966927-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L966927-01 02/01/18 16:15 • (MS) R3283504-5 02/01/18 16:21 • (MSD) R3283504-6 02/01/18 16:24

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	80.5	1060	1040	97.5	95.7	1	75-125			1.65	20
Calcium	10000	99300	108000	107000	83.3	78.3	1	75-125			0.465	20



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.

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, 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.
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.

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

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
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ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.



State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey-NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio-VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ^{1,4}	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

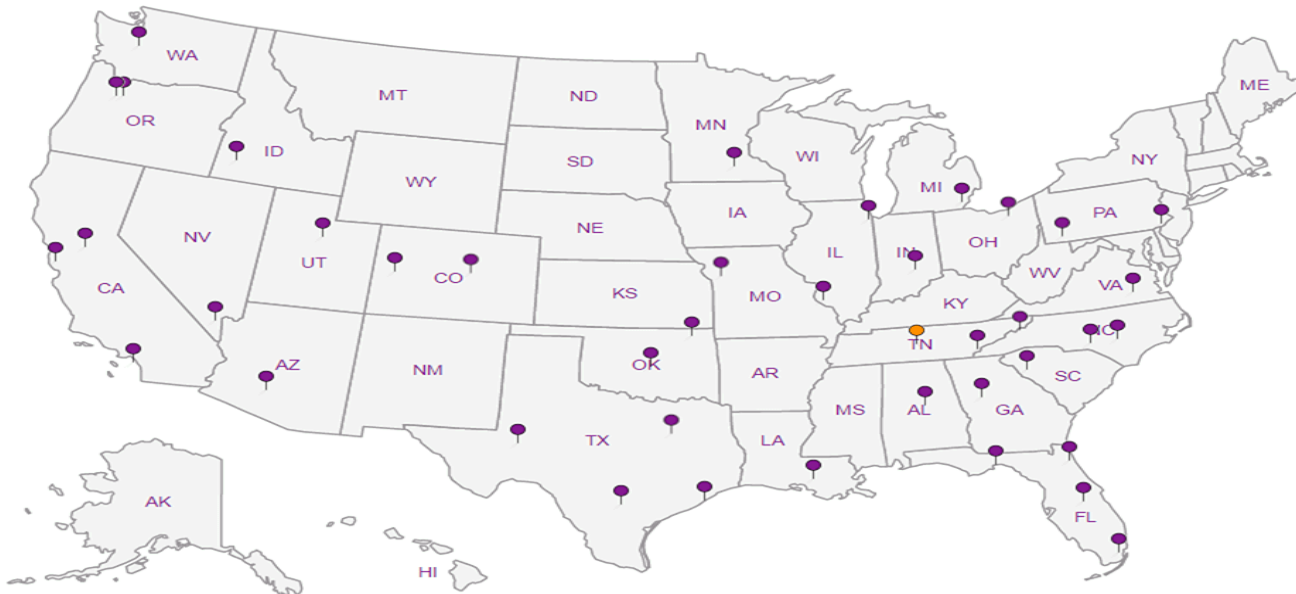
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA-Crypto	TN00003		

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

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



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



LABORATORIES
a subsidiary of

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to:
Joe Hossley

Email To: joe.hossley@nrg.com, dld@ftn-assoc.com, hlf@ftn-assoc.com

Project
Description: **Plum Point Energy Station**

City/State
Collected:

Phone: **870-815-1248**
Fax:

Client Project #
14590-1469-001

Lab Project #
NAESOAR-PLUMPOINT

Collected by (print):
M. Michael Clayton

Site/Facility ID #

P.O. #

Collected by (signature):
M. Michael Clayton

Rush? (Lab MUST Be Notified)

Quote #

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

Date Results Needed

Immediately
Packed on Ice N Y

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Boron	Calcium	250mlHDPE-HNO3	Cl, F, SO4, TDS	250mlHDPE-NoPres	SULFATE	250mlHDPE-NoPres	Remarks	Sample # (lab only)
MW-119	Grab	GW		11/30/18	1320	2	X	X							- 01
MW-200	↓	GW			1325	2	X	X							- 02
MW-202	↓	GW			1525	2	X	X							
MW-116	↓	GW			1445	2	X	X							- 03
MW-119	↓	GW			1320	2	X	X	X						

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

Remarks:

Samples returned via:
 UPS FedEx Courier

Tracking # **9269 9201 6402**

pH _____ Temp _____
Flow _____ Other _____

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

Relinquished by: (Signature) <i>M. Michael Clayton</i>	Date: 11/30/18	Time: 1730	Received by: (Signature)	Trip Blank Received: Yes/No HCL/MeOH TBR	Temp: °C 18 50	Bottles Received: 8	If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date: 12/01/18	Time: 845	Hold:	Condition: NCF / OK

April 23, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L985645
Samples Received: 04/13/2018
Project Number: 14590-1766-001
Description: Plum Point Energy Station

Report To: Chris Lussier
2739 SCR 623
Osceola, AR 72370

Entire Report Reviewed By:



Mark W. Beasley
Technical Service Representative

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 ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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Sr: Sample Results	6	³Ss
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MW-102 L985645-02	7	⁴Cn
MW-103 L985645-03	8	⁵Sr
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MW-113 L985645-05	10	⁶Qc
MW-115 L985645-06	11	
MW-116 L985645-07	12	⁷Gl
MW-117 L985645-08	13	⁸Al
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SAMPLE SUMMARY



MW-101 L985645-01 GW

Collected by
Michael Clayton
Collected date/time
04/12/18 08:50
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098882	1	04/17/18 17:08	04/17/18 17:33	MMF
Wet Chemistry by Method 9056A	WG1098060	1	04/14/18 21:32	04/14/18 21:32	DR
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:04	CCE

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-102 L985645-02 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 12:40
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098576	1	04/16/18 14:37	04/16/18 15:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 16:39	04/15/18 16:39	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:37	CCE

MW-103 L985645-03 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 15:45
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098576	1	04/16/18 14:37	04/16/18 15:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 16:52	04/15/18 16:52	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:40	CCE

MW-108 L985645-04 GW

Collected by
Michael Clayton
Collected date/time
04/10/18 14:55
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098342	1	04/15/18 09:41	04/15/18 10:04	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 17:41	04/15/18 17:41	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:43	CCE

MW-113 L985645-05 GW

Collected by
Michael Clayton
Collected date/time
04/10/18 14:10
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098342	1	04/15/18 09:41	04/15/18 10:04	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 18:19	04/15/18 18:19	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:47	CCE

MW-115 L985645-06 GW

Collected by
Michael Clayton
Collected date/time
04/10/18 13:10
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098342	1	04/15/18 09:41	04/15/18 10:04	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 18:31	04/15/18 18:31	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:50	CCE

SAMPLE SUMMARY



MW-116 L985645-07 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 14:40
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098577	1	04/16/18 13:35	04/16/18 14:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 18:43	04/15/18 18:43	MAJ
Wet Chemistry by Method 9056A	WG1098835	5	04/16/18 18:42	04/16/18 18:42	DR
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:53	CCE

1
Cp

2
Tc

3
Ss

4
Cn

MW-117 L985645-08 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 11:50
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098577	1	04/16/18 13:35	04/16/18 14:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 18:56	04/15/18 18:56	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:56	CCE

5
Sr

6
Qc

7
Gl

MW-118 L985645-09 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 13:45
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098577	1	04/16/18 13:35	04/16/18 14:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 19:08	04/15/18 19:08	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 12:00	CCE

8
Al

9
Sc

MW-119 L985645-10 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 16:35
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098577	1	04/16/18 13:35	04/16/18 14:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 19:21	04/15/18 19:21	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 12:03	CCE

MW-201 L985645-11 GW

Collected by
Michael Clayton
Collected date/time
04/12/18 09:15
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098882	1	04/17/18 17:08	04/17/18 17:33	MMF
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 19:33	04/15/18 19:33	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 12:13	CCE

MW-202 L985645-12 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 12:45
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098577	1	04/16/18 13:35	04/16/18 14:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 19:45	04/15/18 19:45	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 12:16	CCE



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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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
Technical Service Representative

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	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	420000		2820	10000	1	04/17/2018 17:33	WG1098882

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2750		51.9	1000	1	04/14/2018 21:32	WG1098060
Fluoride	307		9.90	100	1	04/14/2018 21:32	WG1098060
Sulfate	17400		77.4	5000	1	04/14/2018 21:32	WG1098060

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	84.0	J	12.6	200	1	04/17/2018 11:04	WG1098051
Calcium	121000	V	46.3	1000	1	04/17/2018 11:04	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	472000		2820	10000	1	04/16/2018 15:03	WG1098576

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1770		51.9	1000	1	04/15/2018 16:39	WG1098064
Fluoride	206		9.90	100	1	04/15/2018 16:39	WG1098064
Sulfate	46700		77.4	5000	1	04/15/2018 16:39	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	144	J	12.6	200	1	04/17/2018 11:37	WG1098051
Calcium	136000		46.3	1000	1	04/17/2018 11:37	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	468000		2820	10000	1	04/16/2018 15:03	WG1098576

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	3240		51.9	1000	1	04/15/2018 16:52	WG1098064
Fluoride	163		9.90	100	1	04/15/2018 16:52	WG1098064
Sulfate	80600		77.4	5000	1	04/15/2018 16:52	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	122	J	12.6	200	1	04/17/2018 11:40	WG1098051
Calcium	128000		46.3	1000	1	04/17/2018 11:40	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	582000		2820	10000	1	04/15/2018 10:04	WG1098342

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	3030		51.9	1000	1	04/15/2018 17:41	WG1098064
Fluoride	177		9.90	100	1	04/15/2018 17:41	WG1098064
Sulfate	44500		77.4	5000	1	04/15/2018 17:41	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	171	J	12.6	200	1	04/17/2018 11:43	WG1098051
Calcium	183000		46.3	1000	1	04/17/2018 11:43	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	340000		2820	10000	1	04/15/2018 10:04	WG1098342

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2940		51.9	1000	1	04/15/2018 18:19	WG1098064
Fluoride	56.2	J	9.90	100	1	04/15/2018 18:19	WG1098064
Sulfate	10100		77.4	5000	1	04/15/2018 18:19	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	89.9	J	12.6	200	1	04/17/2018 11:47	WG1098051
Calcium	92000		46.3	1000	1	04/17/2018 11:47	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	368000		2820	10000	1	04/15/2018 10:04	WG1098342

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1340		51.9	1000	1	04/15/2018 18:31	WG1098064
Fluoride	209		9.90	100	1	04/15/2018 18:31	WG1098064
Sulfate	5810		77.4	5000	1	04/15/2018 18:31	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	66.6	J	12.6	200	1	04/17/2018 11:50	WG1098051
Calcium	111000		46.3	1000	1	04/17/2018 11:50	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	511000		2820	10000	1	04/16/2018 14:03	WG1098577

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	4900		51.9	1000	1	04/15/2018 18:43	WG1098064
Fluoride	166		9.90	100	1	04/15/2018 18:43	WG1098064
Sulfate	113000		387	25000	5	04/16/2018 18:42	WG1098835

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	111	J	12.6	200	1	04/17/2018 11:53	WG1098051
Calcium	135000		46.3	1000	1	04/17/2018 11:53	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	290000		2820	10000	1	04/16/2018 14:03	WG1098577

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1570		51.9	1000	1	04/15/2018 18:56	WG1098064
Fluoride	124		9.90	100	1	04/15/2018 18:56	WG1098064
Sulfate	7280		77.4	5000	1	04/15/2018 18:56	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	95.2	J	12.6	200	1	04/17/2018 11:56	WG1098051
Calcium	82500		46.3	1000	1	04/17/2018 11:56	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	257000		2820	10000	1	04/16/2018 14:03	WG1098577

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1360		51.9	1000	1	04/15/2018 19:08	WG1098064
Fluoride	157		9.90	100	1	04/15/2018 19:08	WG1098064
Sulfate	15200		77.4	5000	1	04/15/2018 19:08	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	94.9	J	12.6	200	1	04/17/2018 12:00	WG1098051
Calcium	71800		46.3	1000	1	04/17/2018 12:00	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	315000		2820	10000	1	04/16/2018 14:03	WG1098577

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2150		51.9	1000	1	04/15/2018 19:21	WG1098064
Fluoride	230		9.90	100	1	04/15/2018 19:21	WG1098064
Sulfate	31100		77.4	5000	1	04/15/2018 19:21	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	95.0	J	12.6	200	1	04/17/2018 12:03	WG1098051
Calcium	85900		46.3	1000	1	04/17/2018 12:03	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	U		2820	10000	1	04/17/2018 17:33	WG1098882

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	U		51.9	1000	1	04/15/2018 19:33	WG1098064
Fluoride	U		9.90	100	1	04/15/2018 19:33	WG1098064
Sulfate	U		77.4	5000	1	04/15/2018 19:33	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	45.4	J	12.6	200	1	04/17/2018 12:13	WG1098051
Calcium	U		46.3	1000	1	04/17/2018 12:13	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	464000		2820	10000	1	04/16/2018 14:03	WG1098577

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	3250		51.9	1000	1	04/15/2018 19:45	WG1098064
Fluoride	163		9.90	100	1	04/15/2018 19:45	WG1098064
Sulfate	80700		77.4	5000	1	04/15/2018 19:45	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	110	J	12.6	200	1	04/17/2018 12:16	WG1098051
Calcium	128000		46.3	1000	1	04/17/2018 12:16	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3302170-1 04/15/18 10:04

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

L985623-02 Original Sample (OS) • Duplicate (DUP)

(OS) L985623-02 04/15/18 10:04 • (DUP) R3302170-4 04/15/18 10:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1060000	1070000	1	1.31		5

4 Cn

5 Sr

6 Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302170-2 04/15/18 10:04 • (LCSD) R3302170-3 04/15/18 10:04

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8530000	8530000	96.9	96.9	85.0-115			0.000	5

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3302591-1 04/16/18 15:03

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L985623-09 Original Sample (OS) • Duplicate (DUP)

(OS) L985623-09 04/16/18 15:03 • (DUP) R3302591-4 04/16/18 15:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	812000	830000	1	2.19		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302591-2 04/16/18 15:03 • (LCSD) R3302591-3 04/16/18 15:03

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8620000	8600000	98.0	97.7	85.0-115			0.232	5

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3302586-1 04/16/18 14:03

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L985645-07 Original Sample (OS) • Duplicate (DUP)

(OS) L985645-07 04/16/18 14:03 • (DUP) R3302586-4 04/16/18 14:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	511000	505000	1	1.18		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302586-2 04/16/18 14:03 • (LCSD) R3302586-3 04/16/18 14:03

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8530000	8620000	96.9	98.0	85.0-115			1.05	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3302951-1 04/17/18 17:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

L985683-15 Original Sample (OS) • Duplicate (DUP)

(OS) L985683-15 04/17/18 17:33 • (DUP) R3302951-4 04/17/18 17:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	4110000	4090000	1	0.488		5

4 Cn

5 Sr

6 Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302951-2 04/17/18 17:33 • (LCSD) R3302951-3 04/17/18 17:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8580000	8550000	97.5	97.2	85.0-115			0.350	5

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3301929-1 04/14/18 07:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		51.9	1000
Fluoride	U		9.90	100
Sulfate	U		77.4	5000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L985623-06 Original Sample (OS) • Duplicate (DUP)

(OS) L985623-06 04/14/18 18:01 • (DUP) R3301929-7 04/14/18 18:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	13400	13500	1	0.591		15
Fluoride	501	502	1	0.179		15
Sulfate	18000	18000	1	0.414		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3301929-2 04/14/18 07:37 • (LCSD) R3301929-3 04/14/18 07:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40000	39800	39700	99.5	99.4	80.0-120			0.150	15
Fluoride	8000	8080	8080	101	101	80.0-120			0.0891	15
Sulfate	40000	39900	39800	99.7	99.5	80.0-120			0.200	15

L985577-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985577-03 04/14/18 15:32 • (MS) R3301929-5 04/14/18 16:22 • (MSD) R3301929-6 04/14/18 16:34

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50000	ND	49700	51000	99.2	102	1	80.0-120			2.69	15
Fluoride	5000	ND	5180	5260	104	105	1	80.0-120			1.53	15
Sulfate	50000	ND	50200	50400	100	101	1	80.0-120			0.532	15

L985623-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L985623-06 04/14/18 18:01 • (MS) R3301929-8 04/14/18 18:51

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50000	13400	63500	100	1	80.0-120	
Fluoride	5000	501	5530	101	1	80.0-120	



L985623-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L985623-06 04/14/18 18:01 • (MS) R3301929-8 04/14/18 18:51

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Sulfate	50000	18000	66800	97.6	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) R3302169-1 04/15/18 11:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		51.9	1000
Fluoride	U		9.90	100
Sulfate	U		77.4	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L985403-01 Original Sample (OS) • Duplicate (DUP)

(OS) L985403-01 04/15/18 14:47 • (DUP) R3302169-4 04/15/18 15:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	28300	28400	1	0.417		15
Fluoride	993	1000	1	0.702		15
Sulfate	29100	29100	1	0.0450		15

L985645-03 Original Sample (OS) • Duplicate (DUP)

(OS) L985645-03 04/15/18 16:52 • (DUP) R3302169-6 04/15/18 17:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	3240	3220	1	0.567		15
Fluoride	163	163	1	0.307		15
Sulfate	80600	80600	1	0.00347		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302169-2 04/15/18 11:38 • (LCSD) R3302169-3 04/15/18 11:50

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40000	38900	38900	97.3	97.1	80.0-120			0.164	15
Fluoride	8000	7830	7820	97.8	97.8	80.0-120			0.0805	15
Sulfate	40000	39800	39900	99.5	99.8	80.0-120			0.317	15



L985403-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L985403-01 04/15/18 14:47 • (MS) R3302169-5 04/15/18 15:12

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	28300	83000	109	1	80.0-120	
Fluoride	5000	993	6200	104	1	80.0-120	
Sulfate	50000	29100	78300	98.3	1	80.0-120	

L985645-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985645-03 04/15/18 16:52 • (MS) R3302169-7 04/15/18 17:16 • (MSD) R3302169-8 04/15/18 17:29

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	3240	59800	53700	113	101	1	80.0-120			10.9	15
Fluoride	5000	163	5460	5360	106	104	1	80.0-120			1.79	15
Sulfate	50000	80600	126000	125000	90.4	89.6	1	80.0-120	<u>E</u>	<u>E</u>	0.325	15

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3302303-1 04/16/18 15:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		77.4	5000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L984110-01 Original Sample (OS) • Duplicate (DUP)

(OS) L984110-01 04/16/18 17:15 • (DUP) R3302303-4 04/16/18 17:28

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	U	0.000	1	0.000		15

L986001-02 Original Sample (OS) • Duplicate (DUP)

(OS) L986001-02 04/16/18 19:57 • (DUP) R3302303-6 04/16/18 20:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	28100	28100	1	0.0324		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302303-2 04/16/18 15:43 • (LCSD) R3302303-3 04/16/18 15:55

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40000	40000	40000	100	100	80.0-120			0.160	15

L984110-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L984110-01 04/16/18 17:15 • (MS) R3302303-5 04/16/18 17:40

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	U	49200	98.4	1	80.0-120	

L986001-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986001-02 04/16/18 19:57 • (MS) R3302303-7 04/16/18 20:22 • (MSD) R3302303-8 04/16/18 20:59

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	28100	78000	77700	99.7	99.2	1	80.0-120			0.364	15



Method Blank (MB)

(MB) R3302459-1 04/17/18 10:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Boron	U		12.6	200
Calcium	U		46.3	1000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302459-2 04/17/18 10:58 • (LCSD) R3302459-3 04/17/18 11:01

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Boron	1000	988	1010	98.8	101	80.0-120			1.78	20
Calcium	10000	10100	10200	101	102	80.0-120			1.02	20

L985645-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985645-01 04/17/18 11:04 • (MS) R3302459-5 04/17/18 11:11 • (MSD) R3302459-6 04/17/18 11:14

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	84.0	1070	1080	99.0	99.2	1	75.0-125			0.196	20
Calcium	10000	121000	130000	128000	84.5	69.0	1	75.0-125		V	1.21	20



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.

Abbreviations and Definitions

MDL	Method Detection Limit.
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, 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.
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.

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

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.
V	The sample concentration is too high to evaluate accurate spike recoveries.



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* 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 ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

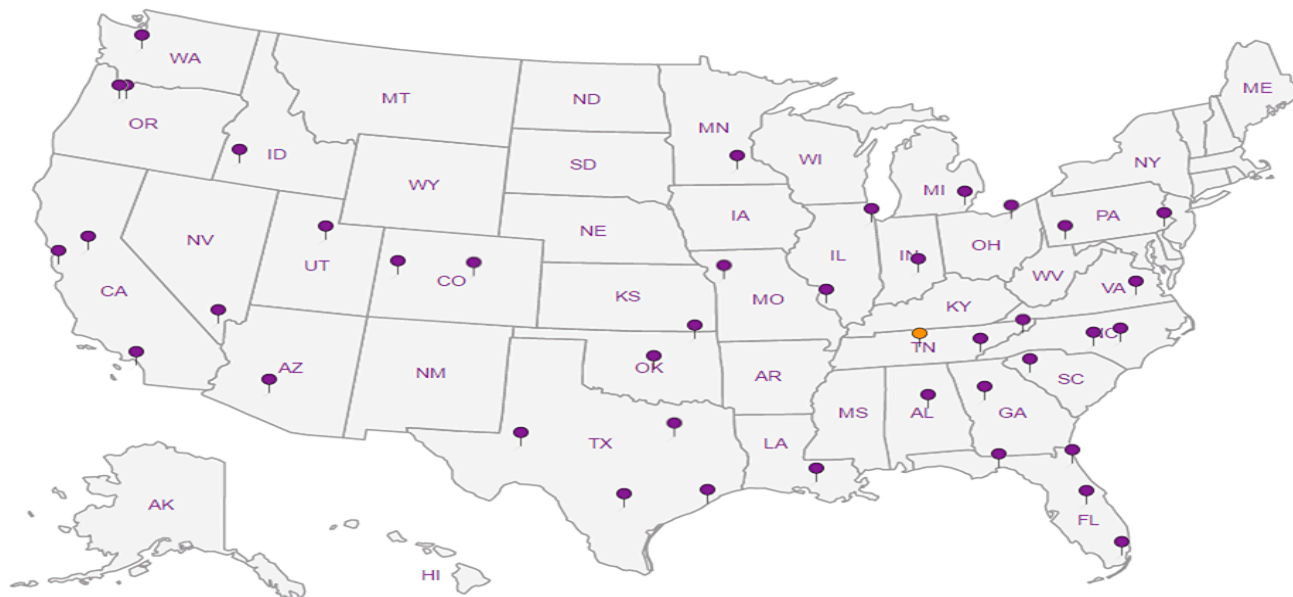
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



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

Chain of Custody Page 2 of 2



32065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, dld@ftn-
assoc.com, hlf@ftn-assoc.com

Project
Description: **Plum Point Energy Station**

City/State
Collected: *Osceola AR*

Phone: **870-815-1248**
Fax:

Client Project #
14590-1766-001

Lab Project #
NAESOAR-PLUMPOINT

Collected by (print):
Mark W. Beasley

Site/Facility ID #

P.O. #

Collected by (signature):
Mark W. Beasley

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day
Next Day 5 Day (Rad Only)
Two Day 10 Day (Rad Only)
Three Day
Immediately
Packed on Ice N Y

Date Results Needed

No.
of
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	Cl, F, SO4, TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3
MW-101	<i>Grab</i>	GW		<i>4/12/18</i>	<i>850</i>	2	X	X
MW-102		GW		<i>4/11/18</i>	<i>1240</i>	2	X	X
MW-103		GW		<i>4/11/18</i>	<i>1545</i>	2	X	X
MW-108		GW		<i>4/10/18</i>	<i>1455</i>	2	X	X
MW-113		GW		<i>4/10/18</i>	<i>1410</i>	2	X	X
MW-115		GW		<i>4/10/18</i>	<i>1310</i>	2	X	X
MW-116		GW		<i>4/11/18</i>	<i>1440</i>	2	X	X
MW-117		GW		<i>4/11/18</i>	<i>1150</i>	2	X	X
MW-118		GW		<i>4/11/18</i>	<i>1345</i>	2	X	X
MW-119		GW		<i>4/11/18</i>	<i>1635</i>	2	X	X

L# *995645*

Tab **G127**

Acctnum: **NAESOAR**

Template: **T134757**

Prelogin: **P647803**

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

PB: *76 4-5-18*

Shipped Via: **FedEX Standard**

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:

Samples returned via:
UPS FedEx Courier

pH Temp

Flow Other

Sample Receipt Checklist

COC Seal Present/Intact: N Y
COC Signed/Accurate: N Y
Bottles arrive intact: N Y
Correct bottles used: N Y
Sufficient volume sent: N Y
if applicable
VQA Zero Headspace: N Y
Preservation Correct/Checked: N Y

Tracking # *4361 6930 0175*

Relinquished by: (Signature) *Mark W. Beasley* Date: *4/12/18* Time: *1230*

Received by: (Signature) Trip Blank Received: Yes No
HCL MeOH
TBR

Relinquished by: (Signature) Date: Time:

Received by: (Signature) Temp: *25.2* °C Bottles Received: *24*

Relinquished by: (Signature) Date: Time:

Received for lab by: (Signature) *Mark W. Beasley* Date: *4/13/18* Time: *845*

If preservation required by Login: Date/Time

Hold: Condition: *NCF / OK*

Plum Point Services Co., LLC
 2739 SCR 623
 Osceola, AR 72370

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

Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, dld@ftn-assoc.com, hlf@ftn-assoc.com

Project Description: **Plum Point Energy Station**

City/State Collected: *Osceola AR*

Phone: **870-815-1248**
 Fax:

Client Project #
14590-1766-001

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 #

Immediately Packed on Ice N ___ Y ___

Date Results Needed

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-201	<i>Grab</i>	GW		<i>4/12/18</i>	<i>915</i>	2
MW-202	<i>✓</i>	GW		<i>4/11/18</i>	<i>1245</i>	2
		GW				2
		GW				2
		GW				2

Analysis / Container / Preservative	
Cl, F, SO4, TDS 250mlHDPE-NoPres	
Total B, Ca 250mlHDPE-HNO3	

Chain of Custody Page *2 of 2*



12065 Lebanon Rd
 Mount Juliet, TN 37122
 Phone: 615-758-5858
 Phone: 800-767-5859
 Fax: 615-758-5859



L# *985645*

Table #

Acctnum: **NAESOAR**

Template: **T134757**

Prelogin: **P647803**

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

PB: *B 4-4-18*

Shipped Via: **FedEX Standard**

* 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 # *4361 6930 0175*

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 ___

Relinquished by: (Signature)
[Signature]

Relinquished by: (Signature)
[Signature]

Relinquished by: (Signature)

Date: *4/12/18*
 Time: *1230*

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: *25* °C
 Bottles Received: *22*

Date: *4/13/18*
 Time: *845*

If preservation required by Login: Date/Time

Hold:

Condition:
 NCF / *OK*

April 26, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L988208
Samples Received: 04/13/2018
Project Number: 14590-1766-001
Description: Plum Point Energy Station

Report To: Chris Lussier
2739 SCR 623
Osceola, AR 72370

Entire Report Reviewed By:



Mark W. Beasley
Technical Service Representative

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 ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	²Tc
Ss: Sample Summary	3	³Ss
Cn: Case Narrative	4	⁴Cn
Sr: Sample Results	5	⁵Sr
MW-102 L988208-01	5	
MW-116 L988208-02	6	
Qc: Quality Control Summary	7	⁶Qc
Metals (ICP) by Method 6010B	7	
Gl: Glossary of Terms	8	⁷Gl
Al: Accreditations & Locations	9	⁸Al
Sc: Sample Chain of Custody	10	⁹Sc

SAMPLE SUMMARY



MW-102 L988208-01 GW

Collected by: Michael Clayton
 Collected date/time: 04/11/18 12:40
 Received date/time: 04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1102638	1	04/25/18 08:35	04/26/18 04:06	TRB

¹ Cp

² Tc

³ Ss

MW-116 L988208-02 GW

Collected by: Michael Clayton
 Collected date/time: 04/11/18 14:40
 Received date/time: 04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1102638	1	04/25/18 08:35	04/26/18 04:09	TRB

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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
Technical Service Representative

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



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	136000		46.3	1000	1	04/26/2018 04:06	WG1102638

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	137000		46.3	1000	1	04/26/2018 04:09	WG1102638

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3304763-1 04/26/18 03:09

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		46.3	1000

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304763-2 04/26/18 03:12 • (LCSD) R3304763-3 04/26/18 03:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Calcium	10000	9750	9770	97.5	97.7	80.0-120			0.192	20



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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, 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.
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.
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.

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

Qualifier Description

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



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* 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 ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

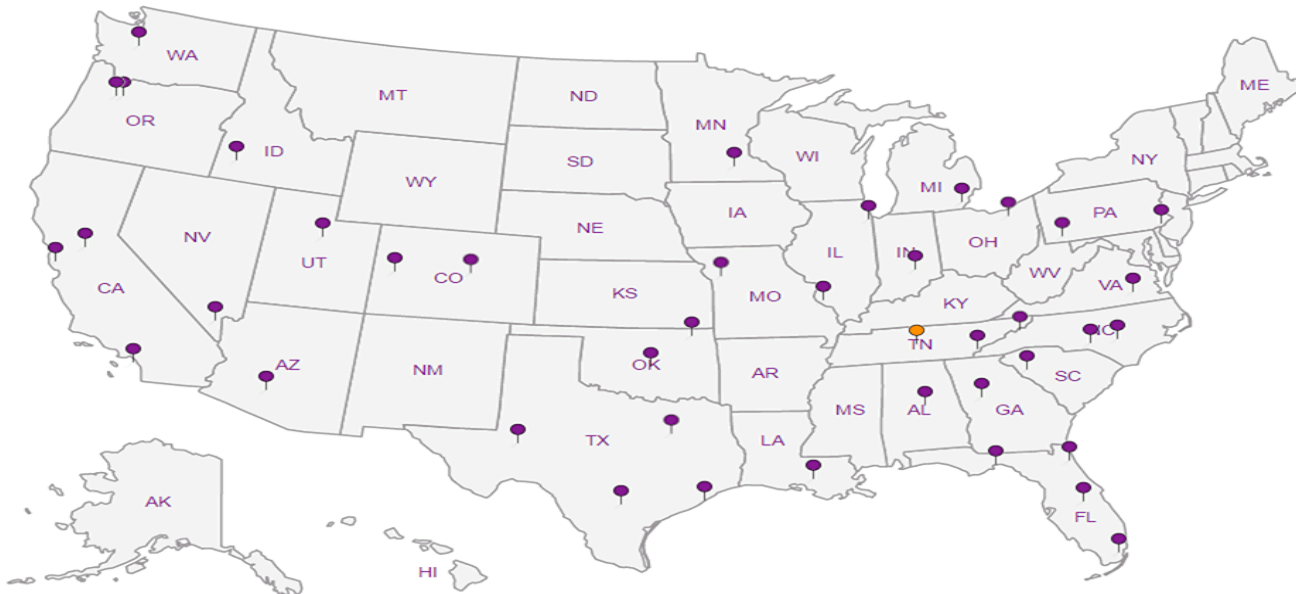
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

Plum Point Services Co., LLC

2739 SCR 623
Osceola, AR 72370

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

Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, dld@frn-assoc.com, hl@frn-assoc.com

Project Description: **Plum Point Energy Station**

City/State Collected: *Osceola AR*
Lab Project #: **NAESOAR-PLUMPOINT**

Phone: 870-815-1248
Fax:

Client Project #: **14590-1766-001**

Collected by (print): *Michael Clayton*

Site/Facility ID #:

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

Immediately
Packed on Ice N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Conts
MW-101	<i>Grab</i>	GW		<i>4/10/18</i>	<i>850</i>	2
MW-102	<i>1</i>	GW		<i>4/11/18</i>	<i>1240</i>	2
MW-103		GW		<i>4/11/18</i>	<i>1545</i>	2
MW-108		GW		<i>4/10/18</i>	<i>1455</i>	2
MW-113		GW		<i>4/10/18</i>	<i>140</i>	2
MW-115		GW		<i>4/10/18</i>	<i>1310</i>	2
MW-116		GW		<i>4/11/18</i>	<i>1440</i>	2
MW-117		GW		<i>4/11/18</i>	<i>1150</i>	2
MW-118		GW		<i>4/11/18</i>	<i>1345</i>	2
MW-119		GW		<i>4/11/18</i>	<i>1635</i>	2

Cl, F, SO4, TDS 250mlHDPE-NoPres

Total B, Ca 250mlHDPE-HNO3

Analysis / Container / Preservative

Chain of Custody Page 2 of 2



12005 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-9858
Fax: 615-758-5858



LR *485645* *N*
 Tab **G127**
L988208
 4/24/18

Acctnum: NAESOAR
 Template T134757
 Prelogin: P647803
 TSR: 134 - Mark W. Beasley
 PB: *TB 4-2-18*
 Shipped Via: **FedEX Standard**

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

Remarks:
 pH _____ Temp _____
 Flow _____ Other _____

Samples returned via:
 UPS FedEx Courier

Tracking # **4361 6930 0175**

Sample Receipt Checklist

OC Seal Present/Intact:	<input checked="" type="checkbox"/>	Y	N
OC Signed/Accurate:	<input checked="" type="checkbox"/>	Y	N
Bottles airtight/Intact:	<input checked="" type="checkbox"/>	Y	N
Correct Bottle used:	<input checked="" type="checkbox"/>	Y	N
Sufficient volume sent:	<input checked="" type="checkbox"/>	Y	N
IS Applicable:	<input checked="" type="checkbox"/>	Y	N
VQA Zero Headspace:	<input checked="" type="checkbox"/>	Y	N
Preservation Correct/Checked:	<input checked="" type="checkbox"/>	Y	N

Relinquished by: (Signature) *[Signature]* Date: *4/12/18* Time: *1230*

Relinquished by: (Signature) _____ Date: _____ Time: _____

Relinquished by: (Signature) _____ Date: _____ Time: _____

Received by: (Signature) *[Signature]* Date: *4/13/18* Time: *845*

Trip Blank Received: Yes No
 HCl/MeOH TBK

Temp: *21.52* °C Bottles Returned: *24*

If preservation required by Login: Date/Time

Hold: _____ Condition: **NCF** / **OK**

Andy Vann

From: Mark Beasley
Sent: Tuesday, April 24, 2018 1:23 PM
To: Login; Sample Storage
Subject: L985645 *NAESOAR* relog

Relog L985645-02 & -07 for CAICP. Log as EX due 4/27.

✉ **Mark Beasley**
National Account Manager

ESC Lab Sciences-a subsidiary of Pace Analytical
12065 Lebanon Road | Mt. Juliet, TN 37122
615.773.9672 | Cell 615.330.1602
mbeasley@esclabsciences.com | www.esclabsciences.com

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July 13, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L1008375
Samples Received: 07/11/2018
Project Number: 14590-1766-001
Description: Plum Point Energy Station

Report To: Chris Lussier
2739 SCR 623
Osceola, AR 72370

Entire Report Reviewed By:



Olivia Studebaker
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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	²Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³Ss
MW-102 L1008375-01	5	
MW-116 L1008375-02	6	⁴Cn
MW-201 L1008375-03	7	⁵Sr
MW-202 L1008375-04	8	
Qc: Quality Control Summary	9	⁶Qc
Metals (ICPMS) by Method 6020	9	
Gl: Glossary of Terms	10	⁷Gl
Al: Accreditations & Locations	11	⁸Al
Sc: Sample Chain of Custody	12	⁹Sc

SAMPLE SUMMARY



MW-102 L1008375-01 GW

Collected by
Michael Clayton
Collected date/time
07/09/18 14:05
Received date/time
07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG1136769	1	07/12/18 13:58	07/12/18 22:56	LD

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

MW-116 L1008375-02 GW

Collected by
Michael Clayton
Collected date/time
07/09/18 15:45
Received date/time
07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG1136769	1	07/12/18 13:58	07/12/18 23:26	LD

MW-201 L1008375-03 GW

Collected by
Michael Clayton
Collected date/time
07/09/18 15:50
Received date/time
07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG1136769	1	07/12/18 13:58	07/12/18 23:31	LD

MW-202 L1008375-04 GW

Collected by
Michael Clayton
Collected date/time
07/09/18 14:10
Received date/time
07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG1136769	1	07/12/18 13:58	07/12/18 22:28	LD



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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.

Olivia Studebaker
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	124000		46.0	1000	1	07/12/2018 22:56	WG1136769

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	125000		46.0	1000	1	07/12/2018 23:26	WG1136769

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	127000		46.0	1000	1	07/12/2018 23:31	WG1136769

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	124000	V	46.0	1000	1	07/12/2018 22:28	WG1136769

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3325221-1 07/12/18 22:14

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		46.0	1000

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325221-2 07/12/18 22:19 • (LCSD) R3325221-3 07/12/18 22:24

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Calcium	5000	4880	5120	97.5	102	80.0-120			4.98	20

⁷Gl

⁸Al

L1008375-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1008375-04 07/12/18 22:28 • (MS) R3325221-5 07/12/18 22:37 • (MSD) R3325221-6 07/12/18 22:42

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	5000	124000	127000	127000	63.1	50.9	1	75.0-125	<u>V</u>	<u>V</u>	0.483	20

⁹Sc



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.

Abbreviations and Definitions

MDL	Method Detection Limit.
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.
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- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Qualifier Description

V	The sample concentration is too high to evaluate accurate spike recoveries.
---	---



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Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

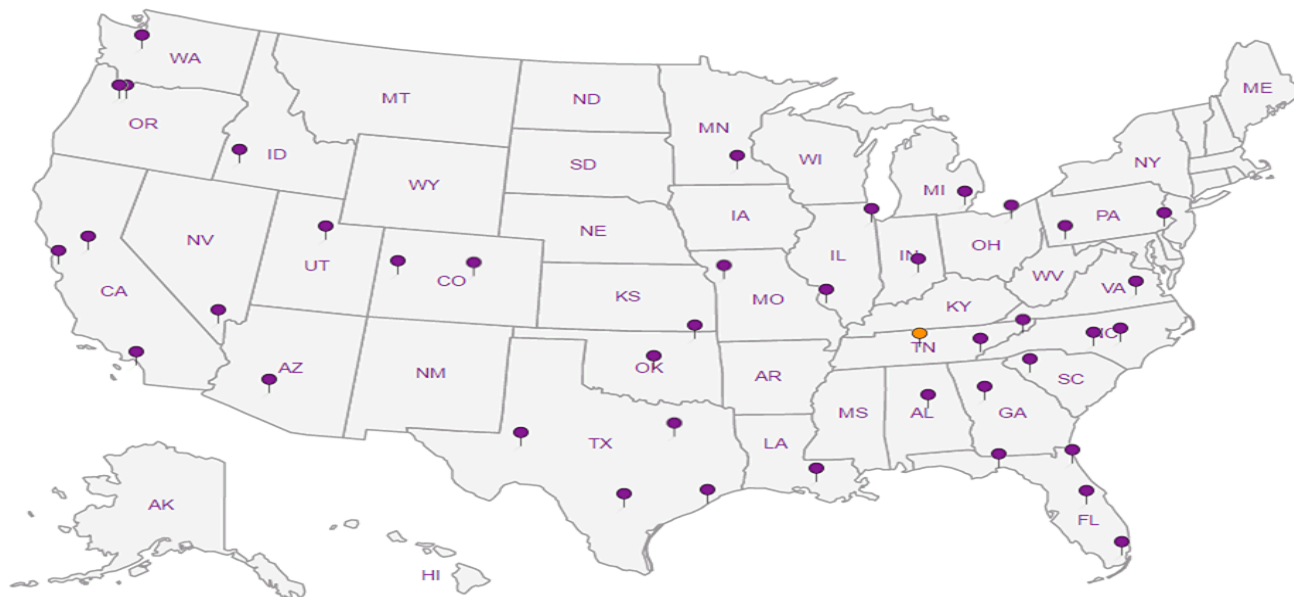
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Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Second Half 2018 Laboratory Reports

October 08, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L1030036
Samples Received: 09/28/2018
Project Number: 14590-1766-001
Description: Plum Point Energy Station

Report To: Chris Lussier
2739 SCR 623
Osceola, AR 72370

Entire Report Reviewed By:



Mark W. Beasley
Project Manager

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Cp: Cover Page	1	1 Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	2 Tc
Cn: Case Narrative	5	
Sr: Sample Results	6	3 Ss
MW-101 L1030036-01	6	
MW-102 L1030036-02	7	4 Cn
MW-103 L1030036-03	8	5 Sr
MW-108 L1030036-04	9	
MW-113 L1030036-05	10	6 Qc
MW-115 L1030036-06	11	
MW-116 L1030036-07	12	7 Gl
MW-117 L1030036-08	13	8 Al
MW-118 L1030036-09	14	
MW-119 L1030036-10	15	9 Sc
MW-116 DUP L1030036-11	16	
EB-2 L1030036-12	17	
Qc: Quality Control Summary	18	
Gravimetric Analysis by Method 2540 C-2011	18	
Wet Chemistry by Method 9056A	24	
Metals (ICP) by Method 6010B	26	
Gl: Glossary of Terms	28	
Al: Accreditations & Locations	29	
Sc: Sample Chain of Custody	30	

SAMPLE SUMMARY



MW-101 L1030036-01 GW

Collected by
Michael Clayton
Collected date/time
09/26/18 14:05
Received date/time
09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1174315	1	10/03/18 19:24	10/03/18 19:56	JER
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 10:14	10/03/18 10:14	MAJ
Metals (ICP) by Method 6010B	WG1175467	1	10/03/18 17:25	10/04/18 17:11	ST

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-102 L1030036-02 GW

Collected by
Michael Clayton
Collected date/time
09/27/18 11:25
Received date/time
09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1175129	1	10/04/18 18:55	10/04/18 19:27	JER
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 10:28	10/03/18 10:28	MAJ
Metals (ICP) by Method 6010B	WG1175467	1	10/03/18 17:25	10/04/18 17:14	ST

MW-103 L1030036-03 GW

Collected by
Michael Clayton
Collected date/time
09/26/18 12:55
Received date/time
09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1174315	1	10/03/18 19:24	10/03/18 19:56	JER
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 10:42	10/03/18 10:42	MAJ
Metals (ICP) by Method 6010B	WG1175467	1	10/03/18 17:25	10/04/18 17:17	ST

MW-108 L1030036-04 GW

Collected by
Michael Clayton
Collected date/time
09/25/18 13:50
Received date/time
09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1173809	1	10/02/18 15:57	10/02/18 16:41	JER
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 10:56	10/03/18 10:56	MAJ
Metals (ICP) by Method 6010B	WG1175467	1	10/03/18 17:25	10/04/18 17:25	ST

MW-113 L1030036-05 GW

Collected by
Michael Clayton
Collected date/time
09/25/18 12:50
Received date/time
09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1173809	1	10/02/18 15:57	10/02/18 16:41	JER
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 11:09	10/03/18 11:09	MAJ
Metals (ICP) by Method 6010B	WG1175467	1	10/03/18 17:25	10/04/18 17:28	ST

MW-115 L1030036-06 GW

Collected by
Michael Clayton
Collected date/time
09/25/18 11:15
Received date/time
09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1174254	1	10/02/18 17:45	10/02/18 18:17	JER
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 11:23	10/03/18 11:23	MAJ
Metals (ICP) by Method 6010B	WG1175467	1	10/03/18 17:25	10/04/18 17:31	ST

SAMPLE SUMMARY



MW-116 L1030036-07 GW

Collected by Michael Clayton
 Collected date/time 09/26/18 15:15
 Received date/time 09/28/18 09:45

1 Cp

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1174318	1	10/03/18 19:58	10/03/18 20:45	AJS
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 12:05	10/03/18 12:05	MAJ
Metals (ICP) by Method 6010B	WG1175467	1	10/03/18 17:25	10/04/18 17:33	ST

2 Tc

3 Ss

MW-117 L1030036-08 GW

Collected by Michael Clayton
 Collected date/time 09/27/18 13:05
 Received date/time 09/28/18 09:45

4 Cn

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1175131	1	10/04/18 17:00	10/04/18 17:00	JER
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 13:01	10/03/18 13:01	MAJ
Metals (ICP) by Method 6010B	WG1173328	1	10/02/18 15:27	10/04/18 14:42	ST

5 Sr

6 Qc

7 Gl

MW-118 L1030036-09 GW

Collected by Michael Clayton
 Collected date/time 09/27/18 14:30
 Received date/time 09/28/18 09:45

8 Al

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1175131	1	10/04/18 17:00	10/04/18 17:00	JER
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 13:15	10/03/18 13:15	MAJ
Metals (ICP) by Method 6010B	WG1173328	1	10/02/18 15:27	10/04/18 14:44	ST

9 Sc

MW-119 L1030036-10 GW

Collected by Michael Clayton
 Collected date/time 09/27/18 09:55
 Received date/time 09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1175131	1	10/04/18 17:00	10/04/18 17:00	JER
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 13:29	10/03/18 13:29	MAJ
Metals (ICP) by Method 6010B	WG1173328	1	10/02/18 15:27	10/04/18 14:47	ST

MW-116 DUP L1030036-11 GW

Collected by Michael Clayton
 Collected date/time 09/26/18 15:20
 Received date/time 09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1174318	1	10/03/18 19:58	10/03/18 20:45	AJS
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 13:43	10/03/18 13:43	MAJ
Metals (ICP) by Method 6010B	WG1173328	1	10/02/18 15:27	10/04/18 14:55	ST

EB-2 L1030036-12 GW

Collected by Michael Clayton
 Collected date/time 09/27/18 15:05
 Received date/time 09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1175131	1	10/04/18 17:00	10/04/18 17:00	JER
Wet Chemistry by Method 9056A	WG1174175	1	10/03/18 14:52	10/03/18 14:52	MAJ
Metals (ICP) by Method 6010B	WG1173328	1	10/02/18 15:27	10/04/18 14:58	ST



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

- 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	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	421000		2820	10000	1	10/03/2018 19:56	WG1174315

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1940		51.9	1000	1	10/03/2018 10:14	WG1174175
Fluoride	290	B	9.90	100	1	10/03/2018 10:14	WG1174175
Sulfate	14600		77.4	5000	1	10/03/2018 10:14	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	98.1	J	12.6	200	1	10/04/2018 17:11	WG1175467
Calcium	115000		46.3	1000	1	10/04/2018 17:11	WG1175467

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	453000		2820	10000	1	10/04/2018 19:27	WG1175129

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	3840		51.9	1000	1	10/03/2018 10:28	WG1174175
Fluoride	183	B	9.90	100	1	10/03/2018 10:28	WG1174175
Sulfate	88600		77.4	5000	1	10/03/2018 10:28	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	121	J	12.6	200	1	10/04/2018 17:14	WG1175467
Calcium	121000		46.3	1000	1	10/04/2018 17:14	WG1175467

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	440000		2820	10000	1	10/03/2018 19:56	WG1174315

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1360		51.9	1000	1	10/03/2018 10:42	WG1174175
Fluoride	217	B	9.90	100	1	10/03/2018 10:42	WG1174175
Sulfate	32800		77.4	5000	1	10/03/2018 10:42	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	145	J	12.6	200	1	10/04/2018 17:17	WG1175467
Calcium	129000		46.3	1000	1	10/04/2018 17:17	WG1175467

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	537000		2820	10000	1	10/02/2018 16:41	WG1173809

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	3110		51.9	1000	1	10/03/2018 10:56	WG1174175
Fluoride	188	B	9.90	100	1	10/03/2018 10:56	WG1174175
Sulfate	52200		77.4	5000	1	10/03/2018 10:56	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	183	J	12.6	200	1	10/04/2018 17:25	WG1175467
Calcium	163000		46.3	1000	1	10/04/2018 17:25	WG1175467

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	337000		2820	10000	1	10/02/2018 16:41	WG1173809

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2840		51.9	1000	1	10/03/2018 11:09	WG1174175
Fluoride	114	B	9.90	100	1	10/03/2018 11:09	WG1174175
Sulfate	9810		77.4	5000	1	10/03/2018 11:09	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	111	J	12.6	200	1	10/04/2018 17:28	WG1175467
Calcium	90000		46.3	1000	1	10/04/2018 17:28	WG1175467

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	417000		2820	10000	1	10/02/2018 18:17	WG1174254

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1180		51.9	1000	1	10/03/2018 11:23	WG1174175
Fluoride	216	B	9.90	100	1	10/03/2018 11:23	WG1174175
Sulfate	5000	J	77.4	5000	1	10/03/2018 11:23	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	76.4	J	12.6	200	1	10/04/2018 17:31	WG1175467
Calcium	123000		46.3	1000	1	10/04/2018 17:31	WG1175467

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	500000		2820	10000	1	10/03/2018 20:45	WG1174318

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	4130		51.9	1000	1	10/03/2018 12:05	WG1174175
Fluoride	183	<u>B J6</u>	9.90	100	1	10/03/2018 12:05	WG1174175
Sulfate	97500	<u>J6</u>	77.4	5000	1	10/03/2018 12:05	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	153	<u>J</u>	12.6	200	1	10/04/2018 17:33	WG1175467
Calcium	132000		46.3	1000	1	10/04/2018 17:33	WG1175467

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	318000		2820	10000	1	10/04/2018 17:00	WG1175131

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1250		51.9	1000	1	10/03/2018 13:01	WG1174175
Fluoride	144	B	9.90	100	1	10/03/2018 13:01	WG1174175
Sulfate	7190		77.4	5000	1	10/03/2018 13:01	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	127	J	12.6	200	1	10/04/2018 14:42	WG1173328
Calcium	89800		46.3	1000	1	10/04/2018 14:42	WG1173328

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	375000		2820	10000	1	10/04/2018 17:00	WG1175131

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1330		51.9	1000	1	10/03/2018 13:15	WG1174175
Fluoride	165	B	9.90	100	1	10/03/2018 13:15	WG1174175
Sulfate	17000		77.4	5000	1	10/03/2018 13:15	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	113	J	12.6	200	1	10/04/2018 14:44	WG1173328
Calcium	80600		46.3	1000	1	10/04/2018 14:44	WG1173328

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	290000		2820	10000	1	10/04/2018 17:00	WG1175131

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2300		51.9	1000	1	10/03/2018 13:29	WG1174175
Fluoride	253	B	9.90	100	1	10/03/2018 13:29	WG1174175
Sulfate	41600		77.4	5000	1	10/03/2018 13:29	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	103	J	12.6	200	1	10/04/2018 14:47	WG1173328
Calcium	99000		46.3	1000	1	10/04/2018 14:47	WG1173328

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	512000		2820	10000	1	10/03/2018 20:45	WG1174318

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	4140		51.9	1000	1	10/03/2018 13:43	WG1174175
Fluoride	189	B	9.90	100	1	10/03/2018 13:43	WG1174175
Sulfate	98400		77.4	5000	1	10/03/2018 13:43	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	121	J	12.6	200	1	10/04/2018 14:55	WG1173328
Calcium	130000		46.3	1000	1	10/04/2018 14:55	WG1173328

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	U		2820	10000	1	10/04/2018 17:00	WG1175131

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	311	J	51.9	1000	1	10/03/2018 14:52	WG1174175
Fluoride	U		9.90	100	1	10/03/2018 14:52	WG1174175
Sulfate	U		77.4	5000	1	10/03/2018 14:52	WG1174175

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	53.3	J	12.6	200	1	10/04/2018 14:58	WG1173328
Calcium	500	J	46.3	1000	1	10/04/2018 14:58	WG1173328

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3347436-1 10/02/18 16:41

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	3000	↓	2820	10000

1 Cp

2 Tc

3 Ss

L1030012-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1030012-09 10/02/18 16:41 • (DUP) R3347436-4 10/02/18 16:41

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	653000	677000	1	3.61		5

4 Cn

5 Sr

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3347436-2 10/02/18 16:41 • (LCSD) R3347436-3 10/02/18 16:41

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800000	8660000	8670000	98.4	98.5	85.0-115			0.115	5

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3347430-1 10/02/18 18:17

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3347430-2 10/02/18 18:17 • (LCSD) R3347430-3 10/02/18 18:17

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800000	8740000	8940000	99.3	102	85.0-115			2.26	5

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3347808-1 10/03/18 19:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

4 Cn

L1030012-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1030012-03 10/03/18 19:56 • (DUP) R3347808-4 10/03/18 19:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	396000	401000	1	1.25		5

5 Sr

6 Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3347808-2 10/03/18 19:56 • (LCSD) R3347808-3 10/03/18 19:56

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8560000	8530000	97.3	96.9	85.0-115			0.351	5

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3347801-1 10/03/18 20:45

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L1030003-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1030003-04 10/03/18 20:45 • (DUP) R3347801-4 10/03/18 20:45

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	338000	343000	1	1.47		5

7 Gl

8 Al

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3347801-2 10/03/18 20:45 • (LCSD) R3347801-3 10/03/18 20:45

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8580000	8680000	97.5	98.6	85.0-115			1.16	5

9 Sc



Method Blank (MB)

(MB) R3348180-1 10/04/18 19:27

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

4 Cn

L1030003-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1030003-02 10/04/18 19:27 • (DUP) R3348180-4 10/04/18 19:27

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	437000	453000	1	3.60		5

5 Sr

6 Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3348180-2 10/04/18 19:27 • (LCSD) R3348180-3 10/04/18 19:27

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8620000	8620000	98.0	98.0	85.0-115			0.000	5

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3348179-1 10/04/18 17:00

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	3000	↓	2820	10000

¹ Cp

² Tc

³ Ss

L1029872-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1029872-01 10/04/18 17:00 • (DUP) R3348179-4 10/04/18 17:00

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	170000	174000	1	2.33		5

⁴ Cn

⁵ Sr

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3348179-2 10/04/18 17:00 • (LCSD) R3348179-3 10/04/18 17:00

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Dissolved Solids	8800000	8650000	8640000	98.3	98.2	85.0-115			0.116	5

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3347403-1 10/03/18 08:50

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		51.9	1000
Fluoride	67.7	J	9.90	100
Sulfate	U		77.4	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1030036-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1030036-07 10/03/18 12:05 • (DUP) R3347403-4 10/03/18 12:19

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	4130	3980	1	3.69		15
Fluoride	183	207	1	12.3		15
Sulfate	97500	97500	1	0.00379		15

L1030036-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1030036-11 10/03/18 13:43 • (DUP) R3347403-7 10/03/18 13:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	4140	4080	1	1.59		15
Fluoride	189	196	1	3.49		15
Sulfate	98400	98200	1	0.134		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3347403-2 10/03/18 09:04 • (LCSD) R3347403-3 10/03/18 09:18

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40000	39300	39400	98.2	98.5	80.0-120			0.307	15
Fluoride	8000	8020	8040	100	101	80.0-120			0.298	15
Sulfate	40000	39500	39900	98.7	99.6	80.0-120			0.911	15



L1030036-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1030036-07 10/03/18 12:05 • (MS) R3347403-5 10/03/18 12:33 • (MSD) R3347403-6 10/03/18 12:47

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	4130	44800	45900	81.4	83.5	1	80.0-120			2.30	15
Fluoride	5000	183	4020	4380	76.6	83.9	1	80.0-120	J6		8.66	15
Sulfate	50000	97500	132000	133000	69.4	71.0	1	80.0-120	E J6	E J6	0.607	15

L1030036-11 Original Sample (OS) • Matrix Spike (MS)

(OS) L1030036-11 10/03/18 13:43 • (MS) R3347403-8 10/03/18 14:10

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	4140	54500	101	1	80.0-120	
Fluoride	5000	189	4940	95.0	1	80.0-120	
Sulfate	50000	98400	141000	84.9	1	80.0-120	E

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3347817-1 10/04/18 14:24

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Boron	U		12.6	200
Calcium	U		46.3	1000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3347817-2 10/04/18 14:26 • (LCSD) R3347817-3 10/04/18 14:29

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Boron	1000	986	1010	98.6	101	80.0-120			1.96	20
Calcium	10000	9810	9950	98.1	99.5	80.0-120			1.41	20

L1030040-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1030040-01 10/04/18 14:31 • (MS) R3347817-5 10/04/18 14:37 • (MSD) R3347817-6 10/04/18 14:39

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	ND	1110	1080	101	97.7	1	75.0-125			2.62	20
Calcium	10000	418000	422000	422000	41.2	43.7	1	75.0-125	V	V	0.0602	20



Method Blank (MB)

(MB) R3347811-1 10/04/18 16:20

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Boron	U		12.6	200
Calcium	U		46.3	1000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3347811-2 10/04/18 16:22 • (LCSD) R3347811-3 10/04/18 16:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Boron	1000	1040	1030	104	103	80.0-120			0.820	20
Calcium	10000	10100	9950	101	99.5	80.0-120			1.34	20

L1030003-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1030003-05 10/04/18 16:28 • (MS) R3347811-5 10/04/18 16:33 • (MSD) R3347811-6 10/04/18 16:35

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	109	1150	1140	104	103	1	75.0-125			1.20	20
Calcium	10000	20800	32700	32700	119	119	1	75.0-125			0.103	20



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.

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.
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.

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

Qualifier	Description
B	The same analyte is found in the associated blank.
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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

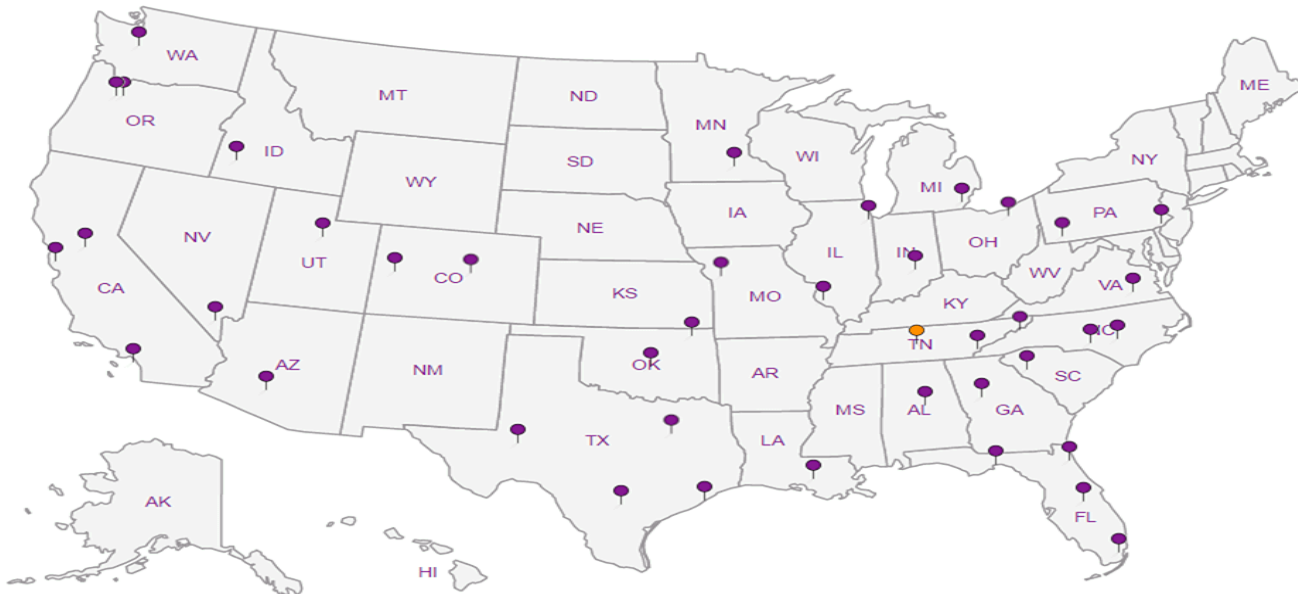
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



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



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-787-5859
Fax: 615-758-5859



Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, dld@ftn-assoc.com, hlf@ftn-assoc.com

Project
Description: **Plum Point Energy Station**

City/State
Collected:

Phone: **870-815-1248**
Fax:

Client Project #
14590-1766-001

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
Cnts

Immediately
Packed on Ice N ___ Y ___

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	Cl, F, SO4, TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3
MW-116 DUP		GW		9/26/18	1520	2	X	X
EB-2		GW		9/27/18	1505	2	X	X
		GW				2	X	X
		GW				2	X	X
		GW				2	X	X

L# **1030036**

Table #

Acctnum: **NAESOAR**
Template: **T134757**
Prelogin: **P672602**
TSR: **134 - Mark W. Beasley**
PB:
Shipped Via: **FedEX Ground**

Remarks	Sample # (lab only)
	-11
	-12

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

Remarks:
RAD SCREEN: <0.5 mR/hr

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

Relinquished by: (Signature) *Michael C...* Date: **9/27/18** Time: **1800**

Relinquished by: (Signature) _____ Date: _____ Time: _____

Relinquished by: (Signature) _____ Date: _____ Time: _____

Received by: (Signature) _____ Trip Blank Received: Yes No
HCL/MeOH
TBR

Received by: (Signature) _____ Temp: **4.45°C** Bottles Received: **24**

Received for job by: (Signature) *...* Date: **9/28/18** Time: **0945**

If preservation required by Login: Date/Time

Hold:

Condition: **NCF** OK

October 31, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L1039096
Samples Received: 09/28/2018
Project Number: 14590-1766-001
Description: Plum Point Energy Station

Report To: Chris Lussier
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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	²Tc
Ss: Sample Summary	3	³Ss
Cn: Case Narrative	4	⁴Cn
Sr: Sample Results	5	⁵Sr
MW-115 L1039096-01	5	
MW-116 L1039096-02	6	⁴Cn
MW-117 L1039096-03	7	⁵Sr
Qc: Quality Control Summary	8	⁶Qc
Metals (ICP) by Method 6010B	8	⁶Qc
Gl: Glossary of Terms	9	⁷Gl
Al: Accreditations & Locations	10	⁸Al
Sc: Sample Chain of Custody	11	⁹Sc

SAMPLE SUMMARY



MW-115 L1039096-01 GW

Collected by: Michael Clayton
 Collected date/time: 09/25/18 11:15
 Received date/time: 09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1188395	1	10/30/18 13:37	10/30/18 19:48	ST

¹ Cp

² Tc

³ Ss

MW-116 L1039096-02 GW

Collected by: Michael Clayton
 Collected date/time: 09/26/18 15:15
 Received date/time: 09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1188395	1	10/30/18 13:37	10/30/18 19:51	ST

⁴ Cn

⁵ Sr

MW-117 L1039096-03 GW

Collected by: Michael Clayton
 Collected date/time: 09/27/18 13:05
 Received date/time: 09/28/18 09:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1188395	1	10/30/18 13:37	10/30/18 19:54	ST

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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

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



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	121000		46.3	1000	1	10/30/2018 19:48	WG1188395

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	130000		46.3	1000	1	10/30/2018 19:51	WG1188395

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	89700		46.3	1000	1	10/30/2018 19:54	WG1188395

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3355367-1 10/30/18 18:41

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		46.3	1000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3355367-2 10/30/18 18:43 • (LCSD) R3355367-3 10/30/18 18:46

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Calcium	10000	9760	9640	97.6	96.4	80.0-120			1.25	20

L1039094-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1039094-02 10/30/18 18:48 • (MS) R3355367-5 10/30/18 18:53 • (MSD) R3355367-6 10/30/18 18:56

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	53600	67400	67400	137	137	1	75.0-125	<u>V</u>	<u>V</u>	0.00416	20

⁷ Gl

⁸ Al

⁹ Sc



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Abbreviations and Definitions

MDL	Method Detection Limit.
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.
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.

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

Qualifier Description

V	The sample concentration is too high to evaluate accurate spike recoveries.
---	---



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

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

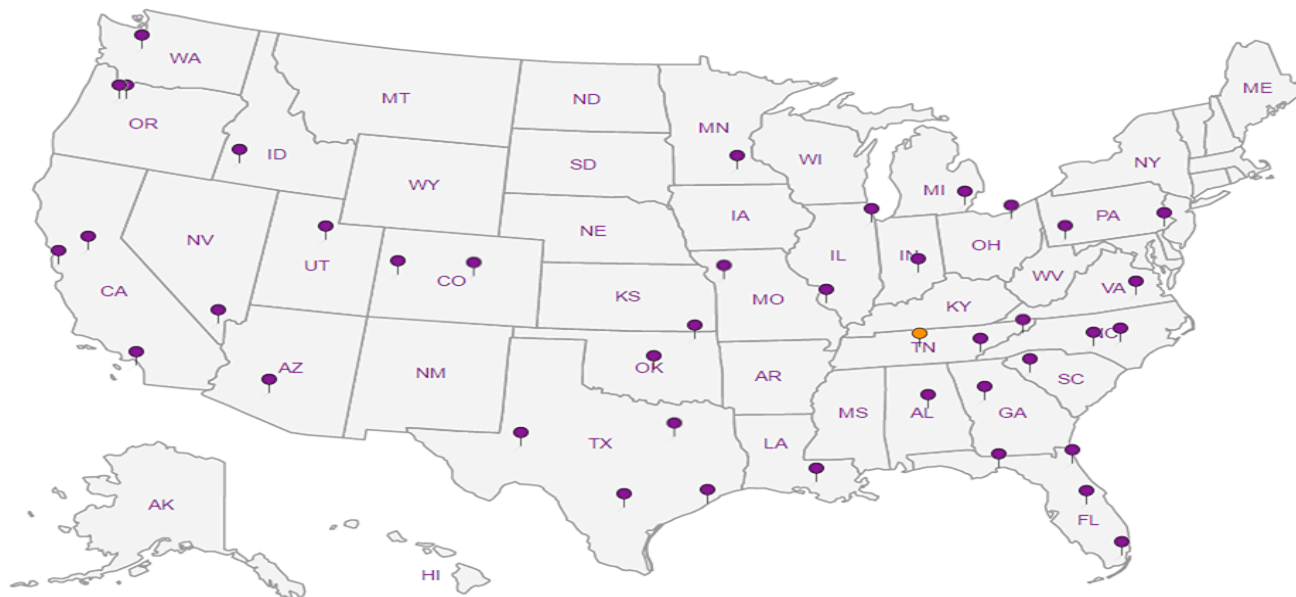
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Plum Point Services Co., LLC

2739 SCR 623
Osceola, AR 72370

Billing information:

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

Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, dld@ftn-assoc.com, hlf@ftn-assoc.com

Project
Description: Plum Point Energy Station

City/State
Collected:

Phone: 870-815-1248
Fax:

Client Project #
14590-1766-001

Lab Project #
NAESOAR-PLUMPOINT

Collected by (print):
Mark Clayton

Site/Facility ID #

P.O. #

Collected by (signature):
Mark Clayton

Rush? (Lab MUST Be Notified)

Quote #

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

Date Results Needed

Immediately
Packed on Ice: N Y

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 2



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-757-5858
Fax: 615-758-5858



L# 1030030
G142
L1039096

Account: NAESOAR
Template: T134757
Prelogin: P672602
TSR: 134 - Mark W. Beasley

Shipped Via: FedEx Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl, F, SO4, TDS 250mlHDPE-NoPros	Total B. Ca 250mlHDPE-HNO3											
MW-101	Grab	GW		9/26/18	1405	2	X	X											
MW-102		GW		9/27/18	1125	2	X	X											
MW-103		GW		9/26/18	1255	2	X	X											
MW-108		GW		9/25/18	1350	2	X	X											
MW-113		GW		9/25/18	1250	2	X	X											
MW-115		GW		9/25/18	1115	2	X	X											
MW-116		GW		9/26/18	1515	2	X	X											
MW-117		GW		9/27/18	1305	2	X	X											
MW-118		GW		9/27/18	1430	2	X	X											
MW-119		GW		9/27/18	955	2	X	X											

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

Remarks:

RAD SCREEN: <0.5 mR/hr

Samples returned via
UPS FedEx Courier

Tracking # 991262320613

pH _____ Temp _____
Flow _____ Other _____

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 Headpace: Y N

Preservation Correct/Checked: Y N

Relinquished by: (Signature) <i>Mark Clayton</i>	Date: 9/27/18	Time: 1800	Received by: (Signature) <i>[Signature]</i>	Trip Blank Received: Yes/No HCL/MeOH TBR
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C 4.45/30
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 9/27/18

If preservation required by Login: Date/Time

Hold: _____ Condition: NCF/10K

Andy Vann

From: Mark Beasley
Sent: Tuesday, October 30, 2018 8:28 AM
To: Login; Sample Storage
Subject: L1030036 *FTNLRAR* relog

Relog L1030036-06, -07, & -08 for CAICP. Log as EX due 11/1.

Thanks
Mark

From: Heather Ferguson [mailto:hlf@ftn-assoc.com]
Sent: Monday, October 29, 2018 5:03 PM
To: Mark Beasley
Cc: Dana Derrington
Subject: FW: Pace National Report for 14590-1766-001 Plum Point Energy Station L1030036
Importance: High

Good afternoon Mark,

If it's still possible, could you ask the lab to verify/re-run the following samples from the attached SDG to confirm their values?

Calcium (mg/l)	MW-115
Calcium (mg/l)	MW-116
Calcium (mg/l)	MW-117

Thanks so much!
Heather



Heather Ferguson
FTN Associates, Ltd.
3 Innwood Circle, Suite 220 • Little Rock, AR 72211 (501) 225-7779 • fax (501) 225-6738
hlf@ftn-assoc.com <http://www.ftn-assoc.com>

December 03, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L1046668
Samples Received: 11/21/2018
Project Number: 14590-1766-001
Description: Plum Point Energy Station

Report To: Chris Lussier
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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SAMPLE SUMMARY



MW-119 L1046668-01 GW

Collected by
Michael Clayton
Collected date/time
11/20/18 14:35
Received date/time
11/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1201703	1	11/27/18 16:33	11/27/18 17:18	AJS
Wet Chemistry by Method 9056A	WG1200815	1	11/24/18 18:50	11/24/18 18:50	MAJ
Metals (ICP) by Method 6010B	WG1200420	1	11/24/18 10:44	11/24/18 18:00	WBD

1
Cp

2
Tc

3
Ss

MW-119 DUP L1046668-02 GW

Collected by
Michael Clayton
Collected date/time
11/20/18 14:40
Received date/time
11/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1201705	1	11/27/18 17:21	11/27/18 17:57	AEC
Wet Chemistry by Method 9056A	WG1200815	1	11/24/18 19:07	11/24/18 19:07	MAJ
Metals (ICP) by Method 6010B	WG1200420	1	11/24/18 10:44	11/24/18 18:10	WBD

4
Cn

5
Sr

6
Qc

EPA EB-1 L1046668-03 GW

Collected by
Michael Clayton
Collected date/time
11/20/18 14:55
Received date/time
11/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1201705	1	11/27/18 17:21	11/27/18 17:57	AEC
Wet Chemistry by Method 9056A	WG1200815	1	11/24/18 19:23	11/24/18 19:23	MAJ
Metals (ICP) by Method 6010B	WG1200420	1	11/24/18 10:44	11/24/18 18:13	WBD

7
Gl

8
Al

9
Sc

MW-117 L1046668-04 GW

Collected by
Michael Clayton
Collected date/time
11/19/18 16:00
Received date/time
11/21/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1200497	1	11/26/18 16:10	11/26/18 16:36	AJS
Metals (ICP) by Method 6010B	WG1200420	1	11/24/18 10:44	11/24/18 18:15	WBD



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

- 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	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	343000		2820	10000	1	11/27/2018 17:18	WG1201703

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1960		51.9	1000	1	11/24/2018 18:50	WG1200815
Fluoride	271		9.90	100	1	11/24/2018 18:50	WG1200815
Sulfate	33000		77.4	5000	1	11/24/2018 18:50	WG1200815

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	82.6	J	12.6	200	1	11/24/2018 18:00	WG1200420
Calcium	94000	O1	46.3	1000	1	11/24/2018 18:00	WG1200420

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	340000	J4	2820	10000	1	11/27/2018 17:57	WG1201705

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1910		51.9	1000	1	11/24/2018 19:07	WG1200815
Fluoride	273		9.90	100	1	11/24/2018 19:07	WG1200815
Sulfate	32700		77.4	5000	1	11/24/2018 19:07	WG1200815

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	86.6	J	12.6	200	1	11/24/2018 18:10	WG1200420
Calcium	95700		46.3	1000	1	11/24/2018 18:10	WG1200420

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	U	J4	2820	10000	1	11/27/2018 17:57	WG1201705

Sample Narrative:

L1046668-03 WG1201705: results confirm

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	U		51.9	1000	1	11/24/2018 19:23	WG1200815
Fluoride	U		9.90	100	1	11/24/2018 19:23	WG1200815
Sulfate	U		77.4	5000	1	11/24/2018 19:23	WG1200815

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	41.6	J	12.6	200	1	11/24/2018 18:13	WG1200420
Calcium	U		46.3	1000	1	11/24/2018 18:13	WG1200420

- 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	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	288000		2820	10000	1	11/26/2018 16:36	WG1200497

1 Cp

2 Tc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	85700		46.3	1000	1	11/24/2018 18:15	WG1200420

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3363353-1 11/26/18 16:36

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	3000	↓	2820	10000

¹ Cp

² Tc

³ Ss

L1046668-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1046668-04 11/26/18 16:36 • (DUP) R3363353-3 11/26/18 16:36

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	288000	289000	1	0.347		5

⁴ Cn

⁵ Sr

Laboratory Control Sample (LCS)

(LCS) R3363353-2 11/26/18 16:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	8770000	99.7	85.0-115	

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3363971-1 11/27/18 17:18

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

L1046649-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1046649-01 11/27/18 17:18 • (DUP) R3363971-3 11/27/18 17:18

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2920000	2950000	1	1.19		5

4 Cn

5 Sr

Laboratory Control Sample (LCS)

(LCS) R3363971-2 11/27/18 17:18

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800000	7560000	85.9	85.0-115	

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3363750-4 11/27/18 17:57

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L1046749-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1046749-06 11/27/18 17:57 • (DUP) R3363750-3 11/27/18 17:57

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1100000	1230000	1	10.8	J3	5

Sample Narrative:

OS: results confirm

Laboratory Control Sample (LCS)

(LCS) R3363750-2 11/27/18 17:57

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Dissolved Solids	8800000	6230000	70.8	85.0-115	J4

Sample Narrative:

LCS: results confirm



Method Blank (MB)

(MB) R3363092-1 11/24/18 05:01

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		51.9	1000
Fluoride	U		9.90	100
Sulfate	U		77.4	5000

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1046667-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1046667-01 11/24/18 17:45 • (DUP) R3363092-3 11/24/18 18:01

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	14600	14600	1	0.233		15
Fluoride	30.9	30.5	1	1.30	J	15
Sulfate	12700	12700	1	0.540		15

L1046708-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1046708-11 11/24/18 22:24 • (DUP) R3363092-5 11/24/18 22:40

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	51800	51600	1	0.339		15
Fluoride	155	153	1	1.49		15
Sulfate	51200	49500	1	3.31		15

Laboratory Control Sample (LCS)

(LCS) R3363092-2 11/24/18 05:17

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	40000	39100	97.8	80.0-120	
Fluoride	8000	7930	99.1	80.0-120	
Sulfate	40000	39300	98.1	80.0-120	



L1046689-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1046689-01 11/24/18 20:29 • (MS) R3363092-4 11/24/18 20:45

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Fluoride	5000	1120	6350	104	1	80.0-120	
Sulfate	50000	U	48300	96.6	1	80.0-120	

L1046721-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1046721-08 11/25/18 00:19 • (MS) R3363092-6 11/25/18 00:35 • (MSD) R3363092-7 11/25/18 00:52

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Chloride	50000	2370	52800	52700	101	101	1	80.0-120			0.0764	15
Fluoride	5000	ND	4920	4970	98.4	99.4	1	80.0-120			1.02	15
Sulfate	50000	ND	53000	53200	100	101	1	80.0-120			0.274	15

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3362636-1 11/24/18 17:52

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Boron	U		12.6	200
Calcium	U		46.3	1000

1 Cp

2 Tc

3 Ss

4 Cn

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3362636-2 11/24/18 17:55 • (LCSD) R3362636-3 11/24/18 17:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Boron	1000	1020	1000	102	100	80.0-120			1.43	20
Calcium	10000	9910	9850	99.1	98.5	80.0-120			0.592	20

5 Sr

6 Qc

L1046668-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1046668-01 11/24/18 18:00 • (MS) R3362636-5 11/24/18 18:05 • (MSD) R3362636-6 11/24/18 18:07

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	82.6	1080	1100	99.9	101	1	75.0-125			1.47	20
Calcium	10000	94000	104000	104000	96.4	102	1	75.0-125			0.496	20

7 Gl

8 Al

9 Sc



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.

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.
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.
J4	The associated batch QC was outside the established quality control range for accuracy.
O1	The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

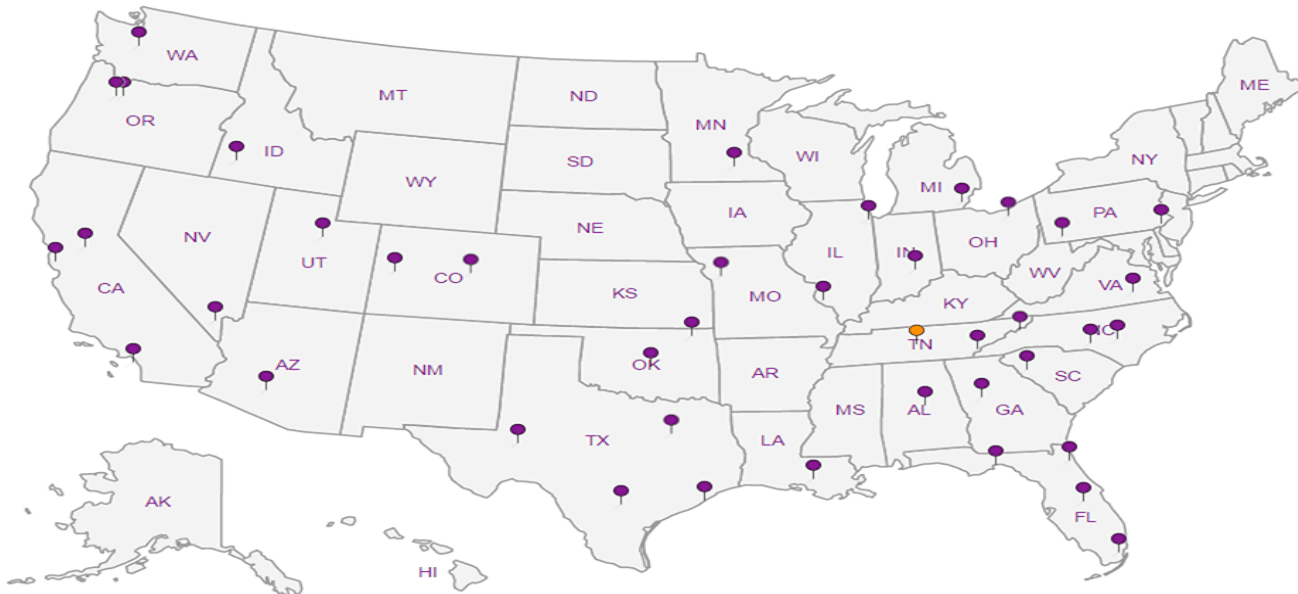
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 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

Chain of Custody Page 1 of 1



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, did@ftn-
assoc.com, hf@ftn-assoc.com

Project
Description: **Plum Point Energy Station**

City/State
Collected:

Phone: **870-815-1248**
Fax:

Client Project #
14590-1766-001

Lab Project #
NAESOAR-PLUMPOINT

Collected by (print):
Chris Lussier

Site/Facility ID #

P.O. #

Collected by (signature):
Chris Lussier

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

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	Ca only 250mlHDPE-HNO3	Cl, F, SO4, TDS 250mlHDPE-NoPres	TDS only 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3
MW-119	Grab	GW		11-20-18	1435	2	X			X
MW-119 DUP	↓	GW		11-20-18	1440	2	X			X
EPA EB-1	↓	GW		11-20-18	1455	2	X			X
		GW				2	X			X
		GW				2	X			X
MW-117	Grab	GW		11-19-18	1600	2	X		X	

L # **4046668**
 M165
 Acctnum: **NAESOAR**
 Template: **T142998**
 Prelogin: **P681012**
 TSR: **134 - Mark W. Beasley**
 PB:
 Shipped Via: **FedEX Ground**

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

Remarks:

Samples returned via:
 UPS FedEx Courier

Tracking # **4624 3005 3235**

pH _____ Temp _____
 Flow _____ Other _____

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 mBq/l

Relinquished by: (Signature)
Chris Lussier
 Date: **11-20-18** Time: **1730**

Received by: (Signature)
 Date: _____ Time: _____

Trip Blank Received: Yes/No
 HCL / MeOH
 TBR
 Temp: **+0.5 °C**
1.52.00
 Bottles Received: **8**

If preservation required by Login: Date/Time
 Hold: _____ Condition: **NCF / 03**

December 24, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L1054671
Samples Received: 12/19/2018
Project Number: 14590-1766-001
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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	1 Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	2 Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	3 Ss
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MW-119 DUP L1054671-02	6	4 Cn
Qc: Quality Control Summary	7	5 Sr
Mercury by Method 7470A	7	
Metals (ICP) by Method 6010B	8	6 Qc
Metals (ICPMS) by Method 6020	9	
Gl: Glossary of Terms	11	7 Gl
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Sc: Sample Chain of Custody	13	9 Sc

SAMPLE SUMMARY



MW-119 L1054671-01 GW

Collected by Michael Clayton	Collected date/time 12/18/18 12:25	Received date/time 12/19/18 09:15
---------------------------------	---------------------------------------	--------------------------------------

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1213623	1	12/20/18 10:02	12/20/18 19:47	TCT
Metals (ICP) by Method 6010B	WG1213747	1	12/20/18 15:46	12/22/18 09:55	WBD
Metals (ICPMS) by Method 6020	WG1213773	1	12/20/18 10:16	12/20/18 21:08	LD

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

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Al

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Sc

MW-119 DUP L1054671-02 GW

Collected by Michael Clayton	Collected date/time 12/18/18 12:30	Received date/time 12/19/18 09:15
---------------------------------	---------------------------------------	--------------------------------------

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Mercury by Method 7470A	WG1213623	1	12/20/18 10:02	12/20/18 19:55	TCT
Metals (ICP) by Method 6010B	WG1213747	1	12/20/18 15:46	12/22/18 09:58	WBD
Metals (ICPMS) by Method 6020	WG1213773	1	12/20/18 10:16	12/20/18 21:12	LD



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

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



Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.0490	0.200	1	12/20/2018 19:47	WG1213623

¹ Cp

² Tc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Lithium	24.6		5.30	15.0	1	12/22/2018 09:55	WG1213747
Molybdenum	U		1.60	5.00	1	12/22/2018 09:55	WG1213747

³ Ss

⁴ Cn

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Antimony	U		0.754	2.00	1	12/20/2018 21:08	WG1213773
Arsenic	0.485	J	0.250	2.00	1	12/20/2018 21:08	WG1213773
Barium	179		0.360	5.00	1	12/20/2018 21:08	WG1213773
Beryllium	U		0.120	2.00	1	12/20/2018 21:08	WG1213773
Cadmium	U		0.160	1.00	1	12/20/2018 21:08	WG1213773
Chromium	U		0.540	2.00	1	12/20/2018 21:08	WG1213773
Cobalt	1.67	J	0.260	2.00	1	12/20/2018 21:08	WG1213773
Lead	U		0.240	2.00	1	12/20/2018 21:08	WG1213773
Selenium	0.520	J	0.380	2.00	1	12/20/2018 21:08	WG1213773
Thallium	U		0.190	2.00	1	12/20/2018 21:08	WG1213773

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Mercury by Method 7470A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Mercury	U		0.0490	0.200	1	12/20/2018 19:55	WG1213623

1 Cp

2 Tc

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Lithium	24.8		5.30	15.0	1	12/22/2018 09:58	WG1213747
Molybdenum	U		1.60	5.00	1	12/22/2018 09:58	WG1213747

3 Ss

4 Cn

5 Sr

Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Antimony	U		0.754	2.00	1	12/20/2018 21:12	WG1213773
Arsenic	0.487	J	0.250	2.00	1	12/20/2018 21:12	WG1213773
Barium	178		0.360	5.00	1	12/20/2018 21:12	WG1213773
Beryllium	U		0.120	2.00	1	12/20/2018 21:12	WG1213773
Cadmium	0.169	J	0.160	1.00	1	12/20/2018 21:12	WG1213773
Chromium	U		0.540	2.00	1	12/20/2018 21:12	WG1213773
Cobalt	1.65	J	0.260	2.00	1	12/20/2018 21:12	WG1213773
Lead	0.894	B J	0.240	2.00	1	12/20/2018 21:12	WG1213773
Selenium	0.453	J	0.380	2.00	1	12/20/2018 21:12	WG1213773
Thallium	U		0.190	2.00	1	12/20/2018 21:12	WG1213773

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3370227-1 12/20/18 18:56

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Mercury	U		0.0490	0.200

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3370227-2 12/20/18 18:59 • (LCSD) R3370227-3 12/20/18 19:01

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	3.00	3.00	3.03	100	101	80.0-120			1.01	20

L1054625-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1054625-01 12/20/18 19:03 • (MS) R3370227-4 12/20/18 19:06 • (MSD) R3370227-5 12/20/18 19:08

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 %
Mercury	3.00	0.206	3.07	3.16	95.3	98.4	1	75.0-125			2.94	20

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3370770-1 12/22/18 09:20

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Lithium	U		5.30	15.0
Molybdenum	U		1.60	5.00

¹Cp

²Tc

³Ss

⁴Cn

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3370770-2 12/22/18 09:23 • (LCSD) R3370770-3 12/22/18 09:25

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Lithium	1000	961	998	96.1	99.8	80.0-120			3.75	20
Molybdenum	1000	1010	1020	101	102	80.0-120			1.17	20

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3370221-1 12/20/18 20:00

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Antimony	U		0.754	2.00
Arsenic	U		0.250	2.00
Barium	U		0.360	5.00
Beryllium	U		0.120	2.00
Cadmium	U		0.160	1.00
Chromium	U		0.540	2.00
Cobalt	U		0.260	2.00
Lead	0.961	J	0.240	2.00
Selenium	U		0.380	2.00
Thallium	U		0.190	2.00

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3370221-2 12/20/18 20:05 • (LCSD) R3370221-3 12/20/18 20:09

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Antimony	50.0	49.6	48.9	99.2	97.8	80.0-120			1.38	20
Arsenic	50.0	50.4	51.1	101	102	80.0-120			1.27	20
Barium	50.0	47.5	46.9	95.0	93.9	80.0-120			1.16	20
Beryllium	50.0	47.4	46.6	94.8	93.1	80.0-120			1.78	20
Cadmium	50.0	51.8	52.7	104	105	80.0-120			1.67	20
Chromium	50.0	53.0	52.2	106	104	80.0-120			1.56	20
Cobalt	50.0	54.2	53.1	108	106	80.0-120			2.06	20
Lead	50.0	52.1	51.4	104	103	80.0-120			1.27	20
Selenium	50.0	51.5	53.4	103	107	80.0-120			3.58	20
Thallium	50.0	52.4	52.1	105	104	80.0-120			0.636	20

L1054785-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1054785-02 12/20/18 20:13 • (MS) R3370221-5 12/20/18 20:22 • (MSD) R3370221-6 12/20/18 20:26

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	%	%		%			%	%
Antimony	50.0	ND	48.6	48.8	97.2	97.6	1	75.0-125			0.359	20
Arsenic	50.0	3.64	51.7	54.3	96.1	101	1	75.0-125			4.91	20
Barium	50.0	20.7	64.5	67.1	87.5	92.8	1	75.0-125			3.98	20
Beryllium	50.0	ND	46.3	46.0	91.4	90.7	1	75.0-125			0.698	20
Cadmium	50.0	ND	53.6	52.1	106	103	1	75.0-125			2.74	20
Chromium	50.0	5.00	56.3	56.5	103	103	1	75.0-125			0.228	20
Cobalt	50.0	5.96	59.0	58.9	106	106	1	75.0-125			0.123	20



L1054785-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1054785-02 12/20/18 20:13 • (MS) R3370221-5 12/20/18 20:22 • (MSD) R3370221-6 12/20/18 20:26

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Lead	50.0	5.18	57.8	57.3	105	104	1	75.0-125			0.863	20
Selenium	50.0	ND	49.2	52.1	98.5	104	1	75.0-125			5.65	20
Thallium	50.0	ND	52.4	52.8	105	106	1	75.0-125			0.799	20

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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.

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.
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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.

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

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

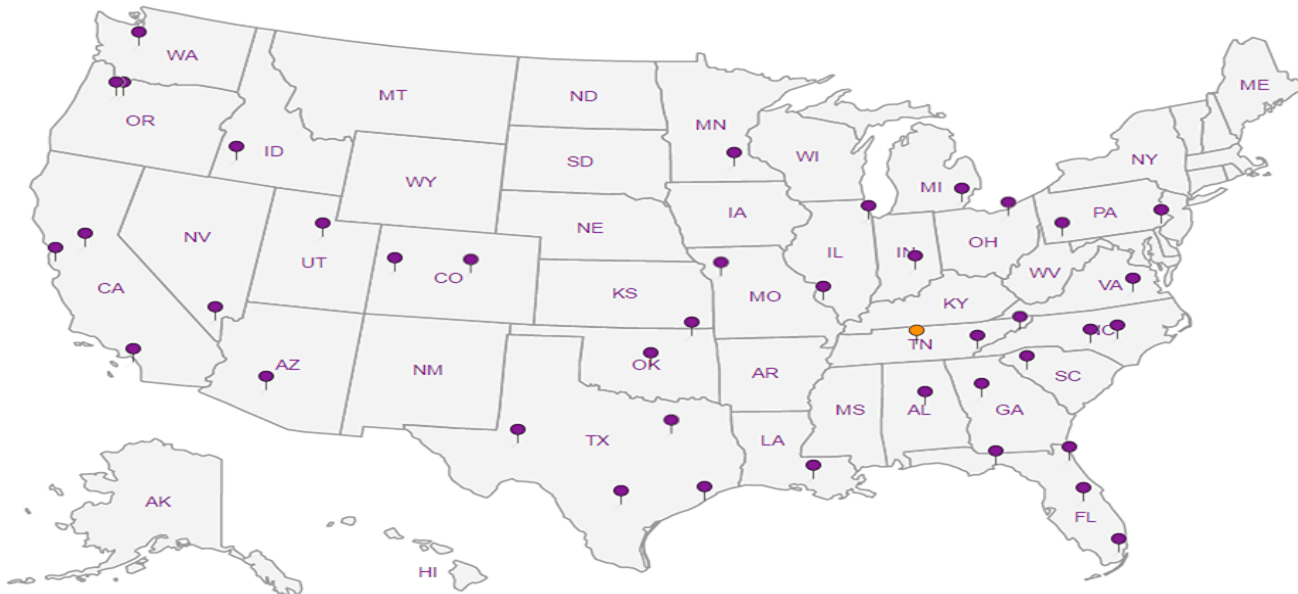
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Plum Point Services Co., LLC

2739 SCR 623
Osceola, AR 72370

Billing Information:

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

Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, dld@ftn-
assoc.com, hlf@ftn-assoc.com

Project
Description: Plum Point Energy Station

Phone: 870-815-1248
Fax:

Client Project #
14590-1766-001

City/State
Collected:

Lab Project #
NAESOAR-PLUMPOINT

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

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

Date Results Needed

No.
of
Cntrs

Immediately
Packed on Ice: N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative
MW-119	Grab	GW		12-18-18	1225	3	Metals 250.mLHDPE-HNO3
MW-119 DUP	↓	GW		12-18-18	1230	3	RA-226/228COMB 1L-HDPE-Add HNO3
		GW				3	
		GW				3	



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# 1054671
I166

Acctnum: NAESOAR
Template: T143853
Prelogin: P685444
TSR: 134 Mark W. Beasley
PB: 12/18/18
Shipped Via: FedEx Ground

Remarks Sample # (lab only)

61
62

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

Remarks: Metals = As, Ba, Be, Cd, Co, Cr, Hg, Li, Mo, Pb, Sb, Se, Ti
****Log radiums to a separate SDG****

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
UPS FedEx Courier

Tracking # 4757 5075 8659

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
VOA Zero HeadSpace:		<input checked="" type="checkbox"/>	N
Preservation Correct/Checked:		<input checked="" type="checkbox"/>	N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes/No HCL/MeOH TBR
<i>Michael Clayton</i>	12-18-18	18:00		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: ± 0.1 °C Bottles Received: 6
				232.4°C
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time: Hold: Condition: NCF / <input checked="" type="checkbox"/>
			<i>Klemer</i>	12/19/18 0915

January 18, 2019

Plum Point Services Co., LLC

Sample Delivery Group: L1054673
Samples Received: 12/19/2018
Project Number: 14590-1766-001
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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	²Tc
Ss: Sample Summary	3	³Ss
Cn: Case Narrative	4	⁴Cn
Sr: Sample Results	5	⁵Sr
MW-119 L1054673-01	5	
MW-119 DUP L1054673-02	6	
Qc: Quality Control Summary	7	⁶Qc
Radiochemistry by Method 904	7	
Radiochemistry by Method SM7500Ra B M	8	
Gl: Glossary of Terms	9	⁷Gl
Al: Accreditations & Locations	10	⁸Al
Sc: Sample Chain of Custody	11	⁹Sc



MW-119 L1054673-01 Non-Potable Water

Collected by Michael Clayton	Collected date/time 12/18/18 12:25	Received date/time 12/19/18 09:15
---------------------------------	---------------------------------------	--------------------------------------

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215806	1	12/27/18 09:22	12/31/18 16:20	JMR
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-119 DUP L1054673-02 Non-Potable Water

Collected by Michael Clayton	Collected date/time 12/18/18 12:30	Received date/time 12/19/18 09:15
---------------------------------	---------------------------------------	--------------------------------------

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Radiochemistry by Method 904	WG1215806	1	12/27/18 09:22	12/31/18 16:20	JMR
Radiochemistry by Method Calculation	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT
Radiochemistry by Method SM7500Ra B M	WG1223084	1	01/14/19 10:00	01/15/19 17:30	RGT



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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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

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



Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.551		0.345	0.556	12/31/2018 16:20	WG1215806
(T) Barium	100			30.0-110	12/31/2018 16:20	WG1215806
(T) Yttrium	100			30.0-110	12/31/2018 16:20	WG1215806

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	1.00		0.577	0.696	01/15/2019 17:30	WG1223084

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.450		0.232	0.14	01/15/2019 17:30	WG1223084
(T) Barium-133	100			30.0-110	01/15/2019 17:30	WG1223084

6 Qc

7 Gl

8 Al

9 Sc



Radiochemistry by Method 904

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-228	0.181		0.390	0.603	12/31/2018 16:20	WG1215806
(T) Barium	100			30.0-110	12/31/2018 16:20	WG1215806
(T) Yttrium	100			30.0-110	12/31/2018 16:20	WG1215806

1 Cp

2 Tc

3 Ss

Radiochemistry by Method Calculation

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
Combined Radium	0.380		0.615	0.909	01/15/2019 17:30	WG1223084

4 Cn

5 Sr

Radiochemistry by Method SM7500Ra B M

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/l		+ / -	pCi/l	date / time	
RADIUM-226	0.200		0.225	0.306	01/15/2019 17:30	WG1223084
(T) Barium-133	100			30.0-110	01/15/2019 17:30	WG1223084

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3373311-1 12/31/18 16:20

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-228	0.315		0.373
(T) Barium	100		
(T) Yttrium	100		

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1054390-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1054390-01 12/31/18 16:20 • (DUP) R3373311-5 12/31/18 16:20

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Radium-228	-0.0604	-0.271	1	0.000	0.190		20	3
(T) Barium	100	100						
(T) Yttrium	100	100						

Laboratory Control Sample (LCS)

(LCS) R3373311-2 12/31/18 16:20

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-228	5.00	4.63	92.5	80.0-120	
(T) Barium			100		
(T) Yttrium			100		

L1055680-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1055680-01 01/02/19 13:50 • (MS) R3373311-3 12/31/18 16:20 • (MSD) R3373311-4 12/31/18 16:20

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-228	20.0	0.314	18.7	21.1	91.8	104	1	70.0-130			12.3		20
(T) Barium		92.2			100	100							
(T) Yttrium		100			100	100							



Method Blank (MB)

(MB) R3376832-1 01/15/19 17:30

Analyte	MB Result pCi/l	MB Qualifier	MB MDA pCi/l
Radium-226	0.0195		0.0553
(T) Barium-133	94.4		

1 Cp

2 Tc

3 Ss

L1054673-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1054673-01 01/15/19 17:30 • (DUP) R3376832-5 01/15/19 17:30

Analyte	Original Result pCi/l	DUP Result pCi/l	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit pCi/l
Radium-226	0.450	0.281	1	46.1	0.465		20	3
(T) Barium-133	100	79.8						

4 Cn

5 Sr

6 Qc

Laboratory Control Sample (LCS)

(LCS) R3376832-2 01/15/19 17:30

Analyte	Spike Amount pCi/l	LCS Result pCi/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Radium-226	5.02	4.17	83.1	80.0-120	
(T) Barium-133			100		

7 Gl

8 Al

9 Sc

L1059269-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1059269-01 01/15/19 17:30 • (MS) R3376832-3 01/15/19 17:30 • (MSD) R3376832-4 01/15/19 17:30

Analyte	Spike Amount pCi/l	Original Result pCi/l	MS Result pCi/l	MSD Result pCi/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	MS RER	RPD Limits %
Radium-226	20.1	0.315	20.3	20.3	99.6	99.2	1	75.0-125			0.394		20
(T) Barium-133		53.6			77.6	68.6							



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.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(T)	Tracer - A radioisotope of known concentration added to a solution of chemically equivalent radioisotopes at a known concentration to assist in monitoring the yield of the chemical separation.
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.

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

Qualifier Description

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



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Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

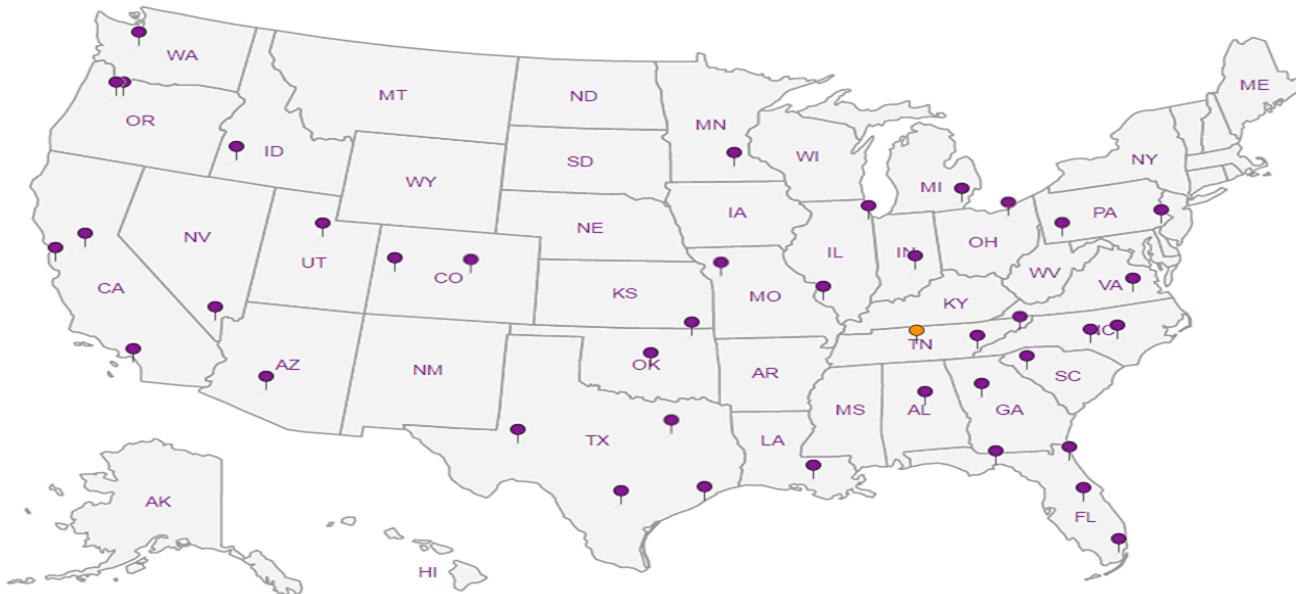
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

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Plum Point Services Co., LLC

2739 SCR 623
Osceola, AR 72370

Billing Information:

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

Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, dld@ftn-assoc.com, hlf@ftn-assoc.com

Project Description: Plum Point Energy Station

City/State Collected:

Lab Project #
NAESOAR-PLUMPOINT

P.O. #

Quote #

Date Results Needed

Pres Chk

2 2

Analysis / Container / Preservative

Metals 250.mIHDPE:HNO3

RA-226/228COMB 1L-HDPE-Add HNO3



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# 1054673
1166

Acctnum: NAESOAR
Template: T143853

Prelogin: P685444

TSR: 134 Mark W. Beasley

PB: 12/10/18 mg

Shipped Via: FedEx Ground

Remarks Sample # (Lab only)

Phone: 870-815-1248
Fax:

Client Project #
14590-1766-001

Collected by (print):
Michael Clayton

Site/Facility ID #

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

Immediately Packed on Ice N Y

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis	Container	Preservative	Remarks	Sample # (Lab only)
MW-119	GRAB	GW		12-18-18	1225	3	X				01
MW-119 DUP	GRAB	GW		12-18-18	1230	3	X				02
		GW				3	X				
		GW				3	X				

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

Remarks: Metals = As, Ba, Be, Cd, Co, Cr, Hg, Li, Mo, Pb, Sb, Se, Tl
****Log radiums to a separate SDG****

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
UPS X FedEx Courier

Tracking # 4757 5075 8659

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 Headpace:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Preservation Correct/Checked:	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N

Relinquished by: (Signature) Michael Clayton	Date: 12-18-18	Time: 18:00	Received by: (Signature)	Trip Blank Received: Yes (No) HCL/MeOH TBR
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: +0.1 deg C 23.2 deg C Bottles Received: 6
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) K Cameron	Date: 12/19/18 Time: 0915 Hold: Condition: NCF / PB

APPENDIX C

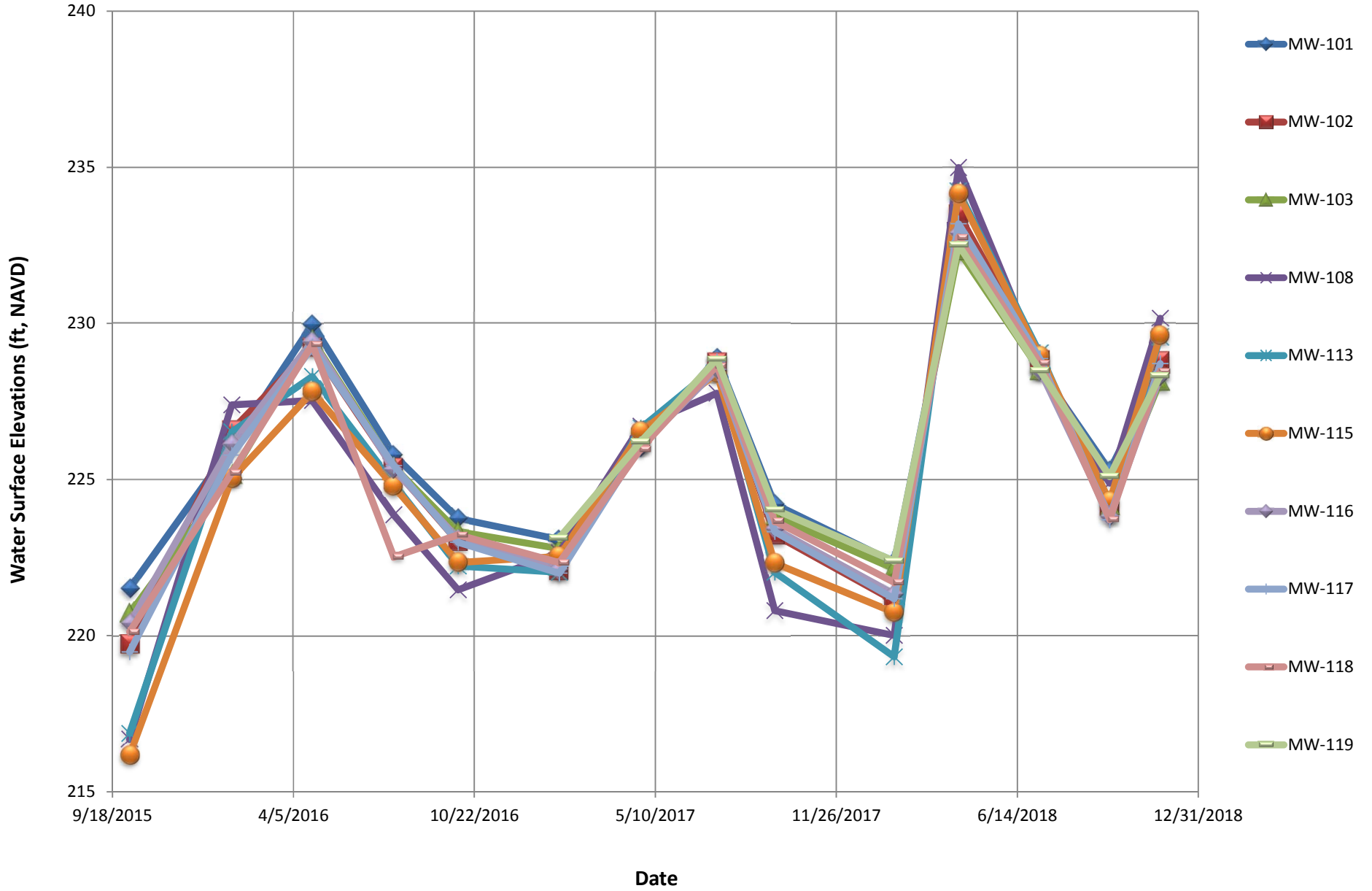
Water Elevation Data and Hydrographs

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

*Monitoring well not installed yet.

Hydrograph, period-of-record water surface elevations, Plum Point Energy Station CCR landfill



APPENDIX D

Appendix III Groundwater Quality Historical Database

Well	Sampling Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
MW-101	<i>downgradient</i>							
	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	<1.8	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
MW-102	<i>downgradient</i>							
	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
	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	4.29	0.194	88.7	454	6.7
	4/11/2018	0.144(BJ)	136	1.77	0.206	46.7	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
MW-103	<i>downgradient</i>							
	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

B: Analyte was detected in an associated quality control blank.

J: Analyte was detected below the laboratory reporting detection limit; value is an estimate.

Well	Sampling Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
MW-103	1/26/2017	0.138(J)	135	2.82	0.223	52.0	477	6.8
(cont.)	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
MW-108	<i>upgradient</i>							
	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
	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
MW-113	<i>upgradient</i>							
	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
	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
MW-115	<i>upgradient</i>							
	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	0.201	14.8	376	7.1
	4/28/2016	0.0863(J)	115	1.83	0.179	5.63	443(B)	6.8

B: Analyte was detected in an associated quality control blank.

J: Analyte was detected below the laboratory reporting detection limit; value is an estimate.

Well	Sampling Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
MW-115	7/26/2016	0.0604(J)	114	1.22	0.200	4.79(J)	399(B)	9.0
(cont.)	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
MW-116	<i>downgradient</i>							
	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	4.9	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
MW-117	<i>downgradient</i>							
	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
	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

B: Analyte was detected in an associated quality control blank.

J: Analyte was detected below the laboratory reporting detection limit; value is an estimate.

Well	Sampling Date	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	pH (su)
MW-117	4/11/2018	0.0952(BJ)	82.5	1.57	0.124	7.28	290	6.4
(cont.)	9/27/2018	0.127(BJ)	89.7	1.25(B)	0.144(B)	7.19	318	6.4
	11/19/2018	n/a	85.7	n/a	n/a	n/a	288	6.6
MW-118	<i>downgradient</i>							
	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
	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
	7/9/2018	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)	17.0	375	6.3
MW-119	<i>downgradient</i>							
	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
	7/20/2017	0.0936(BJ)	103	6.84	0.256	48.7	432	6.6
	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

B: Analyte was detected in an associated quality control blank.

J: Analyte was detected below the laboratory reporting detection limit; value is an estimate.

APPENDIX E

Background Used for Statistics

BACKGROUND DATA SETS

This document describes recommended methods and procedures to evaluate the initial eight background values collected in accordance with §257.94(b), the landfill's SAP, and the Unified Guidance. 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.

Establishing Background Data Sets

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

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 initial eight values to identify potential outliers for exclusion from the background data set. At this time, no outliers are excluded from the background data sets, primarily due to the limited number of data available and the requirement to have a minimum of 8 to 10 data points for prediction limit analysis. No values have been removed due to independent evidence of error. If warranted in the future, data that are excluded from the historical database based on independent evidence of error or that are suspected of being unrepresentative of groundwater quality due to excessively

high sample turbidity will be flagged with an “R” (for rejected) and will also be excluded from statistical analyses.

Distribution Testing

A parametric prediction limit test requires background data sets to be normally distributed, or mathematically transformed to be normally distributed. Where data cannot be transformed-normal, a non-parametric prediction limit is applied. Background data sets were evaluated using the Shapiro-Wilk test for normality to determine if parametric tests could be appropriately used. Results of the normality tests are shown on the prediction limit plots included in Appendix G. The Mann-Kendall test for trends and Theil-Sen trend line, discussed below, is a non-parametric test, and data evaluated with this test are not required to have a normal distribution.

Seasonality and Autocorrelation

Background data sets were evaluated for the presence of seasonal effects on groundwater quality and autocorrelated data using an ANOVA test and the Rank von Neumann test, respectively. However, the results of the seasonality test were invalid due to violation of the test’s requirement of a minimum of three values per season. A requirement of the Rank Von Neumann test is that the data sets be corrected for seasonality prior to evaluating for autocorrelation; therefore the results of the Rank Von Neumann test were also invalid. Data will be re-evaluated for seasonality and autocorrelation when sufficient data are available.

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.

Background data sets were screened for statistically significant trends using the Mann-Kendall test and Theil-Sen trend line. At this time, none of the statistically evaluated well-parameter pairs contain statistically significant trends in their respective background data sets.

Prediction Limit Analysis

Each of the statistically evaluated well-parameter pairs is tested using a prediction limit. Background data sets for each well-parameter pair are identified as an attachment to this document.

Background Data Set Date Ranges

Date Ranges

Date: 12/14/2018 1:28 PM

Plum Point Energy Station

Client: Plum Point Services Company, LLC

Data: PPES EPA CCR Rule Groundwater Database

Boron (mg/l)

MW-101 background:10/7/2015-7/20/2017
MW-102 background:10/7/2015-7/20/2017
MW-103 background:10/7/2015-7/20/2017
MW-108 background:10/7/2015-9/20/2017
MW-113 background:10/7/2015-9/20/2017
MW-115 background:10/7/2015-7/20/2017
MW-116 background:10/7/2015-7/20/2017
MW-117 background:10/7/2015-7/20/2017
MW-118 background:10/7/2015-7/20/2017

Calcium (mg/l)

MW-101 background:10/7/2015-7/20/2017
MW-102 background:10/7/2015-7/20/2017
MW-103 background:10/7/2015-7/20/2017
MW-108 background:10/7/2015-9/20/2017
MW-113 background:10/7/2015-9/20/2017
MW-115 background:10/7/2015-7/20/2017
MW-116 background:10/7/2015-7/20/2017
MW-117 background:10/7/2015-7/20/2017
MW-118 background:10/7/2015-7/20/2017

Chloride (mg/l)

MW-101 background:10/7/2015-7/20/2017
MW-102 background:10/7/2015-7/20/2017
MW-103 background:10/7/2015-7/20/2017
MW-108 background:10/7/2015-9/20/2017
MW-113 background:10/7/2015-9/20/2017
MW-115 background:10/7/2015-7/20/2017
MW-116 background:10/7/2015-7/20/2017
MW-117 background:10/7/2015-7/20/2017
MW-118 background:10/7/2015-7/20/2017

Dissolved Solids (mg/l)

MW-101 background:10/7/2015-7/20/2017
MW-102 background:10/7/2015-7/20/2017
MW-103 background:10/7/2015-7/20/2017
MW-108 background:10/7/2015-9/20/2017
MW-113 background:10/7/2015-9/20/2017
MW-115 background:10/7/2015-7/20/2017
MW-116 background:10/7/2015-7/20/2017
MW-117 background:10/7/2015-7/20/2017
MW-118 background:10/7/2015-7/20/2017

Fluoride (mg/l)

MW-101 background:10/7/2015-7/20/2017
MW-102 background:10/7/2015-7/20/2017
MW-103 background:10/7/2015-7/20/2017
MW-108 background:10/7/2015-9/20/2017
MW-113 background:10/7/2015-9/20/2017
MW-115 background:10/7/2015-7/20/2017
MW-116 background:10/7/2015-7/20/2017
MW-117 background:10/7/2015-7/20/2017
MW-118 background:10/7/2015-7/20/2017

pH (su)

MW-101 background:10/7/2015-7/20/2017
MW-102 background:10/7/2015-7/20/2017
MW-103 background:10/7/2015-7/20/2017
MW-108 background:10/7/2015-9/20/2017
MW-113 background:10/7/2015-9/20/2017
MW-115 background:10/7/2015-7/20/2017
MW-116 background:10/7/2015-7/20/2017
MW-117 background:10/7/2015-7/20/2017
MW-118 background:10/7/2015-7/20/2017

Sulfate (mg/l)

MW-101 background:10/7/2015-7/20/2017
MW-102 background:10/7/2015-7/20/2017

Date Ranges

Date: 12/14/2018 1:28 PM

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

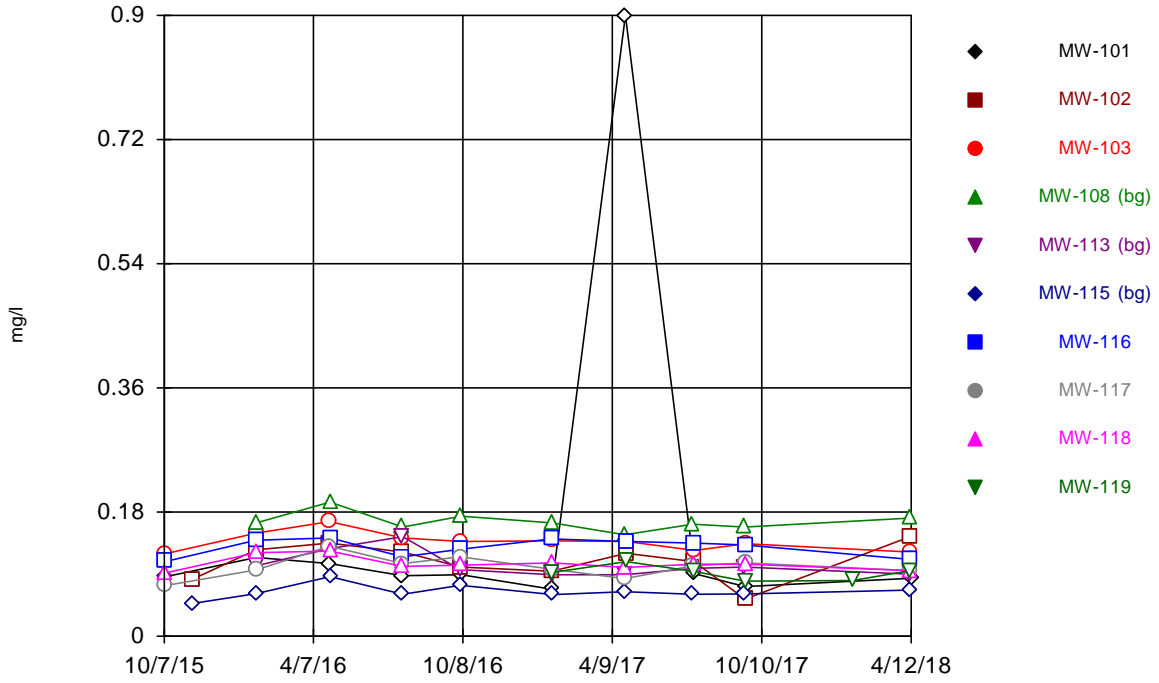
MW-103 background:10/7/2015-7/20/2017
MW-108 background:10/7/2015-9/20/2017
MW-113 background:10/7/2015-9/20/2017
MW-115 background:10/7/2015-7/20/2017
MW-116 background:10/7/2015-1/30/2018
MW-117 background:10/7/2015-7/20/2017
MW-118 background:10/7/2015-7/20/2017

APPENDIX F

Exploratory Data Analysis Plots

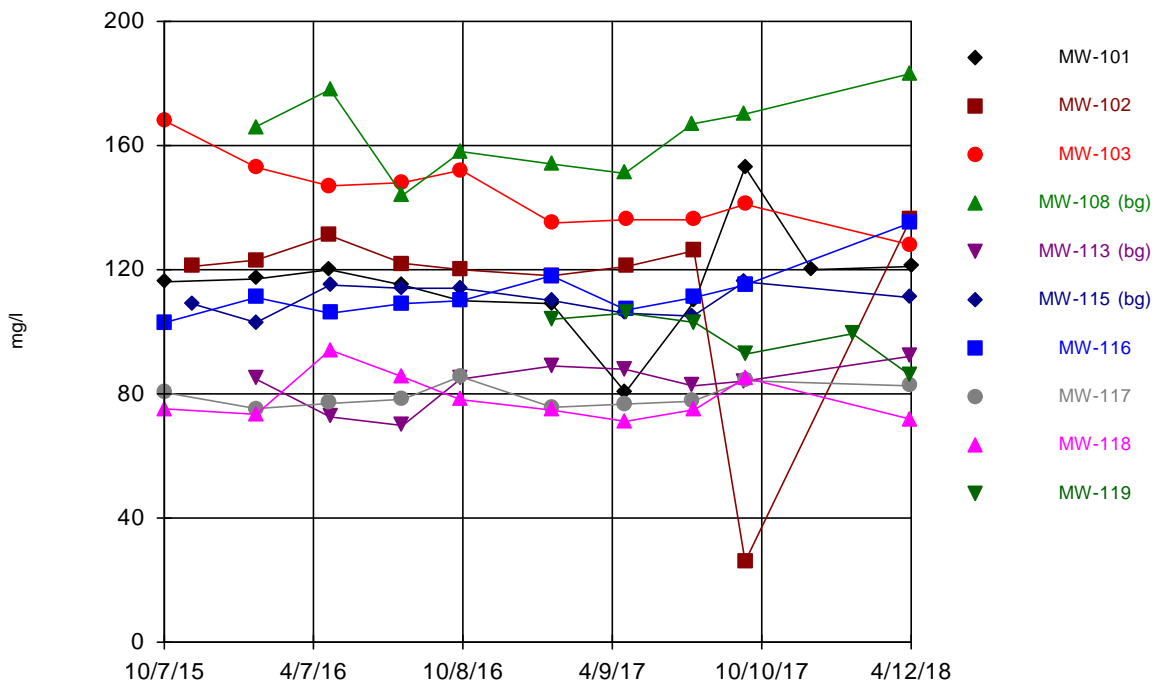
Time-Series Plots, First Half of 2018

Time Series



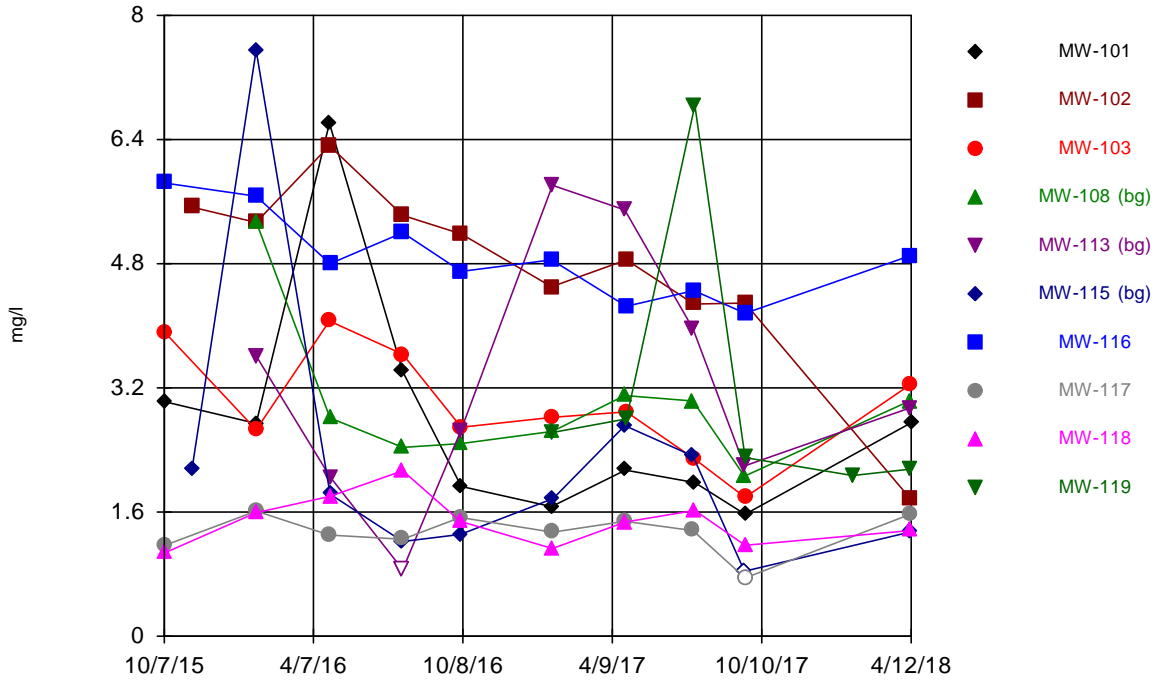
Constituent: Boron Analysis Run 12/10/2018 3:00 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series



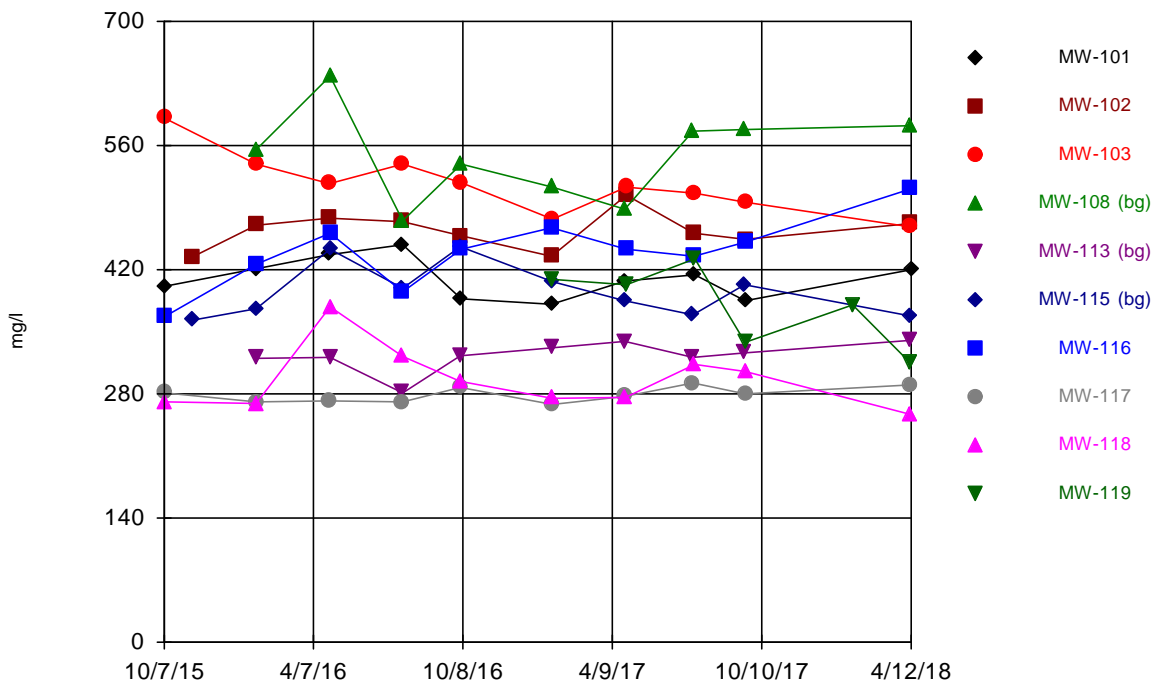
Constituent: Calcium Analysis Run 4/23/2018 4:06 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series



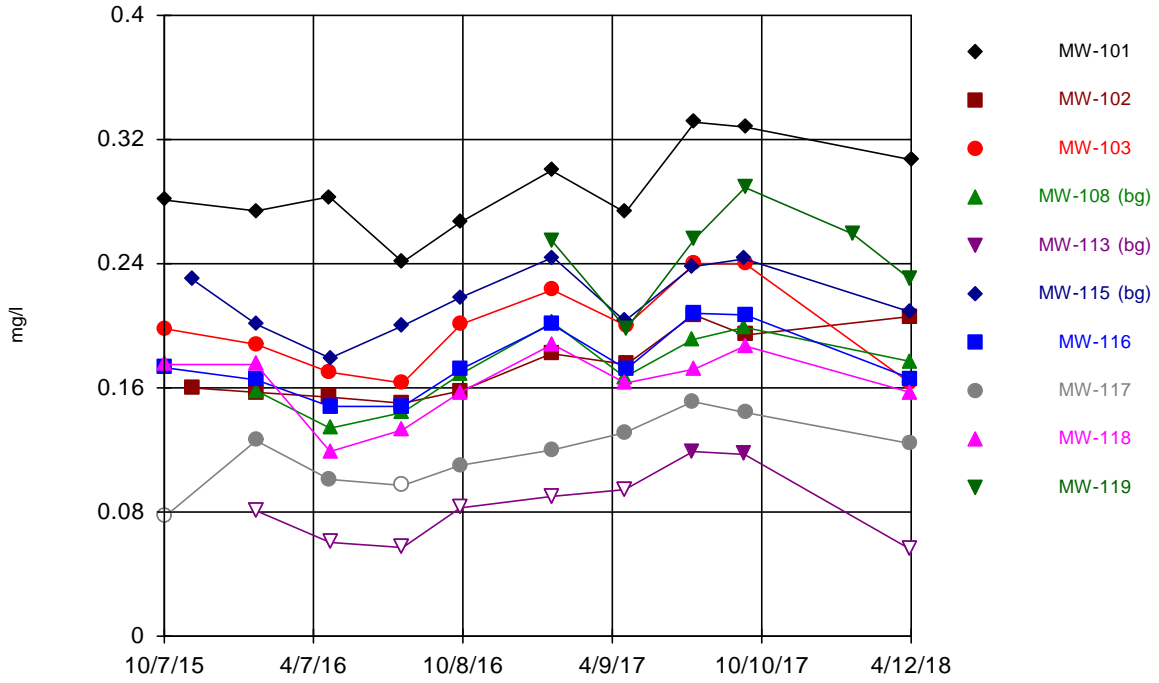
Constituent: Chloride Analysis Run 4/23/2018 4:06 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series



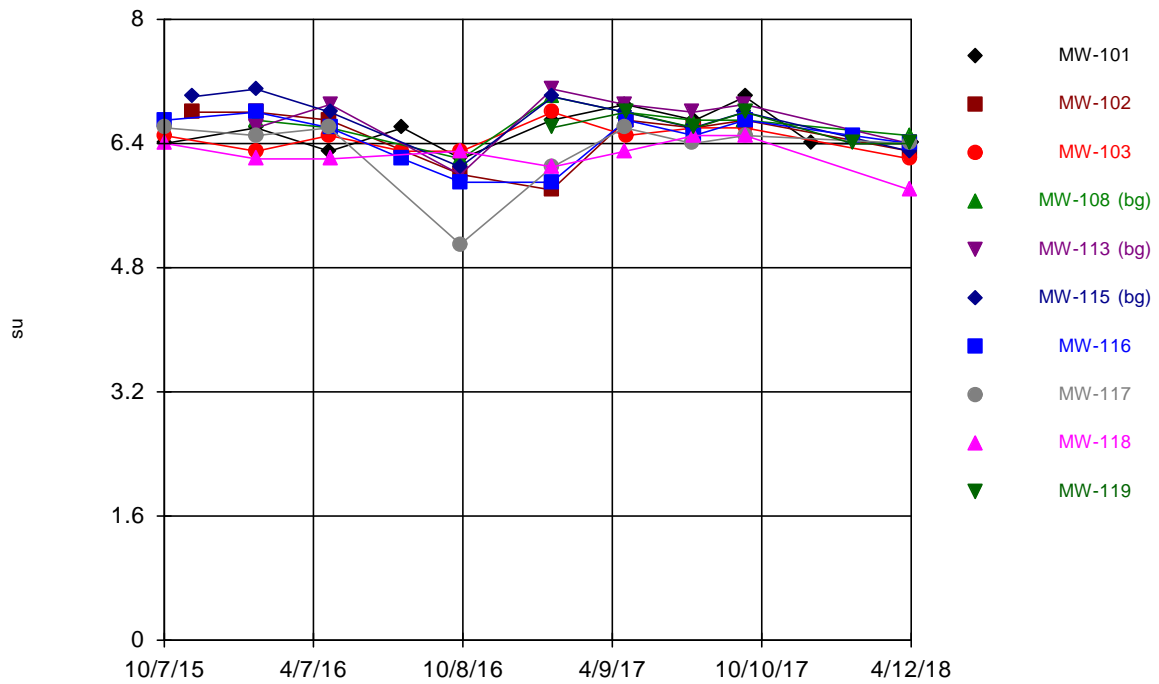
Constituent: Dissolved Solids Analysis Run 4/23/2018 4:06 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series



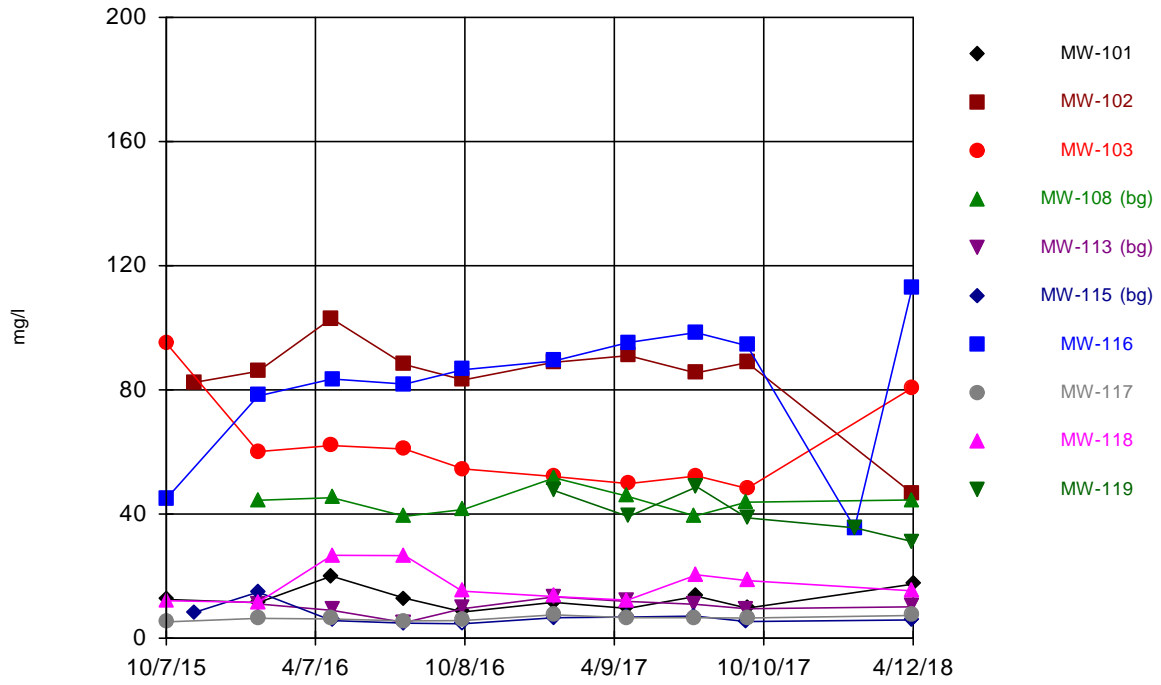
Constituent: Fluoride Analysis Run 4/23/2018 4:06 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series



Constituent: pH Analysis Run 4/23/2018 4:06 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series

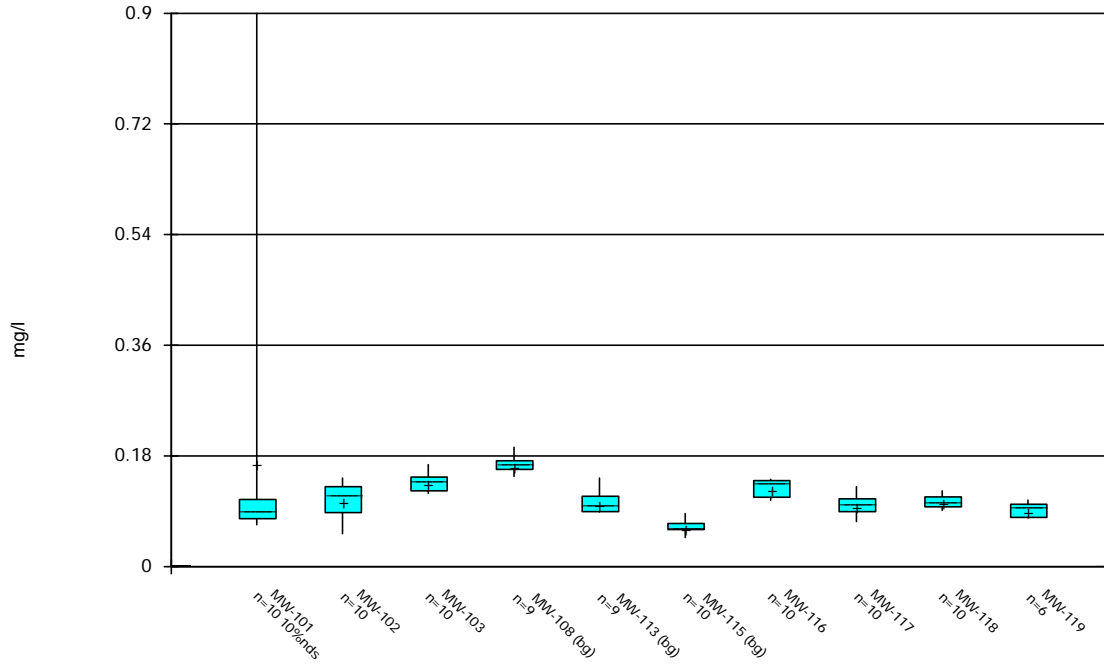


Constituent: Sulfate Analysis Run 4/23/2018 4:06 PM View: 2018-1H Distributional

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

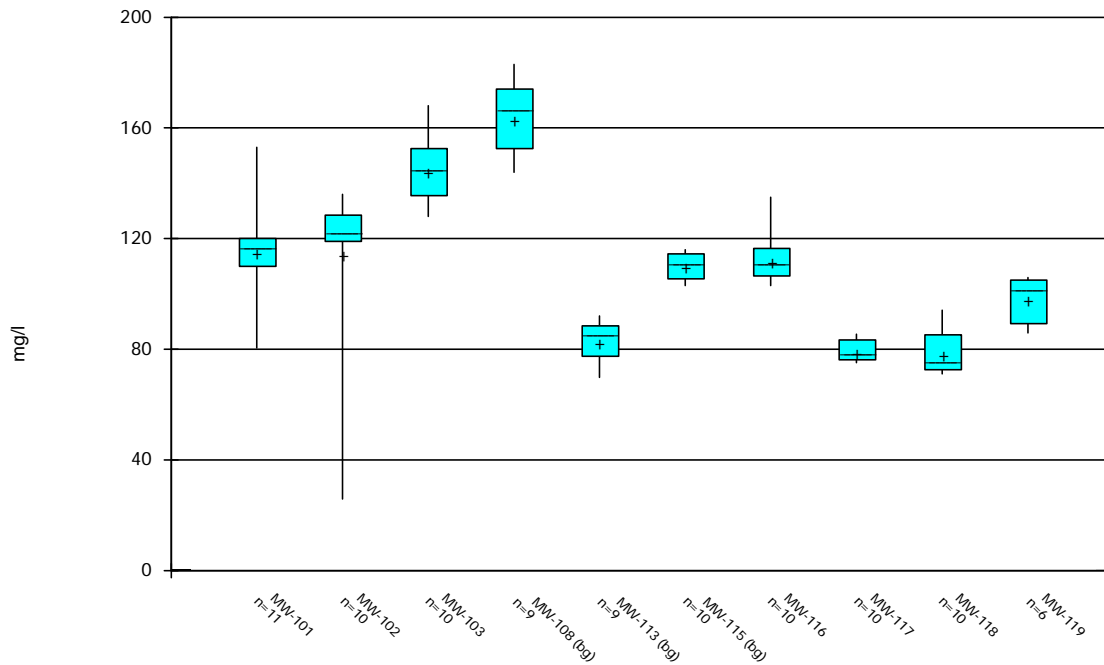
Box-and-Whisker Plots, First Half of 2018

Box & Whiskers Plot



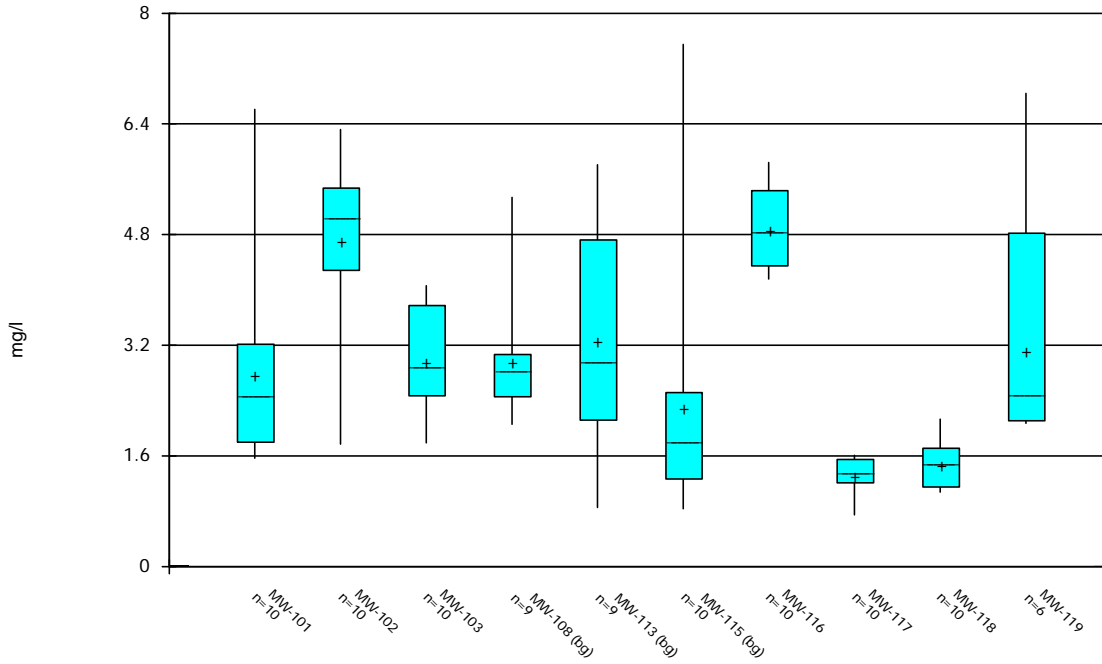
Constituent: Boron Analysis Run 12/10/2018 6:11 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot



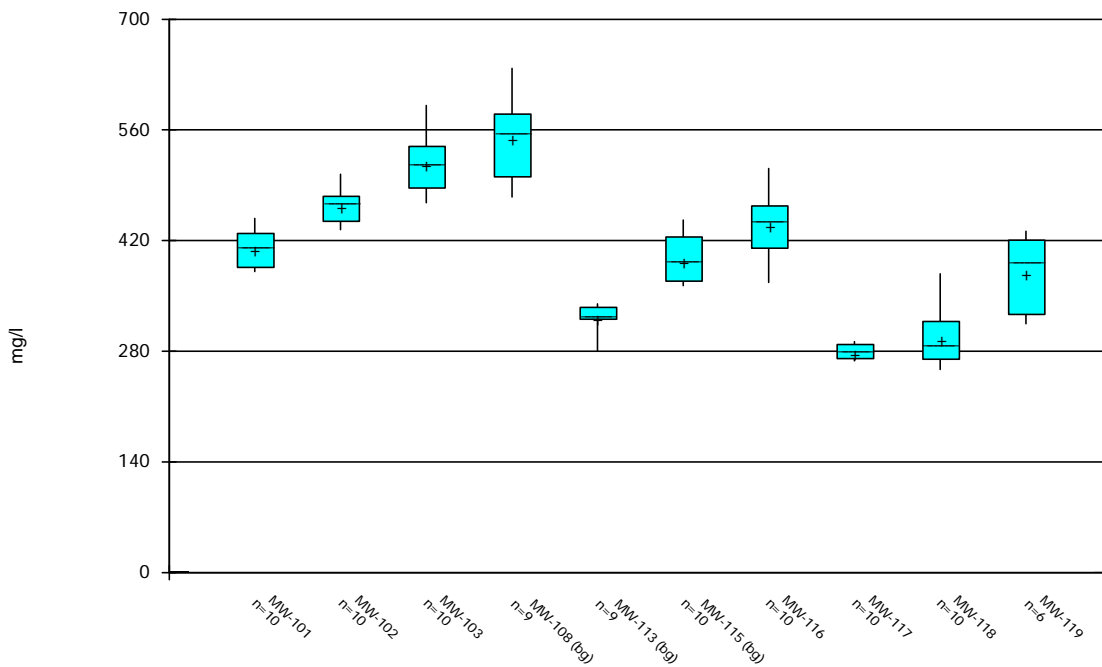
Constituent: Calcium Analysis Run 4/23/2018 4:08 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot



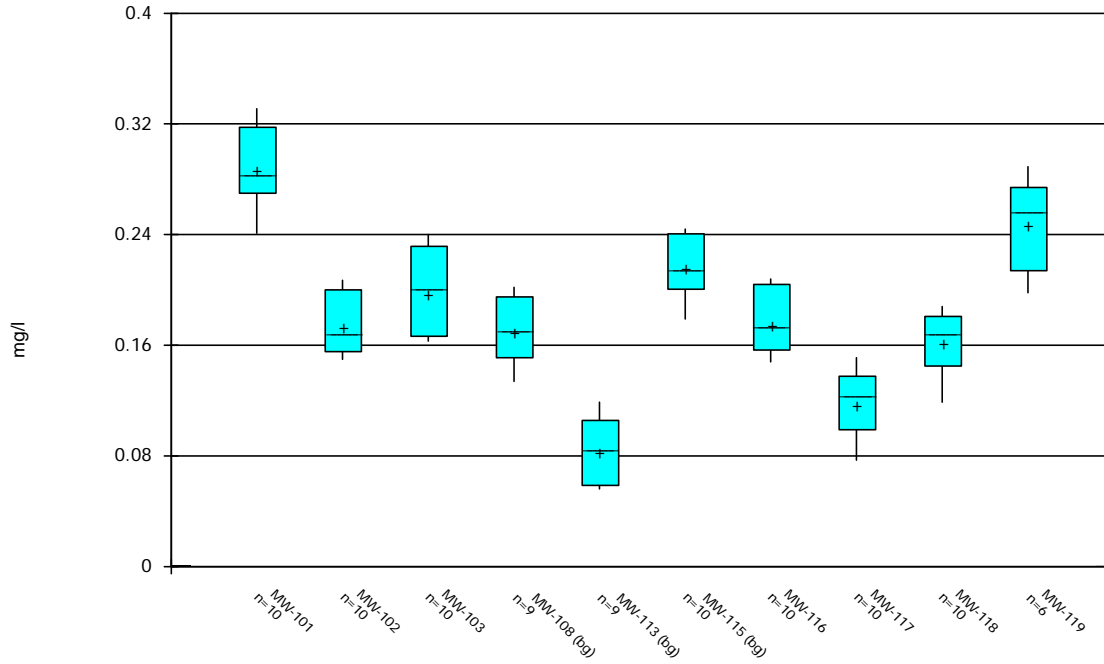
Constituent: Chloride Analysis Run 4/23/2018 4:08 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot



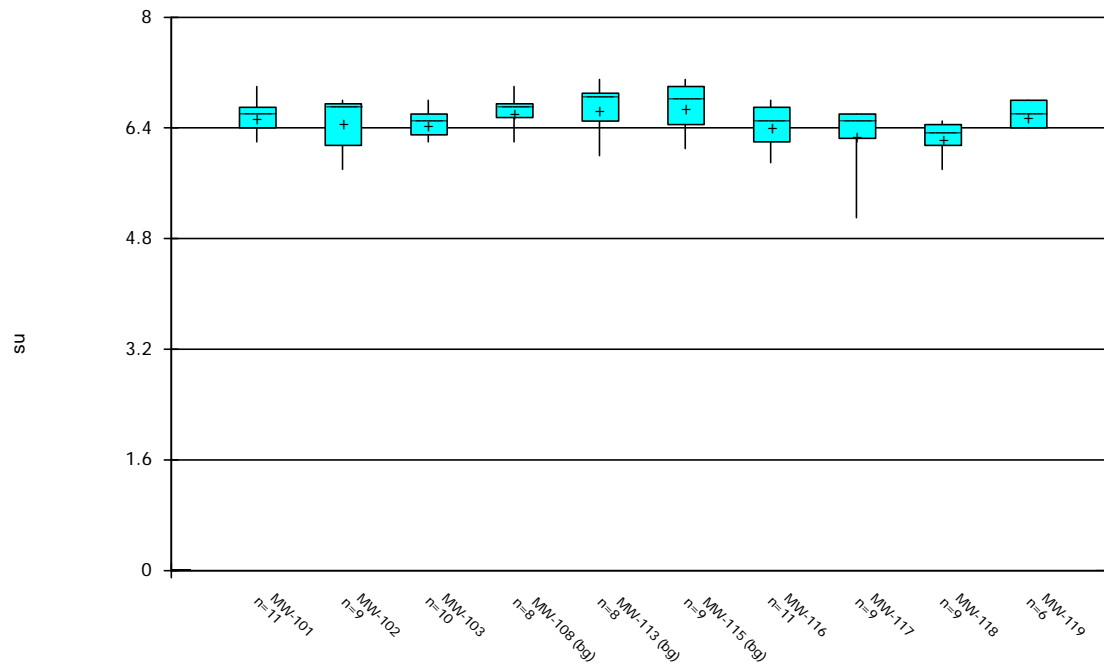
Constituent: Dissolved Solids Analysis Run 4/23/2018 4:08 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot



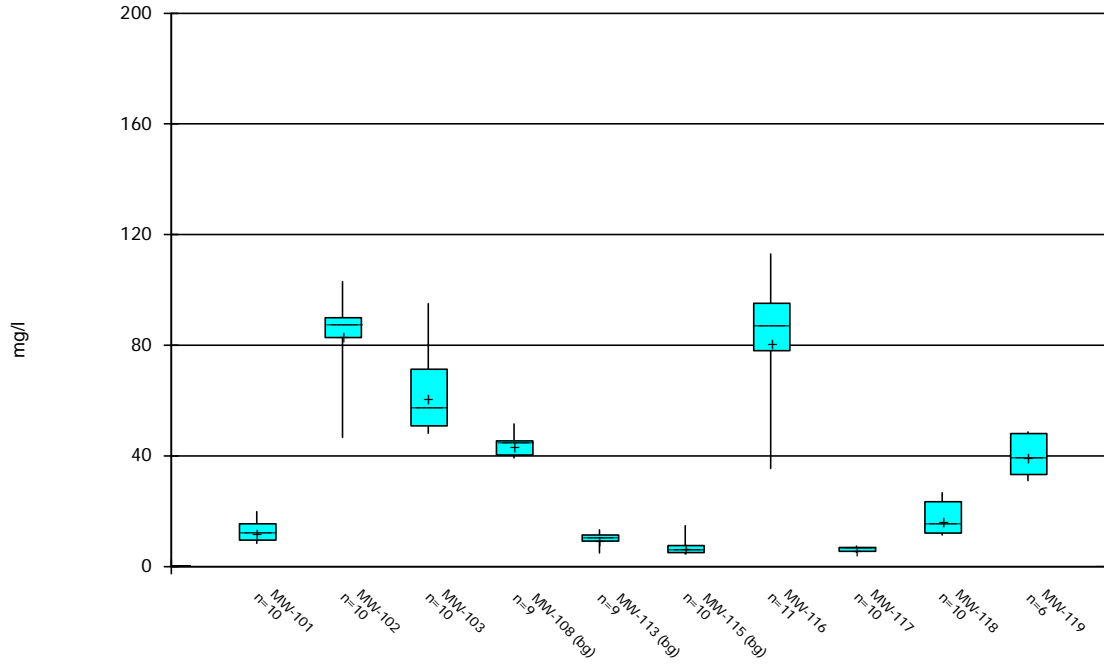
Constituent: Fluoride Analysis Run 4/23/2018 4:08 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot



Constituent: pH Analysis Run 4/23/2018 4:09 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot

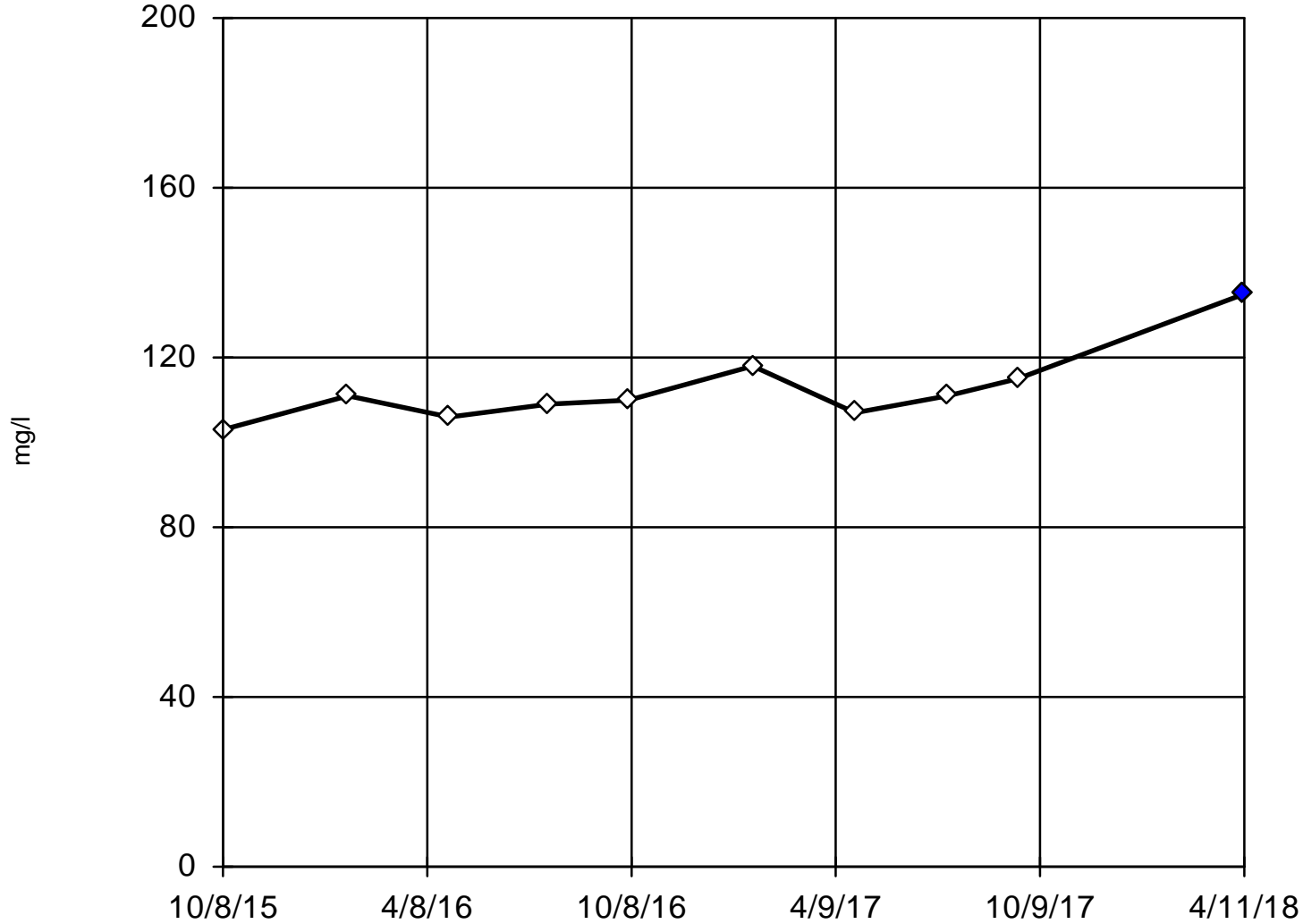


Constituent: Sulfate Analysis Run 4/23/2018 4:09 PM View: 2018-1H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Statistically Significant Outliers, First Half of 2018 Data Set

Dixon's Outlier Test

MW-116



n = 10

Statistical outlier is drawn as solid.
Testing for 1 high outlier.
Mean = 112.5.
Std. Dev. = 8.997.
135: c = 0.5862
tab1 = 0.477.
Alpha = 0.05.

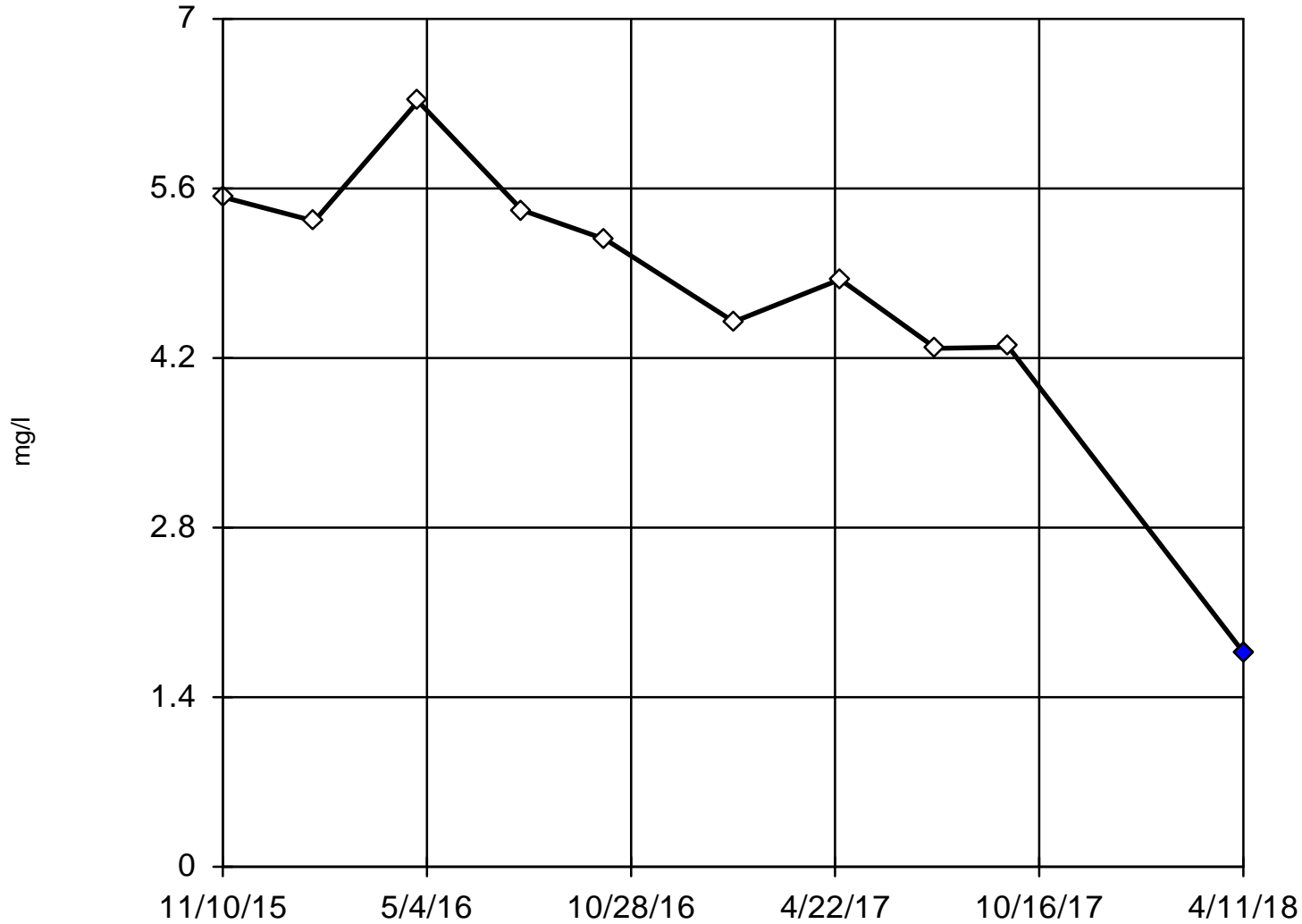
Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9764
Critical = 0.859
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Calcium Analysis Run 4/23/2018 4:10 PM View: 2018-1H Distributional

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

Dixon's Outlier Test

MW-102



n = 10

Statistical outlier is drawn as solid.
Testing for 1 low outlier.
Mean = 4.747.
Std. Dev. = 1.222.
1.77: c = 0.6676
tab1 = 0.477.
Alpha = 0.05.

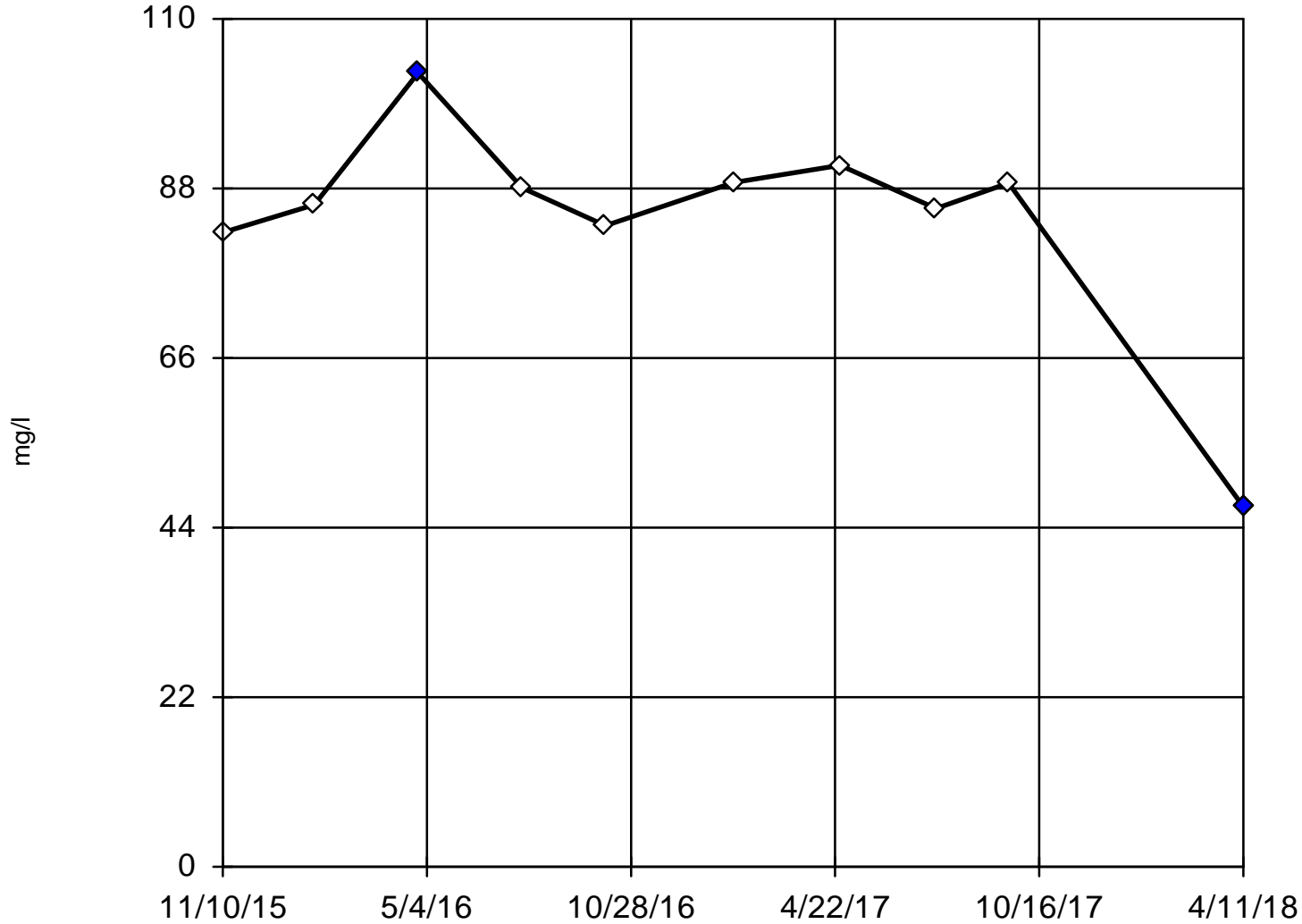
Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9357
Critical = 0.859
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Chloride Analysis Run 4/23/2018 4:10 PM View: 2018-1H Distributional

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

Dixon's Outlier Test

MW-102



n = 10

Statistical outliers are drawn as solid.
Testing for 1 high and 1 low outliers.
Mean = 84.31.
Std. Dev. = 14.42.
103: c = 0.5797
tabl = 0.477.
46.7: c = 0.8036
tabl = 0.477.
Alpha = 0.05.

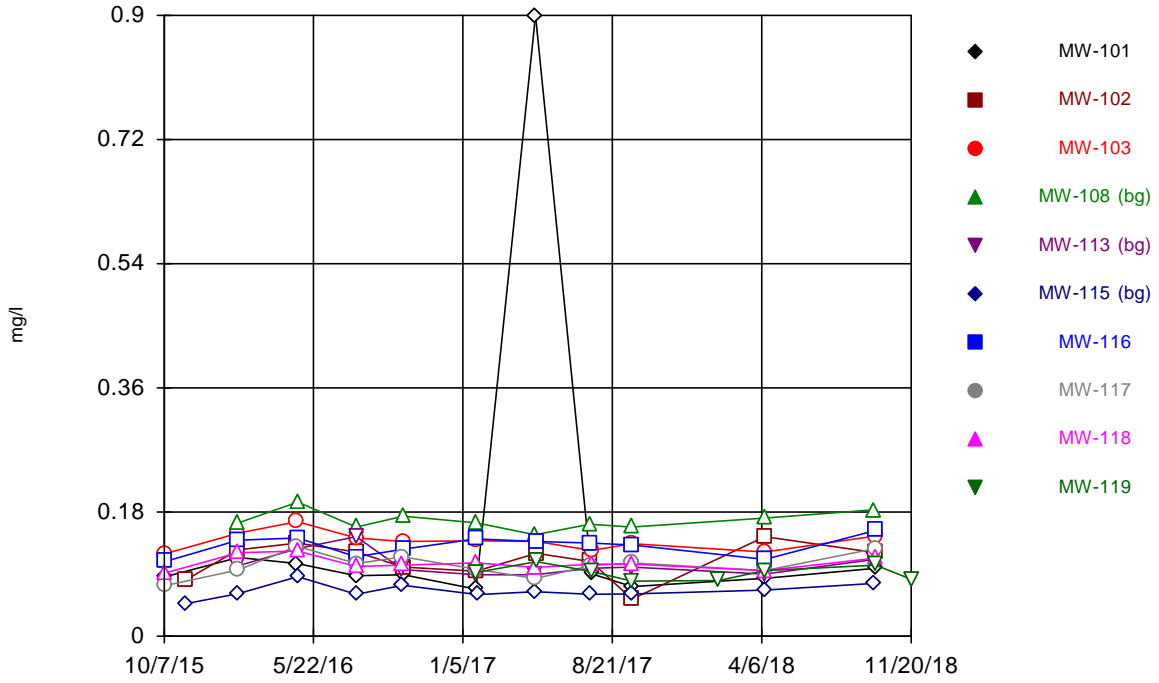
Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.953
Critical = 0.851
The distribution, after removal of suspect values, was found to be normally distributed.

Constituent: Sulfate Analysis Run 4/23/2018 4:11 PM View: 2018-1H Distributional

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

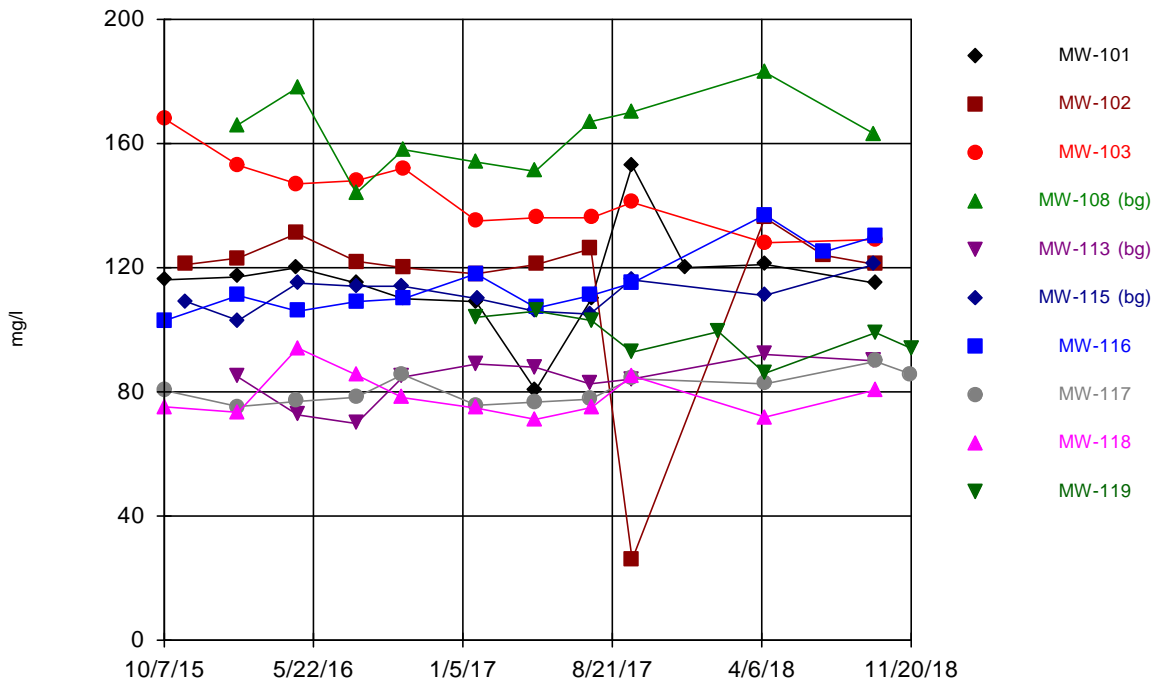
Time-Series Plots, Second Half of 2018 Data Set

Time Series



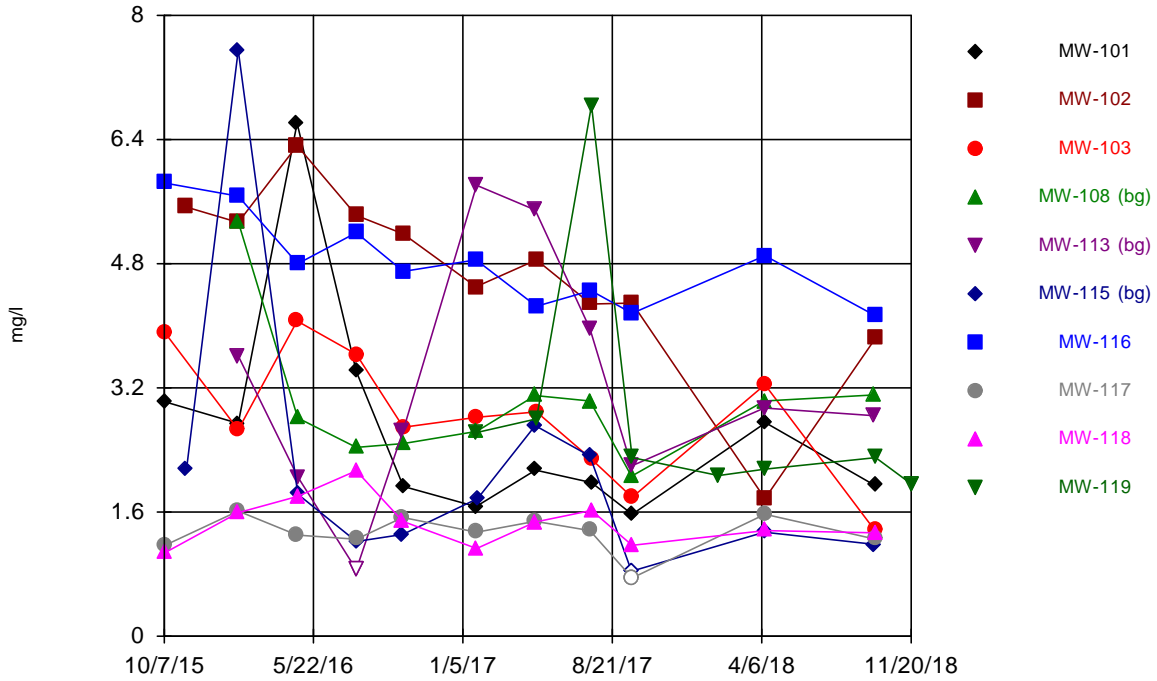
Constituent: Boron Analysis Run 12/5/2018 1:47 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series



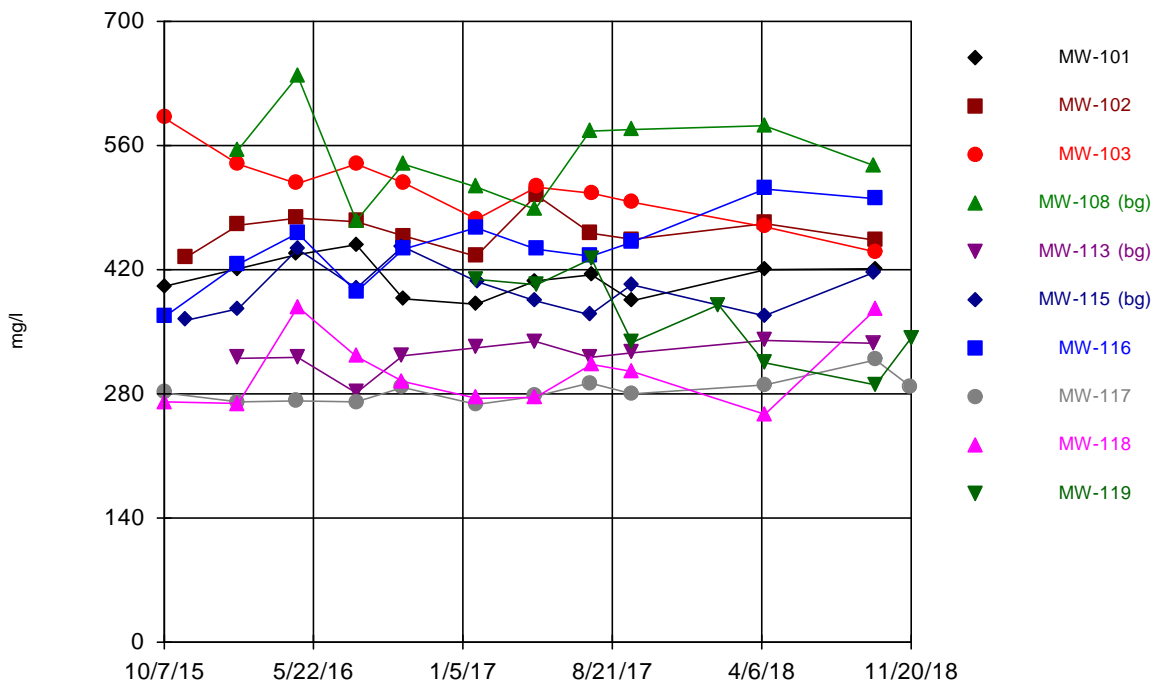
Constituent: Calcium Analysis Run 12/5/2018 1:47 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series



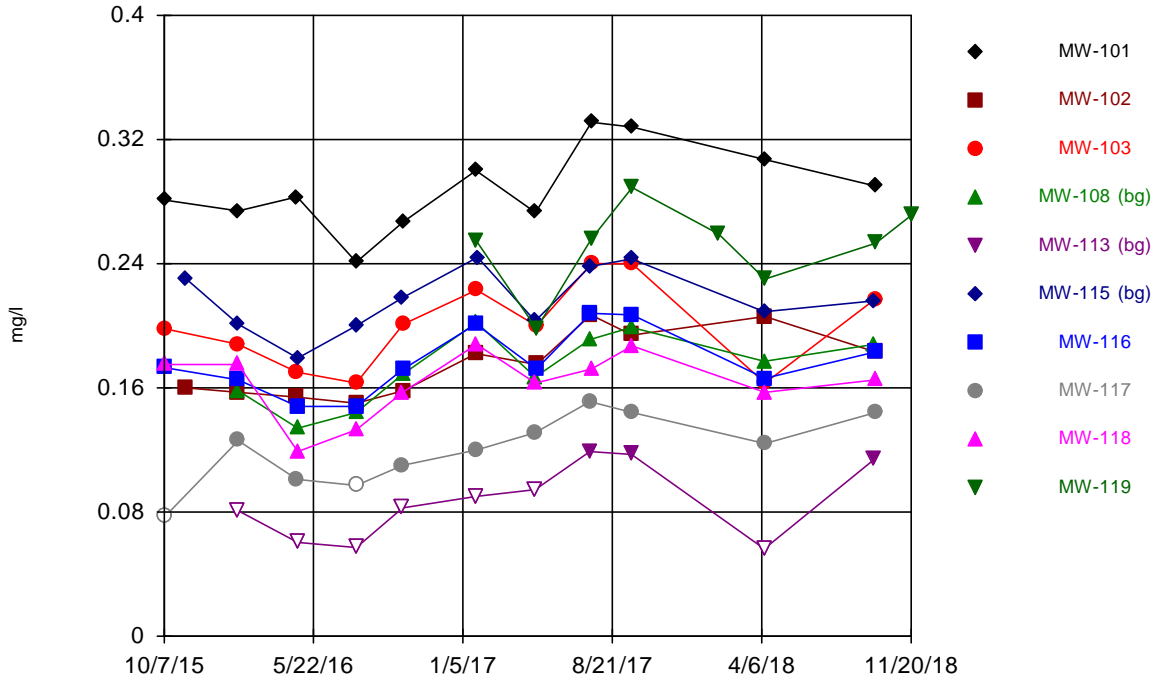
Constituent: Chloride Analysis Run 12/5/2018 1:47 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series



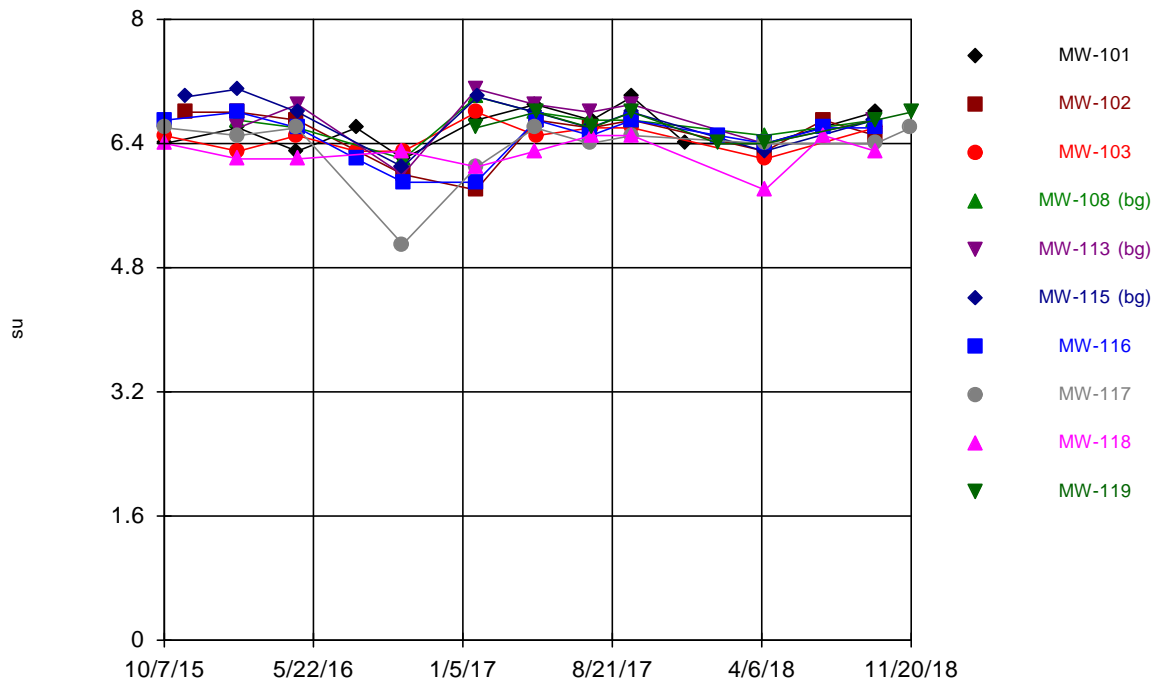
Constituent: Dissolved Solids Analysis Run 12/5/2018 1:47 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series



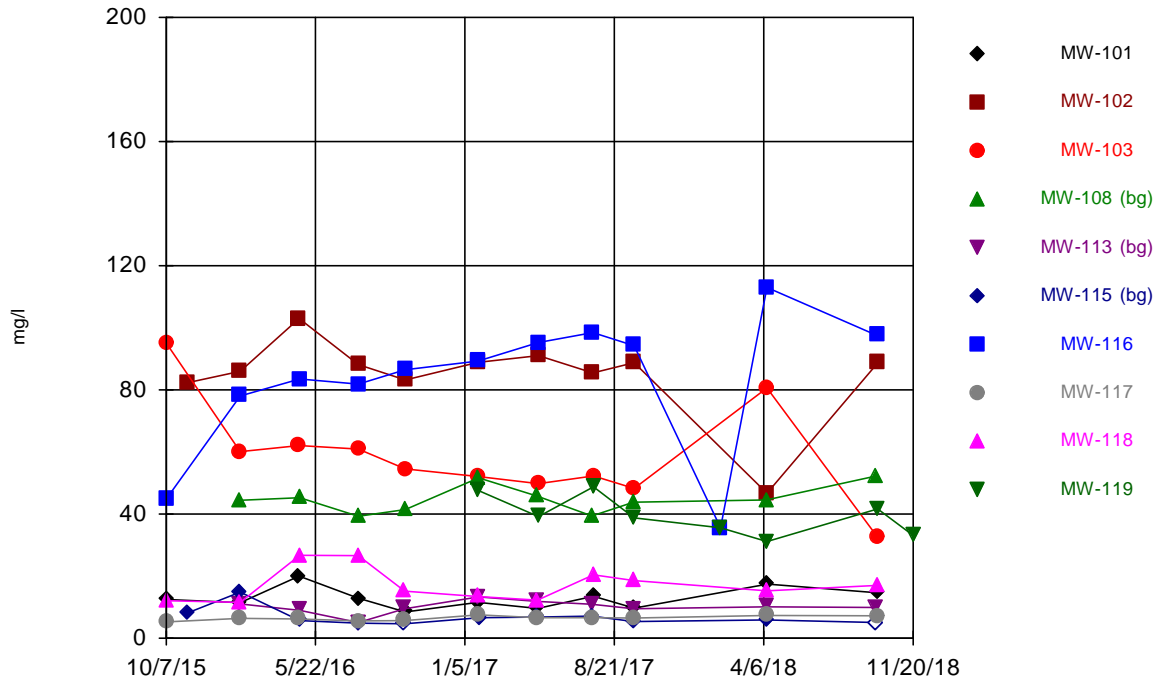
Constituent: Fluoride Analysis Run 12/5/2018 1:47 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series



Constituent: pH Analysis Run 12/5/2018 1:47 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Time Series

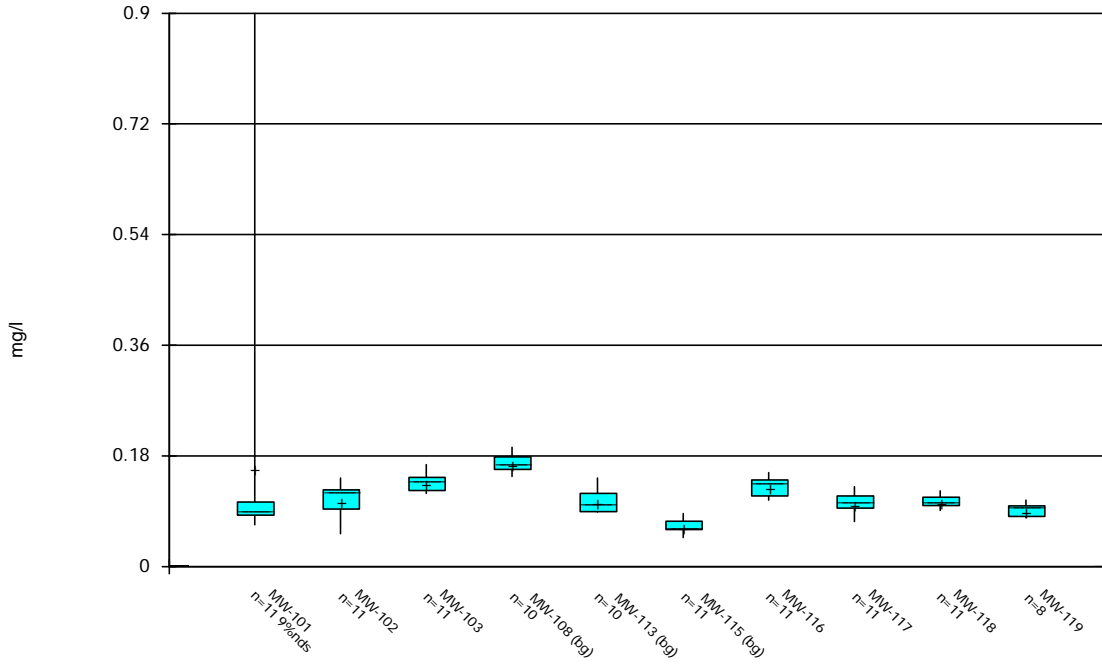


Constituent: Sulfate Analysis Run 12/5/2018 1:47 PM View: 2018-2H Distributional

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

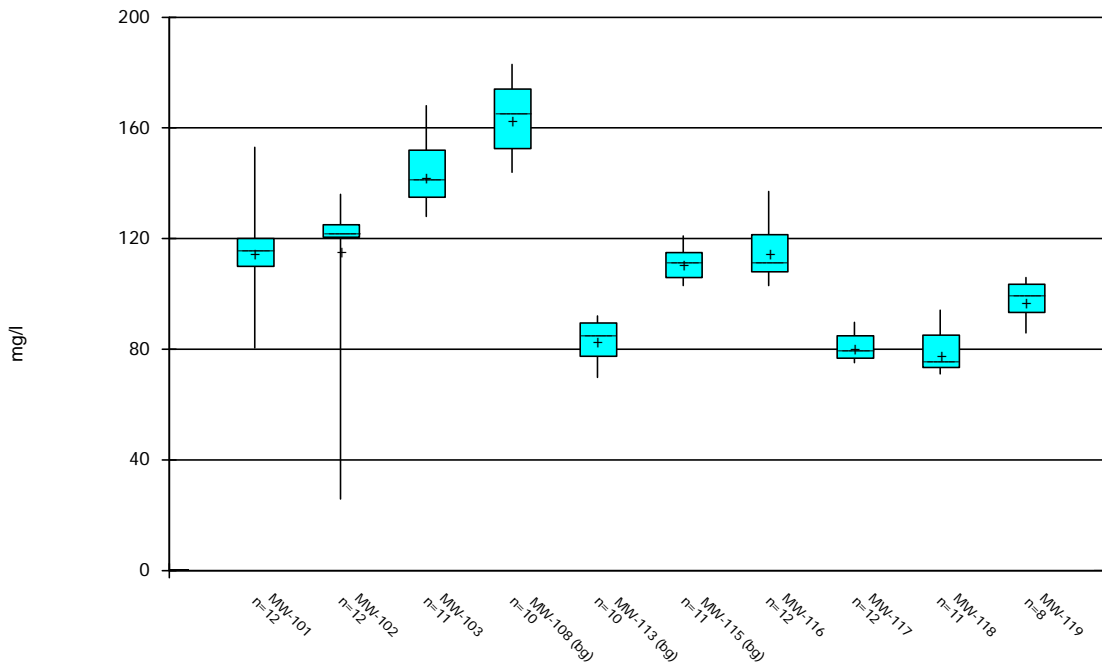
Box-and-Whisker Plots, Second Half of 2018 Data Set

Box & Whiskers Plot



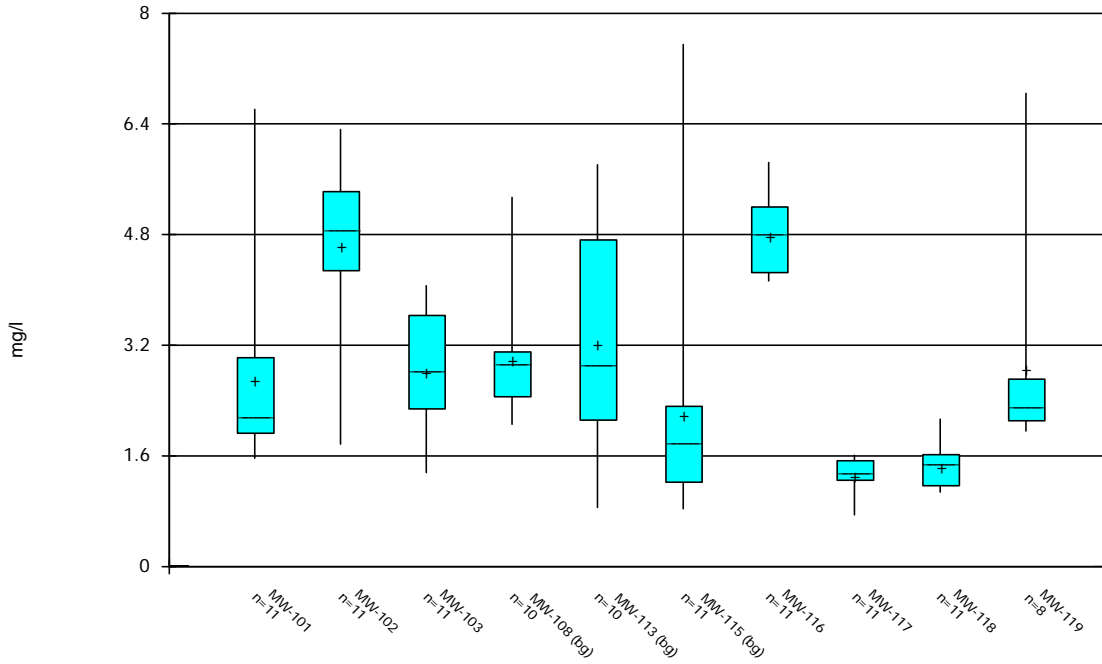
Constituent: Boron Analysis Run 12/5/2018 1:48 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot



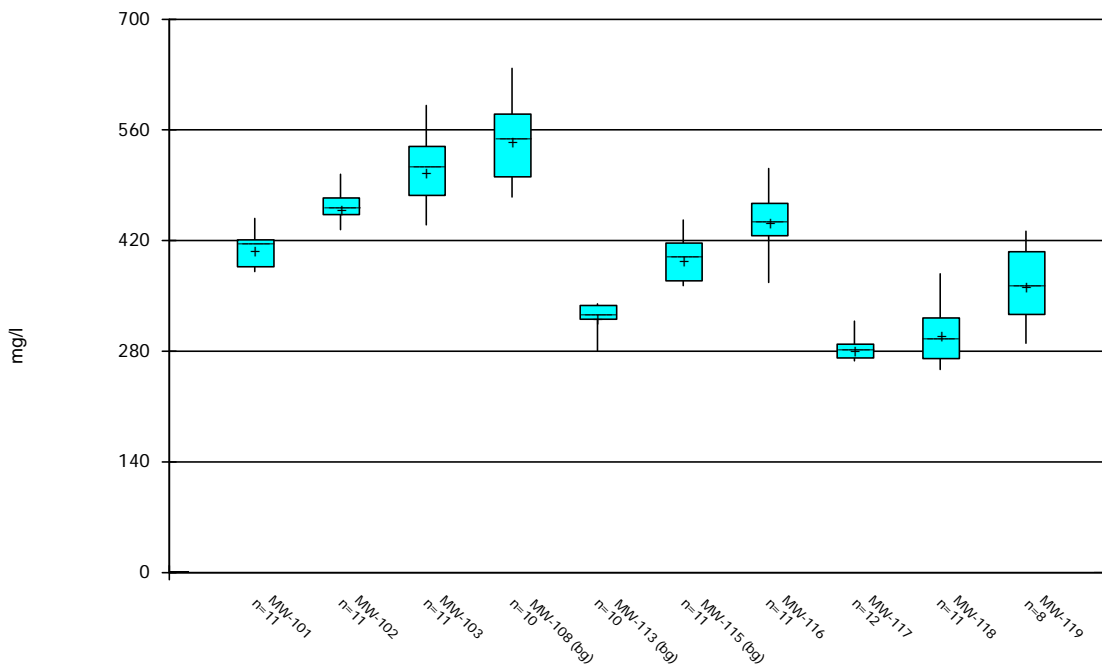
Constituent: Calcium Analysis Run 12/5/2018 1:48 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot



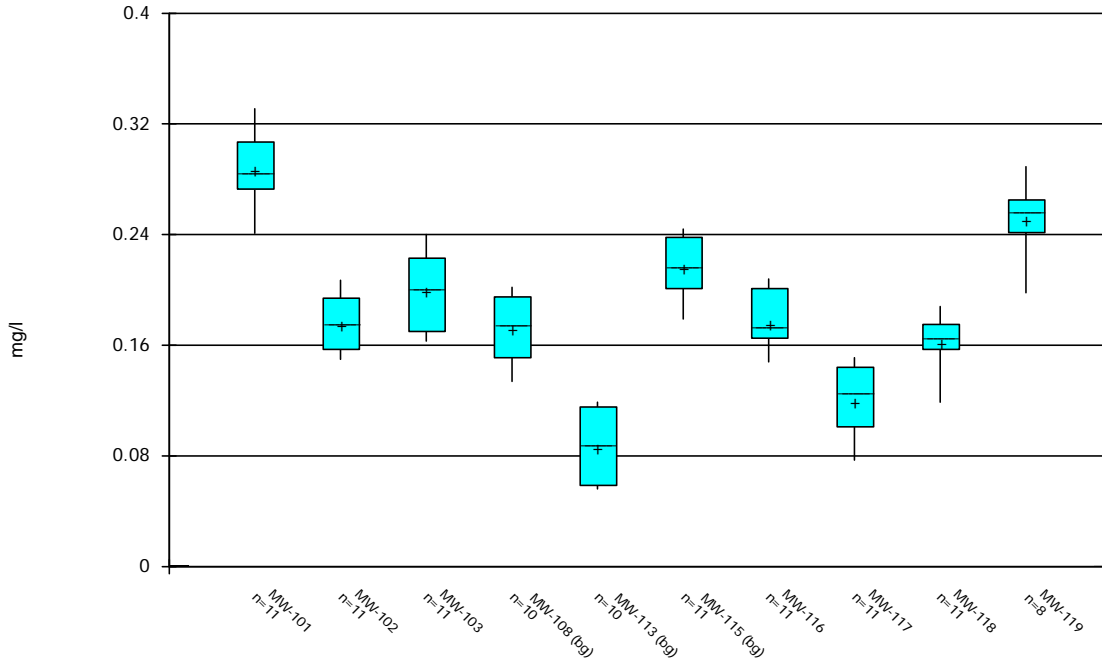
Constituent: Chloride Analysis Run 12/5/2018 1:48 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot



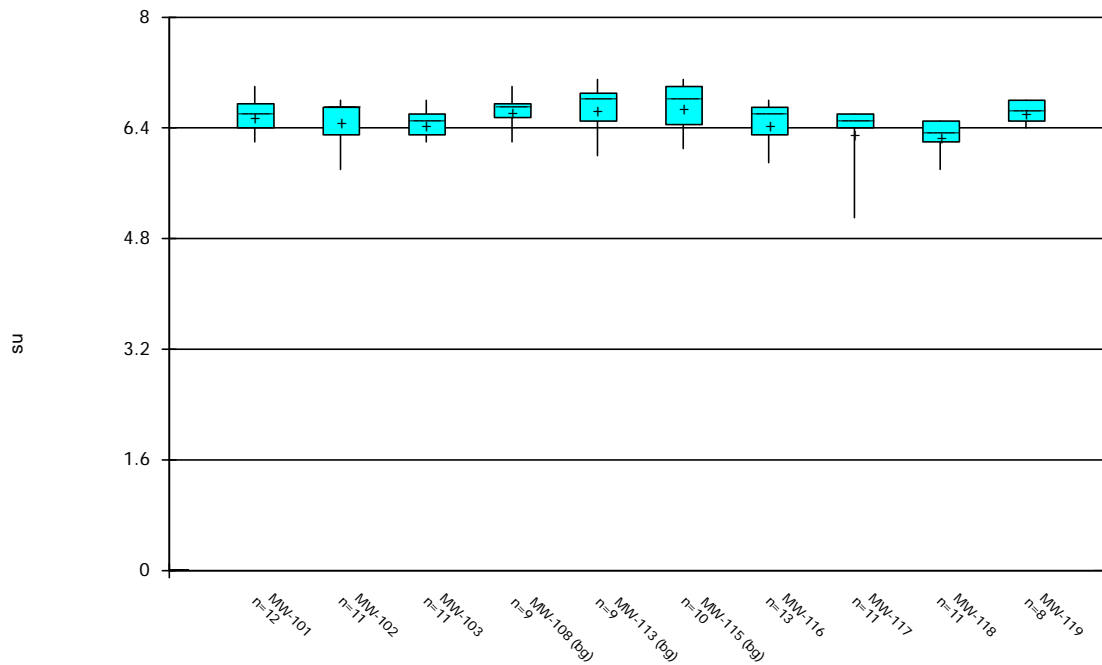
Constituent: Dissolved Solids Analysis Run 12/5/2018 1:48 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot



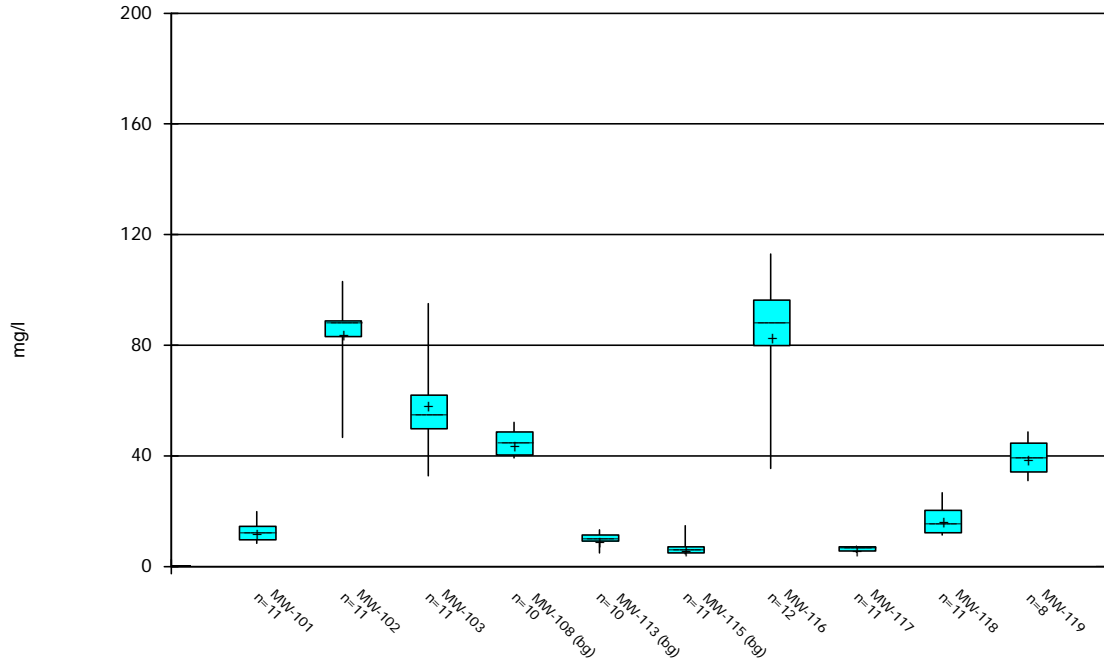
Constituent: Fluoride Analysis Run 12/5/2018 1:48 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot



Constituent: pH Analysis Run 12/5/2018 1:48 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Box & Whiskers Plot

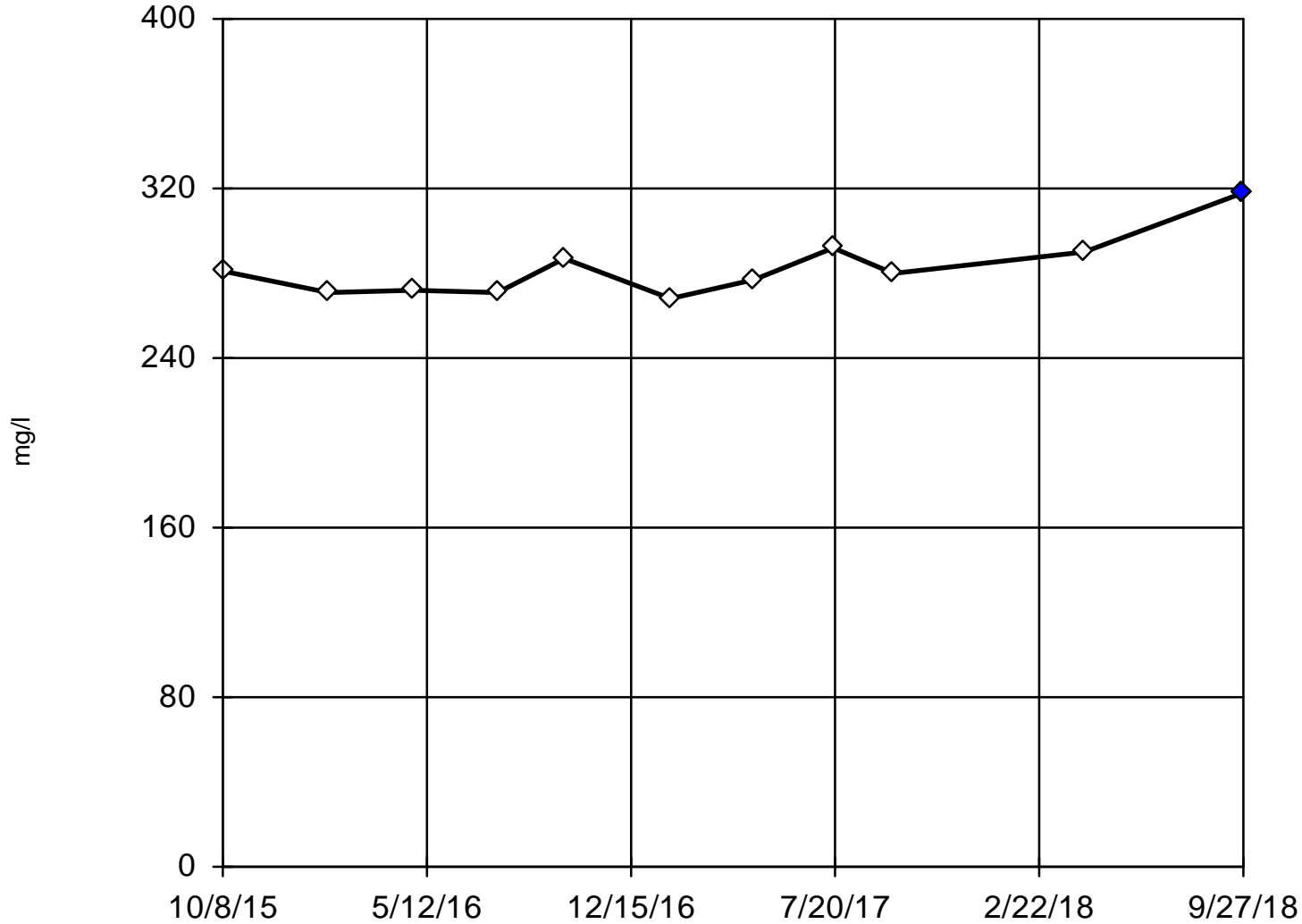


Constituent: Sulfate Analysis Run 12/5/2018 1:48 PM View: 2018-2H Distributional
Plum Point Energy Station Client: Plum Point Services Company, LLC Data: PPES EPA CCR Rule Groundwater Database

Statistically Significant Outliers, Second Half of 2018 Data Set

Dixon's Outlier Test

MW-117



n = 11

Statistical outlier is drawn as solid.
Testing for 1 high outlier.
Mean = 282.5.
Std. Dev. = 14.32.
318: c = 0.5957
tab1 = 0.576.
Alpha = 0.05.

Normality test used:
Shapiro Wilk@alpha = 0.1
Calculated = 0.9211
Critical = 0.869
The distribution, after removal of suspect value, was found to be normally distributed.

Constituent: Dissolved Solids Analysis Run 10/8/2018 3:22 PM View: 2018-2H Distributional

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

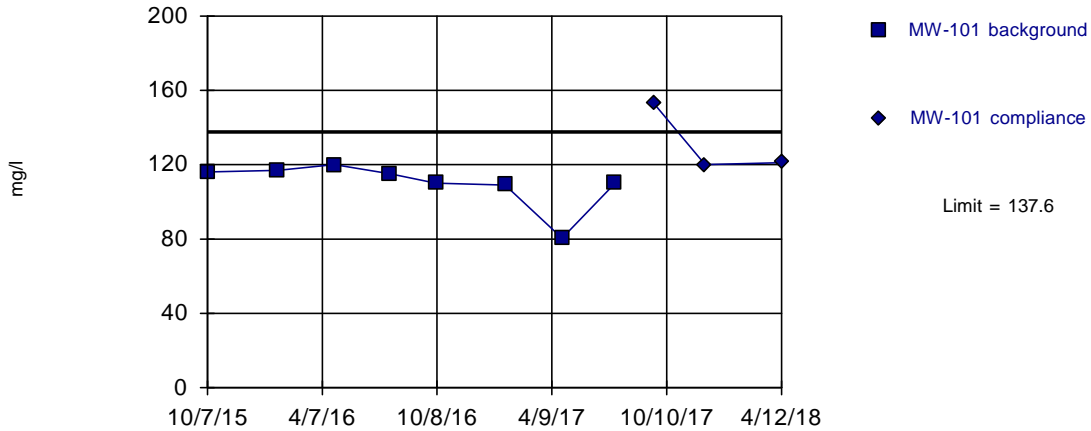
APPENDIX G

Statistical Evaluation Results

Prediction Limits, First Half 2018 Sampling – April 2018

Within Limit

Prediction Limit Intrawell Parametric



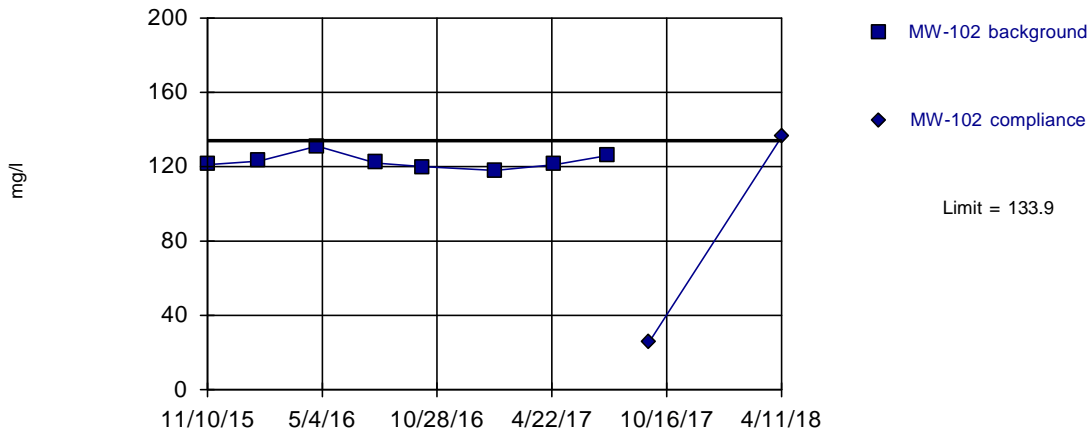
Background Data Summary (based on square transformation): Mean=12166, Std. Dev.=2464, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7547, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Exceeds Limit

Prediction Limit Intrawell Parametric



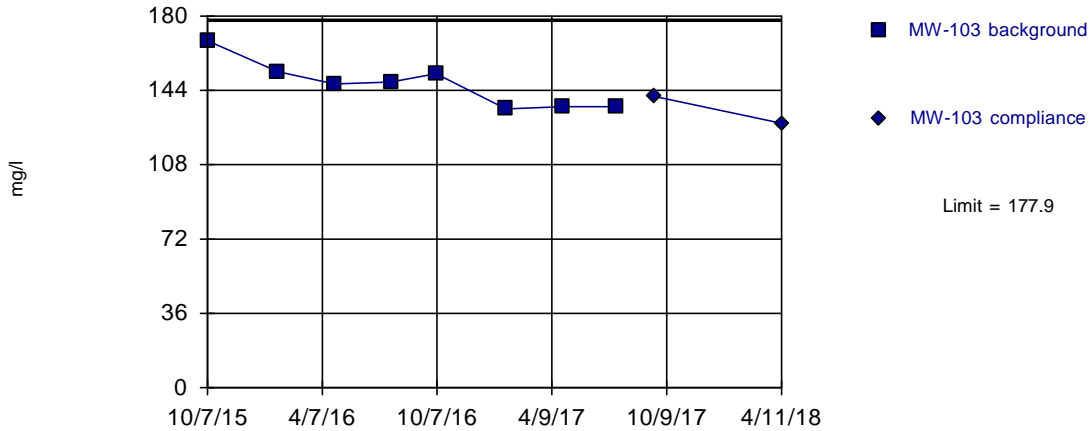
Background Data Summary: Mean=122.8, Std. Dev.=4.062, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8956, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



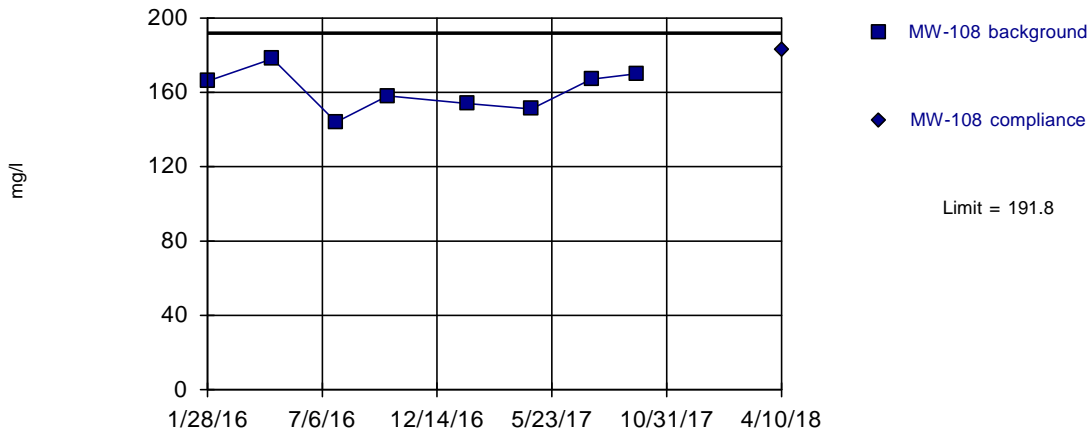
Background Data Summary: Mean=146.9, Std. Dev.=11.27, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8944, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



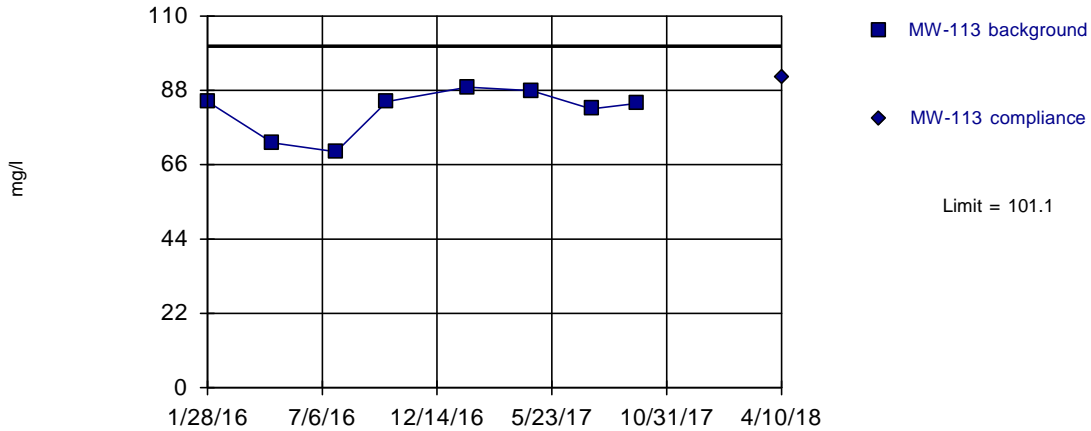
Background Data Summary: Mean=161, Std. Dev.=11.2, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.978, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



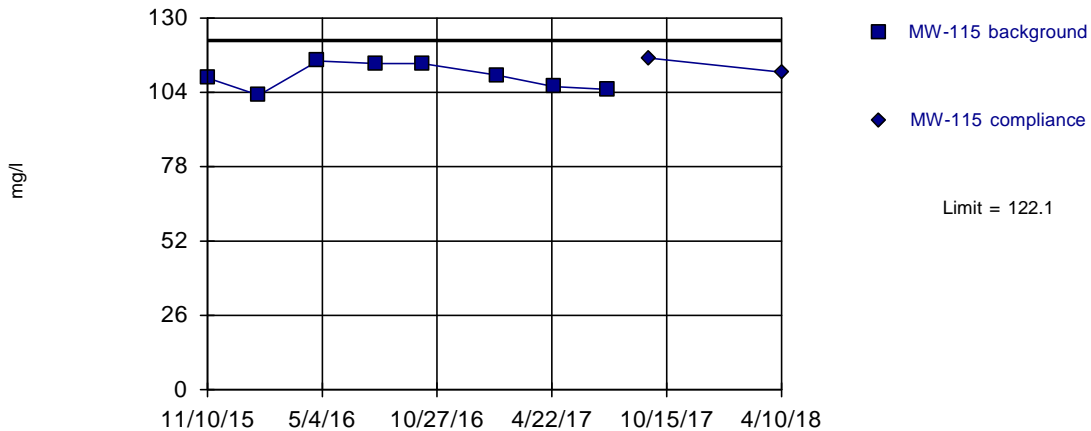
Background Data Summary: Mean=81.89, Std. Dev.=6.976, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8334, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



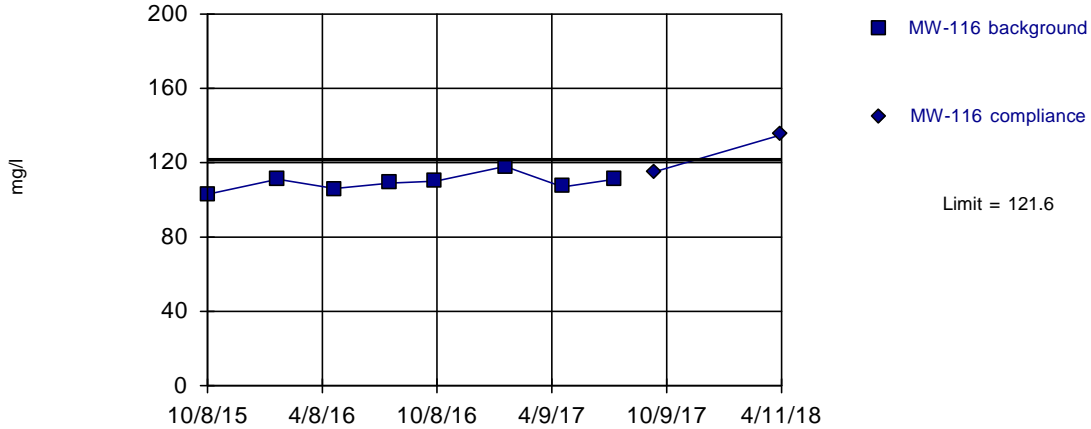
Background Data Summary: Mean=109.5, Std. Dev.=4.567, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9154, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Exceeds Limit

Prediction Limit Intrawell Parametric



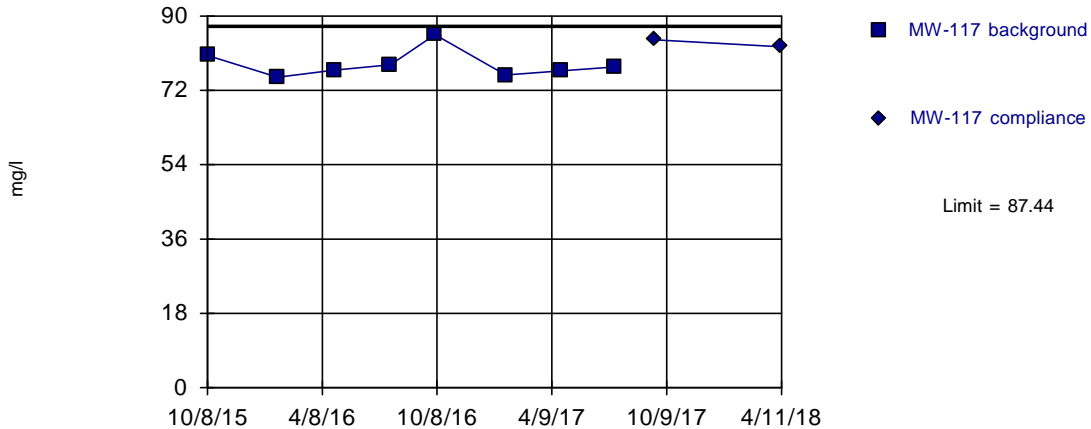
Background Data Summary: Mean=109.4, Std. Dev.=4.438, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9448, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



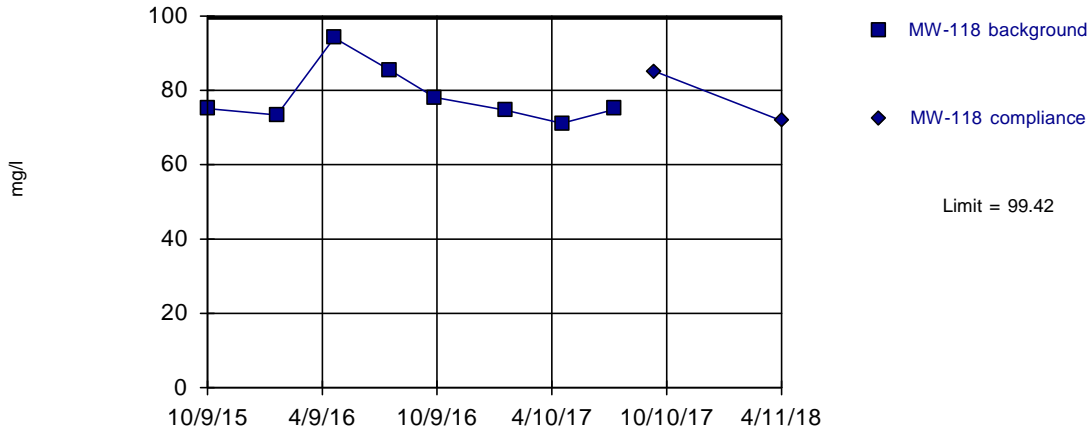
Background Data Summary: Mean=78.28, Std. Dev.=3.33, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8288, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



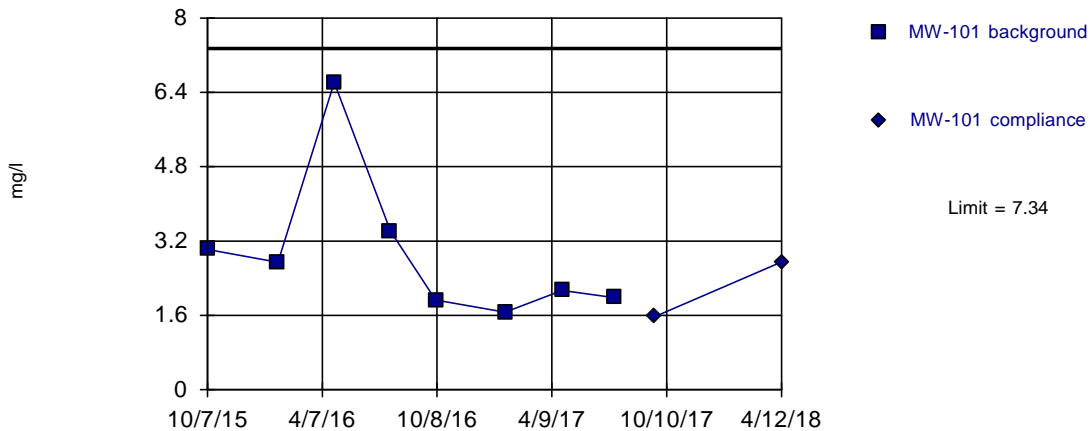
Background Data Summary: Mean=78.35, Std. Dev.=7.66, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8173, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



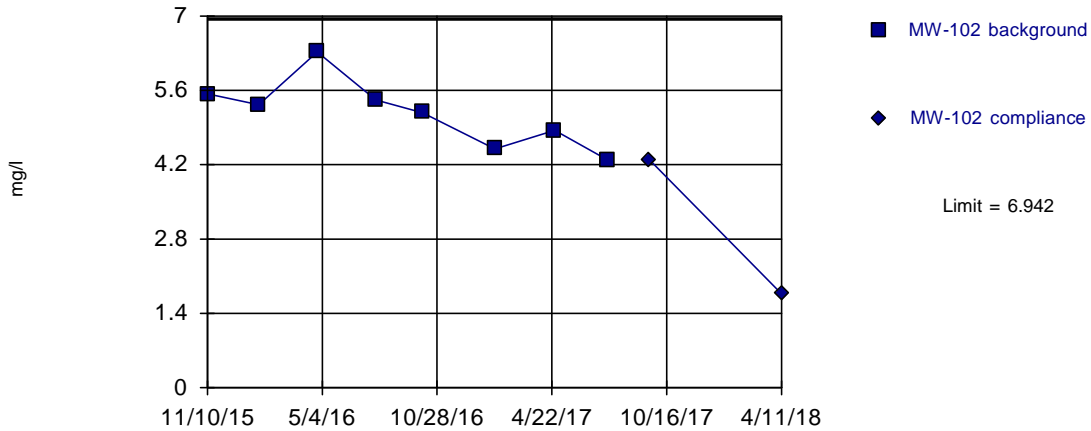
Background Data Summary: Mean=2.938, Std. Dev.=1.6, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7523, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



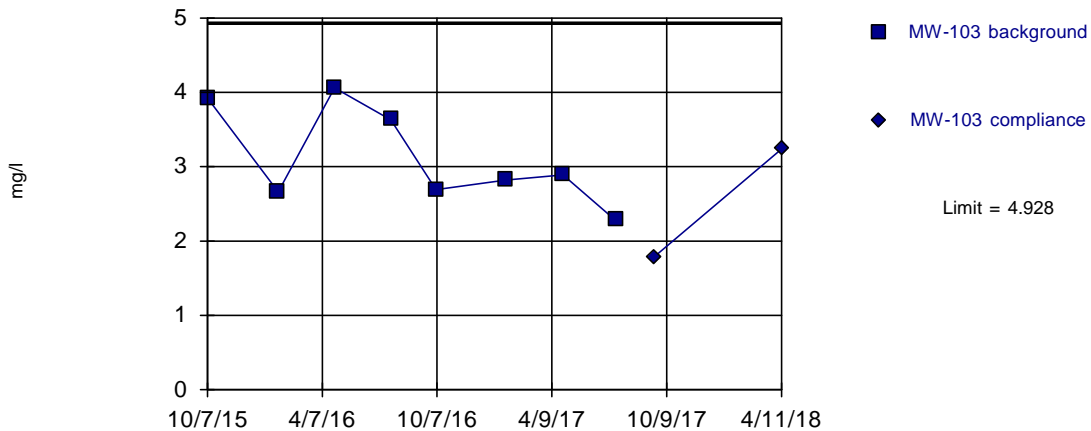
Background Data Summary: Mean=5.176, Std. Dev.=0.6418, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9652, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



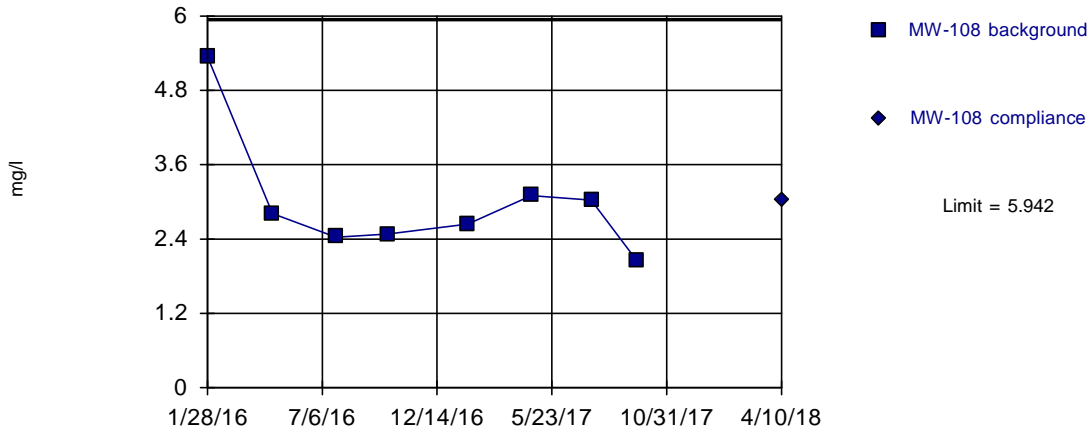
Background Data Summary: Mean=3.119, Std. Dev.=0.6578, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.892, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



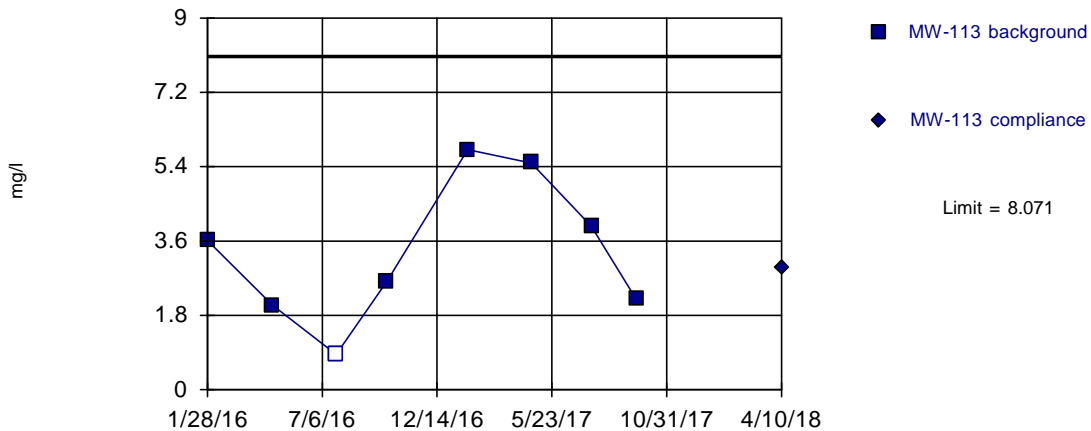
Background Data Summary (based on square root transformation): Mean=1.71, Std. Dev.=0.2644, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7994, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



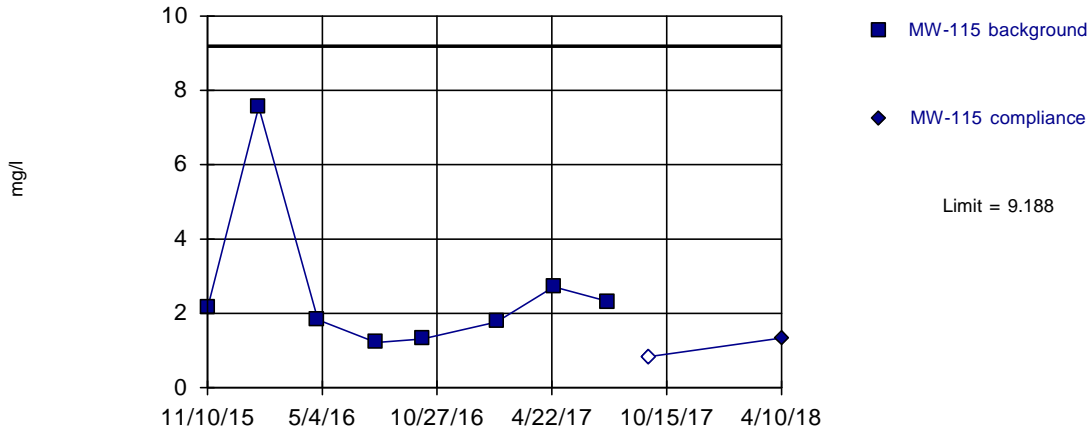
Background Data Summary: Mean=3.325, Std. Dev.=1.725, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9503, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



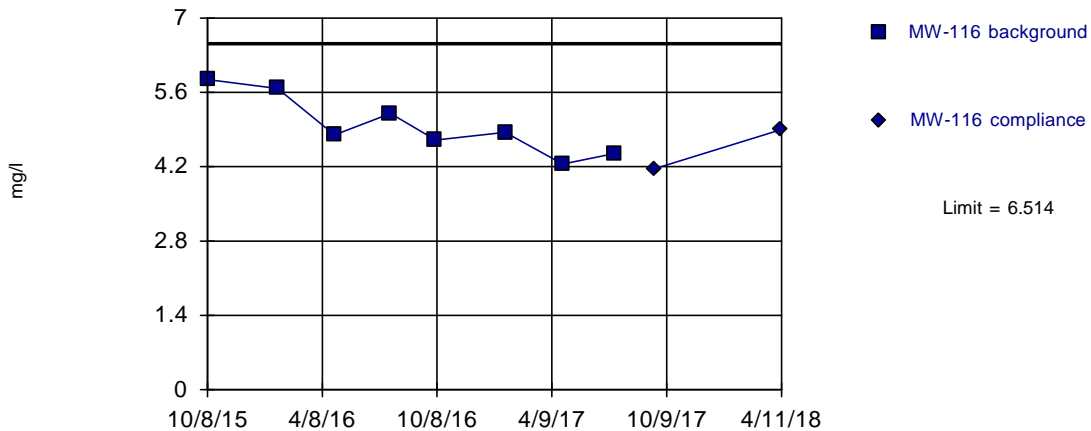
Background Data Summary (based on cube root transformation): Mean=1.32, Std. Dev.=0.2814, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7839, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 4/23/2018 3:59 PM View: 2018-1H 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=4.97, Std. Dev.=0.5612, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9382, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

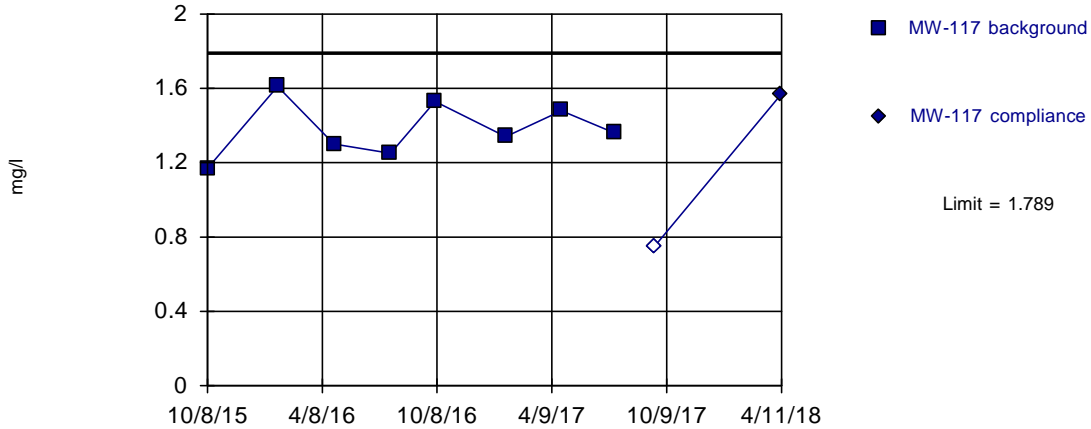
Constituent: Chloride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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=1.38, Std. Dev.=0.1487, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9694, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

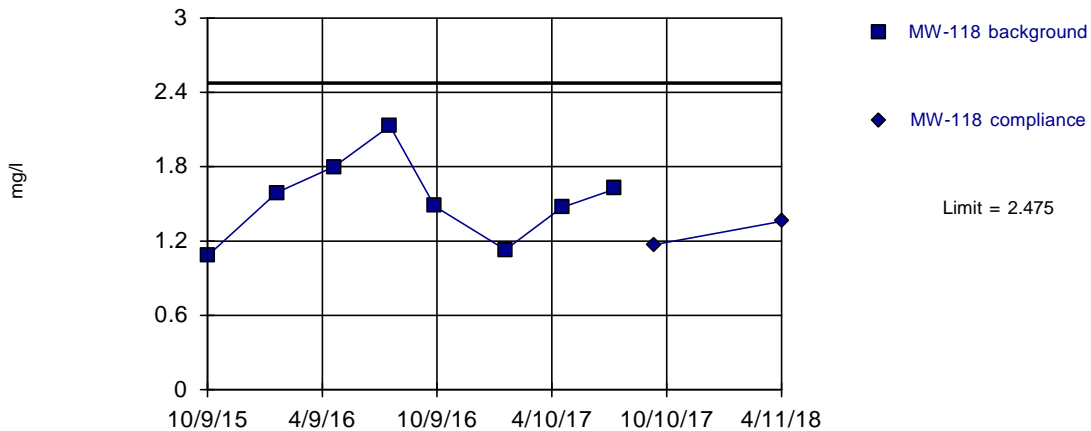
Constituent: Chloride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit

Intrawell Parametric



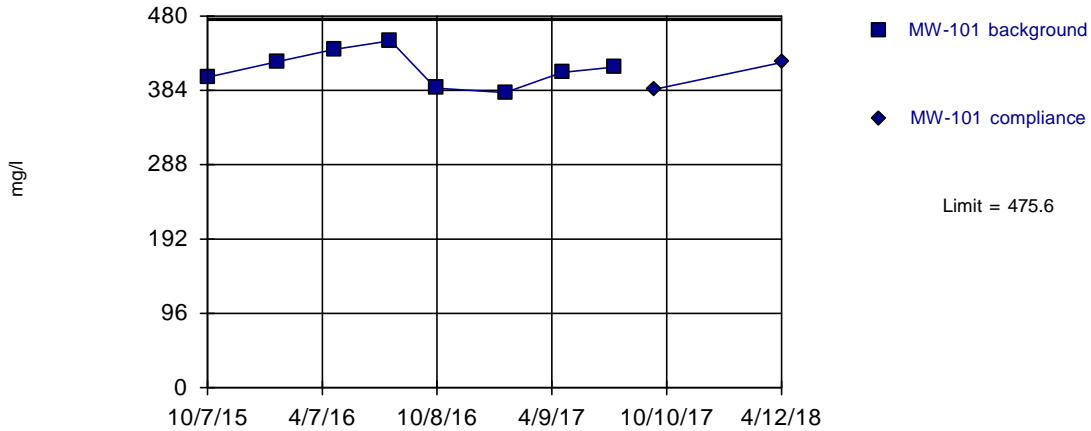
Background Data Summary: Mean=1.538, Std. Dev.=0.3407, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9523, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



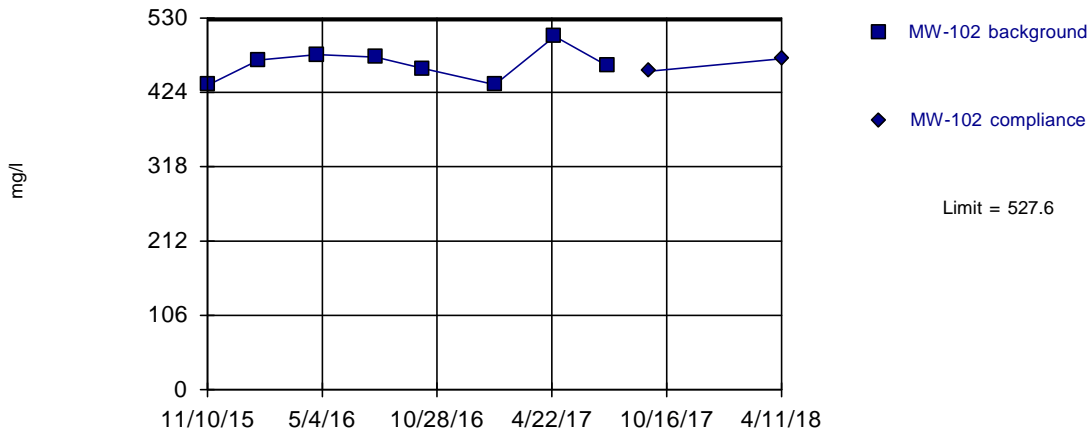
Background Data Summary: Mean=412, Std. Dev.=23.11, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.971, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



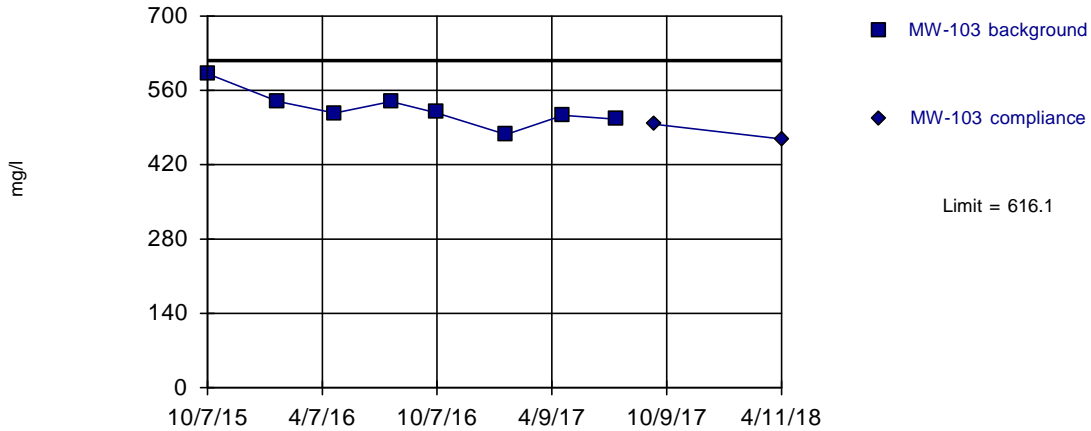
Background Data Summary: Mean=464.3, Std. Dev.=23.04, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9447, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



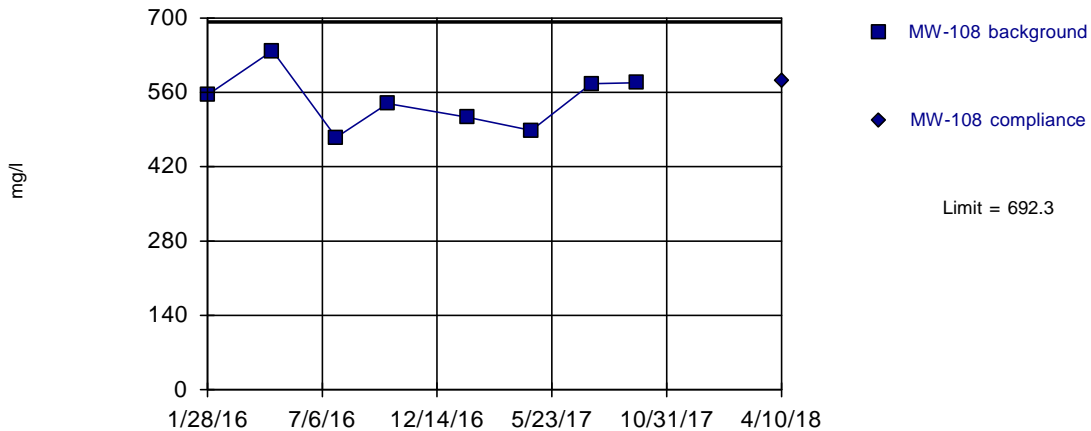
Background Data Summary: Mean=525, Std. Dev.=33.1, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9204, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



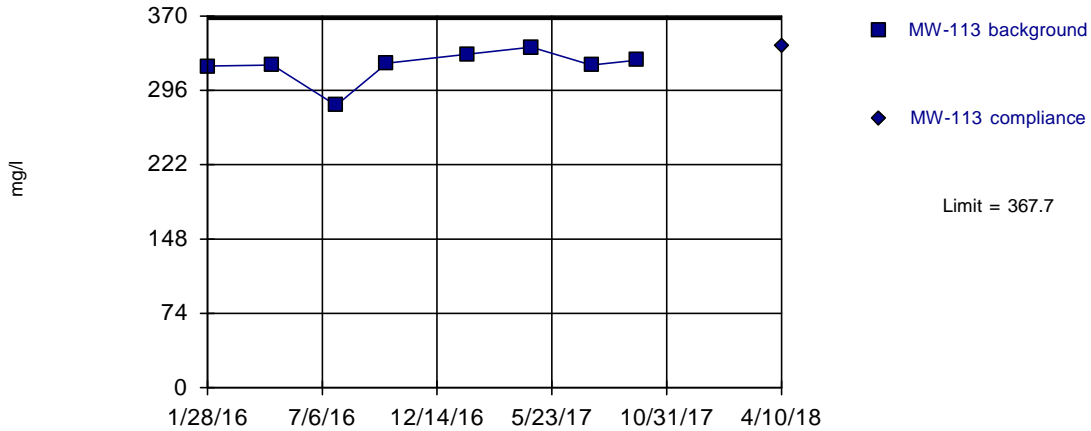
Background Data Summary: Mean=545.3, Std. Dev.=53.46, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9657, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



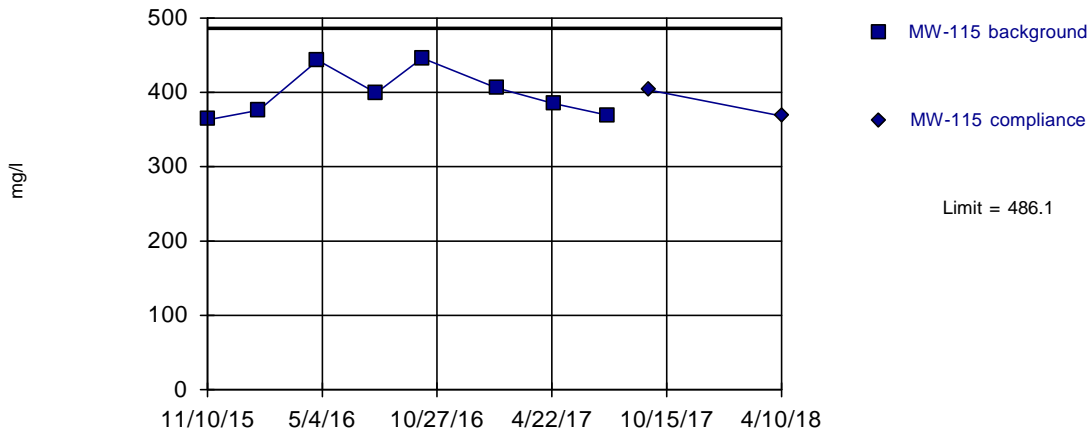
Background Data Summary: Mean=320.4, Std. Dev.=17.2, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7677, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



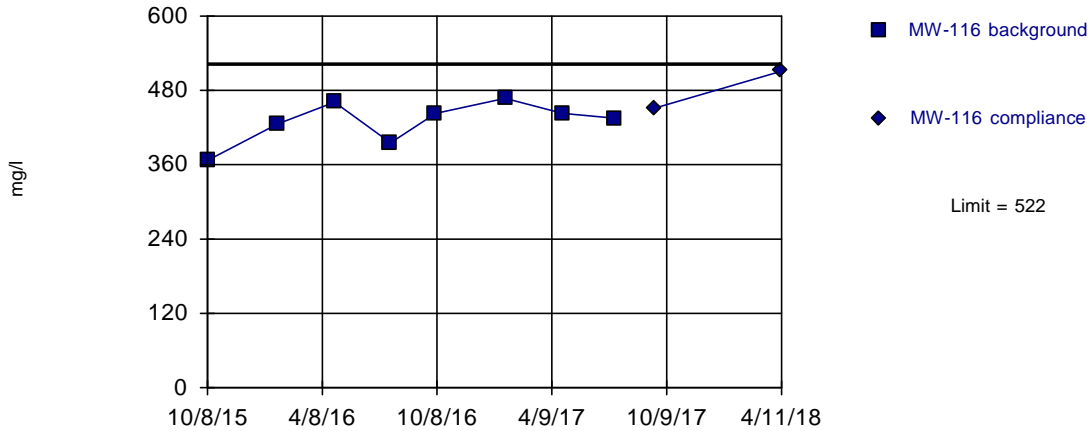
Background Data Summary: Mean=398.4, Std. Dev.=31.87, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8923, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



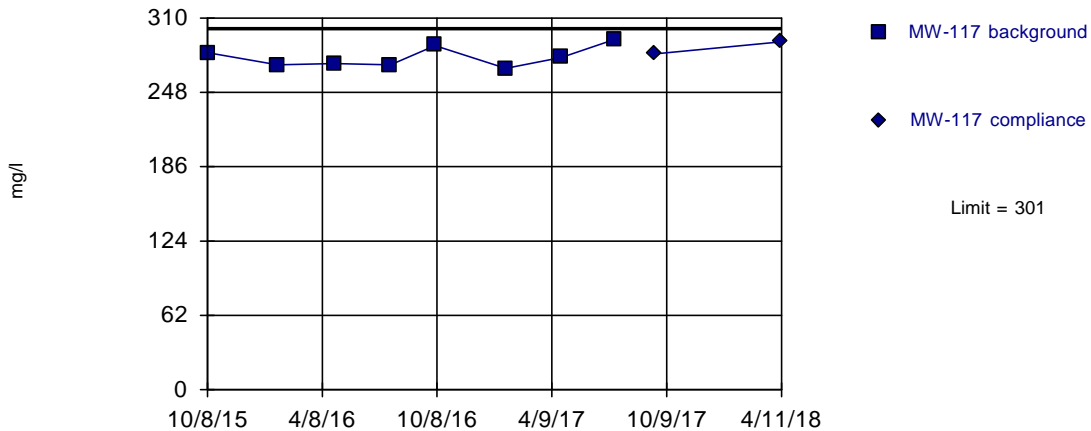
Background Data Summary: Mean=429.6, Std. Dev.=33.6, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9103, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



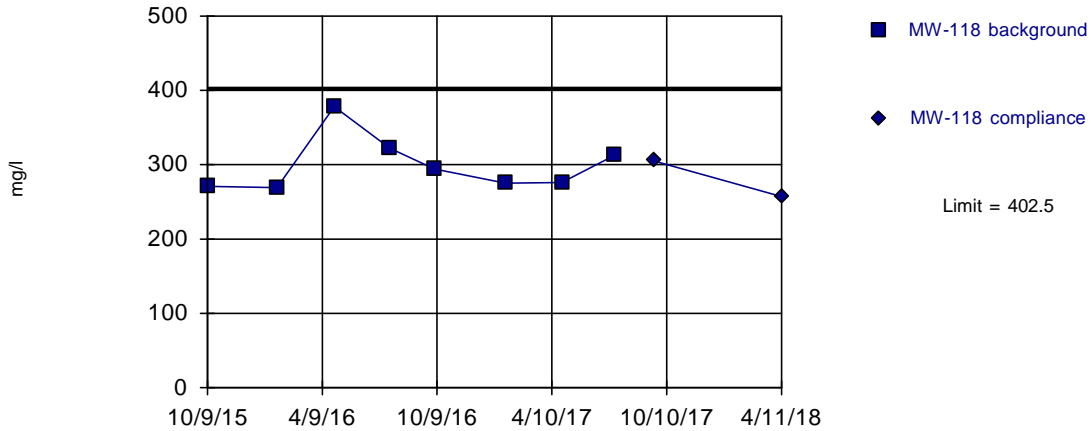
Background Data Summary: Mean=277.4, Std. Dev.=8.601, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9018, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



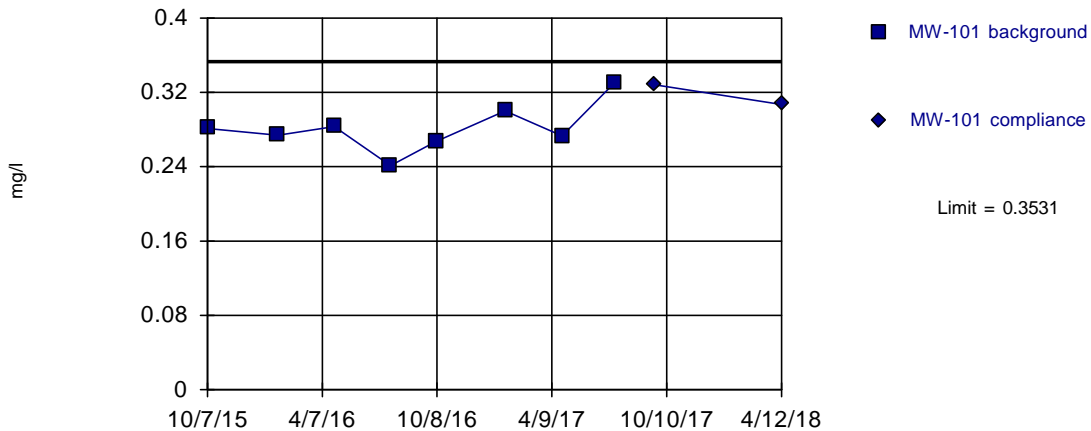
Background Data Summary: Mean=299.8, Std. Dev.=37.37, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8238, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



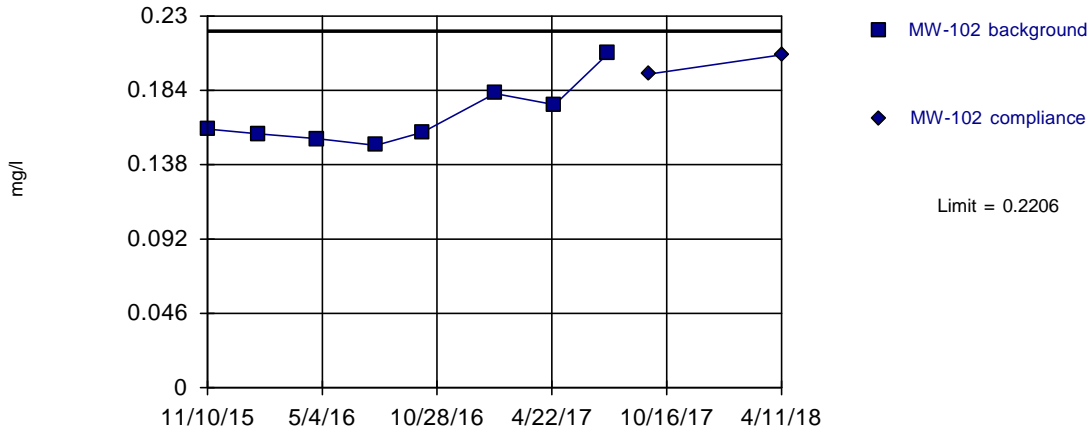
Background Data Summary: Mean=0.2813, Std. Dev.=0.02611, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9417, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



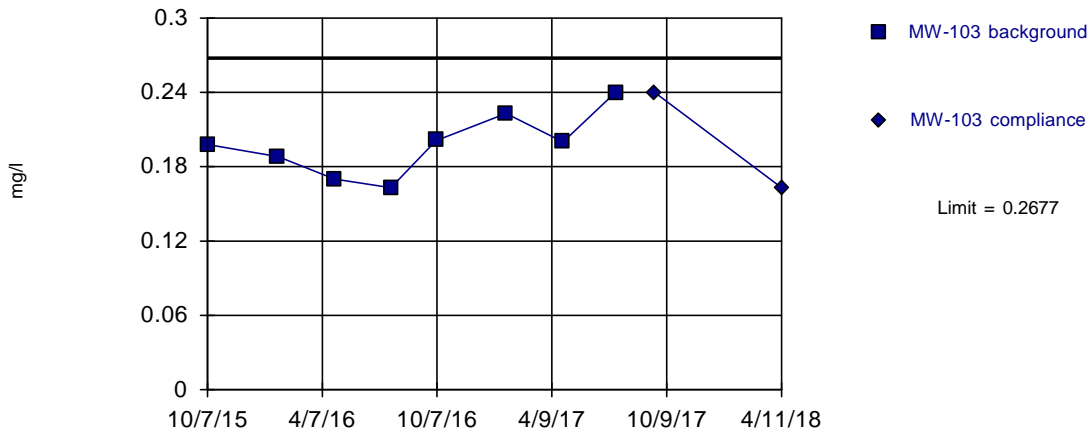
Background Data Summary: Mean=0.1679, Std. Dev.=0.01916, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8449, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



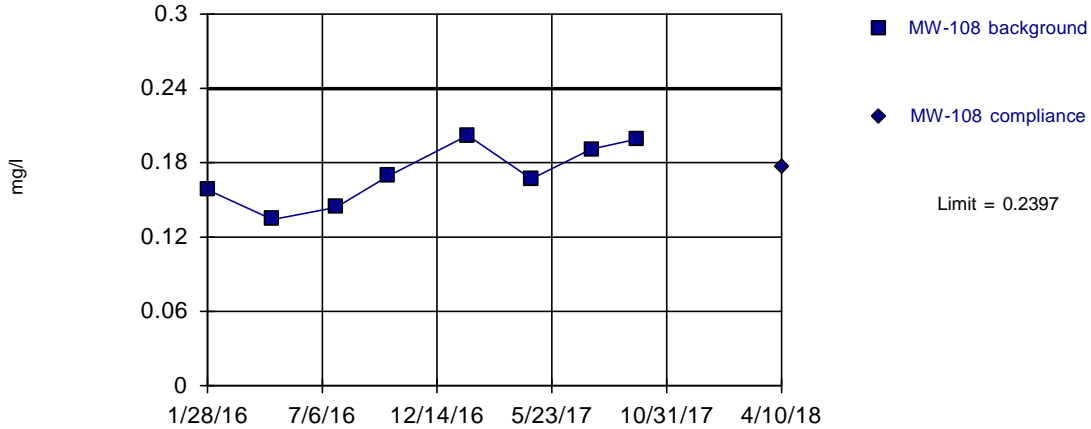
Background Data Summary: Mean=0.1979, Std. Dev.=0.02539, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9583, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



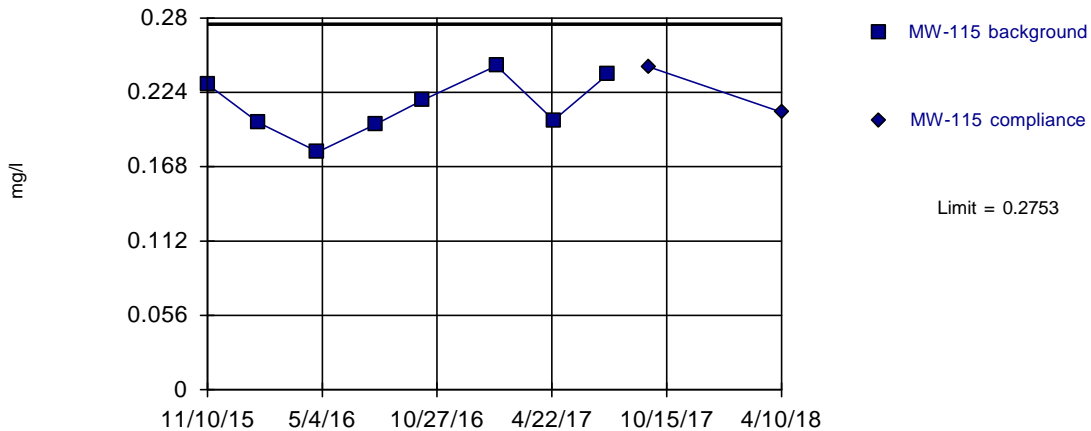
Background Data Summary: Mean=0.1705, Std. Dev.=0.02516, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9368, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



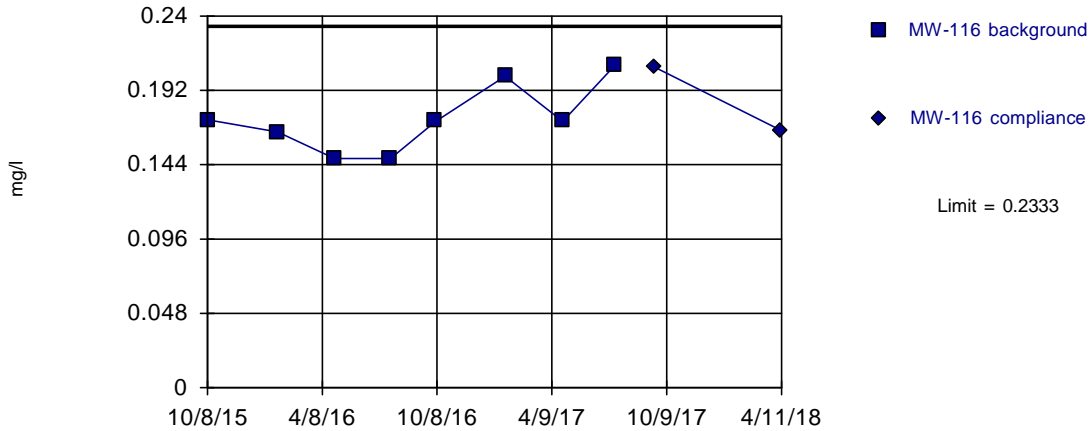
Background Data Summary: Mean=0.2141, Std. Dev.=0.02223, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9478, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



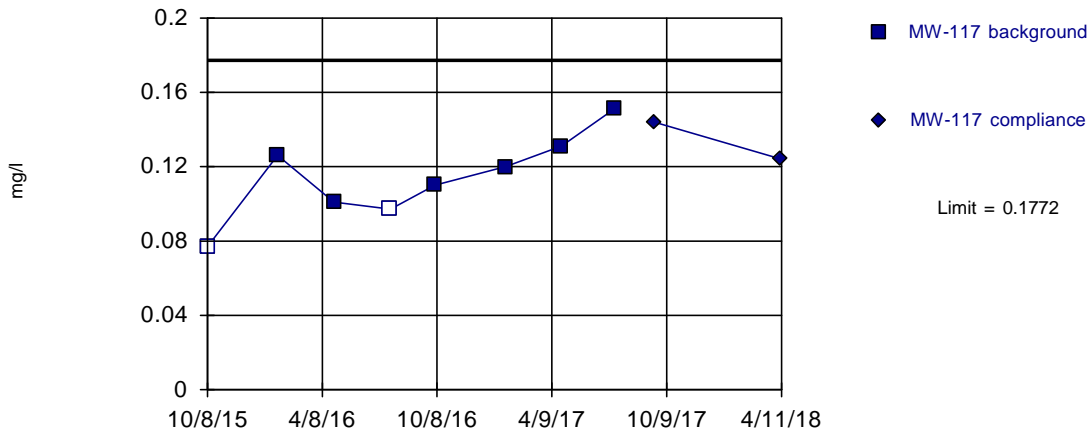
Background Data Summary: Mean=0.1734, Std. Dev.=0.02179, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8928, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



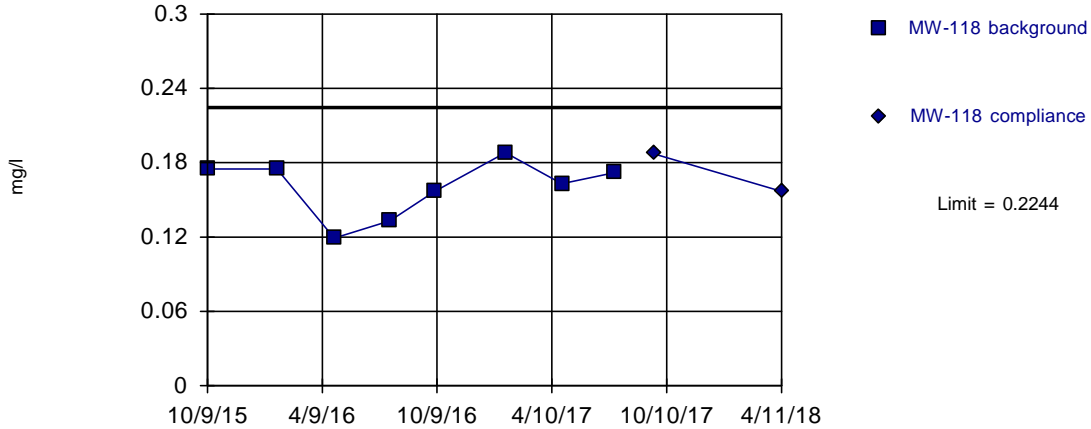
Background Data Summary: Mean=0.1141, Std. Dev.=0.02292, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.993, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



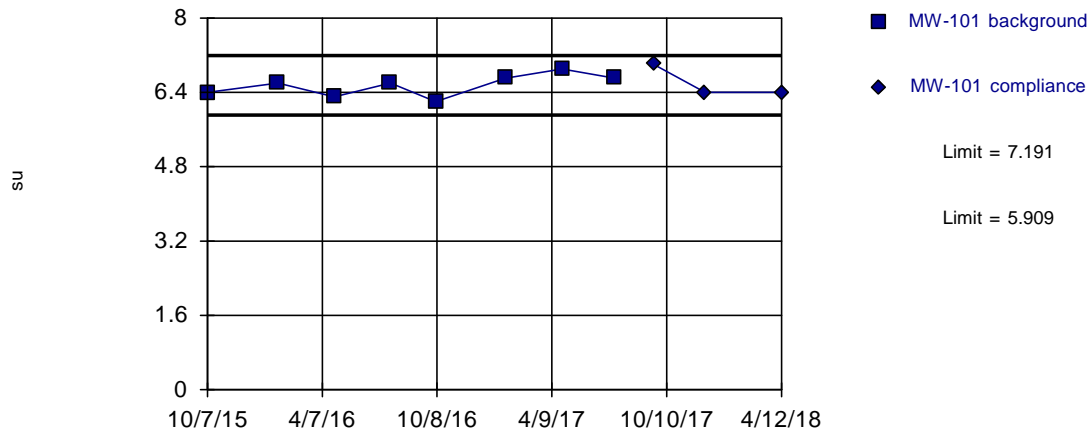
Background Data Summary: Mean=0.1603, Std. Dev.=0.02332, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9051, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limits

Prediction Limit Intrawell Parametric



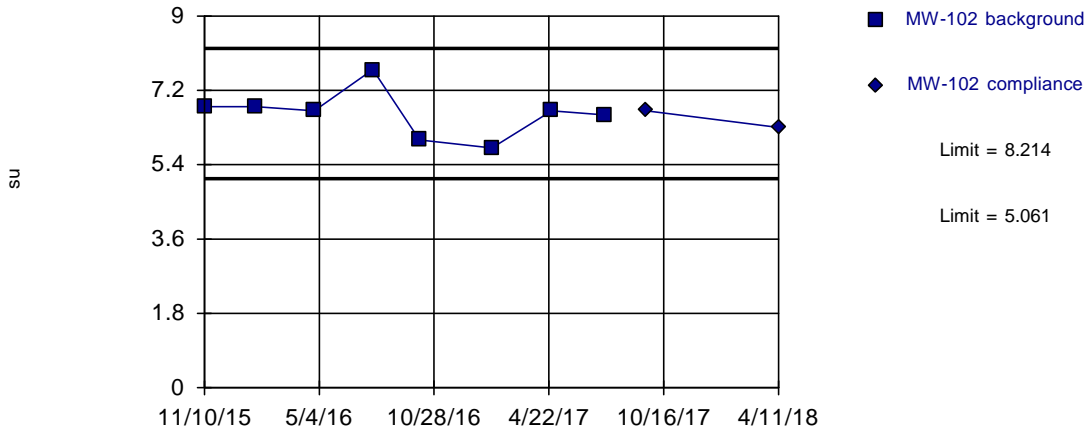
Background Data Summary: Mean=6.55, Std. Dev.=0.233, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9552, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limits

Prediction Limit Intrawell Parametric



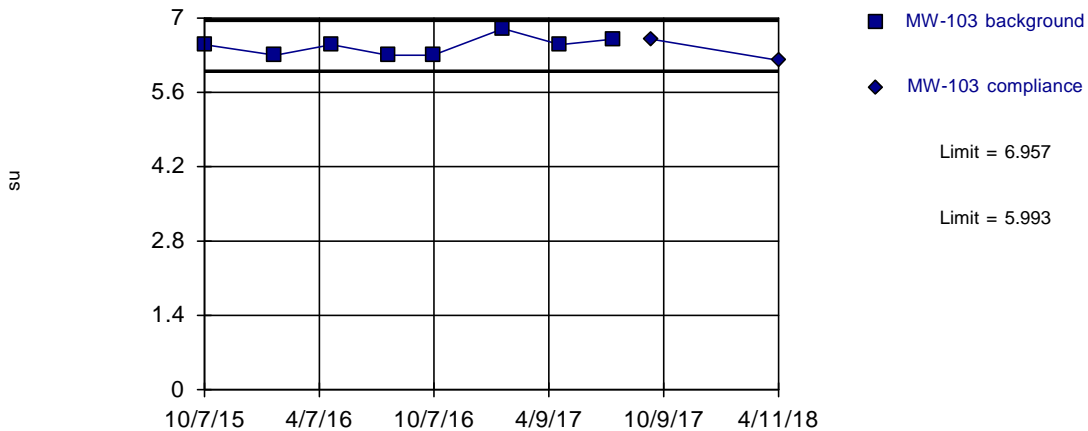
Background Data Summary: Mean=6.638, Std. Dev.=0.5731, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8994, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 12/10/2018 6:33 PM View: 2018-1H PL

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

Within Limits

Prediction Limit Intrawell Parametric



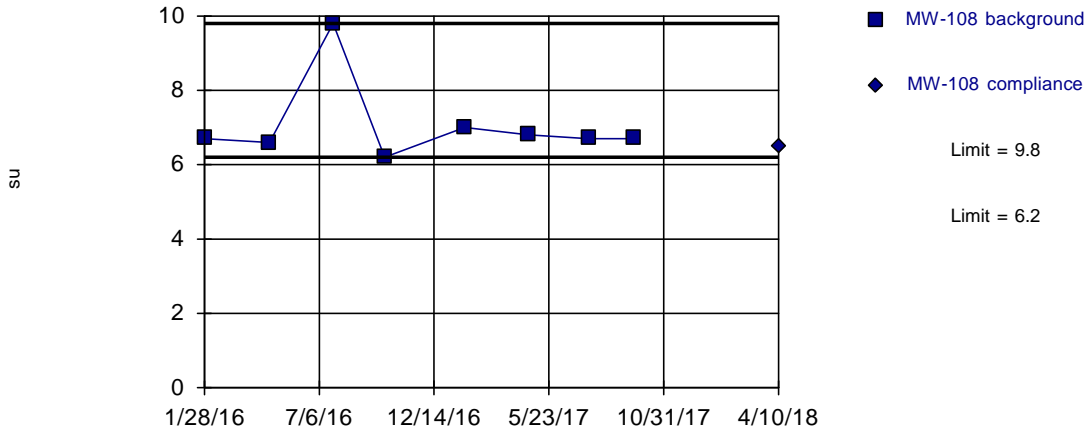
Background Data Summary: Mean=6.475, Std. Dev.=0.1753, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8695, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limits

Prediction Limit Intrawell Non-parametric



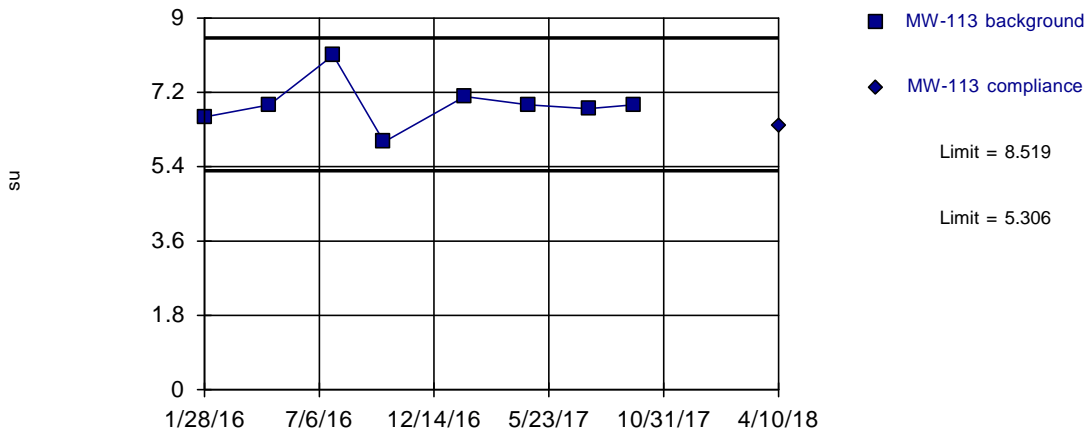
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 8 background values. Well-constituent pair annual alpha = 0.08484. Individual comparison alpha = 0.04288 (1 of 2). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: pH Analysis Run 12/10/2018 6:33 PM View: 2018-1H PL

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

Within Limits

Prediction Limit Intrawell Parametric



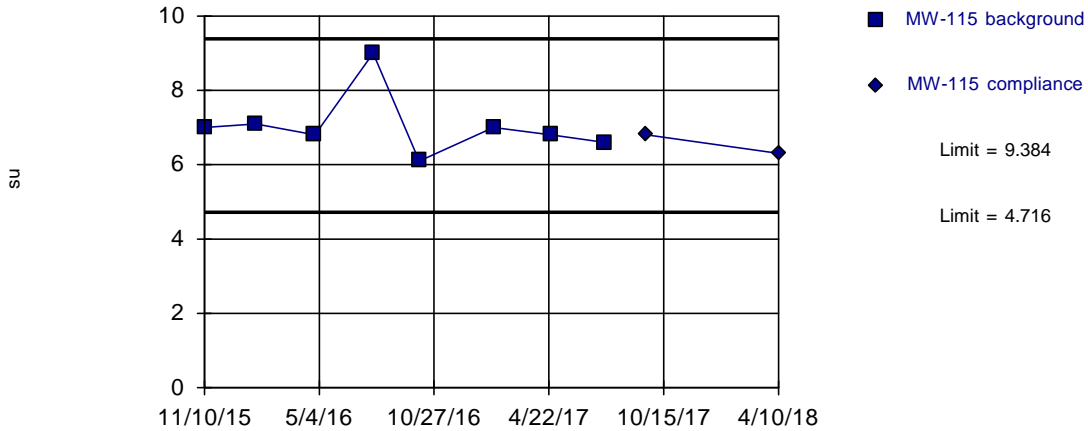
Background Data Summary: Mean=6.913, Std. Dev.=0.5842, n=8. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.876, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 12/10/2018 6:33 PM View: 2018-1H PL

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

Within Limits

Prediction Limit Intrawell Parametric



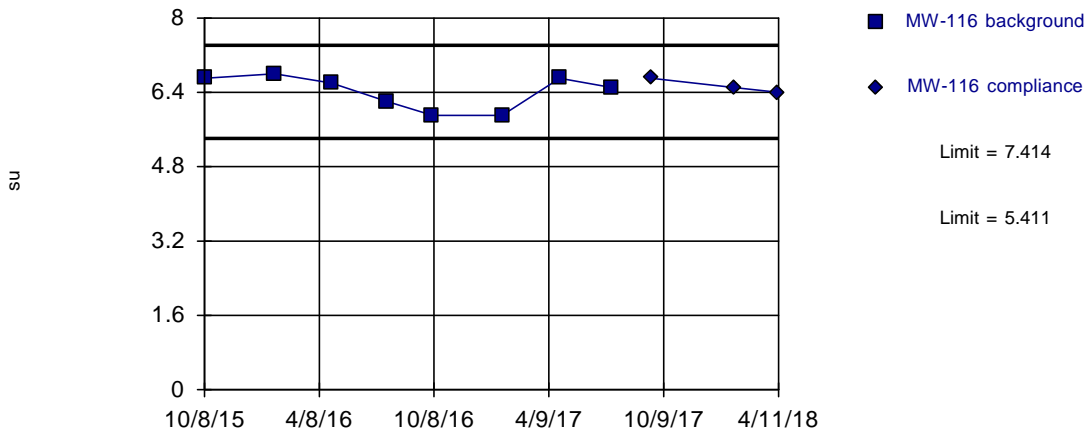
Background Data Summary: Mean=7.05, Std. Dev.=0.8485, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7617, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 12/10/2018 6:33 PM View: 2018-1H PL

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

Within Limits

Prediction Limit Intrawell Parametric



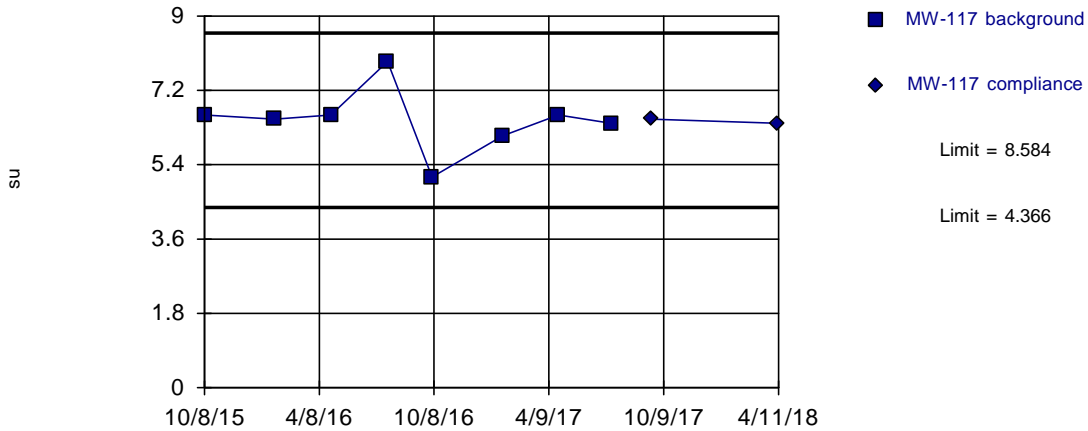
Background Data Summary: Mean=6.413, Std. Dev.=0.3643, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8539, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 4/23/2018 3:59 PM View: 2018-1H PL

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

Within Limits

Prediction Limit Intrawell Parametric



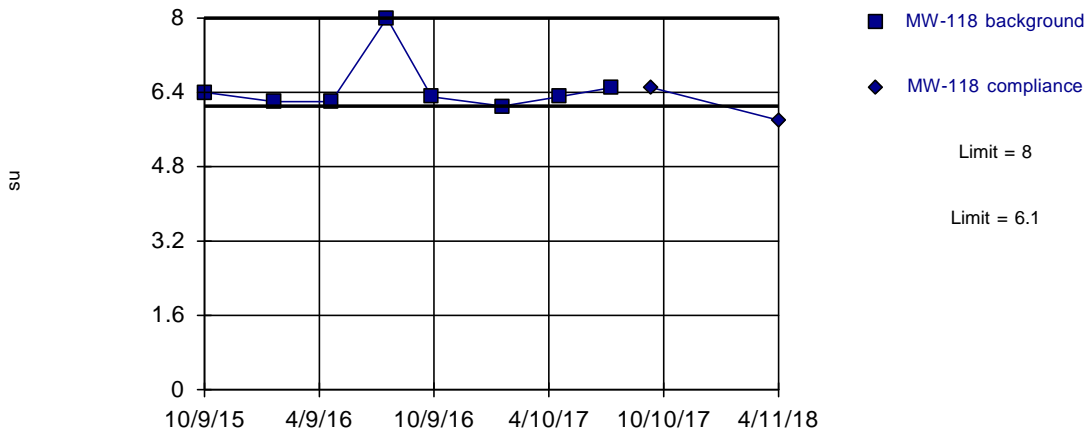
Background Data Summary: Mean=6.475, Std. Dev.=0.7667, n=8. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.871, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 12/10/2018 6:33 PM View: 2018-1H PL

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

Exceeds Limits

Prediction Limit Intrawell Non-parametric



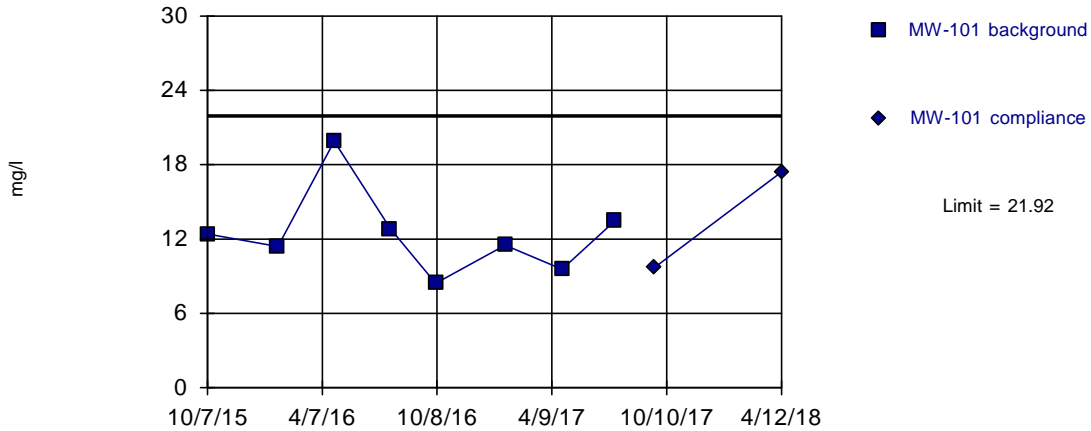
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 8 background values. Well-constituent pair annual alpha = 0.08484. Individual comparison alpha = 0.04288 (1 of 2). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: pH Analysis Run 12/10/2018 6:33 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



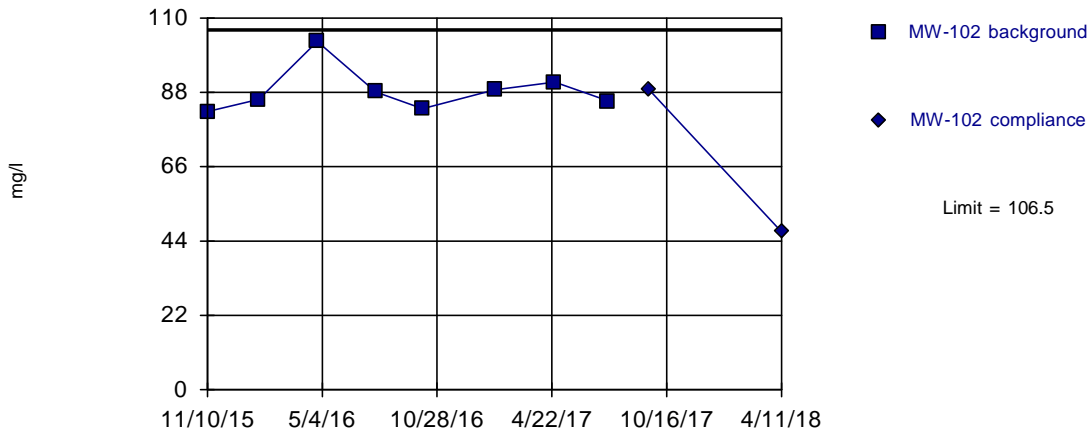
Background Data Summary: Mean=12.44, Std. Dev.=3.446, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8639, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 4/23/2018 4:00 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



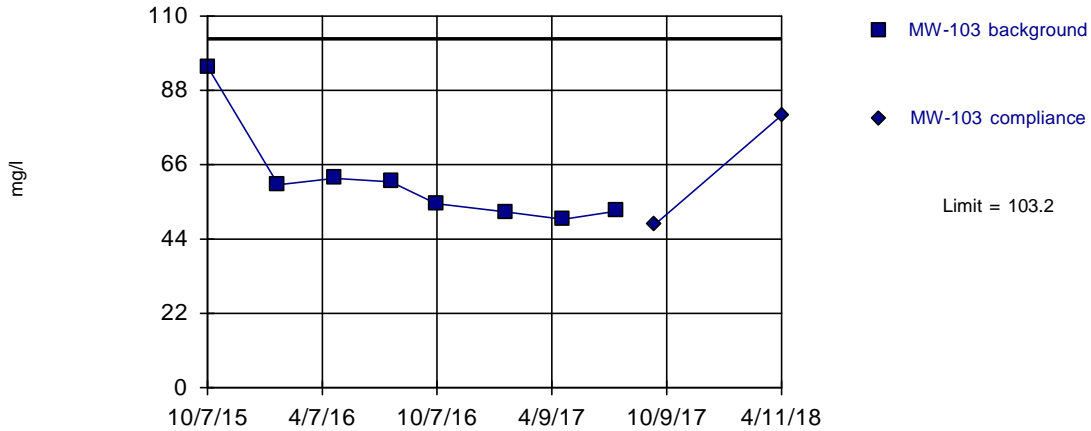
Background Data Summary: Mean=88.46, Std. Dev.=6.543, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8238, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 4/23/2018 4:00 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



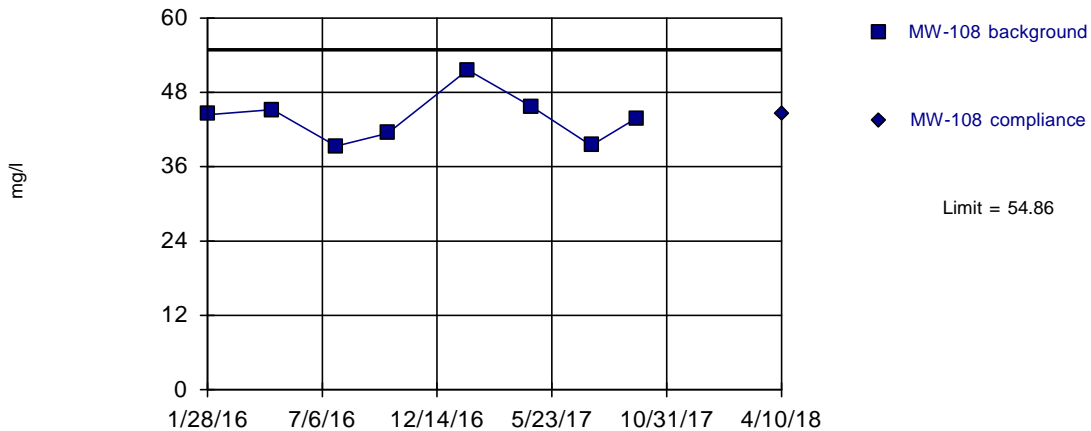
Background Data Summary (based on cube root transformation): Mean=3.914, Std. Dev.=0.2823, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7518, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 4/23/2018 4:00 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



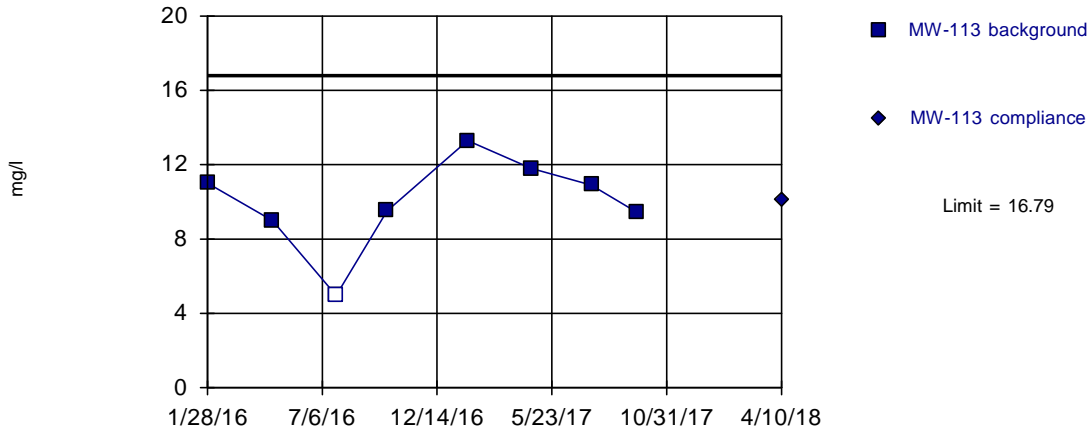
Background Data Summary: Mean=43.85, Std. Dev.=4.002, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9158, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 4/23/2018 4:00 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



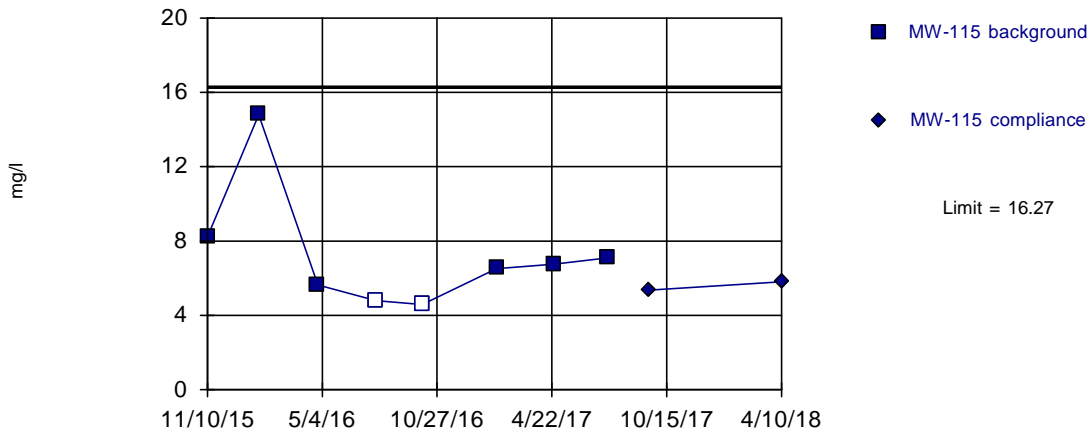
Background Data Summary: Mean=9.99, Std. Dev.=2.473, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.921, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 4/23/2018 4:00 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



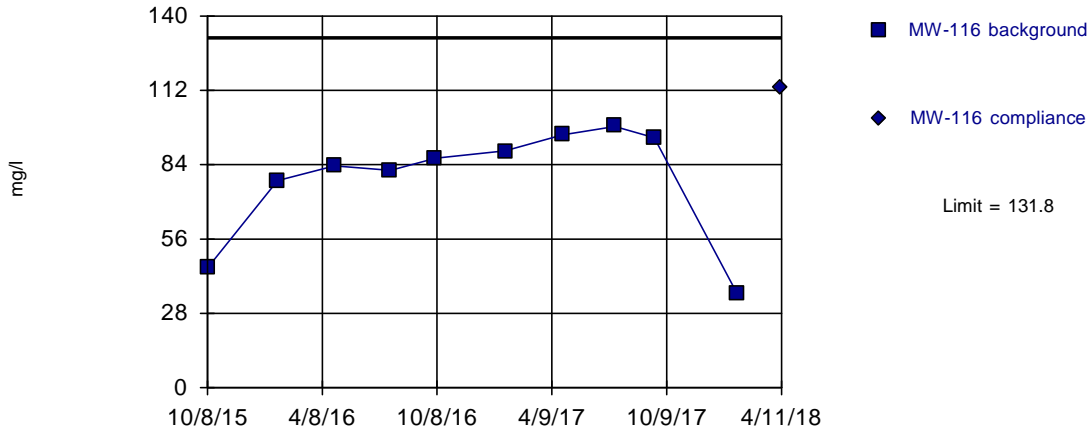
Background Data Summary: Mean=7.301, Std. Dev.=3.262, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7624, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 4/23/2018 4:00 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



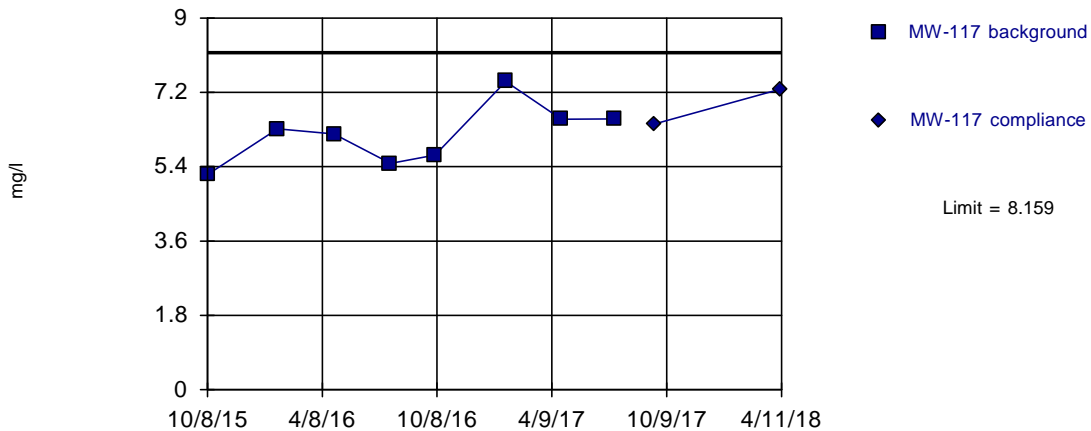
Background Data Summary: Mean=78.74, Std. Dev.=21.34, n=10. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7947, critical = 0.781. Kappa = 2.485 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 4/23/2018 4:00 PM View: 2018-1H PL

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

Within Limit

Prediction Limit Intrawell Parametric



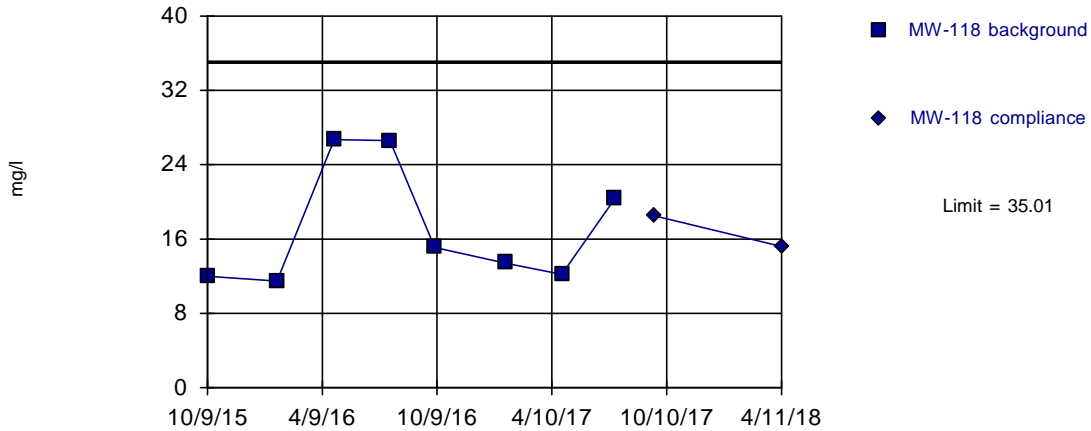
Background Data Summary: Mean=6.181, Std. Dev.=0.7192, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.958, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 4/23/2018 4:00 PM View: 2018-1H 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=17.24, Std. Dev.=6.461, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8056, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

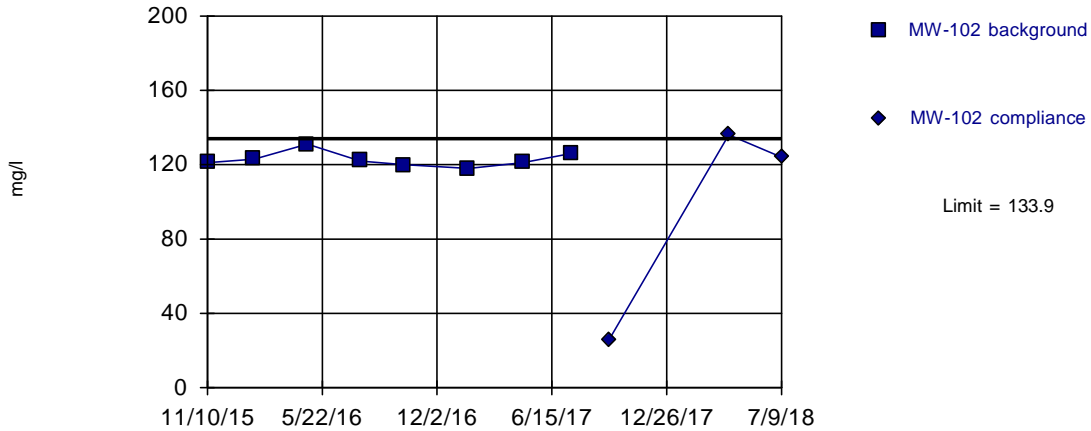
Constituent: Sulfate Analysis Run 4/23/2018 4:00 PM View: 2018-1H PL

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

Prediction Limits, First Half 2018 Verification Sampling – July 2018

Within Limit

Prediction Limit Intrawell Parametric



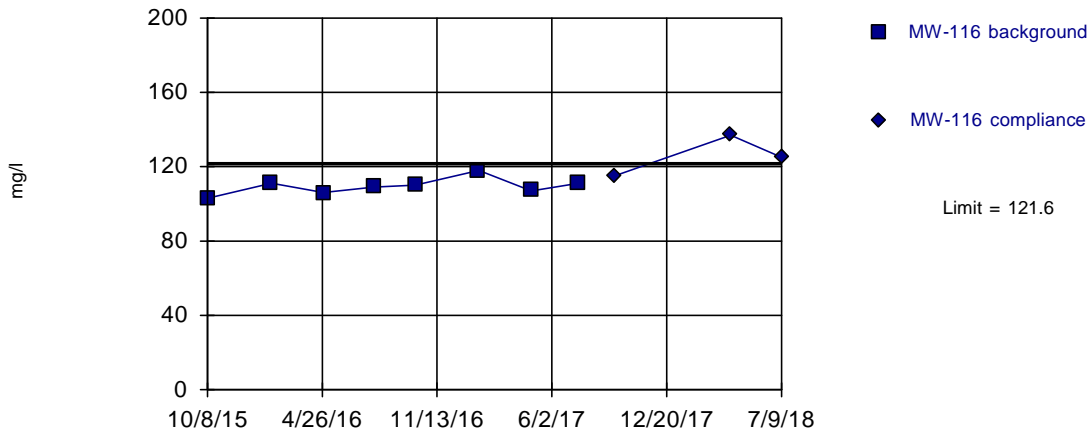
Background Data Summary: Mean=122.8, Std. Dev.=4.062, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8956, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 7/17/2018 3:03 PM View: 2018-1H Verification

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

Exceeds Limit

Prediction Limit Intrawell Parametric



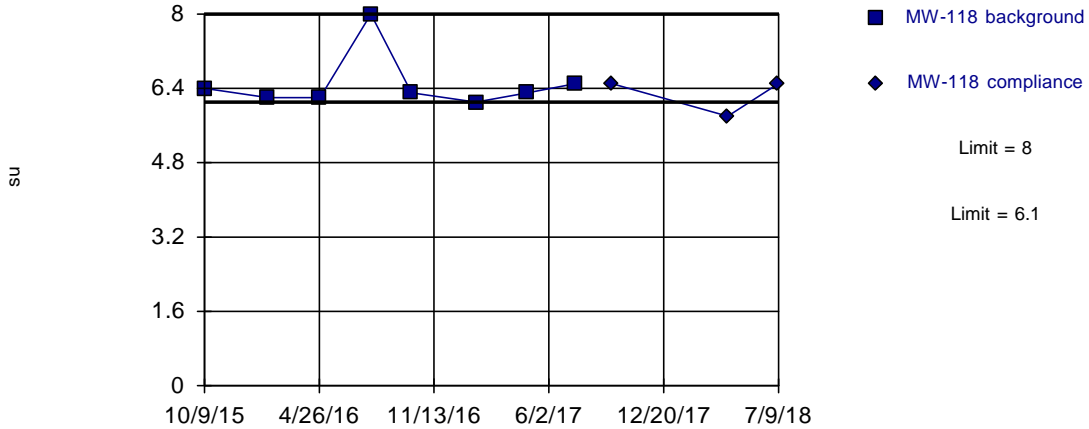
Background Data Summary: Mean=109.4, Std. Dev.=4.438, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9448, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 7/17/2018 3:03 PM View: 2018-1H Verification

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

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 8 background values. Well-constituent pair annual alpha = 0.08484. Individual comparison alpha = 0.04288 (1 of 2). Insufficient data to test for seasonality; data were not deseasonalized.

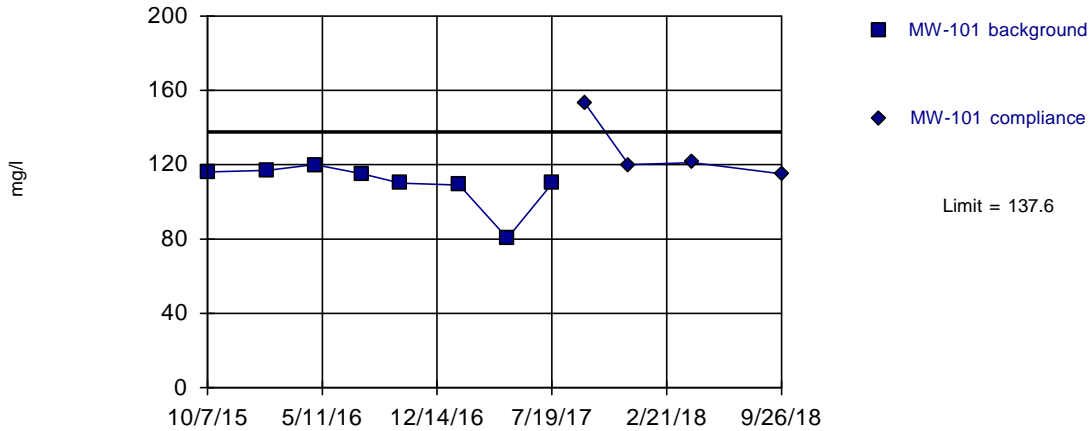
Constituent: pH Analysis Run 12/12/2018 12:19 PM View: 2018-1H Verification

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

Prediction Limits, Second Half 2018 Sampling – September 2018

Within Limit

Prediction Limit Intrawell Parametric



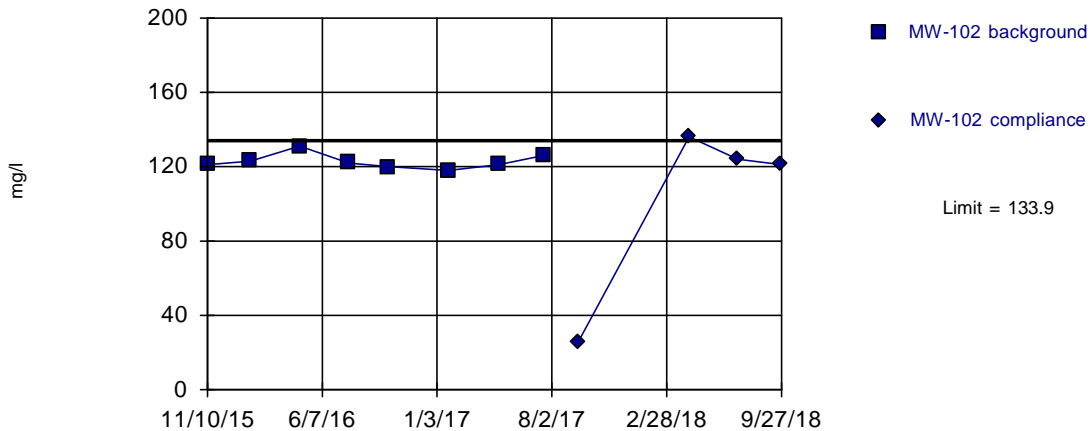
Background Data Summary (based on square transformation): Mean=12166, Std. Dev.=2464, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7547, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 10/29/2018 4:17 PM View: 2018-2H 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=122.8, Std. Dev.=4.062, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8956, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

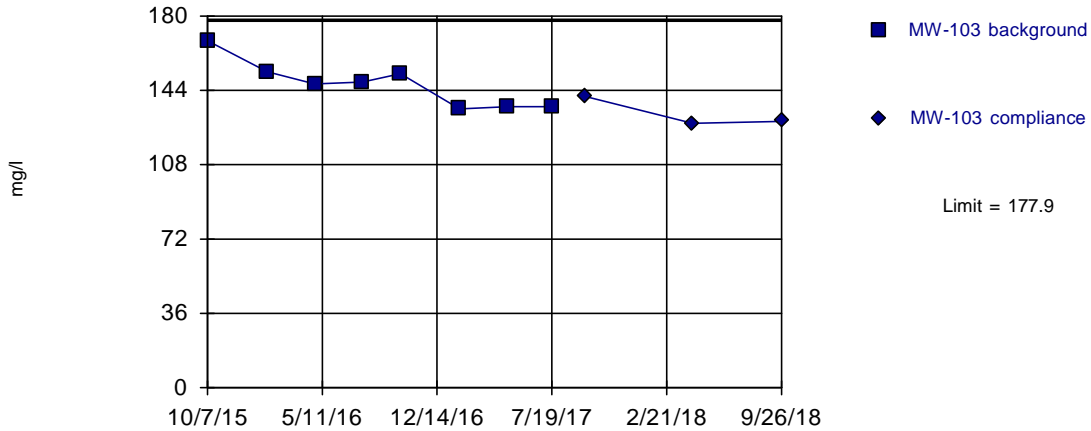
Constituent: Calcium Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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=146.9, Std. Dev.=11.27, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8944, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

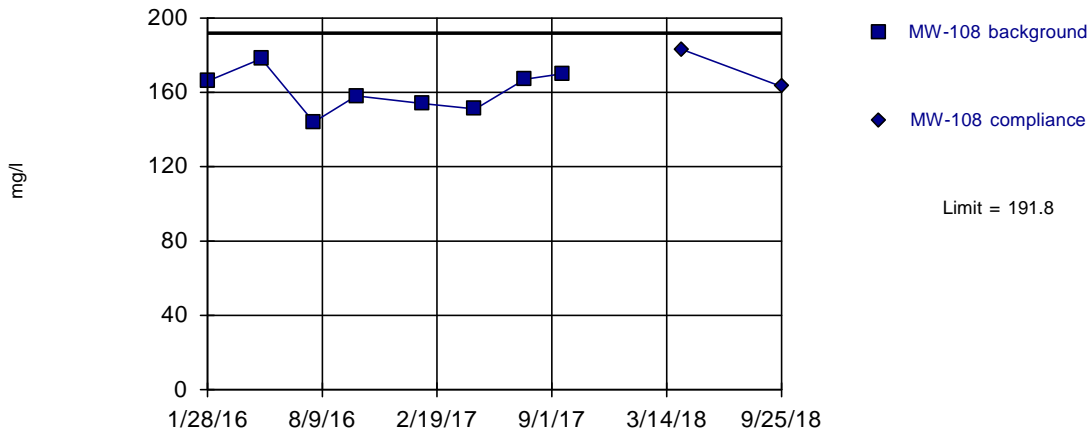
Constituent: Calcium Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit

Intrawell Parametric



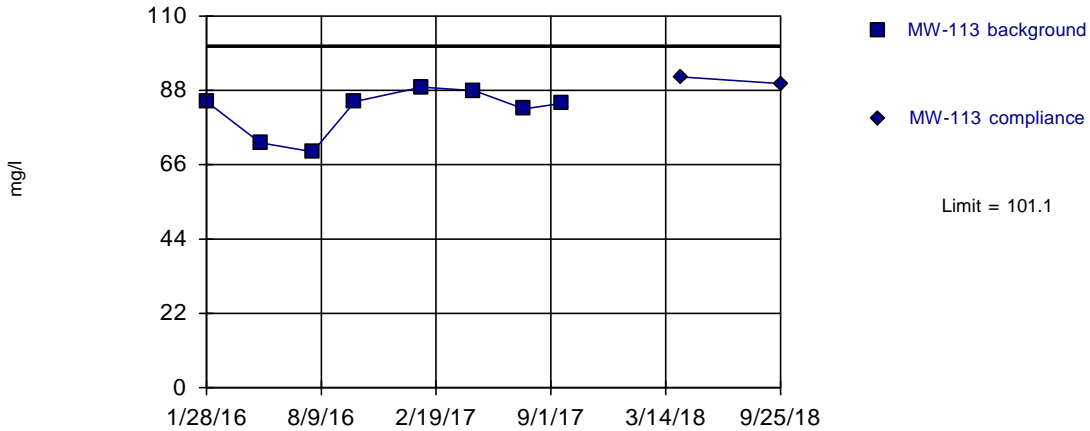
Background Data Summary: Mean=161, Std. Dev.=11.2, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.978, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



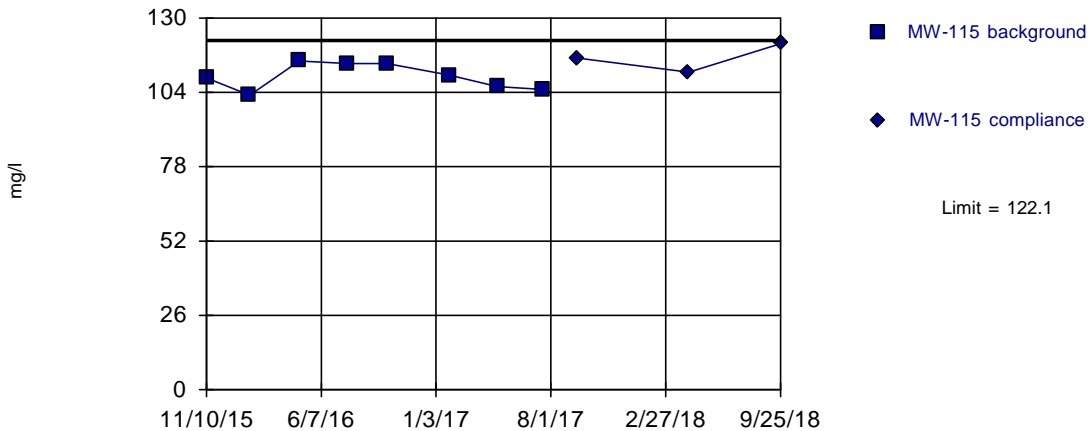
Background Data Summary: Mean=81.89, Std. Dev.=6.976, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8334, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



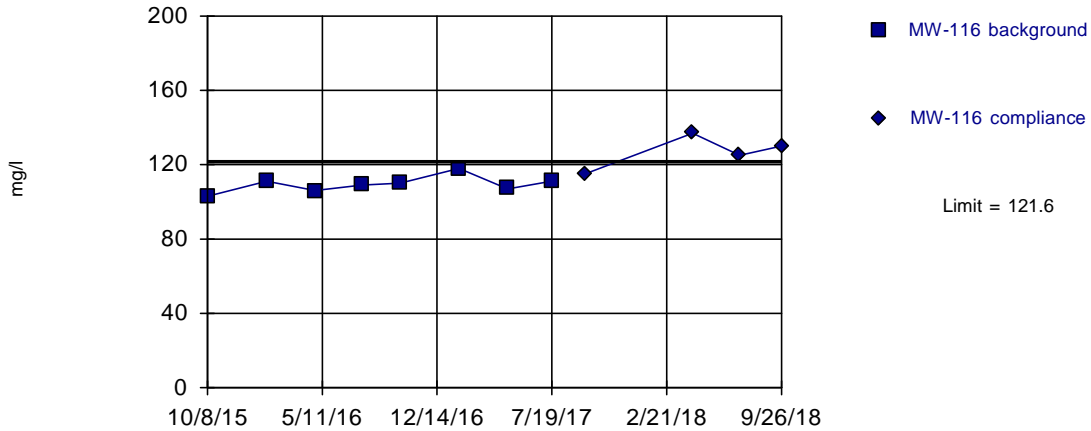
Background Data Summary: Mean=109.5, Std. Dev.=4.567, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9154, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 10/31/2018 2:13 PM View: 2018-2H PL

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

Exceeds Limit

Prediction Limit Intrawell Parametric



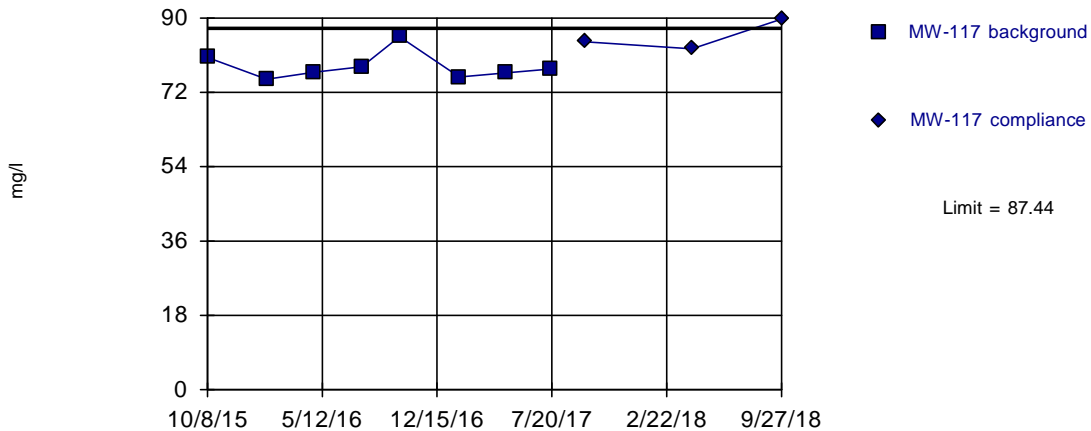
Background Data Summary: Mean=109.4, Std. Dev.=4.438, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9448, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 10/31/2018 2:13 PM View: 2018-2H PL

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

Exceeds Limit

Prediction Limit Intrawell Parametric



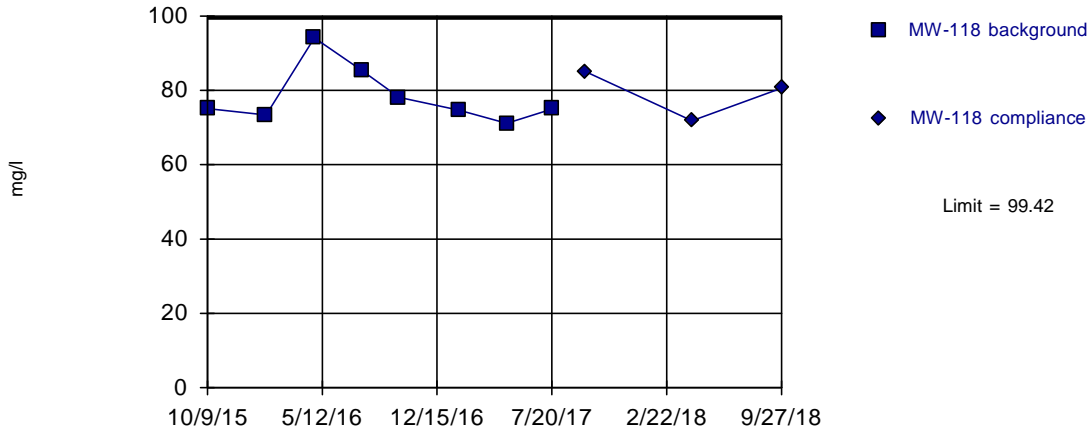
Background Data Summary: Mean=78.28, Std. Dev.=3.33, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8288, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 10/31/2018 2:14 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



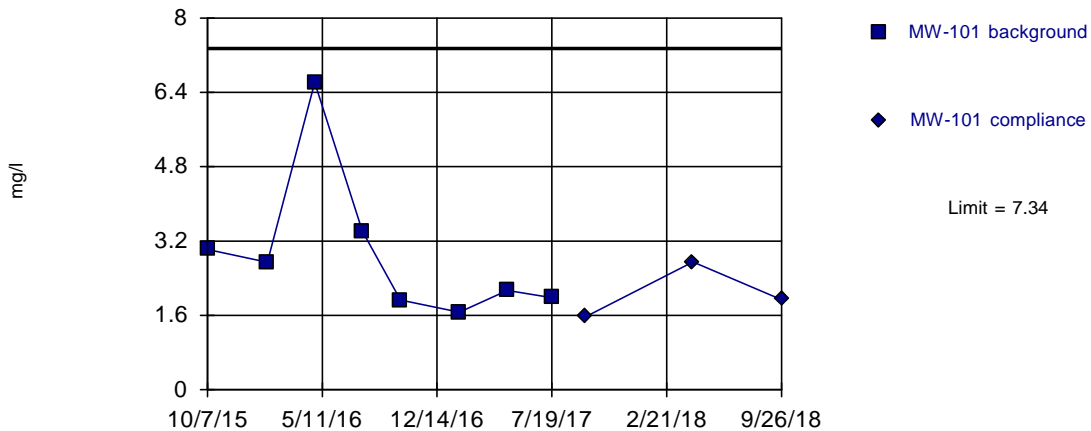
Background Data Summary: Mean=78.35, Std. Dev.=7.66, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8173, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



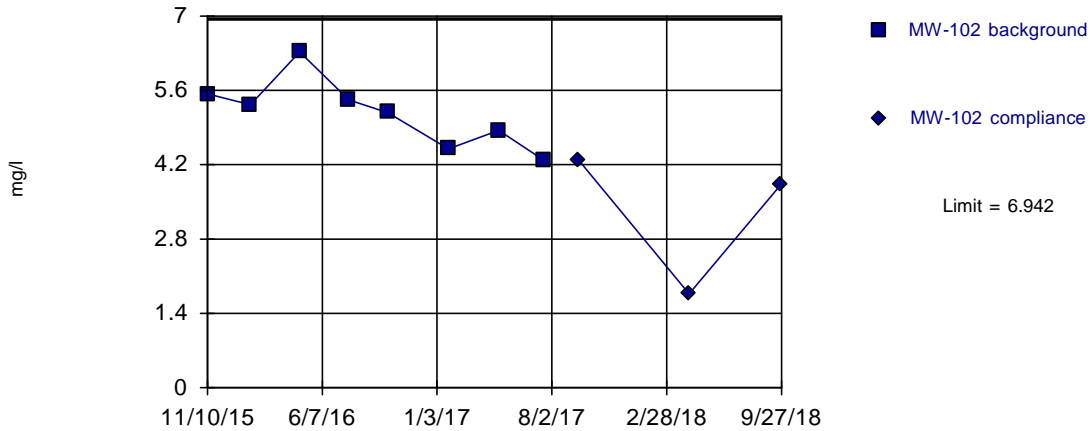
Background Data Summary: Mean=2.938, Std. Dev.=1.6, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7523, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



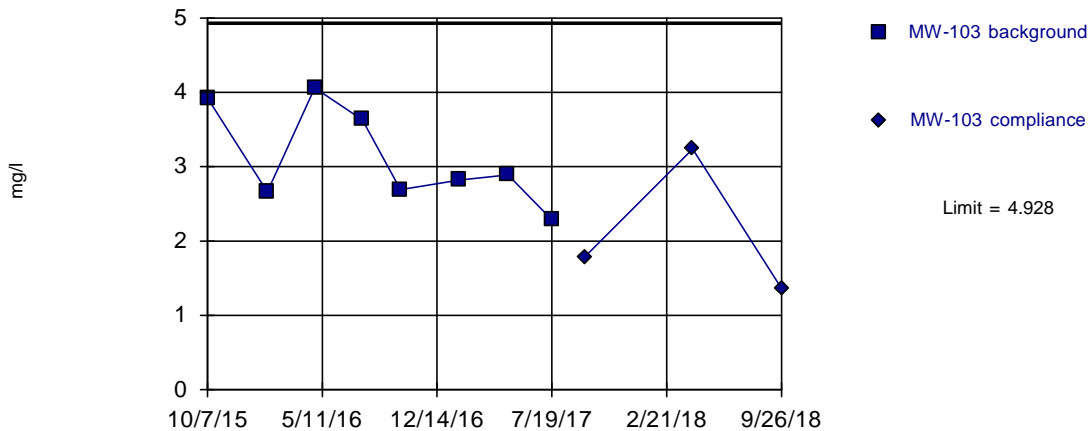
Background Data Summary: Mean=5.176, Std. Dev.=0.6418, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9652, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



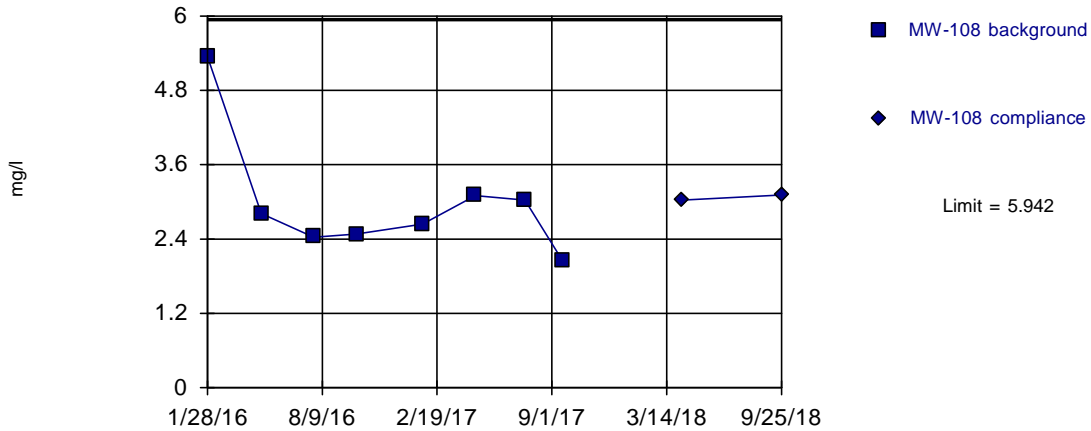
Background Data Summary: Mean=3.119, Std. Dev.=0.6578, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.892, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



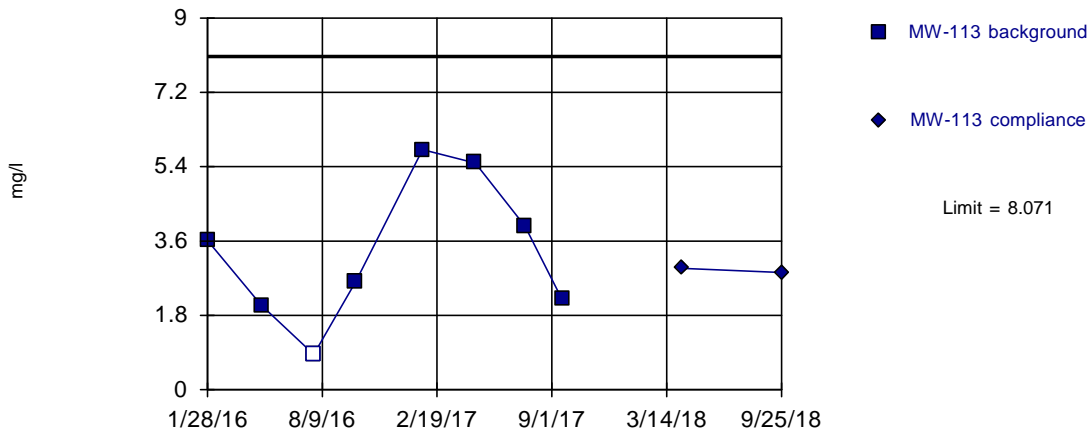
Background Data Summary (based on square root transformation): Mean=1.71, Std. Dev.=0.2644, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7994, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



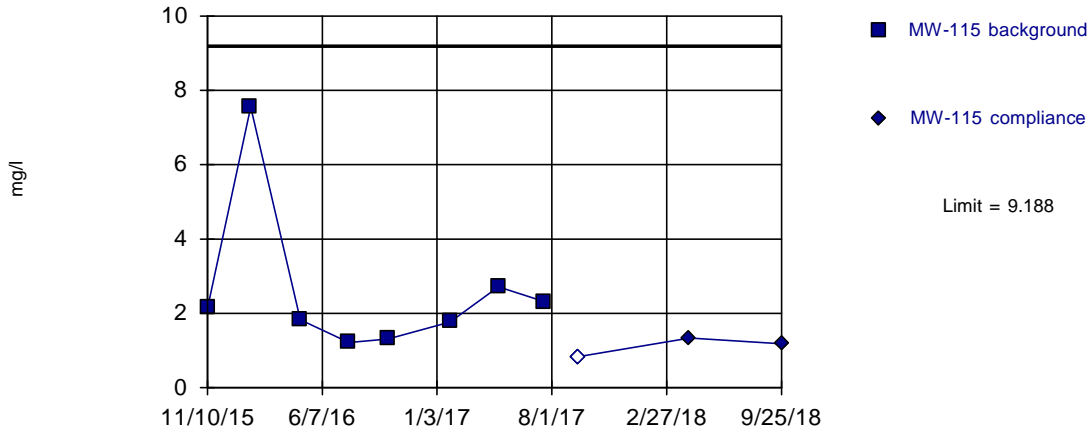
Background Data Summary: Mean=3.325, Std. Dev.=1.725, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9503, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



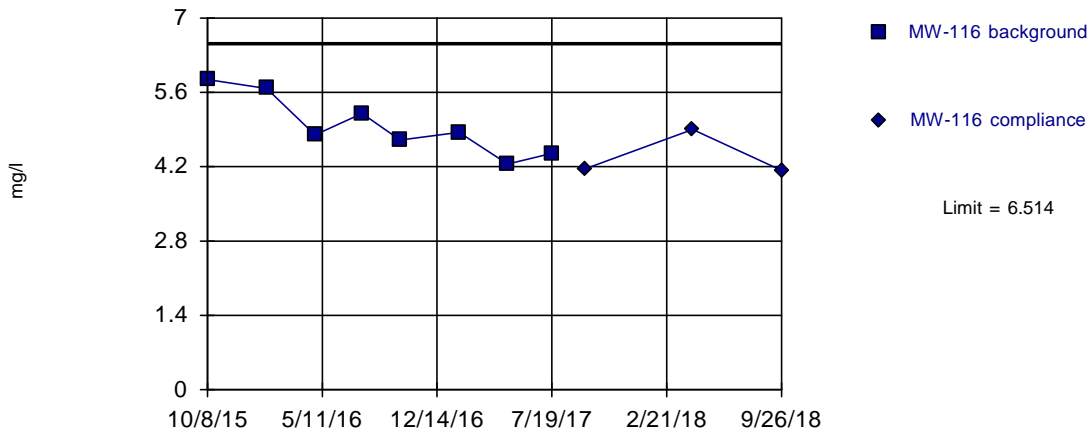
Background Data Summary (based on cube root transformation): Mean=1.32, Std. Dev.=0.2814, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7839, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



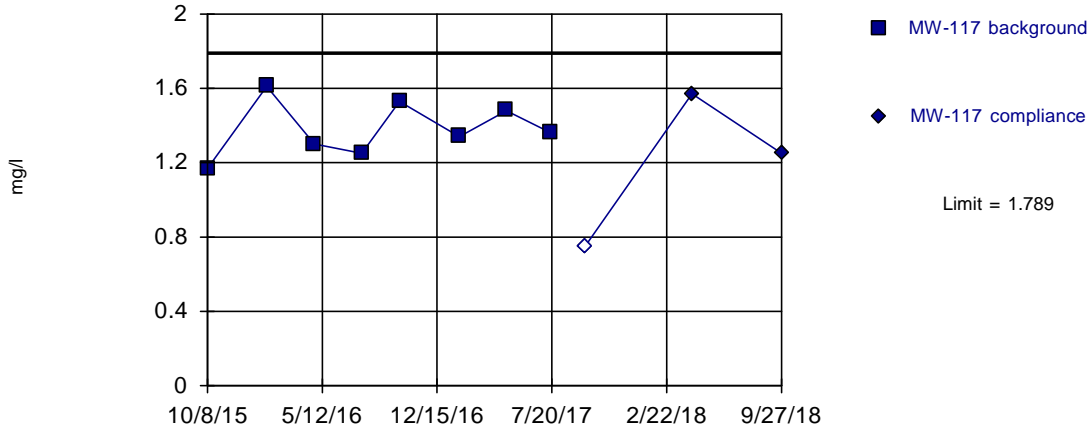
Background Data Summary: Mean=4.97, Std. Dev.=0.5612, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9382, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



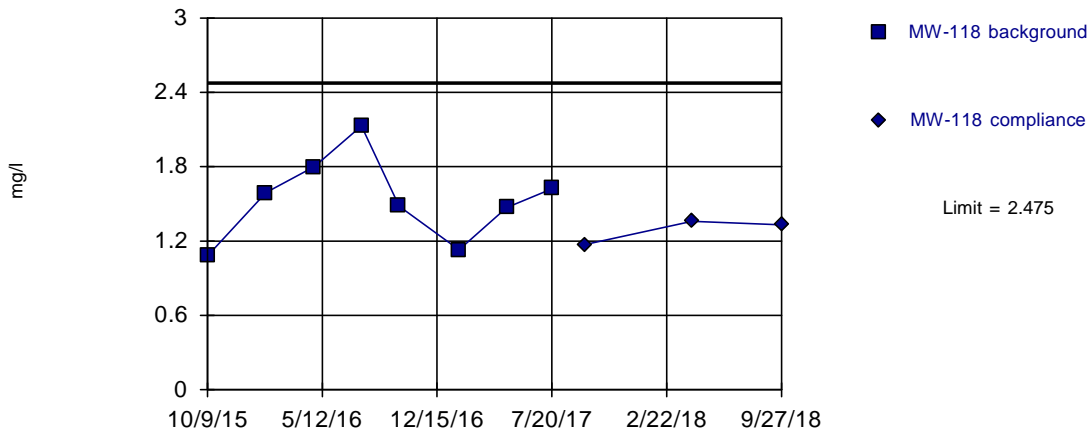
Background Data Summary: Mean=1.38, Std. Dev.=0.1487, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9694, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Chloride Analysis Run 10/29/2018 4:18 PM View: 2018-2H 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=1.538, Std. Dev.=0.3407, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9523, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

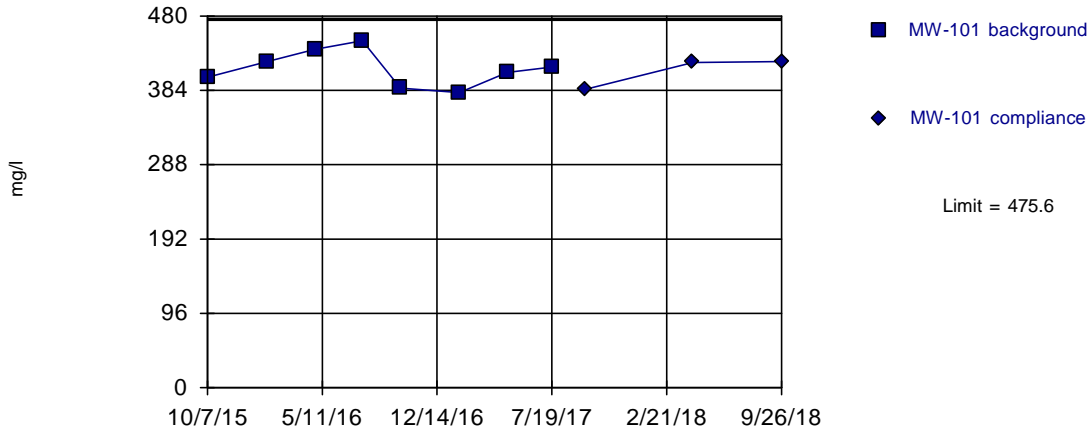
Constituent: Chloride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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=412, Std. Dev.=23.11, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.971, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

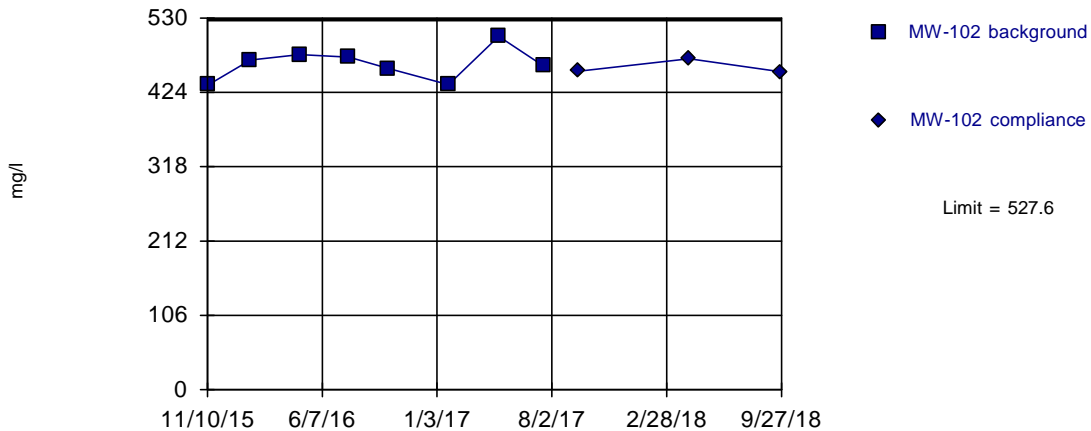
Constituent: Dissolved Solids Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit

Intrawell Parametric



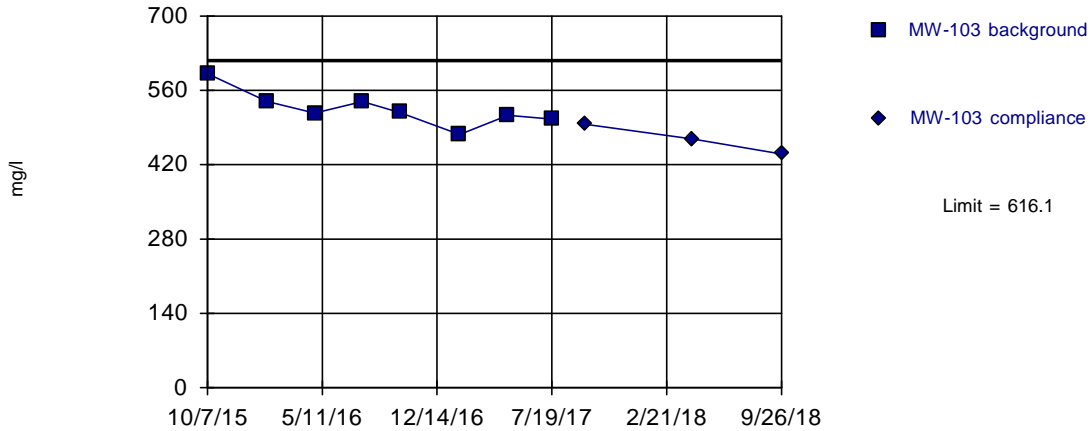
Background Data Summary: Mean=464.3, Std. Dev.=23.04, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9447, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



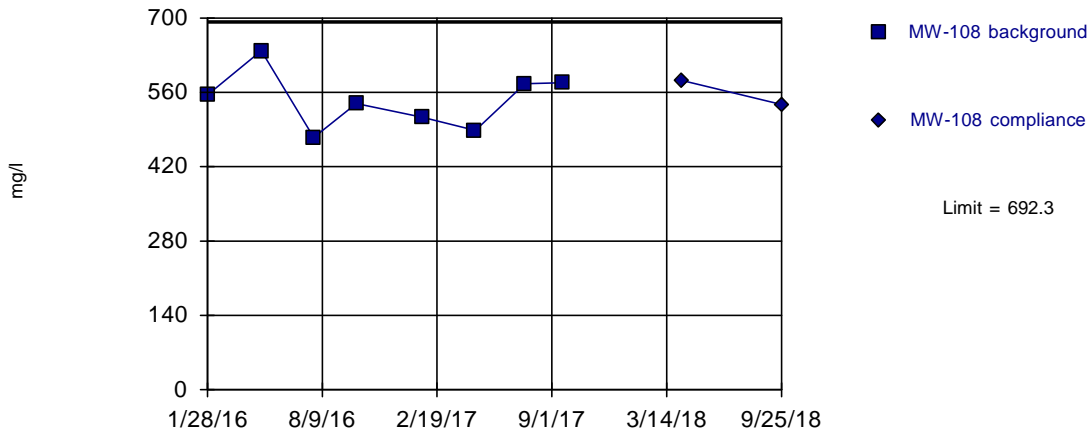
Background Data Summary: Mean=525, Std. Dev.=33.1, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9204, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 10/29/2018 4:18 PM View: 2018-2H 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=545.3, Std. Dev.=53.46, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9657, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

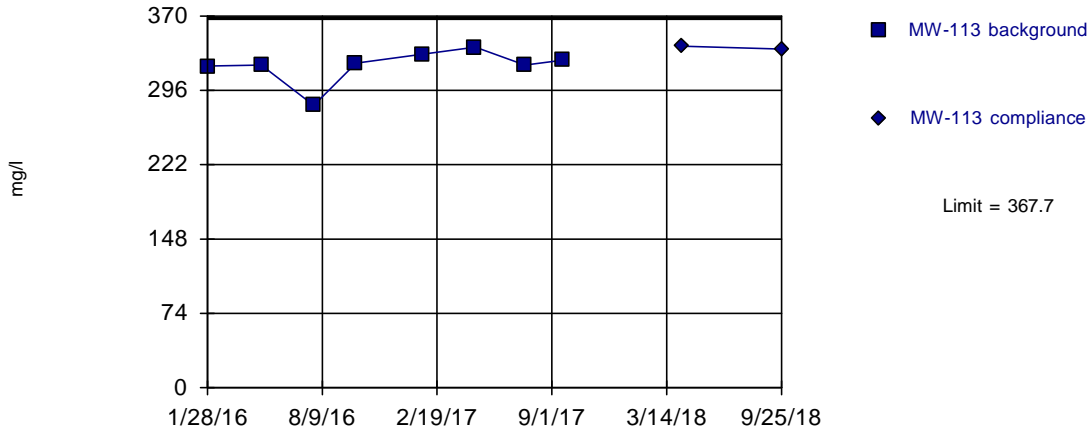
Constituent: Dissolved Solids Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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=320.4, Std. Dev.=17.2, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7677, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

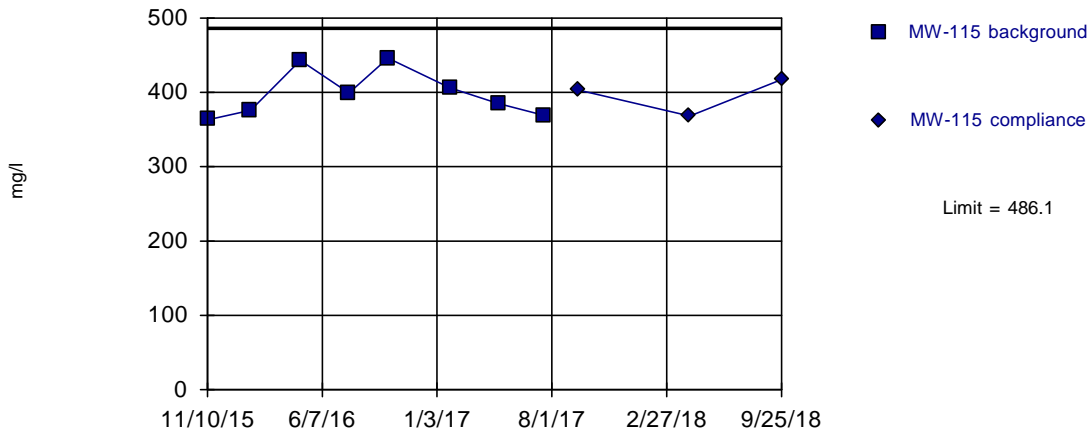
Constituent: Dissolved Solids Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit

Intrawell Parametric



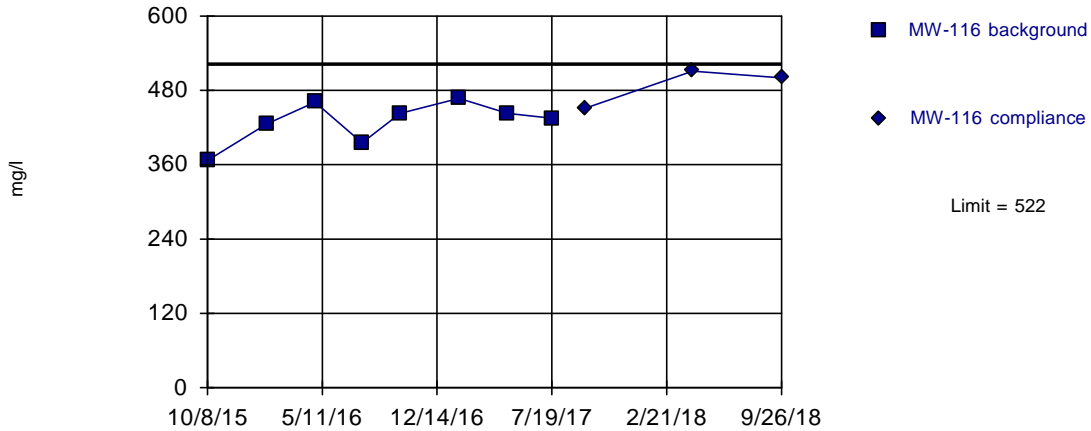
Background Data Summary: Mean=398.4, Std. Dev.=31.87, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8923, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



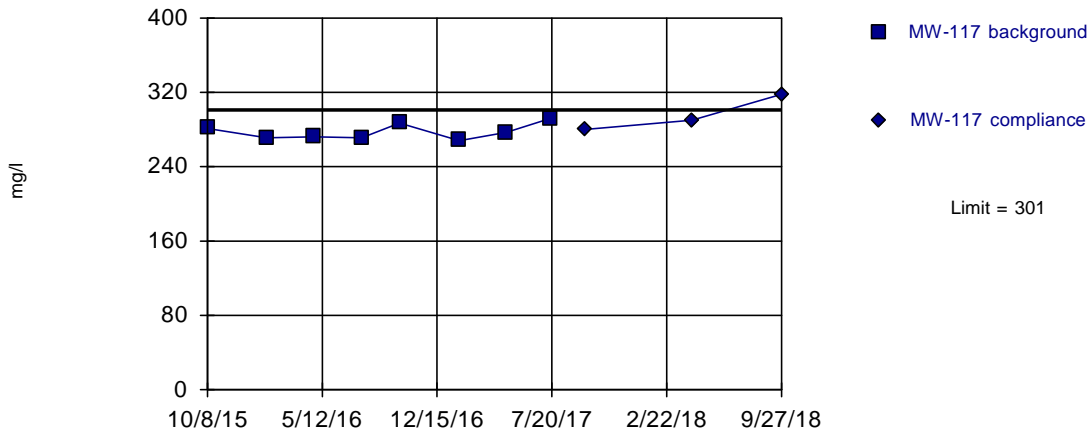
Background Data Summary: Mean=429.6, Std. Dev.=33.6, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9103, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Exceeds Limit

Prediction Limit Intrawell Parametric



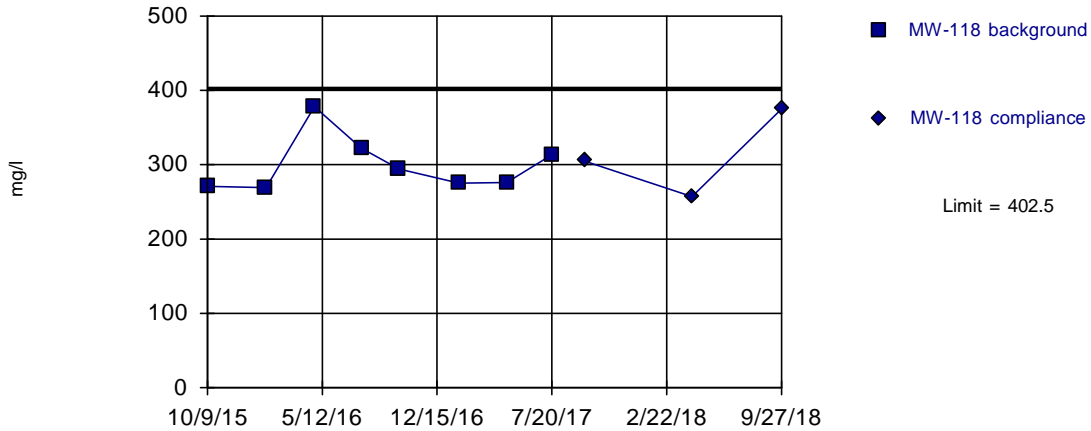
Background Data Summary: Mean=277.4, Std. Dev.=8.601, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9018, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



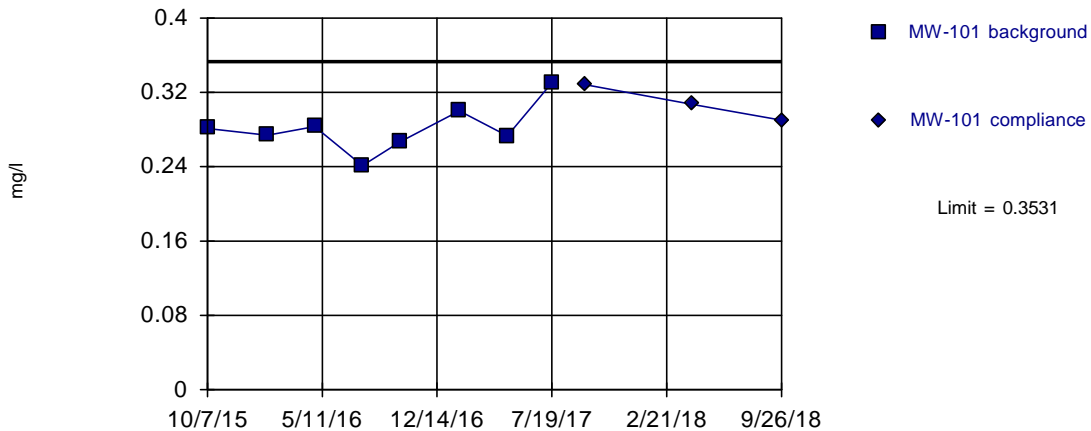
Background Data Summary: Mean=299.8, Std. Dev.=37.37, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8238, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



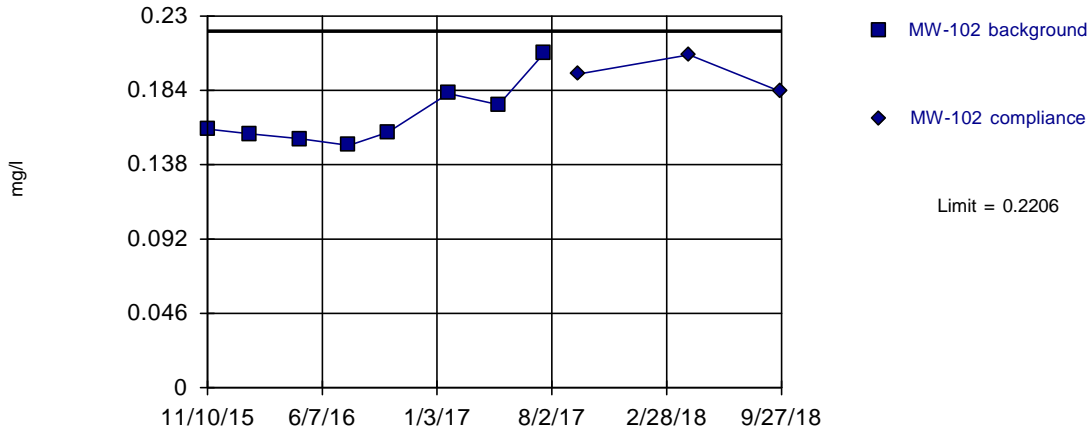
Background Data Summary: Mean=0.2813, Std. Dev.=0.02611, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9417, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



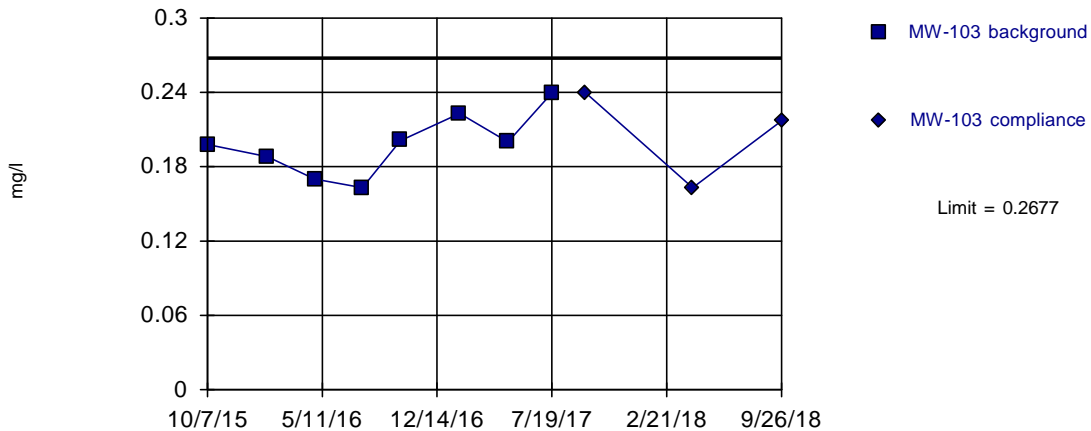
Background Data Summary: Mean=0.1679, Std. Dev.=0.01916, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8449, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



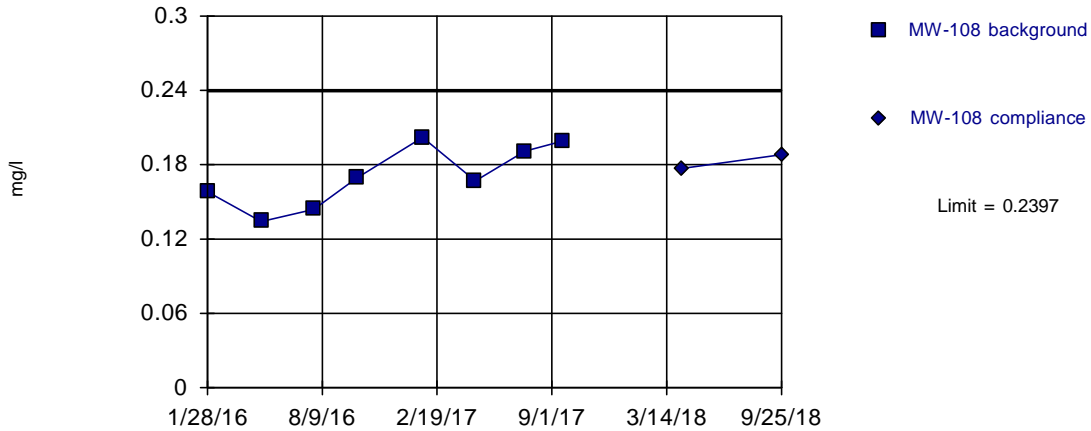
Background Data Summary: Mean=0.1979, Std. Dev.=0.02539, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9583, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



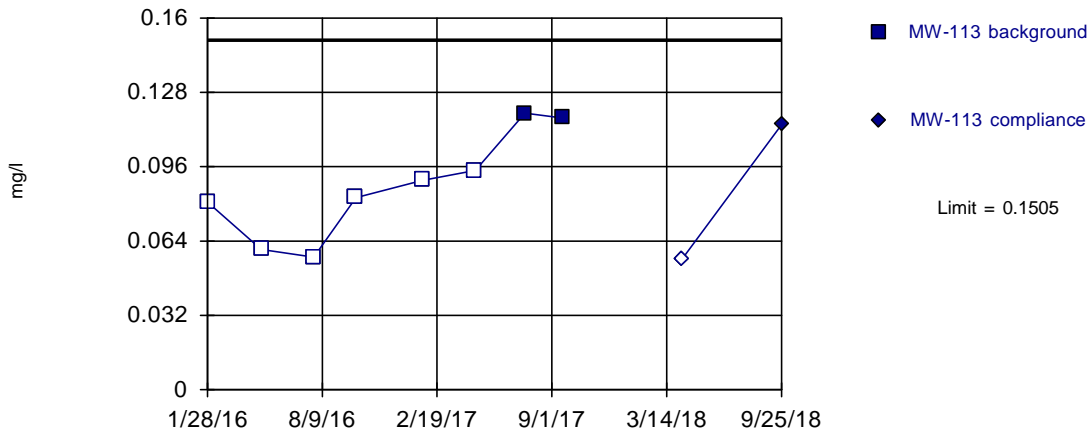
Background Data Summary: Mean=0.1705, Std. Dev.=0.02516, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9368, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



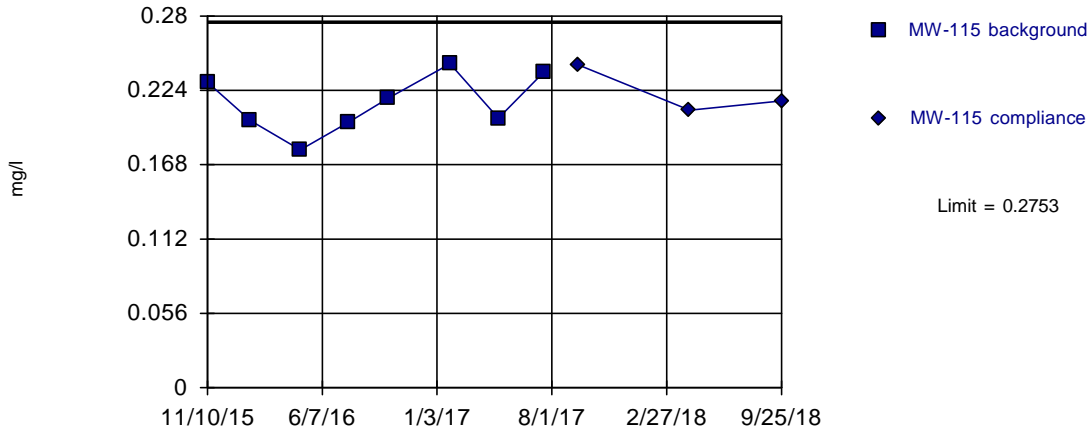
Background Data Summary: Mean=0.08768, Std. Dev.=0.02283, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9287, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



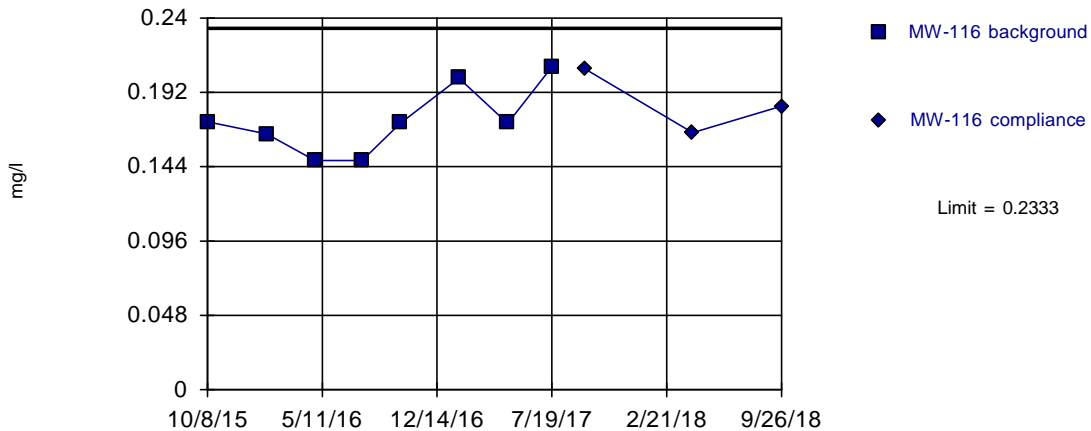
Background Data Summary: Mean=0.2141, Std. Dev.=0.02223, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9478, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



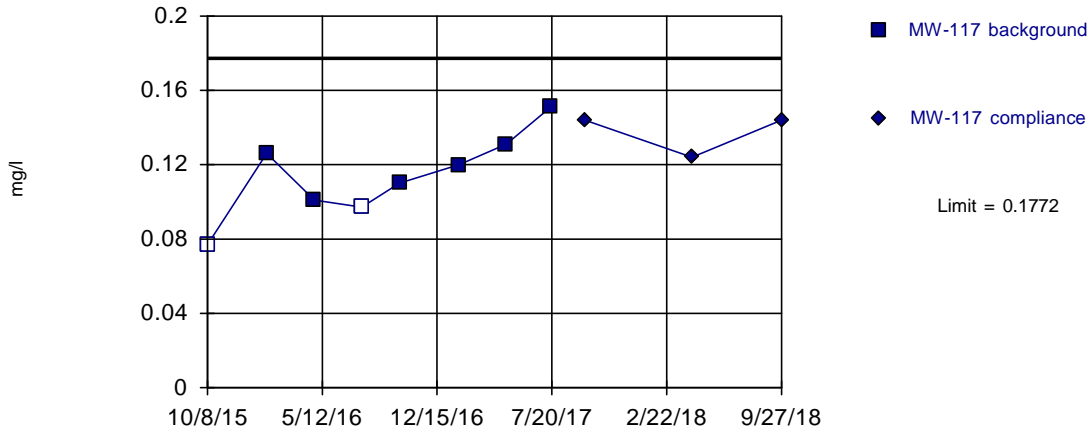
Background Data Summary: Mean=0.1734, Std. Dev.=0.02179, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8928, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



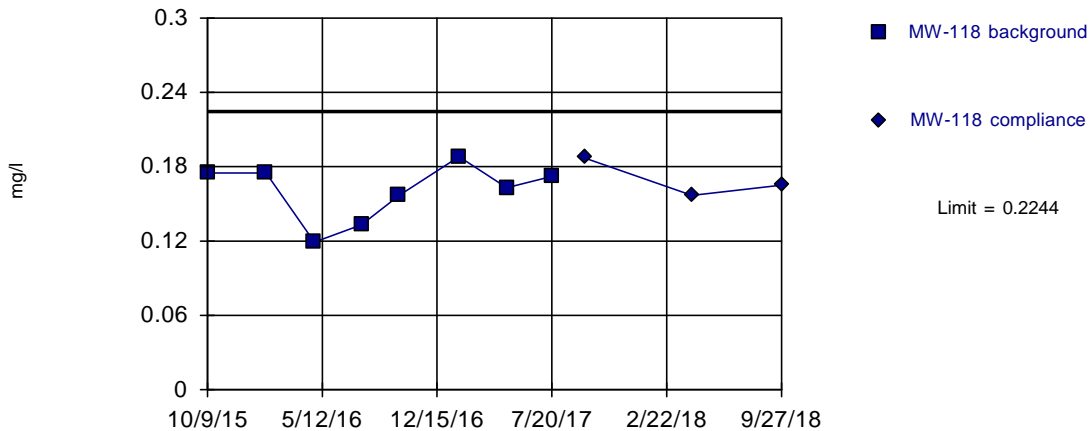
Background Data Summary: Mean=0.1141, Std. Dev.=0.02292, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.993, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



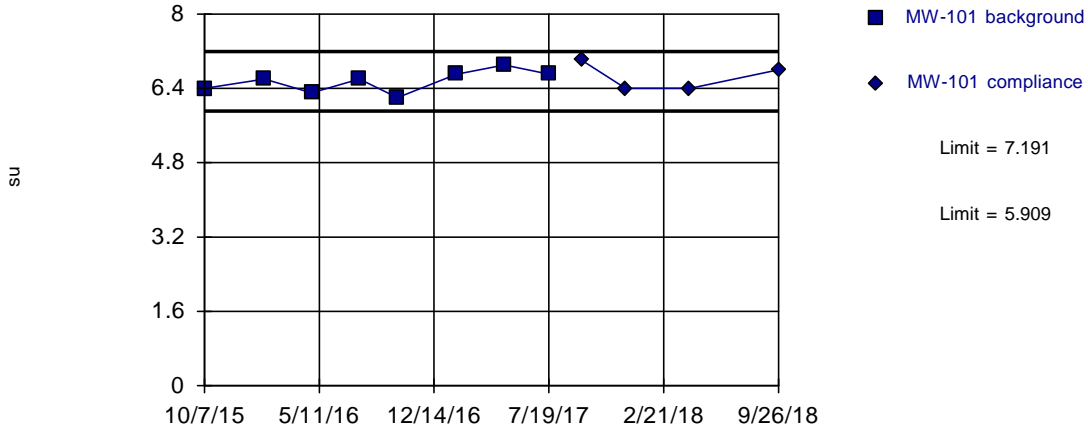
Background Data Summary: Mean=0.1603, Std. Dev.=0.02332, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9051, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Fluoride Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limits

Prediction Limit Intrawell Parametric



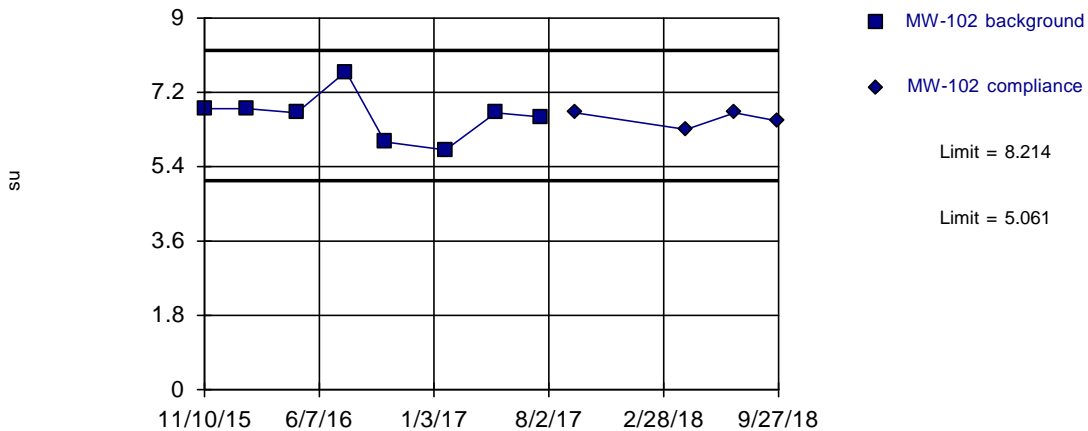
Background Data Summary: Mean=6.55, Std. Dev.=0.233, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9552, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limits

Prediction Limit Intrawell Parametric



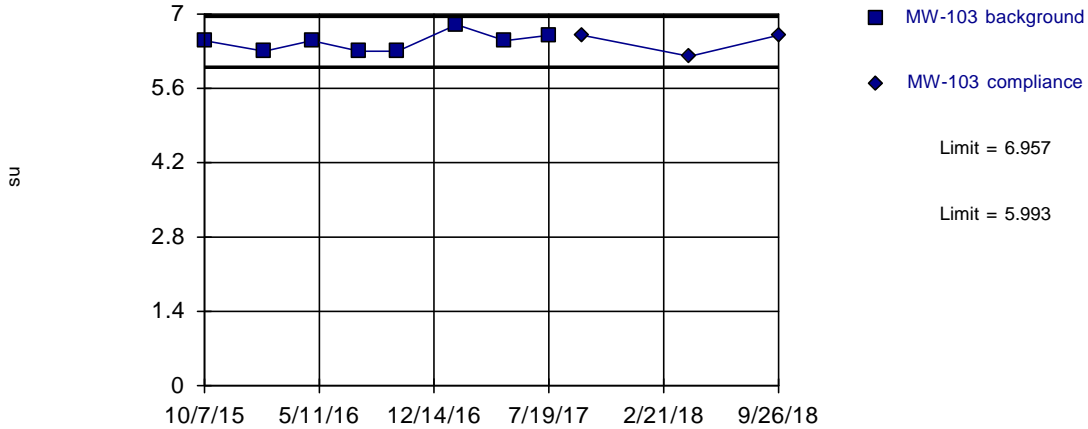
Background Data Summary: Mean=6.638, Std. Dev.=0.5731, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8994, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 12/13/2018 10:53 AM View: 2018-2H PL

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

Within Limits

Prediction Limit Intrawell Parametric



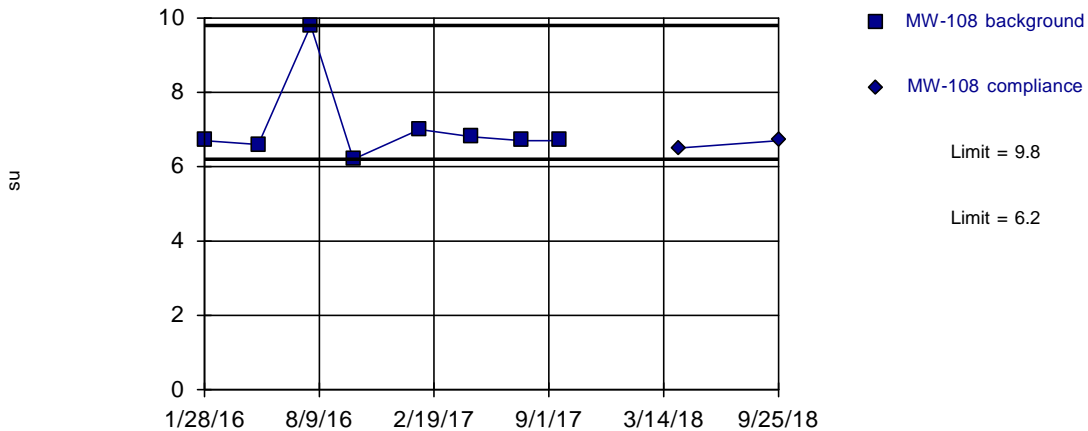
Background Data Summary: Mean=6.475, Std. Dev.=0.1753, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8695, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limits

Prediction Limit Intrawell Non-parametric



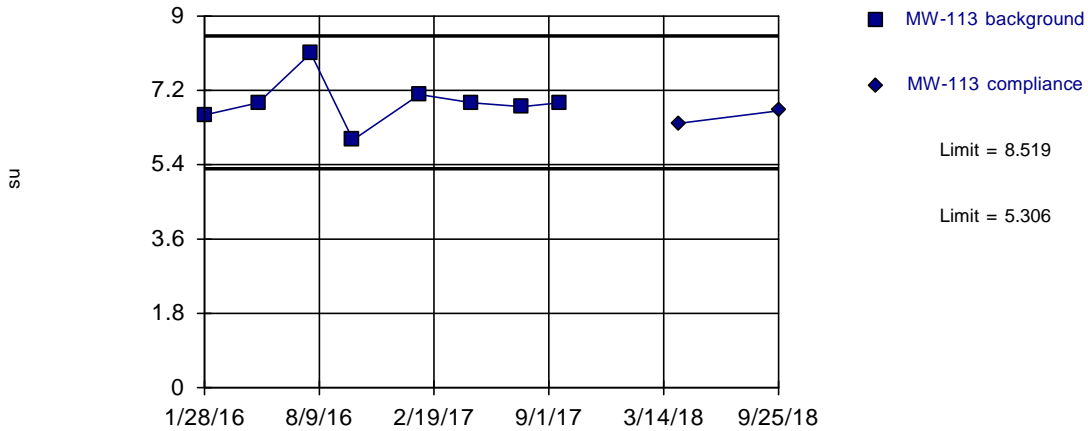
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 8 background values. Well-constituent pair annual alpha = 0.08484. Individual comparison alpha = 0.04288 (1 of 2). Insufficient data to test for seasonality: data were not deseasonalized.

Constituent: pH Analysis Run 12/13/2018 10:53 AM View: 2018-2H PL

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

Within Limits

Prediction Limit Intrawell Parametric



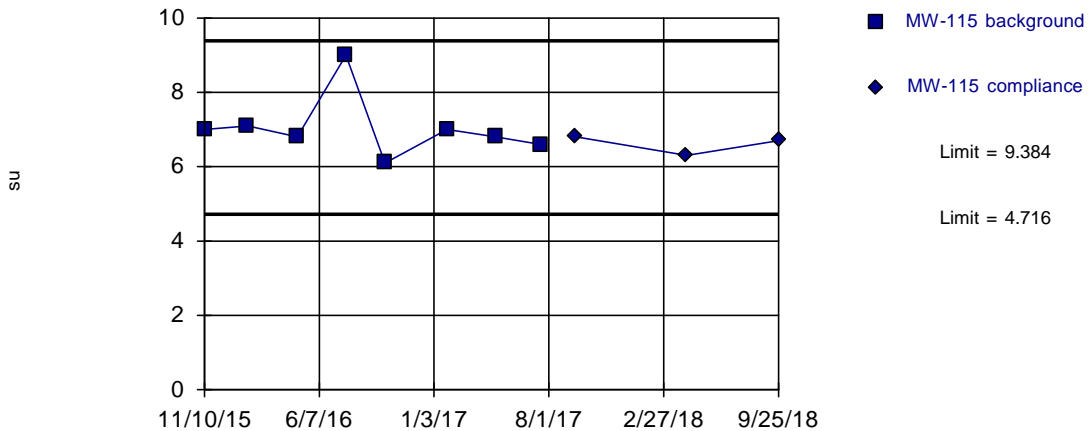
Background Data Summary: Mean=6.913, Std. Dev.=0.5842, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.876, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 12/13/2018 10:53 AM View: 2018-2H PL

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

Within Limits

Prediction Limit Intrawell Parametric



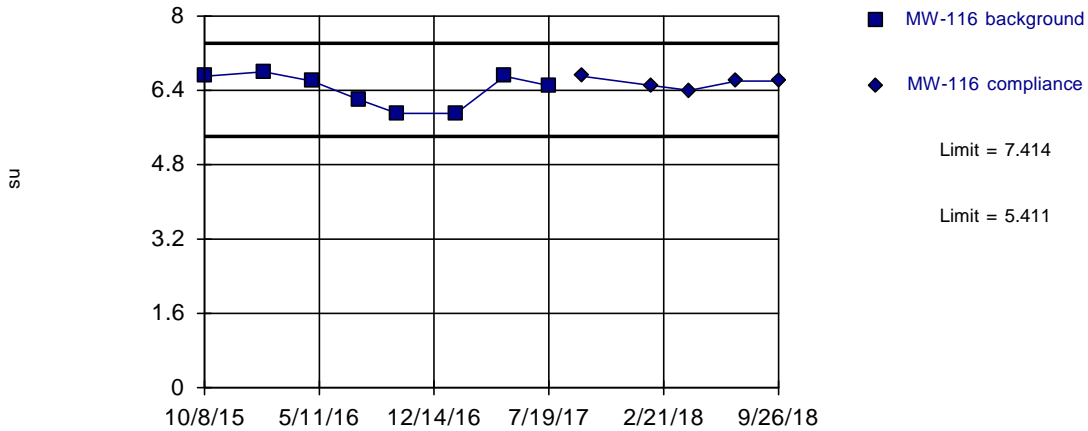
Background Data Summary: Mean=7.05, Std. Dev.=0.8485, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7617, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 12/13/2018 10:53 AM View: 2018-2H PL

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

Within Limits

Prediction Limit Intrawell Parametric



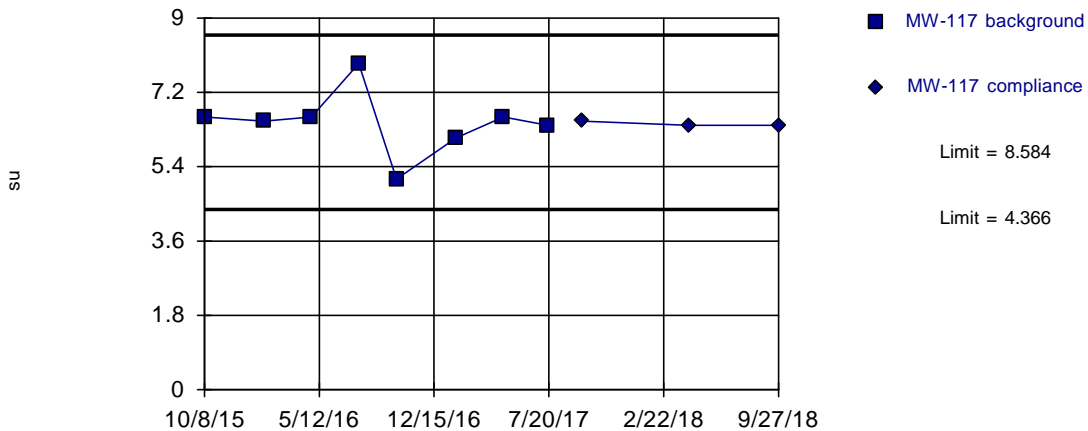
Background Data Summary: Mean=6.413, Std. Dev.=0.3643, n=8. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8539, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limits

Prediction Limit Intrawell Parametric



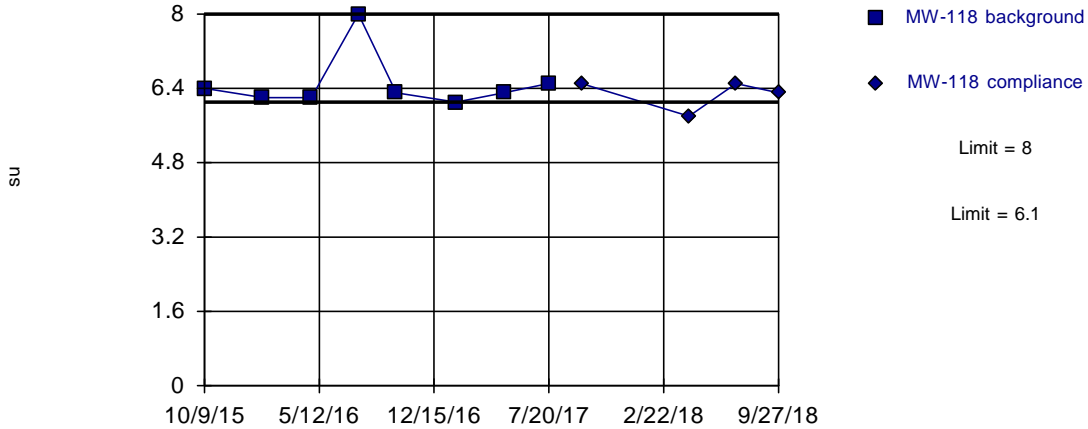
Background Data Summary: Mean=6.475, Std. Dev.=0.7667, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.871, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: pH Analysis Run 12/13/2018 10:53 AM View: 2018-2H PL

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

Within Limits

Prediction Limit Intrawell Non-parametric



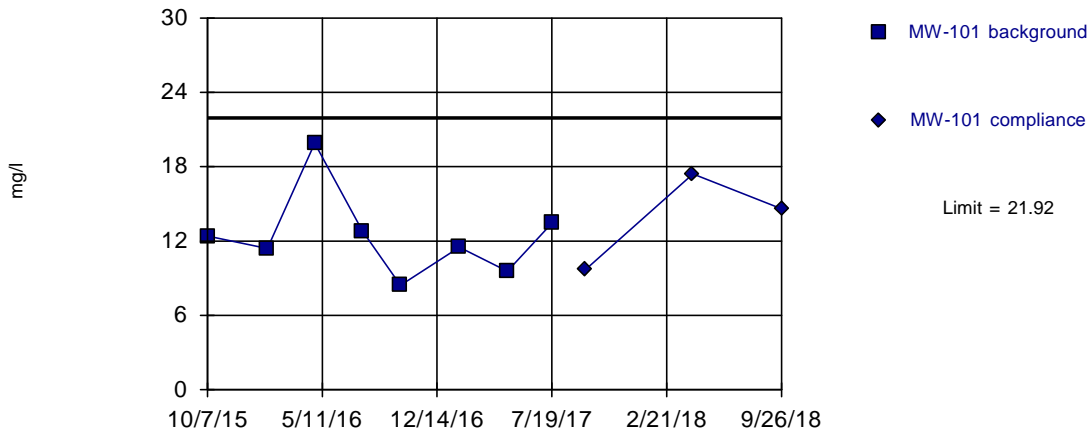
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 8 background values. Well-constituent pair annual alpha = 0.08484. Individual comparison alpha = 0.04288 (1 of 2). Insufficient data to test for seasonality; data were not deseasonalized.

Constituent: pH Analysis Run 12/13/2018 10:53 AM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



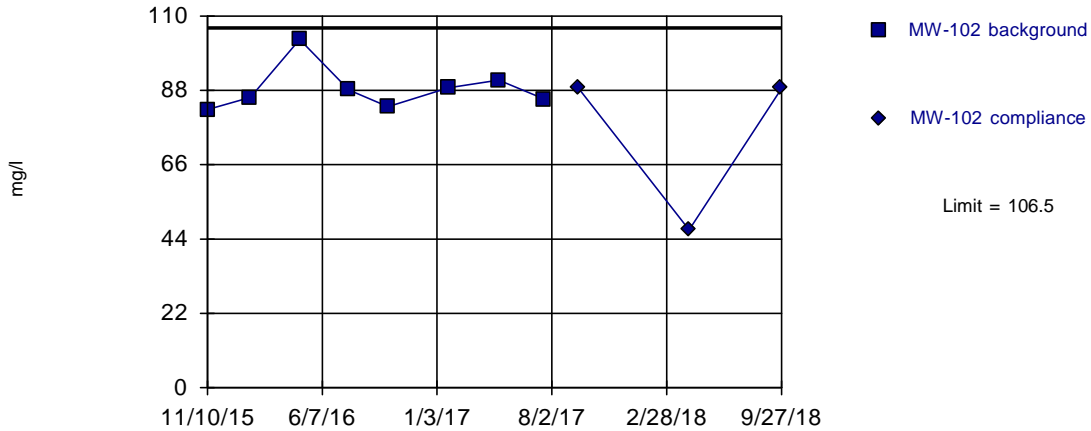
Background Data Summary: Mean=12.44, Std. Dev.=3.446, n=8. Insufficient data to test for seasonality; data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8639, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



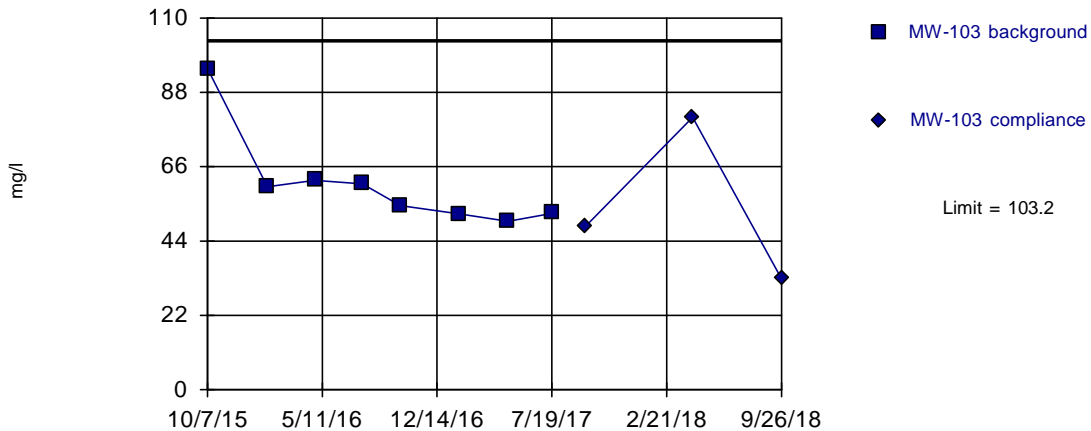
Background Data Summary: Mean=88.46, Std. Dev.=6.543, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8238, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



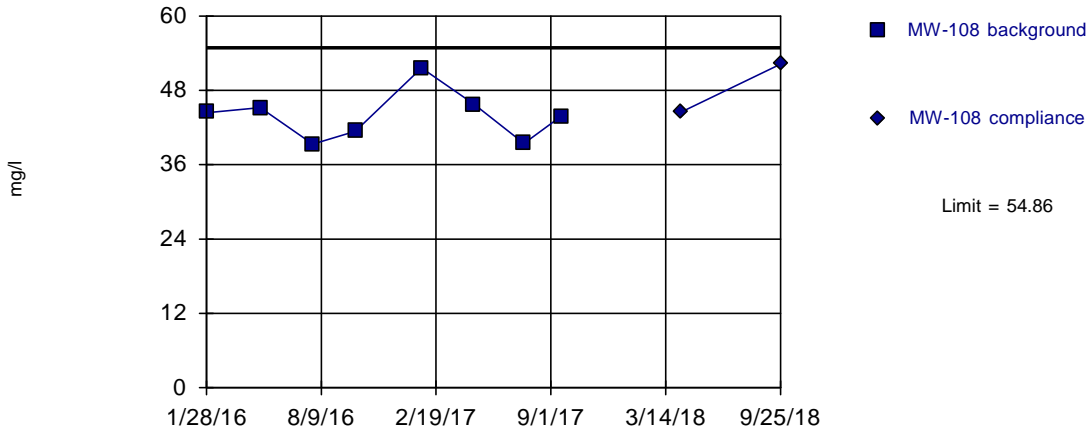
Background Data Summary (based on cube root transformation): Mean=3.914, Std. Dev.=0.2823, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7518, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



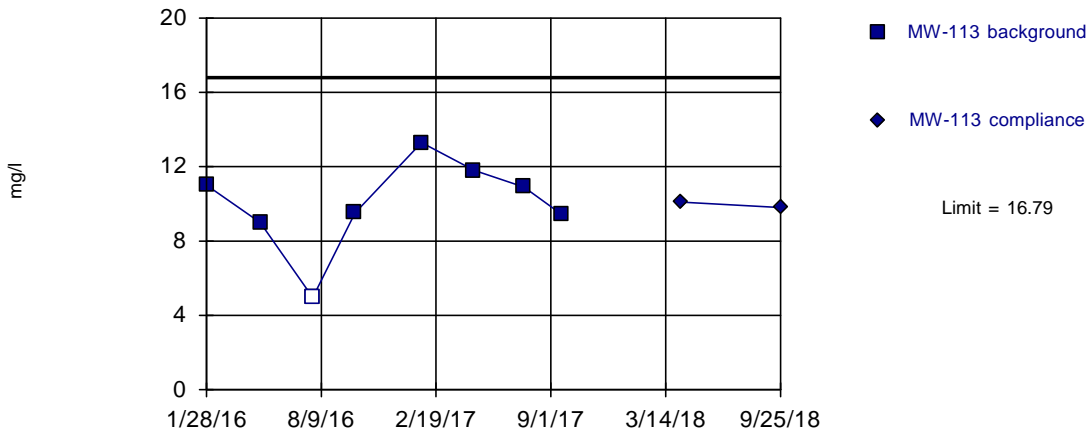
Background Data Summary: Mean=43.85, Std. Dev.=4.002, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9158, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit
Intrawell Parametric



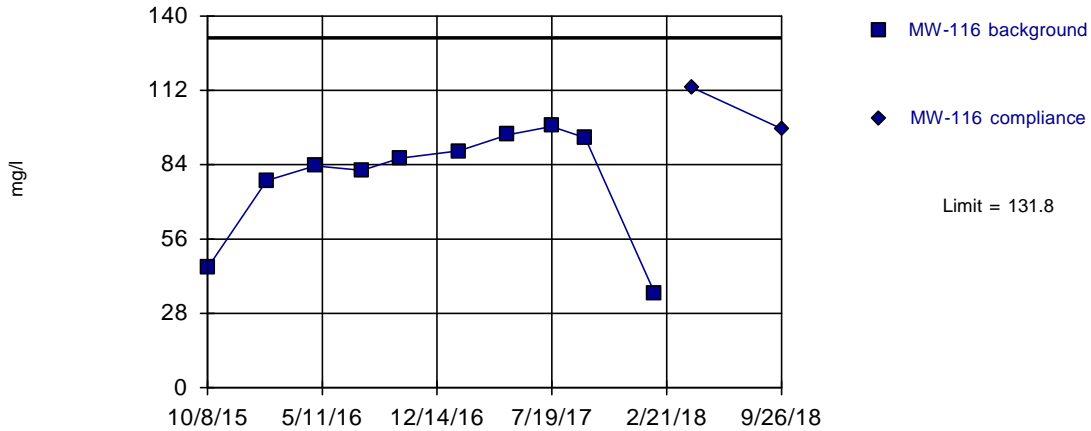
Background Data Summary: Mean=9.99, Std. Dev.=2.473, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.921, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



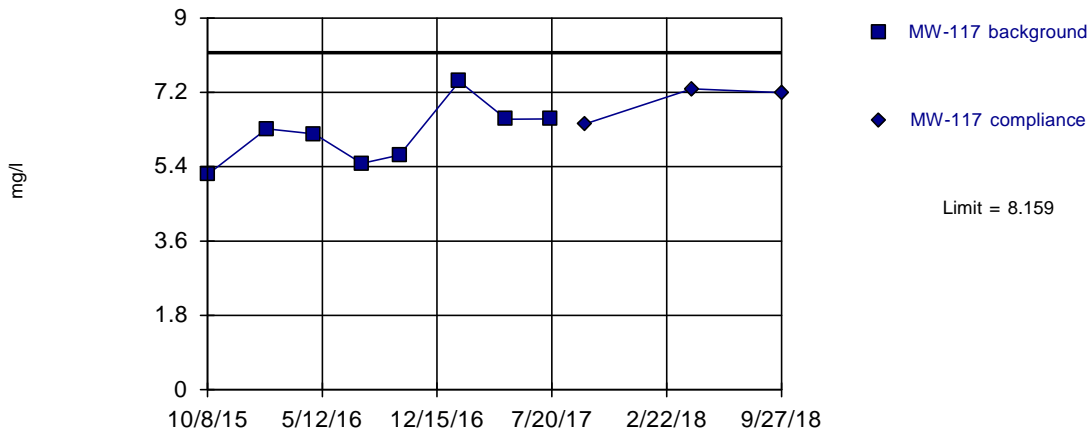
Background Data Summary: Mean=78.74, Std. Dev.=21.34, n=10. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7947, critical = 0.781. Kappa = 2.485 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Within Limit

Prediction Limit Intrawell Parametric



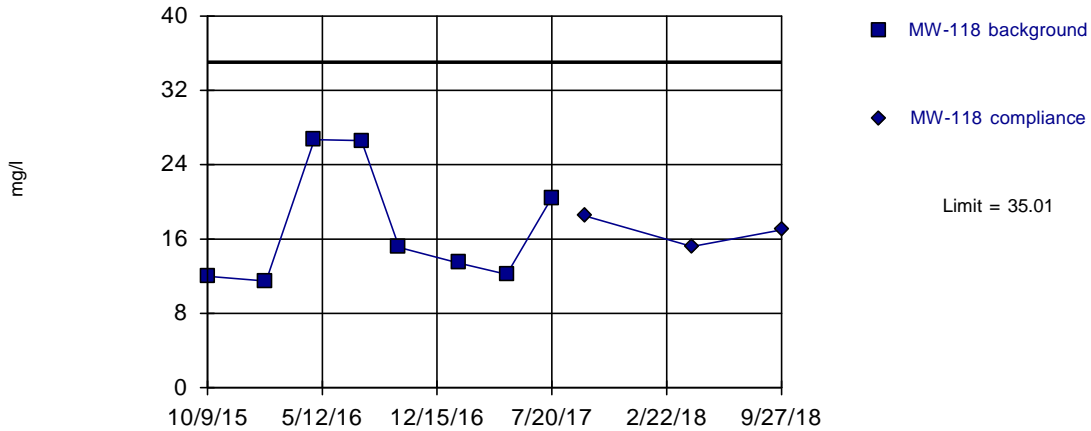
Background Data Summary: Mean=6.181, Std. Dev.=0.7192, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.958, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Sulfate Analysis Run 10/29/2018 4:18 PM View: 2018-2H 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=17.24, Std. Dev.=6.461, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8056, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

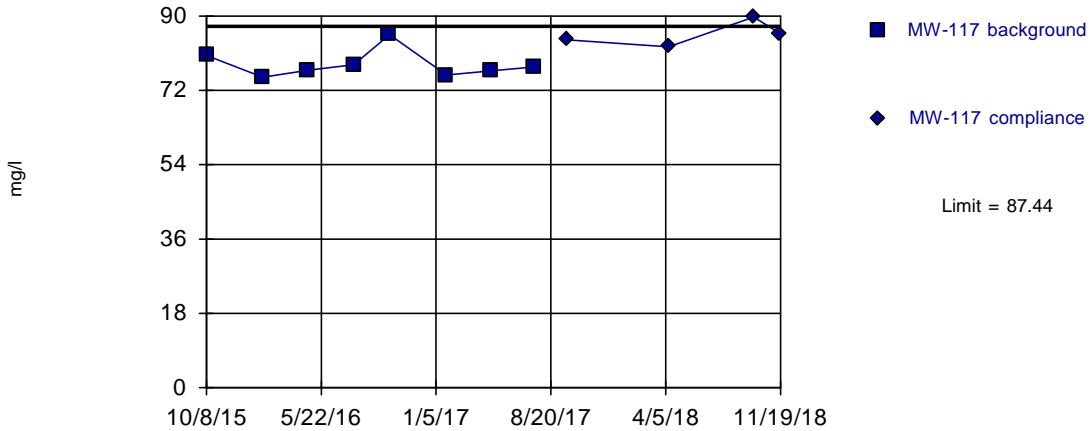
Constituent: Sulfate Analysis Run 10/29/2018 4:18 PM View: 2018-2H PL

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

Prediction Limits, Second Half 2018 Verification Sampling – November 2018

Within Limit

Prediction Limit
Intrawell Parametric



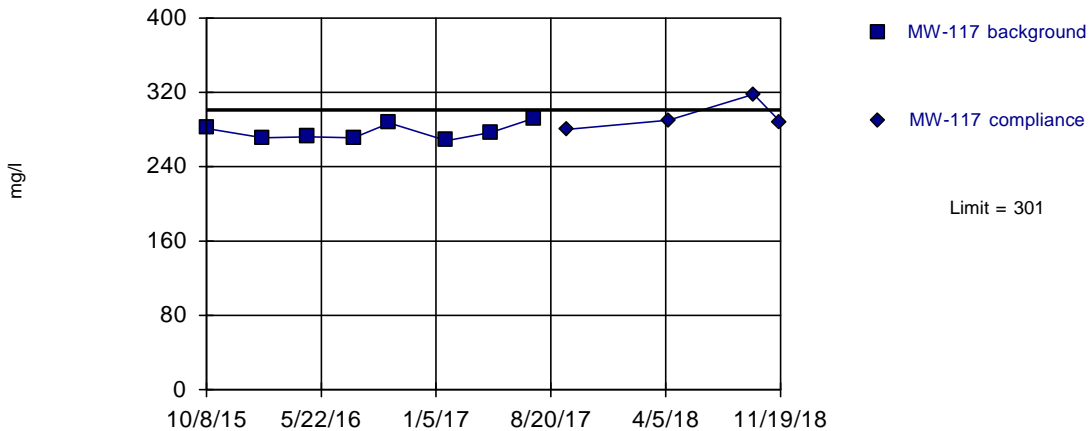
Background Data Summary: Mean=78.28, Std. Dev.=3.33, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8288, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 12/5/2018 11:09 AM View: 2018-2H VER

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=277.4, Std. Dev.=8.601, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9018, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Dissolved Solids Analysis Run 12/5/2018 11:09 AM View: 2018-2H VER

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

APPENDIX H

Alternate Source Demonstration




water resources / environmental consultants

3 Innwood Circle, Suite 220 • Little Rock, AR 72211 • (501) 225-7779 • Fax (501) 225-6738

TECHNICAL MEMORANDUM

DATE: October 9, 2018

TO: **Matt Gray**
Plum Point Services Company, LLC

FROM: **Dana Derrington, PE, PG** 
FTN Associates, Ltd.

SUBJECT: Alternate Source Demonstration for Statistically Significant Increase
First Half of 2018 Monitoring Period, Plum Point Energy Station Landfill
FTN No. R14590-1766-001

FTN Associates, Ltd. (FTN) has prepared this technical memorandum for the Plum Point Services Company, LLC (PPSC) coal combustion residual (CCR) landfill, which is regulated by the Environmental Protection Agency (EPA) Coal Combustion Residuals Rule, promulgated at Title 40 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 Environmental Quality (ADEQ) under Permit No. 0303-S3N-R1.

FTN was contracted to sample groundwater and statistically evaluate the data from the first half of 2018 monitoring event. Based on statistical evaluation of the data, one 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 the SSI over background levels for a constituent or that the 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 supporting evidence that the SSI was not caused by the CCR landfill.

1.0 BACKGROUND

FTN performed groundwater sampling for the first half 2018 semiannual groundwater monitoring report during April 2018. Sample collection, preservation, shipment, analytical procedures, chain-of-custody (COC) 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 potential SSI in the data set; calcium at monitoring well MW-116 was measured at level of 135 mg/L, exceeding a calculated limit of 121.6 mg/L. A site map showing the location of this well relative to the CCR landfill is included as Figure 1 (all figures are included in Attachment 1).

At the request of FTN, the contracted third-party laboratory, Pace Analytical of Mount Juliet, Tennessee, re-analyzed the sample from MW-116 to rule out any laboratory-associated error. As shown in Table 1 (Attachment 2), the re-analyzed value was 137 mg/L, comparable to the value initially reported. In the absence of any identified sampling or laboratory errors associated with the data, FTN resampled the well for calcium during July 2018 in accordance with the landfill's formal "1 of 2" retesting plan (FTN 2017c) and GWSAP (FTN 2017b). As shown in Table 1, measured calcium in the July 2018 sample was 125 mg/L, confirming the SSI. These data are also shown on the intrawell prediction limit plot included as Figure 2. The laboratory reports are included in Attachment 3.

2.0 DISCUSSION

A review of landfill leachate data, onsite background groundwater quality, and published literature was performed to determine if the SSI for calcium at MW-116 was indicative of influence from the CCR landfill. Findings from this review are discussed below within the context of groundwater quality at MW-116.

2.1 Comparison to Landfill Leachate

Landfill leachate samples are collected on a semiannual basis, as required by Permit No. 0303-S3N-R1. These data are publically available on the ADEQ website¹. Available data collected between 2011 and 2018 show calcium concentrations in leachate range from 7.6 to 23 mg/L. These data are co-plotted with measured calcium at MW-116 on the time-series graph attached as Figure 3, which shows that calcium levels in leachate are significantly lower than levels measured in groundwater at MW-116. Given the effects of dilution, this comparison demonstrates that the SSI for calcium is not due to leachate migration from the landfill.

2.2 Comparison to Onsite Background Groundwater Quality

Monitoring wells MW-108, MW-113, and MW-115 (Figure 1) are used to monitor onsite background groundwater water quality, as described in the landfill's groundwater monitoring system certification report (FTN 2017a). Calcium data collected at these locations are plotted on the attached time-series graph (Figure 4) and box-and-whiskers diagrams (Figure 5) along with calcium data from MW-116. As is evident from these figures, measured calcium at MW-116 is comparable to onsite background groundwater quality.

¹ https://www.adeg.state.ar.us/sw/permits/facility_data.aspx



2.3 Comparison to Published Groundwater Quality for the Aquifer

Each landfill monitoring well is screened in the Mississippi River Valley alluvial aquifer, the uppermost aquifer in the vicinity of the landfill (FTN 2017b). The US 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 6. According to this study, the reported respective median and maximum values for measured calcium in wells screened in Holocene alluvium were 77 mg/L and 130 mg/L. These levels are comparable to those measured at MW-116 and at background wells MW-108, MW-113, and MW-115, as shown on Figures 4 and 5.

3.0 CONCLUSIONS

In consideration of the information presented in this memorandum, FTN concludes that the SSI for calcium at MW-116 is not due to the migration of landfill leachate and that groundwater quality at MW-116 falls within the range of what can be expected in terms of 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 identified for calcium at MW-116 was not due to a release from the landfill. 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, or Heather Ferguson at (501) 225-7779.

DLD/hlf

Attachments

R:\WP_FILES\14590-1766-001\CORRESPONDENCE\2018-10-09 TM-M GRAY EPA CCR 1H2018 ASD\2018-10-09 TM-M GRAY.DOCX

WLF



Mr. Matt Gray
October 9, 2018
Page 4

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 Code of Federal Regulations (40 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

10/09/2018
Date

REFERENCES

- EPA. 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. 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.
- 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.
- Kresse, T.M., P.D. Hays, K.R. Merriman, J.A. Gillip, D.T. Fugitt, J.L. Spellman, A.M. Nottmeier, D.A. Westerman, J.M. Blackstock, and J.L. Battreal. 2014. *Aquifers of Arkansas—Protection, Management, and Hydrologic and Geochemical Characteristics of Groundwater Resources in Arkansas* [USGS Scientific Investigations Report 2014-5149]. Prepared in cooperation with the Arkansas Natural Resources Commission. Reston, VA: US Geological Survey. 334 pp. doi: <http://dx.doi.org/10.3133/sir20145149>.

ATTACHMENT 1

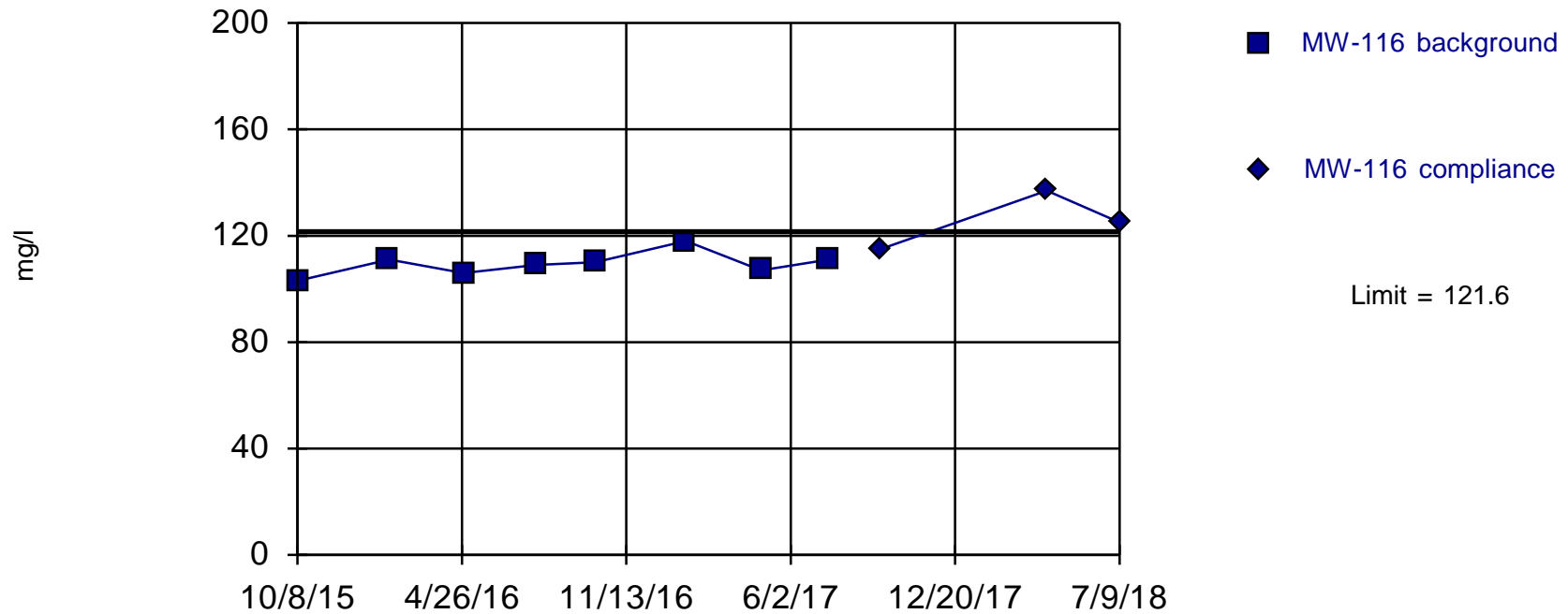
Figures



Figure 1. Monitoring well locations, Plum Point Energy Station.

Exceeds Limit

Prediction Limit Intrawell Parametric



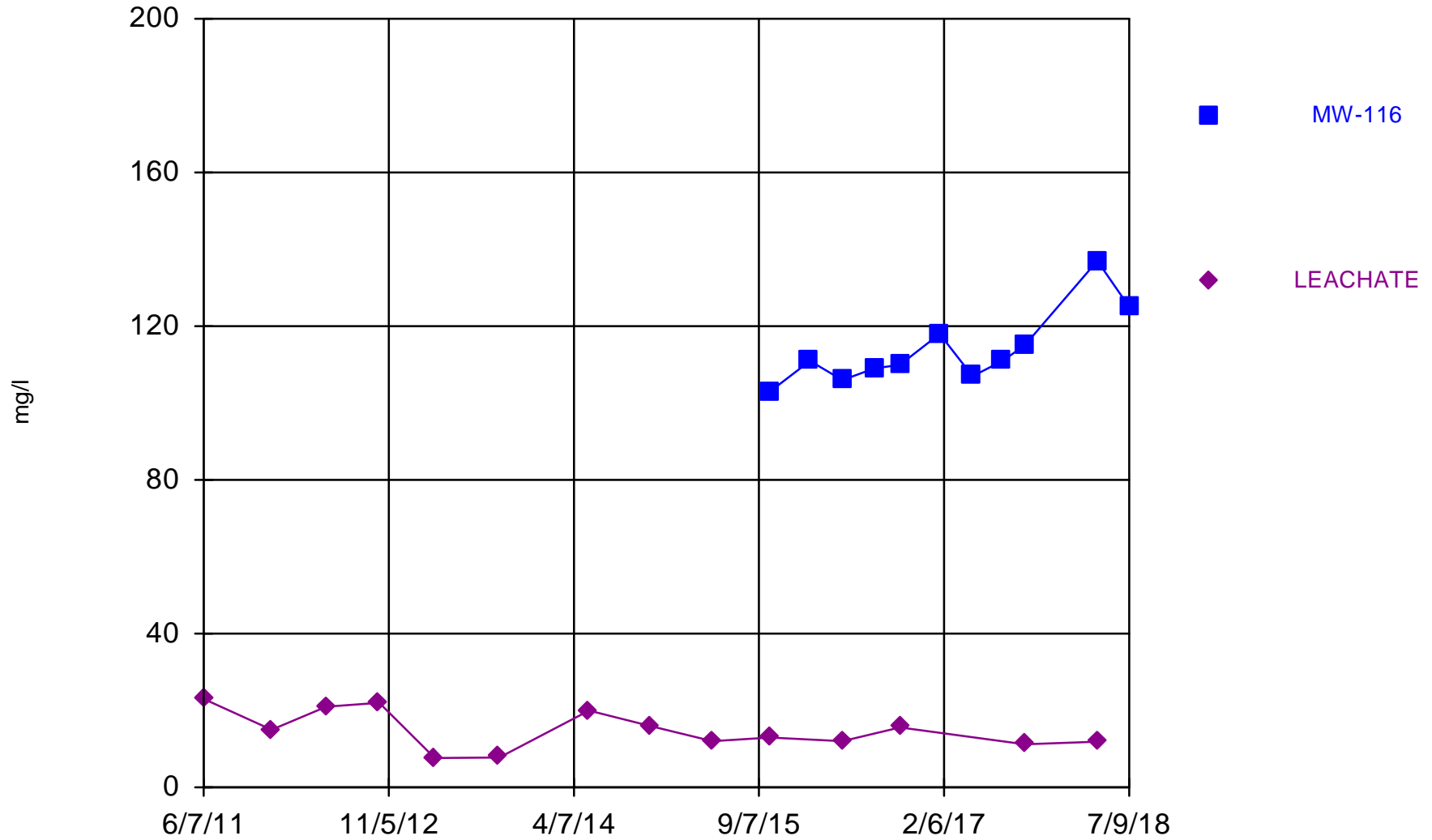
Background Data Summary: Mean=109.4, Std. Dev.=4.438, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9448, critical = 0.749. Kappa = 2.751 (c=6, w=6, 1 of 2, event alpha = 0.05132). Report alpha = 0.001462.

Constituent: Calcium Analysis Run 7/17/2018 3:03 PM View: 2018-1H Verification

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

Figure 2. Results of statistical analysis of calcium at MW-116 using prediction limits, first half of 2018.

Time Series

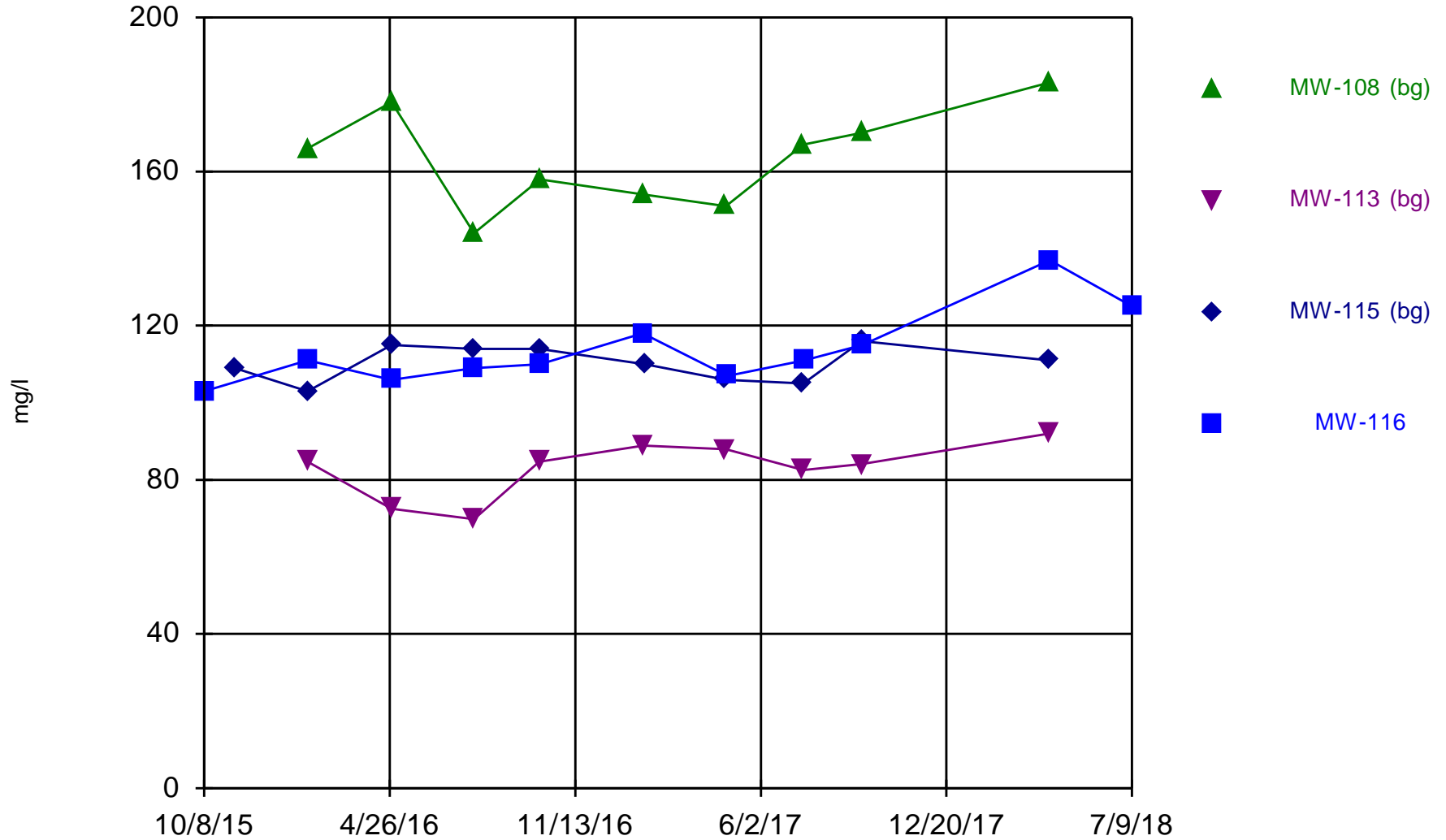


Constituent: Calcium Analysis Run 9/28/2018 10:41 AM

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

Figure 3. Time-series plot comparing measured calcium in landfill leachate to groundwater at MW-116.

Time Series

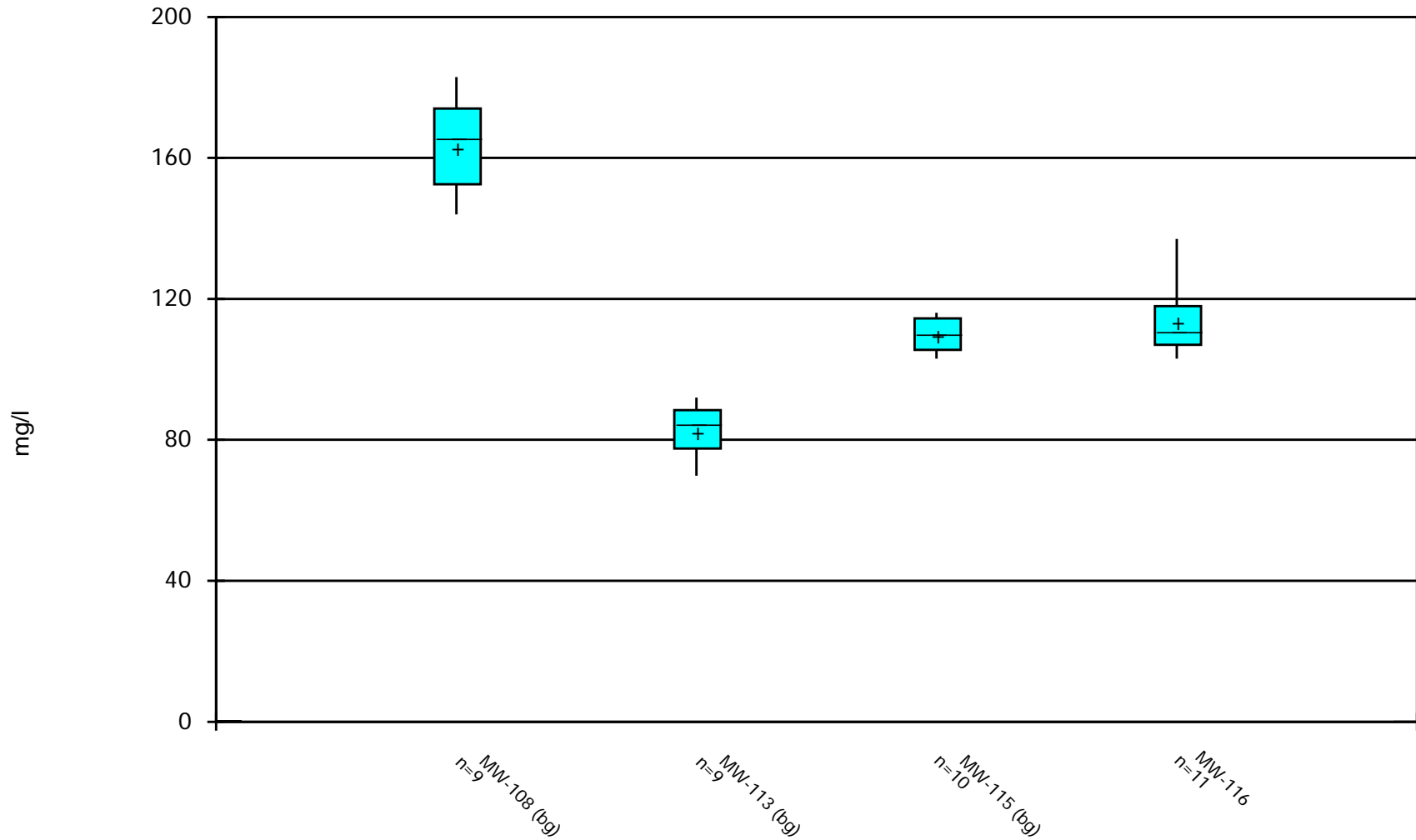


Constituent: Calcium Analysis Run 8/24/2018 7:34 AM

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

Figure 4. Time-series plot comparing measured calcium at MW-116 to onsite background groundwater quality.

Box & Whiskers Plot



Constituent: Calcium Analysis Run 8/24/2018 7:36 AM

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

Figure 5. Box-and-whiskers diagrams comparing measured calcium at MW-116 to onsite background groundwater quality.

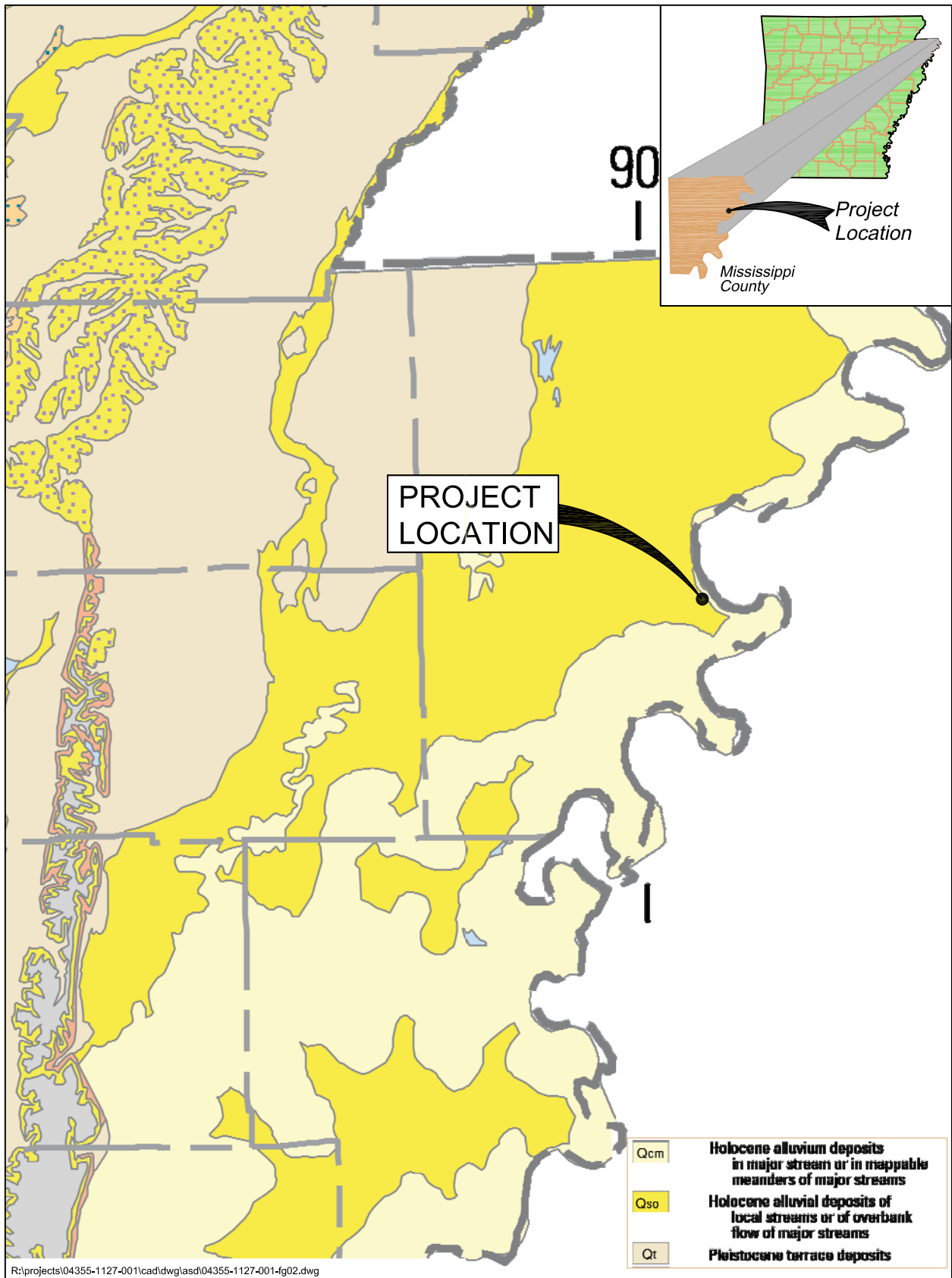


Figure 6. Surface geology of Mississippi County, Arkansas (adapted from Kresse et al. 2014).

ATTACHMENT 2

Summary of Statistically Significant Results and Background Data

Table 1. Summary of statistically significant results and background data.

Well ID	Parameter	Prediction Limit (mg/L)	April 2018 Observation (mg/L)	July 2018 Observation (mg/L)	SSI Confirmed?	Maximum Background Level^(a) (mg/L)	Maximum Published Level^(b) (mg/L)
MW-116	Calcium	121.6	135 (initial) 137 (lab re-test)	125	Yes	183 (April 2018)	130

Notes:

- a. Based on historical values at MW-108.
- b. 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 3

Laboratory Reports

April 23, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L985645
Samples Received: 04/13/2018
Project Number: 14590-1766-001
Description: Plum Point Energy Station

Report To: Chris Lussier
2739 SCR 623
Osceola, AR 72370

Entire Report Reviewed By:



Mark W. Beasley
Technical Service Representative

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 ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	²Tc
Cn: Case Narrative	5	
Sr: Sample Results	6	³Ss
MW-101 L985645-01	6	
MW-102 L985645-02	7	⁴Cn
MW-103 L985645-03	8	⁵Sr
MW-108 L985645-04	9	
MW-113 L985645-05	10	⁶Qc
MW-115 L985645-06	11	
MW-116 L985645-07	12	⁷Gl
MW-117 L985645-08	13	⁸Al
MW-118 L985645-09	14	
MW-119 L985645-10	15	
MW-201 L985645-11	16	⁹Sc
MW-202 L985645-12	17	
Qc: Quality Control Summary	18	
Gravimetric Analysis by Method 2540 C-2011	18	
Wet Chemistry by Method 9056A	22	
Metals (ICP) by Method 6010B	27	
Gl: Glossary of Terms	28	
Al: Accreditations & Locations	29	
Sc: Sample Chain of Custody	30	

SAMPLE SUMMARY



MW-101 L985645-01 GW

Collected by
Michael Clayton
Collected date/time
04/12/18 08:50
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098882	1	04/17/18 17:08	04/17/18 17:33	MMF
Wet Chemistry by Method 9056A	WG1098060	1	04/14/18 21:32	04/14/18 21:32	DR
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:04	CCE

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

MW-102 L985645-02 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 12:40
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098576	1	04/16/18 14:37	04/16/18 15:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 16:39	04/15/18 16:39	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:37	CCE

MW-103 L985645-03 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 15:45
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098576	1	04/16/18 14:37	04/16/18 15:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 16:52	04/15/18 16:52	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:40	CCE

MW-108 L985645-04 GW

Collected by
Michael Clayton
Collected date/time
04/10/18 14:55
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098342	1	04/15/18 09:41	04/15/18 10:04	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 17:41	04/15/18 17:41	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:43	CCE

MW-113 L985645-05 GW

Collected by
Michael Clayton
Collected date/time
04/10/18 14:10
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098342	1	04/15/18 09:41	04/15/18 10:04	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 18:19	04/15/18 18:19	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:47	CCE

MW-115 L985645-06 GW

Collected by
Michael Clayton
Collected date/time
04/10/18 13:10
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098342	1	04/15/18 09:41	04/15/18 10:04	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 18:31	04/15/18 18:31	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:50	CCE

SAMPLE SUMMARY



MW-116 L985645-07 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 14:40
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098577	1	04/16/18 13:35	04/16/18 14:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 18:43	04/15/18 18:43	MAJ
Wet Chemistry by Method 9056A	WG1098835	5	04/16/18 18:42	04/16/18 18:42	DR
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:53	CCE

1
Cp

2
Tc

3
Ss

4
Cn

MW-117 L985645-08 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 11:50
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098577	1	04/16/18 13:35	04/16/18 14:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 18:56	04/15/18 18:56	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 11:56	CCE

5
Sr

6
Qc

7
Gl

MW-118 L985645-09 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 13:45
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098577	1	04/16/18 13:35	04/16/18 14:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 19:08	04/15/18 19:08	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 12:00	CCE

8
Al

9
Sc

MW-119 L985645-10 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 16:35
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098577	1	04/16/18 13:35	04/16/18 14:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 19:21	04/15/18 19:21	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 12:03	CCE

MW-201 L985645-11 GW

Collected by
Michael Clayton
Collected date/time
04/12/18 09:15
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098882	1	04/17/18 17:08	04/17/18 17:33	MMF
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 19:33	04/15/18 19:33	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 12:13	CCE

MW-202 L985645-12 GW

Collected by
Michael Clayton
Collected date/time
04/11/18 12:45
Received date/time
04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Gravimetric Analysis by Method 2540 C-2011	WG1098577	1	04/16/18 13:35	04/16/18 14:03	BS
Wet Chemistry by Method 9056A	WG1098064	1	04/15/18 19:45	04/15/18 19:45	MAJ
Metals (ICP) by Method 6010B	WG1098051	1	04/17/18 08:02	04/17/18 12:16	CCE



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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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
Technical Service Representative

- 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	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	420000		2820	10000	1	04/17/2018 17:33	WG1098882

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2750		51.9	1000	1	04/14/2018 21:32	WG1098060
Fluoride	307		9.90	100	1	04/14/2018 21:32	WG1098060
Sulfate	17400		77.4	5000	1	04/14/2018 21:32	WG1098060

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	84.0	J	12.6	200	1	04/17/2018 11:04	WG1098051
Calcium	121000	V	46.3	1000	1	04/17/2018 11:04	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	472000		2820	10000	1	04/16/2018 15:03	WG1098576

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1770		51.9	1000	1	04/15/2018 16:39	WG1098064
Fluoride	206		9.90	100	1	04/15/2018 16:39	WG1098064
Sulfate	46700		77.4	5000	1	04/15/2018 16:39	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	144	J	12.6	200	1	04/17/2018 11:37	WG1098051
Calcium	136000		46.3	1000	1	04/17/2018 11:37	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	468000		2820	10000	1	04/16/2018 15:03	WG1098576

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	3240		51.9	1000	1	04/15/2018 16:52	WG1098064
Fluoride	163		9.90	100	1	04/15/2018 16:52	WG1098064
Sulfate	80600		77.4	5000	1	04/15/2018 16:52	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	122	J	12.6	200	1	04/17/2018 11:40	WG1098051
Calcium	128000		46.3	1000	1	04/17/2018 11:40	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	582000		2820	10000	1	04/15/2018 10:04	WG1098342

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	3030		51.9	1000	1	04/15/2018 17:41	WG1098064
Fluoride	177		9.90	100	1	04/15/2018 17:41	WG1098064
Sulfate	44500		77.4	5000	1	04/15/2018 17:41	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	171	J	12.6	200	1	04/17/2018 11:43	WG1098051
Calcium	183000		46.3	1000	1	04/17/2018 11:43	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	340000		2820	10000	1	04/15/2018 10:04	WG1098342

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2940		51.9	1000	1	04/15/2018 18:19	WG1098064
Fluoride	56.2	J	9.90	100	1	04/15/2018 18:19	WG1098064
Sulfate	10100		77.4	5000	1	04/15/2018 18:19	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	89.9	J	12.6	200	1	04/17/2018 11:47	WG1098051
Calcium	92000		46.3	1000	1	04/17/2018 11:47	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	368000		2820	10000	1	04/15/2018 10:04	WG1098342

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1340		51.9	1000	1	04/15/2018 18:31	WG1098064
Fluoride	209		9.90	100	1	04/15/2018 18:31	WG1098064
Sulfate	5810		77.4	5000	1	04/15/2018 18:31	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	66.6	J	12.6	200	1	04/17/2018 11:50	WG1098051
Calcium	111000		46.3	1000	1	04/17/2018 11:50	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	511000		2820	10000	1	04/16/2018 14:03	WG1098577

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	4900		51.9	1000	1	04/15/2018 18:43	WG1098064
Fluoride	166		9.90	100	1	04/15/2018 18:43	WG1098064
Sulfate	113000		387	25000	5	04/16/2018 18:42	WG1098835

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	111	J	12.6	200	1	04/17/2018 11:53	WG1098051
Calcium	135000		46.3	1000	1	04/17/2018 11:53	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	290000		2820	10000	1	04/16/2018 14:03	WG1098577

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1570		51.9	1000	1	04/15/2018 18:56	WG1098064
Fluoride	124		9.90	100	1	04/15/2018 18:56	WG1098064
Sulfate	7280		77.4	5000	1	04/15/2018 18:56	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	95.2	J	12.6	200	1	04/17/2018 11:56	WG1098051
Calcium	82500		46.3	1000	1	04/17/2018 11:56	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	257000		2820	10000	1	04/16/2018 14:03	WG1098577

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	1360		51.9	1000	1	04/15/2018 19:08	WG1098064
Fluoride	157		9.90	100	1	04/15/2018 19:08	WG1098064
Sulfate	15200		77.4	5000	1	04/15/2018 19:08	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	94.9	J	12.6	200	1	04/17/2018 12:00	WG1098051
Calcium	71800		46.3	1000	1	04/17/2018 12:00	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	315000		2820	10000	1	04/16/2018 14:03	WG1098577

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	2150		51.9	1000	1	04/15/2018 19:21	WG1098064
Fluoride	230		9.90	100	1	04/15/2018 19:21	WG1098064
Sulfate	31100		77.4	5000	1	04/15/2018 19:21	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	95.0	J	12.6	200	1	04/17/2018 12:03	WG1098051
Calcium	85900		46.3	1000	1	04/17/2018 12:03	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	U		2820	10000	1	04/17/2018 17:33	WG1098882

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	U		51.9	1000	1	04/15/2018 19:33	WG1098064
Fluoride	U		9.90	100	1	04/15/2018 19:33	WG1098064
Sulfate	U		77.4	5000	1	04/15/2018 19:33	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	45.4	J	12.6	200	1	04/17/2018 12:13	WG1098051
Calcium	U		46.3	1000	1	04/17/2018 12:13	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	464000		2820	10000	1	04/16/2018 14:03	WG1098577

1 Cp

2 Tc

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Chloride	3250		51.9	1000	1	04/15/2018 19:45	WG1098064
Fluoride	163		9.90	100	1	04/15/2018 19:45	WG1098064
Sulfate	80700		77.4	5000	1	04/15/2018 19:45	WG1098064

3 Ss

4 Cn

5 Sr

Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Boron	110	J	12.6	200	1	04/17/2018 12:16	WG1098051
Calcium	128000		46.3	1000	1	04/17/2018 12:16	WG1098051

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3302170-1 04/15/18 10:04

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L985623-02 Original Sample (OS) • Duplicate (DUP)

(OS) L985623-02 04/15/18 10:04 • (DUP) R3302170-4 04/15/18 10:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	1060000	1070000	1	1.31		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302170-2 04/15/18 10:04 • (LCSD) R3302170-3 04/15/18 10:04

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8530000	8530000	96.9	96.9	85.0-115			0.000	5

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3302591-1 04/16/18 15:03

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

L985623-09 Original Sample (OS) • Duplicate (DUP)

(OS) L985623-09 04/16/18 15:03 • (DUP) R3302591-4 04/16/18 15:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	812000	830000	1	2.19		5

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302591-2 04/16/18 15:03 • (LCSD) R3302591-3 04/16/18 15:03

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8620000	8600000	98.0	97.7	85.0-115			0.232	5



Method Blank (MB)

(MB) R3302586-1 04/16/18 14:03

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L985645-07 Original Sample (OS) • Duplicate (DUP)

(OS) L985645-07 04/16/18 14:03 • (DUP) R3302586-4 04/16/18 14:03

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	511000	505000	1	1.18		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302586-2 04/16/18 14:03 • (LCSD) R3302586-3 04/16/18 14:03

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8530000	8620000	96.9	98.0	85.0-115			1.05	5



Method Blank (MB)

(MB) R3302951-1 04/17/18 17:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Dissolved Solids	U		2820	10000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

L985683-15 Original Sample (OS) • Duplicate (DUP)

(OS) L985683-15 04/17/18 17:33 • (DUP) R3302951-4 04/17/18 17:33

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Dissolved Solids	4110000	4090000	1	0.488		5

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302951-2 04/17/18 17:33 • (LCSD) R3302951-3 04/17/18 17:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Dissolved Solids	8800000	8580000	8550000	97.5	97.2	85.0-115			0.350	5

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3301929-1 04/14/18 07:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		51.9	1000
Fluoride	U		9.90	100
Sulfate	U		77.4	5000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L985623-06 Original Sample (OS) • Duplicate (DUP)

(OS) L985623-06 04/14/18 18:01 • (DUP) R3301929-7 04/14/18 18:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	13400	13500	1	0.591		15
Fluoride	501	502	1	0.179		15
Sulfate	18000	18000	1	0.414		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3301929-2 04/14/18 07:37 • (LCSD) R3301929-3 04/14/18 07:49

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40000	39800	39700	99.5	99.4	80.0-120			0.150	15
Fluoride	8000	8080	8080	101	101	80.0-120			0.0891	15
Sulfate	40000	39900	39800	99.7	99.5	80.0-120			0.200	15

L985577-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985577-03 04/14/18 15:32 • (MS) R3301929-5 04/14/18 16:22 • (MSD) R3301929-6 04/14/18 16:34

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	50000	ND	49700	51000	99.2	102	1	80.0-120			2.69	15
Fluoride	5000	ND	5180	5260	104	105	1	80.0-120			1.53	15
Sulfate	50000	ND	50200	50400	100	101	1	80.0-120			0.532	15

L985623-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L985623-06 04/14/18 18:01 • (MS) R3301929-8 04/14/18 18:51

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Chloride	50000	13400	63500	100	1	80.0-120	
Fluoride	5000	501	5530	101	1	80.0-120	



L985623-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L985623-06 04/14/18 18:01 • (MS) R3301929-8 04/14/18 18:51

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Sulfate	50000	18000	66800	97.6	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) R3302169-1 04/15/18 11:25

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	U		51.9	1000
Fluoride	U		9.90	100
Sulfate	U		77.4	5000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L985403-01 Original Sample (OS) • Duplicate (DUP)

(OS) L985403-01 04/15/18 14:47 • (DUP) R3302169-4 04/15/18 15:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	28300	28400	1	0.417		15
Fluoride	993	1000	1	0.702		15
Sulfate	29100	29100	1	0.0450		15

L985645-03 Original Sample (OS) • Duplicate (DUP)

(OS) L985645-03 04/15/18 16:52 • (DUP) R3302169-6 04/15/18 17:04

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Chloride	3240	3220	1	0.567		15
Fluoride	163	163	1	0.307		15
Sulfate	80600	80600	1	0.00347		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302169-2 04/15/18 11:38 • (LCSD) R3302169-3 04/15/18 11:50

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Chloride	40000	38900	38900	97.3	97.1	80.0-120			0.164	15
Fluoride	8000	7830	7820	97.8	97.8	80.0-120			0.0805	15
Sulfate	40000	39800	39900	99.5	99.8	80.0-120			0.317	15



L985403-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L985403-01 04/15/18 14:47 • (MS) R3302169-5 04/15/18 15:12

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50000	28300	83000	109	1	80.0-120	
Fluoride	5000	993	6200	104	1	80.0-120	
Sulfate	50000	29100	78300	98.3	1	80.0-120	

L985645-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985645-03 04/15/18 16:52 • (MS) R3302169-7 04/15/18 17:16 • (MSD) R3302169-8 04/15/18 17:29

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	3240	59800	53700	113	101	1	80.0-120			10.9	15
Fluoride	5000	163	5460	5360	106	104	1	80.0-120			1.79	15
Sulfate	50000	80600	126000	125000	90.4	89.6	1	80.0-120	<u>E</u>	<u>E</u>	0.325	15

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3302303-1 04/16/18 15:30

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Sulfate	U		77.4	5000

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L984110-01 Original Sample (OS) • Duplicate (DUP)

(OS) L984110-01 04/16/18 17:15 • (DUP) R3302303-4 04/16/18 17:28

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	U	0.000	1	0.000		15

L986001-02 Original Sample (OS) • Duplicate (DUP)

(OS) L986001-02 04/16/18 19:57 • (DUP) R3302303-6 04/16/18 20:09

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Sulfate	28100	28100	1	0.0324		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302303-2 04/16/18 15:43 • (LCSD) R3302303-3 04/16/18 15:55

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Sulfate	40000	40000	40000	100	100	80.0-120			0.160	15

L984110-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L984110-01 04/16/18 17:15 • (MS) R3302303-5 04/16/18 17:40

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Sulfate	50000	U	49200	98.4	1	80.0-120	

L986001-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986001-02 04/16/18 19:57 • (MS) R3302303-7 04/16/18 20:22 • (MSD) R3302303-8 04/16/18 20:59

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	28100	78000	77700	99.7	99.2	1	80.0-120			0.364	15



Method Blank (MB)

(MB) R3302459-1 04/17/18 10:55

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Boron	U		12.6	200
Calcium	U		46.3	1000

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302459-2 04/17/18 10:58 • (LCSD) R3302459-3 04/17/18 11:01

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Boron	1000	988	1010	98.8	101	80.0-120			1.78	20
Calcium	10000	10100	10200	101	102	80.0-120			1.02	20

L985645-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985645-01 04/17/18 11:04 • (MS) R3302459-5 04/17/18 11:11 • (MSD) R3302459-6 04/17/18 11:14

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Boron	1000	84.0	1070	1080	99.0	99.2	1	75.0-125			0.196	20
Calcium	10000	121000	130000	128000	84.5	69.0	1	75.0-125		V	1.21	20

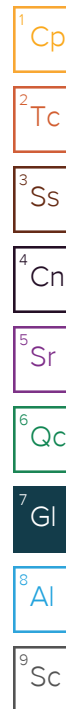


Guide to Reading and Understanding Your Laboratory Report

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.

Abbreviations and Definitions

MDL	Method Detection Limit.
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, 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.
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.
V	The sample concentration is too high to evaluate accurate spike recoveries.



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 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

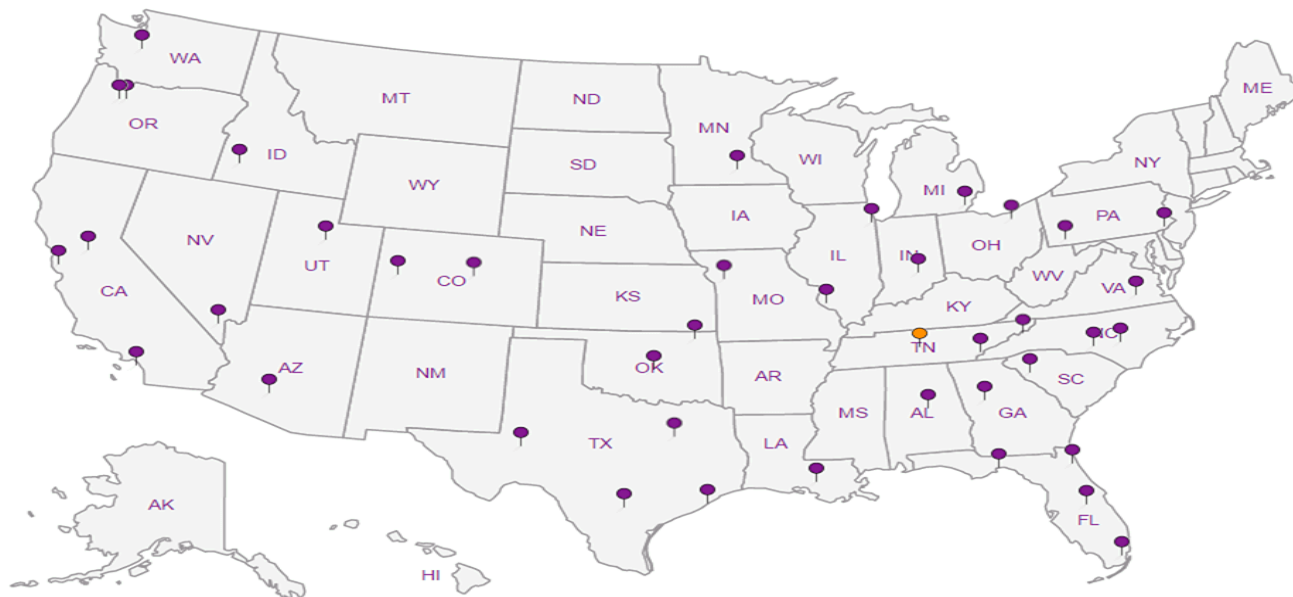
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



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

Chain of Custody Page 2 of 2



32065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, dld@ftn-
assoc.com, hlf@ftn-assoc.com

Project
Description: **Plum Point Energy Station**

City/State
Collected: *Osceola AR*

Phone: **870-815-1248**
Fax:

Client Project #
14590-1766-001

Lab Project #
NAESOAR-PLUMPOINT

Collected by (print):
Mark W. Beasley

Site/Facility ID #

P.O. #

Collected by (signature):
Mark W. Beasley

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day
Next Day 5 Day (Rad Only)
Two Day 10 Day (Rad Only)
Three Day
Immediately
Packed on Ice N Y

Date Results Needed

No.
of
Cnts

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	Cl, F, SO4, TDS 250mlHDPE-NoPres	Total B, Ca 250mlHDPE-HNO3
MW-101	<i>Grab</i>	GW		<i>4/12/18</i>	<i>850</i>	2	X	X
MW-102		GW		<i>4/11/18</i>	<i>1240</i>	2	X	X
MW-103		GW		<i>4/11/18</i>	<i>1545</i>	2	X	X
MW-108		GW		<i>4/10/18</i>	<i>1455</i>	2	X	X
MW-113		GW		<i>4/10/18</i>	<i>1410</i>	2	X	X
MW-115		GW		<i>4/10/18</i>	<i>1310</i>	2	X	X
MW-116		GW		<i>4/11/18</i>	<i>1440</i>	2	X	X
MW-117		GW		<i>4/11/18</i>	<i>1150</i>	2	X	X
MW-118		GW		<i>4/11/18</i>	<i>1345</i>	2	X	X
MW-119		GW		<i>4/11/18</i>	<i>1635</i>	2	X	X

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

Remarks:

Samples returned via:
UPS FedEx Courier

Tracking # *4361 6930 0175*

pH _____ Temp _____
Flow _____ Other _____

Sample Receipt Checklist

COC Seal Present/Intact: N Y
COC Signed/Accurate: N Y
Bottles arrive intact: N Y
Correct bottles used: N Y
Sufficient volume sent: N Y
if applicable
VQA Zero Headspace: N Y
Preservation Correct/Checked: N Y

Relinquished by: (Signature) *Mark W. Beasley* Date: *4/12/18* Time: *1230*

Received by: (Signature) Trip Blank Received: Yes No
HCL / MeOH
TBR

Relinquished by: (Signature) Date: Time:

Received by: (Signature) Temp: *25.2* °C Bottles Received: *24*

Relinquished by: (Signature) Date: Time:

Received for lab by: (Signature) Date: *4/13/18* Time: *845*

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

Plum Point Services Co., LLC
 2739 SCR 623
 Osceola, AR 72370

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

Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, dld@ftn-assoc.com, hlf@ftn-assoc.com

Project Description: **Plum Point Energy Station**

City/State Collected: *Osceola AR*

Phone: **870-815-1248**
 Fax:

Client Project #
14590-1766-001

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 #

Immediately Packed on Ice N ___ Y ___

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
-----------	-----------	----------	-------	------	------	--------------

MW-201	<i>Grab</i>	GW		<i>4/12/18</i>	<i>915</i>	2
MW-202	<i>✓</i>	GW		<i>4/11/18</i>	<i>1245</i>	2
		GW				2
		GW				2
		GW				2

Analysis / Container / Preservative	
Cl, F, SO4, TDS 250mlHDPE-NoPres	
Total B, Ca 250mlHDPE-HNO3	

Chain of Custody Page *2 of 2*



12065 Lebanon Rd
 Mount Juliet, TN 37122
 Phone: 615-758-5858
 Phone: 800-767-5859
 Fax: 615-758-5859



L# *985645*

Table #

Acctnum: **NAESOAR**

Template: **T134757**

Prelogin: **P647803**

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

PB: *B 4-4-18*

Shipped Via: **FedEX Standard**

* 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 # *4361 6930 0175*

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 ___

Relinquished by: (Signature)
[Signature]

Relinquished by: (Signature)
[Signature]

Relinquished by: (Signature)

Date: *4/12/18*
 Time: *1230*

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: *25* °C
 Bottles Received: *22*

Date: *4/13/18*
 Time: *845*

If preservation required by Login: Date/Time

Hold:

Condition:
 NCF / *OK*

April 26, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L988208
Samples Received: 04/13/2018
Project Number: 14590-1766-001
Description: Plum Point Energy Station

Report To: Chris Lussier
2739 SCR 623
Osceola, AR 72370

Entire Report Reviewed By:



Mark W. Beasley
Technical Service Representative

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 ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	¹Cp
Tc: Table of Contents	2	²Tc
Ss: Sample Summary	3	³Ss
Cn: Case Narrative	4	⁴Cn
Sr: Sample Results	5	⁵Sr
MW-102 L988208-01	5	
MW-116 L988208-02	6	
Qc: Quality Control Summary	7	⁶Qc
Metals (ICP) by Method 6010B	7	
Gl: Glossary of Terms	8	⁷Gl
Al: Accreditations & Locations	9	⁸Al
Sc: Sample Chain of Custody	10	⁹Sc

SAMPLE SUMMARY



MW-102 L988208-01 GW

Collected by: Michael Clayton
 Collected date/time: 04/11/18 12:40
 Received date/time: 04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1102638	1	04/25/18 08:35	04/26/18 04:06	TRB

¹ Cp

² Tc

³ Ss

MW-116 L988208-02 GW

Collected by: Michael Clayton
 Collected date/time: 04/11/18 14:40
 Received date/time: 04/13/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICP) by Method 6010B	WG1102638	1	04/25/18 08:35	04/26/18 04:09	TRB

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	136000		46.3	1000	1	04/26/2018 04:06	WG1102638

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICP) by Method 6010B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	137000		46.3	1000	1	04/26/2018 04:09	WG1102638

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3304763-1 04/26/18 03:09

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		46.3	1000

¹Cp

²Tc

³Ss

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304763-2 04/26/18 03:12 • (LCSD) R3304763-3 04/26/18 03:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Calcium	10000	9750	9770	97.5	97.7	80.0-120			0.192	20

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



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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.

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

Qualifier Description

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



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Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

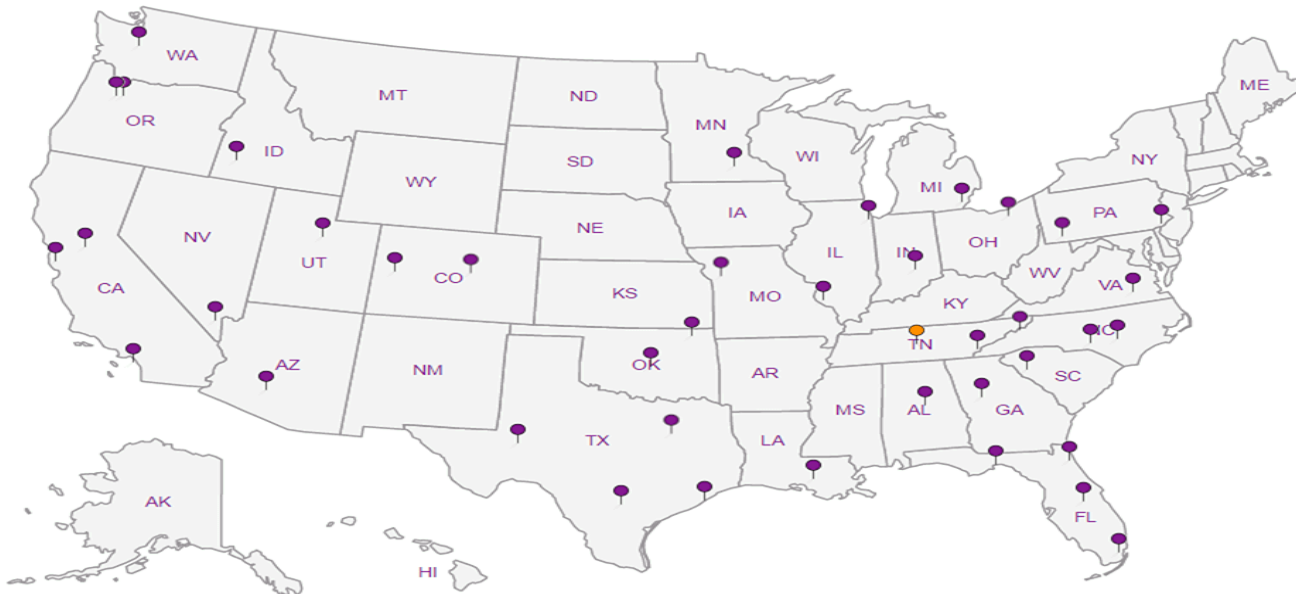
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Plum Point Services Co., LLC

2739 SCR 623
Osceola, AR 72370

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

Report to:
Chris Lussier

Email To: Christopher.Lussier@nrg.com, dld@frn-assoc.com, hl@frn-assoc.com

Project Description: **Plum Point Energy Station**

City/State Collected: *Osceola AR*
Lab Project #: **NAESOAR-PLUMPOINT**

Phone: 870-815-1248
Fax:

Client Project #: **14590-1766-001**

Collected by (print): *Michael Clayton*

Site/Facility ID #:

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

Immediately
Packed on Ice N Y

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Conts
MW-101	<i>Grab</i>	GW		<i>4/10/18</i>	<i>850</i>	2
MW-102	<i>1</i>	GW		<i>4/11/18</i>	<i>1240</i>	2
MW-103		GW		<i>4/11/18</i>	<i>1545</i>	2
MW-108		GW		<i>4/10/18</i>	<i>1455</i>	2
MW-113		GW		<i>4/10/18</i>	<i>140</i>	2
MW-115		GW		<i>4/10/18</i>	<i>1310</i>	2
MW-116		GW		<i>4/11/18</i>	<i>1440</i>	2
MW-117		GW		<i>4/11/18</i>	<i>1150</i>	2
MW-118		GW		<i>4/11/18</i>	<i>1345</i>	2
MW-119	<i>✓</i>	GW		<i>4/11/18</i>	<i>1635</i>	2

Cl, F, SO4, TDS 250mlHDPE-NoPres

Total B, Ca 250mlHDPE-HNO3

Analysis / Container / Preservative

Chain of Custody Page 2 of 2



12005 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-9858
Fax: 615-758-5858

LR *485645* *N*
 Tab **G127**
L988208
 4/24/18
 Actnum: NAESOAR
 Template T134757
 Prelogin: P647803
 TSR: 134 - Mark W. Beasley
 PB: *TB 4-2-18*
 Shipped Via: **FedEX Standard**

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

Remarks:

Samples returned via:
 UPS FedEx Courier

Tracking # **4361 6930 0175**

pH _____ Temp _____
 Flow _____ Other _____

Sample Receipt Checklist
 OOC Seal Present/Intact: Y N
 OOC signed/Accurate: Y N
 Bottles airtight/Intact: Y N
 Correct bottles used: Y N
 Sufficient volume sent: Y N
 VOA Zero Readpath: Y N
 Preservation Correct/Checked: Y N

Relinquished by: (Signature) *[Signature]*
 Date: *4/12/18* Time: *1230*

Received by: (Signature) _____

Trip Blank Received: Yes No
 HCl/Meth TBK

Relinquished by: (Signature) _____
 Date: _____ Time: _____

Received by: (Signature) _____

Temp: *21.52* °C Bottles Returned: *24*

Relinquished by: (Signature) _____
 Date: _____ Time: _____

Received for lab by: (Signature) *[Signature]*

Date: *4/13/18* Time: *845*

If preservation required by Login: Date/Time

Hold: _____ Condition: NCF OK

Andy Vann

From: Mark Beasley
Sent: Tuesday, April 24, 2018 1:23 PM
To: Login; Sample Storage
Subject: L985645 *NAESOAR* relog

Relog L985645-02 & -07 for CAICP. Log as EX due 4/27.

✉ **Mark Beasley**
National Account Manager

ESC Lab Sciences-a subsidiary of Pace Analytical
12065 Lebanon Road | Mt. Juliet, TN 37122
615.773.9672 | Cell 615.330.1602
mbeasley@esclabsciences.com | www.esclabsciences.com

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July 13, 2018

Plum Point Services Co., LLC

Sample Delivery Group: L1008375
Samples Received: 07/11/2018
Project Number: 14590-1766-001
Description: Plum Point Energy Station

Report To: Chris Lussier
2739 SCR 623
Osceola, AR 72370










Entire Report Reviewed By:



Olivia Studebaker
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 National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



Cp: Cover Page	1	
Tc: Table of Contents	2	
Ss: Sample Summary	3	
Cn: Case Narrative	4	
Sr: Sample Results	5	
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MW-116 L1008375-02	6	
MW-201 L1008375-03	7	
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Qc: Quality Control Summary	9	
Metals (ICPMS) by Method 6020	9	
Gl: Glossary of Terms	10	
Al: Accreditations & Locations	11	
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SAMPLE SUMMARY



MW-102 L1008375-01 GW

Collected by
Michael Clayton
Collected date/time
07/09/18 14:05
Received date/time
07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG1136769	1	07/12/18 13:58	07/12/18 22:56	LD

¹ Cp

² Tc

³ Ss

MW-116 L1008375-02 GW

Collected by
Michael Clayton
Collected date/time
07/09/18 15:45
Received date/time
07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG1136769	1	07/12/18 13:58	07/12/18 23:26	LD

⁴ Cn

⁵ Sr

MW-201 L1008375-03 GW

Collected by
Michael Clayton
Collected date/time
07/09/18 15:50
Received date/time
07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG1136769	1	07/12/18 13:58	07/12/18 23:31	LD

⁶ Qc

⁷ Gl

MW-202 L1008375-04 GW

Collected by
Michael Clayton
Collected date/time
07/09/18 14:10
Received date/time
07/11/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 6020	WG1136769	1	07/12/18 13:58	07/12/18 22:28	LD

⁸ Al

⁹ Sc



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 radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.

Olivia Studebaker
Project Manager

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



Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	124000		46.0	1000	1	07/12/2018 22:56	WG1136769

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	125000		46.0	1000	1	07/12/2018 23:26	WG1136769

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	127000		46.0	1000	1	07/12/2018 23:31	WG1136769

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 6020

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Calcium	124000	V	46.0	1000	1	07/12/2018 22:28	WG1136769

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3325221-1 07/12/18 22:14

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Calcium	U		46.0	1000

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3325221-2 07/12/18 22:19 • (LCSD) R3325221-3 07/12/18 22:24

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Calcium	5000	4880	5120	97.5	102	80.0-120			4.98	20

⁷Gl

⁸Al

L1008375-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1008375-04 07/12/18 22:28 • (MS) R3325221-5 07/12/18 22:37 • (MSD) R3325221-6 07/12/18 22:42

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	5000	124000	127000	127000	63.1	50.9	1	75.0-125	<u>V</u>	<u>V</u>	0.483	20

⁹Sc



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.

Abbreviations and Definitions

MDL	Method Detection Limit.
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.
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.

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

Qualifier Description

V	The sample concentration is too high to evaluate accurate spike recoveries.
---	---



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	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 ^{1,6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

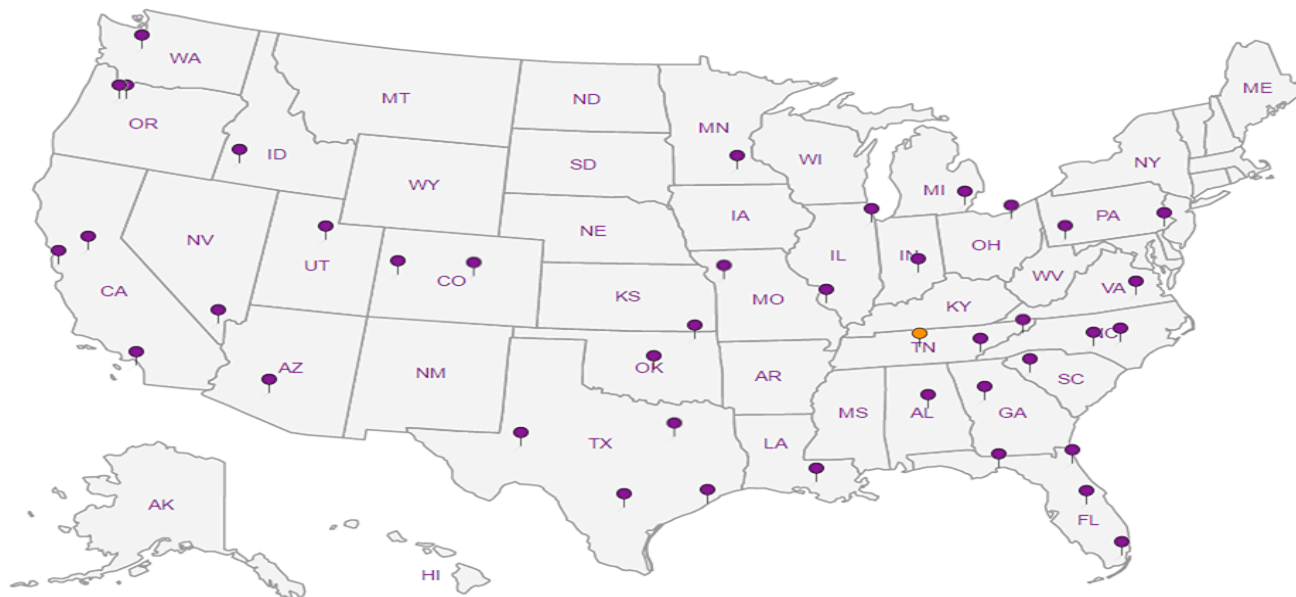
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

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

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1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 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 **L2**

Chain of Custody Page **2 of 4**



LAB SCIENCE

Report to:
Chris Lussier

Email To: **Christopher.Lussier@nrg.com, dld@ftn-assoc.com, hlf@ftn-assoc.com**

12065 Lebanon Rd
 Mount Juliet, TN 37122
 Phone: 615-758-5858
 Phone: 800-767-5859
 Fax: 615-758-5859



Project
 Description: **Plum Point Energy Station**

City/State
 Collected: **Osceola AR**

Phone: **870-815-1248**
 Fax:

Client Project #
14590-1766-001

Lab Project #
NAESOAR-PLUMPOINT

Collected by (print):
Michael Clayton

Site/Facility ID #

P.O. #

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-102	Grab	GW		7/9/18	1405	1 X
MW-116	↓	GW		7/9/18	1545	1 X
MW-201	↓	GW		7/9/18	1550	1 X
MW-202	↓	GW		7/9/18	1410	1 X
		GW				1 X

Total Ca 250mLHDPE-HNO3

L# **1008375**
B063

Acctnum: **NAESOAR**
 Template: **T130326**
 Prelogin: **P661865**
 TSR: **134 - Mark W. Beasley**
 PB: **7/2/18 mms**
 Shipped Via: **FedEX Ground**

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

Remarks:

Samples returned via:
 UPS FedEx Courier

Tracking # **44920219 1876**

pH _____ Temp _____
 Flow _____ Other _____

Sample Receipt Checklist

COC Seal Present/Intact: **NP** **N**
 COC Signed/Accurate: **N**
 Bottles arrive intact: **N**
 Correct bottles used: **N**
 Sufficient volume sent: **N**

If Applicable
 VOA Zero Headspace: **Y** **N**
 Preservation Correct/Checked: **N**

Relinquished by: (Signature)
Michael Clayton

Date: **7/10/18**
 Time: **1500**

Received by: (Signature)

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

Relinquished by: (Signature)

Date: _____
 Time: _____

Received by: (Signature)

Temp: **33.3** °C
 Bottles Received: **4**

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date: _____
 Time: _____

Received for lab by: (Signature)
Susan M

Date: **7/11/18**
 Time: **8:45**

Hold: _____
 Condition: **NCF / OK**